This invention relates to presses for use in the manufacture of shoes, and relates more particularly to presses for use in the cementing of outsoles to lasted upper.

The usual shoe presses of the type to which this invention relates are provided with heel and toe engaging members which press the shoes and their soles against pads or other supports for applying the sole attaching pressure, or for sustaining the shoes against pressure applied by inflatable pads or other supports against the bottoms of the soles. Such heel and toe engaging members are movable forwards and away from the shoes, and it is necessary to adjust their positions each time a change in the size or height of a lasted shoe takes place. Since it is customary to handle all sizes and heights of a particular line of shoes in a single press, the necessity for frequent adjustment of the usual heel and toe engaging members has been troublesome and has increased the manufacturing costs.

This invention eliminates the need for the usual adjustments of the heel and toe engaging members when shoes of different sizes and heights are handled. This is accomplished in one embodiment of the invention utilizing an inflatable pad for pressing lasted shoes and their outsoles together, by supporting the pad upon movable platens which are so pivoted at the base of the press that the adjustments for different sizes and heights of shoes in the press are automatically accomplished by movements of the platens and the inflation of the pad when inflating fluid is admitted into the pad.

An object of the invention is to eliminate the necessity for the usual adjustments of the heel and toe engaging members in a shoe press when shoes of different heights and sizes are handled.

Another object of the invention is to provide adjustments in a shoe press for different sizes and heights of shoes, through movable members supporting a sole pressing pad.

Other objects of the invention are to reduce the operations required in, and to reduce the cost of, the manufacture of shoes.

The invention will now be described with reference to the drawing, of which:

Fig. 1 is a side elevation of a shoe press embodying this invention and illustrating by dash-dot lines a conventional type shoe in the press, the sole pressing pad being inflated;

Fig. 2 is a plan view looking downwardly upon the press of Fig. 1;

Fig. 3 is a sectional view along the lines 3—3 of Fig. 1;

Fig. 4 is an end elevation looking at the heel end of the press of Figs. 1 and 2; and

Fig. 5 is an end elevation looking at the toe end of the press of Figs. 1 and 2, and is partially in section, the section being taken along the lines 5—5 of Fig. 1, and

Fig. 6 is a view similar to Fig. 1 but with a wedge heel shoe in the press. The press illustrated includes the frame 10 which is attached by the studs 11 and the nuts 12 to the cleats 13 on the conveyor belt 14. The belt 14 is supported by the guide rails 15 and is adapted to be moved by mechanism which may be similar to that disclosed in the A. J. Weiss Patent No. 1,945,762 issued Feb. 6, 1934.

The inflatable pad 52 is supported at its toe end by the flange 53 formed on the frame 10, and is supported at its heel end by the heel plate 46. The frame 19 has a U-shaped upper extension 54 which extends around the pad 52 and which supports it in its proper position with respect to a shoe in the press and which also serves to limit the upper expansion of the pad, when inflated, to an area conforming to the contour of the forepart of the shoe.

The heel plate 46 has a U-shaped upper extension 60 which extends around the heel end of the pad 52 and which serves to support it in its proper position with respect to a shoe in the press, and which also serves to limit the upper expansion of the pad 52, when inflated, to an area conforming to the contour of the heel end of the shoe.

The extension 60 merges with the vertical side walls 61 of the heel plate 46 and provides therein an opening 62 which extends substantially the full width of the pad 52 adjacent the shank position thereof. The heel plate 46 has the curved lip 63 under the opening 62, on which the bottom of the pad 52 below the opening 62 rests.

The pad 52 is adapted to be inflated and deflated by the valve 51 which extends through a bore in the boss 50 of the frame 19, and which is adapted to be actuated by an operator as disclosed in said Weiss patent.

The toe plate 35 is pivoted on the studs 9 which extend through the toe ends of the rocker arms 27 and the strap 31, and rocks about the stud 9 when the pressure in the pad 52 changes, as will be described.

The heel plate 46 is pivoted on the studs 40 which extend through the heel ends of the rocker arms 27 and the strap 42, and rocks about the studs 40 when the pressure in the pad 52 and the positions of the rocker arms 27 change, as will be described. The two bosses 55 into which the studs 56 are threaded, are formed on the inner end of the plate 46. The studs 56 extend through the large holes 37 in the arms 27 and
The rocker arms 27 are arranged in pairs, one
pair being located at each side of the press, and
are pivoted at about their centers on the studs 26
which extend through the support plates 23, the
arms of each pair being spaced from the
plates 23 by the spacers 28 and being held to
the plates by the washers 29 and the cotter
pins 28.

When a shoe is in the press and the pad 52 is
inflected, the toe plate 35 will be moved down-
wardly by the expansion of the pad and will
move the toe ends of the rocker arms 27 down-
wardly. This will cause the heel ends of the
rocker arms to move upwardly and to move the
heel plate 46 upwardly until the heel portion of
the pad is pressed against the heel of the shoe.
When a conventional shoe is in the press, the
toe plate 35, the rocker arms 27 and the heel
plate 46 will assume the positions illustrated by
Fig. 1. When a wedge heel shoe is in the press, the
toe plate 35, the rocker arms 27 and the heal
plate 46 will assume the positions illustrated by
Fig. 6. The toe plate 35 turns about the pivot
studs 9 in the toe end of the rocker arms 27 and the heel plate 46 turns about the pivot
studs 50 in the heel ends of the rocker arms, when the rocker arms change their position
and cause the upper surface of the pad 52 to maintain the correct positions with regard to
the underside of the shoe. This will be described in more detail in the following.

The plates 23 which support the rocker arms 27, are attached intermediate their ends to the
frame 10 by the cap screws 24 which are threaded into the lugs 20 on the frame. The lower ends
of the plates 23 are also attached to the frame by two of the studs 11 referred to in the fore-
going. The spacers 24 and the cleats 13 extend on the said two studs 11 between the nuts 12
thereon and hold the plates against the frame to

The toe ends of the rocker arms 27 through
which the studs 9 extend, are equally spaced by
the spacers 30 on both sides of the strap 31 and are held thereto by the washers 32 and the cotter
pins 33. The strap 31 is held in the channel 34
formed in the toe plate 35 and is attached thereto by the cap screws 35.

The heel ends of the rocker arms 27 through
which the studs 40 extend, are equally spaced by
the spacers 41 on both sides of the strap 42 and are held thereto by the washers 43 and the cotter
pins 44. The strap 42 is held in the channel 45
formed in the heel plate 46, and is secured thereto by the cap screws 47.

The carrier arms 76 are arranged in pairs, one
pair being located at each side of the press, and
are attached to the upper ends of the plates 23 by
the studs 74 which extend through the arms 76 and through the curved slots 73 in the plates 23.
The spacers 75 space the arms 76 from the
plates 23. The washers 77 and the cotter pins 78 are fitted to the outer ends of the studs 74
and retain the arms 76 thereon.

The heel ends of the carrier arms 76 are at-
tached by the pins 89 having the washers 81 and
the cotter pins 82, to the straps 80 and are spaced therefrom by the spacers 79. The strap 80 is
fitted into the channel 83 in the cross-beam 84 and is attached thereto by the cap screws 85.

The cross-beam 84 has formed thereon the cen-
tral lug 86 into which is threaded a conventional
heel post 87 which is adapted to be locked into position by the lock nut 88.

The toe ends of the carrier arms 76 are ro-
tatively mounted on the ends of the cross-rod 92
between the spacers 99 and the shoulders 91 on
the cross-rod.

The toe post carriers 94 are screwed to the
threaded ends of the cross-rod 92 and are ad-
justable by turning the wrench-hold 93 on the
cross-rod.

The two similar toe posts 95 are formed, each
with a clevis on its upper end which straddles
one of the carriers 94 and is pivoted thereto by
the pin 96 and secured with the cotter pin 97. The
posts 95 extend towards each other along con-
verging lines as illustrated by Fig. 5.

The carriers 94 have downwardly and inwardly
extending lugs 98 formed thereon and through
which are threaded the adjusting screws 99. The
studs 100 are threaded into the toe posts 95 and
support the inner ends of the springs 101. The
outlet ends of the studs 102 which are threaded into the carrier 94.
The springs 101 are attached by the stud 103 to
the carriers 94. The spring 101 urge the toe posts 95 against the inner ends of the adjusting screws 98.

By turning the wrench-hold 93 on the cross-
rod 92 and by turning the adjusting screws 99, the
positions of the toe posts 95 may be adjusted in accordance with the size and shape of the shoe

The lower ends of the toe posts 95 are threaded
to the screw studs 103 to which are attached the relatively soft toe contact pads 104 which, for
example, may be of rubber or leather. The
studs 103 can be screwed up or down in the toe
posts for adjusting the positions of the pads, and

The upper ends of the links 112 are pivoted on the ends of the cross-rod 92 between the spacers
99 and the washers 110, and are held in place by
the cotter pins 111. The lower ends of the links
112 have the slots 113 formed therein and through
which the pivot studs 115 threaded into the frame 10, extend. The links 112 pass through slots
formed in the flanges 116 on the carriers 94 where-
by as the links pivot backwards and forward, the
toe posts 95 are carried with them.

The springs 117 are coiled around the cross-
rod 92 between the toe ends of the carrier arms
and extend between the carrier arms at each side of
the press. One end of each of the springs 117
is restrained by one end of one of the links 112
and its other end is restrained by the lower edge
of one of the outside carrier arms 76. The springs 117 serve to support the carrier arms 76 and the
heel post assembly when they are moved from the
position shown by Fig. 1 to that shown by Fig. 6
as will be described.

The thumb screws 70 are threaded through the
lugs 71 on the frame 10. The springs 72 are coiled around the thumb screws and serve to prevent
their turning under vibration of the press. The
thumb screws may be screwed down to contact
the inside rocker arms 27 for limiting the upward
travel of the toe plate 35 when conventional
shoes of the type illustrated by Fig. 1 are being
handled, and may be unscrewed for providing ad-
ditional upward travel of the toe plate when

The adjustments described in the foregoing in
connection with the toe post assemblies are made
only when a press is first placed in operation. No further adjustments are made while conventional shoes of different sizes and heights are being handled. Adjustments of the heel post 87 and of the thumb screw 78 are made only when a wedge heel shoe is being handled.

When the press is first placed into service, a shoe is placed in the press and the wrench-hold 93, the adjusting screws 89 and the toe post screw studs 103 are adjusted until the toe posts 95 and their toe contact pads are in their proper positions with respect to the shoe. Different shoes would be used for left and right shoes and different adjustments would be required, of course, for each press. It would not matter as far as these adjustments are concerned whether or not the shoe for which the adjustments are made is a conventional shoe or a wedge heel shoe. Neither would there be any matter since the contours of the upper portions of all shoes the press is intended to handle, are substantially the same and said upper portions would all have the same heights in the press. For example, presses embodying this invention are destined to handle women's shoes ranging in size from one to eleven and including both conventional shoes and wedge heel shoes, without change in adjustment of the toe post assemblies.

When a conventional shoe is to be handled by the press, the thumb screw 78 is screwed downwardly for limiting the upward movement of the toe plate 36, and the heel post 87 is moved towards the toe end of the press until the studs 74 are in the forward ends of the slots 75 as illustrated by Fig. 1. This causes the links 112 to move downwardly until the pivot studs 115 are in the upper ends of the slots 113 as illustrated in Fig. 1.

When a shoe is placed in the press with little or no air in the pad 52, the toe plate 36 and the heel plate 45 will be in alignment substantially as illustrated by Fig. 1. Assuming now that a conventional shoe is placed in the press and the adjustments to accommodate such a shoe have been made. As air is applied to the pad 52 it will become inflated and in its forepart portion will exert downward pressure upon the plate 35 causing the toe end of the rocker arms 21 to move downwardly and their heel ends to move upwardly. The upward movement of the heel ends of the rocker arms 21 causes upward movement of the heel plate 45 and these upward movements continue until the heel portion of the pad 52 presses against the heel portion of the bottom of the shoe sole as illustrated by Fig. 1, and the assembly is in a balance determined by the pressure against the forepart and heel portions of the shoe sole, and the tension of the springs 58. The pressure is maintained in the pad for pressing the sole against the shoe bottom, for the usual period of time.

During the inflation of the pad 52 and the movement of the rocker arms 21, the toe plate 36 pivots at the pivot studs 74 in the toe ends of the arms 21 and the heel plate 45 pivots about the pivot studs 40 in the heel ends of the arms for maintaining the platens in their proper positions with respect to the bottom of the shoe. The toe and heel platens thus shift with movement of the arms 21, with respect to the shoe, and substantially align themselves with the planes of the shoe bottom.

When a wedge heel shoe is to be placed in the press, the thumb screws 70 are unscrewed for permitting the heel end of the pad to be pulled to a lower position by the spring 58, and the heel post 87 is moved towards the heel end of the press until the studs 74 are in the rear ends of the slots 75 as illustrated by Fig. 6. This causes the links 112 to move upwardly until the pivot studs 115 are in the lower ends of the slots 113 as illustrated by Fig. 6. These adjustments provide for the additional height of a wedge heel shoe.

Then when the wedge heel shoe is placed in the press and the pad 52 is inflated, the rocker arms 21 move relatively little, if any, from their normal (pad deflated) positions since the wedge heel limits upward movement of the heel plate 45 and corresponding downward movement of the toe plate 36. However, if any movement of the arms 21 takes place, the toe plate 36 will pivot about the pivot studs 8, and the heel plate 46 will pivot about the pivot studs 40, and thus maintain the upper surface of the pad 52 in its proper relation to the shoe bottom. Complete inflation of the pad 52 then presses the outsole against the shoe bottom and this pressure is maintained for the usual period of time.

It will have been observed that in handling conventional shoes of different sizes and heights, all the operator has to do is to place the shoes in, and remove them from, the press, and to actuate the usual press advancing and pad inflating mechanisms. It is not necessary to make any adjustments of the toe and heel post assemblies, any variations in the size and height of the regular shoe being compensated for automatically upon inflation of the sole pressure pad, by movement of the rocker arms and the toe and heel platens as described in the foregoing. The simple adjustments also described enable a single press to handle wedge heel shoes as well as regular ones.

While one embodiment of the invention has been described for the purpose of illustration it should be understood that the invention is not limited to the exact apparatus and arrangement of apparatus illustrated, as modifications thereof may be suggested by those skilled in the art, without departure from the essence of the invention.

What is claimed is:
1. A shoe press comprising a toe engaging member, a heel engaging member, arms for connecting said members at opposite sides of said press, supporting members extending upwardly from said press for supporting said arms, said supporting members having curved slots formed therein, and means extending through said slots and slidable along the curve thereof for adjustably pivoting said arms from said supporting members.
2. A shoe press comprising a pair of toe engaging members, means including a supporting member extending cross-wise said press for interconnecting said toe engaging members, a heel engaging member, a supporting member extending cross-wise said press for supporting said heel engaging member, means including arms interconnecting said supporting member at opposite sides of said press, plates extending upwardly from said press for supporting said arms, said plates having curved slots formed therein, and means extending through said slots for pivoting said arms from said plates.
3. A shoe press comprising an inflatable sole pressing pad having upper and lower dilatable diaphragms, a support for said pad, said support having fixed and movable sections, means for inflating said pad to dilate the diaphragms thereof
in opposite directions and means contacting the
lower diaphragm of the portion of said pad upon
the fixed section of said support and actuated by
dilation thereof for moving the movable section
of said support.

FRED DAWSON.

REFERENCES CITED
The following references are of record in the
file of this patent:

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