

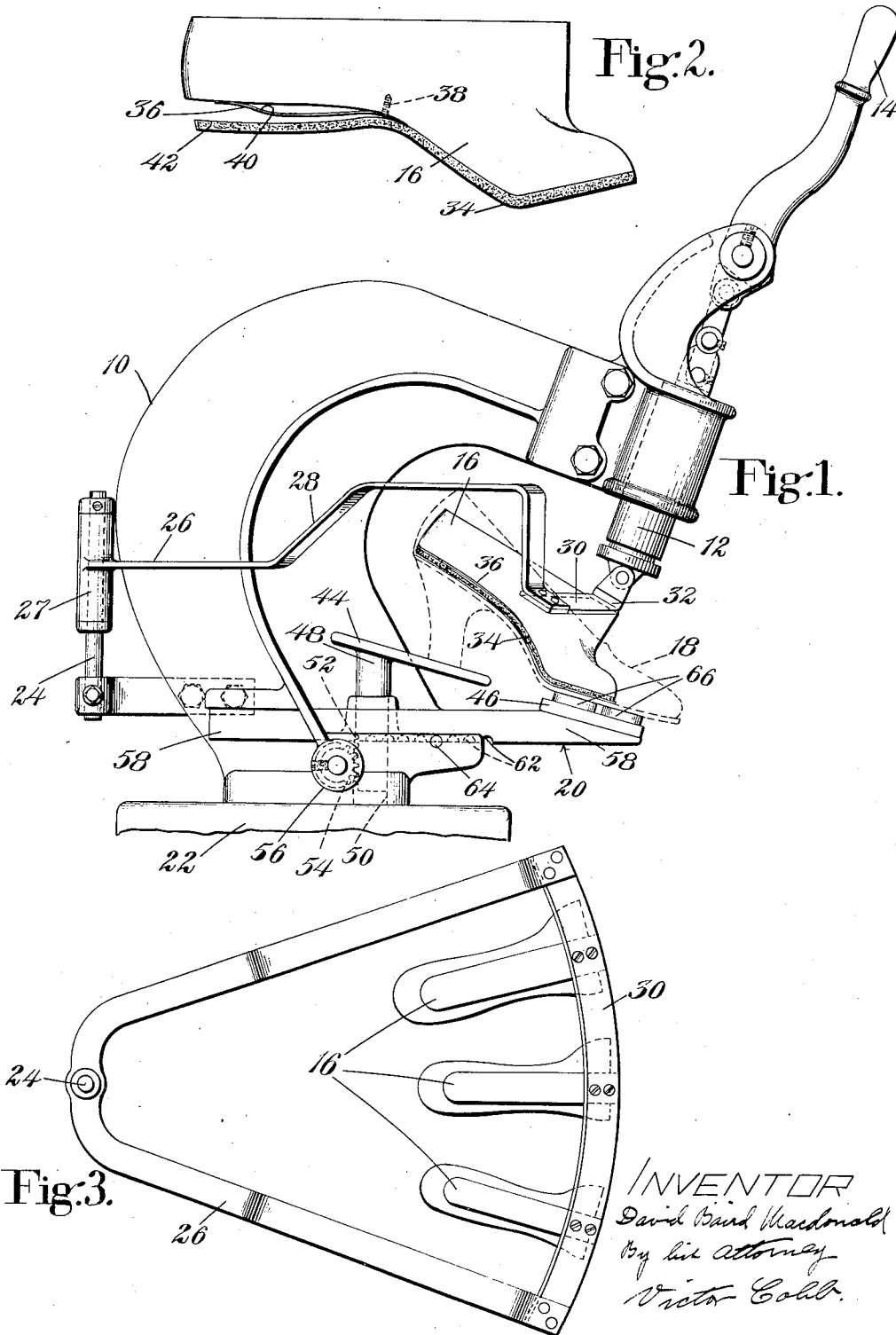
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APPARATUS FOR MAKING SHOES

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APPARATUS FOR MAKING SHOES

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This invention relates to apparatus for making shoes and has to do particularly with the application of sock-linings or other lining members to the insides of shoes.

5 In the manufacture of shoes it is common practice at or near the end of the manufacturing operations to insert a sock-lining in the shoe and secure it by an adhesive to the bottom of the inside of the shoe. Such sock-linings
10 commonly though not invariably comprise a sole shaped piece of thin leather, fabric or other material. Heretofore it has been common practice in shoe factories to apply sock-linings to shoes by hand, the lining being coated with adhesive
15 upon one side thereof and inserted into the shoe by an operator who rubs and presses the lining upon the shoe bottom as well as may be with the fingers or by means of a hand tool. As a method of securing smooth unwrinkled laying of the sock lining upon the shoe bottom which
20 is so obviously desirable both to give a well-finished appearance to the inside of the shoe and to prevent the foot of the subsequent wearer from being chafed by irregularities of the shoe bottom, the hand method of laying sock-linings
25 leaves much to be desired. This is particularly true in the case of women's shoes having high heels in which the bottom of the shoe is curved sharply downwardly and forwardly from the heel portion and meets the flat forepart at a sharp angle. When sock linings are applied to
30 such shoes by hand considerable difficulty has heretofore been experienced in laying the lining in such manner that it will adhere properly in the waist or shank portion of the shoe near the ball portion. This is due to the fact that the
35 fingers of the operator or the hand tool used act along the curved portion mentioned which makes it difficult to bed down the lining evenly. In view of the foregoing, it is an object of the invention to provide improved apparatus by which a sock-lining can be secured in a shoe without leaving wrinkles which might subject the wearer to discomfort.

40 These and other features of the invention are described in the following detailed specification, are disclosed in the drawing, and will be pointed out in the claims.

In the drawing,

50 Fig. 1 is a side elevation of a machine embodying one form of the invention;

Fig. 2 is a perspective view of one of the forms; and

55 Fig. 3 is a plan view of the form supporting device with the forms shown in position thereon.

Preferably the apparatus used in applying sock-linings in accordance with the invention comprises two pressure-applying devices, one adapted to operate on shoes of the right foot and the other adapted to operate on shoes of the left foot. These devices are ordinarily mounted side by side upon a simple base or work bench. As the two devices are similar except that pressure-applying forms employed therein are of slightly different shape to take into account the difference in shape between shoes of right and left feet only one of the devices will be illustrated and described.

The pressure-applying device comprises (Fig. 1) a C-shaped frame 10 having a plunger 12 reciprocable by means of a handle 14, the plunger being adapted to press a form 16 against the bottom of the shoe such as shoe 18, shown in dotted lines, mounted upon a support 20 to lay the sock-lining of the shoe.

20 The frame 10 is suitably mounted upon a base or work bench 22 with its open side toward the front. At the rear of the frame is mounted a vertical pivot shaft 24 upon which is carried a swinging frame 26. This frame is roughly rectangular in shape (Fig. 3) and is pivoted upon the pivot shaft 24 by means of a bearing 27 formed in the middle of its rearward portion. The sides of the frame extend forwardly, one lying on each side of the frame 10. At their forward end portions the sides 26 are bent, as shown at 28, and joined by the forward portion of the frame which is formed by an arcuately shaped metal bar 30, the center of curvature lying on or substantially on the axis of the pivot shaft 24 about which the frame can swing. The arrangement is such that the bar 30 forming the front side of the frame directly underlies or contacts with the bottom surface of a flat block 32 which is pivotally mounted upon the lower end of the plunger 12 and on account of the curvature of the bar 30 a portion thereof always underlies the block in whatever position the frame may occupy.

40 Mounted in spaced relation along the bar 30 are three pressure-applying forms 16, the several forms being provided to take care of different sizes of shoes upon which it is necessary to operate. The forms are of wood and their bottom surfaces are shaped to have, both in profile and in peripheral shape, a shape corresponding to that in the bottom surface of a shoe to be operated upon from the heel end up to or just beyond the ball line. Above its bottom surface each form narrows more rapidly than would a

corresponding last so that it is an easy matter to insert each form into or to take it out of a shoe upon which it is to operate. The forms depend from said bar 30 forming the front side of the frame and are arranged bottom downwardly with their heel ends toward the rear end and inclined downwardly somewhat toward the front. Each form has secured to its bottom surface a layer of crepe rubber 34, best shown in Fig. 2, or other yielding material which, when the pressure is applied as hereinafter indicated to a sock-lining in a shoe, permits substantially uniform pressure to be applied to the sock-lining over the whole area of the bottom surface of the form and further, because of its yielding nature, minimizes the likelihood of marring the surface of the sock lining.

In order to assist in forcing the sock-lining rearwardly of the heel portion of the shoe during operation of the form there is provided a leaf spring 36 the end of which is secured to the edge of the heel portion of the form by a screw 38. The spring has an arched portion 40 which underlies the heel portion 42 of the crepe rubber 44 and which is effective upon application of pressure to force the rubber and subsequently the sock-lining toward the heel portion of the form and of the shoe.

Located below the pressure-applying form is a normally fixed shoe-supporting means comprising a heel-supporting plate 44 and a forepart supporting plate 46. The heel-supporting plate 44 is inclined somewhat downwardly and forwardly and is carried at the upper end of a vertical stem 48 mounted in a bore 50 at the lower portion of the C-shaped frame 10. One side of the stem is provided with teeth 52 which are adapted to engage a gear 54 rotatable by a hand wheel 56, thus providing means whereby the lever of the heel-supporting plate 42 can be adjusted. The forepart supporting plate 46 is located forwardly of the heel-supporting plate and is carried at the forward end of a horizontal bar 58 housed in a recess at the lower portion of the frame. This bar 58 has a series of recesses 62 formed in its lower surface. A pin 64 on the frame is adapted selectively to enter one of the recesses to determine the position of the forepart supporting plate 44 and the bar is readily lifted and moved forwardly or rearwardly so that the pin can be made to enter into one of the recesses and hold the forepart supporting plate in adjusted position. The upper surface of the forepart supporting plate conveniently has rubber pads 66 mounted thereon with which the forepart portion of the bottom of the shoe is being operated upon contacts, thus insuring against marking or otherwise damaging the shoe bottom upon application of pressure.

In carrying out the method of the invention an operator takes up a shoe and inserts therein by hand a sock-lining which has previously been coated with adhesive on one side thereof and roughly beds the lining down upon the inside of

the shoe bottom with the toe portion of the lining well down upon the toe portion of the shoe bottom. The operator then takes the shoe with the lining roughly laid therein and presents the shoe to the most appropriately sized one of the three pressure-applying forms 16 so that the form is inserted into the shoe. The swinging frame 26 on which the form is carried is then moved until the shoe is positioned upon the supporting plates 44 and 46, the plates, if necessary, being adjusted so that the pressure upon the shoe will be evenly applied. The handle 14 is then actuated so that the block 32 which overlies the swinging frame is pressed downwardly, the side portions 28 of the frame being sufficiently flexible in nature to enable this to be done. The form with the shoe thereon is presented downwardly with the bar until the tread surfaces of the heel and forepart, respectively, contact with the heel and forepart supporting plates whereupon the sock-lining will be pressed accurately down upon the insert of the shoe bottom as the pressure is increased upon the form. As the form moves downwardly the crepe rubber covering slides along the downwardly curved portion of the shoe bottom toward the forepart thereof and rearwardly along the heel seat assisted by the spring 36 and exerts a rubbing action as well as pressure with the result that the lining is smoothed out from the waist portion of the shoe toward the extremities thereof. The pressure applied over substantially the entire length of the lining results in obtaining a satisfactory bond between the lining and the shoe bottom.

Having described my invention, what I claim as new and what I desire to secure by Letters Patent of the United States is:

1. A machine for laying sock-linings comprising a frame, a shoe support, a presser member, a form pivotally mounted upon the frame and having a yielding face portion adapted to engage the inside of the bottom of a shoe to be operated upon, and means for exerting pressure upon the form to lay a sock-lining in a shoe positioned upon the support.

2. A machine for laying linings comprising a frame, a shoe support positioned in the frame, a form carried by the frame and having a curved face adapted to engage a lining located within a shoe mounted upon the support, a layer of resilient material carried by the form, and a spring positioned between a portion of the material and the form to effect a wiping action upon the lining upon applying pressure to the form.

3. In a machine for laying linings, a form for applying pressure to a lining having a surface adapted to engage the inside of the bottom of a shoe to be operated upon, a layer of resilient material secured to the surface, and a leaf spring positioned between the material and the said surface of the form near the heel-end portion thereof.

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