May 20, 1947. A. PERRI 2,420,972

SHOE SOLE PRESS

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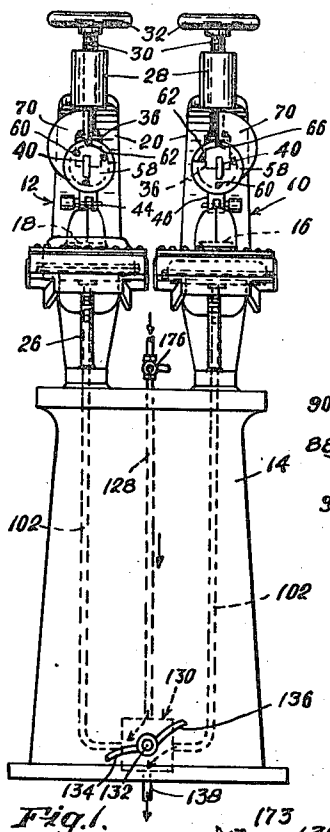


Fig. 1.

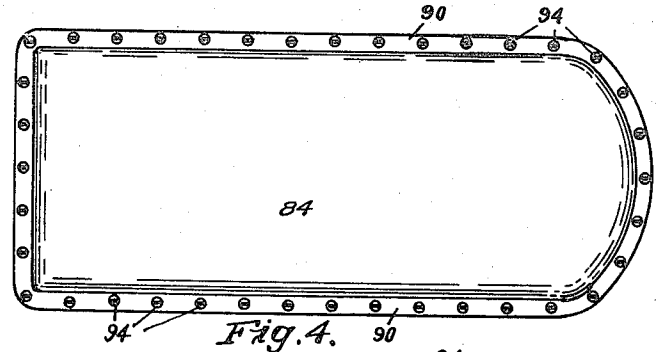


Fig. 4.

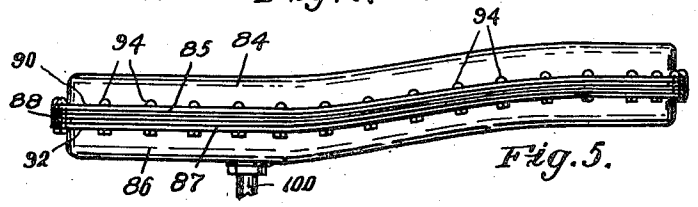


Fig. 5.

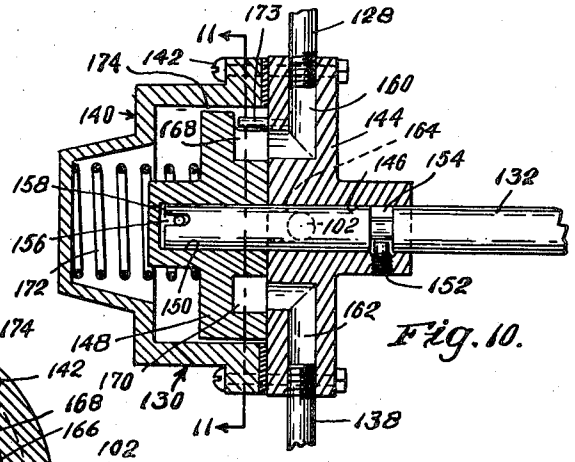


Fig. 10.

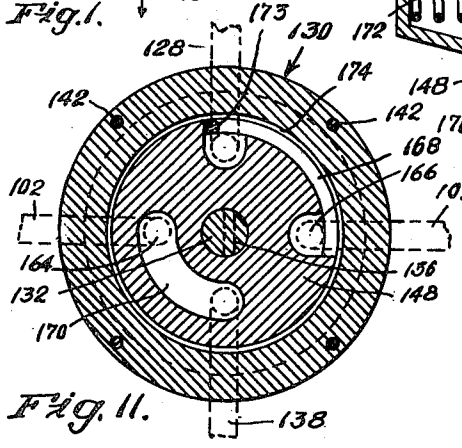


Fig. 11.

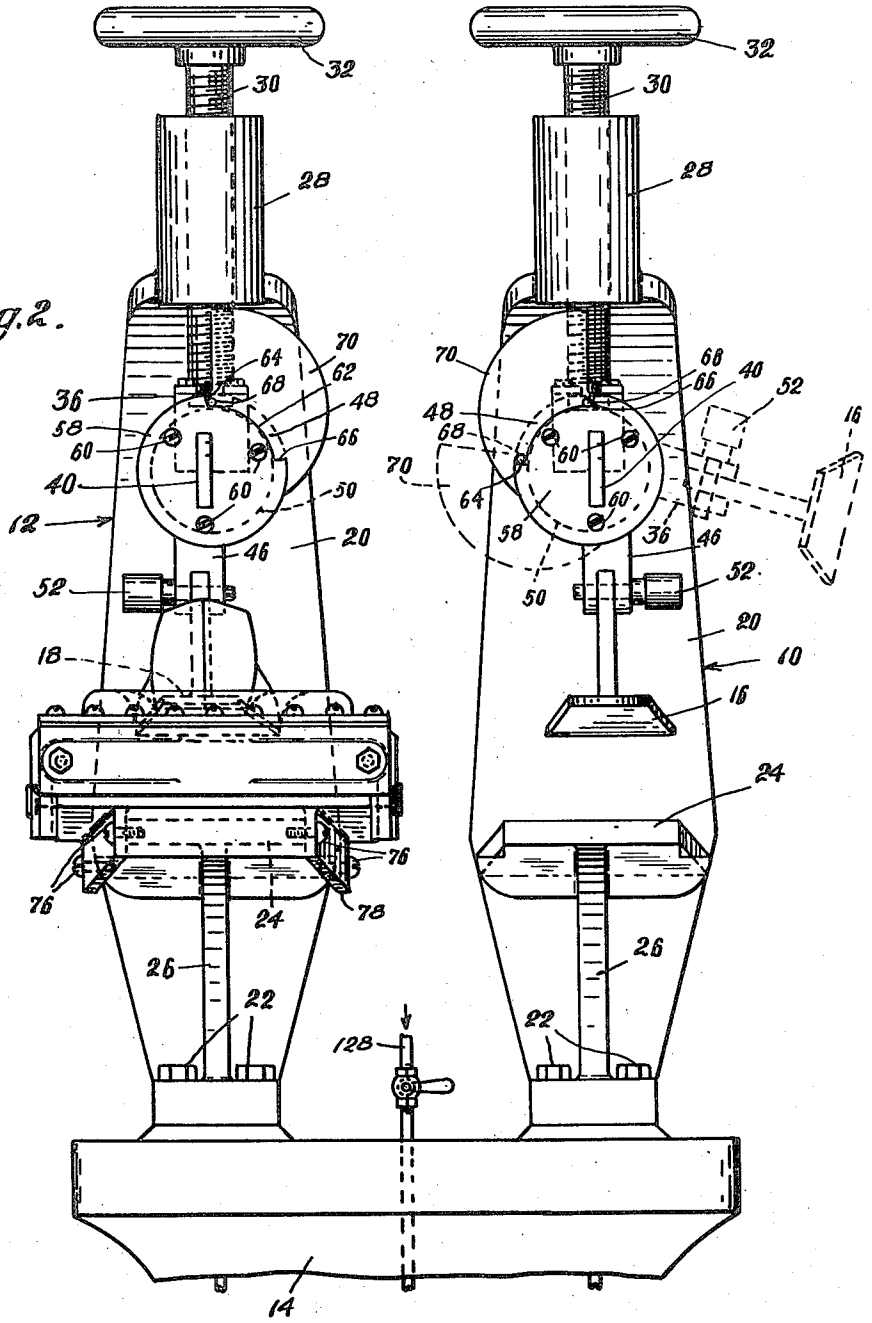
INVENTOR.
Angelo Perri
BY his Atty
John H. McKenna

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Fig. 2.



INVENTOR.
Angelo Perri
BY his Atty
John K. McKenna

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Fig. 3.

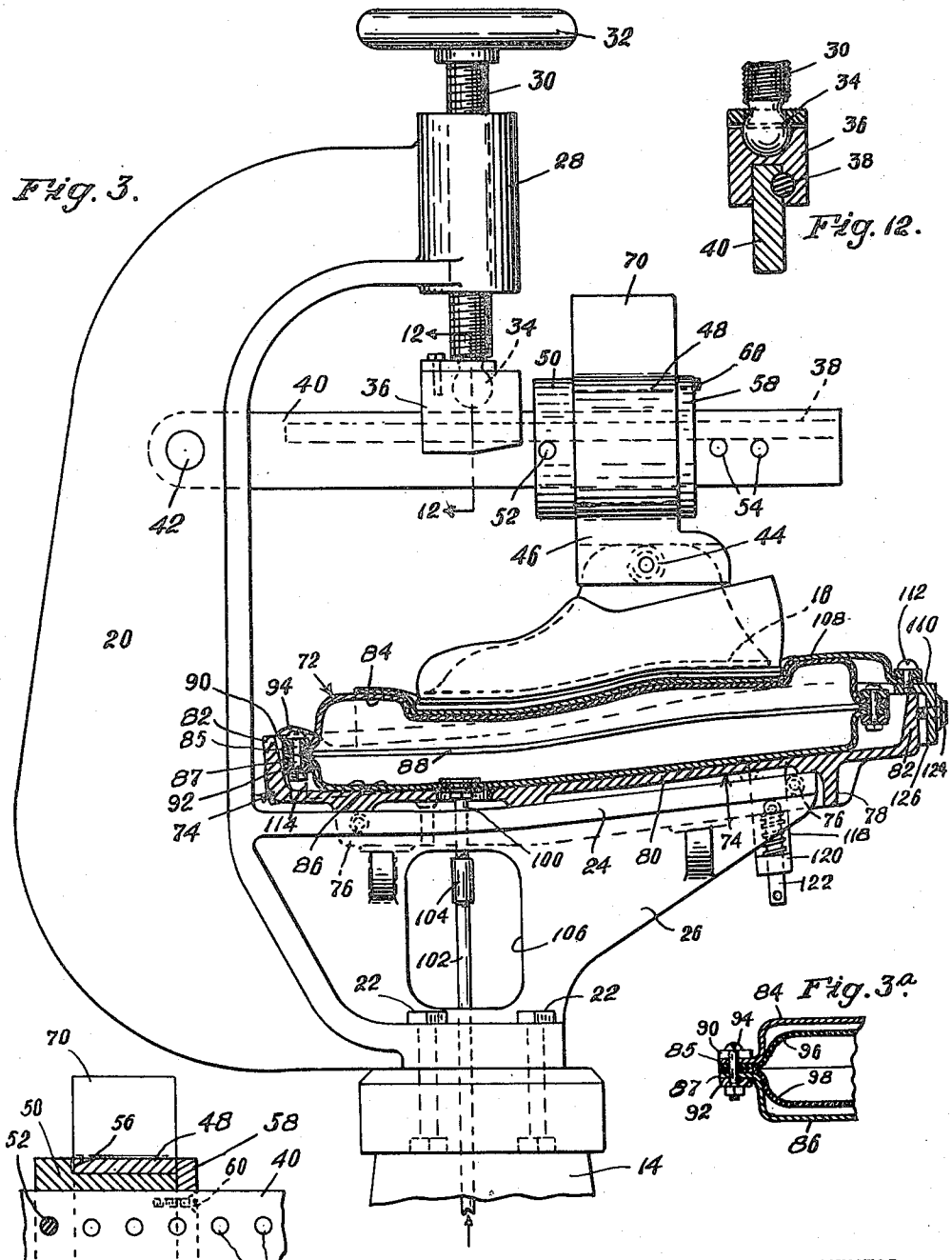


Fig. 12.

Fig. 13.

Fig. 3a.

INVENTOR.
Angelo Perri
BY his Atty
John F. McKenna

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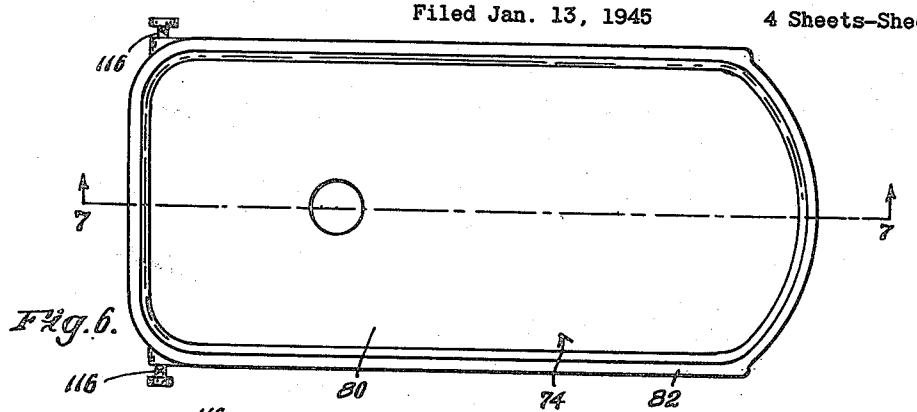


Fig. 6.

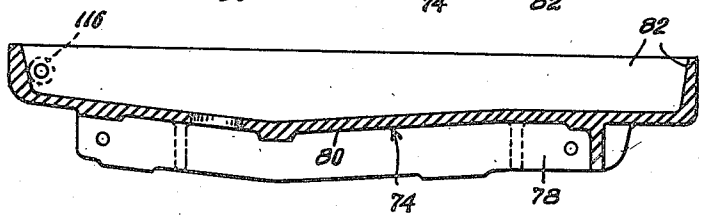


Fig. 7.

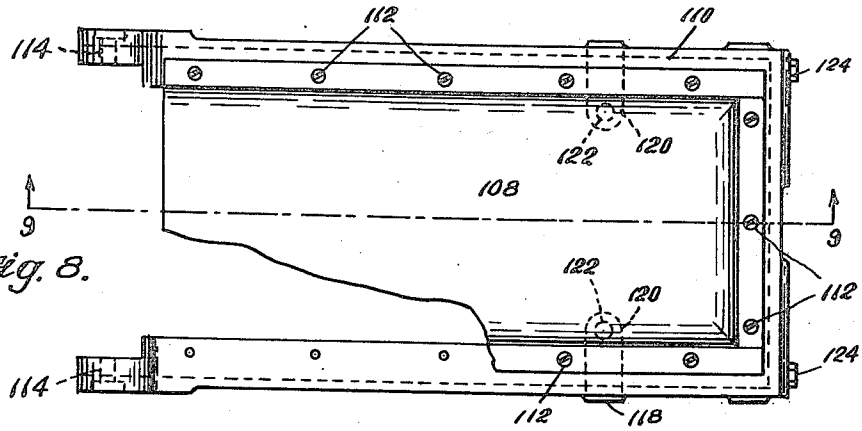


Fig. 8.

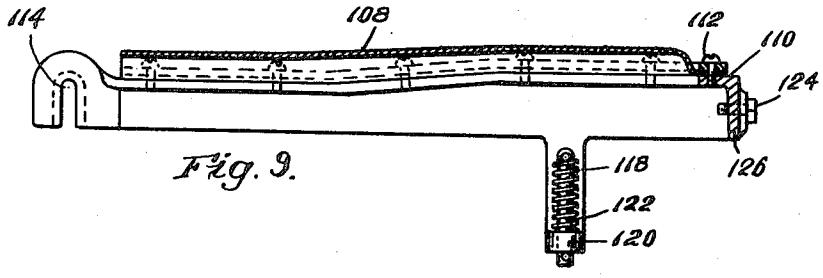


Fig. 9.

INVENTOR.
Angelo Perri
BY his Atty
John H. McKenna

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UNITED STATES PATENT OFFICE

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SHOE SOLE PRESS

Angelo Perri, Groveland, Mass., assignor to Allied Shoe Machinery Corp., Haverhill, Mass., a corporation of Massachusetts

Application January 13, 1945, Serial No. 572,621

10 Claims. (Cl. 12—36)

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This invention relates to improvements in presses of the general type which have a principal utility for applying cemented outersole elements to footwear. More particularly it provides improvements in shoe sole presses of the general type disclosed in United States Letters Patent No. 2,334,437, granted November 16, 1943, wherein an adjustable lever-carried upper jaw coacts with an inflatable lower jaw in applying sole-adhering pressure to a lasted shoe inserted between the jaws.

It is among the objects of my invention to provide a last plate on the upper jaw of a shoe sole press, instead of the usual last, and to mount said plate for ready movement laterally to a loading and unloading position at which a shoe conveniently and easily may be placed on the last plate and removed therefrom.

Another object is to provide an improved molded inflatable lower jaw for a shoe sole press for effective coaction with the last plate of the upper jaw.

Still another object is to provide an auxiliary molded surface for the inflatable jaw of my improved press, for preserving said jaw against wear in use of the press, said auxiliary surface being readily replaceable.

A still further object is to provide an inflatable jaw for a shoe sole press which requires no interior rubber bladder and which thus eliminates the problems of deterioration of such a bladder and the frequent failures thereof due to ruptures at the seams.

Yet another object is to provide an improved control for more effectively inflating and deflating my improved inflatable jaw.

It is, moreover, my purpose and object generally to improve upon prior presses and more especially presses of the general type employed for applying outersoles to shoes.

In the accompanying drawings:

Figure 1 is a front elevation of a sole applying unit having two sole presses embodying features of the invention arranged side by side on a unitary base;

Figure 2 is a similar view, on a larger scale, of the two sole presses of Figure 1, the left-hand press having a lasted shoe engaged therein, and the right-hand press having no shoe therein and having its inflatable lower jaw removed;

Figure 3 is a side elevation of one of the shoe presses with a lasted shoe engaged between its jaws, the inflatable lower jaw being shown in cross-section;

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Figure 3a is a fragmentary sectional view of a modified form of inflatable bag;

Figure 4 is a top plan view of my improved inflatable lower jaw of the press;

Figure 5 is an edge elevation of the jaw of Figure 4;

Figure 6 is a top plan view of the receptacle support for the inflatable jaw;

Figure 7 is a cross-sectional view on line 7—7 of Figure 6;

Figure 8 is a top plan view of my auxiliary surface for the inflatable jaw mounted in its removable frame support;

Figure 9 is a cross-sectional view on line 9—9 of Figure 8;

Figure 10 is a vertical cross-sectional view of my improved control valve;

Figure 11 is a cross-sectional view on line 11—11 of Figure 10;

Figure 12 is a detail cross-sectional view on line 12—12 of Figure 3, on a larger scale; and

Figure 13 is a detail cross-sectional view through the support for a laterally swingable last plate.

Referring to the drawings, and more particularly to Figs. 1–3 thereof, the two sole presses indicated generally at 10 and 12 conveniently may be right and left presses mounted side by side on the unitary base 14. Both presses are the same excepting that the last plate 16 of the right-hand press swings to the right for loading and the last plate 18 of the left-hand press swings to the left for loading, as viewed in Figs. 1 and 2. Also the last plates 16 and 18 ordinarily will be right and left last plates respectively.

As best seen in Fig. 3, each press comprises a suitably heavy and strong vertically disposed yoke 20 rigidly secured as by bolts 22 on the base 14. The yoke has integrally formed thereon the slightly curved but generally horizontal table 24 elevated above the base 14 and rigidly braced by the vertical rib 26.

The upper end of each yoke 20 is formed with a vertically disposed interiorly threaded boss 28 within which is threaded the vertically adjustable screw 30 equipped at its upper end with the hand wheel 32. The lower end of the screw has a ball-in-socket swivel connection at 34 to a slide member 36 which is slidably keyed at 38 (Fig. 12) to a lever 40 which is pivotally mounted at 42 on the yoke 20.

Lever 40 extends generally horizontally but may be adjusted to different inclinations from horizontal by means of the hand wheel 32 and screw 30 and ordinarily the lever remains sta-

tionary after having been set for a particular sole-pressing operation.

It is one feature of the invention that a lasted shoe which is to have an outersole applied thereto may be placed on a last plate 16 or 18 while the plate is swung outward to one side of the press where there is ample room for maneuvering the shoe onto the last plate. For this purpose, the last plates 16 and 18 are pivotally mounted at 44 each on a depending part 46 of a ring-shaped member 48 which is rotatably mounted on bushing 50 which in turn is adjustably pinned at 52 to the lever 40. The lever has a series of holes 54 therein and the pin 52 extends removably through bushing 50 and through a selected one of the holes 54, for locking the bushing to the lever at a selected location along the lever.

Referring to Fig. 13, the bushing 50 has an annular retaining shoulder 56 on one side of ring 48 and a plate 58 is secured to the smaller end of the bushing, as by screws 60 for maintaining the ring rotatably on the bushing. Plate 60 also has an arcuate cut-out at 62 providing the shoulders 64, 66 against which a pin 68 on ring 48 engages to limit rotational movement of the ring on the bushing 50 in both directions. A counter-weight 70 on each ring-shaped member 48 facilitates outward swinging of the last plates 16, 18 for loading and unloading.

The lower jaw of each press comprises an inflatable bag indicated generally at 72 which is mounted within the flanged support 74 which in turn is secured on the table 24 of yoke 20 as by screws 76 passing through the depending flanges 78 of the support and threaded into the table. The support has a rigid bottom 80 with an upwardly extending flange 82 all around the support, and the bag 72 rests loosely on the bottom 80 of the support within the flange 82.

According to my invention, however, the inflatable bag comprises molded upper and lower sections 84, 86 which preferably are of relatively heavy leather, each molded to the generally rectangular shape illustrated and each having an out-turned flange 85, 87. The flanges 85, 87 of the two sections are clamped together upon an intervening sealing gasket 88 by means of the clamping strips 90, 92 and the screws 94. It is a feature that the usual bladder, which deteriorates and which frequently fails at the seams, is eliminated in favor of the molded sections 84, 86 whose interior surfaces may be sprayed with latex or the like, if desired, to make the sections absolutely impervious to air or other gas. Also, latex or other suitable sealing agent may be employed at the gasket 88, if necessary, to ensure an air-tight juncture of sections at the clamp. Besides eliminating the usual bladder, my molded-leather bag construction is less expensive to manufacture and assemble as compared with prior inflatable press bags and generally is more satisfactory and efficient in use. However, if desired, upper and lower lining sections 96, 98 (Fig. 3a) of rubber or rubberized fabric may be employed within my molded leather bag, the lining sections extending into the clamp in place of gasket 88, or additional to the gasket, with a suitable sealing medium added, to provide a sectional bladder having no seams to fail and one capable of being produced at a considerable saving over the cost of regular bladders.

However, I have found by experience that my molded leather bags, sealed at the clamp, and made of heavy good grade leather preferably with the grain surfaces exposed, are substantially impervious to air, especially when sprayed interiorly with latex or a like sealing substance.

As best seen in Fig. 3, my improved bag has a short tube 100 secured to and depending from the lower bag section 86, the tube opening into the interior of the bag and having its outer end threaded for ready connection to a pressure line 102, by means of the coupling member 104, there being suitable openings in the bottom 80 of the support and in the table 24 so that the tube 100 can extend through these elements to the coupling location which conveniently may be opposite the large opening 106 in the table bracing rib 26.

Also shown most clearly in Fig. 3, and in the detail showing of Figs. 8 and 9, is the auxiliary bag-surfacing sheet 108 for protecting the upper molded section of bag 72 against wear in use of the press. This auxiliary surfacing sheet preferably is of leather and is in the nature of an apron mounted on the U-shaped frame 110. As best seen in Fig. 8, sheet 108 is secured to the frame 110 along two sides and one end as by the screws 112, the sheet being molded to nicely fit the upper molded section 84. Frame 110, with sheet 108 thereon, is adapted to be slipped over the upper section of bag, the frame having the vertically notched ends 114 on its parallel side arms for engaging over projecting pins 116 on the bag support 74 (Fig. 6), and having depending arms 118 at opposite sides, toward the opposite end of the frame, each arm having an inwardly directed foot 120 in which is mounted a vertically disposed spring pressed pin 122 for engaging under table 24, to hold the frame removably on the table with sheet 108 in covering relation to the upper molded section 84 of the bag. The frame may be additionally secured by a set screw 124 in a depending flange 126 at the closed end of the frame, screwed against the flange of the bag support 74. By this means, any wear incident to use of the press, and which otherwise would occur in the bag proper, is taken by the auxiliary surface 108 which easily and economically may be replaced whenever its condition warrants.

Air or other gaseous pressure for inflating the bags 72 may come to the presses from any suitable source through the supply line 128 which leads to the control valve 130 conveniently located at the base of the machine where it can be operated by the foot of an operator for selective inflation and deflation of the inflatable bags of the two presses at will. For this purpose, the valve stem 132 has mounted thereon the oppositely disposed pedals 134, 136 operative in unison so that when one pedal is depressed to inflate the bag of one press, the other pedal will be in elevated position and the second press bag will be open to the exhaust line 138.

Referring to Figs. 10 and 11, valve 130 comprises a generally cup-shaped body 140 over whose open side is secured by bolts 142 the relatively thick plate 144 having an axial hole 146 in which the valve stem 132 rotatably extends for rotatably engaging a rotary valve 148. It is a feature that the rotary valve 148 has an axial socket 150 therein for reception of the end of the valve stem 132, the latter being adapted to be thrust through the hole 146 in plate 144 and into socket 150 and to be retained therein by a set screw 152 in a boss of plate 144 engaging in an annular groove 154 in the valve stem. By this means, the stem is rotatably retained in the plate 144. The stem has an off-set end groove 156 for engaging a pin 158

interiorly of the socket 150 thereby to effect a drive connection between the stem and the valve. Also the off-set position of the end groove ensures a predetermined relationship between the valve and the stem, so that there is no possibility of assembling the valve unit with the valve 148 reversed from a predetermined proper arrangement of it within the casing.

The relatively thick plate 144 has the inlet passage 160 to which the supply line 128 is connected, and has the exhaust passage 162 connected to the exhaust line 138. Also plate 144 has the passages 164, 166 each connected to one of the pipes 102 leading to the inflatable bags of the presses. Valve 148 has the arcuate grooves 168, 170 in its face which is toward plate 144 and a strong coil spring 172 constantly presses the valve against plate 144. As represented in Figs. 10 and 11, valve 148 is set so that its groove 168 connects the supply line 128 with one of the pipes 102 to supply compressed air to one of the presses, while groove 170 connects the other pipe 102 to the exhaust line. A ninety-degree counterclockwise rotation of valve 148, in Fig. 11, will connect the supply line 128 to the other pipe 102 and simultaneously will connect the other press to the exhaust line 138. A stop pin 173 in plate 144 projects into groove 168 and limits rotary movement of valve 148. Also it ensures against assembly with groove 170 uppermost.

It is a feature of the invention, however, that the groove 168 in valve 148 is in communication at 174 with the main interior of the valve casing so that the supply line pressure constantly prevails within the casing urging the valve strongly against the plate 144. By this means any appreciable escape of air between the valve grooves 168, 170 is avoided and wear at the frictionally engaged surfaces of the valve and plate has no effect on the efficiency and effectiveness of the valve throughout the life of the valve.

In the operation of my double press, the operator first swings one of the last plates, for example the right-hand plate 16 in Fig. 2, laterally outward to its position shown in dotted outline in Fig. 2, and inserts a shoe on plate 16, after which the plate is swung back to bring the base of the shoe over the inflatable bag 72 with an outersole intervening between the shoe and the inflatable bag 72 of the press. Assuming that pedal 136 is elevated as in Fig. 1, the operator next depresses that pedal to open the connection through valve 130 between the supply line 128 and the pipe 102 leading to the right-hand press. Simultaneously, the other press is opened through valve 130 to exhaust line 138. Then the operator opens hand valve 176 (Fig. 1) to admit compressed air to the inflatable bag 72 of the right-hand press, which forces the sole against the shoe on last plate 16, cement having been preliminarily applied to the outersole.

During the inflating of the bag 72 of the right-hand press, the operator loads the left-hand press by swinging its last plate 18 laterally and arranging a shoe thereon and then swinging it back over the inflatable bag 72 of the left-hand press, with a cement coated outersole intervening between the shoe and the bag. Hence the left-hand press is loaded and ready when the right-hand press has completed its sole-pressing operation, and the operator merely depresses pedal 134 to open the left-hand press to the supply pressure, and to simultaneously open the right-hand press to the exhaust line in preparation for an out-swing of last plate 16 for unloading and re-loading.

The molded nature of the bags 72, requiring no interior bladder, constitutes a definite and important improvement over prior inflatable bags, and facilitates loading and unloading by my improved laterally swingable last plates. A lasted shoe more readily and quickly may be properly arranged on the last plate 16 or 18 and swung to operative relation in the press than can a shoe with last therein be properly positioned in a press according to prior procedures. Also, the lasts, which heretofore have had to remain in the shoes until after the sole-applying operation, are released for use elsewhere, thereby reducing the number of lasts required to be kept on hand.

I claim as my invention:

1. A press comprising an inflatable jaw mounted on a fixed support for relatively large movement of its work-engaging surface when inflated, a second jaw adjustably supported for standing stationary in coacting relation to the inflatable jaw while the latter is being inflated, means for inflating the inflatable jaw to apply pressure to work arranged between the jaws, and means for swinging said second jaw laterally away from the inflatable jaw when the latter is deflated, for loading and unloading of the press, said inflatable jaw being loose on its fixed support and having rigid means carried on its walls and extending all around the pad preventing lateral spread of the jaw when inflated.

2. A press comprising a generally horizontal fixed support, an inflatable jaw mounted on the support for relatively large movement of its work engaging surface when transformed from deflated to inflated conditions, said inflatable jaw having a rigid means extending all around it maintaining the jaw against lateral spreading when inflated, and said support having a generally vertical projection rising to a height above the inflatable jaw, an arm pivoted on said projection and extending over the inflatable jaw in spaced relation thereto, means for adjusting said arm relative to the inflatable jaw and for fixing it in any selected adjusted position, a second jaw pivotally mounted on said arm and including an element for supporting work thereon, said second jaw being swingable on its pivot, when said inflatable jaw is deflated, between a position for operative coaction with the inflatable jaw and a loading and unloading position laterally outward from the inflatable jaw.

3. In a shoe sole press, an inflatable jaw comprising two sheet sections of relatively heavy leather, a clamp securing said sheet sections in sealing engagement with each other all around the margins of the sections, each section having a relatively large-area wall generally parallel with the plane of the clamp and having side walls molded into a permanently set generally right angular relation to said plane of the clamp, one of said large-area walls also being molded to the general curved shape of the base of a shoe, and means supporting said inflatable jaw, said clamped margins of the sheet sections being free from connection to the support and free to rise and fall with inflation and deflation of the inflatable jaw, and said clamp preventing lateral spreading of the jaw.

4. In a shoe sole press, an inflatable jaw comprising two sheet sections of thick leather, each molded to the general curvatures of the base of a shoe and each having right angularly disposed

side walls molded thereon all around the sections, and molded marginal flanges on the side walls all around the sections, a stiff, unyielding clamp extending all around the jaw and securing together said flanges of the two sections in sealing relation, with said large-area walls of the sections spaced apart by the side walls, means on which said inflatable jaw rests loosely, said clamp being free from connection to the support, and means coating the interior surfaces of the sections and rendering them impervious to gas.

5. In a shoe sole press, an inflatable jaw comprising a pair of molded leather elements, a clamp extending unyieldingly all around the jaw and securing said elements together to provide an air-tight chamber between them, the interior surfaces of the leather being treated with a gas impervious substance and said chamber being free of an inflating bladder, and means supporting the inflatable jaw while leaving said clamped portions thereof free to move relative to the support.

6. In a shoe sole press, an inflatable jaw comprising a pair of molded leather elements, a clamp extending unyieldingly all around the jaw and securing said elements together to provide an air-tight chamber between them, each said molded element having side walls molded into generally right angular relation to a larger area wall, means for injecting compressed gas into said chamber for spreading apart both of said larger area walls of said elements while said side walls are maintained by the clamp generally in their original condition, and means loosely supporting the inflatable jaw and leaving said clamped portions thereof free to rise with a said spreading apart of the larger area walls.

7. In a shoe sole press, an inflatable jaw comprising a pair of outer molded leather sheet elements and a pair of inner gas impervious sheet elements, a clamp securing the margins of all four of said elements together in sealing relation and preventing lateral spreading of the jaw, said outer molded leather sheet elements having molded top and bottom yieldable walls and having molded side walls which are restrained by the clamp and substantially free from yielding, means for injecting compressed air between said inner elements thereby to cause outward yielding of the top and bottom walls of the outer leather elements, and means loosely supporting the inflatable jaw so that said clamp is free to move with said side walls of the jaw toward and from the support.

8. A shoe sole press comprising an inflatable jaw for coacting with a second jaw to compress a shoe and sole between them, a fixed support on which said inflatable jaw is loosely supported, said inflatable jaw comprising two molded sections and a rigid clamp extending all around the jaw securing the sections together to provide a generally rectangular, hollow jaw having relatively large top and bottom walls which are

adapted to spread widely apart when the jaw is inflated, with said clamp preventing lateral spreading of the jaw and free to rise and fall with inflation and deflation of the jaw, said second jaw being pivotally mounted for swinging laterally to and from coacting relation to the inflatable jaw when the latter is deflated.

9. In a shoe sole press, a generally rectangular hollow inflatable jaw comprising two sheets of relatively thick leather, a rigid clamp extending all around the jaw clamping the marginal portions of said sheets together and preventing lateral spreading of the jaw when the jaw is inflated, a fixed support on which said jaw is loosely mounted with a substantial area of one sheet resting generally flatwise on the support and with said clamp in spaced general parallelism with the support, whereby inflation of the jaw effects ballooning of said substantial area of sheet and substantial movement of said clamp and the other sheet in direction away from the support.

10. A shoe sole press comprising an inflatable jaw having two generally rectangular flanged sections of molded flexible material associated together to provide a generally rectangular hollow jaw, a rigid clamp engaging the flanges of the sections all around the jaw, securing the sections together, and preventing lateral spreading of the jaw when inflated, said clamp being free from connection to anything other than the jaw so that it can rise and fall with inflation and deflation of the jaw, and rigid means loosely supporting the jaw at its under side and against which a wall of one section of the jaw balloons when the jaw is inflated, thereby to elevate said clamp and the other section of the jaw.

ANGELO PERRI.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
376,406	Coy	Jan. 10, 1888
1,514,606	Elliot	Nov. 11, 1924
1,961,883	Laganas	June 5, 1934
2,193,720	Griswold	Mar. 12, 1940
2,247,101	Smith	June 24, 1941
2,251,815	Abbratozato	Aug. 5, 1941
2,334,437	Perri	Nov. 16, 1943
2,338,764	Hart	Jan. 11, 1944
2,344,714	Martin	Mar. 21, 1944
2,005,608	Bresnahan	June 18, 1935
2,058,446	Haselier	Oct. 27, 1936
1,470,352	Dubbs	Oct. 9, 1923
1,611,106	Dickey	Dec. 14, 1926

FOREIGN PATENTS

Number	Country	Date
853,296	France	Nov. 28, 1939
457,748	Great Britain	Dec. 4, 1936
508,369	Great Britain	June 29, 1939