May 26, 1942. J. M. ROHRER 2,283,953

SHOEMAKING MACHINERY

Filed Nov. 7, 1939 5 Sheets-Sheet 1

Fig. 1a

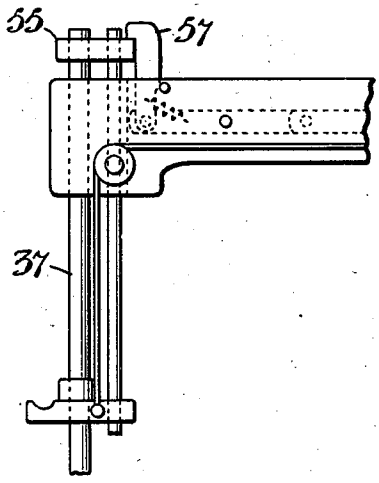
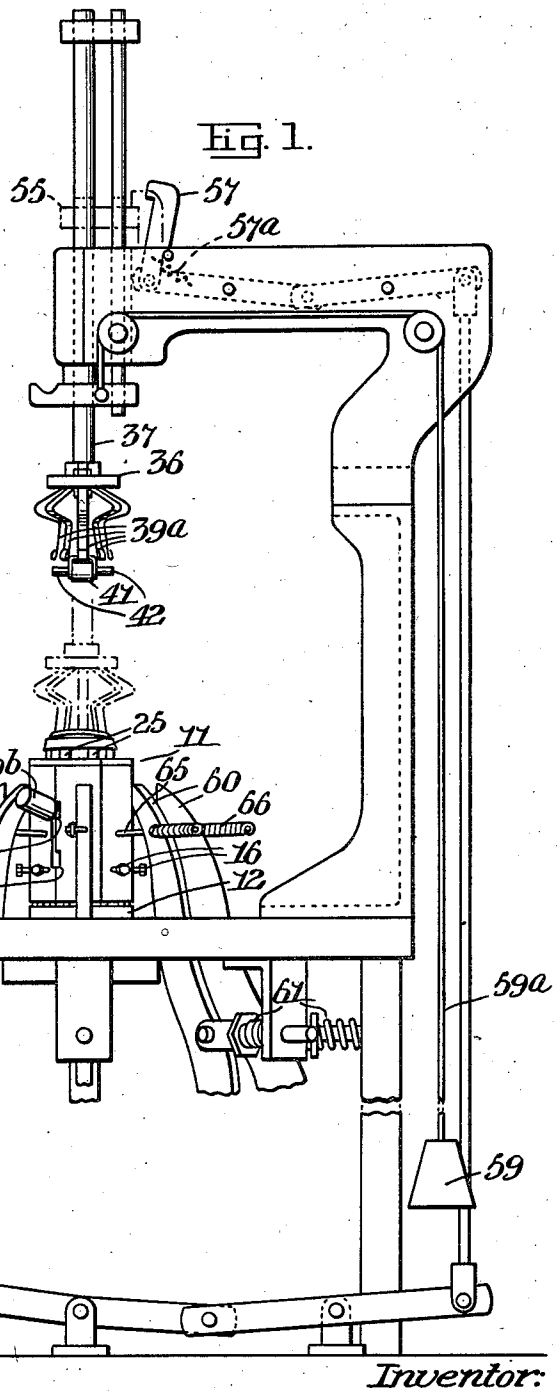


Fig. 1.



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SHOEMAKING MACHINERY

Filed Nov. 7, 1939 5 Sheets-Sheet 2

Fig. 2.

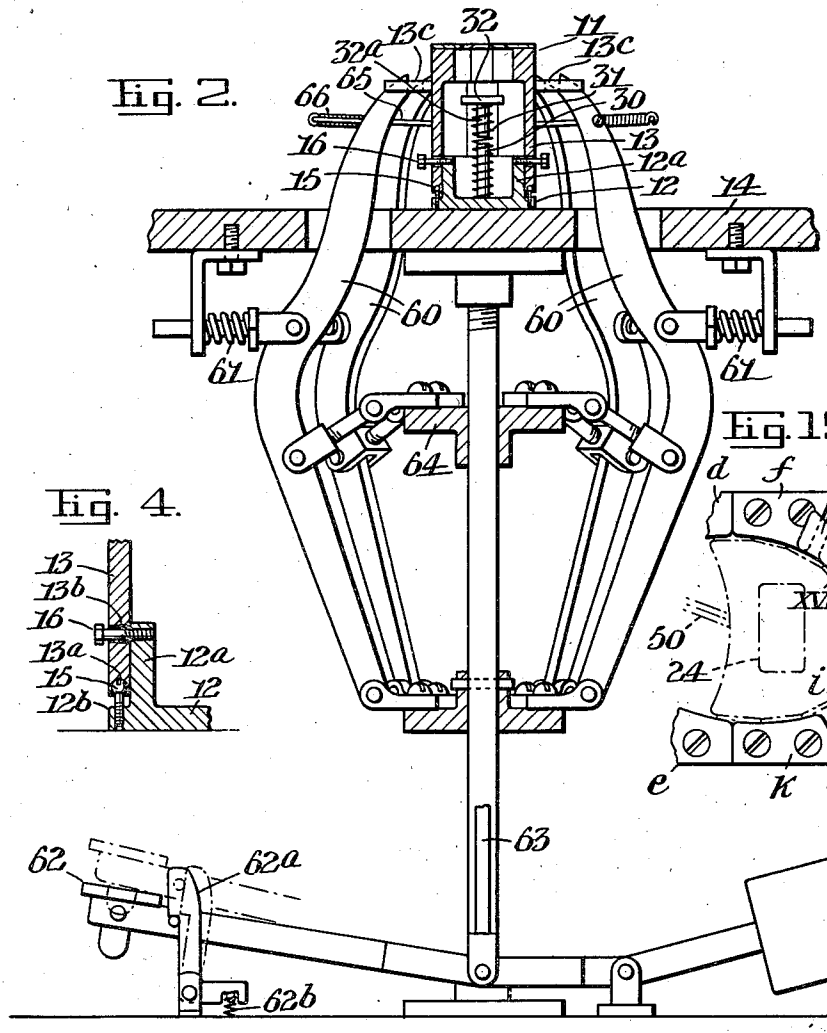


Fig. 15.

Fig. 4.

Fig. 3.

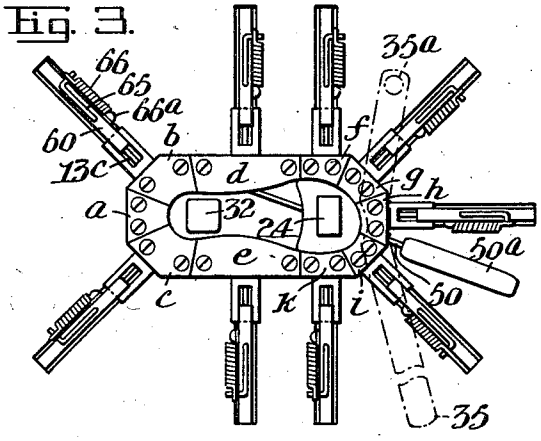
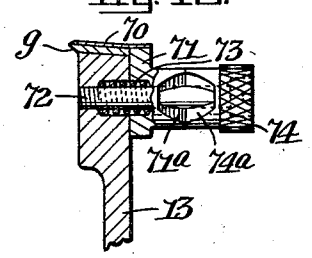


Fig. 16.



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SHOEMAKING MACHINERY

Filed Nov. 7, 1939 5 Sheets-Sheet 3

Fig. 5.

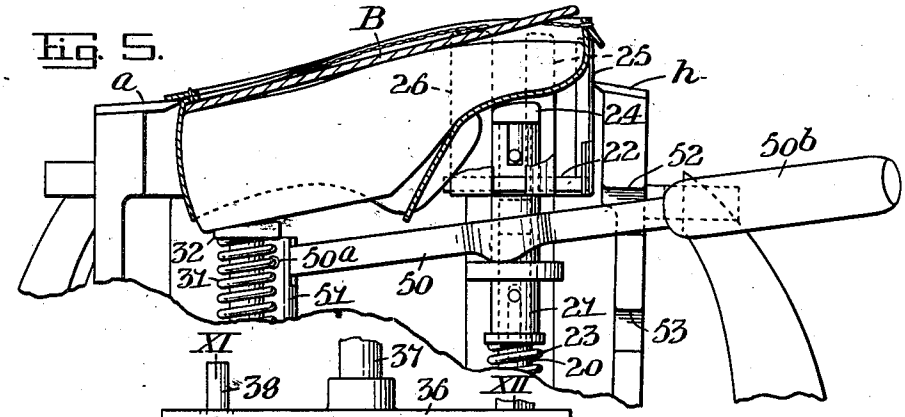
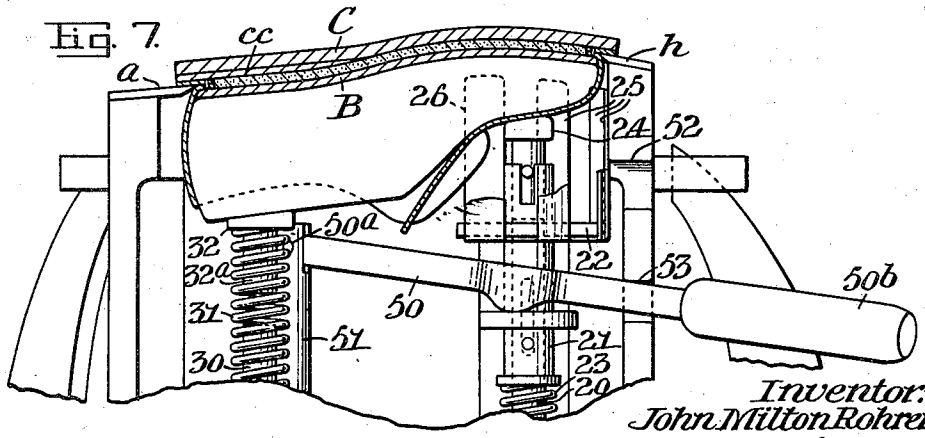


Fig. 6.

Fig. 7.



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May 26, 1942. J. M. ROHRER 2,283,953

SHOEMAKING MACHINERY

Filed Nov. 7, 1939 5 Sheets-Sheet 4

Fig. 8.

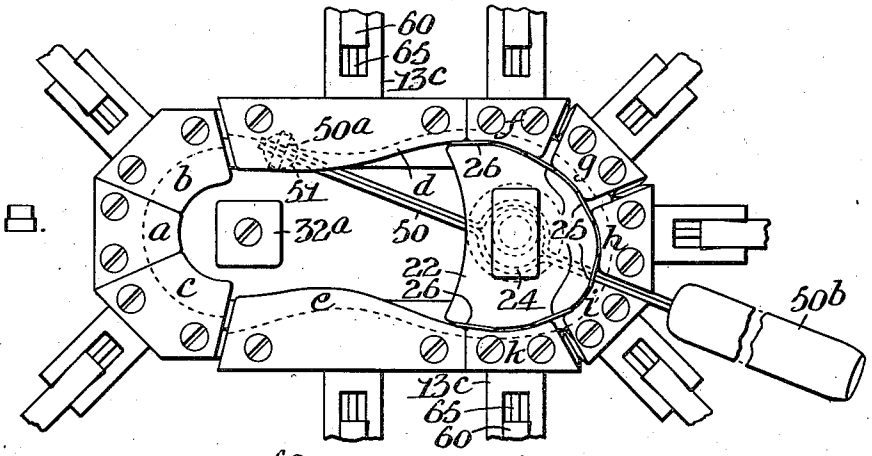


Fig. 9.

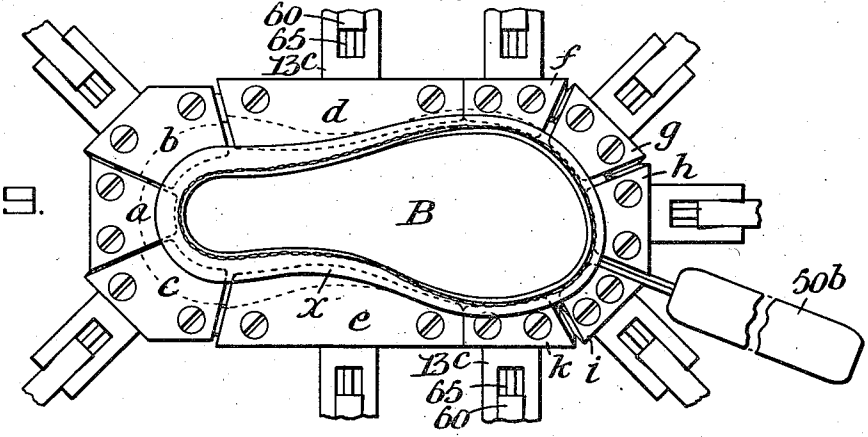
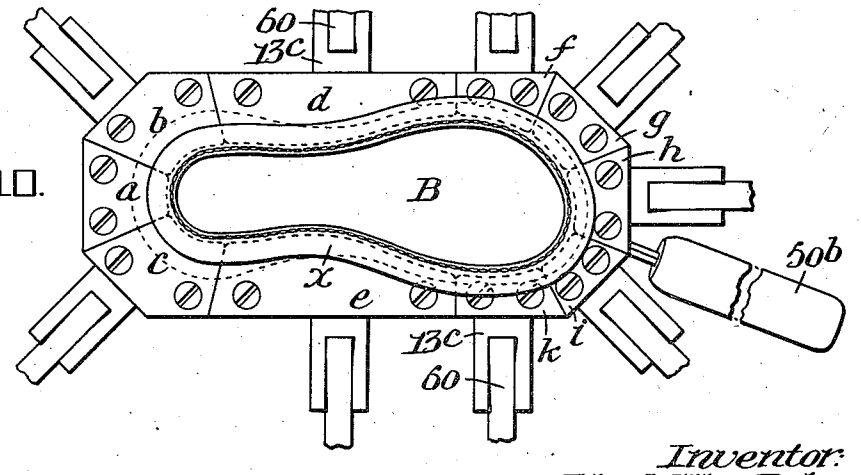


Fig. 10.



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SHOEMAKING MACHINERY

Filed Nov. 7, 1939 5 Sheets-Sheet 5

Fig. 11.

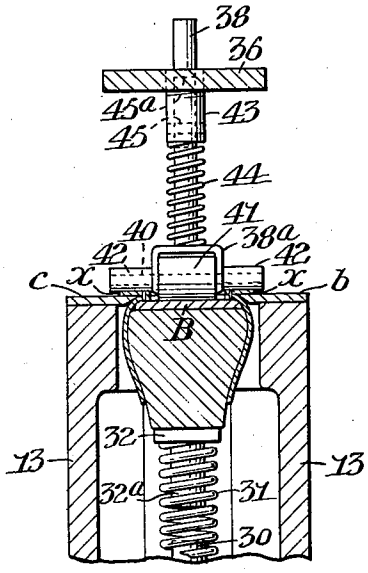


Fig. 12.

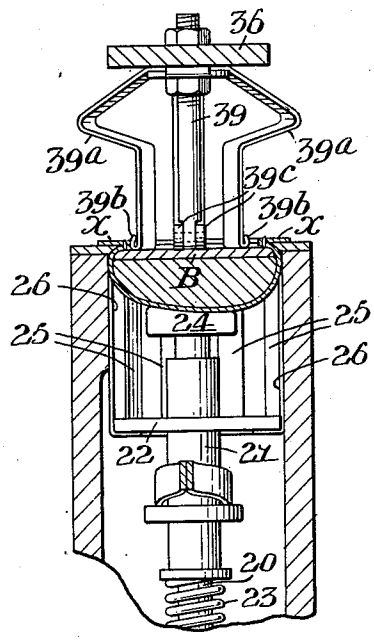


Fig. 13.

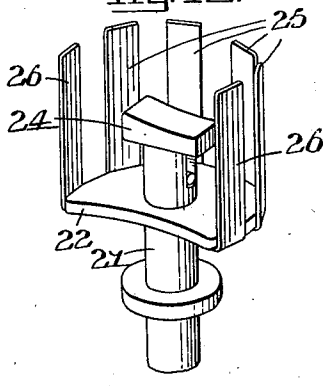


Fig. 17.

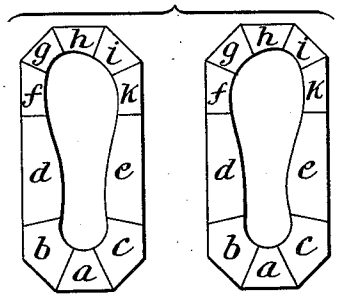
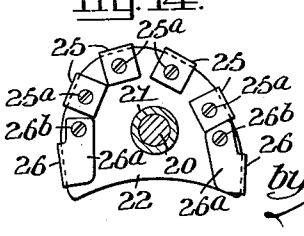


Fig. 14.



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Patented May 26, 1942 2,283,953

UNITED STATES PATENT OFFICE

2,283,953

SHOEMAKING MACHINERY

John Milton Rohrer, Orwigsburg, Pa.

Application November 7, 1939, Serial No. 303,199

34 Claims. (Cl. 12—7)

My invention relates to the manufacture of shoes and comprises improved means for effecting the proper support for an upper on a last, more particularly uppers for shoes of the so-called "Puritan" welt type, in connection with the application of insoles to uppers of such type preparatory to the application of the outer sole which is subsequently sewn to the welt.

Heretofore it has been the common practice to tack the insole to the last in the position it is to bear with respect to the upper and/or shoe, then to bring the welted edge of the upper over the edges of such insole and tack them in place, preparatory to placing the last and upper upon a support in which it will be held in proper position with respect to the insole for subsequent application of the outer sole, which is first cemented in place and subsequently sewn to the welt. Before the outer sole is applied, it is necessary to remove the tacks previously applied in the manner noted above. The presence of the tacks is always objectionable; they frequently break and become lost in the shoe and if present will always work out and form a source of annoyance to the wearer, coupled with a certain amount of danger, if the wearer is a child.

In carrying out my invention I effect the proper positioning of the insole with respect to the upper on a last, and the proper holding of the same with the insole in the proper position for the application of the outsole, without the use of tacks or similar fastenings; the insole being pressed into position with respect to the upper and the latter brought into proper relation with respect to the insole and then clamped so that these parts are ready for the application of the outer sole, which may be cemented in place in the usual manner, preparatory to sewing the same to the welt.

As part of the means for carrying out my present invention, I provide a sectional mold which is mounted upon a suitable supporting table or bed-plate, and this mold receives the uppers after they have been placed upon a last, whereby the insole may be applied in proper position and the welt may be flattened down in proper position for the reception of the outer sole.

The sections of my improved mold are pivotally supported and I employ a series of levers for engagement with said sections in order that the mold may be held in a closed position. I also provide the ends of the levers with supplemental spring-held stems, which parts serve to hold the mold sections closed under slight tension when the levers are out of clamping position; such supplemental springs being readily compressed to permit outward displacement of the mold sections when a last and upper are being placed in the mold simultaneously with the application of the insole thereto preparatory to operations connected with the application of the outer sole.

A further object of my invention is to provide means for covering the joints between the mold sections to avoid pinching of the leather of the uppers as they are positioned in the mold; such means being displaceable.

A further object of my invention is to provide means for displacing into the mold the joint-covering means in order that the last and upper may be finally positioned in the mold and tightly clamped with the insole preparatory to application of the outer sole thereto.

A further object of my invention is to provide means for pressing the insole into proper position with respect to the upper as the latter in lasted condition is introduced into the mold preparatory to finally clamping the last and upper with the properly placed insole in position for the reception of the outer sole, which is subsequently sewn to the welt.

A further object of my invention is to provide simple and efficient means for applying the pressure device.

These and other features of my invention are more fully set forth hereinafter; reference being had to the accompanying drawings, more or less diagrammatic in character, in which:

Figure 1 is a side elevation, partly broken away, of apparatus embodying the features of my present invention.

Fig. 1ª is a fragmentary view, showing part of the mechanism illustrated in Fig. 1 in another position.

Fig. 2 is a sectional elevation of the mold structure I employ and the lever mechanism for clamping the mold sections; the latter being illustrated in the disengaged position.

Fig. 3 is a diagrammatic plan view of the sectional mold structure; the mold being shown in the closed position by reason of the engagement of supplemental holding means.

Fig. 4 is a fragmentary sectional view of a portion of one of the mold sections.

Figs. 5, 6 and 7 are fragmentary sectional views of the sectional mold, illustrating successive steps in the positioning of a last and upper with an insole therein.

Figs. 8, 9 and 10 are diagrammatic plan views of the sectional mold; such views being complemental to Figs. 5, 6 and 7.

Figs. 11 and 12 are sectional views on the lines XI—XI and XII—XII, respectively, Fig. 6.

Fig. 13 is a perspective view, and Fig. 14 is an inverted plan view of the resilient guiding blades and their support.

Fig. 15 is a fragmentary plan view of a portion of the mold structure, illustrating a detail of my invention.

Fig. 16 is a fragmentary sectional view on the line XVI—XVI, Fig. 15, and

Fig. 17 is a diagrammatic view illustrating molds for right and left uppers.

The so-called "Puritan" welt shoe, has a welt that is first sewn to the edge of the upper, all around the same; the upper presenting an edge of proper contour so that the operator may be guided by the same in applying the welt. By reason of the manner of applying this welt, it lies substantially in contact with the outer surface of the upper and above the lower edge of the same after application; the curving or rounding of the upper subsequently found in the finished shoe being entirely absent. In the steps of completing the shoe, the welt must be flattened and disposed substantially at right angles to the vertical axis of the shoe, an operation which effects the desired rounding or curving of the upper and, by reason of the displacement of the sewn edge of upper and welt, such edge may be said to overhang the interior of the upper after it has been applied to the last. The heel portion of the upper is preferably shaped to conform to the heel portion of the last so that the upper will lie in the proper longitudinal position with respect to the last, and after such upper is placed on a last it is to receive an insole and, usually, a filler piece which lies between the insole and the outer sole so as to take up the thickness of the sewn edge of upper and welt which overlies the insole. The surface of the insole may receive a coating of cement for contact with the filler piece, and the outer surface of the filler piece and the welt may receive a coating of cement for the reception of the outer sole whose applied surface has been previously cemented, and after such outer sole has been pressed into final position with respect to the upper, it may be sewn to the welt; thus completing the shoe. These cementing steps are in line with practice already known in the shoemaking art.

The means for closing the mold and holding the same in a closed position while further operations are carried on in connection with an upper on a last placed therein form the subject of a pending application for patent. To that means, in the present case, has been added supplemental springs which hold sliding rods in engagement with the mold sections, so that the mold is always in the closed position; in slight tension when empty to facilitate entrance of the last and upper with the insole, and in full gripping engagement when the upper has been finally mounted therein with the applied insole in place.

The mold structure in the present instance, indicated generally at **11**, may comprise a base **12**, with an inner upstanding wall **12a**; such base supporting pivotally mounted sections **13**. The mold base, which may be secured to the bed of a table **14** directly beneath mechanism for pressing and holding the insole in proper position and place, is provided with a horizontal flange **12b**, receiving round-headed screws or pins **15**, and the lower portion of each of the mold sections is recessed at **13a** to fit over these pins; thereby providing hinged connections for the mold sections and at the same time permitting their ready removal or replacement. One or two pins may be provided for each mold section; two being employed in the present instance. The hinged connection for the mold sections permits them to have slight swinging movement with respect to the mold base; the outward extent of which is limited by headed pins or set screws **16**, which pass through openings **13b** in the mold sections and enter the wall **12a** of the base. This construction is clearly illustrated in Fig. 4. By hinging the mold sections to the base, it is possible to use a single base with sections for right and left uppers, and for sections for different size uppers; the base portions of all sections being alike.

In the present instance, the mold is made up of ten sections; five at the toe portion; three at the heel portion, and oppositely disposed side or shank sections between the toe and heel sections. The several mold sections are particularly identified by the reference characters *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i* and *k*. The section *a* at the centre of the heel portion is fixed to the base and affords an abutment against which the lasted upper is pressed as it is entered into the mold. The sections *f*, *g*, *h*, *i* and *k* at the toe portion and in the abutting relation of the sections *f* and *k* with the side sections *d* and *e*, present a series of joints, of which there are six. The presence of these joints between the mold sections might have a tendency to pinch or nip the leather of the upper as the same is placed in the mold, and for the purpose of providing a smooth entrance for the upper, I arrange a series of very thin blades which are carried by a vertically movable block mounted on a spring-supported sleeve carried by a post within the sectional mold at the toe portion of the same; the sleeve also supporting a toe rest for the last and upper. Before the last with an upper thereon is entered into the mold, these blades extend above the same and in this position they may be spread slightly to permit ready entrance of the last and upper. In placing the last and upper in the mold, the toe portion of the upper is presented to these blades in such position and/or relation as to engage the surface of the upper with their upper ends beneath the welt previously applied to the upper. Upon pressing the last and upper rearwardly against the fixed heel section *a* of the mold and then downwardly into the mold, these blades are carried down against the tension of the spring supporting the sleeve carrying the block to which such blades are secured, and these blades may be finally completely depressed, out of the way of the upper or shoe, by manual means.

In the present instance I have provided the mold base **12** with a supporting post **20**, which carries a sleeve **21** supporting a block **22**; the sleeve being normally supported by a spring **23** surrounding the post **20**. The sleeve also supports a toe rest **24** which follows depression of the sleeve against the tension of the spring **23** until it rests upon the post **20** and supports the last and upper in their final position in the mold. The joint-covering blades are indicated at **25** and **26**; the blades **25**, four in number, being attached directly to the under side of the block **22** at **25a**, while the two blades indicated at **26** are carried by spring extensions **26a** which underlie the block **22** and are secured thereto at **26b**; such arrangement permitting these blades to rock slightly as the last and upper are being set in

place. As the upper and last are pushed into the mold, the guiding blades are pushed down, and as they cover the joints between the mold sections, there is no danger of the leather of the shoe being pinched.

At the heel portion of the mold I provide a heel support, resiliently mounted. In the present instance I employ a post **30**, fixed to the base **12**, with a spring **31** surrounding the same in snug contact, and the upper end of this spring receives a heel support **32**, the stem **32a** of which is spaced from the upper end of the post **30** so that he heel portion of the last with the upper is always resiliently supported.

The upper on a last with the applied insole is set in the mold with the heel portion thereof toward the heel portion of the mold which, in general practice, is set toward the left hand of the operator. The mold sections being in the closed position but only under slight tension, they may be outwardly displaced slightly in order to insure proper engagement of the top flanged portions of the mold sections with the upper just beneath the welt which, at this stage of the operation lies almost in contact with the outer surface of the upper or shoe.

The insole having been placed upon the bottom of the last before the last and upper are placed in the mold, the operator presses these parts toward the fixed heel section *a* of the mold; the heel portion of the last when in such position overlying the heel support **32** resiliently mounted within the mold. In this operation, the last and upper with the temporarily applied insole are introduced into the mold in the position indicated in Figs. 5 and 8, and they may be pressed toward the fixed section *a* of the mold by hand, or by positive means such as lever **35**, pivotally mounted at **35a**. It may be desirable to use positive pressure means to insure the proper positioning of the last and upper since the welt, indicated at *x*, is relatively stiff and it is necessary to insure proper engagement with the flanged lips carried by the tops of the mold sections; the welt at that portion of the upper being outturned and lying on top of said flanged lip portions of the mold sections. At the toe portion of the mold, the resilient joint-covering blades are in the elevated position and in such relation to the upper on the last that the toe portion thereof may be placed in the space defined by these blades and the upper ends of the same will underlie the welt at the toe portion of such upper; such blades being held in this position by the spring **23** underlying the block **22** carrying the same. The insole is to be finally positioned between the slight overhang the upper body will present when the insole is finally in place, and this may be accomplished by bringing a pressing device from a point above the mold into engagement with such insole.

This pressing device comprises a plate **36**, carried by a vertically disposed rod or standard **37**, which may be raised and lowered with respect to the last and upper within the mold. The plate **36** carries depending stem **38** and **39** for engagement with the insole, indicated at B; the stem **38** being resiliently connected with said plate and the stem **39** having a series of spring fingers **39a** surrounding the same. These spring fingers are so arranged with respect to the stem **38** as to engage the insole in advance of the engagement by said stem. The fingers **39a** preferably have upturned ends **39b** with rounded surfaces so that should they first engage any portion of the welt as they are brought down, they will slide off the same and hold the insole in proper position with respect to the last and upper until final pressure is applied by the stem **39** to seat the insole beneath the overhanging edge of the upper.

This spring-pressed mechanism carried by the plate **36** is so arranged that the stem **38**, disposed over the heel portion of the insole acts first to press the insole against the bottom of the last and the latter to its position upon the heel support **32** within the mold. In the present instance, the spring-pressed means engaging the heel portion of the insole comprises the stem **38** supporting a series of small rollers; the lower end of the stem terminating in a yoke-piece **38a** in which a short shaft **40** is journaled and upon which these rollers are mounted. These rollers may be three in number, a central one, indicated at **41**, of slightly larger size than the others and which is designed to engage the insole, and smaller rollers **42** at each side thereof which engage the welt, as shown in Fig. 11. It is desirable to provide rollers since there is a certain amount of movement imparted to the insole and/or the upper lengthwise of the mold as the latter is positioned in the same during the application of the insole, and the presence of these rollers not only provides the desired pressure, but also permits the ready movement of the insole, last and upper beneath the same without undue friction.

The stem **38** carrying the rollers **41** and **42** preferably fits within a sleeve **43** depending from the plate **36**, and between the end of this sleeve and the yoke-piece **38a** carrying the rollers, I provide a coiled spring **44** of sufficient tension to insure the desired pressure on the insole. The stem and sleeve may have a pin and slot connection, **45** and **45a** to permit movement between the parts under or against the tension of the spring **44** when the plate **36** is lowered into the proximity of the mold and the insole and welt are engaged by the rollers.

The insole being in the position illustrated in Fig. 5 and it being desired to press the same into position with respect to the upper within the mold, the stem **37** is lowered by hand; bringing the contact devices of the plate **36** into engagement with the insole. In this position, the flexible guiding blades **25** and **26** are in the elevated position; being supported in such position by the spring **23**. For the purpose of finally moving these guiding blades entirely below the welt portion of the upper within the same, I provide manually operated means in the form of a lever **50**, pivotally mounted at **50a**, to a post **51**, carried by the mold base **12** and provided with an operating handle **50b**. This lever lies beneath and toe rest or support **24** and passes between the mold sections *h* and *i*; normally lying with the handle in the upper position, with the lever blade in engagement with the lower wall of a notch **52** in the edge of the section *h*, as illustrated in Fig. 5. When the lever is finally operated by pushing down the handle **50b** to completely lower the guiding blades **25** and **26** surrounding the toe portion of the last and upper, it may be held by providing the mold section *h* with a second notch or recess **53**, under the upper wall portion of which it may be caught, as illustrated in Figs. 7 and 10. In the present instance, this lever blade is duplex and has a portion encircling the sleeve **21** supporting the blade-carrying block **22**.

In the first operation of lowering the pressing mechanism, which is manual, the insole is pressed into place and the block carrying the guiding blades **25** and **26** is lowered until it strikes the lever **50**. In this action, the block **55** at the upper end of the stem **37** is lowered to the position shown in dotted lines, Fig. 1, and full lines, Fig. 1ª. After the lever **50** is lowered, following this operation of the pressing mechanism, the operator steps on the treadle **56**, and this action, through a series of links and levers, brings a latch **57** into engagement with the block **55**; further pressure on said treadle, through said latch, lowering the pressing mechanism to final position, as illustrated in Fig. 6. The last and upper are now seated in the mold with the insole in proper position with respect to the same, and the mold sections are brought into clamping position by the levers **60**, under the action of the springs **61**; such levers being released by stepping on the treadle **62**, illustrated in Fig. 2. The clamping lever mechanism functions in the same manner as similar mechanism illustrated in my pending applications for patents. In the present instance, however, I have added details desirable in the carrying out of my present invention.

In order that the clamping levers may be maintained in the desired position with respect to the mold sections, the latter are provided with guiding ears **13c** which may be integral with such sections or secured thereto; such means preventing displacement of the ends of the clamping levers and insuring direct application of the desired pressure against said sections in clamping the lasted upper or shoe within the mold. In the operation of carrying out my present invention it is desirable to have the sections of the mold in the closed position for the placement of the last and upper therein with the applied insole, and I accomplish this by providing the ends of the clamping levers with spring-pressed stems **65**, which bear against the mold sections in advance of the lever ends when the levers are out of clamping position. These stems may pass through the ends of these levers, as shown in Fig. 3, and their rearwardly projecting ends are connected to coiled springs **66** whose inner ends are anchored to the ends of the levers at **66ª**. This supplemental means effects the closing of the mold sections under very slight tension; permitting their ready outward displacement when the last and upper with the applied insole are placed therein.

After the last and upper have been finally clamped in the mold with the insole in proper position and the upper is ready to receive an outer sole, the operator releases the insole-pressing means by stepping on the latch **58**, which releases the treadle **56**; such latch having engaged a lug **56ª** on the treadle when the latter was lowered. As soon as this is done, the pressing mechanism is raised by the weight **59**, through the cord or chain **59ª** connected to the stem **37** carrying the pressing mechanism. In this operation, the latch **57** will be moved out of engagement with the block **55** by spring **57ª**.

Following this displacement of the insole-pressing means from the last and upper, a filling piece of suitable material, composition, cork, or the like, is set on top of the insole; filling the space between the surface of the latter and the plane or surface of the welt. This filler piece having been previously coated with cement, is then tamped in place. The bottom of the lasted upper or shoe is then ready to receive the outer sole, which is applied after the surface of the filler piece and the welt has been coated with a suitable cement; the outer sole also having a coating of cement. The sole is then tamped in place; the character of the cement being such that it will hold the sole parts in place, and the upper is then ready to have the sole sewn to the welt, edge-trimmed and otherwise prepared as a finished shoe.

For this purpose the last and upper must be removed from the mold and to effect this the operator presses down fully on the treadle **62**; such action lowering the rods **63** carrying the sliding ring **64** to which the clamping levers **60** are operatively connected. After the upper with its applied outer sole has been removed from the mold, the latter is to be made ready for the reception of another last and upper, and for this purpose the mold sections are to be under the light tension of the spring-pressed stems **65**. For this purpose, I provide a latch **62ª**, which engages the treadle in the position illustrated in full lines, Fig. 2; such latch being held toward its engaging position by a spring **62b**. The treadle is permitted to assume the position indicated by broken lines when freeing the clamping levers so that they may engage and clamp the mold sections against the last and upper within the same; the operator releasing the latch **62ª** after slight pressure on the treadle **62**. With the treadle engaged by the latch **62ª**, as illustrated in Fig. 2, the clamping levers **60** will be held out of engagement with the mold sections, but the latter will be closed by the engagement of the supplemental spring-pressed stems **65**, ready for reception of the next last and upper.

The outer sole, indicated at C, Fig. 7, may include a heel lift, as indicated at *cc*, and it will be understood that the manner of applying the outer sole after the insole has been properly positioned with respect to the upper follows the general practice commonly employed in the manufacture of the so-called "Puritan" welt shoes. It will be understood of course that it is necessary to employ different mold sections for right and left uppers, and in Fig. 17 I have shown, diagrammatically, molds prepared for the reception of right and left uppers. As the sections are displaceable from the base, any base may be set up with sections for a right upper or a left upper, as desired. The flanged lips carried by the tops of the mold sections are detachable, and may be changed as desired for the production of different sized shoes.

In addition to the spring blades **25** and **26** which serve to guide the upper on a last to its seat in the mold, I may provide the toe end of the mold with wiping blades which overlie the flanged lips of the mold sections at the toe end of the same and in position to engage the toe end of the shoe. These blades are two in number and are carried by stems which are provided with cam elements to hold them in the engaged position, that is to say, in contact with the upper and over the joints between the mold sections, to prevent pinching of the leather. For the purpose of retracting these wiping blades and holding them in the disengaged position, away from the toe portion of the upper within the mold, I provide a spring, cooperating with the cam elements. When it is desired to have these wiping blades overlie the mold sections for engagement with the toe portion of the upper and beneath the welt of the same, the

cam elements are shifted to the position shown in the upper part of Fig. 15, and in Fig. 16, and the blades are thereby moved to lie over the mold sections and cover the joints between the same; the inner contacting edges of these wiping blades conforming to the contour of the mold and/or the toe portion of the upper. These wiping blades are designed to be retracted automatically, and means may be provided to effect their simultaneous operation. It will be understood that while these wiping blades have separate operating means it is preferable to have them operate together, and the cam elements may be actuated simultaneously by suitable means that may be readily engaged by the finger or hand of the operator. For this purpose, each of the operating cam elements might carry a lever and such levers could be arranged so that up or down movement of the same, in unison, would actuate said cam elements.

The wiping blades are indicated at **70**, and they are carried by supports **71**, arranged to slide on stems **72**, carried by the mold sections *g* and *i*. The stems **72** carry springs **73** which serve to move the wiping blades out of engagement with the toe portion of the upper; being compressed by the cam elements when the wiping blades are placed in operative position. Each of the stems **72** carries a rotatable cam element **74** having beveled ends **74a** which fit complementally beveled portions **71a** of the blade supports **71**. The rotatable cam elements lie in such position as to be readily engaged by the operator when it is desired to actuate the wiping blades. Upon displacing the cam elements **74** in one direction, the blades may be pushed in forcibly against the tension of the spring to the position shown in the upper part of Fig. 15. When the cam elements **74** are moved in the opposite direction, the wiping blades will be automatically retracted by the springs **73** to the inactive position, shown in the lower part of Fig. 15. The operating means for the wiping blades **70** are disposed between the top of the mold sections and the engaging ends of the clamping levers **60**.

When the wiping blades **70** are employed in connection with the flexible guiding blades **25** and **26**, they are in the active position until the insole-pressing means is brought down to force the last and upper with the applied insole into the mold and just before the final pressure is applied and after the guiding blades **25** and **26** have been lowered by the operation of the lever **50**. At this point, it is desired to make the final pressing operation by the insole-pressing means, and at such time the wiping blades **70** are withdrawn; such action being effected by rotating the cam elements **74** and permitting the springs **73** to act.

It will be understood that the operation of the insole-pressing means is in two stages; the parts of the same being first lowered by hand, and then positive pressure being applied by stepping on the treadle **56**. If the position of the lever **50**, as indicated in Fig. 5 is such as to interfere with the initial or any part of the operative movement of this pressing mechanism, such lever may be displaced from this position beforehand; the block **22** carrying the flexible guiding fingers **25** and **26** being supported by the spring **23** through the sleeve **21**, during the pressing operation. The toe support also partakes of a part of this movement through a pin and slot connection until it finally rests on top of the post **20**, after the last and upper with the applied insole have been finally seated in the mold. In this connection it may be noted that the stem **39** carries a roller **39c** at its lower end which is brought into operative engagement with the insole in the final stage of the pressing operation.

It will be understood that the mechanism herein shown and described is for illustrative purposes only and in no sense limiting and that modifications may be made in the several structures employed including the sectional mold and the coöperating mechanism associated therewith without departing from the spirit and scope of my invention as set forth in the appended claims which are intended to cover such mechanism broadly.

I claim:

1. In apparatus of the character described, the combination of a sectional mold for the reception of an upper on a last, means for clamping the mold sections in associated relation after the last and upper have been placed in the same, supports for the last within the mold, and displaceable guiding members projecting above the mold for guiding the toe portion of the upper into position with respect to the mold sections.

2. In apparatus of the character described, the combination of a sectional mold for the reception of an upper with an insole on a last, means for clamping the mold sections in associated relation after the last and upper have been placed in the same, supports for the last within the mold, resiliently supported guiding members projecting above the mold for guiding the toe portion of the upper into position with respect to the mold sections, and means for displacing said guiding members as the last and upper enters the mold.

3. In apparatus of the character described, the combination of a sectional mold for the reception of an upper with an insole on a last, means for holding the mold sections in displaceable relation while the upper and last are being placed in the same, displaceable guiding members projecting above the mold for guiding the toe portion of the upper into position within the mold, a resilient support for said guiding members, means for lowering the last and upper into the mold and simultaneously depressing the guiding members, and means for clamping the mold sections in engagement with the upper for the placement or positioning of an outer sole.

4. In apparatus of the character described, the combination of a sectional mold for the reception of an upper with an insole on a last, supports for the last and upper within the mold including resilient means for sustaining the toe support, means associated with said toe support for guiding the upper into proper position within the mold, resilient means for holding the mold sections in associated relation and in position to receive the last and upper with the insole, means for pressing an insole in position within the upper and outturning the welt comprising a pressure plate operable from a point above the mold, and means for clamping the mold sections into engagement with the upper after the insole has been set in place and prior to application of an outsole.

5. In apparatus for the placement of insoles in uppers having welts thereon, the combination of a sectional mold adapted to receive an upper on a last, guiding means for the toe portion of the upper, means for pressing an insole into place with respect to the last and upper, and means for

means for clamping the mold sections in engagement with the upper for the positioning of an outer sole.

19. In apparatus of the character described, the combination of a sectional mold for the reception of an upper on a last, supporting means for the upper within the mold including resilient means sustaining the toe support, means associated with said toe support for guiding the upper into proper position within the mold, resilient means for holding the mold sections in associated relation and in position to receive the last and upper, means for pressing an insole into position within the upper and outturning the welt operable from a point above the mold, and means for clamping the mold sections into engagement with the upper after the insole has been set in place and prior to the application of an outsole.

20. In apparatus for the placement of insoles in pre-welted uppers, the combination of a sectional mold adapted to receive an upper on a last, flexible guiding means projecting above the mold and underlying the welt at the toe portion of the upper, means for pressing an insole into place with respect to the upper, and means for displacing the guiding means below the surface of the mold and away from the welted edge of the upper.

21. In apparatus for the placement of insoles in pre-welted uppers, the combination of a sectional mold adapted to receive an upper on a last, guiding means for the toe portion of the upper underlying the welt thereon, means for pressing an insole into place with respect to the upper, and means for displacing the guiding means from the welted edge of the upper.

22. In apparatus for the placement of insoles in pre-welted uppers, the combination of a sectional mold, resilient means for holding the mold sections in associated relation; said mold sections being displaceable when an upper on a last is placed in the same, supporting means within the mold for the upper and last; the toe support including a resilient mounting, displaceable guiding means projecting above the mold for the toe portion of the upper and positioned to underlie the welt thereon and associated with said resilient mounting, means for pressing an insole into place with respect to the upper, and means for displacing the guiding means below the surface of the mold and away from the welted edge of the upper.

23. In apparatus of the character described, the combination of a sectional mold for receiving a pre-welted upper on a last, means for pressing an insole into position with respect to the upper, simultaneously outturning the welt and positioning the upper in the mold for the reception of an outer sole, guiding means for the toe portion of the upper, a releasable wiper blade carried by one of the mold sections in position to underlie the welt at the toe portion of the upper, means for displacing said wiper blade, and means for clamping the mold sections against the upper when the latter is in final position in the mold.

24. In apparatus of the character described, the combination of a sectional mold for receiving a pre-welted upper on a last, means for pressing an insole into the upper, simultaneously outturning the welt and positioning the upper in the mold for the reception of an outer sole; said means being operable from a point above the mold, guiding means for the toe portion of the upper, a resiliently mounted support within the mold for the toe portion of the upper and associated with said guiding means, and resilient fingers carried by the sole-pressing means for engagement with the insole.

25. In apparatus of the character described, the combination of a clamping mold of sectional type for receiving and completely enclosing a pre-welted upper on a last; a plurality of said mold sections being movable, means for holding the movable mold sections in associated relation and in such position that the upper and last may be placed therein, a resilient support for the toe portion of the last and upper, means for outturning the welt, and means for clamping all of the movable sections of the mold against the upper and the last completely enclosed thereby.

26. In apparatus for the placement of insoles in pre-welted uppers, the combination of a sectional mold for the reception of an upper on a last with an insole, means for holding the mold sections in associated relation and in such position that a last and upper may be placed therein, displaceable means for guiding the upper into place, a resilient support for the guiding means, means for pressing an insole into position with respect to the upper outturning the welt and simultaneously displacing the upper guiding means, and means for clamping the mold sections into engagement with the upper with the welt outturned ready to receive an outsole.

27. In apparatus of the character described, the combination of a sectional mold for receiving a pre-welted upper on a last, means for pressing an insole into position with respect to the upper and simultaneously seating the latter in the mold, a resilient support for the toe portion of the upper, vertically movable toe-guiding means associated with said resilient support and displaceable when the upper is seated in the mold, and a lever for completing the displacement of said toe-guiding means.

28. In apparatus of the character described, the combination of a sectional mold for receiving a pre-welted upper on a last, resilient supporting means within the mold for the heel and toe portions of the last, means for pressing an insole into position with respect to the upper and simultaneously seating the latter in the mold, resilient contact means carried by said pressing means for engagement with the heel and toe portions of the insole, and means for bringing said pressure means into engagement with the insole.

29. In apparatus of the character described, the combination of a sectional mold for receiving a pre-welted upper on a last, means for pressing the upper with an interposed insole into said mold and simultaneously outturning the welt comprising a plurality of resilient pressure elements applied from above the mold, guiding means for the toe portion of the upper, resilient supporting means for the lasted upper within the mold, and displaceable wiping blades carried by the mold sections and operable to and from a position underlying the welt at the toe portion of the upper.

30. In apparatus of the character described, the combination of a sectional mold for the reception of a pre-welted upper on a last, displaceable means within the mold for guiding the toe portion of the upper into position with respect to the mold sections, means for pressing the upper and last into the mold and simultaneously displacing the toe-guiding means, supports for

the last within the mold, and means for clamping the mold sections into engagement with the last and upper after the latter have been positioned within the same.

31. In apparatus of the character described, a mold for receiving a pre-welted upper on a last comprising a fixed section at one end of the same and a series of movable sections, means for clamping all of said movable sections in closed position with respect to the fixed section, and means for holding all of said movable sections in closed position under slight tension whereby they may be opened for the reception of the upper and the last upon which it is mounted.

32. In apparatus of the character described, a mold for receiving a pre-welted upper on a last comprising a fixed section at one end of the same and a series of pivotally mounted sections, spring-pressed levers for clamping said pivotally mounted mold sections with respect to the fixed section and against an upper confined within the same, means for displacing said levers, and spring-pressed stems carried by said levers and serving to keep the mold sections closed and under slight tension while the levers are out of clamping position.

33. In apparatus for the placement of insoles in pre-welted uppers, the combination of a sectional mold adapted to receive an upper on a last comprising a fixed section at one end of the same and a series of movable sections; the movable sections of said mold being under slight tension but sufficiently yielding to permit entrance of the upper on the last with an insole loosely mounted on the last, means for imparting longitudinal movement to the last and upper to seat the heel portion in the mold and against the fixed section of the same, means for guiding the toe portion of the upper and the last into the mold, means for pressing the insole into position beneath the overhanging welted edge of the upper, and means for clamping the movable sections of the mold against the upper and last after the insole has been seated in place.

34. In apparatus for placing insoles in pre-welted uppers, the combination of a support for receiving the upper on a last with a loosely placed insole, means for imparting endwise movement to the upper, insole and last in the support, means for guiding the toe portion of the upper into proper position with respect to the support, and means for pressing the insole against the last and simultaneously outturning the welt whereby the inner edge of the welt and upper will overlie the edges of the insole.

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