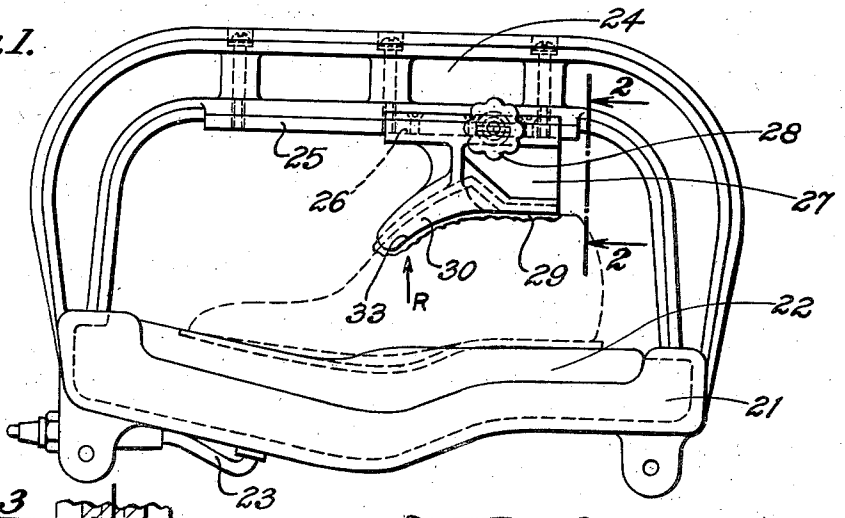
June 3, 1941. J. F. SMITH 2,244,545

SHOE PRESS

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Fig. 1.



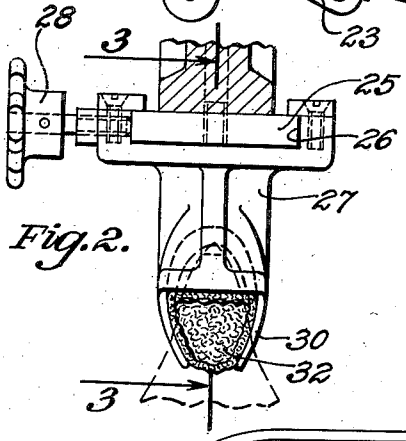


Fig. 2.

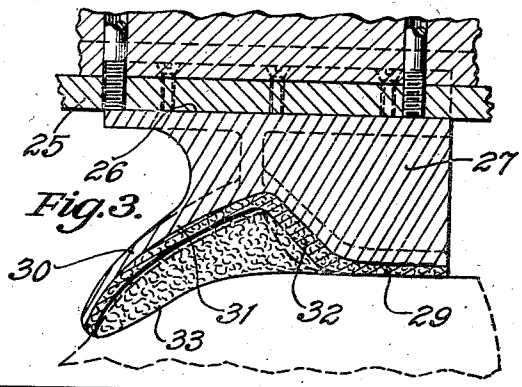
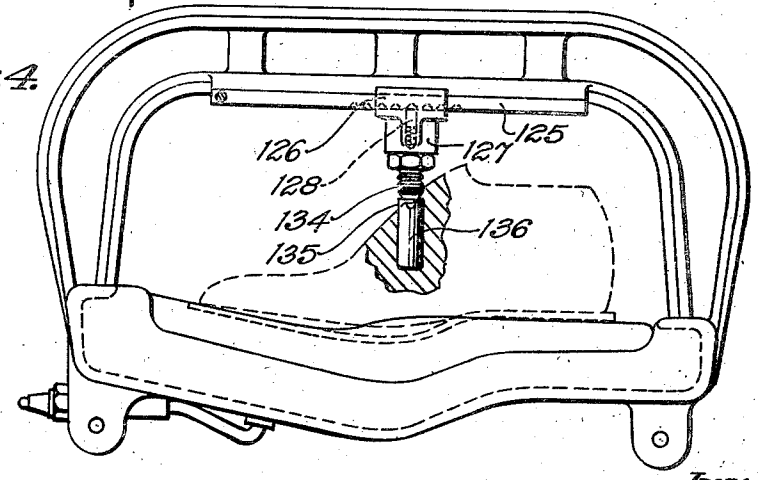


Fig. 3.

Fig. 4.



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Fig. 5.

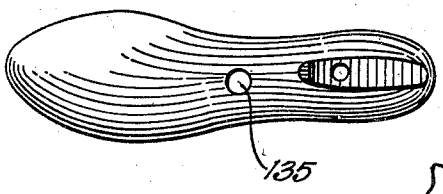


Fig. 6.

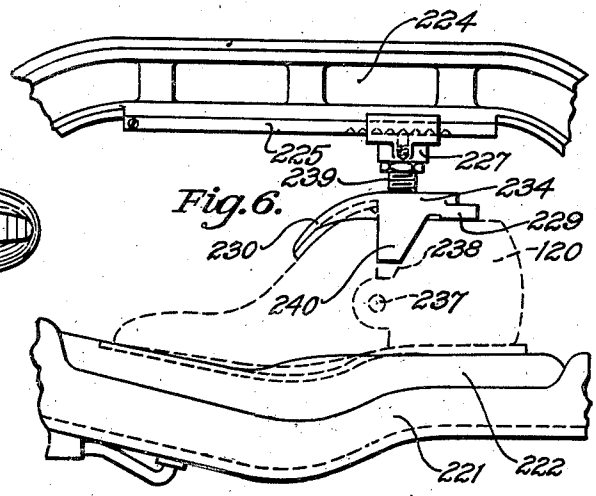


Fig. 7.

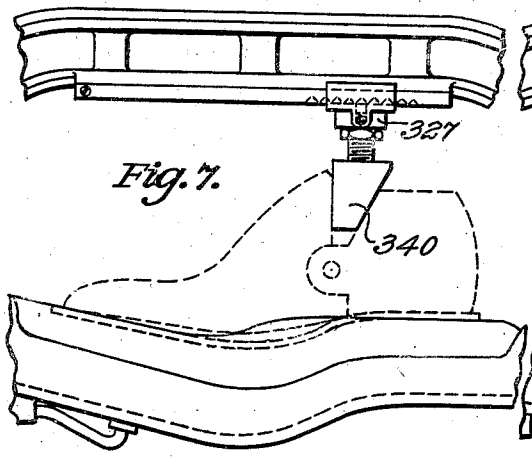


Fig. 8.

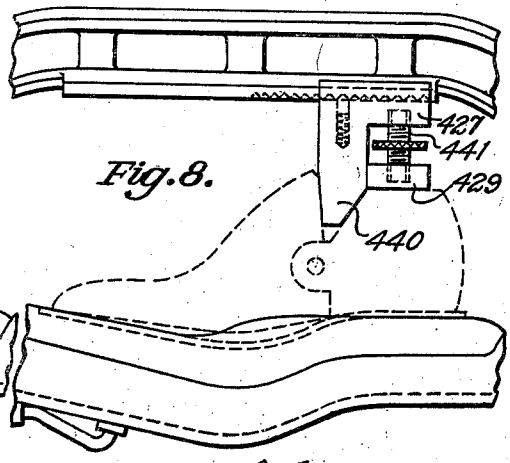


Fig. 9.

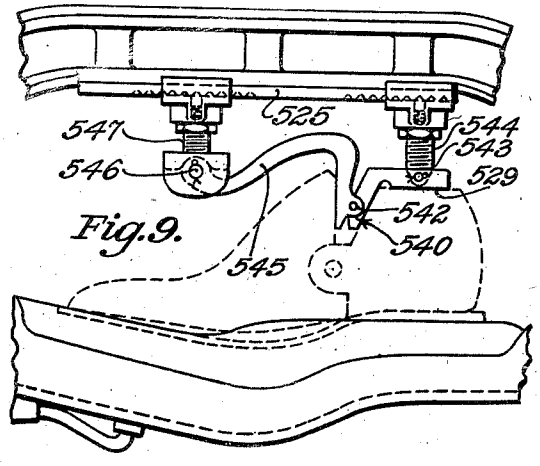


Fig. 10.

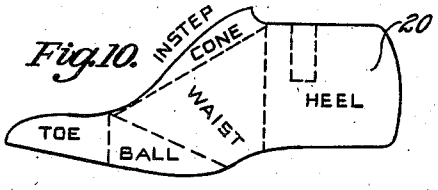
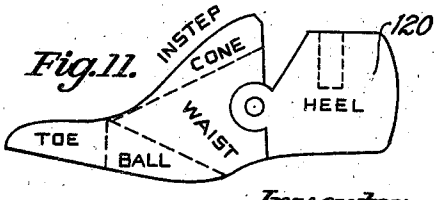


Fig. 11.



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2,244,545

UNITED STATES PATENT OFFICE

2,244,545

SHOE PRESS

John Frederick Smith, Quincy, Mass., assignor to Compo Shoe Machinery Corporation, Boston, Mass., a corporation of Delaware

Application April 1, 1939, Serial No. 265,489

4 Claims. (Cl. 12—33)

This invention relates to shoe bottom pressing equipment used in the manufacture of footwear, and especially to presses used in cement sole affixing, sole leveling, channel laying, and the like.

In pressing the bottoms of shoes in such operations, the shoe bottom is placed against a flexible or yielding pressure pad and the lasted shoe is held or pushed from above by suitable abutments associated with the press equipment. Many shoes have delicate upper materials or applied ornaments, bows, or piping in their toe or vamp areas which, if engaged by such a press abutment, would be subject to danger of crushing or marring. In holding a shoe lasted on the usual or conventional shoe-making last in a press, however, it has heretofore been customary to provide shoe holding abutments engageable over both the toe and heel portions of the lasted shoe, and the toe abutment, or toe-post, almost always bears over either the toe or vamp areas of the shoe where it might harm the upper materials. Past efforts to overcome this harmful effect by use of various types of soft toe-post pads or rubbers, or by shaping the pad to span the bows or ornaments at this part of the shoe have not been very successful, and many shoes have been damaged during their manufacture for this reason.

In order to avoid this cause of damage, it is desirable to avoid having the usual toe-post engageable over the shoe upper, but in the case of presses used in shoe factories for handling shoes lasted on conventional shoemaking lasts this has not previously been done.

In the present description a distinction is intended between a "shoemaking" and "shoe repairing last." The latter, as illustrated, for example in Re. Patent No. 20,464 reissued to W. S. Anderson on August 10, 1937, includes an iron shoe-repairing last or form capable of being fitted in a series of repairable shoes of about the same sizes and generally provided with a detachable (as shown in the mentioned Anderson patent) or integral upward and forward extension affording a seat against which the clamp screw or similar abutment of the repair press can engage over the center of pressure. With such a "shoe-repairing last" the toe of the shoe is undisturbed by the press parts, but the special configuration of this kind of last precludes its use throughout the usual series of shoemaking operations followed during initial manufacture of a shoe, because it is incapable of being handled or accepted by the various machines employed in such manufacture. A conventional "shoemaking last" on the other hand, as referred to herein, is the kind of last used in shoe factories during the several steps of lasting and bottoming the shoe. Such a shoemaking last, of course, varies with the particular style or lines of the shoe to be made thereon, and with the type of shoemaking contemplated, there often being functional differences, for example, in shapes of lasts for turn, McKay, Goodyear welt, pre-welt, etc., types of shoes. Any of these shoemaking lasts may be of either hinged or solid construction, and are generally though not necessarily made of wood. They all have certain features in common, comprising the toe, ball, waist, instep or cone, and the heel portions depicted in Figs. 10 and 11, where conventional solid and hinged shoemaking lasts are respectively shown, and are all adapted to be successively handled by the machines used in shoemaking. Most of these machines hold the last by means of a jack pin inserted in a jack pin hole in the heel of the last. But in bottom pressing operations such as sole affixing, sole leveling, channel laying, etc., where pressure is exerted against the entire shoe bottom this last jack pin does not alone afford an adequate support because it is disposed too far rearwardly from the center of applied pressure to assure stability without undue twisting strain on the pin, and therefore the presses used in these operations supplement the usual jack pin or like heel support or abutment with a toe-post engaging over the toe or vamp of the lasted shoe. Since the upper materials occupy this part of the lasted shoe, there has always been danger of marring them through pressure exerted by the toe-post whenever a conventional shoemaking last was used.

It is an object of this invention to provide shoe bottom pressing equipment having the advantage of many shoe repairing presses of being able to hold the shoe from the top without engaging or marring the toe or vamp, and having the added advantage and novel feature of being able successfully and conveniently to do this with shoes lasted on conventional shoemaking lasts.

More particularly, objects of the invention are to provide a shoe press having a single top abutment fitted over the upper part of a conventional shoemaking last in position to engage the part of the last exposed above the top of the shoe upper of most shoes, and arranged to hold the last stable against pressure exerted over the entire bottom of a lasted shoe held in such press.

A further object of the invention is to provide a pad equipped press having a top abutment engageable with a special last seat, in combination with a conventionally shaped shoemaking last having such a seat exposed on its upper side and located directly along the line of the resultant of the forces applied to the shoe bottom by the press pad, so that a lasted shoe can be held in equilibrium between the press pad and such single top abutment.

Other objects of the invention are to provide a pad equipped press having a top abutment specially suited for engaging over a hinged last having a notch above the hinge joint, in which the abutment is arranged to hold the last stable during application of pressure to a shoe and has means for filling the notch at the hinge joint to prevent breaking or closing of the last hinge in the absence of a toe-post for holding down the forepart of the lasted shoe.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of a shoe press embodying features of the invention;

Fig. 2 is a fragmentary transverse vertical sectional view, on an enlarged scale, taken along line 2—2 of Fig. 1;

Fig. 3 is a fragmentary longitudinal vertical sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is a side elevation of another form of press embodying features of the invention shown in combination with a conventionally shaped shoemaking last having a special seat thereon adapting it for cooperation with the press construction;

Fig. 5 is a top plan view of the last shown in Fig. 4;

Figs. 6, 7, 8 and 9 are fragmentary side elevations, each showing a different form of shoe press embodying features of the invention; and

Figs. 10 and 11 are side elevations of different types of conventional shoemaking lasts adapted to be employed in carrying out the present invention.

Referring more particularly to the drawings and first to Figs. 10 and 11, there are shown lasts 20 and 120 respectively illustrating the solid and hinged types of conventional wooden shoemaking lasts familarly known in factories. These lasts, as stated above, are all characterized by certain common features, including the instep or cone portions indicated in these figures, as well as the other portions there indicated, and differ over shoe repairing lasts in being shaped and constructed to have a new shoe built thereon which may be left on such last during its course through the factory. The shoe press constructions hereinafter described are specially adapted to cooperate with such conventional shoemaking lasts and are characterized by a top abutment capable of interfitting thereover only on the exposed upper portion above the top edge of the upper of a normal slipper or oxford in such a manner as to prevent the last from tilting in response to the pressure applied against the bottom of a shoe lasted thereon.

The form of press shown in Figs. 1 to 3 comprises a pad carrying base 21 pocketed to receive a pressure pad 22 which is illustrated as being in the form of an inflatable air containing pad capable of being inflated or deflated through a supply conduit 23. It is contemplated that other fluids or liquids may be used for applying or developing pad pressure, or that constant volume liquid containing pads or other types of yieldable pressure applying diaphragms may be employed, in which latter cases the clamping pressure would be applied to the shoe by moving the top last engaging abutment toward the pad or diaphragm. Extending over the base member 21, and preferably integrally attached thereto, is a bow member 24, having along its under side a guide rail 25, about which is embraced the guide way 26 of a longitudinally adjustable top last engaging abutment member 27 which is adapted to be held along the guide rail by means of a set screw 28.

The under side of abutment 27 toward the rear has a downwardly directed flat bearing face 29 engageable over the corresponding flat face on the upper side of the heel portion of a shoemaking last. Disposed forwardly of this face 29 is a recessed or pocketed abutment portion 30, the pocket 31 of which bears over and accommodates the upwardly extending cone portion of the last which may be either of the solid or hinged type, a solid type being indicated in dotted outline in Figs. 1 and 3. Preferably the inner surface of this pocket as well as the flat heel engaging face 29 is covered with a lining of soft material 32, such as felt, to avoid scarring the last. The pocketed portion 30 extends forwardly over the instep or cone of the last to a point forwardly beyond the center of pad applied pressure, or, stated differently, beyond the resultant of the forces applied against the shoe bottom by the pad, the longitudinal location of which resultant with reference to the shoe has been indicated by the arrow marked "R" in Fig. 1. The pocketed portion 30 of the abutment in addition to extending forwardly, laterally embraces the area including the resultant of the pad applied forces, so that upon inflation of the pad the lasted shoe is clamped firmly between the pad and the top heel engaging abutment 29, and is also held against tipping upwardly or sidewise at its forepart by the pocketed arm 30. At least the edge portions 33 of this pocketed portion always bear against the cone or instep portion of the last around an area which lies outside of or embraces the center or resultant of the pad applied pressure.

In Fig. 4 a generally similar form of pad press base and bow member are shown wherein the bow member carries a guide rail 125 having the guide way 126 of a single last engaging abutment 127 slideable therealong. This abutment may be retained in adjusted position by a spring detent 128 operating in suitable notches along the guide rail. The lower portion of this abutment terminates in a last engaging post 134 threaded for vertical adjustment in the head of the abutment member. The last with which this single post is adapted to cooperate is of conventional shoemaking form having on the upper side of its normally highly curved cone or instep portion a relatively more horizontal seat 135 which is adapted to bear against and complement the under surface of post 134. This seat may be

formed directly in the wood of the last, but is preferably part of an insert 136 in the form of a plug, the top of such insert and the bottom of the abutment post preferably having mating or nearly mating convex and concave surfaces. If desired, the insert can be in the form of a sleeve or bushing into or against the upper end of which the abutment post may bear. This insert and more particularly the seat 135 thereof is located directly along the line of the resultant of the forces applied against the shoe bottom by the pad diaphragm. This point may be calculated by determining the axis of gyration of such forces at the plane of the top of the last cone or instep, but is most readily ascertained empirically by testing each last for that point along its upper cone surface at which equilibrium is obtained when diaphragm pressure is applied against the bottom of such last or a shoe thereon. Thus ascertained, this point is used for locating the insert, and thereafter the last can be used in combination with a press equipped with a single interfitting top abutment such as post 134 without having the last tilt improperly under the application of pad pressure. This form of support is useful in conjunction with either solid or hinged lasts, a solid type being indicated in Figs. 4 and 5. With either type of last, the position of seat 135 along the resultant of pad applied forces falls toward the top and a bit to the outside of the ridge of the instep, and also somewhat forwardly of the highest tip of the cone as indicated in Fig. 5, although this precise position will vary with individual lasts.

The form of press abutment shown in Fig. 6 is specially adapted for cooperation with hinged forms of conventional shoemaking lasts. Such a last, indicated in dotted outline and designated 120 in that figure, has a hinge axis at 237 or other suitably pivoted construction between its heel and forepart portions. Above the hinge joint is a notch 238 enabling the last sections to be relatively moved to broken position. The form of press here used comprises a pad base 221 holding a pressure applying pad 222 over which is disposed a bow member 224 having a guide rail 225 on its under side. A single top abutment 227 is adjustably slidable along this rail and at its lower end is a last engaging member 234 screw threaded at 239 for vertical adjustment with respect to the slidable abutment head 227. The last engaging member 234 preferably has on its under side a flat face 229 engageable over the heel portion of the last and a forwardly extending pocketed or recessed cone accommodating and engaging arm 230. The face 229 and arm 230 may be generally similar to the last engaging portions 29 and 30 of the form of abutment shown in Fig. 1. In addition, the supporting member 234 has a wedge shaped filler block 240 extending down into the notch of the hinged last and bearing against the opposed faces of this notch when the last is in unbroken condition. This filler block when in place prevents the last from breaking about its hinge, and the entire abutment comprising the last interfitting faces of parts 229, 230 and 240, bear over the last in such a way that it is held solidly against breaking and cannot tilt improperly when pressure is applied against the bottom of a lasted shoe. Preferably, although not necessarily, the arm 230 extends forwardly beyond the center or resultant of pad applied pressure.

In Fig. 7 there is also shown a press abutment adapted to cooperate with a hinged type of conventional shoemaking last. Here an abutment 327 is longitudinally adjustable along the bow member of a press above the press pad as in the previously described forms. This abutment member terminates at its lower portion in a wedge shaped filler block 340 bearing against the opposed faces of the notch in an unbroken hinged last located in the press. This arrangement is similar to that of Fig. 6 except that the added top heel and cone engaging parts 229 and 230 are omitted. When pad pressure is applied to the bottom of a hinged last having such a wedge shaped filler block interfitted snugly with the top contours of the last at its hinge notch, the last can neither break nor tilt, since the forces applied against the toe or forepart portion of the last as well as the heel will come into equilibrium upon application of compression forces against the wedge filler 340 and of shear forces against the last hinge which hinge has been found strong enough to take this stress under forces ordinarily applied in various shoe bottom pressing operations.

The arrangement shown in Fig. 8 is generally similar to that of Fig. 7 except that in addition to a wedge shaped notch filler block 440 there is included a member having a last heel engaging face 429 disposed on its under side. This member is mounted for vertical screw adjustment at 441 with respect to the sliding abutment member 427, and with respect to the filler block 440.

The press shown in Fig. 9 includes the usual pad carrying base and upper bow member from which is supported a single last engaging abutment having relatively pivoted sections facilitating its adjustment with respect to individual hinged shoemaking lasts. Here the last notch occupying filler block generally designated 540 comprises a forward and a rearward section joined by a pivot pin 542. The rearward section continues back over the top of the heel part of the last and has a flat bearing face 529 engaging thereover. This rearwardly extending portion in turn is pivoted at 543 to the lower end of a depending abutment post 544, which is longitudinally adjustable along a guide rail 525 on the press bow member. The forward portion of the last abutment designated 545 is pivoted at 546 to the lower end of a second depending abutment member 547 which also is longitudinally adjustable along the guide rail. The depending abutment members 544 and 547 are also screw threaded for vertical adjustment relatively to their respective base portions, the pivots 543 and 546 being removable to permit this adjustment. With this arrangement, the entire abutment member can be shifted both vertically and longitudinally with respect to the underlying pad, and in addition by relatively vertically adjusting the abutments 544 and 547 the angularity of the wedge shaped filler block portion 540 can be varied to assure snug fitting with the last notch.

With all of these described forms, it will be seen that the lasted shoe is held against undesired tilting and that at the same time the top shoe holding supports or abutments are so arranged as not to bear against the upper materials at the toe or vamp portions and hence cannot damage them.

It will be understood that the various described or like forms of top abutments coming within the purview of the invention may be used in conjunction with any suitable form of pressure pad equipped press, which may be of the rigid bow type herein illustrated, or of any other suit-

able or known type, wherein either the abutment member, the pad member, or both, may be movable to apply the shoe clamping pressure.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Having described my invention, that I claim as new and desire to secure by Letters Patent, is:

1. A press for applying pressure to the bottom of a shoe lasted on a conventional shoemaking last having on its upper side a flat heel portion and a cone portion the highest part of which projects above said flat heel portion, comprising a base carrying a pressure applying pad, a bow member adapted to be fixedly positioned over said pad, a single top abutment member fixedly carried by said bow member, said abutment member having a flat bearing face overlying the heel portion of said last and having a forwardly extending recessed arm accommodating said cone portion and bearing thereagainst forwardly and on each side of the line of the resultant of the forces applied against the shoe bottom by said pad, and means for increasing the pressure between said abutment member and pad to clamp said lasted shoe therebetween.

2. An abutment member for holding a shoe, which is lasted on a conventional shoemaking last having on its upper side a flat heel portion and a cone portion the highest part of which projects above said flat heel portion, against a shoe bottom pressing pad, comprising a single casting having a flat bearing surface overlying the flat heel portion of such last, and having a forwardly and downwardly extended arm engageable over the cone portion of said last and having lower edges adapted to bear against the opposite sides of said cone portion from said flat heel overlying surface forwardly beyond the line of the resultant of the forces applied against the shoe bottom by said pad, said arm between its lower edges being recessed to accommodate said cone portion, and means on said casting for fixedly locking it to a shoe press frame.

3. An abutment member for holding down a lasted shoe in a shoe press, comprising a casting having a flat upper surface adapted to be locked in stable engagement against a fixed support, and having a flat rearward underface engageable over the heel portion of a conventional coned shoemaking last, and also having a last engaging arm extending forwardly and downwardly from said flat underface and provided with a cone accommodating recess extending above said flat underface.

4. A press for applying pressure to the bottom of a shoe lasted on a conventional shoemaking last having on its upper side a flat heel portion and a cone portion the highest part of which projects above said flat heel portion, comprising a base carrying a pressure applying pad, a bow member adapted to be fixedly positioned over said pad, a single abutment casting having a flat upper face adapted to be locked in stable engagement against said bow member, said casting having a flat rearward underface engageable over the heel portion of said last, and having two downwardly and forwardly bearing edges engageable along opposite sides of the cone portion of said last, the casting between said bearing edges being recessed to accommodate the upper part of the last cone, and means for increasing the pressure between said abutment member and pad to clamp said lasted shoe therebetween.

JOHN FREDERICK SMITH.