

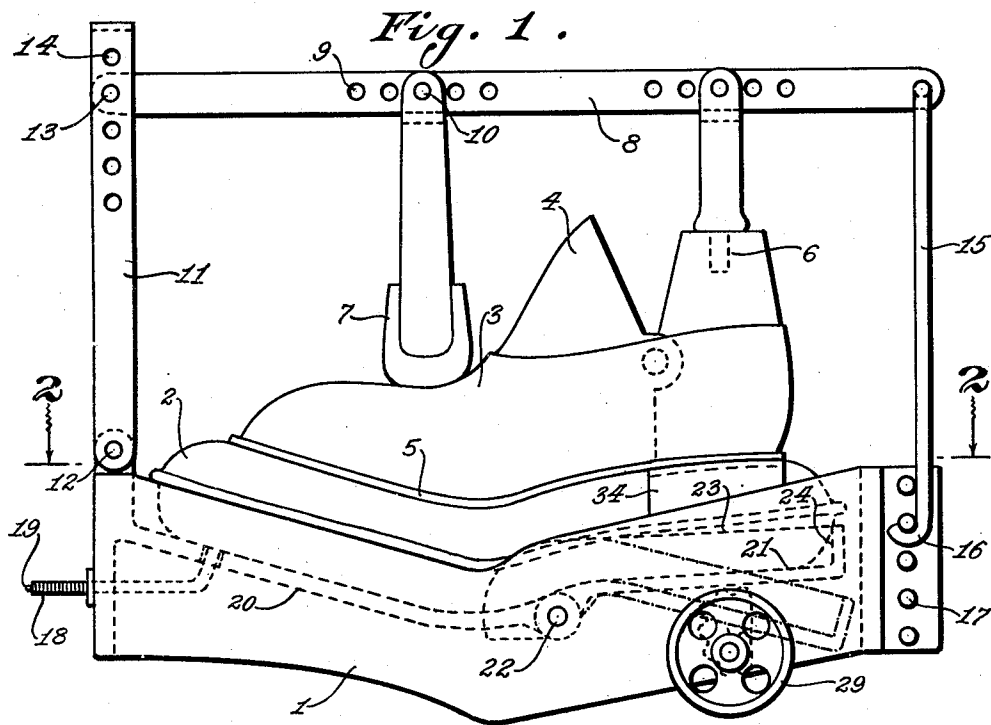
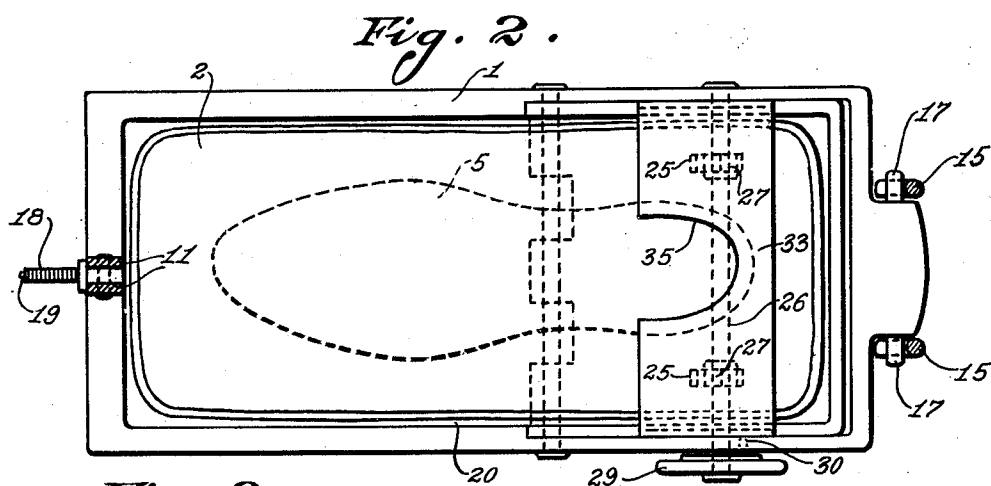
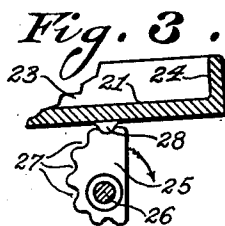
Feb. 12, 1935.

C. F. FREEMAN

1,991,348

METHOD AND MEANS FOR PRESSING SOLES

Filed Jan. 25, 1929



Inventor:
CHARLES F. FREEMAN,
By John N. Brunning,
His Attorney.

UNITED STATES PATENT OFFICE

1,991,348

METHOD AND MEANS FOR PRESSING SOLES

Charles F. Freeman, University City, Mo., assignor
to Charles Tweedie, Jefferson City, Mo., as
trustee

Application January 25, 1929, Serial No. 335,093

8 Claims. (Cl. 12-33)

This invention relates to means for attaching soles to shoes and more particularly by cement.

In the manufacture of boots and shoes in accordance with one of the well known processes the outsole is attached to the upper by means of cement having usually a nitro-cellulose base. The upper on the last is placed on or in a shoe support having a co-operating inflatable sole engaging pad, and this pad is inflated or otherwise acted upon by fluid, so as to press the sole against the upper, the cement being applied to the sole and upper in order to attach them together. After an interval sufficient to permit setting of the cement, the pad is deflated or otherwise manipulated to release its pressure on the sole in order to permit removal thereof.

In the manufacture of certain types of shoes, more particularly ladies' or other high heel shoes, the last bottoms and the bottoms of the shoe thereon vary considerably, particularly as the height of the heel to be placed on the shoe varies. The result is, therefore, that when the pad is pressed against the shoe bottom, the pressure back of the ball (the zone where the sole begins to curve upwardly towards the heel seat) may not be sufficient to secure the desired union through the medium of the cement, which requires the application of a rather heavy pressure. Furthermore, the pressure will not be uniform or as required for the various shoe bottoms; for the pressure will be the greatest at the ball and decrease away from the ball, especially as the height of the heel to be used on the shoe, and, therefore, of the last and the shoe bottom back of the ball, increases. It will, of course, be understood that in the manufacture of shoes in accordance with the process described, shoes of various shapes and designed for different height heels are successively subjected to a given pressure.

One of the objects of this invention, therefore, is to provide means of the character described having provisions whereby the pad can be conformed to the bottom of the shoe being operated upon.

Another object of this invention is to provide means whereby the pressure applied to the sole to press the same against the upper may be controlled particularly at selected portions along the sole.

In the bottoming of a shoe in accordance with the process described, the pressures employed are such as to affect the character of the heel seat. This is especially true in the case of ladies' shoes employing wood heels, where the sole extends back over the heel seat and where, on account

of the thickness or other characteristic of the sole, the high pressure employed bends the leather at the edges around the heel seat so that the desired foundation for the heel and the desired configuration of the leather at the heel seat are not secured.

Another object of this invention, therefore, is to provide means whereby the pressure at the heel seat or any other desired part of the shoe is relieved particularly along the edges.

Further objects will appear from the detail description, taken in connection with the accompanying drawing, in which—

Figure 1 is a side elevation of an apparatus embodying this invention;

Figure 2 is a plan of the support showing the position of a shoe sole in dotted line; and

Figure 3 is a detail.

Referring to the accompanying drawing, 1 designates a support adapted to receive a pad 2, which in this particular embodiment is in the form of a bag adapted to be inflated under air pressure. Over this pad is arranged to be placed a shoe 3 mounted on a last 4 and having a sole 5 which is to be attached to the shoe by cement. The last has a socket arranged to receive the usual pin 6 while the forepart of the shoe is engaged by the usual pad 7. The mounting of the last pin 6 and the pad 7 may be accomplished in any suitable manner; and, as shown in Figure 1, they are mounted upon a bar 8 having sockets 9 whereby these elements may be secured in adjusted position by pins 10. The bar may be secured in adjusted position by a link 11 pivoted at 12 to the support 1, and a pin 13 in the bar 8 may selectively engage sockets 14. A latch 15 on the bar 8 may be provided with a hook 16 arranged to selectively engage pins 17. It will be understood that the structure so far described may be of any suitable or usual form as now employed in the art.

The pad 2 is in this particular embodiment of the inflatable type and is provided for that purpose with a nipple 18 arranged to be connected with an air chuck, and has the usual valve 19. The support 1 is provided with a backing for the pad, this backing comprising a part 20, which may be rigid, and a movable part 21 pivoted at 22 on the base. The part 21 may be of box formation, having sides 23 and an end 24. Means is provided for adjusting the backing part 21, this means comprising a pair of cams 25 mounted on a shaft 26 and having sockets 27 arranged to engage lugs 28 on the backing part 21. The shaft 26 is provided with a hand wheel 29, which is held in any

desired adjusted position by means of a spring plunger 30 engaging sockets in the hand wheel.

By means of the mechanism described, the backing part 21 may be adjusted to conform the same and its pad to the bottom of the last and the shoe thereon. This backing part is shown in two positions in Figure 1, corresponding, respectively, to shoes having high and low heels. It will, therefore, be seen that the backing can be adjusted to conform to the shoe bottom, more particularly back of the ball upwardly; accordingly, a uniform or desirable pressure can be selectively applied to the sole with shoes designed for heels of varying heights and having, therefore, varying conformations of shoe bottoms. By means of the adjustment, it is also possible to selectively increase or decrease the pressure applied along different portions of the shoe sole independent of the fluid pressure. By adjustment of the hand wheel 29, it is possible to apply more or less pressure, as desired, to the sole at the shank or at the ball or even at the toe. It will be seen that if the backing part 21 is raised, the pressure at the shank will be increased. It will, of course, be understood that, although the air pressure per square inch in the bag may be uniform in all parts of the bag; in view of the fact that the bag is of a resilient material, such as rubber, the effective pressure against the shoe bottom is varied by placing the backing closer thereto. This effect follows on account of the fact that the pressure against the shoe bottom is equal to the air pressure minus the counter-acting pressure due to the resiliency of the bag, which counter-pressure increases as the inflation or stretch of the bag increases. Accordingly, with a small amount of stretch, the effective pressure on the sole is a maximum. The pressure on the sole varies also because the positioning means locating the shoe may not be so adjusted or adapted to allow for uniform or proper pressure.

In accordance with this invention and in the application of pressure to the sole to attach the same to the shoe, a medially recessed bearing plate 33 is placed between the pad and the sole. This plate is of sufficient size and thickness so as to relieve the pressure at the margin of the heel seat while still permitting the pressure to be applied to the body of the sole at the heel seat inside of the margin, if desired, and directly to the sole forward of the heel seat.

It will be understood that this bearing plate is positioned with its edge at about or slightly forward of the position occupied by the breast of the heel. By this means the pressure is applied at the sole to the heel seat in such a manner as to prevent the objectionable turning over of the edges of the sole around the heel seat whereby the desired seat for the heel is retained. While the plate 33 may be a simple one positioned as described, in accordance with one embodiment of this invention, the plate may be attached to the backing 21 by legs 34. In such a case the plate is recessed as shown at 35 so that the bag can act on the sole at the heel while pressure at the sole edges is relieved.

It will, therefore, be seen that this invention accomplishes its objects, since means are provided whereby the operation of applying soles to shoes may be accomplished expeditiously and in a simple and effective manner. While the invention is particularly applicable to the operations of attaching an outsole to a shoe by means of cement, it will be understood that it has various

applications particularly to the shoe art which will be understood by those skilled in the art. While in the particular embodiment illustrated, the expansible pad is in the form of an air bag which may be inflated by the admission of air under pressure and deflated by the exhaust or release of the air therefrom, it will be understood that any other fluid or liquid may be used for inflating this pad. It will, furthermore, be understood that this invention in many of its aspects is applicable to means employing pads, particularly of a yielding character, other than those employing fluid pressure. It will, furthermore, be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations; that is contemplated by and is within the scope of the appended claims. It will, furthermore, be understood that various changes may be made in details, within the scope of the appended claims, without departing from the spirit of this invention. It is, therefore, to be understood that this invention is not to be limited to the specific details shown and/or described.

Having thus described the invention, what is claimed is:

1. An apparatus for attaching soles to shoes, comprising, a shoe support, a yielding pad thereon for engaging the shoe bottom under pressure, and an element inserted between the pad and the shoe bottom adapted to relieve the pressure at the margin along a part of the shoe bottom while the pressure inside of the margin is maintained.

2. An apparatus for attaching soles to shoes, comprising, a shoe support, a yielding pad thereon for engaging the shoe bottom under pressure, and an element inserted between the pad and the shoe bottom at the heel seat, adapted to relieve the pressure at the margin along a part of the shoe bottom.

3. An apparatus for attaching soles to shoes, comprising, a shoe support, a yielding pad thereon for engaging the shoe bottom under pressure, and a medially recessed bearing plate inserted between the pad and the shoe bottom at one end thereof.

4. An apparatus for attaching soles to shoes comprising, a support, a pad for cooperating with the shoe bottom and extending for the length of the sole to be attached, and an adjustable backing for the shank and heel portions of the sole, said backing hinged to said support rearwardly of that portion of the pad which contacts the ball portion of a sole.

5. An apparatus for attaching soles to shoes comprising, a pad for cooperating with the shoe bottom and extending for the length of the sole, a rigid support for that portion of the pad which supports the forepart of the sole, and an adjustable backing for the rear part of the pad, said backing being adjustable about an axis disposed rearwardly of that portion of the pad which contacts the ball portion of a sole.

6. In the art of attaching soles to shoes having varying bottoms, the process comprising, applying a yielding pressure directly to the sole to press the same against the shoe bottom, the pressure at the margin along the heel part of the sole inside the edge being relieved while the pressure is maintained inside the margin at heel end and entirely across the sole at the forepart.

7. An apparatus for attaching soles to shoes comprising, a support, a pad for cooperating with the shoe bottom and extending for the length

of the sole to be attached, an element inserted between the pad and the shoe bottom adapted to relieve the pressure at the margins along a part of the shoe bottom while the pressure inside of the margin is maintained, a backing for said pad composed of relatively adjustable sections, and means for adjusting said sections to vary the angular relation thereof in accordance with the heel height of the shoe being operated upon, said adjusting means having a series of stops corresponding to different heel heights.

8. An apparatus for attaching soles to shoes comprising, a support, a pad for cooperating with the shoe bottom and extending for the length

of the sole to be attached, an element inserted between the pad and the shoe bottom adapted to relieve the pressure at the margins along a part of the shoe bottom while the pressure inside of the margin is maintained, a backing for said pad composed of a fore part section and a rear part section, said sections being hingedly connected together adjacent the ball region of a shoe thereon, means for angularly adjusting said sections about the hinge connection, and a series of stops for setting said adjusting means each corresponding to different heel heights.

CHARLES F. FREEMAN.