

THE SHOE REPAIRER'S
MANUAL

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The Shoe Repairer's Manual is the first attempt ever made in this country to bring out a Manual that will serve as a textbook for Shoe Repairers.

It is the result of several years of research, and it is only through the cooperation of the Shoe Machinery, Sole Leather, Polish, and Findings Groups of the industry that the publication of this book is made possible. It is hoped the recipients of this book will show their appreciation in patronizing the advertisers who make up these groups.

Duty done is the greatest gift this world can bring. Even death and whatever there may be beyond it can bring no greater reward than that which comes to him who has done his duty for his fellow man.

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Published by
THE GILL PUBLICATIONS, INC.
146 Summer St., Boston, Mass.

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Printed in U. S. A.

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PREFACE

The First Real Text-Book on Shoe Repairing

For some time a need has been felt among members of the shoe repair industry for a manual which would include a comprehensive description and treatment of the various technical problems connected with shoe repairing. Many improvements in methods of workmanship and in machinery have accumulated from time to time, but in general, reports of these have been scattered in various trade publications and are soon lost to sight. It is the intention of the author of this manual to collect the most useful information of this nature, and also to present the results of his own experience which have hitherto not been published. In particular, the description of the Cement Method of shoe repairing is here given for the first time in such a complete form to the American trade. It has been the aim and purpose of the writer throughout to present the material in an

orderly manner, and the descriptions are made simply and directly in order that the repairer may be able to make full use of it. Moreover, the manual is so arranged that the repairer will be able to refer directly to any problem with the help of a detailed table of contents.

In regard to the description of the mechanical work, the author wishes to express acknowledgement of his use of *Practical Boot Repairing by Machinery* by D. Laurence Lord. He is also indebted to the technical directions supplied to its employees by the Zinke Company of California. The author would be pleased to receive any suggestions or criticism from the users of this manual, since he feels that this is a comparatively new venture, and that a second edition may contain any improvements the industry itself recommends. R. S. Boston, June 1, 1936.



PART I

SHOE REPAIR OPERATIONS

INTRODUCTION

The shoe repairer must be not only a craftsman, but a salesman, and a salesman of a high order. He does not sell goods, but services. His most frequent customers are women, and these expect to find in a repair shop the courtesy and decent appearance they are accustomed to in the stores where they buy their shoes. For this reason, an inviting show-window, an attractive, clean store, a courteous and neat looking repairer will gain the confidence of the customer in the repair work to be done.

It is natural for a customer to think that the work done in a sloppy shop will also be sloppy, and no matter how good the craftsmanship, his business will suffer from the unpleasant impression the customer will get from an ill-kept shop. It has been felt necessary

to repeat this advice here although nearly every issue of trade publications contains a similar warning. A clean shop means an efficient and prosperous shop.

The general public is not informed in the matter of the various kinds and materials of repair work, and it is imperative for the repairer to have on view a complete display of the kind of work he does, and examples of work repaired by various methods. He should also have samples of materials of different values in order that the customer may choose the style of work and material which will prove most pleasing to him. The customer will appreciate accepting the responsibility of the work when he himself has had the means of choosing exactly the kind of repairing he will receive.

THE CEMENT METHOD OF RESOLING

INTRODUCTION

Shoes resoled by the Cement Method have the finished look of new shoe bottoms, if the work is done properly. The shoe thus gains a prolonged life and will stand resoling more times. This serves the interest of the Shoe Repairer, since he has opportunities to do more resoling. So-called unrepairable shoes can be repaired easily by this method and customers will show their appreciation to the man who turns out better than ordinary repair work. Women especially will be more willing to have their shoes resoled when they have no

fear that their shoes will have a clumsy look. Men's half-soles attached by this method will not break at the shank, as they often do when nailed.

The Cement Method can be adapted to all kinds of resoling jobs.

The concerns which sell cement and cementing-presses have made public the technique of this method. The following chapters repeat some of their instructions and add further details for those craftsmen who wish to increase their knowledge in order to turn out better than ordinary work. It may be

that the tool industry will also be able to find certain ideas in the following pages to guide them in supplying the trade with tools designed for cement repairing.

A great many years were required to bring the Cement Method to the degree of perfection it has today. Dr. F. Rampichini, the Italian Specialist in leather tanning, took out the first patent on this method in 1909.

Preparing the Sole Roughing

Only soles with short and tight fibred leather can be used for cementing. A loose, long fibre will pull away under the strain of wearing, and the sole will not stick to the shoe. In doubtful cases, it is advisable to use the splitting machine for removing the flesh surplus before roughing the flesh side. The shank of the flesh side should be skived in the usual manner. The roughing should be done with a stiff wire brush by hand or better, by machine, about one inch in width around the edge. Repairers doing cement work on men's shoes, particularly on a large scale should use roughing tools designed for the shoe repair industry. It is advisable to remove all particles of fibre and dust with a stiff bristled brush, leaving a leather surface as smooth as velvet. Sandpaper alone will not roughen the surface properly. It will not open and raise the fibres, but it will close the pores and fill them with grit, and the cement will not be able to penetrate the leather.

Women often desire a very thin sole for appearance's sake, and yet they expect the wearing quality of the thicker sole. There is only one way to meet this problem without using the very best grade of leather. The sole must be skived around the edge before the roughing is done, leaving untouched the wearing space in the middle. Thus, a sole of standard thickness will have the look of a light-weight de luxe sole,

especially if a light edge-cutter and edge-iron is used.

When this is done care should be taken in order that too much filler does not appear in the bottom, which would result in an uncomfortable job.

Repairers who want to do cement work on all their sole repairing may find it difficult to prepare soles for service or heavy-duty shoes. Since these shoes have to be waterproof to a certain degree, the Cement Method is exactly the proper way of resoling them. By the ordinary repair method perforations are caused in stitching and nailing, but when the sole is cemented there are no such perforations and the cemented area is itself waterproof.

Soles fitted for this heavy work are often hard rolled and very firm in their fibre structure. In this case it is necessary to use a steel-rougher attached to the shaft of the finishing machine. The grooves cut into the sole by the steel rougher should run lengthwise—the grooves along the edges, at the toe, and at the shank, all being parallel.

Cementing the Sole

In choosing a brand of cement, remember that only the best is good enough. Cheaper materials are used in making cement which sells at a lower price than the standard product, but the quality is inferior. Because the repairer is rarely able to analyze the composition of the cement, he should not risk the quality of his work by the use of a cheap one. The success of the Cement Method depends entirely on the adhesive strength of the cement and only the best has this property.

The repairer should use the best grade of cement that can be obtained. It is absolutely necessary that the quality of the cement be considered more important than the price.

Cement is always sold with the proper consistence, and at this consistence, it pours freely at about the rate honey

flows. During the time a container of cement is in use, evaporation takes place and the cement thickens. In case this happens, the thinner should be added until the cement reaches the proper consistency. It is absolutely necessary that the cement be stirred constantly while the thinner is being added. After the mixture has been thoroughly stirred, allow it to stand a few minutes before using. When too much thinner is added, the cement loses its binding power. On the other hand, cement which is too thick does not penetrate the surface, a longer pressing time will be required, and the cement will squeeze out around the edges.

Various cement containers are on the market which can be kept air-tight and which, therefore, prevent evaporation and thickening. The brush is suspended in these jars in such a way that it is kept soft and pliable. The brush must have stiff bristles trimmed down to $\frac{1}{2}$ inch in length. To keep the brush clean and to keep it from getting hard, it is advisable to dip it only slightly in the cement.

The cement must be applied to the roughed part of the leather by rubbing with a circular motion. When the cement is properly applied and has sufficiently penetrated the fibres and pores of the leather, the rough surface, when dry, will be dark brown in color. A light brown color shows either that the roughing has not been done correctly, or that the leather fibre of the sole is too long, and in either case, the sole in wearing will pull loose. If the surface has the color of cream, or has blisters, the cement has been too thickly applied. From three to eight minutes drying time will be required according to atmospheric conditions and the grade of leather. It is practically advantageous to keep on hand a large number of soles prepared in advance. Much time may thus be saved in hav-

ing soles ready for each job as it comes up.

Prepared soles are those which are roughened with a coating of cement around the edges that has been allowed to dry. The second coat of cement or the application of a thinner will renew the life of this first coat, thus simplifying the operation even if the resoling is done much later. Therefore you can prepare as many ahead as you like.

After skiving, roughing and cementing, allow to dry thoroughly. Heavy soles can thus be tempered, rolled and formed before placing in the press. It is only necessary to wipe the water from the cement track. Leather of less stiffness may be tempered by using a wet sponge on the grain side. This operation is advisable when leather is used which may crack on the finished surface. In most cases, all the work of damping and tempering which is so necessary in repairing which is done by stitching and nailing, is not at all required in the Cement Method. This is due mostly to the fact that leading manufacturers of cement presses have so designed their equipment that the forming is automatically done when the pressure is applied. This is an advantage which saves much labor and time.

Perfect adhesion results from properly executed cement work. It should not be forgotten that the same principle is used in other industries, in the vulcanization of rubber, the welding of metals, and in the construction of buildings with cement. In the cementing of leather a perfect connection is formed between two prepared surfaces, with the result that the millions of fibres grow together and grip each other under the pressure of the cement press.

Preparing McKay Shoes

First remove the old sole and skive the shoe, removing the filler unless it is of good quality, then relast the upper

wherever loose, roughen well the lap and lasting surface. If filler is to be used lay in place a soft flexible one and apply cement to the roughened portions only.

Preparing Cement Shoes

In ripping off a factory-cemented shoe, it may be difficult to separate the sole from the upper without injuring the upper. In this case, a small amount of thinner applied by brush or by a squirt-can will open the joint easily. The toe of the shoe should be held downward to keep the thinner from running back down the shank, which would become loosened. Shoes roughed in the factory do not need additional roughing except where the sole is worn through and the old roughing surface is destroyed. Quite often the lasting surface is damaged, and this has to be repaired by reinforcing this place by patching. The patch can be easily applied to the upper by cement, or more easily, by stitching with the ordinary patching machine. In pulling this substitute piece into place and attaching it by cement to the lasting surface, the patching is invisible.

It is necessary that the leather particles be cleaned from the cement track before applying new cement. Portions of the original cement are sometimes hard to remove. This can be left on as the new coat of cement will work into the old one and join them as if it were one coat.

In relasting cemented shoes which are out of shape, the insole and the inside of the upper should be roughed and cemented before the lasting tacks are nailed in. When the cement is dry the tacks can be taken out and the removed filler should be replaced with a new one by means of rubber cement. In this way, the shoe is securely reinforced without changing its character of a nailless shoe.

Preparing Turn Shoes

Take your knife and hold in slanting position, trimming off the old sole back to the innerseam stitches. Buff level the old sole and the portion of the upper where the old sole extended. Roughen this part of the upper as well as the old sole and cement the new sole to this part also. The finished shoe will have the appearance of a new turn shoe. This will remove the strain from the stitches, thereby eliminating pulled out innerseams.

Fit one or two pieces of filler where shoe is badly worn. If the shoe is worn in two places it is better to fit two pieces of filler than to place one filler over the entire center which will oftentimes cause discomfort to the wearer.

In relasting turn shoes which are badly worn, use the same methods that are used for other type shoes, but be sure that the parts to be cemented are roughened prior to the lasting operation.

With the turn shoe, it is important to have a level bottom. Therefore, fit the proper last to the shoe and scour with firm pressure over the extent of the new sole area. When the shoe is leveled sufficiently, cut the entire lip flush with the stitches. Roughen the area between the stitches and the sole line with a rotary wire brush, being careful not to roughen beyond the sole line. Next roughen the bottom with the grooving tool and apply the first coat of cement.

Preparing Shicca and Delmac Shoes

An entirely different problem arises in repairing these shoes, because the outersole and innersole are originally the same piece of leather, so skived that the outsole has a raised portion in the center which fits the hollowed part of the insole. No filler is used in the manufacturing of this shoe. There are two ways of resoling this kind of shoe.

If the shoe is not badly worn, it may be resoled by the same method used with the turn shoe, that is, buffing down the old sole and attaching a new sole by cement to the old one, as described in detail in the preceding chapter.

If a new outsole were attached to the old one without a filler, the shoe will squeak. If a filler is applied to the surface of the old outsole, the new sole will curl into a round shape when it is put in the press. Therefore, after buffing, the central part of the shoe must be hollowed out so that a slight cavity extends the length of the sole. This can be done by using the concave scouring wheel which is used for women's heels. Then, the filler should be put into the cavity of the hollowed-out place, applying a coat of rubber cement to fasten it.

In many cases, the shoe may be resoled as if it were a McKay shoe. When the outsole has been removed, a hole remains in the innersole which is then filled with a filler of properly shaped leather or cork, attached to the sock lining with rubber cement.

Preparing Welt Shoes

After ripping off the outsole, the shank should be skived to a feather edge. Then the surface of the filler must be made smooth. It is not always advisable to remove the old filler. It adds much more to the comfort of the resoled shoe to retain the cushion which the wearer's foot has formed in the insole. Then also, the weight of the foot pressing upon the innersole has formed a lump in the filler at that place where the weight of the foot does not rest—that is, between the toes and the ball of the foot. Preserving this lump and the general shape of the innersole, the comfort of the shoe remains pretty much as it was before resoling. Therefore, it is only necessary to skive the lumps even, on the outside, with a knife. In this way, the

shoe will have the same comfort for the wearer as it had before it was resoled.

The filler is attached to the shoe bottom by rubber cement in the factory. The heat of the foot and that caused by friction in walking, soften the filler, and being softened, it spreads out of its proper position and over the innerseam surface. Therefore, the old filler and the glue which fastens it must be removed from the surface of the innerseam and from the welt by means of the scouring roll. Only when this area is entirely clean will it supply a surface which is capable of absorbing the cement with which the new sole is to be attached. It must be clearly understood that the inseam and the channelled surface chiefly hold the new sole, and the attachment of the sole to the welt merely increases the holding power of the rest. The welt has to be reinforced in the usual way, although in this case it does not have to bear the strain caused by stitching.

One further operation is necessary. The skived shank of the shoe must be pulled up from one-half to one inch behind where it is cut. The underpart of the shank at this point must be roughed, as also must the part of the welt underneath. A special rasp for this purpose is developed. This rasp is the same size as an ordinary shoemaker's rasp but instead of being rounded, it has the shape of a table knife. Because of its shape, this rasp will enter the corner which is formed where the shank is raised back from the welt. Since this rasp is coarse on both sides, it roughens both the welt and the outside of the shank with the same stroke.

Some repairers prefer the welt to slightly curl, especially on women's shoes not using the rubber strip, contending that the welt was curled through wear and in order not to change the appearance of the shoe, they wish it to fit as it did before resoling.

For some repairers this method is

satisfactory and fast enough. The channel and innerseam surface hold the sole to the shoe. Therefore, it is necessary that a last of proper size and correct design should always be used. It is further contended by advocates of this method that the welt is always visible, allowing the operator to correct any oversights at once, without having to replace them in the press later.

Preparing Welt Shoes with a Double Sole

When most customers have heavy shoes repaired, they wish the heavy character of the shoe to be preserved, that is, they do not want the slip sole removed. If a stitching machine is available, after the outsole has been removed, remove old stitches, restitch the slip sole to the welt. Before stitching, however, the slip sole must be roughened; if the stitching is done first, the roughing will weaken the stitches. But welt shoes with slip soles can be resoled without the help of a stitching machine by the Cement Method. In this case, the slip sole must be taken off without removing the stitches from the welt. A row of perforations caused by the stitching will thus be left in the slip sole. It is understood that the welt must be roughened. Then both sides of the slip sole must be roughened. Before the new outsole is applied, it is advisable to cement the slip sole to the welt, and to leave it under pressure in the cement press for a short time. This gives the old holes of the middlesole, which were caused by stitching, the opportunity of absorbing the cement, and creates a stronger binding.

In certain cases customers wish to change a light shoe to a heavy one, requiring a new sole on top of the old. This can be done easily by roughening and cementing without any welt holding device, for the thickness of the old sole offers sufficient resistance to make ample

contact. If the old sole is worn past the thread lock, it is best to loosen the old sole, then proceed with roughing and cementing as in the case of an ordinary slip sole.

In cases where the attachment of the slipsole to the welt does not need reinforcement, there is a simpler way to secure this attachment. Take the old outsole off, cutting the stitches on the outside surface of the outsole. Then cut the outsole off at the shank. The ends of the stitches will now stick out from the slip sole. In roughing the slip sole, take care that these stitches are not harmed. Then push these threads towards the inside of the sole. When the slip sole is cemented, these threads will be soaked with cement and will strengthen the attachment of the slip sole to the welt, and on the other hand, to the outsole. To prevent squeaking, a thin layer of fabric should be cemented between the slip sole and the outsole.

Pressing the Shoe

After the shoe has been thoroughly prepared for cementing, apply the first coat of cement to all the roughened parts of the shoe. Then allow this coat to dry properly. When an iron last is used, place the last in the shoe, and then apply a second light coat of cement. Immediately apply the prepared outsole to the shoe, and fasten it, with one or two lasting tacks, to the shank of the shoe, all the while holding the sole in its exact place when it is brought under the pressure of the cementing machine. Speed is necessary in this operation in order to keep the cement from evaporating. Therefore, one shoe at a time should be cemented and put into the press. It is not necessary to moisten the prepared sole with a second coat of cement, since the second coat on the shoe secures the adhesion of the two surfaces. If the second coat on the shoe is applied lightly

the cement under pressure will not squeeze out around the edge of the sole. In case cement should be pressed out, take every care to remove it immediately. If the edge of the sole is covered with clogged up cement, it will prevent the thinner in the cement from evaporating through the only passage there is left, and the drying of the cement will thus be retarded.

However, a light second coat of cement or thinner on the prepared sole will aid some operators in doing their work, until they are more experienced, since this method does not require as much speed.

The time required for pressing depends on the room temperature, on the kind of sole leather being used, and on the quality of the cement. Under normal conditions, twenty to thirty minutes are required for drying light soles, and thirty to forty minutes for heavy ones.

Electrically heated presses also shorten the drying time. In pressing, take particular care to keep the pressure evenly distributed over the surface of the sole from toe to shank. The way in which rounded bottoms can be prevented has already been mentioned. A caved-in bottom can be prevented by the proper use of the filler. Most curved soles come from the use of poor cements which warp the sole.

Care must be taken to see that the lasting tack in the shank is put in in such a way that it will not interfere with the pressure. The purpose of this tack is to keep the sole in place while it is being put into the press. After the shoe is removed from the press, this tack must be taken out by a tack-puller (*not* by a screw-driver). Use lasting tacks to attach sole. Close holes by dampening and sanding smooth.

In order to keep the shoe pliable, it is advisable to form the sole before the pressing operation. In this case, an excessive pressure is not necessary, for

this will stiffen the sole. It is only necessary to cement the sole around the edge, for if the whole surface is cemented, the sole loses flexibility.

Cheaper leathers can be cemented but must be properly fleshed—grooved and the *proper cement used*.

When the pressing has been completed, the shoe bottom may be trimmed and finished. But if there is time for drying, place the shoe in such a way that the air has full access to the sole, removing any surplus cement from the edges.

To prevent the lasting tack from scratching the press—cushion or pad—it is advisable to place over it a cover of thin leather or a piece of rubber cut from an old automobile tire-tube. This cover also keeps the cushion from being soiled by cement. Cement which has crusted on the pad should be quickly removed with the help of a thinner. Crusted cement on the cushion will make small indentations in the surface of the sole, detracting from the smoothness of the finish. Keep a careful watch on the condition of the press-cushion, because a cushion whose surface has become pressed in, often gives the sole a round bottom.

In working with wood lasts, an extension piece is necessary to hold the last in place. The pad on this last often becomes soiled from constant use. To prevent this pad from soiling colored and light shoes, place a piece of upper leather or flannel between the shoe and the pad. Wooden lasts are usually highly polished in order to allow them to slip easily into the shoe. Moreover, any cement which has gotten inside the shoe will not stick to this highly polished surface. Therefore, it is well to give these wooden lasts an occasional coat of varnish or wax or talcum powder.

If the Cement Method is to be used on wet shoes, they have to be thoroughly

dried out first. An electric dryer may be used for this. Even a slight dampness in the shoe, such as cannot be felt by touching with the hand, will weaken the efficiency of the Cement Method. The same thing applies to shoes which have been kept in a cool place. Therefore the repairer should make sure, that all shoes which are to be resoled by the Cement Method should be as dry as it is possible to make them.

Welts which contain a fatty substance must have this fat extracted by carefully brushing the welt with a thinner. The same treatment is necessary for those shoes which are full of perspiration from the foot of the wearer. A certain cement especially adapted to chrome leather has been developed. A dry chrome leather, which is pliable and of light weight, is well fitted for cement resoling. This leather has to be rubbed with a thinner in order to remove the fat from it. It must then be allowed to dry for several hours. Then the usual procedure of the Cement Method may be followed with the exception that the special cement has to be used.

Care must be taken not to use too much thinner on ordinary leather soles. Thinner extracts the tannic substance from the leather and make it porous. Leather treated in this way will stick

excellently to the shoe but it will absorb a great deal of water in wet weather. Shoes which have been worn frequently in the rain are porous in the same way. It is for this reason that new soles cemented to old outsoles stick very well. The loss of the tannic substance is shown by white stains which appear on a sole which has been dried after being wet.

The following paragraph is for less experienced operators who might feel that they need a preventative to keep from soiling the uppers of delicate fabrics.

Special attention is necessary in cementing ladies' shoes which are light in color, and those made of suede leather or fabric. It is not always possible to prevent soiling from cement which spreads from the sole-edge onto the upper. To prevent this, attach a strip of masking tape from shank to shank around the part of the upper which is next to the edge.

A thin upper leather should be roughed very cautiously, since it is very easy to break this leather. Such a break will have to be mended by patching. Shoes which have been cemented in the factory have already been roughed, and very little or no additional roughing is necessary in preparing these shoes for resoling.

Applying Toe Pieces and Toe Caps By Cement Method

Next to toplifts and half soles, toe piece repair jobs have an important place in the average shoe rebuilders' day's work.

Since the majority of women are again buying better shoes, such as: hand turns, Shicca Process and finer shoes of all kinds and which are very satisfactorily

repaired at the toe piece portion by cementing on new toe pieces, there are on the market Toe Piece Presses that will enable the shoe repairer to do a fine job of applying toe pieces.

Many times shoe repairers are called upon to repair inseam rips around the toe piece portion and are required, if a

satisfactory job is to be done, to include a toe piece to hold the job together. If, sewn by hand, a toe piece is first fastened across the back with nails and then hand stitched either by chain stitch or through and through to fasten the upper down to the sole.

On a cheap shoe, made with a paper or composition insole and from which the upper has broken away requiring a reinforcement piece on the insole to fasten the upper down to and a toe piece to cover up the operation, the use of a toe piece press makes quick work of this disagreeable and time-taking job.

The shoe is prepared in the conventional manner for a cement toe piece job, that is, the shoe, when torn and loose around the toe, first must have the sole trimmed away and the upper cleaned and roughened to the point where the original sole came. This mark is usually visible on the upper after the sole has been cut away, if not, the experienced repairer can judge how much of the upper it is necessary to prepare for a firm joint.

To prevent the celluloid cement from running down and soiling the uppers on kid, patent leather or any hard surfaced uppers, apply rubber cement above the roughened portion of the sole. The celluloid cement then will stick only where the upper has been roughened. On suede, cloth or any other types of uppers, use scotch tape, which can be bought from a jobber for this purpose and which is easily removed when the job is done. Celluloid cement is then applied to the shoe and toe piece. It is advisable when repairing in seam rips, to apply a second coat of cement after the first has dried thoroughly to insure perfect adhesion. Now, after the shoe and toe piece have been prepared ready for cementing, place the shoe on the last of the toe press and with the hand under the last and having the vamp of the shoe in the palm of the hand, grasp the toe portion where the in seam rip is, with the fingers.

Holding the shoe in this manner allows the bottom of the sole to be seen, which can then be put in any shape by the pressure exerted upon the upper with the fingers. When the shoe is in the proper shape, continue to hold it so and with the other hand apply a light fresh coat of cement to the shoe.

While still holding the shoe, quickly place the replacement toe piece on the shoe, and apply the pressure in the usual manner provided for by the particular toe press being used. Only after the operation is completed is it advisable to remove the fingers from their position of holding the shoe in shape. Leave the shoe in the press until thoroughly dry and a nasty in seam rip is repaired.

Replacing Toe Caps

Many times the shoe repairer is called upon to put new toe caps on the upper part of the shoe. If the original has been scuffed or torn, or for any other reason it is to be replaced, the toe piece press is an invaluable aid in doing a good job.

After the toe cap has been fastened to the upper with the sewing machine, it then becomes necessary to last it over the toe boxing and fasten it to the insole. If a turn shoe, the sole is trimmed down thin and rubber cement applied to both sole and toe cap. After drying, the toe cap is lasted over and is held in place by the rubber cement. The portion then to be under the sole is roughened in the regular manner, cement applied to both shoe and new toe piece, which is used to cover the operation. The shoe is then placed in this toe press in the regular manner and when dry, a fine new toe cap has been applied in no time at all.

One thing should always be remembered and that is—that in using the toe piece press method of fastening toe pieces or any other job it is capable of doing, no nails of any kind are required to keep the leather replacement pieces from slipping while in the press, as it is so de-

signed to eliminate any movement of the shoe or toe piece while being put under pressure or after.

To do a good job of toe pieces, the ready cut toe pieces available from any jobber are advised for the best job. As these pieces are usually cut from pieces salvaged by leather cutters when cutting ladies' soles, good selections are available, the thickness is uniform, they are especially prepared for cementing and are large enough for all toe piece jobs. The mistaken idea that any old piece of scrap is good enough for toe pieces is out of date these days.

These ready cut toe pieces should be put through the sole skiver, putting on a bevel across the straight back end on

the flesh side of about $3/4$ ", leaving the thin edge about $1/6$ " thick. This thin edge is made this thickness to enable the toe piece to be finished on the sander without any joint being visible or to make it necessary to grind away the sole of the shoe back of the toe piece joint, in order to make a smooth edge when finishing.

The shoe should also be cut on the same bevel and for the same distance, but not undercut as many repairers do when nailing tips on. This practice is advisable when nailing tips on as it gives more stock in which to hold the nails, but with cement toe pieces, this should not be done as the toe piece job looks better when ground smooth on the sole when finished.

Cementing Soles of Retanned Leathers

Retanned Leathers which have not been treated with any of the usual waterproofing materials take practically the same procedure as those of the usual oak leathers. However, the first application (sizing coat) will not dry quite as rapidly as with the usual oak leathers.

In cementing waterproofed materials of either Oak, Retanned or Chrome tanages, there are numerous items of procedure different than those used with the usual run of sole leather.

First, these materials require a cement that will in no way combine with the waterproofing material, the result of which would be a gummy plastic that would never dry out as a solid film.

Second, the flesh must be removed but not in a manner that is apt to create heat, thereby freeing the waxy material as a liquid.

Third, due to the fact that there is no absorption of either the solution or its solvent by this type of leather, the oper-

ator must in some manner get the film of cement down into the fibre without depending on absorption. This can best be done by roughening the sole with a roughing tool that will cut fine undercut grooves into the leather, leaving those grooves open to receive the cement and which grooves will close when pressure is applied from the press.

Fourth, due to the fact that there is no absorption from these waterproofed materials, as with ordinary leathers, the operator will find that it will take the first coat much longer to dry. This drying time varies with the type of waterproofing material, as well as with the grade of leather being worked. This time will vary from 10 minutes to an hour and a half. However, if this first coat is dried thoroughly, the time under pressure is no different than with any other leather, as the film of cement will absorb much of the free solvent in the attaching coat of the solution.

THE STITCHING METHOD

PREPARING WELT SHOES

After the old sole is ripped and cut off at the shank, the length of the new half sole must be determined. A half sole should be exactly one-half the length of the shoe, measuring from the outside edge of the toe back to the heel through the center of the shoe. In this way the outsole will reach to a point just past the break of the shoe under the metatarsal arch and it will act as a support to the metatarsal bones. Nothing is gained by making the half sole any longer for, in general, the strain upon the half sole is greater the longer it is.

The slant of the joint should be seventy to seventy-five degrees from the inside edge of the shoe to the outside edge, slanting the heel forward. The reason for this slant is that the metatarsal lines are on the same angle. This gives the shoe more flexibility as it conforms to the construction of the human foot. The new sole should be skived in such a way that it will fit properly into the skived part of the shank which is skived for about $\frac{3}{4}$ of an inch. The skived sole edge should retain a thickness of two irons.

Some points in preparing the shoe bottom for resoling and in handling the filler have already been discussed in the chapter entitled *Preparing Welt Shoes* in the section dealing with the Cement Method.

Special attention should be given to reinforce the welt by stitching or stapling wherever it is weak. In replacing welts, a five iron welt should be put on a heavy shoe and a four iron welt on a light one. To avoid damaging the welt in stitching, the old stitches should be removed and the operator should stitch the new ones in the old holes. But the stitches should *never* be re-

moved in resoling channel welt shoes, double soled shoes and shoes which have been resoled before.

Inseam rips are often caused by pounding the soles too hard. Heavy pounding is unnecessary and moreover, it will damage the shoe. Inseam stitches may be damaged by using sandpaper. It is better to use a wire brush. Reinforce the inseam whenever it is necessary.

As a rule, use the same weight of sole leather as was originally on the shoe. But occasionally customers desire to have light shoes converted into work shoes. This is like wanting to build a two story house on the foundation meant for a one story house. Therefore, the shoe has to be strongly reinforced. The thread used in the inseam stitches is much lighter in an ordinary shoe than that which is used in a work shoe. Moreover, this thread has already been weakened under the strain of wearing. If a heavy sole is attached to such a shoe, the inseam is likely to rip unless the inseam stitches, especially at the inside ball, are reinforced by a few staples or nails. But care must be taken to see that the nails do not pierce the insole.

The prime requirement in resoling heavy shoes is that the work must be strong and capable of standing heavy strain. On double soles the weak points are usually on the inside shank portion of the shoe and on the toe portion. The toe part may be weak because, owing to the stiffness of such shoes, the wearer scrapes the toe of the shoe. Therefore, after the sole has been attached, from three to five nails should be placed in the toe, according to the size of the shoe. Three nails should also be placed in the inside of the shank

portion, and three in the outside ball of the shoe. It is important to use exactly the right length of nail. The nail must be just long enough to go through the insole and clinch there. The same precaution is advisable for children's shoes which are subject to hard use. The sole on heavy shoes which are exposed to wet weather often works loose. To prevent this, *two* rows of nails should fasten the sole across the shank.

If full soles are attached to heavy shoes or boots, full length soles should be used. These soles should not be spliced under the heel, in order to retain the full strength of the shoe construction.

In general practice, if the sole is spliced under the heel, the good appearance of the full sole is preserved and labor and time is saved. The new sole should extend $\frac{3}{4}$ of an inch beneath the heel base so that the heel

attaching nails, nearest the breast, will fasten the sole to the shoe. The splice must be done in such a way that the heel is on a level plane. The bevel made on the new sole should join perfectly with the bevel on the remaining part of the old heel seat. The shoe must be inspected carefully to see that there is no rise in the line of the heel. It is very important after finishing the job to use a sharp knife in breasting the front of the heel.

When the skiving machine is used in preparing soles, the sole is passed through two rollers between which is the cutting blade. In operating, it is necessary to hold the sole level, and not to try to "help the knife," as it were. In adjusting, the blade is merely raised or lowered according to the skive required. By a simple screw attachment the width and depth of skive is regulated, and it should be so regulated that the knife does not skive the waist to a fine "feather" edge.

PREPARING MCKAY SHOES

After the sock lining has been removed, the sole should be ripped and cut off at the shank. In ripping off the sole, never remove it by pulling it off with pincers since this method will pull the thread from the insole and weaken the shoe. The proper method is to cut the stitches by passing a short knife around the edge.

After straightening the shoe on the last, the bottom should be cleaned and any old tacks or staples should be removed in order to be out of the way of the stitching. If the old filler is worn out, replace it by a new one. Inspect and replace the shank when necessary.

The old sole should be used as a pattern to select the correct size of the new one. The new sole should be skived in such a way that it will fit perfectly into the skived part of the shank. That

is, the two levelled surfaces will form one level surface when they are fitted together. The sole and the bottom of the shoe should be cemented and allowed to dry before they are to be attached. Then tack the shank of the sole to the shoe with $\frac{4}{8}$ clinch nails and pound the sole down in order to make the edges stick firmly.

When the sole is channelled by hand, trim the sole and the shank evenly, following the shape of the innersole, leaving about $\frac{1}{8}$ of an ~~inch of an extension~~ all the way around the shoe.

~~The sole should be dry~~ when the channel is cut. Set channeler so that there is a space about $\frac{1}{16}$ of an inch between the edge of the sole and the outside of the flap of the channel, and so that the inside of the channel is just past the old line of stitches towards

the inside or center of the shoe. Lay the channel back and cut the groove at the bottom of the channel in line with the old stitches.

When the hand channelling machine is used, the shoe is held sole upwards in position on the table, and the edge is between the table and the knife, and it should be guided carefully around from joint to joint. Adjustments are made by thumbscrews, for depth and distance of channel inwards on the sole.

A small combination hand tool is

available for the channelling and grooving operation. Certain types of rounding machines can trim and channel the McKay soles with one operation, with a special device which is made for this purpose. After moistening the channel it should be laid back, thus exposing the groove.

When stitching the shoe, a No. 4 cord thread should be used and $4\frac{1}{2}$ stitches should be taken to the inch. After the channel flap has been cemented, it should be rubbed down evenly.

SOLE ATTACHING MACHINES

The Stapling Machine

If there is any trouble with the proper operation of the stapling machine, it most likely can be traced either to an improper adjustment of the knives or to their being dull. If the edge of the knife is dull, it will not cut the staple wire cleanly. If the points of the staple are bent, they will naturally turn aside and will not pass straight through the material, and they, therefore, will not clinch properly. To prevent this, the knives should be adjusted and sharpened every time a roll of staple wire is used. Because the stapling machine is used so much for strengthening the foundation of shoes, it is extremely necessary that it be kept at a proper adjustment at all times.

The Rounding Machine

The most common error in operating a rounding machine is to cut the sole under the welt at an angle rather than to keep it flush with the edge of the welt. This may be caused in two ways. First, the rounder block or the welt-guide may be worn too thin or it may be improperly adjusted. Or second, the operator may be holding the shoe at a slight angle against the feed point of

the rounder instead of holding it perfectly square.

Moreover, if the operator holds the shoe at an angle, another fault will appear in that the edge will be cut like a stair-step because the knife is cutting in a zig-zag fashion, while the chopping knife in the machine remains stationary at all times.

The McKay Stitcher

Before beginning to sew, the operator ought to examine the material to be sewn very carefully in case there are any difficulties. For instance, find out if the channel base is clear of the last ing tacks otherwise cut stitches will result. Care should also be taken to see that the insole is levelled. It may also be found that the sole has been left a little too full, and if the channel has not been cut to allow for this, the needle may miss the edge of the inner sole. In all these cases, the operator has to hold the shoe at an angle on the horn in order to avoid the obstruction.

After the machine has been standing for a little time before sewing that part of the thread which is in the horn is rendered useless. The length of it should be pulled up through the horn

tip until the fresh thread from the spool is reached. If sewing is done with this thread, instead of its being removed, even if the stitches do not break during the sewing, which they probably will, they will not hold in wearing.

This is sometimes a difficult operation. The hole in the whirl through which the thread has to pass is not in direct line with the hole in the horn cap, but is on the side of the whirl. This means that the end of the thread must be twisted and bent, so that the hole in the side of the whirl may be reached. Sometimes, if the thread is on the slack twisted side, it will be impossible to get it through the whirl. In this case, the horn cap covering the whirl must be temporarily removed. This is easily accomplished by taking out the two small screws which keep the horn-cap in position. The end of the thread may then easily be passed through the hole in the whirl. In replacing the horn-cap, care must be taken to put the screws in their correct position, as one screw is shorter than the other and belongs in the upper position on the cap. Next, it must be seen that the horn is properly closed up before beginning to sew. Before beginning the sewing, the correct position of the horn is on the left-hand side, and in direct line with the front of the machine. The shoe is now placed on the horn with the beginning of the joint in line with the needle, the shoe being held down to the horn by the left hand, bottom upwards, and the toe towards the right hand of the operator. Near the head of the machine is a semi-curved lever. When this is pressed downward with the right hand, the feed (that is, the part which draws the sole along during sewing) will be raised sufficiently to permit the easy slipping of the shoe on the horn. The hand-lever is still kept down until the feed is directed to the exact starting point in the channel. The feed point should be squarely in

the base of the channel and not slightly on the side. Some operators are apt to be a little careless in regard to this detail, which is important. The hand-lever should be lowered slowly until the feed point is placed in the channel. The working parts of the machine must be in their exact position before the shoe is placed on the horn; and in this case, the hand-lever can be moved up and down freely. If it makes a grating noise on being moved, then the machine is not at rest.

When the feed point has been correctly placed into position at the starting point in the channel, the shoe should be held at a slight angle in order to lower the channel a little inward towards the machine. This helps to prevent missing the edge of the innersole, if there are tangles in the line of sewing, if the channel is a little out of line, or if the sole is rounded up too full, the angle at which the shoe is thus held will be decided accordingly. To start sewing, the hand-wheel is next turned around a time or two, the shoe being held well down to the horn tip at the sewing point, the sewing is then proceeded with by means of the treadle. If the shoe is not held down firmly enough by the presser foot, loose sewing will result, or the loops of the thread will tangle. Broken stitches generally result if the loose thread on the innersole is taken up by the needle in a jerky way.

The most difficult part of the sole for the beginner to sew is when the toe is reached. The proper wrist movement is the important thing, and this should be done much the same way as in trimming the toe on the cutters of the finishing machine, except that when sewing the toe, it must be held down very firmly by the presser foot. A little practice will enable the operator to go around the toe quite easily. Sometimes, however, difficulty may be experienced owing to a narrow toe, or

because of a hard slip sole. In such a case, care is necessary to prevent breaking the needles. Restarting sewing at the toe, after having to remove the shoe from the horn, is sometimes difficult. After the far side of the toe has been reached, it is straightforward work down to the next joint. To remove the shoe after sewing, the thread must be cut behind the needle. There will now be sufficient thread above the horn tip to provide for the first stitch for sewing the next sole, without drawing out any further thread.

The main points to remember in operating the sole-sewing machine, in order to get the best results are:

Regular oiling of the machine, and particularly the horn-cap and the intermediate gears in the base of the horn. Close attention also should be paid to lubricating the back of the needle bar where it works in the upper plate.

Curled up and hard innersoles mean broken needles unless the sewing is done cautiously. In the case of curled edges of innersoles, the innersoles should be dampened and tapped down at the bench.

The machine can also be used where a welt is off the inseam for some distance, and the inseam itself is faulty. A strip of welt may be securely sewn down to the innersole.

Whirl and Pinion Adjustment

Probably the most used parts of the sole-sewing machine are the whirl and pinion. They are both small parts, and they wear out and require replacing. The whirl is the small toothed wheel which revolves in the horn cap, and the pinion is the long thin shaft in the back of the horn, the top end of the shaft being "toothed" to fit the whirl. Usually it is the whirl which wears out first, the small teeth in the side becoming smooth and worn off.

To put in a fresh whirl, the horn cap

must be removed. Next the screw holding the tip of the horn itself should be loosened, but not taken out, as they are very small and easily lost. The horn tip can now be moved enough to allow the replacing of the whirl. The next operation is to get the exact position of the whirl for correct action. To do this, the horn should be placed to the left hand, and the horn breast casing drawn back. The whirl should be turned to the right until the needle is fully threaded, with the needle at the lowest position.

Fixing the Needle

Next to the whirl and pinion, the fixing of the needle is most important. This has to be done with the greatest accuracy. If the needle is set the least bit too high or too low, or is not in correct line with the cast-off, then there will be constant trouble with the sewing. One side of the needle is scooped, thus forming a shape known as the barb. The needle is fixed with the barb to the right hand, so that the point of the cast-off may cover the barb as the needle rises. When the needle is at its lowest position, the barb should be just below the surface of the whirl. The cast-off point must cover the barb of the needle as it emerges from the material. Any necessary adjustment of the cast-off point is easily obtained by pushing it farther into, or drawing it from, the cast-off bar in order to obtain the result wanted. As a guide to the correct setting of the needle, when the machine is at rest, the cast-off point and needle point should form what is practically the eye of the needle in the shape of a clear oval opening.

The repairer has to watch for little faults arising in the needles that do not usually trouble the operator on new work. Grit, hard middles and dried out innersoles and curled edges of innersoles, may blunt the point of the

needle badly. A new needle should be set in at once, as a needle with a turned point will chop the channel, and catch and chafe the sewing. The correct size needle to use with any particular size of thread is not always determined by the size number of thread being used. The quality or nature of the leather may also be a deciding factor in such cases. For instance, for the same size thread, a hard sole leather will require a larger needle than a soft tannage. The operator must watch the various results, according to the kind of leather he is sewing, and act upon them.

Pinion Adjustment

The correct position of the pinion is that the upper part (the rim) of the teeth shall just meet the rim edge of the whirl, perfectly level. The pinion is in the back of the horn, running from the center of the back of the horn (the bend) to the whirl. It must be allowed to revolve freely. If set the least bit too high up, it will be checked in its action by the under side of the horn cap. There are two grub screws in the side of the horn, and the position of the pinion is held by these two screws. These must be loosened. At the back of the bend of the horn there is a small plate. If this is removed the bevel gears which operate the pinion are immediately visible. If the pinion is too low, it can be pushed up, or lowered if it is too high, by using the fingers for the purpose at the gear end. This action will make necessary the adjustment of the shaft below the pinion in position in the horn. This is known as the horn shaft. To do this the screw that holds the upper bush of the horn shaft is next released, the left hand being held under the lower gear of the shaft while the screw is removed by the right hand. The shaft is then raised or lowered, according to the adjustment made to the pinion, and

the screw is then tightened up. During this operation, it is necessary to hold the shaft underneath, or it will drop out of position. Part of this procedure is necessary when putting in a new pinion. The cover of the bevel gears is removed from the bend at the back of the horn. The horn shaft is then released in the manner previously mentioned. The horn shaft should now be dropped for an inch or so, and the upper brush-screw tightened up afterwards. This is simply to secure the horn shaft in its lower position, while the pinion screw is loosened. The pinion, bearing the bevel gear, bush and collar, can now be drawn from the horn. A detachable pin connects the bevel gear with the pinion. This pin is easily removed, and the bevel gear, bush and collar slipped off the old pinion. These are now placed on a new pinion, and the pin fixed in position. All the parts are now placed back in the horn, and the final adjusting of pinion and horn shaft is proceeded with as described.

Presser Foot Adjustment

The adjustment of the presser foot requires very careful attention. In adjusting, when the horn is turned to the left hand, the point of the presser foot should be set according to the thickness of the work being done. Raising or lowering the collar on the spring will vary the amount of the pressure on the work. Heavy work will require more pressure than light work. There is a split nut at the top of the pressure rod. The manipulation of this permits the raising or lowering of the presser foot as it is needed. The position of the feed point in relation to the pressure foot is about one-eighth of an inch below the latter when set.

Needle Bar Adjustment

At each stroke of the needle bar, its collar should just come into contact

with the lower plate on the machine head, and this adjustment should be suited to the varying thicknesses of work. This movement allows the needle to descend to the correct position for receiving the thread loop from the whirl.

During part of each stroke of the needle bar, it is held stationary in its highest position while the feed point is "feeding" or moving the work along for the next stitch. The needle bar is kept in this position by what is termed the needle bar gib. This receives pressure from what is termed the friction gib spring. The adjustment, or regulation, must be so as to keep the needle bar from descending until the leather washer and split nut, which are at the lower end of the fulcrum-post, are drawn up to the under side of the lower plate.

Lubrication

As stated in the chapter on operating this machine, regular attention must be given to oiling the horn-cap, the intermediate gears in the base of the horn, and the back of the needle bar, where it works in the upper plate. The horn-cap should be oiled while the thumb is held across the hole in the horn tip underneath, and the machine should be given a few turns. This will prevent the oil from dropping through before it can be distributed. The base of the horn will need to be cleaned out at times, by the use of paraffin oil. The intermediate gears should be taken out while this is done. Then, the gears should be replaced and well oiled, and the machine run for a few moments. Other oiling places are very numerous, and must be oiled frequently. Generally speaking, oiling, with care as to quantity used, should be done wherever there is friction, and, of course, wherever there is an oil hole. Treadling parts, and even the waxer and winder, should not be overlooked.

The Outsole Stitching Machine

When starting to sew, the balance wheel must be in such a position that the presser-foot will be freed. The shuttle is now placed on the stitching table, the presser-foot raised, the needle thread is then held lightly, and the foot placed on the treadle. The work now begins to feed forward. In cases, as at the toe where the welt has been forced down to the toe of the shoe, and will not "beat up" properly, it will be necessary to slow down the speed when stitching at this point, in order to avoid "running off" the welt. This only requires less footpressure on the treadle. After sewing, the presser-foot is operated by means of the hand lever to enable removing the shoe from the table, and the thread is then cut. The top of the machine table is flat in order to help the operator to hold the shoe on a level plane.

Oil the shuttle inside and out, and make sure it is hot enough to pull the shuttle thread freely, before starting to stitch.

In changing the needle and awl, they must always be pushed back to the stop before the clamp screws are drawn up.

The awl should be filed so that it will punch in line with the needle point.

The shuttle cap must be kept locked to avoid breakage or other trouble.

Wax pots should never be allowed to have contents go below two-thirds of their holding capacity. The wax should be cleaned from the shuttle point and thread rolls every day. Keeping the machine clean, and oiling it well and frequently, makes it work easier and better. Breaking of the thread may be caused in any of the following ways: 1. The thread lock being set too low. 2. The thread rolls on the take-up lever may be stuck and not turning. 3. A roughness on the looper or the looper-

hook may have slipped from their right position. 4. The bobbin thread may have been kept too long in the shuttle, and is therefore "parched", or the thread may not have been wound carefully enough. The spools should be wound fresh each day in order to get the best

results from the thread. 5. The stitcher not being hot enough will cause thread breakage also.

It should be remembered that the best stitching is obtained by using one size smaller thread in the shuttle than on the machine.

ADJUSTMENTS

Threading Up the Bobbin Winder

It will be noticed that there are two square screws which fasten the clamps holding the wax-pot cover in position. These screws must be slackened and the cover removed. The thread is then passed through the slot in the cover. The thumbscrew is then slackened to relieve the tension on the rubber stripper. The amount of wax distributed on the shuttle thread is regulated by the rubber stripper. Next, the threading wire is passed through the rubber stripper. This is followed by the thread, which has been previously passed through the forked end of the waxer rod. The dry end of the thread now has to be passed around the tension wheel, but once only, and the waxed end is passed over the small roll at the top of the cop winder stem. It is then carried down to the roll; then up and over the roll. Finally, the thread is carried down to the bobbin.

Threading up the stitching machine seems at first a complicated job. The pot at the back of the stitcher having been seen to for its contents, the cover is removed by releasing the clamping plates. This enables the thread to be carried from the reel and passed through the wire thread guide. The thread is next passed into the end of the tube by the use of the hooked threading wire. After screwing in, this tube is flush with the cover tube. The thread now goes around the thread roll, up the tube, and through the rub-

ber and the tension screw. The thread is now passed over the roll at the end of the bracket, and then pushed by means of the threading wire through the tube in the column of the machine. It is now passed around the tension wheel once, carried from there to the thread feed roll, and then on to the thread lock roll. It now passes up to the take-up spring roll, then down to the take-up lever roll, forward up to the hole in the auxiliary bracket, through the looper, and through the stitching table to complete the operation.

Threading and placing the bobbin case into position also requires a little explanation. The loose end of the thread on the bobbin is taken between the fingers and passed through a small pear-shaped hole in the bobbin case. The thread is now drawn in the bobbin case spring, then through the hole in the bottom of the bobbin case. By turning the hand screw to the left, the guide arm for the bobbin case is opened, and the bobbin case is placed in position in the shuttle to insure the extended nose being held in position by the guide arm. The guide arm should then be securely fastened by the hand screw.

Alteration of stitch is made in the following way: The stop-pins are first taken out of the pin block. The hand lever is at the right hand side. This is pushed away from the operator if the stitch is to be shortened, and to length-

On the stitch, the hand lever is brought forward towards the operator. Setting the needle and awl is done by slackening the screw in the adjusting bracket. The adjusting screw is then turned until a perfect alignment of awl and needle is secured, and the screw is again tightened up.

The Adjustment of Thread Lifter, Looper and Needles

The thread lifter must be set in order in such a way to insure its just dividing the loop of the thread as it is brought up to the needle, and to carry the thread clearly on to the point of the shuttle. It is very necessary in set-

ting the looper that it shall clear the thread hook. If the needle is set true the looper will function correctly by placing the thread just in the hook.

By means of two screws in the bobbin case, the shuttle thread tension is adjusted, since these two screws control the position of the spring. The needle thread tension is adjusted by pressure on the tension wheel spring. The location of this spring is under the take-up lever. Control of the tension may also be obtained by the screw in the frame which regulates the tension on the dry thread before it progresses through the wax pot, but usually the previously mentioned control is used.

HEEL REPAIRING

Attaching Rubber Heels

After removing the old rubber heel the base must be levelled off. The old nail holes must be filled with wooden pegs. If no rubber heel of the same size as the heel base is available, it is always better to use a smaller size heel rather than a larger size.

In order to cement the heel properly, both the heel base and the rubber heel must be roughened. To apply cement to a smooth surface is a waste of time.

Full rubber heels must be cemented to the sole in the same way that half rubber heels are cemented to the heel base. For full rubber heels the proper length of nail is usually the 8/8 rubber heel nail. The length of the required nail is determined by the thickness of the outer and the inner sole. The nail must be long enough to penetrate both these soles and to clinch them. In cases where there is a light insole, the 7/8 nail must be used. When the rubber heel is applied to the shoe, it should be set slightly forward so that when the heel is nailed and clinched it will work naturally into a position even with the sole edge. If the heel is set

even before nailing and clinching, it will work out over the sole and will have to be trimmed.

The most resilient, long-wearing rubber heels are made from crude rubber blended with various other compounds. Practically all rubber heels have a percentage of reclaimed rubber in their makeup. The cheaper heels are almost all reclaimed rubber. The shoe rebuilder can tell a long wearing heel by the grinding test. A long-wearing heel will resist the sandpaper when an attempt is made to grind it. If it is difficult to cut the rubber down with sandpaper, this means that the rubber will stand up well under hard wear.

Repairing Men's Leather Heels

In repairing a man's leather heel not more than one wedge should be used. If when the toplift is removed, one wedge will not bring the worn part of the heel up to the level of the rest of the heel, one underlift should be removed. The worn portion of the next underlift should be ground down to a long, gradual level, at least one inch wide, in order to put the wedge in.

For the wedge to fit properly, the heel must be sanded to the same degree of slant as the wedge, and while the heel is still warm from being sanded, the cement should be applied to the newly ground place. Cementing keeps the wedge and heel from cracking open. It is advisable to have wedges on hand, cemented in advance, in order to save drying time. Wood-heel attaching nails with large heads should be used in fastening the wedge.

Smaller underlifts should be nailed with five wood-heel attaching nails, and larger underlifts with seven nails, at about 1/4 inch from where the edge of the heel will be when it is finished. Then attach the toplift with three 6/8-15 square heel nails about 3/16 inch from the finished edge. These nails must never be set directly in the center of the lift, in order to prevent the heel from cupping. Great care must be taken to place the toplift nails at a uniform distance from the edge and uniformly distant from each other.

In building whole leather heels, a heel base of the correct size should be cemented and nailed securely to the shoe with wood-heel attaching nails. To give the heel the correct height, either one or two underlifts should be attached with the number of nails required by the heel size. To prevent the heel from squeaking later, cement should be applied between the lifts. It is not always necessary to allow the cement to dry, but this is advisable.

After the heel base and underlift have been fitted together, and before the top lift has been attached, it is necessary to trim the heel to a uniform shape. It is very important that both be of the same size and that they be both on a level with the sole of the shoe.

Leather Toplifts on Women's Shoes

The use of leather toplifts on women's shoes is largely for the sake of protection and appearance. For this

reason toplift repairing must be done neatly as well as durably. Care must be taken to remove little scuffs from the cover, to attach loose breastings, and to straighten the heels. Quite often the heel-covers work out from beneath the lift. To correct these faults, after removing the lift, first cement all scuffs and loose breastings. If the heel is worn down into the wood, pull the cover down and grind the wood level as much as necessary. Making both heels the same height, be sure that you have ground off enough wood to permit a lapping over of at least 1/8 inch of the cover over the top, all the way around the heel. Before the toplift is attached, the cover must be firmly cemented and any wrinkles pulled out.

A celluloid underlift should be inserted under the leather lift. This greatly improves the appearance of the work. The use of this celluloid lift prevents the fraying of the flesh side of the leather lift, preserving the finished character of the job.

To prevent the back-shield of the cutter from cutting into the lift, the shield must be adjusted so that the cutter just removes the little feather that comes from the trimming of the lift.

In sanding the lift, merely clean the grain, and allow the small edge caused by the setter to remain. It is this edge that give the appearance of a new-shoe lift. In using a rag, not a brush, a high lustre will be produced on the lift.

Attaching New Wood Heels

When the new heel is attached to the shoe bottom, it will often rest upon its center and its edges will not touch the sole at all points. It may be necessary to alter the foundation of the shoe in order to make the heel fit the whole surface evenly. Therefore, the repairer must see that the shoe bottom is properly prepared to receive the heel. Smooth down and cut off the surplus of

the upper leather which is lasted on the heel part of the shoe, but leave about 3/16 of an inch to overhang the heel. Then roughen the shoe, and cement the shoe and heel with rubber cement. After the cement is dry, apply a light coat of cement to the shoe and stick the heel to it. This prevents the heel from slipping out of position when it is being attached.

If the breasting on Ladies' wood heels has to be replaced, it is advisable to use a regular leather breasting. This should be roughened on the under side and then cemented to the heel. Cuban heels which are covered all the way around often have the breasting worn off. It is, therefore advisable to attach a new breasting to any of these heels.

Celluloid covered heels do not have to have the celluloid removed if a new breasting is to be attached. Merely rough the celluloid with a knife blade or sandpaper and apply the new breasting with rubber cement. Roughened

celluloid will give as good a sticking surface as plain wood.

Because of the many different styles and coverings of wood heels which are easily obtained in finding houses, it is often advisable for the repairer to replace rather than to repair wood heels. Women often demand new heels when the covers of better grade shoes are soiled and the surface is worn. The facilities which are offered today make it possible to accept this trade.

The difficulty of attaching new heels often caused the repairer to prefer to repair them. In attaching new heels, the repairer would usually rest the heel on an iron last, driving the attaching nails with a special hammer, while he held the shoe in position with the other hand. Under this method, the heel would often slip and would not be fastened in its proper position; or often, the nails would turn aside and pierce the outer part of the heel. But there are simple machines for attaching new heels which insure exact workmanship.

BOTTOM FILLER

The comfort of the shoe requires the complete filling of the cavity with material which will not add stiffness to the shoe, which will not creep or crawl, and yet is sufficiently resilient to give the repaired shoe the wearing comfort of an old shoe. An incompletely filled cavity allows the innersole to settle and the unevenness thus caused is oftentimes the determining discomfort in the shoe. It is also important to use a bottom filler which is moisture resistant, thus protecting the foot against external dampness.

A further advantageous feature is to use materials which are insulating both to heat and cold. Care also must be used to select filler materials which are non-squeaking. Such materials must have sufficient resiliency to allow the foot to mould itself to a comfort-

able position in the shoe. As the innersole gives way to accommodate the outlines of the foot, the filler should respond to this extent only. When it goes beyond this the wearer becomes conscious of the discomfort of accumulating bunches and unevenness.

The bottom cavity must be completely filled, else the innersoles will gradually sink into the unfilled portion, and unless the filler is firmly packed into the channel neither the welt seam nor the inner sole are properly supported at this most important place. In fact, it is recognized that this is one of the most important functions of bottom filling.

A properly filled shoe bottom adds much to the style and appearance of the repaired shoe.

UPPER REPAIRING

The Cement Method

Many defects in the shoe upper come through weakening of the upper under the strain of use. If such uppers are repaired by stitching, the leather is further weakened. But if the repairing is done by cement, the leather will be actually strengthened and the repairing will be invisible. Repairing the upper by cement takes more time than stitching, but since the upper does not have the appearance of being patched, the customer will be willing to pay for the extra labor involved. Many people do not like to discard shoes which are very comfortable. The comfort of such shoes may be preserved for a long time by a cemented patch.

Soften and clean the broken upper on the under side by means of a thinner, which removes all the fat and grit. In case the shoe lining is torn, cut all the ends and shreds away with a pair of scissors. Make a patch of kid or light calf leather and skive around the edge. Rough the patch and the inner side of the upper with a fine sandpaper. Apply a coat of thinned cement both to the patch and to the upper, and let it dry. Then, in applying the patch, moisten the parts with the same thinned cement. The patch is to be applied by pressing with the hand. Holding the patch against the inside of the upper with the left hand, let the right hand straighten and smooth the broken part on the outside. See that the entire edge of the patch is pressed firmly against the upper. A shoe stretcher may be used to strengthen the pressure against the patch.

When the upper is broken where it joins the bottom, it is necessary to pull this part of the sole away from the upper. Clean the broken part of the upper with a thinner and roughen it. Then, apply the prepared patch to the proper place, pressing it against the up-

per with the hand, and let it dry. After the patch has been cemented, prepare the loosened part of the sole for cementing. Then put a last into the shoe, and press the shoe in the cementing machine.

When breaks of this sort are to be repaired on welt shoes, first cut the in-seam stitches through, along the part where the upper is broken. Then following the procedure described above, cement the patch to the upper, and the upper to the welt, and then cement the sole and welt together. In this case, a longer pressing time is necessary, and the cement has to be in its original consistency.

Repairing by Patching Machine

Shoes may be made worthless if upper repairs are made carelessly. No one wants to wear a shoe which is obviously patched. Therefore, much care must be taken that any patching which is done should be invisible. When a shoe is to be patched by the patching machine, the patch has to be cut to the exactly proper shape. It is not sufficient merely to stitch the patch to the upper, but it must be skived and cemented before it is applied.

When repairing a back-stay, take off the whole stay and cut a new one out of a matching material. If the part of the upper beneath the old stay is broken, sew it together by hand. Because there is a stiff counter on the inside of the upper, the new back-stay cannot be stitched on, but it must be cemented. The top edge of the strap and upper can however, be blind-stitched. Therefore, roughen the upper and the new strap, prepare them for being attached by the Cement Method, and press the strap against the upper by hand. Then, fasten the stay to the upper with fine tacks which will hold both parts together. These tacks take the place of a cementing machine. When the cement is dry, these tacks have to be removed.

THE USE AND MAINTENANCE OF PATCHING MACHINES

The patching machine should be put in a place where it will not vibrate. It should also be placed, so that the light will come from the left side of the worker, in order that no shadows will get in his way. Since heat causes the oil in the machine to thicken and to become crusty, the machine should be placed out of the heat of the sun and away from radiators or stoves. Dried out oil and dust are the chief enemies of all machines used for fine work. Therefore, the machine should be kept under a cover when it is not being used. The inside part of the machine should be cleaned with a special light oil. Oil which has become clogged in the machine can be dissolved with kerosene. The outside of the machine should be cleaned regularly and a careful check should be kept on the condition of the belt and of the screws.

Most difficulties which arise in stitching by a machine can be avoided if the best materials are used. Always use the *best* needles and thread. Always keep the proper tension between the upper and the bobbin thread.

Removing the causes of trouble in the Patching Machine.

1. In case the upper thread breaks, see:
 - a. If the thread is drawn too tight.
 - b. If the needle is too fine for the thread.
 - c. If the needle was set in the wrong way.
 - d. If the thread is improperly drawn through the needle.
2. If the bobbin thread breaks, see if it is too tightly drawn. The bobbin thread is at the right tension if it can be drawn out gently.

3. If the machine skips stitches, see:
 - a. If the needle is properly fixed in its holder, protruding neither too much nor too little.
 - b. If the thread is neither too heavy nor too fine for the needle.
 - c. If the thread has too hard a gloss. To remedy this, oil the thread.
 - d. If the needle is dull or bent.
4. If the machine fails to push the leather forward as the stitches advance, see:
 - a. If the teeth on the stitch foot are dull or filled with grit.
 - b. If the pressure of the foot on the material is not strong enough. The pressure can be regulated by screwing the nut on the back of the machine head either tighter or looser as may be necessary.
 - c. If the machine is not oiled sufficiently.
 - d. If the material is very heavy and the sewing is done too quickly.
5. If the needle breaks, it may be because it is too fine. See that it is not bent and that in its up and down movement it fits smoothly into the stitchlock.

All the advantages of the patching machine should be utilized in order to obtain the best appearance of the work. The regulation of the tension by a simple method is provided for, and to prevent turning out patches with the lock of the stitch showing on the surface

or loose stitches underneath, the tension should be tested on a piece of patching until a tight stitch, locked out of sight, is shown. Repairing is often done with a stitch whose length is unsuitable for the job, while a simple turn of an adjustment screw will give a stitch of the proper length. Sometimes the shuttle will act unevenly, and will miss stitches. If the shuttle is removed, it may be found that there is an accumulation of

dirt in the shuttle box. The shuttle should be cleaned out regularly by removing the shuttle, placing a little paraffin oil in the box and working the machine for a few moments. The box should then be wiped out and a little lubricating oil applied. Failure to keep the shuttle box clear from grit not only prevents the shuttle from functioning as it should, but the shuttle itself wears away at its most important part.

LINING AND STRETCHING

Heel Lining

It is advisable to use a vamping machine in repairing heel linings since this machine gives a finer stitch. The stitch should be regulated on this machine in order that the stitches may be the same length as those which are originally in the shoe. In order to prevent the rough edge from appearing above the top of the shoe, it is necessary to trim the edge of the lining carefully.

Toe Lining

Toe linings, cut to shape, should be kept on hand. Thin material of the best quality should be used. Before attaching the lining, it should be trimmed to the exact shape of the shoe. Then, apply a coat of a special cement, which is prepared for this purpose, to the lining and the inside of the shoe. When the first coat of cement is dry, moisten the lining with a second coat, and apply the lining to the shoe. It is now necessary to insert a stretcher in the shoe which will press the lining firmly against the inside of the upper. The stretcher should remain in the shoe until the cement is dry. After the stretcher is removed, stitch the lining to the vamp, and trim off any part of

the lining where it extends beyond the place where it is stitched. Be sure to cement the whole surface of the lining thoroughly, being especially careful to cover the toe of the lining. If this is not done, the lining might work loose.

Replacing Sock Linings

A bad fitting sock lining is extremely uncomfortable. To save time in replacing sock linings in a pair of shoes, paste a pair of sock linings together at the toe, center and heel. Then cut both linings to fit, with one operation and see how they fit in the shoe before separating them. When the linings are trimmed so that they fit perfectly, separate the two linings, apply a coat of the special cement to each, and place them in the shoes.

Stretching Shoes

A shoe must be dampened before it can be stretched. It is not necessary to wet the whole shoe, but the inside of the shoe may be moistened with a damp sponge. It is advisable to moisten the wooden stretcher before it is inserted in the shoe. If the stretcher remains in the shoe until the moisture has been dried out, the shoe will retain its stretched shape.

FINISHING

Fore-part Trimming

In this operation, the shoe is held at the back of the counter by the right hand (the toe of the shoe being away from the operator) and the under edge of the sole at the joint resting lightly but firmly between the fingers and thumb of the left hand. The cutter guard is inserted between the welt and the upper top edge of the forepart at the waist corner, the sole edge thus being applied to the under edge of the cutter wheel. The shoe is then pulled gently forward towards the operator until just before the toe is reached. At this position the shoe should not be removed from the cutter wheel, but it should be swung lightly around the toe to the opposite position on the edge and the cutting continued, without a halt, to the waist corner. This needs a supple turn of the wrist, and requires practice. As the shoe is swung around at the toe, the position of the hands is quickly changed, the left hand receiving the heel or counter of the shoe, and the right hand holding the toe of the shoe, which is now towards the operator. This swinging around the edge at the toe *at an even pressure* is most important for efficient trimming. If the edge is removed from the cutter when the toe is reached, and the trimming of the toe attempted as a separate operation, there is almost certain to be a "ridge" at each side of the toe where the cutting has stopped and been resumed. The trimming away of this ridge will result in a deeper cutting of the edge at these two points than at the rest of the edge, and this will be increased later by the pressure of the edge-setting iron. Similar faulty results will be obtained if, in cutting around the toe, the pressure on the edge is increased. If there happens to be a surplus of material at the toe, a certain amount of

extra pressure will be necessary for level trimming. In such a case, it is better first to trim the edge of the toe lightly before actually starting the real trimming at the commencing waist corner, and the same applies to a surplus of material at any other point of the sole edge.

The essentials of perfect edge-trimming are lightness of pressure and easy freedom in the turn of the wrist when trimming around the toe. The lighter the pressure applied, the cleaner and smoother the cutting. It is even advisable, if the edge needs much trimming, to go around the edge lightly *twice*, rather than to try to obtain level trimming under heavy pressure.

Cutter Grinding

If the blades of the trimmer or cutter are not in keen condition, the trimming is rough and uneven, and the cutter will sag on the sole edge. To overcome this, with the cutter in this condition, the operator will often apply more pressure than he ought to do, and the result is that he cuts deeper in some parts of the edge than others. Constant re-sharpening of the cutters to maintain a keen cutting edge, is so necessary that all finishing machines are fitted with a cutter-grinding attachment. This is in the form of a post, or spindle, which fits the hole in the centre of the cutting wheel. Next to this is an emery wheel, and by means of a connecting belt this emery wheel revolves at a high speed. The cutter wheel is placed on the spindle and slid down it so that the edge of the emery wheel will meet the edge of the cutter blade. The cutter is slid down the pillar slowly until the whole of the blade edge has been treated; it is then moved upwards, and the process repeated on each of the remaining blades. If

is highly important that in using this attachment that every blade should be ground exactly to the same extent. Should one blade be ground a little more than the rest, however slightly, that blade, in trimming, will fail to reach the sole-edge, or reach it inefficiently if it does reach it. The result will be faulty trimming. In obtaining this even grinding of the blades, the operator has to practise regulating the pressure he applies to the blade, and the length of time he gives in grinding each blade—that is, the time taken in sliding the cutter down the pillar. The slower this motion, the heavier the grinding. It is apparent, therefore, that uniformity in the time taken with each blade is absolutely necessary to prevent one blade receiving a heavier grinding than another. Here is one maker's instruction for grinding Forepart Cutters:

1. Have the emery wheel fixed on the spindle with the hollow side to the left.
2. Fix the post so that the wheel slides between the teeth as deeply as possible without touching the next tooth.
3. See that the post is a little to the right of the emery wheel to get the long cut essential to obtain a keen edge. Many cutters are absolutely spoiled by being ground with a square cutting edge. Such cutters will not cut but will burn leather.
4. See that the post is absolutely firm before commencing to grind.
5. Grind the cutter with the lip upwards, sliding it up and down the post with the cutting edge pressed lightly but firmly against the hollow side of the wheel.
6. If the cutter gets too warm to hold, dip it in water to prevent the temper from being spoiled.

Heel Scouring

The shoe should be held by the counter in the left hand, the fingers of the right hand resting against the toplift, and the right thumb pressed against the breast of the heel. The shoe heel should be held to the scouring wheel at about the middle of the wheel front, the toe of the shoe towards the operator, and thus scouring should commence at the heel corner farthest from the operator. Here again, as in edge trimming, flexibility in the use of the wrist is essential, so that the heel shall not be removed from the wheel during the scouring from one corner to the other. On reaching the back of the heel, it should be evenly swung around while the scouring is being done, but the positions of the hands will remain the same in holding the shoe, a skilful turn of the wrist being all that is necessary in this direction. Re-scouring several times may be required to obtain the satisfactory shape of the heel, but excess material should be removed by a preliminary scouring at the point where it occurs. Details to remember in heel scouring are that scouring must not be done while the material is damp, or burning of the leather will result. Burning will also occur if heavy pressure is kept up at one point. The best results are obtained by light pressure and repeated scouring until a satisfactory result is obtained. This first scouring is done on the rough scouring wheel, and is followed by similar treatment on the wheel fitted with smooth scouring paper. The object of this latter process is to remove the marks made by the rough scouring paper, and to produce a perfectly smooth surface.

Bottom Scouring

The shoe is held by each side of the waist, the sole bottom being perfectly flat to the wheel, and the commencing position being as low down in the waist of the new half-sole as possible. The

scouring should be direct from waist to toe without removal of the shoe from the wheel, and with a slight sideward movement. After reaching and scouring off the end of the toe, the shoe is brought back to the original starting position, and the scouring repeated, with the sideward movement *opposite* to the first. The next application should be without the sideward movement, a straight ahead scouring from waist to toe. A light application of the sole to the scouring wheel, with a quick movement, is necessary. Heavy application, instead of removing the grain as intended, will result in the lifting of the fibre and a wool-like appearance to the bottom; and a slow movement will burn the sole in places, and in turn, uneven shades will be caused in the bottom making.

Toplift scouring is done in the same way as the bottoms. Care must be taken, however, with regard to the pressure when passing over the heel nails, or the heat which is thus caused will result in the nails rising up from the material. If the nails are in any way rough on the surface of the toplift, they should be hammered down. Scouring over rough heel nails means overheating them, and it also causes tearing of the scouring paper.

The Naumkeag

This tool should be used after scouring, and it has for its purpose the removal of the rough scouring marks, and the production of a perfectly smooth surface. The more skilfully this tool is used, the higher and brighter will be the gloss that is finally obtained on the finished bottom. The movement of the Naumkeag is a circular one, and the sole should be worked from side to side, until all rough marks have disappeared. The sole should now be worked direct from waist to toe under the lightest possible pressure, and this should be repeated

several times until a velvety surface obtained. It will sometimes be found that the extreme waist of the sole cannot be reached by the bottom scouring roll. In such a case, this portion of scouring should be done by the aid of the rough scouring wheel, since the smoothing is easily reached by the Naumkeag.

Adjustment Scouring Wheels

The life of the scouring paper is determined by various circumstances. If a nail catches the paper, it takes out a line of the abrasive and requires replacing. If the leather being scoured is not sufficiently dry, the scouring paper will develop a smooth surface, and this again requires replacing. In both of these instances, the replacement is made necessary before the actual possible service has been obtained from the abrasive. The next cause of replacement is when the scouring paper has given its full service under regular conditions. This is at once indicated by the repairer having to put on more pressure than he has previously done in order to get results. In each of these cases, replacing of scouring papers should be done without delay.

Heel Scouring Rolls

These are fitted with a felt roll, and on the felt roll the scouring paper is placed. The roll is split at one point to permit its opening out. Near the top inside the split are two pins. The end of the scouring strip is placed and forced through these two pins. On the other side of the split there is usually one pin in a position that brings it, when the wheel is closed, exactly between the position of the two pins on the other side. After attaching the scouring strip to the first two pins, the strip is pulled tightly around the roll, and its other end is forced over the single pin. The roll is then shut. At the side of the roll is a locking nut. This is merely

unscrewed to permit the opening or splitting of the roll, and after the paper has been placed in position, the locking nut is screwed up again tightly. The adjustment is simple, but care must be taken that the paper is in proper alignment on the roll before closing up.

Inking

A good finishing ink contains a wax substance. If there is too much of this wax substance, too much time is required for the ink to dry, and it also does not sufficiently penetrate the leather.

The ink pot must be kept clean and free from clogged-up wax in order to obtain the best results. It is therefore important at the end of every day's work to empty the ink pot into the ink can and to wash out the ink pot.

Unless the ink in the can is kept stirred at all times, the wax goes to the bottom and only stain will be poured out. Therefore, every morning, the ink in the can should be thoroughly stirred—not shaken—before being poured into the ink pot.

When the ink is applied to the leather, use the brush with a light pressure, for an excessive pressure of the brush wipes the wax out of the mixture, and there is thus no wax deposit but merely stain on the edge of the sole.

Every care must be taken to allow the ink to dry properly. It is useless to apply the ink and brush it off immediately. Ink with a heavy wax body requires a certain time for the color to penetrate the edge, and for the wax to settle on the edge. A small fan placed on the finishing machine will dry the ink quickly for the accommodation of customers who are waiting.

Edge-Setting

In setting, the shoe is held with the heel in the right hand, and the left hand under the lower joint of the sole, the toe away from the operator, and the sole bottom to the right hand. The guard

of the edge iron is placed in the welt at the waist corner of the uppermost sole edge, the edge thus being in position under the step iron. The shoe is then pulled forward steadily, swung around at the toe by the turn of the wrist, then the position of the hands is changed and the pull forward is continued till the other waist corner is reached. The movement is the same as in edge-trimming, and the edge should not be taken away from the iron during the "setting up" from waist corner to waist corner, or else there will be depressions in the edge at those points where the sole is removed and replaced. Unlike edge-trimming, however, pressure is required to crush in the edge, and this heavy pressure should be evenly applied during the whole of the setting. The speed of the edge iron sets up a certain amount of heat by friction, and this is increased by the pressure applied. It is very necessary, therefore, that only such heat shall be maintained in the iron as shall allow it to be kept barely warm. If this is exceeded, burning of the edge is certain to result, since the mere artificial warmth and the friction combined are quite sufficient for the purpose of setting the edges.

Burnishing and Brushing

For heel burnishing, the movement is exactly the same as in the case of heel scouring, but a little more pressure is desirable. Continuous burnishing without removing the heel is necessary in order to prevent the "wavy" appearance that would otherwise result, and which is difficult to brush off. The bottom burnishing is best accomplished by the straight direct movement from waist to toe, several applications being necessary, and each succeeding one receiving lighter pressure.

In brushing the bottom, the first application should be with a heavy pressure in order to loosen the burnishing wax thoroughly and to spread it evenly.

Each succeeding brushing should be of lighter pressure, and in a direct line from waist to toe until all trace of the wax has been removed, and a bright surface obtained. The action in brushing the heels is the same as in burnishing, finishing with a light brushing on the edges.

Burnishing wax takes the place of the heel-ball in hand work, but its application to the work itself differs in the case

of machine finishing. To a certain extent the wax is applied, *not* to the heels and edges of the shoe, but to the roll itself, by holding the block or stick of wax to the burnishing roll while the machine is in motion. No wax, whatever should be applied to the bottoms nor to the heels or edges, except where there is some fault in the finish, requiring a little extra wax.

FINISHING THE BOTTOMS

The finishing of the bottoms, is one of the most important operations, carried on in shops where fine shoe repairing is done today.

Many repairers argue against, what they call "*painted bottoms*," proclaiming the natural leather bottom as the only real finish for a resoled shoe. To the man who does shoe repairing and those accustomed to the handling of leather will no doubt find a lot of truth in the statements made by those repairers but, the people for whom the shoes are being repaired should be the ones to be pleased.

It does not matter how fine the workmanship is, or how high the grade of materials, lack of proper finish on the bottoms will lower the standard of work. On the other hand a proper finished bottom will raise the standard of any job done in any shop.

When a person buys a new pair of shoes, one thing he notices is the finely finished bottoms, for these soles in the factory received as much attention as any other part of the finished shoe. The person knowing nothing about shoes has to rely upon the manufacturer's brand, the salesman and the appearance of the finished shoe. The appearance of this new shoe has been imbedded in the mind of the purchaser. In the mind of this purchaser, this new shoe standard will be a base on which the repair work will

be judged. Therefore in resoling a pair of shoes, it is very important that the shoes be returned to the customer looking as nearly like new as it is possible to make them.

An entire book could be written on the different stains, finishes and the methods of applications on the various kinds of leather. We are only attempting here the most popular methods that have proven successful in many shops.

The black finished bottom, suited to some shoes, and liked by many repairers is best obtained by the application of penetrating black dye on a well sanded and buffed bottom. This drives the color right into the leather. The dye application is followed by a coat of good ink after which the wax and polishing operations for a high polish.

The preparation of the bottom is the first and very important step when ready prepared finishes are to be used. The soles should be sanded smooth with a fine grade of paper, then buffed on the Naumkeg for a more smoother, velvety finish.

The shoe is now ready for the finish. Open the container and stir the finish thoroughly, until all the ingredients in the bottom of the can are mixed and suspended in the finish. Apply with a fine camel hair brush using a larger size brush for men's work than for ladies

however all jobs can be done with the one brush.

With a little practice it will be possible to dip the brush in the finish only once, knowing just the proper amount to hold in the brush for a lady's job or man's job. This is important because, edipping of the brush, getting small amounts, will allow the finish on the shoe to partially dry, resulting in a streaked bottom.

First apply the finish crosswise of the sole, then lengthwise allowing only the tip end of the bristles to smooth the finish. Long even stiff arm strokes have been found to be the most effective. If the brush is laid flat it will be more difficult to produce a smooth finished bottom.

If the brush seems to stick or pull when applying the stain, it is either a case of not having enough finish in the brush or of having worked too slowly, allowing the finish to set and reach the first stages of drying.

These type finishes are water soluble. Should any get on the edge or the upper it can easily be removed with a damp cloth.

The time required for Bottom Finish to dry is five (5) to twenty (20) minutes, depending on the kind of finish used and atmospheric conditions. When dry, the soles are ready for the polisher. This consists of a rotary tampico fibre bristle brush, to which is held while in motion a stick of brush polish, allowing a small amount of polish to gather in

the bristles. Now the finished surface of the sole is held against these waxed bristles with a light, even pressure slowly covering the entire area. Repeat with slightly more pressure than the first time, without additional polish. This operation spreads the wax, hardening, setting and protecting the finish of the bottom. Following this, apply the sole to a clean, unwaxed cotton yarn brush in the manner described for the tampico brush.

A new type of bottom finish is now available that can be polished with a cheese cloth, five minutes after applying, that obtains a lustre equalling old types of bottom finish, machine polished.

Some repairers, who do not have the bottom finishing equipment, get excellent results with small stiff hand scrub brushes purchased at any Five and Ten, using it in the manner described for the power brush, bringing to a high gloss with soft rag.

Finish thickened by evaporation can be thinned by adding small amount of water.

Keep the top of the container wiped clean, otherwise dried particles will fall into the finish and appear on the bottom.

Brushes kept in water will keep them in a soft condition.

Wash out brushes and receptacle daily.

Both the fibre and the yarn brushes should be removed from the shaft and washed as often as necessary, for clean brushes will aid in securing a clean bottom.

Ques.—How is most sole leather tanned?

Ans.—At the present time, much the largest percentage of the sole leather used both here and abroad, is vegetable tanned, and the vegetable tanned sole leathers make a very satisfactory material for the bottoms of most shoes.

Ques.—How can the tannage of sole leather be determined?

Ans.—Often the tannage of sole leather can be told by its smell, feel, color, and the appearance of its edge.

CLEANING AND SHINING

In cases where it is possible, shoes should be washed with a special wash before shining. This wash will remove any wax or scum that may be on the shoe, and so the shining material will work directly on the leather. In this way the polish will produce a good hard finish, and a gummy shine will be avoided.

In cleaning suede shoes, it is necessary to apply a coat of rubber cement to the new sole as soon as it has been finished. This keeps the finished sole from being soiled in the cleaning process. After the shoe has been cleaned, the dried cement can be removed from the sole by rubbing it with a piece of art gum or crepe rubber, or simply with the hand.

A spray gun has proved very helpful in cleaning suede and white shoes and heels. Spraying a light coat of lacquer over suede shoes prevents the powder from coming off. After the cleaner has been used on white shoes, spots such as grass stain may be covered up by white lacquer sprayed very lightly. The spray gun is also well adapted for re-enameling white heels.

It is strongly recommended that masking tape be used in working with shoes that are easily soiled, light colored, white, suede shoes, etc. This tape prevents the finishing substance from soiling the upper. Special care must be taken with imitation reptile shoes, since this imitation surface will not stand up under the application of a gummed tape.

To prevent finger marks on work where masking tape is not used, it is well for the repairer to rub white chalk over his hand.

If, after the sole is finished, small scratches are made on the sole edge by sandpaper in cleaning, it is necessary to reset the edges, after the cleaning is finished. This is also necessary if any of the liquid cleansing material has spread over the edge.

Repair Crayons offer many advantages in repairing shoes which are scratched. In finishing, the upper often catches in the scouring wheel, and the upper is thus damaged. Good crayons will easily cover such injuries. They may be obtained in any color which is desired. In using these crayons, the damaged place on the upper must first be moistened with clean water, and then the crayon must be rubbed over it. The material of the crayon, by means of the moisture, penetrates the roughened part of the leather. When enough of a crayon has been applied to conceal the damaged surface, the spot should then be smoothed over with a piece of clean linen and allowed to dry. Finally, a soft polishing cloth should be used. Crayon may also be used with patent leather unless the damage is serious, in which case a special liquid should be used and allowed to dry. Then the work may be finished with a light application of the crayon.

DYEING SHOES

The most important operation in the successful dyeing and recoloring of leather shoes is the proper removal of the glaze from the leather, thereby opening the pores so that the dye, when ap-

plied, will actually penetrate into the leather. To do a thorough deglazing job, a dyeing last should be inserted into the shoe and kept there until the dyeing is entirely finished. These dye

ing lasts are so constructed as to remove every wrinkle and crease from the surface of the shoe, especially the deep creases which have formed in the vamp through wear. Liquid preparers in themselves will not remove the glaze from leather. The best method for deglazing leather is a scouring process consisting of a liquid glaze remover and a specially constructed wire deglazing brush made for this purpose. This brush, used in combination with the liquid glaze remover, dissolves and cuts the glaze without marring or injuring the leather, but leaves the pores open and receptive to the dye when it is applied.

In dyeing leather shoes, the leather, after the glaze has been removed, should first be given an "anchor coat" of dye which actually dyes the leather, followed by a leather color finish of the same shade which produces a new and factory-like finish to the shoe. The dyer should be careful not to use a dye for the "anchor coat" which is made by one manufacturer and a leather color finish made by another manufacturer. They should both be the product of the same factory, since both the dye and the leather color finish must work well together. Where two different brands are used, a cracking or peeling of the leather color finish usually results.

A primary coat of dye that is applied too heavily will often cause a creaking of the leather. The dye should be applied lightly, but not rubbed in, as rubbing produces heat which will close the pores of the leather.

With a spraying equipment, the dyer can secure an even, thin coverage, and the saving in dye alone through this method of application pays for the spraying apparatus, and turns out a dye job equal to the finish of a new shoe.

Dyeing Fabric Shoes

In the past, fabric dyes for satin, crepe, moire, brocade, linen and velvet

shoes have been subject to spotting or streaking in rainy weather, or when brought in contact with water. There are fabric shoe dyes on the market now which are not affected in this manner. These same dyes can also be used for dyeing suede, buckskin and doeskin leather, leaving the nap soft and velvety.

Fabric dyeing is very tricky and care should be exercised in the receiving of the shoes. Fabric dyeing should not be guaranteed, as the fabric usually has cement or factory bleach marks which are invisible to a customer's eye, but when dyed, appear, much to the discomfort of the shoe dyer and customer.

When bleach marks appear, there is a dry pigment on the market that will cover the bleach and make them almost invisible.

Shoe repairers should be cautious in taking suede and buckskin shoes to be dyed dark shades of Dubonnet, Green, Red, and Blue. Due to the large amount of whitener in the leather, the dye dries out lighter. It is then necessary to use a suede stick of a deep enough shade to add color to the shoe. This usually rubs off too much, and results in complaints from the customer.

Dyeing Shoes Black

Some very good blackening dyes have been developed which have proved very satisfactory when used with the directions which the manufacturers supply. Another method may be mentioned here which may be used for very particular work. This method has three distinct operations which accomplish a definite purpose.

The first operation consists in rubbing the shoe well with a primer or penetrator, using a very fine steel wool for the purpose. This primer or penetrator contains a small amount of cleaner, sufficient to clean a shoe thoroughly, but its main purpose is to remove the finish and open up and penetrate the pores

of the leather. The primer evaporates immediately from the surface.

One of the easiest methods for removing the surface from shoes that are to be dyed black, is the water and household cleanser method. Scrub shoe until dull. Remove sand adhering to leather. Allow to dry, and then dye it black.

White calf and kid shoes, to be dyed

black, should be washed thoroughly of all old white. The shoes should be tightly lasted.

Suede and buckskin can be made into smooth black kid by lasting lightly, cleaning out all old polish, and rubbing into the nap a cream polish or finishing wax. Then dye the shoe black for density of color, and finish by hand brush with the usual waxes.

TREATMENT OF SOLE LEATHER

The Selection of Sole Leather

In the case of machine-sewn work, a leather may be of excellent tannage, capable of producing a good finish and being of first-rate wearing quality, and yet it might be quite unreliable for machine-sewn work. Such a leather, though possessing these good qualities, may have a grain or fibre of a tight nature, and if it is used in machine-sewn work, it may have a satisfactory enough appearance when finished. Yet after a very little wear, it may break away in the channel between the holes made by the needle.

In selecting sole leather for the McKay machine, a mellow tannage is required to resist the pull of the stitch in the channel, a deep cut one, and that will permit the closing down of the channel without breaking away the lip, as happens when a tight-grained leather is used.

A firmer grained leather may, however, be used for the sole-stitching machine, as the channel required is slighter, and since the machine provides a lockstitch, the stitch is locked well in the material.

With regard to machine-finishing, there are sole leathers of excellent quality, which will not lend themselves to good machine bottom finishing. Usually a mellow leather can be depended upon

to make up a good machine finished bottom, provided that the services of the Naumkeag are taken advantage of.

Sole Leather

Leathers are often adulterated in the tanning process. The hides are often made thicker, or plumped by an acid treatment, or made heavier with glucose. Often a good deal of meaty tissue which is worthless is left in the hide.

A repairer has one or two tests to determine the quality of the leather. First, he may see if the leather has been thoroughly fleshed. Loading can be detected if, when the leather is put in water, the water becomes cloudy. By cutting a sliver of the leather and examining the fibre, the experienced repairer can tell the quality of the leather.

The purchasing of chrome sole leather requires some caution on the part of the repairer. Cheap chrome sole leather is a risky product to handle. Many repairers believe that the very process of tanning a hide by the chrome process insures the making of good leather; but this idea is very far from the truth. While the chrome process will increase the wearing qualities of good hide, it will certainly not turn an inferior hide into one of quality. Its effect on an inferior hide is actually quite the opposite. The coarse fibres lend them-

selves to the absorption of more chemical liquid than is necessary or advantageous, and this results in the rotting of the fibres. Such inferior hides tanned by the chrome process have the appearance of being firmer and closer grained than the good quality hides tanned by the same process. Observation, however, will reveal the fact that the leather is heavier in weight, and the test of wear will show rapid deterioration of the sole, once the grain is worn off. It is safest to buy only the well-advertised tannages of chrome sole leather.

The Weight of Sole Leather

A great number of repairers are under the impression that the safest guarantee of quality to the customer is the providing of good stout soles and some repairers never use less than a 12 iron sole for men's work. This view shows a lack of knowledge of the real requirements. A customer may have originally bought his shoes not for the lightness of the upper alone, but because the light edge also appealed to him. The shoes, on being repaired, are fitted with a stout pair of soles, with the result that the customer loses one feature that appealed to him, the shoes lose their flexibility, the uppers lose some of their length of service owing to the strain, rigidity and weight not intended for them, and the repairer loses, where he ought to gain, through unnecessary expense. Similarly, a poor pair of shoes, for instance, a pair that are obviously being repaired for the last time, should be fitted according to their state. It is not in the least uncommon to hear people say they cannot wear repaired shoes because they "seem so stiff after being resoled." So that even if a good light leather is used, it should be of tannage mellow enough to permit the shoe under repair to retain, as far as possible, its original build and flexibility. If a light, firm sole is used,

it will probably last until the shoe is discarded.

On the other hand, the better the value the repairer can give on children's shoes, the more his work will be appreciated by the parents who have to pay for the job. It is notorious that, generally speaking, children are two or three times harder on the wear of sole leather. Thus, it is wasteful and injurious to trade, to give the parents quality and substance they do not desire, and to take it off the children's shoes where it is especially needed.

The Tempering of Sole Leather

The purpose of conditioning sole leather for shoe repairing is to get the stock in such a condition that it will cut, channel and sew readily. It should also have sufficient flexibility to conform to the shoe, hold cement, produce a close and high burnished edge finish, and this will also permit the delivery of a rush job since the soles are relatively dry. To accomplish all these by disturbing the original condition of the leather as little as possible is the goal desired.

Most shoe repairers soak leather too long, with the result that the leather gets too wet. It thus loses a great deal of the packing which the tannery has done by rolling, destroys the grain finish, brings all the free tanning material either to the grain or flesh surface, and when improperly dried (particularly in the case of grain) produces stained and cracky leather. Soles which have been wet and not permitted to temper for a long enough time, contain excess water in both the grain and flesh surface and are dry in the center. Such leather will cut and sew hard, will not conform to the shoe, and will affect the durability of the stitching.

As a general proposition, less submersion in water and a longer time of tempering produce the best results. It is, therefore, advisable to prepare taps

in advance, allowing full time to temper properly.

The recommended procedure is as follows:—40 and 45 taps, submerge in water 4 minutes; 50 and 55 taps, 5 minutes; 60 and up, 6 minutes. Remove the taps from the water and permit them to drain. The taps should then be placed together by pairs, grain to grain, and flesh to flesh, and either put together as close as possible on the edge in a comparatively tight box, or wrapped in several thicknesses of dry newspaper, around which should again be wrapped several thicknesses of burlap or a similar substance, which has been wet and which has had all possible water wrung out of it. A piece of table oilcloth wrapped around the taps can be substituted for the newspaper to advantage, the purpose

being to keep the edge of the taps away from the dampened burlap. The reason for this is that the edge of the taps will draw in an excess amount of water and become wet along the edges rather than tempered equally all over.

With proper tempering as above described, the taps should remain in temper for about 12 hours before they are actually needed for use. After being once tempered, they can be kept in that condition if the operator will endeavor to keep them in a damp atmosphere. Sole leather produces a latent heat. This heat in combination with the moisture in the air produces a warm, damp steam, which together with the water already absorbed by the leather, produces an ideal atmosphere for properly conditioning the stock.

SHOE PLATES

Heel and toe plates of metal have been worn for years by a good many thousands of people everywhere. Since the first "piece of iron" was attached to the heel and sole of a shoe, refinements have been made which have reduced the weight, added to the comfort of the wearer, and contributed considerably to the appearance of the shoe.

A heel or toe plate is primarily used to protect the heel or sole at the point where the greatest wear comes. It also serves to level the tread of the shoe bottom, making it lie flat from the tip of the toe to the rearmost portion of the heel. In this connection, the plate is an aid to correct walking, as it prevents a run over of either heel or sole.

For many years all plates were cast iron with prongs, but it was very hard to drive these prongs into the leather in the exact spot desired without bending the prongs. The prongs would not hold the plate firm or secure, allowing it to become loose and rattle and come off.

The latest style of plate now used is made of steel, therefore unbreakable and longer wearing and is placed on the shoe in the exact spot where it is needed as plate is attached with corrugated nails that hold the plate tight and firm and will not bend. This, with the sharp edge all around the plate biting into the leather, prevents foreign matter from working under the plate and keeps the plate from twisting and coming off.

The Modern plate, made in such a way, that it will not mar hardwood floors—noiseless, and non-slipping—with a brilliant, sparkling finish, is not only a thing of beauty, but is a practical item that gives a professional finish to a good repair job.

Heel and toe plates, in addition to giving greater comfort, longer wear, added beauty and economy, are factors that contribute considerably to the profit side of the shoe repairer's ledger.

PART II

"HIDDEN PARTS" OF THE SHOE AND MATERIALS

TANNAGES OF SOLE LEATHER

The tannage of sole leather most familiar to all is the commonly termed "oak." The tannin or extracts are derived alone from oak bark. Genuine purely oak tanned leather takes a longer period to manufacture than other tannages, therefore is more costly. It is naturally flexible, but firmly so. Nor does it absorb moisture to the same degree as other tannages, consequently after repeated wettings it does not become hard and brittle. From a manufacturer's and consumer's point of view, oak is the ideal tannage.

The tannage we frequently hear about is that known as Union. This leather is much softer by nature than the tannages previously mentioned. In the factory, it works easily for turns or welts, because, when wet, it becomes exceedingly pliable. The tanning agents are a combination of chestnut bark and Quebracho extract.

There are many other combinations of tannages. This tanning business has been worked down so finely through improved tanning methods that one must rely on the tanner's reputation for producing a uniform tan-

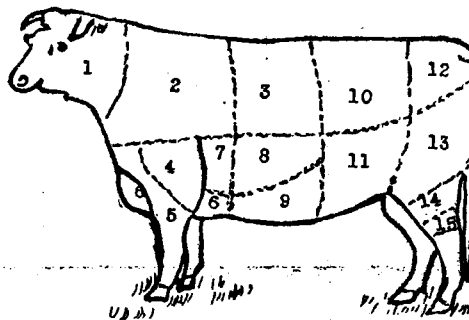
nage in purity and quality. There are so many concoctions and combinations of the uses of oak bark, hemlock bark and pulp, Quebracho extract, Mangrove crystals, chestnut bark, myrobolaris fruit, Sumac leaves, divi divi pods and other vegetable and animal matter, which produce every sort of combination tannage to meet popular demands for the production of shoes that sell with a wide range of prices.

The weight or thickness of sole leather is usually expressed in "irons." An iron is exactly $1/48$ th of an inch; therefore, a nine-iron sole is $9/48$ th of an inch thick. Today's sole leather is made to meet every shoe need, is tanned from superior hides by processes perfected through a combination of practical and scientific experience. It is attractive in appearance because it is firm, finished well and holds its own shape and the shape of the shoe. It is comfortable because it breathes, maintains proper foot temperature, absorbs perspiration, resists water, flexes easily and doesn't slip and slide. It is durable because it is tanned to endure, to stay in place, to stand repeated wettings without depreciation.

Diagram A

Meat Cuts

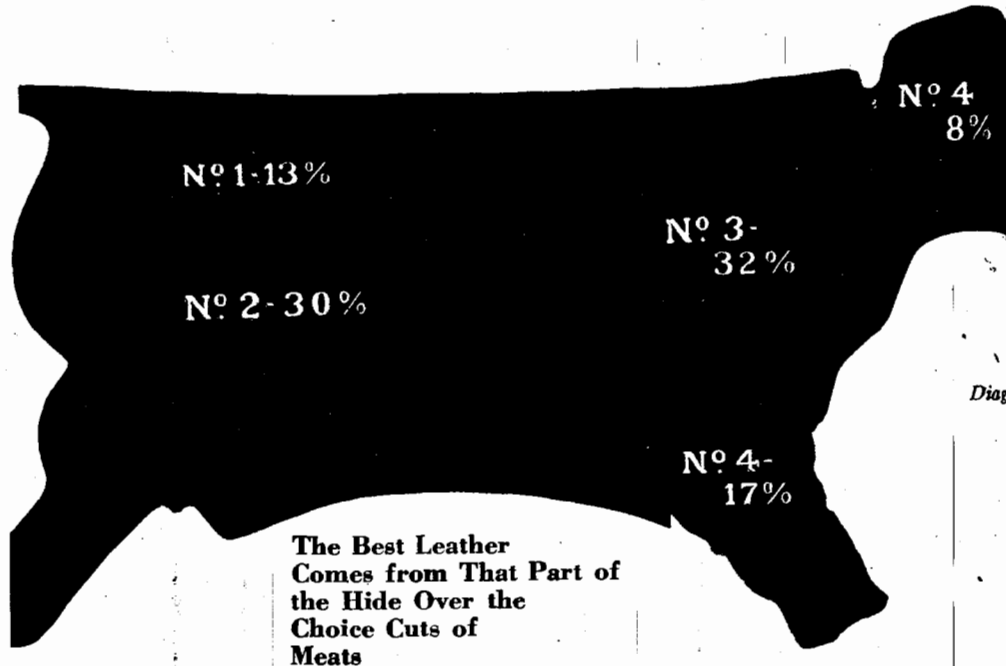
- | | |
|----------------|-----------------------|
| (1) Neck | (9) Navel |
| (2) Chuck | (10) Loin |
| (3) Rib | (11) Flank |
| (4) Shoulder | (12) Rump |
| (5) Foreshank | (13) Round |
| (6) Brisket | (14) Second cut round |
| (7) Cross ribs | (15) Hindshank |
| (8) Plate | |



Relation of Beef to Leather

Coincidentally, as it is, the best cuts of beef served on our tables, as sirloins, porterhouse, rump or top of the round, are located right under that part of the hide from which the best cuts of sole leather are taken. The two accompanying

diagrams, A and B, one from the butcher shop and the other from the shoe shop, will serve to illustrate. The price variations covering beef cuts, which range from six to sixty cents per pound, according to the quality of the meat selected, is a parallel very much akin



1st Grade, Best Value

Only 13% of the hide—Solid close fibred and water resisting. Best wearing. Recommended and guaranteed.

2nd Grade, Fairly Good Value

30% of the hide. Gives honest service.

3rd Grade, Doubtful Value

32% of the hide—Loose in fiber. Sponges and swells in water.

4th Grade, Poor Quality

25% of the hide. Only good for a part of the shoe that is not exposed.

	OAK	UNION	CHROME	COMBINATION
Smell	Pungent	Pungent	Faintly-lardy	None
Feel	Silky-smooth	Silky-smooth	Silky-smooth	Smooth
Color	Russet	Creamy-tan	Greenish-gray to gray	Golden brown
Edge	Firm	Firm		Smooth
Finish	Smooth-bright	Smooth-bright	Semi-smooth to smooth	
Flexibility	High	High	Usually high	Very high

to the range of prices asked for sole leather, depending on the cut desired. Merchandise bought for appearance to the eye, such as beef, all looks alike in its appearance and color. So with sole leather built into shoes. It all looks much alike. But the proof is in eating the former and wearing the latter.

Sole Leather Language

The lingo of leather men and shoe manufacturers refers continuously to "sides," "backs" or "bends." The "side" is one-half of the entire hide, as it is split down through the backbone. It includes the head, shoulder and belly sections. Backs represent that part of the side which remains after the head and belly parts are cropped off. The bend indicates that part of the side remaining after head, shoulder, and belly parts have been cut off. The bend is the prime part of the leather side from which outsoles alone are cut.

The miscellaneous parts, as shoulders and belly centres, that is, the belly minus fore and hind shanks, are used by manufacturers of welting. Others

cutting innersoles will purchase the bellies and shanks. Box toes are usually confined to belly centres. Counters may be cut from shanks, including the shin part at the bend of the knee. Heads ordinarily go into the heel bases. Butts have a general application—counters, insoles, outsoles or other parts, depending upon the grade of the shoe. The butt will produce an inexpensive or cheap outsole or toplift; on the other hand, an expensive counter. It will be found later that the above distribution is not a fixed rule, for everything has its relation to the degree of quality and price at which the finished shoe is sold.

It is the policy of a certain few high-grade tanning companies to produce two kinds of high-grade leather. One is termed "manufacturers" and the other "finder's." Characteristically, the manufacturer's brand is on the pliable side, while the finder's brand is excessively firm and less, by far, as flexible as that which is put into new shoes. In essence, the finder's leather is made specially for high-class repair work, and is confined to the repair shop.

CHROME AND RETANNED LEATHERS

These types of leather are used extensively for resoling purposes, especially where unusual wear is desired. That is one reason why they are particularly suitable for children's shoes.

They can be finished like ordinary sole leather, but a little more care and time are necessary, with the use of the proper trimmers and edge finishers.

Chrome and retan leathers are practically all waterproof. Retans are impregnated with a hot mixture of greases and waxes.

These leathers lend themselves to the cement process of resoling, especially

when a celluloid cement is used and the proper attention is given to the preparation of the soles.

They do not require as much tempering as other kinds of leather, but sometimes in cold weather, it is desirable to immerse them for a short time in warm water.

Several improvements have taken place in the tannage of these leathers, with the result that they will not slip. While firm they are not brittle and will sew as easily as other types of sole leather. Some retans have the flesh portion degreased to make the cement application more easy.

ABRASIVES

A well finished bottom or heel is the result of three things—the condition of the sole leather, the proper buffing, and the skill of the operator in applying his stains, paints, waxes, etc.

Bottom Buffing

Poorer leather requires ~~more and deeper buffing and this automatically requires more sandpaper for the reason that the wrinkles and blemishes must be levelled and a clean smooth surface prepared for the application of paints, stains, or waxes.~~ It is always more economical to remove a large amount of leather with a coarse paper, and it is, therefore, customary to use as coarse a paper as possible on the first roll and depend upon the fine paper on the finish roll to slick up the bottom and remove any scratches which have resulted from the coarse paper.

A suitable finish in one buffing operation could be obtained by using Nos. 80, or possibly 100, providing less pressure is used to eliminate burning. It is generally recommended that the repairer should use a coarser sandpaper than is used on new shoes.

Heel Scouring and Scouring Wheels

In general, the heel scouring operation is performed on a wheel $4\frac{1}{2}$ " or 6" in diameter and ranging from $1\frac{1}{4}$ " to $2\frac{7}{8}$ " in width. These wheels have been thoroughly standardized, and in their simplest form consist of a wood wheel with a heavy felt covering around the periphery and split radially to admit the ends of the heel scouring strip. In this type of wheel, the face of the wheel and the heel scouring strip are of the same width, and the ability to scour heels without damaging the upper depend entirely upon the skill of the operator.

As a general rule, the wheel must be of convex construction for practically all women's shoes, because all heels, except the extremely low ones, are not graceful unless they have a certain amount of shape. For men's heels, flat shapes are universal, and the widths vary from $1\frac{1}{4}$ " to 2". For women's heels, the various shapes have been standardized, "A" being the flattest of the simple curves and "OG" being the sharpest of the compound curves. "A" shape is used quite generally on low heels, such as we find on the shoes of misses or growing girls, while the sharper shapes of "AB" and "B" are found on heels of medium height, such as we see on ladies' afternoon or sport shoes, while the best example of the "OG" shape is the Louis heel, which is the highest of all and is found most generally on evening slippers.

The only change which has taken place in the heel scouring situation during the past year was the introduction of fibre or leather-board heels on ladies' shoes.

The bulk of the heel scouring materials are close coated, as this type of coating seems to give more production and a smoother finish than the open coated material, which is used very effectively under the light pressures for bottom buffing. On the coarser grades of heel scouring in both flat and moulded shapes grades Nos. 40 to 60 Combination (which is a combination of paper and light weight cloth, glued and rolled together before coating) is most generally used. It is less expensive than cloth and considerably stronger than paper. On the finer grades, such as are generally used in the second and third scourings, namely, grades Nos. 100 to 150, 130 weight paper is used quite extensively on men's shoes and very sparingly on women's shoes, due to the difficulty in making perfect shapes and in retaining the neces-

sary strength after having been deformed in moulding. It is seldom, if ever, necessary to use a grade finer than No. 180 on heels, as the proper inking and bur-nishing produces a most satisfactory sur-face.

Shank sanding is usually done on a

"Naumkeag" pad, where the power is also taken from the buffing machine, but the head is movable and can be tipped through quite a wide angle in order to cover the surface of the shank. The grit numbers most generally used for shank-ing out are Nos. 120, 150 and 180.

SHOEMAKING THREADS

In considering the values of threads used in the bottoms of shoes it is first necessary to sum up requirements of shoe bottoms in production and wear.

Shoe bottoms make contact with the ground. If the ground is wet, muddy or snow-covered, they make contact with the dampness and must be rea-sonably proof against it in more or less degree, according to the nature of the footwear to which they are at-tached.

Threads for shoe bottoms then should have (a) very little stretch, (b) they should resist pressure, (c) they should be reasonably proof against wet, cold, dryness and heat.

Linen Thread

Linen is a strong and sturdy sewing thread for a seam of great tensile strength. It is manufactured for the shoe manufacturing and shoe repairing trades, and it is used very extensively for welt sewing, as well as stitching the bottoms on high-grade McKay and turn footwear.

There is a limited amount of flax grown in this country, and the bulk of the raw stock used for linen thread is imported. Flax is the outer fibres of the stalks of flax plants. Each fibre is long and it has body. Any single fibre can be compressed a little,

but it will come back. When the fibres are separated from the plants the flax straw is tied in bundles and steeped in water for a considerable length of time until everything that water will soften and destroy has left the fibres. It is then made into thread.

Because of its additional strength, linen is used almost exclusively by shoe repairers, due to the fact that the con-tinual stopping and starting of machines puts a great strain on the thread. In the bottoming of welt shoes, it is usually not necessary to remove the welt, and the new sole is simply lock-stitched to the welt, using linen in both shuttle and lockstitch. Here the holding power of the seam depends greatly upon filling the needle and awl holes with thread.

The holding power of the lockstitch seam depends upon filling the needle and awl hole with the thread and the proper location of the lock. *The needle and the awl hole must be completely filled with the thread to make a tight peg* or the stitching will not hold when the face of the seam is exposed to wear.

Types of Thread

Flax (or linen) and cotton rank more importantly than silk for upper sewing, in so far as volume is concerned. Linen or cotton can be bleached or dyed any color for any shoemaking re-quirements.

COMPOSITION AND FIBERIZED SOLES

THE primary function of the shoe sole is to give wear and protection. Equally important considerations are

- comfort, health and salability. With these requirements in mind, it is generally agreed that an ideal soling material should be long wearing, water-proof, flexible, insulating, non-slip, attractive in appearance and light weight.

Shoe Sole Group

The properties of a shoe sole and the degree with which it approaches the ideal depend largely upon its structural base. All soling materials may be grouped into two classes according to their bases, viz.: leather as one class and composition or fiber as another.

The composition class includes all rubber, composition and various types of fiber soles which have rubber in some form as a common base.

Solid Rubber

The old type of sole made from solid, compact rubber, the binding material being mainly pigments, is practically obsolete.

In common use, however, is the crepe sole which is not moulded, but simply died out of a crepe sheet of pure rubber produced at the plantation which has in it no vulcanizer and no coloring matter.

Composition Sole

The black composition sole as it is generally known to the trade is of rubber composition containing carbon black, which adds materially to its wear. This type of sole has long wear and for

this reason is used principally on heavy duty or work shoes.

The composition sole can be compared to the outer tread of an automobile tire in that it is tough and long wearing and can be made in designs for non-skid effect.

Gum Sole

The so-called gum sole, with the very minimum of vulcanizing material in it is practically pure rubber. Specific gravity is so low that it will float in water. It has super-wearing and gripping qualities, a very soft tread, and is used chiefly on basketball and indoor gymnasium shoes. Obviously pure rubber is not practical for street shoes, as it will not hold its shape, but for types of active sports footwear referred to it is unequalled because of its long-wearing, light and flexible qualities.

Fiberized Sole

The most important unit may be referred to as a fiberized sole, of which there are several reputable types in current use. They are the result of the evolution from the original heavy rubber sole.

As distinguished from the composition sole, the fiberized sole comes mostly in colors; besides having good wear it is flexible and readily adaptable for sport or athletic wear, and it does not mark surfaces as does the composition sole.

These soles are usually of the moulded variety, made by subjecting a compound of fiber, crude rubber, color and vulcanizing agents to conditions of heat and pressure.

Ques.—In how many colors can the modern type sole be made?

Ans.—The modern fibre sole can be made in any color, the cost depending upon the shade required.

RUBBER HEELS

SOME thirty years ago the only rubber heel that was thought suitable and practical for shoe factory use was one that contained a soft metal screen imbedded in the rubber near the bottom part. Many years before the washer type rubber heel came into extensive use on new shoes, the repair trade had built up a big rubber heel business, and its replacement of leather heels was nearly 100 per cent. People in this way became accustomed to wearing rubber heels, and would not be denied them on new shoes.

Up to a few years ago, little change had taken place in the development of the rubber heel. The washer had become a necessity, and as many thought, a fixed component part of the rubber heel. It seemed the only satisfactory means for preventing the nails from pulling through the rubber. It also served as anchorage for the nail head, but this didn't prevent the nails from pulling loose.

Combination Leather and Rubber

Another type of heel that is finding much favor is a combination leather and rubber heel that has the advantages of both, and none of the disadvantages. The wearing surface of the rear portion is rubber, with the rest of the wearing surface leather. This rubber portion is recessed under the leather, thus giving the needed cushion effect. This combination heel gives a uniform wearing tread long after the sole has worn through.

The three-grade plan of rubber heels is now being universally recognized and manufacturers of rubber heels are stressing this more and more.

The question comes up as to what should be the top grade of heel. Logically the combination leather and rubber heel should occupy this position for

the reason that it is already established as a top grade heel, being part of the equipment of the highest grade shoes made.

The public is fast recognizing this fact, so they naturally will associate the combination leather rubber toplift with quality shoe repairing. Every shoe repairer should stock this heel. It has many advantages over the rubber heel, chief of which it can be trimmed down closer, making it necessary for the shoe repairer to carry fewer sizes.

Latest Development

The latest development in rubber heels on the washerless idea is a special fibre board base, vulcanized and built into the rubber heel, which not only makes it possible to counter sink the nail heads, but holds them in place without pulling through and gives a tight joint.

One large manufacturer is using this type of heel exclusively, and several of the rubber heel companies are planning to place this rubber heel on the market in a big way.

To Best Serve His Purpose

It has been definitely established that only 15 out of every 100 customers for rubber heels specify any particular heel, so it behooves the shoe repairer to put on the heel that will best serve his purpose regardless of whether the heel is nationally known or not. The shoe repairer's reputation is built on his own workmanship and the materials he chooses to select. The public looks upon him as being the judge and if his judgment in the selecting of materials is good, the customer will come back; otherwise the customer is not only lost to that independent repairer, but shoe repairing on the whole has been discredited.

THE BUILT-UP HEEL

Until a few years ago, practically all heels were of the built-up type. This is the only type of heel that is sturdy enough to stand outdoor wear without injury and defacement. It is only in comparatively recent times that heels of a much more fragile and delicate sort were ever thought of for street wear. The built-up heel is the original and is made by placing layers of lifts one on top of another, each lift being slightly smaller than the one beneath it until the desired height is reached.

One of the manufacturing developments which has added welcome variety to built-up heels is the use of leather fibre. This product is now widely used by makers of all grades of shoes. In heels especially, it has introduced many new and interesting style possibilities.

Leather fibre, or "leatherboard" as it is also called, is leather, to all intents and purposes in its own field.

Leatherboard or leather fibre, as it is made today by the better manufacturers, contains approximately 90 per cent leather. The rest is of other materials including vegetable fibers, coloring, etc., which add certain desirable qualities to the leather fibre sheets, which are not obtained when leatherboard is made of 100 per cent leather.

New finishes and color variations are easily introduced in the process of manufacture. The design effect in built-up heels now so popular has almost no limit in this material.

To the woman whose footwear horizon is not bounded by appearance and style alone built-up heels present other interesting qualities. These include both fit and comfort. The lighter weight of leather fibre makes it possible to meet one objection which some women have to shoes of the sport type—that is, their heaviness.

WOOD HEELS

A faulty point often seen is use of heels with too much pitch. This makes for very clumsy appearing shoes. In a general way, it is safe to say that when the foot is in the shoe and the weight on it, the back edge of the top lift should fall vertically under the point where the foot and shoe come in contact at the upper part of the back.

Much of the appearance of the shoe depends upon harmonizing the line of the breast or groove of a Louis heel with the other curves of the shoe.

Today the heel may mar or make the success of the entire shoe pattern. Once the purely utilitarian value of the heel

is recognized from its proper orthopedic standpoint the buyer of footwear is influenced by the style, contour and height. These three elements, in combination, often indicate the purpose for which the shoe is intended, whether for street wear, formal dress, active sports or other use.

The basic value of the wood block and the workmanship exercised in the making and finishing of the heel are, of course, fundamentally important, but it is the almost microscopic differences in the treatment of lines and curves which determine whether or not the heel possesses style.

STARTING ON A SHOE STRING

Just as good a place as any to start your better service plans is with the proverbial "shoe string." Many shops have needlessly let this valuable part of their findings business go to the five and ten cent stores in the last few years.

It is true these stores sell a lot of laces but do you know why? Simply because they *show* laces. To sell merchandise of any kind today you have to take it from under the counter and put it out where people can see it. Shoe laces especially so.

You, yourself, have probably gone for days with a broken lace in your shoes and sworn each night and morning that you would certainly get a new pair that day only to forget them again if you didn't happen to see any laces during the day.

Every one has this same experience. If you show laces in your shop window and on your counters, you can pick up these extra nickels, dimes and quarters. People buy new lace much more often than they have shoes half-soled. Quite often the customer you attract in off the street for a pair of laces will be reminded of a repair job he needs done and will bring you other work also.

When you buy laces, don't worry about the dime stores. Have you ever examined the laces on dime store counters? They are usually the cheapest and commonest variety, carried in black and brown only and suited to the cheapest shoes. Very few of them ever offer laces for better grade shoes or present color and style trends in women's shoes.

Your opportunity for making a profit on laces is in grading up your own stocks and selling the better laces the public can't pick up at the dime store or the corner drug store. Insist upon good laces attractively packed for dis-

play when you buy from your jobber. Ask him to keep you informed about the colors and styles that will sell best. His sources of supply also make the laces for shoe factories and can always tell him what types and colors of laces have gone into the shoes made for each season.

Don't let the fact that one of your competitors down the street is buying the cheapest laces he can find and selling them two or three pairs for a nickel bother you. When you buy laces, buy shoe laces not price and sell them the same way.

Your customer expects to pay 5 to 10c a pair for mercerized laces and more for silks and rayon. When he comes into your shop to buy laces, he is interested in a pair to put in a particular pair or pairs of shoes. He doesn't even want two pairs of the same lace for his nickel. He has no place to put the extra pair. Nine times out of ten it gets dropped into a purse or pocket and is misplaced long before he has any use for it.

You have only created the impression that your laces cannot be much good or they would not be so cheap and this is usually true. Laces you can buy cheaply enough to sell like this are seldom standard merchandise. Good laces, like any other merchandise, always command reasonable prices. When a jobber offers you laces at unreasonably low prices there is always a good reason for it.

For example, cotton yarn is the base for cotton laces, glazed yarn work laces, waxed laces and mercerized laces. When the raw cotton yarn is selected, the final wearing qualities and the final price of these laces are pretty well determined right there, as processing and making costs run fairly uniform.

If a cheap, short staple cotton is selected so the final price can be very

low, the cotton fibres are too short to get enough twists or "wraps" around each other to make a strong yarn. Regardless of what finishing processes are given them, laces made of this cheap short staple cotton cannot help wearing through quickly even though the finished lace may *look* all right.

It is not safe to take a chance on cheap laces thinking your customers do not know one lace from another. Some of them don't but after they put the lace in their shoes they soon find out the difference. They won't come back and complain about the poor service the laces gave, but there is nothing more aggravating than having to replace a broken shoe lace and if the lace is one

you sold your customer only a few days before, you can be sure he is going to remember it. He is also likely to think you just don't handle good supplies and take his repair work elsewhere, too.

And don't just confine your better laces to those you are going to sell over the counter. Buy good laces to use in your repair jobs, too. Dress up every job you turn out with a new pair of good laces. The improved appearance of the shoes will nearly always enable you to add the few pennies extra cost to the price of the job. When you don't add your cost, you will still find using good shoe laces just about the best and most economical advertising you can do for your shop.

Findings Profits Pay Repairers' Overhead

Many shoe repairers overlook the profit and the service they can render to their customers by renewing the inside of the shoe with ready-made, easily attached findings items.

When your customer brings in a pair of shoes to be repaired; after demanding what is necessary on the outsole and heel, just run your hand inside the shoe, and, if you notice that the insole is rough, dried and cracked by perspiration, or depressed at the ball or under the toes, suggest a new leather insole.

A genuine Leather Insole makes a smooth, solid, comfortable walking surface, filling in depressed areas and making the shoe feel like new again.

Repairers often get from 20 to 35c for this service, depending on the grade of sole used.

Many times, you may notice that the sock lining in a woman's shoe is soiled

or worn. Suggest to your customer a light sock lining to harmonize with the color of the shoe lining and make a clean looking inside to the shoe. These sock linings are inexpensive, but put a finishing touch on a repair job.

Wide awake repairers realize the advertising value of imprinting their name on sock linings. This not only reminds the customer where the shoes were repaired, but the slightly added charge for the sock lining means added revenue to the repairer.

If the heel lining of the shoe is torn, suggest a heel lining repairer or a repair back. There are many kinds on the market made of sheepskin, calf or kid-skin, in either grain or suede leather. These are cemented and stitched in the shoe in a color to harmonize with the shoe lining. Inexpensive though these repairers are, they bring a handsome profit.

PART III

SHOE CONSTRUCTION

THE CEMENTED SHOE

THE cemented shoe was a development to meet a demand for quality merchandise, tuned to the modern trend for comfort and trimness of line. If made correctly, these modern shoes have lightness, flexibility, lasting shape, proper proportions and sound construction.

Questions have been asked about the cemented shoe regarding burning of the feet, flexibility, aging on the retailers' shelves and how they compare to other types of footwear. The adhesive does not come in contact with the foot. Then again a properly formulated adhesive is one of the best conductors of heat we know of. Burning of the feet is, therefore, entirely due to the fit and tread of the shoe, and the materials of construction used.

The flexibility of the shoe is controlled by the stiffness of the shoe materials used and the method of construction. Actual tests have proven that the stiffness of these materials can decrease the flexibility of the finished shoe over one hundred per cent, while the adhesive if properly formulated can affect this only very slightly.

Shoe materials, especially leather, are very responsive to heat and humidity. They lose moisture when it is hot and absorb it when damp. Shoes kept at a constant degree of temperature and humidity showed no tendency to dry or stiffen, when tested at intervals, for a period of six months, which was the duration of the test. In this test the adhesive was varied and no connection could be noted between the cement and the results of the test. When these shoes were later exposed to normal air drying conditions, the stiffness increased. Therefore the claim made by some retailers that cemented shoes tend to stiffen on their shelves due to the ad-

hesive used, is erroneous because the effect noted is the drying out of the shoe materials, particularly the leather outsole. Proper treating of the outsole leather to render it more flexible before use improves this condition materially and in no way affects the wearing qualities.

Innersole Type

(a) The cement lasted and cement soled type is one in which the upper is held to the insole and the outsole to the upper by the use of pyroxylin cement.

(b) All operations are standard except that the forepart of the upper is held to a light weight insole by the use of latex cement and the shank is staple or tack lasted.

Single Sole Method

This method of lasting and soling a cemented shoe has been successfully introduced and shoes made this way have the lightness and flexibility which is characteristic of all single sole shoes. In a strict sense of the word, this shoe does not carry an insole. A good leather outsole of 9 iron is used, which is split mechanically through its length.

The split section of the outsole with the open center forepart which serves as an insole is tacked to the last and the shoe upper is lasted to this with pyroxylin cement.

The split outsole is cement attached by any established process to the lasted upper, eliminating the use of an insole. The inside of the outsole is smoothed and sock lining inserted, presenting a perfectly smooth surface to the foot.

Cemented Welt

In this type of shoe the upper has a welt sewn to it and the outsole is at-

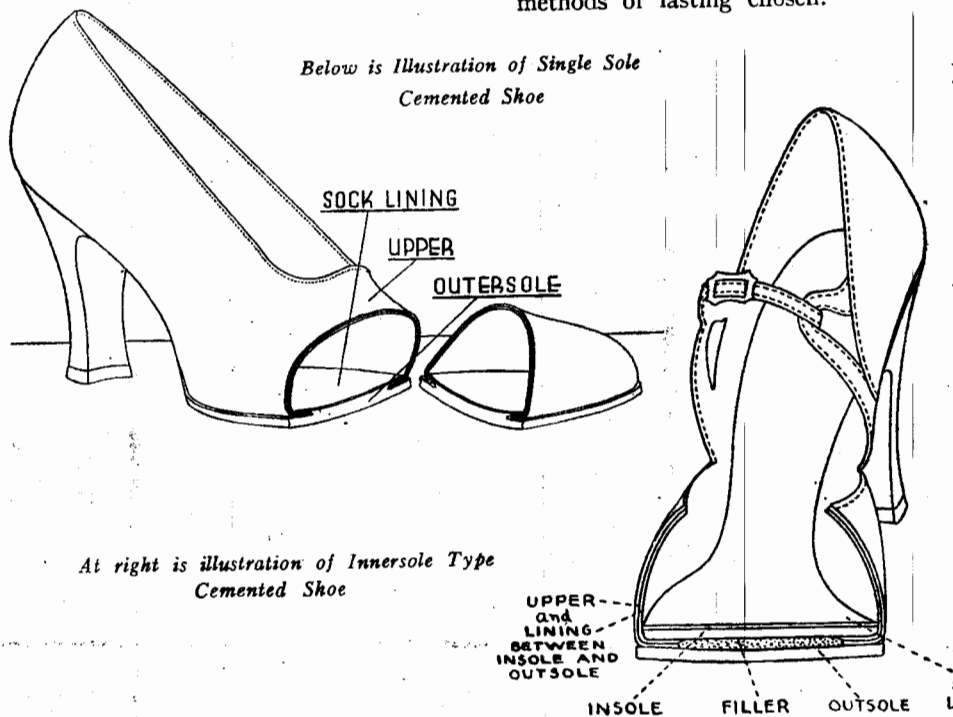
tached to the welt and in-seam with cement. There is no change in the insole, compared to the regular welt type.

The insoles are tacked to the lasts in the usual way and the lasting performed in the usual manner.

The welting is then roughed and the welt and in-seam cemented. Meanwhile, the soles have been prepared in the stockroom and both are now ready for sole attachment. From here on the operation is the same as given under (a).

Below is shown how these three main divisions have naturally been varied to suit conditions, ideas, and manufacturing, and merchandising policies of the shoe manufacturer. Regardless of the variations, the fundamentals of construction and manufacture are common to all types.

In any of these shoes, the operations of cutting and fitting are all standard. The upper is assembled and pulled over the last, as usual, and then the various methods of lasting chosen.



Trade Name Processes

Bain—Insole type.

Compo—Insole type, single sole, cemented welt.

Delmac—Single sole type.

Delwelt—Cemented welt.

Littleway—Uco or single sole type—if a cemented shoe; otherwise described under insole type.

Shicca—A single soled type.

Silhouwelt—Cemented welt.

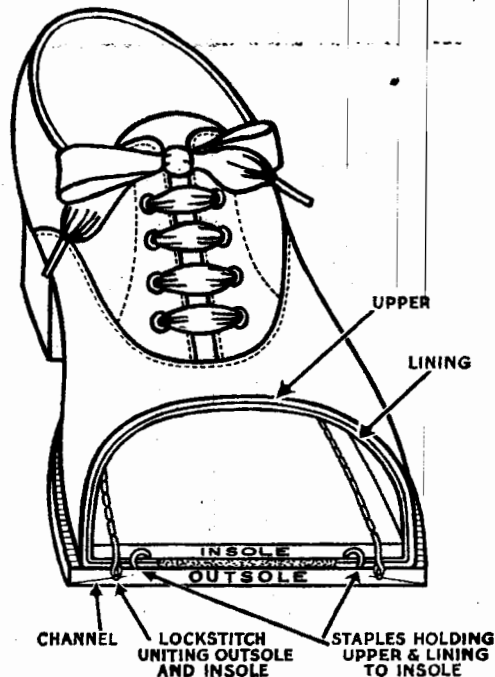
Uco—Insole type.

THE LITTLEWAY SHOE

IN general construction this shoe resembles the McKay but is radically different in detail, for no tacks are used in lasting so that there are no tack points appearing on the surface of the insole. An ingenious staple has been devised, driven by a machine by means of which the prongs of the staple—which are made from a fine wire—reverse inside the material of the insole and do not appear on its surface.

The stitch used in making this type of shoe is also different, being a lockstitch in the setting of which the leather is under compression so that the stitch is sunk slightly below the surface. The shoe is then trimmed and all the various operations necessary in finishing are carried out. As in making other types of footwear a sock lining is used which covers the single row of lockstitches which alone appear on the surface of the insole.

If identification mark is not used, it is necessary to lift the sock lining and ascertain whether there is a row of stitches made by the lockstitch sewing machine.



Ques.—Upon what do the properties of a shoe sole depend?

Ans.—The properties of a shoe sole and the degree with which it approaches the ideal depend largely upon its structural base.

Ques.—What is one difference between shoe dressings of the past and modern dressings?

Ans.—The shoe dressings of the past gave a hard finish which was liable to crack, while the lustre given by the modern shoe cream is of a softer and less aggressive nature.

Ques.—Why do shoes made by the Littleway lasting process require a heavier insole than do McKay?

Ans.—Shoes made by the Littleway lasting process require a heavier insole than do McKay, for the reason that being lasted with five staples which clinch in the sole, more substance is needed.

Ques.—What materials were used for the early linings of shoes?

Ans.—Sheepskins and lambskins were used for linings from the beginning of the shoe industry in this country.

THE McKAY SHOE

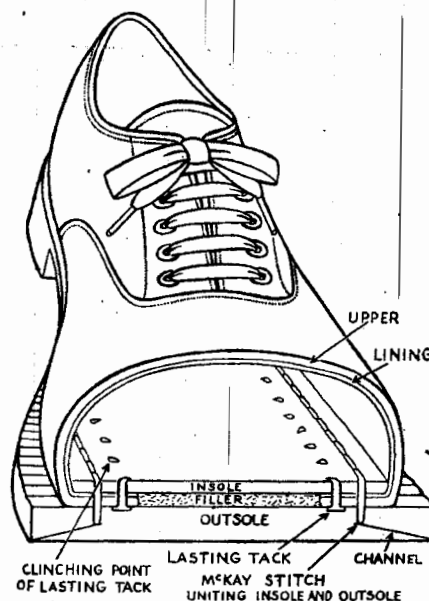
THIS is the type of shoe that revolutionized the making of footwear. The shoe last used in the McKay process has a steel bottom with three small openings through which tacks are temporarily driven to hold the insole in place prior to the lasting of the upper. These tacks are subsequently withdrawn.

After the insole is correctly positioned on the last, the upper and linings are pulled tightly over the last and fastened to the under surface of the insole by means of tacks which actually penetrate the insole and are clinched permanently against the steel bottom of the last.

Such a clinch is, or should be, a short turning back or stubbing of the fine point of the tack, afterwards visible inside the shoe only as a small speck of metal, but strong enough to make the tack a fixture for the life of the shoe.

Following various other operations the shoe is then made ready for the operations of sole-attaching by means of the McKay seam. This seam is a chain stitch and passes through the respective thicknesses of outsole, upper, lining and insole. This seam is so positioned as to lie between the lasting tacks and the edge of the insole. It is obvious that before sewing the last has been removed from the shoe.

The shoe is then levelled on a machine designed with a steel foot which



goes inside the shoe and a forming mould on the outside of the sole. The required pressure is applied to smooth the insole and assure a comfortable interior. For additional comfort and appearance the insole is subsequently covered with a sock lining.

This represents the cheapest type of all purpose shoe construction. If the innersole and outsole are not properly separated by means of a filler the chafing of the leathers cause squeaking.

Ques.—What is unusual about the welt method of construction?

Ans.—*This construction is unique in the formation of the two seams used and their unsurpassable positions of advantage in the shoe bottom.*

Ques.—Why is the welt system always associated with footwear of a good type?

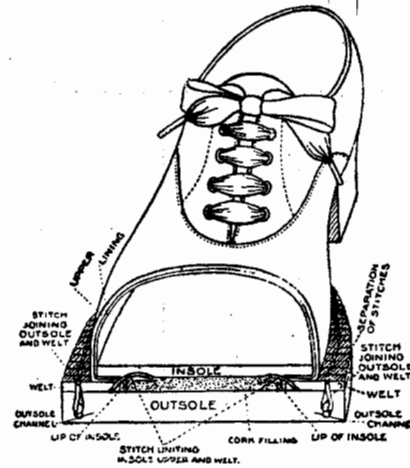
Ans.—*The welt system is always associated with footwear of a good type because it cannot successfully be debased and this has helped to maintain the high repute in which it stands.*

THE GOODYEAR WELT SHOE

CONSIDERED to be the nearest to perfect construction evolved by master craftsmen in the heyday of hand made shoes, the welted system has not changed in principle since it was perfected over a century ago.

This construction is unique in the formation of the two seams used and their unsurpassable positions of advantage in the shoe bottom. There is a hidden seam of sewing, holding together the welt, the upper and the insole, and this is flat sewing which shows an almost horizontal position in cross section. With this seam, which is the primary attachment of the shoe bottom, there is no direct penetration of the insole or the welt, although it goes squarely through the upper and the linings contained therein. It is made by a curved needle which passes obliquely through one edge of the welt, direct through the upper and then through a raised rib made on the flesh side of the insole by means of two parallel opposed channels, the rib being the substance left between the beds of these channels, amplified by the two channel lips erected at right angle to the face of the insole. This is a chain stitch seam and is called the inseam. It lies on the opposite side of the insole to that which touches the foot of the wearer and the inside of the shoe is therefore clear of all thread.

An important point in connection with this seam is the fact that it is the only fastening for the upper in the shoe bottom, except, possibly, at the heel seat. None of the lasting tacks or staples or insole positioning tacks are left in the bottom after the welt is sewn in. As the inside of the shoe is thus clear of metal and thread under the



Cross-section of a Goodyear Welt Shoe

wearer's foot, no sock lining is required, except at the heel seat.

The outsole is attached by means of a seam of stitching which, viewed in cross section, is of vertical formation. It passes through the flattened welt and the edge of the outsole. This is a lock-stitch and is called the outseam. It is outside the area of greatest pressure in wear, since it does not come immediately under the sole of the foot but lies in what is virtually a small extension jutting out from the sides of the main structure of the shoe. This, in actual practice, means that the seam does not meet the same degree of wear abrasion as other areas in the center of the outsole. As the outseam is the final bond which seals the construction this position of immunity is very important.

Both seams are formed of strong threads of slightly different types and these are waxed when the stitches are made. The wax solidifies very rapidly after sewing, so that in effect the ten-

Ques.—What is one of the great advantages of the welt shoe?

Ans.—The welt method gives a useful choice as to how and where flexibility shall be imparted or retarded. Also the welt shoe best lends itself to repairing.

sion of each stitch is locked by the wax immediately. Wax of this nature proofs the thread against moisture in wear and thus maintains the tension during the life of the shoe.

No other shoe construction gives exactly the same advantages as this one. There is something additional in the fact that the degree of flexibility

put into a shoe bottom of this sort is literally in the hands of the shoe manufacturers and may be practically predetermined for bulk production. Flexibility in shoe bottoms is a relative matter, some models require much, others little. The welted method gives a useful choice as to how and where flexibility shall be imparted or retarded.

THE PRE-WELT SHOE

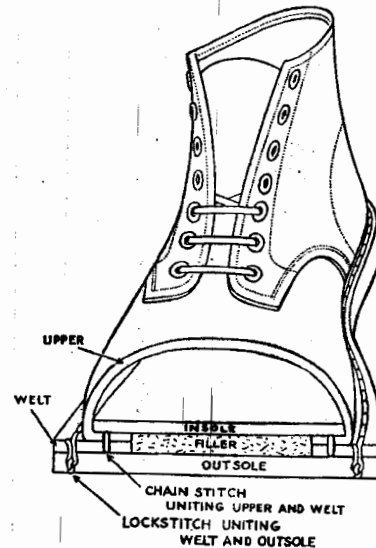
THIS is a welt type of construction used in the manufacture of infants' and children's shoes. To a certain extent, it supplants cacks (infants' turn shoes) and stitchdowns in sizes 0-5 and 5-8.

After the shoe upper is completed in the fitting room, a welt is sewed all around the lasting edge of the upper with the Puritan chain stitch.

Previous to lasting, a light weight insole is tacked to the bottom of the last. After pulling over, the upper is lasted and held in position with upstanding tacks, until the cement which has previously been applied to the bottom of the insole margin has set.

The tacks are then pulled, a felt filler of proper size and thickness to equalize the combined thickness of the welt and upper placed in position. The outsole is then laid and attached to the welt on the Lockstitch machine.

It is obvious, from a reference to the cross section diagram, that there is no permanent fastening of the insole to any of the other parts of the shoe except by means of the cement used in lasting.



Cross-section diagram of Pre-Welt Construction

It is chiefly for this reason that this type of construction has no legitimate place in the construction of shoes other than in infants' and children's sizes.

Ques.—What is a pre-welt shoe?

Ans.—*This is a welt type of construction used in the manufacture of infants' and children's shoes. To a certain extent, it supplants cacks (infants' turn shoes) and stitchdowns in sizes 0-5 and 5-8.*

Ques.—Has the welt system changed since it was invented?

Ans.—*The welt system has not changed in principle since it was perfected over a century ago.*

Ques.—Is the solid rubber sole used much on shoes?

Ans.—*The old type sole made from solid compact rubber is now obsolete and is being replaced by the crepe sole which is made from pure unvulcanized, uncolored rubber.*

THE PEGGED SHOE

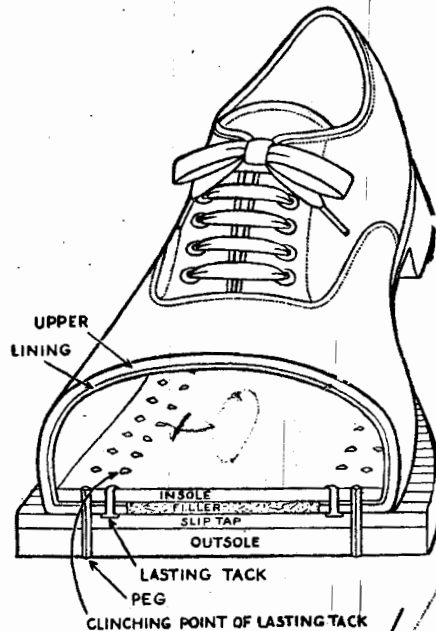
THIS method of shoe construction is now used in only a few factories for the manufacture of a limited type of work shoe.

After the upper has been assembled it is pulled over the last to which the inside has been tacked. It is then lasted by tacks driven closely together through the shoe upper and insole, against the steel bottom of the last. A slip tap is used to double the thickness of the forepart of the sole, and it has a skived edge to reduce the thickness of the portion nearest shank of shoe. A doubler increases the thickness of the edge in the shank of the shoe, to which a wooden shank piece has been attached. The complete outsole, with slip tap, doubler and shank are moulded to conform to shape of last and stitched to imitate appearance of welt shoe. The outsole is then tacked to the bottom by tacks which are clinched against the steel bottom of the last, and the last afterwards withdrawn.

Strips of beechwood, which are fed into a pegging machine and cut by the device into individual pegs, are driven as rapidly as 350 per minute and placed in the shoe bottom at the will of the operator. As they are driven they are

cut off inside the shoe by little knives in the horn of the machine, leaving the insole smooth.

Heel is attached, the shoe trimmed, and after the several finishing operations, the result is a completed peg shoe.



STANDARD SCREW SHOE

THIS method, which at one time was widely used in the making of men's shoes, is now seldom used except in the construction of a relatively small percentage of work shoes.

The steps are practically the same as those for the pegged shoe, to and including the operation where the outsole is tacked to the shoe bottom, after which the last is withdrawn.

In this case the sole is fastened by

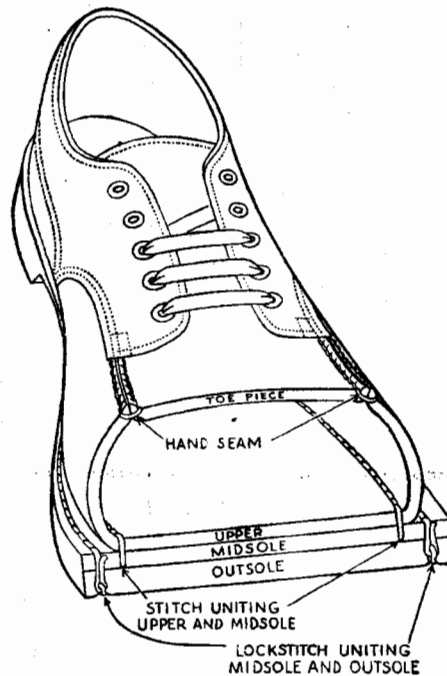
the standard screw machine, the fastenings driven around the entire outline of the sole.

The coil of standard screw wire has a continuous thread which is actually screwed into the leather, the machine automatically gauging the thickness of the sole. Immediately the fastening arrives on the inside of the shoe it is cut off and fed to the next fastener. These are driven at the rate of 250 per minute.

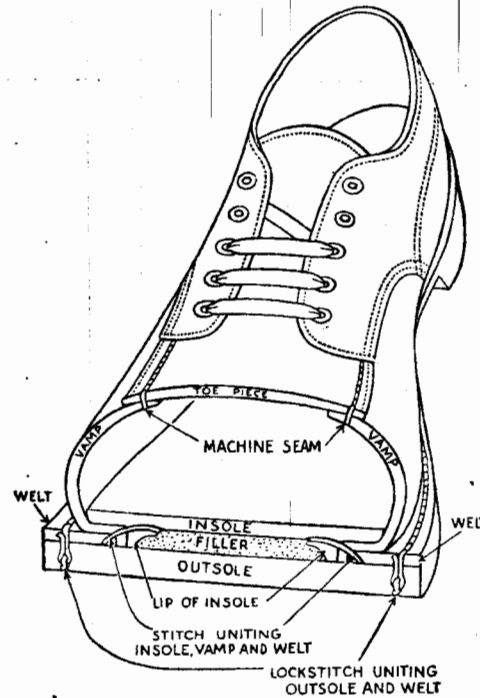
THE MOCCASIN SHOE

THE moccasin is the foot protection of cold countries. The puckered seam which outlines the forepart of the true moccasin is all that remains of the puckering string with which our primitive forebears formed the first moccasin, it being made like a bag, the foot thrust into it, and the puckering string gathered and tied about the ankle.

The mid-sole is attached directly to the vamp, and the outer sole to the mid-sole. Moccasins, compared with shoes, are lighter, more flexible, and the soles are all on the outside where the wear comes.



Genuine Moccasin



Mock-Moccasin

The mock moccasin, or imitation, is merely a welt shoe made to look like a moccasin. The vamp and the toe piece are stitched together by a machine seam; sometimes by a hand seam. The vamp extends only to the edge of the innersole and is stitched to the innersole and welt. The space inside the lip of the innersole is filled with ground cork or other bottom filler, and the outsole is stitched to the welt. Mock moccasins, while not so comfortable as true moccasins, are less expensive, very durable, and offer excellent value to the purchaser.

Ques.—*What is the method of shoe construction which is considered the nearest to perfect?*

Ans.—*The welt system is considered as the system which is nearest to perfect.*

THE TURN SHOE

TURN footwear is created by a process which has stood the test of time and experience, and these shoes are noted for their fine fitting qualities, flexibility, lightness in weight and comfort. Sad to relate, however, in these modern, high pressure days modest virtue in commodities is frequently lost in the demand for cheapness, and shoes that are less carefully constructed are sometimes chosen over the turn which never lends itself to shoddy shoemaking.

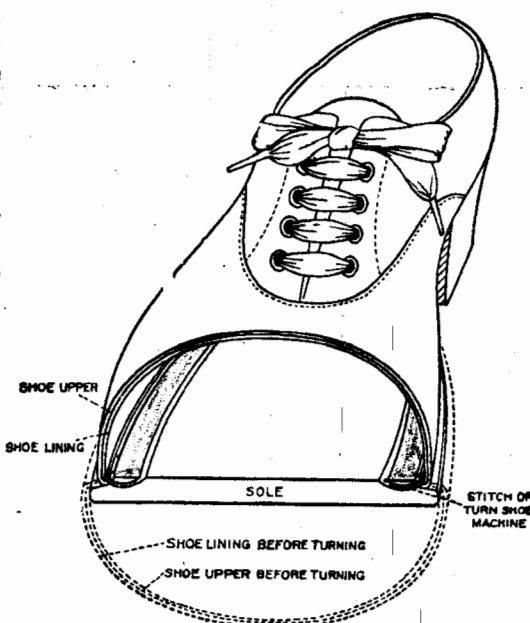
This is a very old method of making shoes which are, as the name implies, first made wrong side out and after the last has been removed temporarily, turned right side out. This type of shoe has but one sole, which explains its great flexibility. The sole is cut to the required shape, and is further prepared by forming a shoulder around the edge against which the shoe is lasted, and also a slit or channel into which the stitches are sunk. The upper and lining are stitched tightly to the sole.

After this has been done the last is removed and the shoe turned right side out and relasted by hand, the heel added, and all of the various operations necessary in completing it are carried out.

If no identification mark is used it is necessary to lift the sock lining which is generally used in this type of footwear, uncovering the stitch which will be found sunk in the little channel along the edge of the inner surface of the sole.

As the lasting tacks are driven but part way in and afterwards removed, none are in evidence in the finished shoe.

Turn shoemaking is confined to a



comparatively few of the footwear factories because the number of thoroughly trained workmen, many of whom can boast two or three generations of turn shoemakers in the family, is limited, and not many manufacturers wish to undertake the long and expensive process of training operators for the work.

There is a staple demand for this type of shoe. While there are certain kinds of fancy fabrics and some intricate designs to which the turn process is not adaptable because they cannot stand up under the intensive working and moulding of the upper to the last, for the great volume of women's afternoon and evening shoes there is no more practical class of footwear for style, comfort, and appearance.

Ques.—What is "leatherboard"?

Ans.—Leather fibre or "leatherboard" as it is also called, is leather, to all intents and purposes in its own field and the service it gives for many uses is quite equal to that of leather.

THE STITCHDOWN SHOE

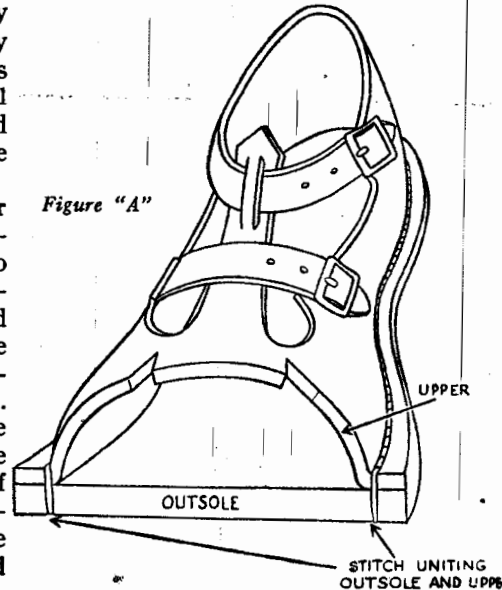
INFANTS', children's and many grades of juvenile shoes are commonly made by the Stitchdown method. It is one of the oldest and most practical processes of footwear construction, and continues to occupy an important place in the industry.

First, consider the single sole, or sandal type, commonly used in the production of infants' shoes. Reference to Figure "A" shows that the shoe is composed of two parts only—the upper and the sole. As implied by the name, the upper is turned out and stitched directly to the outsole in this position. The seam goes completely around the shoe. The shoe may, or may not, have a counter or heel re-inforcement, but if there is one, it is moulded with an out-flange, and is thus held down by the sole attaching seam as it passes around the heel seat.

The second type of shoe is the two sole variety. This shoe is made extensively in children's sizes for both boys and girls. A reference to cross section drawing "B" shows that the shoe bottom is comprised of two elements—a mid sole and the outsole. The mid sole also serves as the insole, and on the inside of the shoe presents a smooth surface with no penetration by stitches or metallic substances. This is equally true of the heel seat, due to the fact that the stitching goes around the outside edge as in the case of the single sole variety. A two sole stitchdown carries a narrow strip of welting, which is more completely described in the following paragraphs on the three-sole type.

The third classification in this group is the stitchdown made with three bottom elements, namely, the insole, mid-sole, and the outsole. Obviously this is the most expensive type of construction, and is almost always made with

Figure "A"



lasted-in heel seats. It is not illustrated here.

In the construction of three sole stitchdown, the insole is very generally tacked temporarily to the bottom of the last, and the lining is either drawn tightly around it and cemented to the under side of the insole, or the lining may be lasted out along with the upper.

A middle-sole, which is slightly larger in size and which is made of a piece of light sole leather, or other material, cut to the required shape, is cemented to the surface of the insole, the tacks which were used to hold the insole in place having been previously withdrawn.

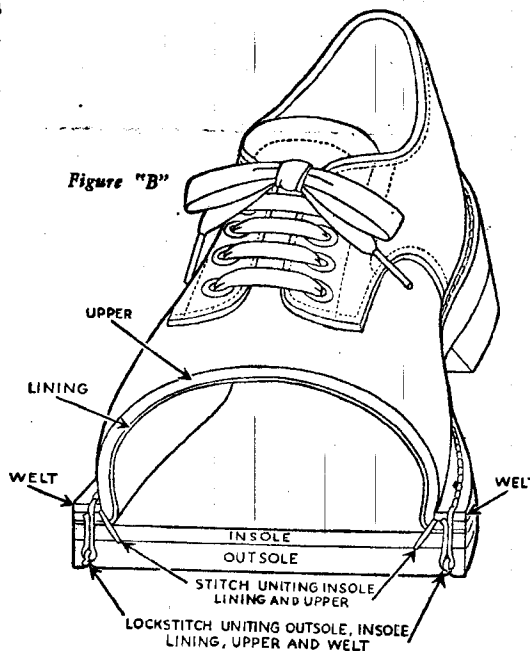
The shoe upper is then drawn tightly over the last with the margin of upper leather turned out. In this position the upper is fastened to the middle-sole by means of thread or fine wire staples driven close to the edge of the last. Thread lasting is the more recent development and is accomplished on a ma-

chine providing a continuous chain stitch seam. This method eliminates the use of all metallic fastenings except as may appear in the heel seat.

After the shoe is lasted, the outsole is attached by means of the Goodyear lockstitch seam. A narrow strip of welting is fed through a special attachment to the Goodyear Lockstitch Machine and the stitching, viewed in cross-section, passes through the welt, upper, middle-sole and outsole. It will be observed that the welt does not perform the function that is required in the Goodyear Welt Shoe. The heel is then fastened in place, the shoe trimmed, and all of the various finishing operations carried through to completion.

In this type of footwear no sock lining is required and the surface of the shoe will appear perfectly smooth inside, as in the Welt Shoe, so that in establishing its identity it is necessary to observe the position of the welt. The welt is used in this instance to protect and reinforce the upper which would otherwise be exposed at the lasting line.

Figure "B"



Early Shoe Industry in United States

Available records do not show clearly when or where footwear was first made by the white settlers in the Colonies which later became the United States. It is definitely known, however, that two shoemakers from England arrived in the Massachusetts Colony prior to 1630, to work at the trade and also to supply other settlers with boots and shoes.

After consistent efforts to improve the quality of the American-made boots and shoes, a patent was granted in 1809 for making "iron-bound" shoes. By this method the uppers were joined to the sole by rivets and staples, and it was claimed that by this process no thread and less leather were required. Pegged boots and shoes were manufactured in this country as early as 1812. About this time considerable efforts and

time were being expended to develop machinery for the production of footwear.

Beginning in 1851 and continuing through the next 50 years, considerable mechanical equipment was perfected and put in use.

During the last fifteen years, cemented shoes gradually have become very important. In fact, more cemented shoes are being turned out in each succeeding year.

The well-equipped shoe factory of the present day, with its busy hum of modern machines and its up-to-date methods and processes is conclusive proof that during the ages, our shoemakers have ever been on the alert to produce better footwear.

PART IV

THE CARE OF SHOES

Proper Care of Shoes

"Polish your shoes before wearing them the first time." (This applies particularly to patent leather, light colored skins and heavy leathers such as Scotch grain.) Use a good shoe lotion which contains nourishing oils and protecting waxes. The waxes prevent stains from penetrating into the pores of the leather. The oils soften and lubricate, making shoes easier to break-in.

"Patent leather shoes are benefited particularly by such treatment, as the oils penetrate the minute crevices as they are forming—which is the first time shoes are worn—and retard any tendency to crack. Never use a petroleum jelly on patent leather as it dulls the gloss and attracts dust. Besides it may soften the finish to the extent that it separates from the leather. Always break-in patent leathers in a warm temperature.

"After wet shoes have dried, and before putting on shoes which have not been worn for some time, apply a good shoe lotion to nourish and soften.

"Allow wet shoes to dry naturally. Do not place them over or under a radiator to dry.

"Shoe-trees of the proper size and

construction repay their cost many times over by preserving the shape of your shoes, particularly when damp from perspiration, rain or snow. Do not stretch the shoes excessively.

"Two pairs of shoes will last more than twice as long as one pair. Have several pairs of shoes and keep the ones not being worn in a light, well-ventilated place so that they will have a chance to dry and be thoroughly aired.

"If necessary to use a dry cleaner to remove some spot such as grease, tar or chewing gum, use as little as possible. A good shoe lotion containing nourishing oils should be massaged into the leather after the cleaning operation to restore the leather to a normal oil content."

Note: Hides and skins, from which leather is developed, are natural products. Each hide or skin is different. In tanning and finishing hides and skins into leather, pigments are used to obtain an even appearance. Sometimes these pigments are not fast. Rubbing an inconspicuous part of the shoe (such as the tongue, if of the same leather as the rest of the shoe) with a cloth dampened with water will determine whether or not the color is fast.

METHODS OF CLEANING WHITE SHOES TO EXPLAIN TO YOUR CUSTOMERS

1. OOZE FINISH LEATHERS.

White Buck—Brush off all surplus dust and grit with a clean bristle brush, not a wire bristle; go over the entire surface lightly with a bag powder or apply white liquid or tube white polish with a sponge or soft cloth to remove stains. If a liquid or paste has been used, dry before an open window or in the draft of an electric fan, but not in open sunlight. When dry brush carefully with a clean bristle brush.

White Suede—(suede calf, reversed calf, kid suede)—Proceed as for Buck, but after brushing off dust and grit use a fine emery board on any part of the nap that has flattened, being careful not to break the actual leather grain. Then continue with application of white liquid, tube shoe polish or use a bag powder.

For two-tone shoes, the best thing to do is remove any of the white polish which gets on the colored parts of the

leather with a cloth dampened with water, and then to polish with neutral lotion cream. In some cases it is necessary to use colored cream or shoe polish of the proper shade in order to give color to the leather.

In cleaning white shoes of napped leathers combined with dark, smooth leathers it is sometimes advisable to polish the dark, smooth leather with saddle soap after the the white cleaner has dried.

2. GRAIN LEATHERS.

White Calf and White Kid, White Elk Finishes—For calf and kid particularly effective is the use of a white cream or liquid. There are several creams that actually remove spots and dirt, and when dry leave a thin white film to be polished.

Children's elk shoes if very soiled should be cleaned first with an almost dry sponge and heavy soap lather. Laces should be removed and washed separately and left to dry before lacing again. When the shoes are dry the application of a white cleaner gives a surface finish, or the use of a colorless neutral cream or saddle soap protects and lubricates the leather. (This also holds for white reptiles.)

White Fabrics—White polishes applied to fabric shoes should be more diluted than when applied to a glossy leather. Bad stains can be removed with art gum. Care must be taken not to use a cleaner that acts as a solvent for the fabric backing. There are several "satin cleaners" on the market which can be used with good results on white cotton, white silk or white synthetics.

Never put white shoes in open sunlight to dry, nor on top of a stove; a current of fresh air from window or electric fan is best.

Remember that punched through shoes must be stuffed with tissue paper or cloth before they are cleaned, so that the cleaner, liquid or cream, will not seep down between the vamp upper and the drill or leather lining.

Warn your men customers to remove their shoes at the shine stand if they are made with punchings throughout, rather than have the shoes cleaned on the foot with consequent discomfort from cleaner leaks on the hose. This applies to white and dark colored leathers equally.

It is, of course, very important to use the correct type and color of dressings on all leathers, and only by using products which are made especially for each type of leather finish will the wearer enjoy normal service, life, and satisfactory appearance of the shoes.

Smooth Calf and Kidskins

The most popular calfskin finish is a "smooth" calf, which is really a grain tanned calf having a smooth finish. A good quality leather cream (liquid or tube) should be used on "smooth" calf leathers. A neutral cream is suitable for all colors, but when possible to obtain a cream in the same color classification, such as black, brown, tan, blue, or gray, it is preferable to use it. Leather creams are better than pastes for they remove the surface soil and, of course, the oils keep the leather in good condition.

Boarded Calf

As the name implies, this leather is a calfskin leather finished on the grain side and "boarded" by the tanner and, since this operation raises the grain slightly, a very attractive appearance is the result. For some types of shoes "boarded" calf is "boxed" by an addi-

Ques.—What is necessary to give a shoe cream the property of preserving the leather?

Ans.—To obtain this property, shoe cream needs to be very carefully blended, and as many as seven different kinds of wax are used in the preparation of a first class shoe cream.

tional operation which makes small uniform-sized squares or "boxes" on the grain side of the leather. The same type of dressing and treatment should be used on "boarded" calf as on "smooth" calf since it is, of course, also a grain leather.

Reversed Calf

This leather is finished on the flesh side and has a long-fibre rough surface. Either a liquid "reversed" calf dressing, dry stick cleaner or bag powder may be used on this type of leather. Some authorities recommend a liquid because it will restore the leather, and when dry the nap will brush up easily. The correct type of liquid dressing for dark colors is a dye solution, but inasmuch as the use of this type of dressing on light colors is likely to cause streaks since the shoe fades in color under normal wearing conditions, the correct "reverse" calf dressings for light colors are made with a pigment base. The pigment or powder in the dressing allows for variations in application, and if an excess amount of dressing is used the surplus powder brushes off easily when the leather is dry. After drying, the shoe should be brushed up with a white bristle brush, particularly on light colors. A brass wire brush may be used on dark color "reversed" calf leathers, if preferable.

A dry stick cleaner of the best quality is made of pigments, finely ground mineral abrasives, and the correct binders which, when all ground together and kiln dried for a period of 24 hours, result in a permanent color and even texture.

Bag Powders are cleaners in bags and they do a very fine job without streaking. They give an even color result, returning the original beauty and color to the shoe. What is especially important, is the fact that the use of

bag powders eliminates any possibility of injury to the leather.

Suede Calf

The leather commonly known as "suede" is a fine quality calf leather tanned and finished on the flesh side, and has a short-fibre surface. The same type of dressing and treatment should be used on "suede" calf as on "reversed" calf. It is very important to use due care in the application of suede dressings, especially on the lighter shades, and particularly important not to use too much pressure when brushing up the nap after cleaning and dressing the leather.

Printed Suedes

Printed suedes, which actually are finished on the grain side leaving a part of the grain leather on the surface with the indentations of suede, require a special preparation different from the regular suede dressing. If the regular suede dressing is used on such leathers the dye will dry on the grain part of the leather leaving a bronzy effect. Consequently a preparation is needed with less than the amount of dye content usually in the regular suede dressing.

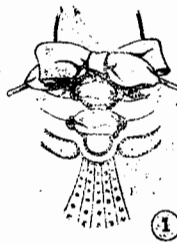
Chrome Side Leather

On white and cream buffed finished leathers, the most satisfactory preparation to use is white or cream suede stick, as the nap is so short that when a liquid is used it is very likely to cause glazing of the finish in a very short time.

Grain Leather

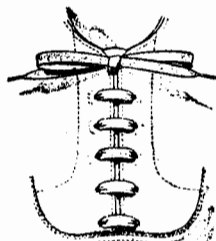
On the regular grain leathers in colors a good leather cream should be used. We recommend a leather cream rather than a paste as the leather creams have a tendency, on the lighter shades, to remove surface soil which the paste does not always do.

HOW TO TIE SHOE LACES



well finished with a generous bow. See Fig. 1. For a tailored or conservative five or six eyelet oxford, a criss cross lacing is generally preferred.

For blucher oxfords, men's or women's, criss cross lacing is more satisfactory because it creates an equal pull on both overlaps and prevents hitching one higher than its mate. (See Fig. 2.)



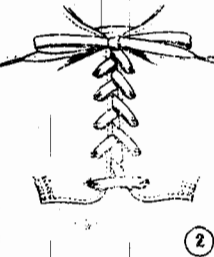
For a man's balmoral oxford, a horizontal lacing shows up to advantage and adds a dressier touch. (See Fig. 3.)

One rule for tying a bow that will stand exactly horizontal and stay that way is illustrated by Figures 4 and 5.

The shoe is in position facing you as would a shoe on the customer's foot. The lace ends should be of equal length. Figure 4 shows the first step or catch knot with the left hand end or "A" under and end "B" over. The same figure shows the second and most important step of beginning the bow.

The trick is in bringing end "B"

down and turning it back to the right to form the first loop. Next "A" is brought up and over the loop thus formed and tied with its loop to the left. Figure 5 shows the bow just before the loops or slip knot are tightened.

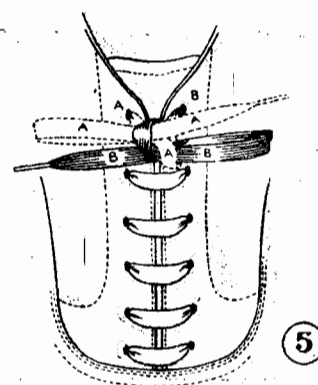
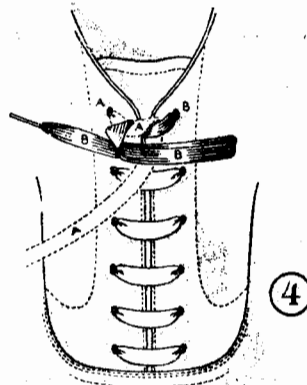


Standard Lengths

Men's and Women's Oxfords

1	Eyelet—12 to 15 Inches
2	" 18 Inches
3	" 21 "
4	" 24 "
5	" 27 "
6	" 30 "

Boys' Ankle Top Shoes—36 Inches
Men's Ankle Top Shoes—40 Inches
Infants' and Children's Oxfords
Infants' Sizes 3 to 6—18 Inches
Children's Sizes 4 to 12—18 Inches
Children's Sizes 12½ to 8—24 Inches
Infants' and Children's High Shoes
Infants' Sizes 3 to 6—27 Inches
Children's Sizes 4 to 8—27 Inches
Children's Sizes 8½ to 12—36 Inches
Children's Sizes 12½ to 3—45 Inches
Children's Sizes 3½ to 8—54 Inches



AIDS TO FOOT COMFORT

There are many items that the shoe repairer's customers must take into consideration when bringing shoes in to be repaired, particularly on while-you-wait jobs.

In the first place the shape of the heel has to be considered, and if the customer runs over the heel, a heel straight pad will sometimes remedy this trouble. These pads are usually made with grained leather heel seat and ponge rubber pad, higher on one side than the other.

When these heel pads cannot be made to fit, a two or three-ply sheepskin heel pad or $\frac{1}{4}$ " cork heel pad can be prepared by skiving these down on one side to take the place of a finished or more expensive walk straight.

If the customer has a tendency to walk on the inside of the shoe, a pair of longitudinal arch supports or a pair of Metatarsal arch supports will serve the purpose, especially when the sole of the shoe is worn through directly under the Metatarsal arch heads.

When there is a depression of the heel, on the inside of the shoe caused by the heel bone continually pounding in this place, which in turn causes callouses and soreness at the heel, a heel cushion will fill up this depression,

cushion the heel, and bring comfort to the customer.

For the customer who has a blister on her heel, many times a heel cushion will lift the heel just enough so that the blister will be lifted out of the counter of the shoe and thus the pressure on the blister is relieved.

With the shoe that is a trifle short, a heel cushion lifts the heel, shortens the foot, and the shoe feels comfortable again.

The loose fit at the instep can be aided by inserting a heel cushion which lifts the foot high enough so as to fit snugly at the instep.

Non-slip linings or Hose Savers should be placed in most worn shoes. These are easily inserted by merely moistening the glue on the lining and inserting it in the shoe. Oftentimes it is necessary for the repairer to stitch these in, and of course there is always a charge for this service.

Stocking protectors, cushion insoles, cork insoles, and heavy felt insoles for winter wear should always be considered by the customer who has a need for these items when the occasion arises. The customer will do well to study carefully the many findings displays, and in this way find some item that will fill a much-needed want.

Ques.—How should wet shoes be treated?

Ans.—Wet shoes should not be worn longer than necessary; wear is faster when the leather is wet. Moreover, if dried too fast leather tends to shrink, becomes misshapen and hard, and leather soaked burns more readily than dry leather.

Ques.—What is a gum sole?

Ans.—The so-called gum sole, with the very minimum of vulcanizing material in it is practically pure rubber. Specific gravity is so low that it will float in water.

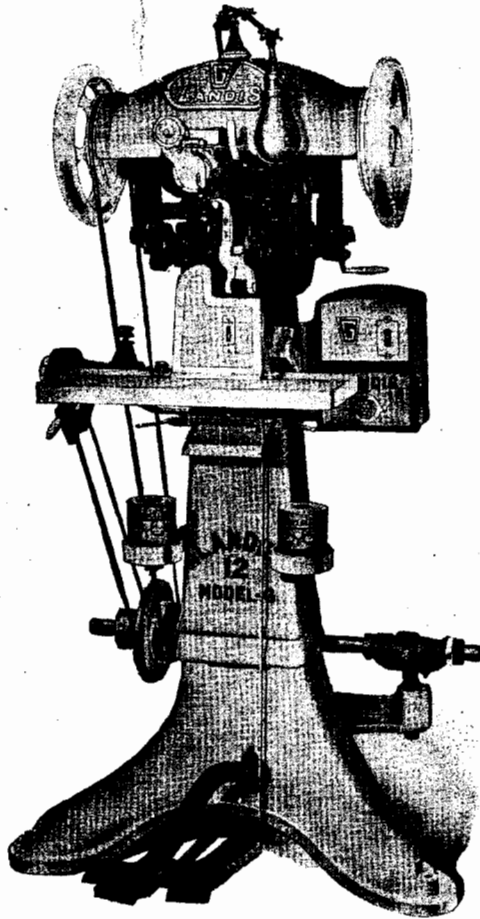
QUALITY PRODUCTS SECTION

On the following pages are featured the announcements of Manufacturers and Tanners who produce high-grade machinery and quality materials for expert modern shoe rebuilding.

To these concerns, whose co-operation has made this Manual possible, we urge that you extend your patronage, in order that the service which you offer the public may be worthy of the best ideals of the Shoe Repair Industry of this country.

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**Foot Pedal. To Release Thread Lock, Release Thread Tension
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CHROME-PLATED
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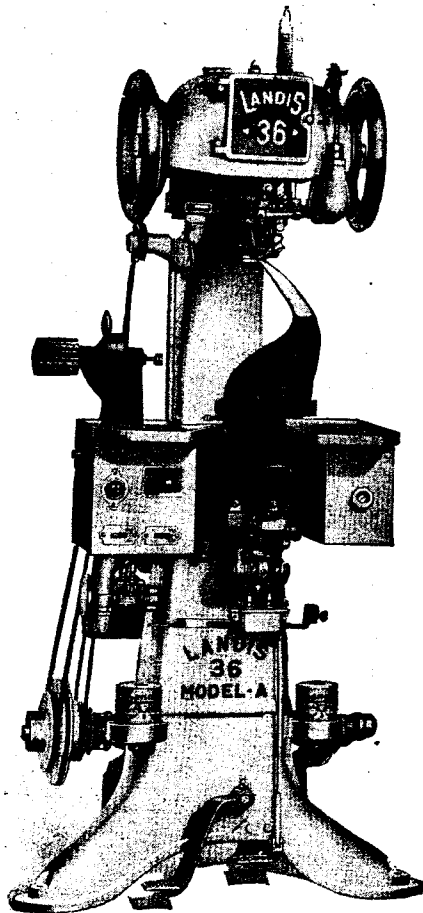
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**AUTOMATIC HEAT
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**FAST HEATING,
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TODAY. FIND OUT HOW EASY
IT IS FOR YOU TO HAVE A
STITCHER LIKE THIS IN YOUR
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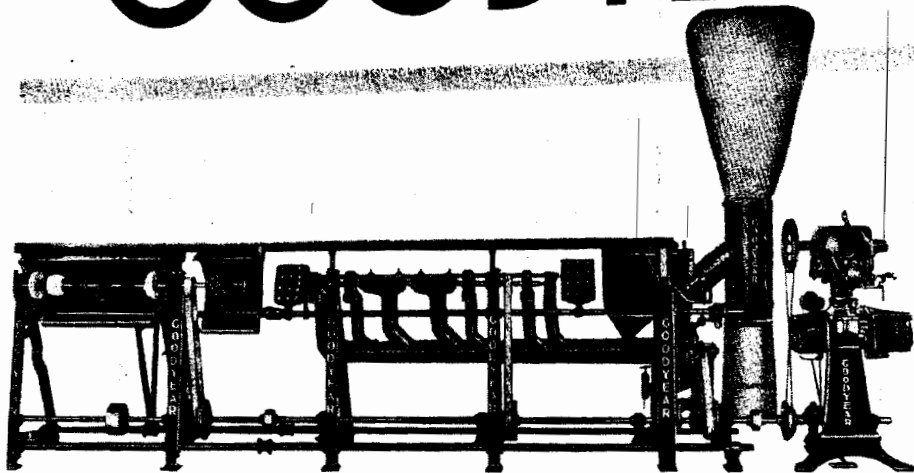
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GOODYEAR SHOE REPAIR OUTFIT

SERVICE is always an important factor wherever anything mechanical is concerned, whether automobiles, oil burners, shoe repairing machinery, or whatnot.

If you are considering the installation of Stitcher, Stapler, McKay Sewer, or any other shoe repairing machine, the SERVICE element should be given most careful consideration. Without PROMPT SERVICE you cannot serve your trade efficiently. GOODYEAR SERVICE eliminates those long delays which are ruinous to any business.

We are in a position to furnish you with the best shoe repairing machinery and this coupled with GOODYEAR SERVICE gives you the ideal combination to operate your shop with the greatest efficiency.

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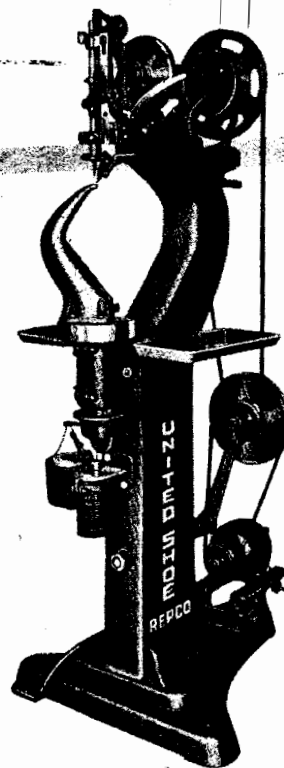
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The installation of these Machines will reduce your power bill every month, enabling you to make more profit on the business you are now doing.



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SOLE SEWING
MACHINE — MODEL A**

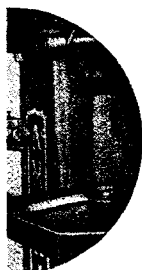
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CURVED NEEDLE AND AWL STITCHER
FEATURING A NEW WORK TABLE WITH ADJUSTMENT
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Shoe Clearance.
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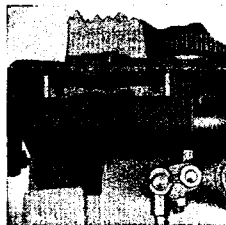
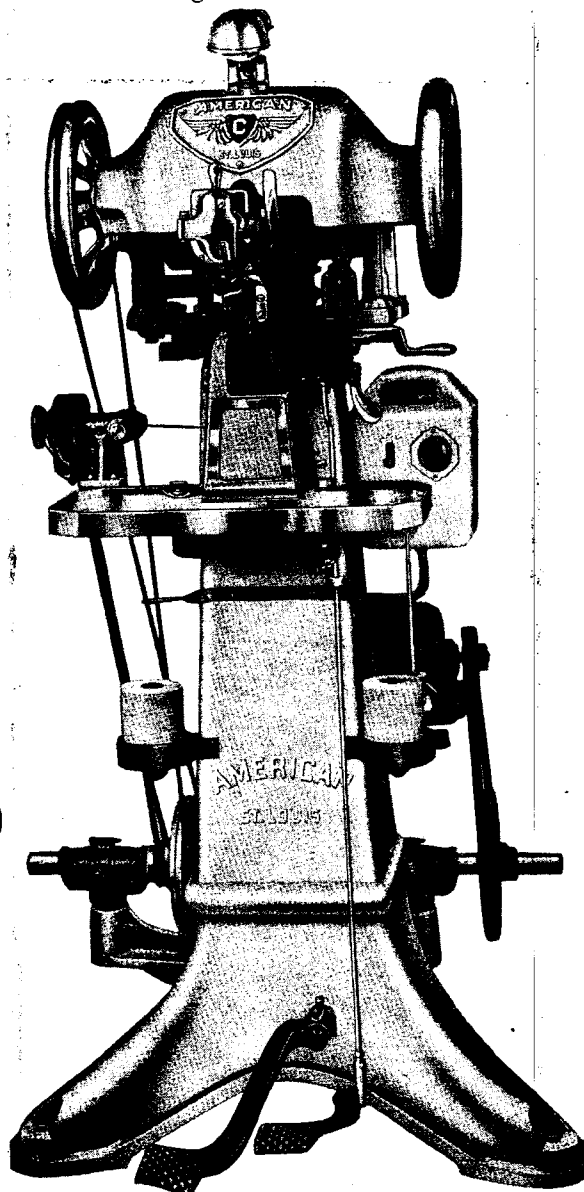
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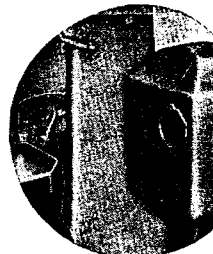
Double-Lock
Control



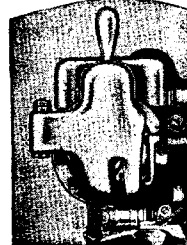
Needle and Awl Parts Drawer.



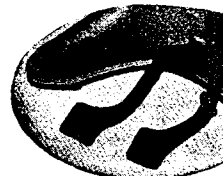
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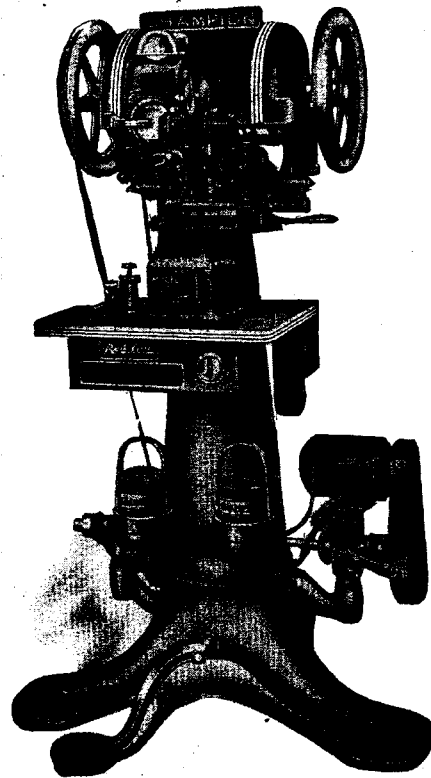
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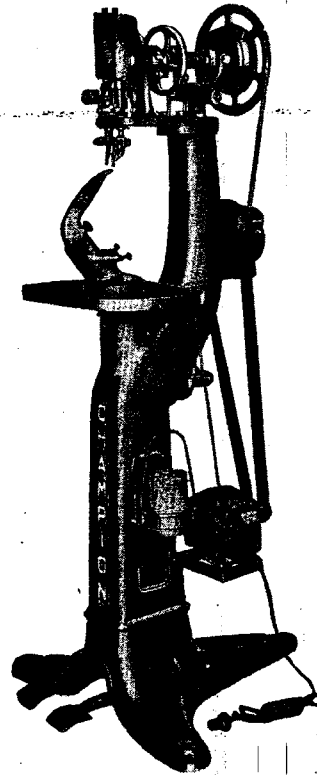
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THE SHOE REPAIRER'S MANUAL

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work**



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Sole Leather, when properly tanned from good cattle hides, retains the natural functions of the raw hide.

It lets the feet breathe as nature intended and helps to avoid many common foot ailments.



TRADE MARK REG.

There is a Complete Line of
TIOGA OAK SOLE LEATHER
For Every Requirement of
Modern Shoe Rebuilding

Our heavy and extra heavy TIOGA OAK is ideal for men's work; our complete line of medium weight and Grainflex excels for women's sewn, stapled, or cement work; and our new TIOGA OAK GRAINFLEX is tanned with just the right degree of flexibility, especially for cement process work.

TANNED BY

EBERLE TANNING COMPANY

Westfield

Pennsylvania



DEPENDABLE
OAK

BUY MORE THAN LEATHER



DEPENDABLE
OAK

**BUY SATISFIED CUSTOMERS
AND REPEAT BUSINESS—
THEY ARE INCLUDED AT NO
EXTRA COST WITH YOUR
EVERY PURCHASE OF**

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PLIABLE

PENN LEATHER COMPANY
322-326 North Third Street
PHILADELPHIA, PENNA.



PLIABLE



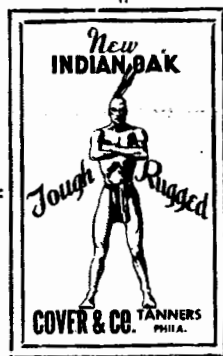
The First Rule For Finer Shoe Repairing

Fine shoe craftsmen from coast to coast make the use of Cover & Company's sole leathers their first rule for better shoe repairing.

They know that Cover & Company's exclusive tanning process guarantees extra wear and increased customer satisfaction.

They know too, that Cover & Company's long standing reputation for the best in sole leathers is in back of every pound they buy.

Make Indian Oak and Continental Oak
YOUR first rule for finer shoe repairing.



COVER & CO.

244 North 3rd Street
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*Your Dealer Carries Indian Oak and
Continental Oak*

Twin Necessities for all . . .
Progressive Shoe Shops

WOMEN'S
LOGGERS-OAK
SOLE LEATHER
TOP-PIECES

IN A CLASS BY THEMSELVES

LOGGERS-OAK
Bends • Strips • Taps
For the Job that Demands
Extra Wear and Water Resistance

You Can Get 25c More
for resoling with
LOGGERS - OAK

SOLD BY
THE BEST FINDERS

Ask Your . . .
. . . Jobber

S. H. FRANK & CO.
TANNERS
San Francisco, Calif.



THE efficient and effective rebuilding of a shoe requires intelligent judgment in selecting the type and weight of bottom stock best adapted to restore the shoe to its original character and to extend its serviceability in proportion to the condition of the upper.

YOU can save money and better satisfy your customers by the use of proper judgment in your choice of materials but you must have at hand a sufficient assortment of suitable weights and grades of bottom stock from which to choose.

YOU will find in our product, obtainable through all legitimate dealers, a fine choice of high grade oak tanned bottom stock in all forms required for any type of repair job.

Rock Oak Finders Bends.

Rock Oak Strips.

Rock Oak Men's Taps and Full Soles

Rock Oak Women's Taps.

Amoflex Bends.

Amoflex Strips.

Men's Amoflex Taps, and Full Soles.

Women's Amoflex Taps.

THE AMERICAN OAK LEATHER CO.

CINCINNATI, OHIO

Chicago, Ill.

Boston, Mass.

St. Louis, Mo.

SIXTY YEARS OF EXPERIENCE

enter into the
manufacture of the

WILDER LINE

of CUT SOLE LEATHER PRODUCTS

OUR TRADE-MARKS:

"DRY-WEAR" — "VEL-FLEX" — "LONG-WEAR" — "GOLDEN-OAK"
"STERLING" — "QUICKWORK" — "HOLDERM"



BENDS, STRIPS, TAPS, OUTSOLES, IN-
SOLES, HEELS, COUNTERS, TOPLIFTS,
FOOTBALL CLEATS AND COMBINATION
RUBBER AND LEATHER TOPLIFTS.

Our Waterproof Chrome Retan Products
Are Unexcelled for Wear

WILDER & COMPANY

1038 Crosby Street
CHICAGO



America's Finest Repair Leather



THE OLD RELIABLE

A Companion to L & M



LEAS & McVITTY, Inc.

Philadelphia & Boston

KORRY-KROME

THE 100% CHROME TANNED SOLE LEATHER

**NOTE
THESE
POINTS—**

1. Sews very easily
2. Firm but not harsh
3. Absolutely waterproof
4. Gives unusually long wear
5. Can set edge and stains remarkably well
6. Permits fine shoemaking like best of Oak
7. Requires no special treatment or preparation

J. W. & A. P. HOWARD COMPANY
CORRY, PENNSYLVANIA

This manual has been carefully prepared and edited for the purpose of assisting in more and better shoe repairing.

BARKROM

Trade Mark Reg.

The **SUPERIOR** Sole Leather

has been and is being tanned for the same purpose. If you are not now a user secure a supply from your jobber and be convinced.

TANNED EXCLUSIVELY BY

ALPENA LEATHER CORPORATION
ALPENA, MICHIGAN

Sold Only Through Jobbers. Accept No Substitute

-IN-ONE CEMENT for Rubber and Leather
Will Stick Under Any Climatic Condition

absolutely without an equal, and is sold by all dealers who carry quality products and have at heart the best interest of their trade.



Use Kayon Cementing Presses for Quality Work
Chrome Plated or Aluminum Finish — Adjustable Lasts — Economical — Easy to Operate — Very Popular and Satisfactory

*Kayon Presses and Cement Products are Used
By All Leading Shoe Repairers*

For full details, write

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ASHLAND OAK
SOLE LEATHER

**TAPS
BENDS
STRIPS**

Insist on long-wearing
sole leather when you
buy from your jobber.

Demand ASHLAND OAK
—Known as the Toughest.



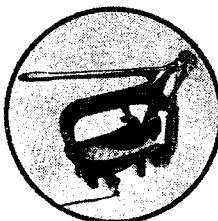
ENGLAND WALTON

Division A. C. Lawrence Leather Co.
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VULCA-SOLING

**THE BETTER, FASTER
WAY TO RESOLE SHOES**

Makes shoes look, feel and wear better. Soles are more water-tight. Squeaks are prevented. Customers are pleased. And best of all, the work is easier, quicker—you get more done, make more money. Vulca-Soling can be done on any shoe, and with any kind, quality or thickness of leather.



**Barge
Electric
Shoe
Cement
Press**

Simply apply cement, place shoe with new sole in this special press. Leave ten minutes and the job is done. Heat and pressure under perfect control make every job a good job with Vulca-Soling.

The Welt Gripper

Enables you to cement shoes with welts. Holds soles flat... no curling. Puts heavy pressure around edge.



Barge "Hilopad" Metal Lasts

"Hilopad" Metal Lasts and Rubber Arch Pads permit you to cement women's shoes of the same size, but of different heel heights, with only one pair of lasts. You simply change the arch pads. Metal lasts furnished in sizes 3 to 8. Send for complete information on Barge Vulca-Soling Equipment.

**UNITED SHOE REPAIRING
MACHINE COMPANY**

140 Federal St.

Boston, Mass.

THAT'S A GOOD
HEEL MADAM



ISN'T IT A BEAUTY
—AND BUILT-UP TOO!

**TODAY THE CUSTOMER KNOWS THE ADVANTAGES
OF BUILT-UP HEELS**

TELL THEM THE TRUTH ABOUT THE PROGRESS MADE
IN MANUFACTURING LEATHER FIBRE

Built-up heels of leather fibre have many qualities of the solid leather heel. Do not confuse leather fibre with so-called paper boards. Leather fibre is made from leather cuttings of the shoe industry. The cuttings are fibreized by a special process. These natural, individual, leather fibres are then re-worked into sheets known as leather board, or leather fibre.

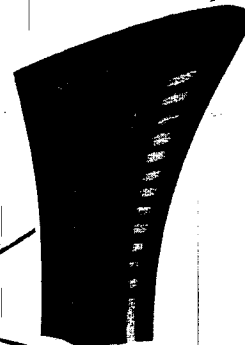
Jenkins
"SPECTRO"
PATENT NO. 1,375,556
LEATHER FIBRE

is the BEST quality—the new standard of leather fibre. It is used in making built-up heels and is most economical for repairing them. It makes a natural heel. One that is light, strong, colorful and which will not scuff, crack or chip. When your customer brings in shoes with the built-up heels to be repaired, tell her the truth about LEATHER FIBRE.

WHEN BUYING BUILT-UP HEELS ORDER
JENKINS' "SPECTRO"
USE THE NEW TRANSPARENT
FINISHES

"SPECTRO"
Design
S IN THE
FIBRE

GEORGE O. JENKINS CO.
MANUFACTURERS OF "SPECTRO" AND OTHER QUALITY FIBRES
BRIDGEWATER
MASS.



You are Paying the Price

PER PAIR

for

COMPO "SHOE PRESS" Resoling Cement

THEN

Why not Use the Genuine



"SHOE PRESS" RESOLING CEMENT?

Spreads Easily

Flexible

Dries Quickly

PLUS

THIS GUARANTEE:

1. Purified stabilized Nitrocellulose.
2. Guaranteed uniform and highly adhesive.
3. Guaranteed free of scrap film or benzol.
4. Durable, flexible adhesion.

Supplied Exclusively to

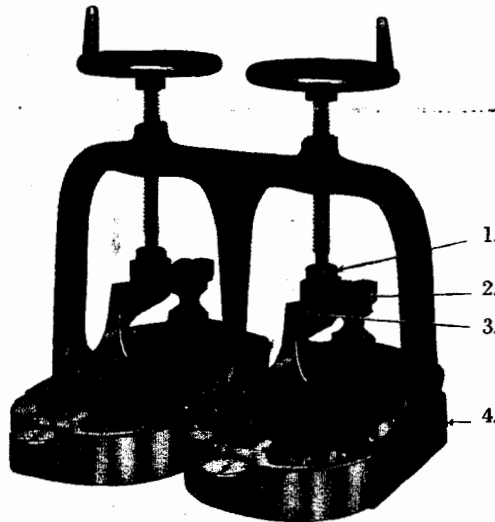
SHOE PRESS CORP.

Third and New Streets, Philadelphia, Pa.

By the

COMPO SHOE MACHINERY CORP., BOSTON, MASS.

The Russo System Increases Profits



The Russo Nu-Re-Sole Press

By a simple adjustment, any type of shoe—men's, women's and children's—can be easily and efficiently resoled.

Any shoe can be resoled with this press without removing the heel—a very important factor.

Used by many custom shoe makers in making new shoes—is especially suitable for full sole work.

1. Ball - bearing attachment for pressure screw.
2. Adjustment for any type of last from child's to men's.
3. Adjustment for full and half soles.
4. Adjustment for making new shoes.

This press comes in 1 and 2 pair sets and can be distinguished by its nickel plating and green color.

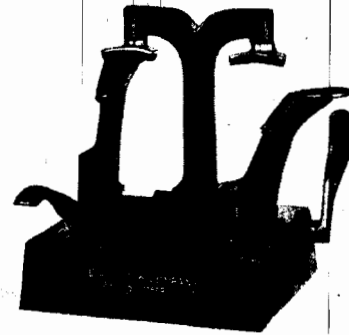


The RUSSO NU-RE-SOLE CEMENT, specially made for expert shoe repair work, is waterproof, flexible, and dries rapidly. Made of only the highest grade ingredients—clear and transparent with pleasant odor—guaranteed to hold on leather soles from the lightest ladies' slipper to the heaviest men's boot, if properly applied. The Cement and solvent come in quart and gallon containers—easily opened.

The New Russo Toe Piece and Shank Attachment Press

Equipped with interchangeable metal lasts to fit any type or shape of toe, also with shank attaching device for men's or women's work.

Simply but ruggedly constructed. Easy to operate, hard to get out of order.



Amount of pressure regulated by operator by means of ratchet control.

Attractive in appearance—does efficient work.

For further information, write to—

D. RUSSO & CO.

10 High Street Boston, Mass.
Factory—48 Binford St., So. Boston
Tel: LIBerty 7610 and 6358

2500 Shoe Repairers Using Them — Say !

**"Do a better job -
quicker and easier
with a
TIP-TOP
Toe Piece
Press"**

\$6.50

The Model "A" cold press is shown here.
For While-U-Wait Shops, ask to see our
De Luxe 3 Minute Automatic Electric Press.
Any job described in Chapter on page 13,
"Fastening Toe Pieces by Cement Method,"
can be done on the TIP-TOP.



For Sale by Your Jobber. If
not, write us, giving his name.

THE SHOE REPAIR SPECIALTY CORP.

3721 WOODLAND AVENUE

CLEVELAND, OHIO

INSIST ON GENUINE

TRAVELER

TOE AND HEEL PLATES

SMALL TOE
LARGE TOE
SPIKE HEEL
NO. 1 HEEL
NO. 2 HEEL

NO. 3 HEEL
NO. 4 HEEL
NO. 5 HEEL
NO. 6 HEEL
NO. 7 HEEL

LINE

"They stand on their own legs"

**WITHOUT A DOUBT
THE BEST
IN
TOE AND HEEL PLATES**

Traveler Toe and Heel Plates have always been the shoe repairman's choice. Their practical construction, extra quality and improved methods of manufacture make them the most popular plates on the market today.

They have the patented center prong feature which allows the repairer to drive a nail through the plate to assist in holding it on shoes that receive extra tough wear.

They are made in all sizes to fit every needed requirement.

ASK YOUR JOBBER FOR FREE SAMPLE CARD
TO DISPLAY ON YOUR COUNTER

**TRAVELER
TOE AND HEEL PLATE COMPANY**

3721 Woodland Ave.

Cleveland, Ohio

THE SHOE REPAIRER'S MANUAL

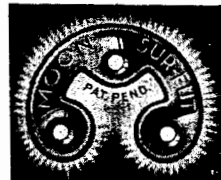
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More And Better Shoe Repairing

Better merchandise for the *consumer* has been our offering to shoe rebuilders to enable them to do *better* shoe repairing in order to *satisfy* the public and build *repeat* business.



MOON plates displaced the old clumsy loose, noisy prong plates that would come off and make a dissatisfied customer and today they put the finishing touches to a good and classy job with their *brilliant, sparkling beauty*.



Again we offer a scientifically designed heel plate for women. The flat even surface *eliminates* the rock or wobble, the noise, the danger of slipping and the strain on weak ankles. Easy to attach they are the greatest improvement in heel plates since plates were first made.



SNAP-ON braces claim *two* great improvements that mean worlds to shoe rebuilders. The first is the "snap-on" feature that creates the speed and ease they can be attached with. The second they are *unbreakable* — thereby giving the wearer service. **REPEAT BUSINESS.**



CLICK Tap-dancing Plates. Nickel-plated. Tight edge all around — no tripping. *Fast* — semi-ballbearing — demonstrate. Nails protected — can *not* come off. Nail holes will *not* elongate — no loose plates. Steel — gives clear *distinct* tone. Sound chamber brings out every tap. *Light, comfort, balance.* Steel — Will *not* crack or break. Will *not* scratch and in turn scratch the floor. Steel — *will* outwear aluminum. Used on heel or toe.



SURE-GRIP Heel Retainers — beautiful nickeled finish. Semi-spring steel — reinforced with rib around edge — strength — *light.* Tight edge all around even across the breast. *Comfort* to consumer.

SURETY MFG. CO.

327 So. 14th St.
ST. LOUIS, MO.



CRAFTSMANSHIP!

The Sign of

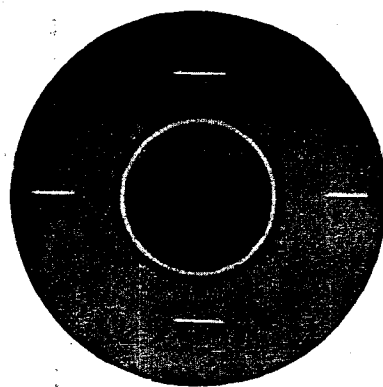


*Safe Stitching
and Satisfaction*

THE art of making shoes and of shoe rebuilding has its traditions which go far back in history — to the Caesars and the Pharaohs. They include the use of linen thread for sole sewing. And we believe today the health of the foot and the beauty of the shoe depend upon the use of good thread in shoe rebuilding. BARBOUR'S Threads have been the recognized standard for over 150 years. We'd like you to try them and find out for yourself how much more economical is Barbour's, and how it will win and hold customer loyalty. — *Ask your Jobber.*

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BOSTON **CHICAGO** **BALTIMORE** **PHILADELPHIA** **SAN FRANCISCO**

Buy Your Thread the Modern Way



Bottom View (one-half size) of Humo-Pak, Showing Tube Ready to Fit Any Spindle.

TEXTILE'S HUMO-PAK is the latest development in thread packaging. It is a sure protection to TEXTILE'S LINEN LOCKSTITCH thread, keeping it from drying out, and protecting it in your shop from oil, grease, wax and dust.

Make certain that your thread is factory-fresh by asking for it in the HUMO-PAK. This new package preserves the strength and flexibility of the thread, causing it to work more smoothly in your machine, and thus helping you to do faster and better work.

As a standard spool of TEXTILE'S LINEN LOCKSTITCH thread is built right into the HUMO-PAK, you simply insert the spool on to the spindle of your machine without opening the package. The thread feeds from center of cover to the needle of your machine. In this way the thread is kept fresh as long as any is left on the spool.

TEXTILE'S HUMO-PAK comes in regular one-pound size for larger shoe rebuilders and in new half-pound size for smaller shoe rebuilders.

TEXTILE'S LINEN LOCKSTITCH thread, contained in HUMO-PAK, is guaranteed made from pure long line IRISH FLAX—second to none in quality at any price.

ORDER FROM YOUR JOBBER

For full information regarding HUMO-PAK, write to

**The Textile Thread Co.
WATERTOWN, MASS.**

JEWEL *Brand* **SANDPAPERS**

**CUT FASTER
LAST LONGER
FINISH BETTER**

Made in America by

ABRASIVE PRODUCTS, INC.

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South Braintree, Mass.

SHOE LACE COMPANY

Successor to Joslin Mfg. Co.
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MANUFACTURERS OF QUALITY SHOE LACES

We have been manufacturers of SHOE LACES since 1865—established reputation for quality and for fair dealing.

LACES of every type and for every purpose.
Ask our agents about our patented FABRIC TIPPED LACE for men and women, and about our STAYTIED RAYON LACE for women. These are exclusive items which mean resales for you.

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Quality Products for High-Grade Shoe Rebuilding

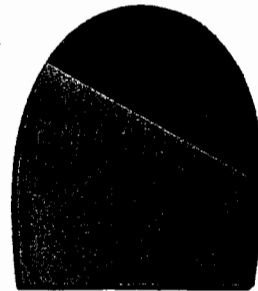
For Those Who
Demand the Best



Keep Abreast of the Times
Use the DU-FLEX "Original"
MASTERPIECE HEEL



Post-McVey
Co., Inc.
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Cut From Specially Tanned
Toplift Leather

9-9½ iron — 10-10½ iron

The durability of the rubber heel and the smartness of the leather heel combined in one. Used by all leading shoe manufacturers.

QUALITY LINEN THREADS

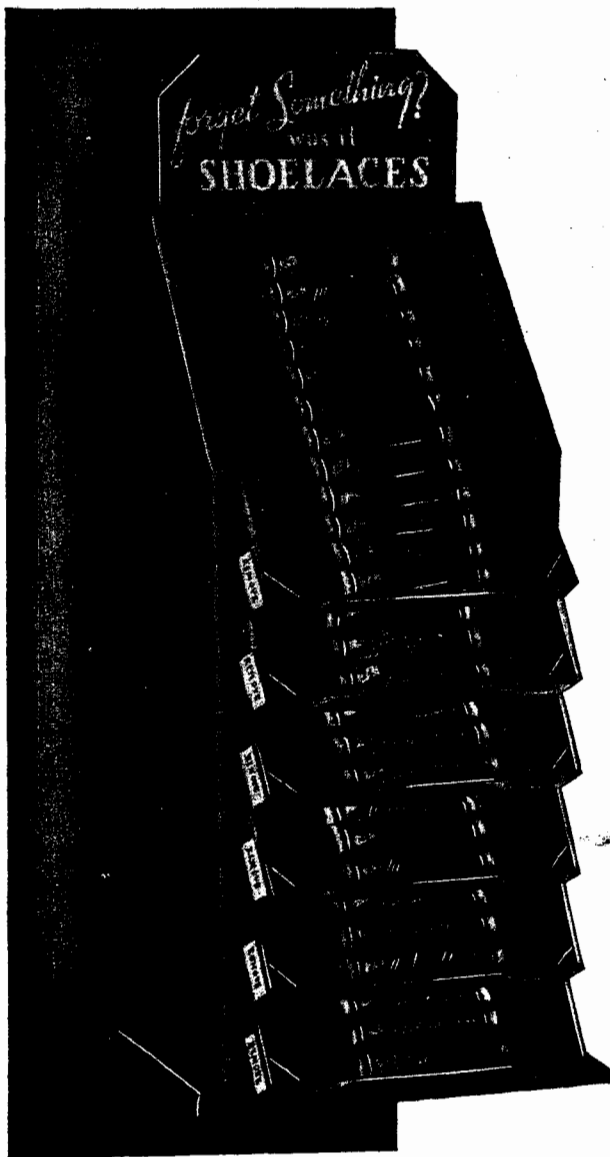
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R. J. EDERER THREAD COMPANY

Unity and Elizabeth Streets

PHILADELPHIA, PA.

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Sell More
Of Them

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Make More
Profit

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With the handsome
instant service
**Excel-Pac
Display**

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Holds one gross
Any assortment
Can be refilled

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Ask your jobber
about

Mitchellace
The Shoe Lace of Quality

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Proven the Test of Years*

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HEEL LININGS
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HEEL PADS
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Profitable to Sell
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**Stimulate Sales
"FEATURE"**



*"the
repair-
men's
friend"*

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ALBANY, N. Y.
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**Eye Catchers for Your Window
Size 10" x 14"**

in poster form, suitable for pasting on the
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Write for Further Details
6 FOR 50c

MORE SHOE REPAIRING JOBS

It takes just a suggestion and a few seconds to sell shoe polish when it's Griffin—the name which for over 45 years has meant the same when applied to shoe polish as Sterling does to silver.

And this suggestion and a few seconds of your time will not only give you satisfied customers and substantial profits but perhaps even more important, it will increase your main business—shoe repairing.

The more often Griffin Products are used on uppers of shoes, the longer the uppers will remain in good condition. And the longer the uppers stay in good condition, the more shoe repair jobs you will get. When the soles and heels wear down, the uppers are always considered in making the decision as to whether to have the shoes repaired or to buy a new pair.

To encourage the use of more Griffin polish—which means more shoe repair jobs, as well as shoe polish sales, you should set an example by polishing each pair of shoes you repair. This will also make your repair job look much better, which automatically makes it more valuable and appreciated by your customers.

Every Griffin Product is tested daily in Griffin Service Stations located in Baltimore and Atlantic City. Here are renovated hundreds of pairs of shoes of all kinds and in every condition—new and old, popular priced and expensive, men's, women's and children's, and of every leather and fabric.

With the information obtained from these most practical proving grounds, every product in the line has been gradually improved to a quality seldom equalled.

GRIFFIN SHOE POLISHES

SELL because of their BEAUTY

REPEAT because of their QUALITY

*Your Wholesaler Can Supply You
For further information write*

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Cinderella Fabric Dyes



are self-leveling and the colors do not streak!
The veriest novice can do an excellent job of dyeing.

CINDERELLA DYE-IT for leather—recolors without that painted look.

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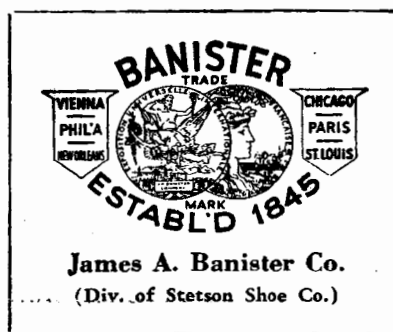


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SUPERIOR QUALITY — PROMPT SERVICE
Distributed by All Leading Jobbers

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RECOMMEND THESE SHOES

Their Sterling Quality Makes Them Repairable



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