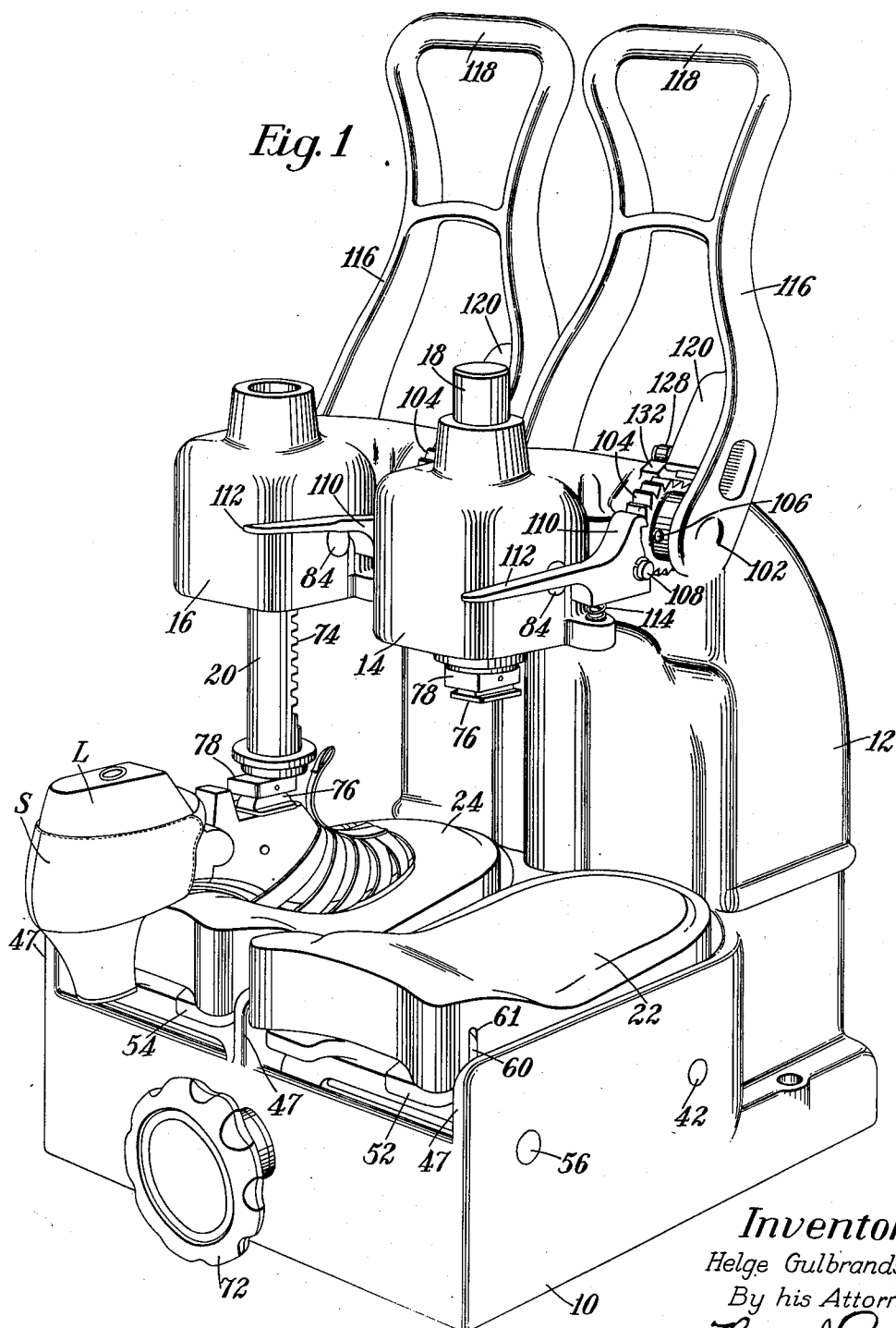


Filed May 24, 1949

H. GULBRANDSEN
SHOE PRESS

3 Sheets-Sheet 1



Inventor
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March 2, 1954

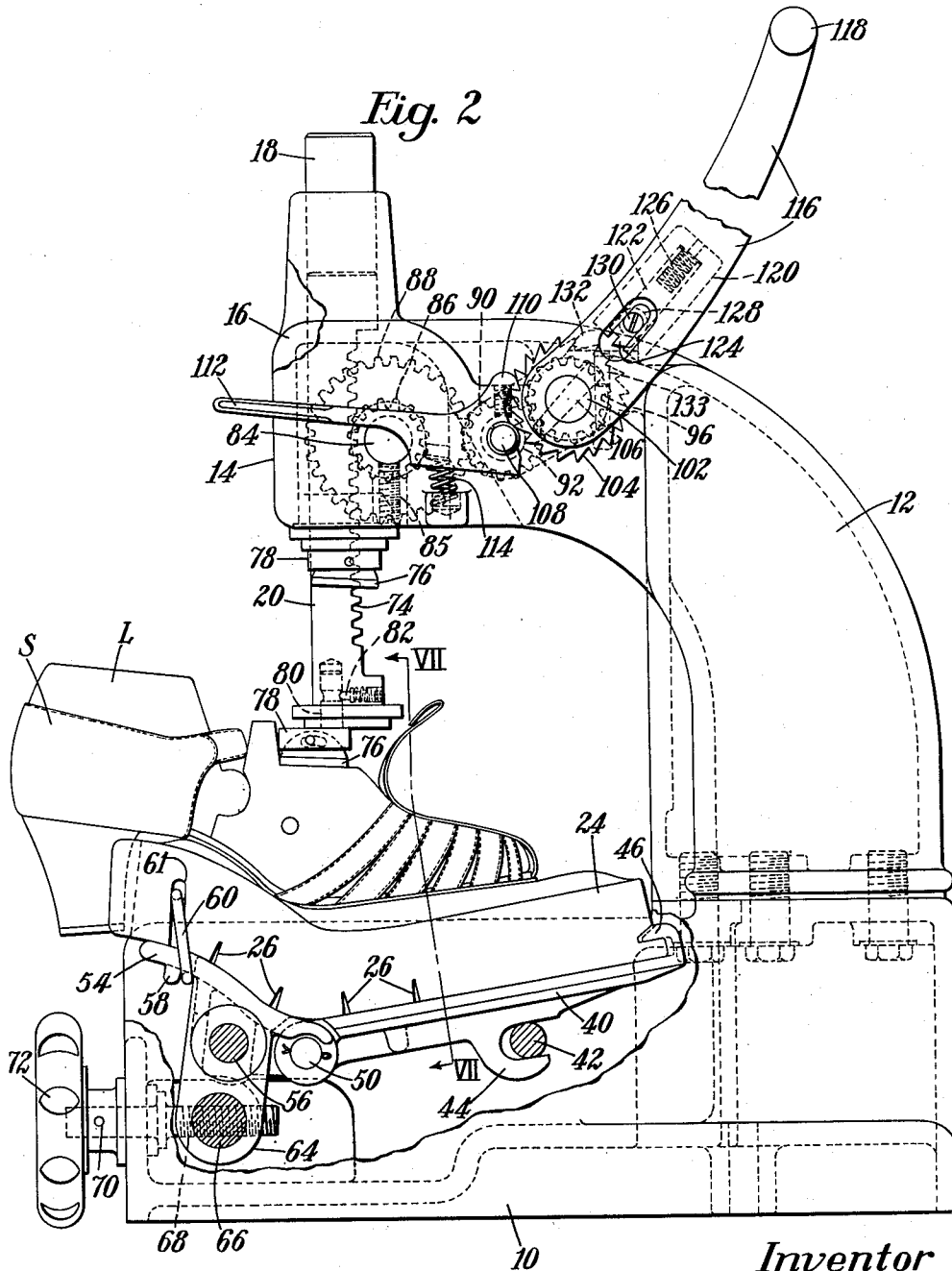
H. GULBRANDSEN

2,670,481

SHOE PRESS

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3 Sheets-Sheet 2



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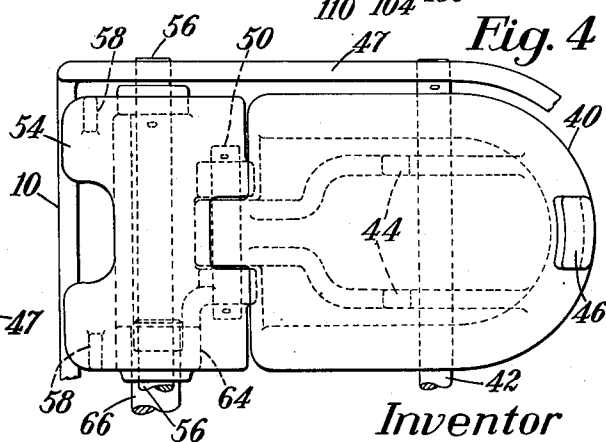
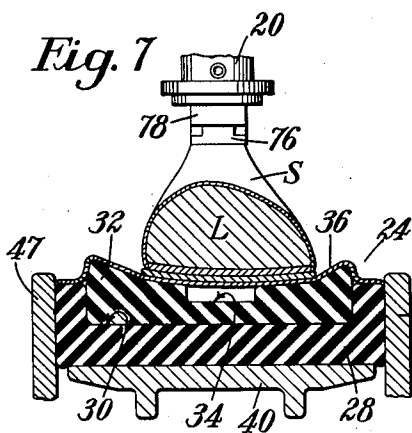
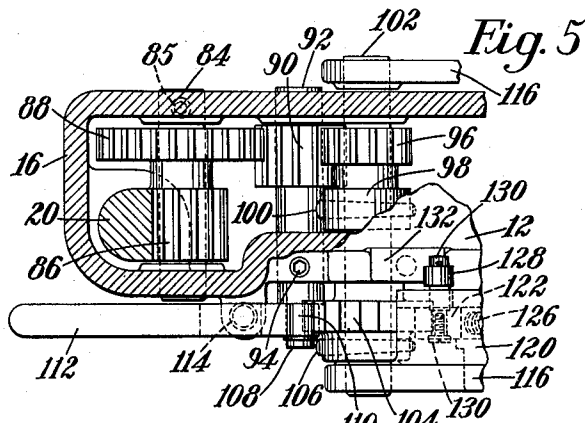
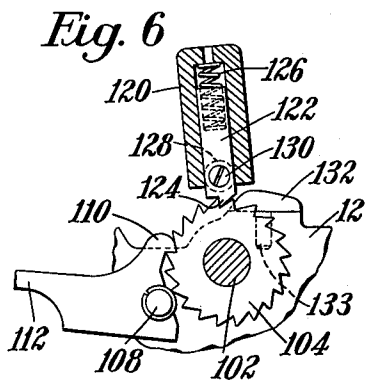
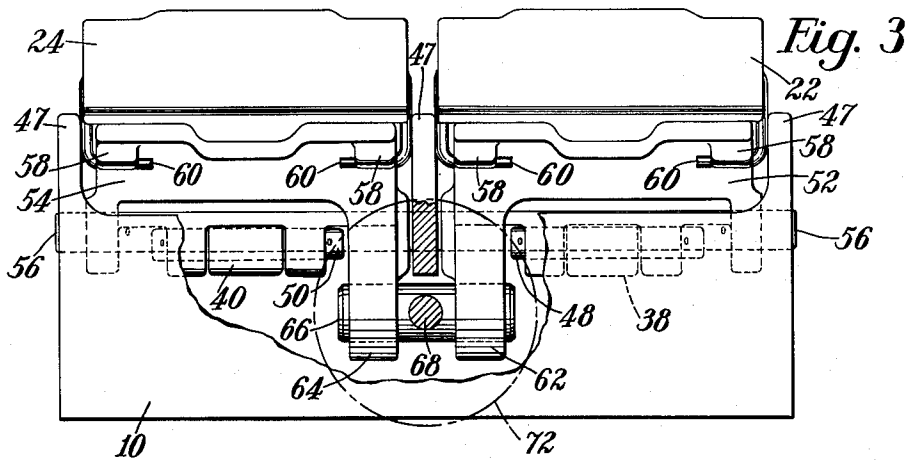
H. GULBRANDSEN

2,670,481

SHOE PRESS

Filed May 24, 1949

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,670,481

SHOE PRESS

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Application May 24, 1949, Serial No. 95,033

11 Claims. (Cl. 12—36)

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This invention relates to machines for applying pressure to shoe bottoms and more particularly to shoe presses adapted for use in attaching outsoles to shoe bottoms.

An object of the invention is to provide a shoe press of the type referred to which is simple in construction and economical to manufacture, quick and easy to operate, and yet is as efficient in its operation as the more expensive types of presses. A further object of the invention is to provide a shoe press in which the movements of the operator, including the making of adjustments in the press, are reduced to a minimum.

To the attainment of these objects the invention provides, in accordance with one feature, an improved shoe press having a pair of resilient or yieldable pads for operating upon a pair of shoes, means individual to each pad for pressing the shoes against the pads, a flat plate for supporting the forepart of each pad, a curved member articulated with the flat plate for supporting the rear portion of each pad, and single means for relatively adjusting said plates and articulated members to adapt the pads for operating successively upon pairs of shoes having differently shaped bottom portions. As herein illustrated, the flat forepart plates are arranged to pivot or rock about a common transverse axis and also to move longitudinally relatively to said axis. The articulated members comprise curved plates pivotally connected to said forepart plates and also arranged to pivot about a common transverse axis, these curved plates being shaped to conform approximately to the longitudinal curvature of the shank portion of a normal or mediumly arched shoe bottom.

In order to permit the press to operate successively upon different pairs of shoes having differently shaped bottom portions, particularly shank portions, single means is provided for simultaneously adjusting the forepart plates and curved shank plates relative to each other, this means, as herein illustrated, comprising a member interconnecting the supporting plates of both pads, and means for moving the interconnecting member to cause the plates to rotate or rock about their respective pivots and thereby simultaneously adjust the angular positions of the two supporting plates of each pad relatively to each other the same amount or degree. As herein illustrated, the moving means preferably comprises a screw held from longitudinal movement in the machine and threaded into the interconnecting member, said screw being arranged to be rotated manually to cause the interconnecting member to move or

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adjust the supporting plates for each pad simultaneously about their respective transverse axes and also to cause the flat forepart plates and the curved shank plates to pivot relatively to each other about the pivots interconnecting said forepart and shank plates. In this way, the movements required of the operator for operating the press, particularly for adjusting the pads when operating successively upon pairs of shoes having differently shaped bottom portions, are reduced to a minimum. Moreover, the adjustment of the two pads for each pair of shoes operated upon insures that the press will operate with maximum efficiency on the different pairs of shoes while, on the other hand, it may be operated substantially as fast as presses which do not have such adjustment.

In accordance with another feature, the invention provides an improved shoe press having a pad for receiving a shoe, a presser foot for pressing the shoe against the pad, and means including a rack and pinion for actuating said presser foot, said means also including a handle pivoted a substantial distance rearwardly of the pinion and non-axially thereof, and means between said handle and said pinion whereby, when the handle is swung forwardly toward the operator, the presser foot will be moved downwardly toward the pad, said last-named means being also arranged by reason of a mechanical advantage in the mechanism to move the presser foot toward the pad with a force which is substantially greater than the force that would normally be applied to the presser foot by a handle of the length herein disclosed, thereby insuring that sufficient pressure will be applied to the shoe without undue exertion on the part of the operator.

The presser foot is also provided with a last-engaging member which, in accordance with another feature of the invention, is adjustable into different lateral positions for engaging lasts of different sizes or shapes, the last-engaging member, as herein illustrated, being rotatably mounted in the lower end of the presser foot and arranged to be rotated laterally thereof into different operative positions, the member being removably retained in said presser foot by spring-pressed means which holds the member securely in the presser foot but does not interfere with its lateral adjustment relatively thereto.

With the above and other objects and features in view, including means individual to each presser foot for locking it in pressure applying position, the invention will now be described in

detail with the accompanying drawings and will thereafter be pointed out in the claims.

In the drawings:

Fig. 1 is a perspective view of the shoe press embodying the present invention showing a shoe under pressure on one of the pads;

Fig. 2 is a side elevation of the press with the right-hand pad removed and other portions broken away to show details;

Fig. 3 is a front elevation of the lower portion of the press with portions broken away or shown in section;

Fig. 4 is a plan view of one set of articulated plates which support the pads;

Fig. 5 is a plan view, partly in section, of mechanism for operating one of the presser feet;

Fig. 6 is a fragmentary view of a portion of the presser foot operating mechanism shown in Fig. 5; and

Fig. 7 is a transverse sectional view taken on the line VII—VII of Fig. 2 showing the shoe under pressure.

The illustrated shoe press comprises a hollow rectangular base or frame 10 adapted to be mounted on a bench or supporting column and having secured to its rear portion an upstanding casting 12 which projects forwardly and carries two vertical housings 14 and 16 in which are mounted for heightwise reciprocating movement two posts 18 and 20 which form the pressure applying members and carry presser feet for engaging the lasts in the shoes operated upon. As illustrated in Fig. 1, the posts 18 and 20, respectively, are positioned above and directly opposite a pair of pads 22 and 24 mounted side by side in the base 10 and arranged to receive a pair of shoes to which pressure is to be applied, for example, to attach outsoles or half soles to the shoe bottoms or, if desired, to apply sole laying or sole conforming pressure thereto.

The pads 22, 24 are composed of yieldable resilient material such as rubber or a composition thereof and each pad comprises an assembly consisting of a solid block having transverse grooves 26 (Fig. 2) extending partially there-through from the underside of the block to assist the pad in conforming longitudinally to underlying members which support the pad, these pad assemblies being of the type illustrated and described in my copending application for Letters Patent of the United States, Serial No. 53,467, filed October 8, 1948, now Patent No. 2,611,143, granted September 23, 1952. As illustrated in that application, each pad comprises a lower block 28 (Fig. 7) composed of resilient material, preferably rubber, and provided in its upper surface with a recess 30 shaped like the periphery of a shoe bottom but being larger than the largest shoe to be operated upon. Removably mounted in the recess 30 of the block 28 is a resilient or yieldable shoe receiving pad 32 preferably of rubber which is shaped similarly to the recess but is slightly smaller so that it may be easily removed and replaced by a different pad. The pad 32 has a central recess 34 which is smaller than the smallest shoe to be operated upon, the recess 34 being defined by an abrupt shoulder at the inner edge of the pressing portion of the pad, thereby concentrating the pressure along the marginal portion of the shoe bottom and minimizing the pressure at its central portion. The pad 32 is overlaid by a cover 36, which may be composed of rubber or leather or a lamination of both and which may be secured in position on the pad in any usual or convenient manner, for example, by cement, dowel pins or

fastenings. The pads 22 and 24 are identical in construction except that the pad 22 is shaped to receive the right shoe of a pair to be operated upon and the pad 24 is adapted to receive the left shoe.

The means for supporting the foreparts of the pads 22, 24 comprise a pair of flat rigid plates 38 and 40 (Figs. 2, 3 and 4) which are supported side by side in parallel relation by a transverse shaft 42 secured in the frame 10, each plate having a downwardly extending pair of hooks 44 (Figs. 2 and 4) on its bottom surface which engage the shaft 42 and permit lengthwise movement of the plate as well as pivotal movement about the shaft 42. The inner ends of the forepart supporting plates 38, 40 have upwardly projecting hooks 46 thereon which enter recesses provided in the inner walls of the pads 22 and 24 and thus hold the foreparts of the pads on the plates. As illustrated in Figs. 1, 3 and 7, the frame 10 is provided at opposite sides of the pads with upwardly projecting ribs or flanges 47 which engage the opposite side walls of the lower block 28 of each pad and thus maintain these blocks in proper lateral position on the plates 38 and 40. At their outer or left-hand ends, as viewed in Fig. 2, the forepart plates 38 and 40 are provided with central bosses (Fig. 3) which carry transverse pins 48 and 50 to which are pivotally connected by means of ears a pair of upwardly curved rear or shank-engaging plates 52 and 54 which, as shown in Figs. 2 and 4, are arranged to cover the spaces separating them from the forepart plates 38, 40 and thus provide substantially continuous or unbroken surfaces for supporting the pads 22 and 24 mounted thereon.

The shank-engaging plates 52 and 54 are arranged to fulcrum about a common transverse shaft 56 mounted in the frame and, as shown in Fig. 2, have upper surfaces which substantially conform longitudinally to the curvature of the shank portion of a shoe having a medium or normally arched shank. The plates 52, 54 are provided at their outer ends with downwardly extending ears 58 which retain U-shaped springs 60 arranged to enter elongated slots 61 formed in the opposite side walls of the pads 22 and 24 and thus hold the pads in position on the shank-engaging plates.

The plates 52 and 54 are provided, respectively, at their inner or adjacent sides with downwardly extending parallel arms 62 and 64 (Figs. 2 and 3) through which the transverse shaft 56 passes, the lower ends of these arms having rotatably mounted therein a short transverse shaft 66 which interconnects the arms and, consequently, interconnects the shank plates 52 and 54 so that they will have the same pivotal movement about the shaft 56. The short shaft 66 is provided between the arms 62 and 64 with a horizontal hole extending at right angles therethrough and threaded internally to receive a flanged screw 68 which is rotatably mounted in the frame 10 and has secured to its outer end by a pin 70 a handwheel 72 whereby the screw may be rotated. Rotation of the screw 68 by the handwheel 72 moves the interconnecting shaft 66 forwardly or rearwardly and swings the shank-engaging plates 52 and 54 in unison forwardly or rearwardly about the shaft 56, thereby causing these plates to be adjusted simultaneously by the single handwheel into different angular positions relatively to the forepart plates 38 and 40 or, in other words, simultaneously adjusting the two supporting plates of both pads angularly with respect to each

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other to adapt the resilient surfaces of the pads for receiving pairs of shoes having differently shaped bottom or shank portions. When the shank-engaging plates 52 and 54 are adjusted angularly by the handwheel 72 about the shaft 55, the forepart plates 38 and 40 are permitted to move longitudinally as well as to rock angularly relatively to the transverse shaft 42 by reason of the slots in the hooks 44. Inasmuch as the pads of the present shoe press are adapted to operate upon both shoes of a pair of shoes at the same time, the supporting plates for both pads 22 and 24 can thus be adjusted simultaneously by the single handwheel 72 into the same angular positions for operating successively upon pairs of shoes the shank or bottom portions of which are shaped differently from the pair of shoes previously operated upon. Moreover, the arrangement of the screw 68 threaded through the interconnecting shaft 66 insures that when the supporting plates of both pads have been adjusted angularly for a particular pair of shoes, the pads will remain in adjusted position during the pressure-applying operation or until the angular positions of the plates are changed by the operator.

The mechanism for pressing the shoes against the pads 22 and 24 comprises the vertically reciprocating posts 18 and 20 previously referred to and operating mechanism for the posts individual to each pad so that either member can be operated independently of the other. Since both pressure-applying mechanisms are identical in construction, only one mechanism need be described herein. The post 20 in the housing 16 is provided on its inner side with rack teeth 74; the lower end of the post being enlarged and having mounted thereon a last-engaging member or presser foot 76 arranged for limited rotary movement in an arcuate slot formed in a carrier 78 whereby it can adjust itself automatically to the angle of the portion of the last engaged thereby. The carrier 78 is provided with an upstanding pin 80 which enters a vertical hole in the lower end of the post 20 and is retained therein by a spring-pressed pin or plunger 82 which engages an annular groove in the pin 80, thereby permitting horizontal rotation of the carrier 78 and presser foot 76 into different positions for engaging lasts of different types or sizes. As illustrated in Figs. 1 and 2, the presser foot 76 is engaging a last L in a shoe S which is receiving pressure from the pad 24; the cone of the last having been cut away to form a flat horizontal surface which the presser foot 76 engages. When operating upon shoes of different sizes or shoes mounted on different types of lasts, for example, various types of metal lasts or forms sometimes used when applying pressure to shoe bottoms, the carrier 78 may be rotated 180° into an opposite or inner position if necessary to position the presser foot to accommodate these different types or sizes of lasts.

Rotatably mounted on a horizontal shaft 84 fastened by a set screw 85 in the housing 16 is a pinion 86 which meshes with the rack 74 on the vertical post 20 and, integral with the pinion, is a gear 88 which meshes with an intermediate or idler gear 90 rotatably mounted on a shaft 92 secured by a set screw 94 in the housing 16 rearwardly of the shaft 84. The intermediate gear 90 meshes with a pinion 96; the hub 98 of which is fastened by a taper pin 100 to a shaft 102 journaled in the frame 12 rearwardly of the shafts 84 and 92 and, consequently, rearwardly or non-axially of the center 84 about which the pinion 86

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rotates. The opposite ends of the shaft 102 extend laterally beyond the frame, as viewed in Fig. 5, and the right-hand end of the shaft has a ratchet wheel 104 secured thereto by a pin 106. Pivoted on a reduced end portion 108 of the shaft 92 on which the gear 90 is mounted, is a pawl 110 having a forwardly extending tail or handle 112 in position to be readily depressed by the operator. The pawl is normally urged in a clockwise direction, as seen in Fig. 2, by a spring 114 seated in a boss provided on the housing 16 and pressing upwardly against the underside of the pawl. Rotatably mounted on the opposite ends of the shaft 102 is a relatively long U-shaped arm or handle 116 which straddles the mechanism just described and is provided with a crossbar 118 whereby it may be grasped by the operator and swung forwardly and rearwardly toward and away from the operator about the shaft 102. The right-hand or outer arm of the handle 116 as viewed in Figs. 1 and 2 is provided at its lower portion with an inwardly projecting boss 120 which is bored lengthwise to receive a plunger 122 (Figs. 2 and 6) provided at its lower end with a single tooth 124.

The plunger 122 is normally urged downwardly in the boss 120 by a spring 126 mounted in the upper portion of the boss and engaging a hole in the plunger. The plunger carries a roll 128 rotatable about a pin 130 extending transversely through the plunger, the roll riding on the curved face of a cam 132 (Figs. 2, 5 and 6) provided with a pin 133 whereby it is secured in the casting 12. The shape and position of the cam 132 are such that, when the elongated handle 116 is swung into its rearward position, as shown in Figs. 1 and 2, the roll engages a high part of the cam and thus holds the plunger 122 upwardly away from the ratchet wheel 104; this rearward position of the handle being determined by a shoulder on the casting or frame 12. When the handle 116 is swung forwardly by the operator to operate the post 20, the roll 128 rides off the front portion of the cam 132, thereby permitting the spring 126 to force the single tooth of the plunger 122 into engagement with the ratchet wheel 104 and thus rotate the ratchet in a counterclockwise direction, as viewed in Figs. 2 and 6.

This action rotates the shaft 102 in a counterclockwise direction and, through the gearing 96, 90, 88 and 86 previously described, moves the post 20 downwardly with substantial force to bring the presser foot 76 into engagement with the horizontal surface of the last L, or with any other type of last used, thereby pressing the shoe against the yieldable pad 24 and applying pressure to the shoe bottom. The pressure is maintained against the shoe by the pawl 110, which rides over the teeth of the ratchet 104 during the counterclockwise rotation of the latter but engages a tooth of the ratchet at the end of said rotation, thus preventing reverse movement of the shaft 102 and locking the post 20 in pressure applying position.

After one rotation of the handle 116 forwardly toward the operator, he swings it rearwardly again and repeats the operation as many times as may be necessary to build up sufficient pressure against the shoe bottom to perform the desired operation whether it be sole attaching, sole leveling or sole laying, the additional pressure applied by each successive operation of the handle 116 being maintained by the pawl 110. After the desired pressure has been applied to

one shoe of the pair on the pads, the same operation is performed upon the other shoe on the opposite pad, thereby applying pressure to both shoes of the pair at the same time, the pressure being maintained as long as desired by the pawls 110.

The foregoing arrangement of the pressure applying mechanisms of the press causes these mechanisms to extend some distance rearwardly of the posts 18 and 20 in a substantially horizontal position, as shown in Fig. 2, so that each mechanism may be conveniently located in the forwardly extending upper portions of the frame or casting 12. This prevents creating a bulky mass of relatively heavy mechanism on the front or at one side of the housings 14 and 16 as would ordinarily have to be done in a press of this type in order to operate the posts 18 and 20 in the proper direction. The use of the intermediate or idler gears 90 between the pinions 96 and the gears 88 causes the posts 18 and 20 to move downwardly in the right direction to apply pressure to the shoes when the handle 116 is pulled forwardly toward the operator, thereby allowing the operator to apply the pressure in the most natural and convenient manner. Moreover, gearing arranged in the manner shown herein produces a substantial mechanical advantage in the mechanism, for example, an advantage of approximately 2 to 1 as herein illustrated, which permits the operator to build up relatively heavy pressure on the shoe without undue exertion, thereby preventing fatigue on the part of the operator even though the press is operated continuously or for long periods at a time. The pressure applying mechanisms move the posts or presser feet downwardly toward the pads with a force which is substantially greater than the force which would normally be applied to the presser feet by handles of the lengths shown herein.

After pressure has been applied to both shoes of the pair for a sufficient period of time to complete the operation being performed, the operator relieves the pressure on the shoes by depressing the elongated tails 112 of the pawls 110 and releasing them from the ratchet wheels 106. He can then readily move the presser feet 76 upwardly away from the shoes by lifting the posts 18 and 20 manually since the handles 116 will have been returned to their rearward positions after each operation to release the plungers 122.

As illustrated in Fig. 7, the pad 24 will apply to the shoe S a pressure which, by reason of the special construction of the pad, will be concentrated along the marginal portion of the shoe bottom where it is most needed especially when attaching soles or half-soles to shoes. The recess 34 in the pad insures that relatively light pressure will be applied to the central portion of the outsole throughout its forepart and shank portions, thereby imparting a smooth appearance to the bottom surface of the outsole so that the latter will not show impressions of the irregularities which usually exist in the shoe bottom above the outsole, especially in repair work. By reason of the mechanical advantage of the pressure applying mechanism above referred to, the present shoe press is capable of applying as much pressure as may be necessary to carry out the operation being performed on the shoe and it is quick, efficient and easy to operate. Moreover, because of the simultaneous adjustment of the pads for receiving

pairs of shoes having differently shaped bottom or shank portions, the press is faster to operate than other types of presses, particularly when operating successively upon different pairs of shoes having bottom portions which vary considerably in shape as is quite often the case in repair work.

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

1. A shoe press having, in combination, yieldable pads for operating upon shoes to which pressure is to be applied, means for pressing the shoes against said pads, a separate plate for each pad for supporting the forepart thereof, a member articulated with each plate for supporting the rear portion of each pad, and single means for relatively adjusting said plates and articulated members to adapt the pads for operating successively upon shoes having differently shaped bottom portions.

2. A shoe press having, in combination, a pair of yieldable pads for receiving a pair of shoes to which pressure is to be applied, means individual to each pad for pressing the shoe thereon, a rigid plate for each pad for supporting the forepart thereof, a member pivoted to each plate for supporting the rear portion of each pad, and means for simultaneously adjusting said pivoted members relatively to their respective plates to position the pads for operating successively upon different pairs of shoes having differently shaped rear portions.

3. A shoe press having, in combination, a pair of yieldable pads for receiving a pair of shoes to which pressure is to be applied, means individual to each pad for pressing the shoe thereon, a pivoted plate for each pad for supporting the forepart of each pad, a member pivoted to each plate for supporting the rear portion of each pad, and manually operated means for relatively adjusting said plates and pivoted members simultaneously to adapt the pads for operating upon pairs of shoes having differently shaped shank portions.

4. A shoe press having, in combination, a pair of yieldable pads for receiving a pair of shoes to which pressure is to be applied, means opposite each pad for pressing the shoe thereon, a flat plate associated with each pad for supporting the forepart thereof, a curved member pivoted to each plate for supporting the shank-engaging portion of each pad, and single means for simultaneously adjusting said curved members relatively to their respective plates to position the shank-engaging portions of the pads for operating successively upon pairs of shoes having differently shaped shank portions.

5. A shoe press having, in combination, a plurality of resilient pads for receiving shoes to which pressure is to be applied, a presser foot opposite each pad for pressing the shoe thereon, a flat rigid plate for each pad for supporting the forepart thereof, a curved plate pivotally connected to each flat plate for supporting the shank-engaging portion of each pad, means interconnecting said curved plates, and means coacting with said interconnecting means for simultaneously adjusting said curved plates relatively to their respective flat plates to change the angular positions of said flat and curved plates relatively to each other and thereby adapt the pads for receiving shoes having shank portions shaped different from the shoes previously operated upon.

6. A shoe press having, in combination, a pair of yieldable pads having surfaces thereon for receiving a pair of shoes to which pressure is to be applied, means individual to each pad for pressing the shoe thereon, flat rigid plates for supporting the foreparts of said pads, said plates being arranged for lengthwise and pivotal movement about a single transverse axis, curved plates pivotally connected to the flat plates for supporting the shank-engaging portions of the pads, said curved plates being arranged to pivot about a single transverse axis, and means common to the curved plates for adjusting said curved plates and flat plates relatively to each other to change their relative angular positions about their respective axes and thereby simultaneously adapt the surfaces of the pads for receiving pairs of shoes having differently shaped shank portions.

7. A shoe press having, in combination, a pair of yieldable pads having resilient surfaces thereon for applying pressure to a pair of shoes, a presser foot for each pad for pressing the shoe thereon, means individual to each presser foot for operating the same, flat plates for supporting the foreparts of the pads, said plates being arranged for lengthwise and pivotal movement about a common transverse axis, curved plates articulated with said flat plates for supporting the shank-engaging portions of the pads, said curved plates being also arranged for pivotal movement about a common transverse axis, means interconnecting said curved plates, and single manually-operated means cooperating with said interconnecting means for swinging said curved plates simultaneously about their axis thereby to swing the flat plates about their axis and change the contours of said resilient surfaces to adapt them for receiving pairs of shoes having differently shaped bottom portions.

8. A shoe press having, in combination, a pair of resilient pads having surfaces thereon for receiving a pair of shoes to which pressure is to be applied, a presser foot for each pad for pressing the shoe thereon, manually-operated means for operating said presser feet, said means automatically locking the presser feet in operative position, flat plates for supporting the foreparts of the pads, said plates being arranged for angular adjustment about a common transverse axis, curved plates pivoted to said flat plates for supporting the shank-engaging portions of the pads, said curved plates being likewise angularly adjustable about a separate transverse axis common to both plates, a transverse shaft interconnecting said curved plates, a screw threaded at right angles through said shaft, and operator-controlled means for rotating said screw simultaneously to adjust said curved plates and flat plates angularly about their respective axes and thereby vary the surfaces of the pads to adapt them for successively receiving pairs of shoes having differently shaped bottom portions, said rotating means acting also to maintain said plates in adjusted position.

9. A shoe press having, in combination, a pad for receiving a shoe to which pressure is to be applied, a presser foot above said pad for pressing the shoe against the pad, said presser foot com-

prising a post movable heightwise toward and away from the pad, a last-engaging member secured to the lower end of said post provided with an annular groove, said member being rotatable laterally of the post into a plurality of different positions lengthwise of the pad to adapt it for engaging lasts of different types or sizes, and means engaging said annular groove for removably securing said member to the lower end of said post while permitting said lateral rotation.

10. A shoe press having, in combination, a yieldable pad for receiving a shoe to which pressure is to be applied, a presser foot located above the pad for pressing the shoe against said pad, said presser foot comprising a post movable heightwise toward and away from the pad, a last-engaging member carried by the lower end of said post, said member being arranged for limited rotary movement heightwise of the pad to adapt itself automatically to the angle of the portion of the last engaged thereby, said member being also rotatable laterally of the post to position it in different positions lengthwise of the pad for engaging lasts of different sizes, and spring-pressed means for removably retaining said member in the lower end of said post without interfering with its rotary movement.

11. A shoe press having, in combination, a pad for receiving a shoe to which pressure is to be applied, a presser foot for pressing the shoe against the pad, a vertical rack on said presser foot, a first pinion meshing with the rack, a gear integral with said pinion, a second gear mounted on a fixed shaft and meshing with said first gear, a second pinion meshing with the second gear, an operating handle mounted on the axis of said second pinion to swing in a vertical plane toward and from an operator in front of the pad, a ratchet wheel mounted on the same axis, a spring pressed plunger mounted in the handle to engage said ratchet wheel, a fixed cam acting directly on said plunger to disengage it from the ratchet wheel when the handle is swung upwardly beyond a predetermined position, and a manually releasable retaining pawl mounted on the shaft of said second gear and engaging the ratchet wheel to maintain the shoe under pressure.

HELGE GULBRANDSEN.

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