

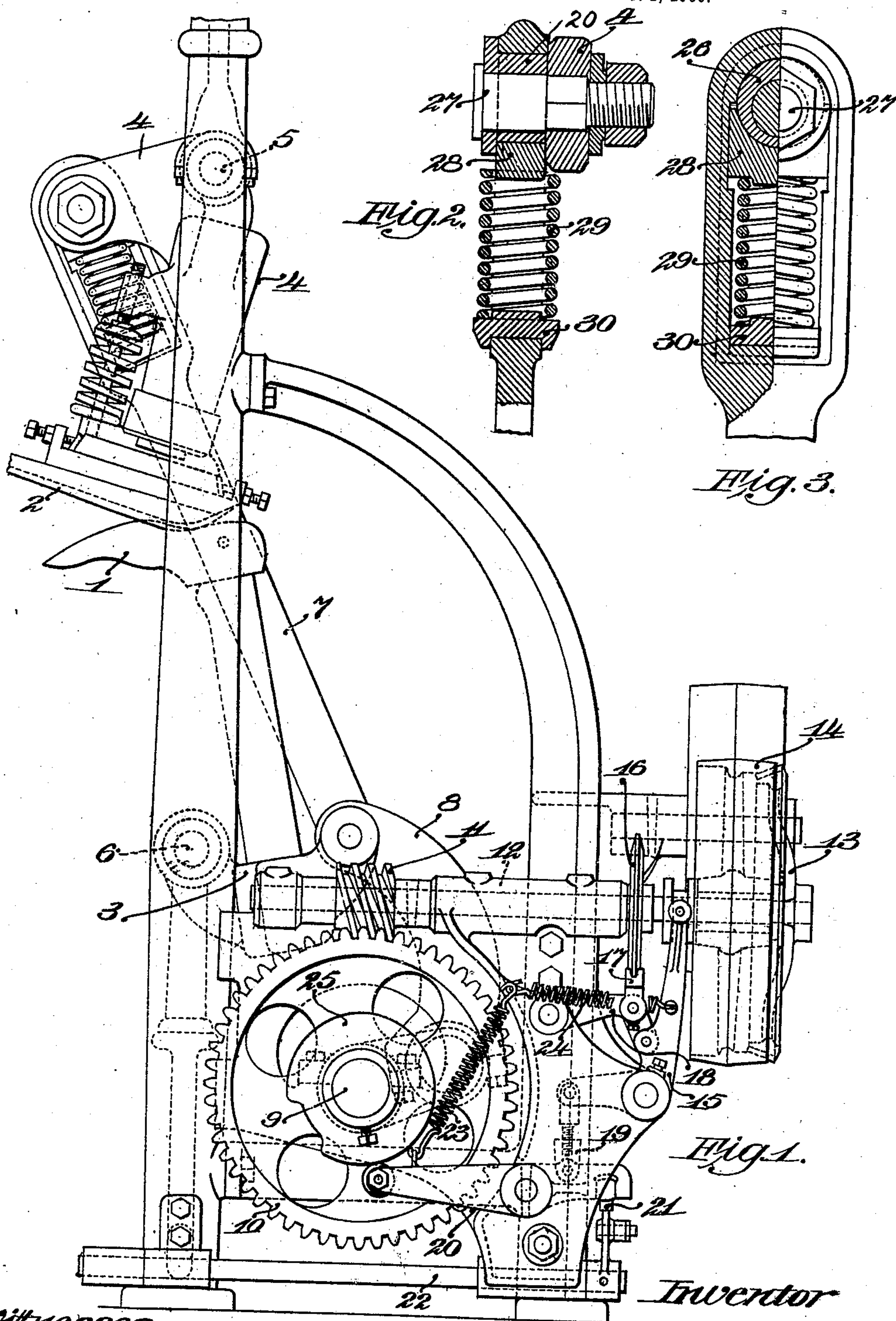
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PATENTED JULY 30, 1907.

B. F. MAYO.

SOLE PRESSING MACHINE.

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Witnesses
Edward S. Day
Annie G. Holt.

Inventor
Benjamin F. Mayo
by his Attorneys
Phillips Van Curen & Fish

UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-PRESSING MACHINE.

No. 861,875.

Specification of Letters Patent.

Patented July 30, 1907.

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To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Pressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 The present invention relates to sole pressing machines of that class in which the sole of a shoe is subjected to a rolling pressure between a last upon which the shoe is supported and a cooperating sole pressing form.

15 In machines of the class referred to, as usually constructed, the last and form are so arranged that the pressure proceeds longitudinally of the sole of the shoe, first from the heel towards the toe and then from the toe towards the heel. This manner of applying the pressure crowds the material of the sole towards the toe and heel and stretches the sole longitudinally, and as a result, in the operation of machines as heretofore constructed, the sole is often distorted sufficiently to injure or even spoil the shoe.

25 In an application filed by this applicant October 19, 1903, Serial No. 177,565, is disclosed and broadly claimed an invention by which the displacing of the material of the sole or the stretching or distorting of the sole during the pressing operation is prevented, that invention consisting in drawing the form over the sole while in contact therewith. In the machine disclosed in the application above referred to, the form is drawn over the sole in the opposite direction to that in which the pressure is proceeding both when the pressure is proceeding from the heel towards the toe and also when the pressure is proceeding from the toe towards the heel.

40 The injury which results to the sole of a shoe when subjected to the operation of a rolling pressure sole pressing machine is occasioned by the crowding of the material of the sole towards the toe and the stretching and distorting of the forepart of the sole while the pressure is proceeding from the heel towards the toe, the crowding of the material of the sole towards the heel, and the stretching of the sole while the pressure is proceeding from the toe towards the heel, producing no injurious effects, and in fact being beneficial as tending to restore the sole to its original condition after being distorted and stretched while the pressure is proceeding from the heel towards the toe. When the form is drawn over the sole in the opposite direction to that in which the pressure is proceeding while the pressure is proceeding from the toe towards the heel, the displacing of the material of the sole towards the heel and the stretching of the sole is prevented so that to some extent the effects produced by drawing the form over the sole while the pressure is proceeding from the heel towards the toe are counteracted. It is, therefore, desirable that the form be drawn over the sole in the opposite direction to that in which the pressure is proceeding while the pressure is proceeding from the heel towards the toe, and that the form be caused to remain in contact with the sole without being drawn thereover while the pressure is proceeding from the toe towards the heel, and the object of the present invention is to provide means whereby this result may be accomplished.

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With this object in view the present invention contemplates providing means for actuating a shoe supporting last and a cooperating form to subject the sole of a shoe supported upon the last to a rolling pressure, constructed and arranged to draw the form over the sole while the pressure is proceeding in one direction, the form being preferably drawn in the opposite direction to that in which the pressure is proceeding, and to cause the form to remain in contact with the sole without being drawn there over while the pressure is proceeding in the opposite direction. It is believed that this mode of operation is broadly new and the invention therefore contemplates the provision of any means for actuating either the last or form or both to cause the sole to be subjected to a rolling pressure and to cause the form to be drawn over the sole while the pressure is proceeding in one direction, and to remain in contact with the sole without being drawn thereover while the pressure is proceeding in the opposite direction. The specific embodiment of the invention hereinafter described, however, constitutes the preferred form of the invention as in addition to the broad principle of invention above referred to, it embodies certain novel features of construction and arrangement, the advantages of which will be apparent to those skilled in the art from the following description.

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The invention is intended primarily as an improvement upon the machine disclosed in the application hereinbefore referred to, but it is to be understood that except as specifically defined in the claims it is not limited to such machine nor to any particular construction and arrangement of parts.

100 The invention will be clearly understood from an inspection of the accompanying drawings in which

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110 Figure 1 is a view in side elevation of a rolling pressure sole leveling machine embodying the preferred form of the same, the machine illustrated being that disclosed in the application hereinbefore referred to, and one only of the shoe supporting lasts and its cooperating form together with the mechanism for actuating the same being shown; Fig. 2 is a detail sectional view of the upper end of the link connecting the last and form carriers, illustrating the construction and ar-

5 rangement of the yielding connection which allows the surface of the form to travel at the same speed as the surface of the sole while the pressure is proceeding from the toe towards the heel and Fig. 3 is a view in side elevation partly in section of the parts illustrated in Fig. 2.

1 indicates a shoe supporting last and 2 a cooperating sole pressing form, mounted respectively upon last and form carriers 3 and 4. The form carrier 4 is pivoted at 5 in the upper portion of the machine frame and the last carrier 3 is pivoted at 6 in the machine frame below the pivot of the form carrier, the carriers being so arranged that an oscillating movement imparted to the carriers subjects the sole of a shoe supported upon the last to a rolling pressure. The last and form carriers are connected by means of a link 7 which is pivotally connected to the carriers upon opposite sides of their pivots so that the form carrier is oscillated from the last carrier.

20 The last carrier is connected by means of a link 8 to the crank of a crank shaft 9 whereby a complete backward and forward oscillation is imparted to the last carrier and to the last mounted thereon during each revolution of the crank shaft. To the crank shaft 9 a worm wheel 10 is secured with which meshes a worm 11 upon a driving shaft 12 mounted in bearings in the machine frame, above and at right angles to the crank shaft.

30 A friction clutch member 13 is secured to the driving shaft at its rear end, and adjacent to the clutch member is a driving pulley 14. This driving pulley is rigidly secured to a sleeve mounted to rotate and move longitudinally upon the driving shaft. The face of the pulley 14 adjacent the clutch member 13 is provided with a cooperating clutch member whereby the pulley can be clutched to the shaft by moving the pulley towards the right as viewed in Fig. 1. When the pulley is moved towards the left, it is unclutched from the driving shaft and the rotation of the driving shaft and the crank shaft driven therefrom is stopped. The pulley 14 is moved into and out of engagement with the clutch member 13 by means of a bell crank lever 15, the vertical arm of which is forked at its upper end and engages a groove in the inner end of the sleeve to which the pulley is secured.

45 In order to stop the rotation of the driving shaft as soon as the pulley is moved out of engagement with the clutch member 13, a brake disk 16 is provided, rigidly secured to the driving shaft, with which a brake shoe 17 is arranged to cooperate. This brake shoe is pivotally mounted upon a toggle 18, one of the arms of which is pivotally connected to the vertical arm of the bell crank lever 15, and the other arm of which is pivotally connected to the frame of the machine. The arrangement of this toggle is such that when the pulley 14 is moved to the left out of engagement with the clutch member 13, the brake shoe 17 is brought into contact with the brake disk.

60 The horizontal arm of the bell crank 15 is connected by an adjustable link 19 to the rear arm of a lever 20, the rear end of which extends over a cam plate 21 secured upon a rock shaft 22. The shaft 22 is provided at the front of the machine with a treadle by means of which the shaft can be rocked by the operator to move the cam plate 21 beneath the rear end of the lever 20. The cam plate is so shaped that when moved in one direction it raises the rear end of the lever 20 thereby oscillating the bell crank 15 to move the driving pulley

into engagement with the clutch member 13 and when moved in the opposite direction releases the lever 20 so that the lever can be oscillated to move the driving pulley out of engagement with the clutch member 13. The lever 20 is oscillated in a direction to move the pulley 14 out of engagement with the clutch member 13 by means of a coiled spring 23 connecting with the forward end of the lever, and the action of this spring is assisted by a coiled spring 24 connected to the vertical arm of the bell crank 15. The lever is provided at its forward end with a roll which bears against a cam disk 25 upon the crank shaft 9, the disk being so shaped that after the cam plate 21 is moved out of engagement with the rear end of the lever 20 by the operator, the action of the lever to move the pulley 14 out of engagement with the clutch member 13 is prevented until the last and form are returned to their position at the front of the machine.

85 The construction and arrangement of the parts above described with the exception of the link 7 are the same as the corresponding parts of the machine disclosed in the application above referred to. In the machine of said application the link 7 forms a rigid connection between the last and form carriers so that the form carrier is positively actuated from the last carrier during both the backward and forward oscillations of the carriers, the pivotal connections of the link with the form and last carriers being located at such distances from the pivots 5 and 6 and being so arranged with relation to these pivots that the surface of the form is caused to travel at a greater speed than the surface of the sole of a shoe supported upon the last. The form is thus drawn over the sole in the opposite direction to that in which the pressure is proceeding during both the backward and forward oscillations of the carrier.

100 In carrying out the present invention, a yielding connection is provided in the link 7 which, during the outward movements of the carriers while the pressure is proceeding from the toe towards the heel of the shoe, allows the form to remain in contact with the sole without being drawn thereover. This yielding connection is clearly illustrated in Figs. 2 and 3. As shown in these figures, the upper end of the link 7 is provided with a semi-cylindrical bearing which engages a sleeve eccentrically mounted upon its stud 27 secured in the form carrier. Below the semi-cylindrical bearing the link is provided with a slot in which is seated a sliding block 28 provided with a semi-cylindrical bearing also engaging the sleeve 26. The sliding movement of the block 28 is limited by shoulders in the sides of the slot and the block is yieldingly pressed against the sleeve 26 by means of a coiled spring 29, seated in the slot in the link and having one end bearing against the block 28 and the other end bearing against a block 30, fitted in the lower end of the slot. During the backward movement of the last and form carriers the semi-cylindrical bearing in the upper end of the link 7 bears against the sleeve 26 and thus the form carrier is positively actuated and the surface of the form is caused to move at a greater speed than the surface of the sole. During the outward movement of the carriers, however, while the pressure is proceeding from the toe towards the heel of the shoe, the spring 29 yields and the form carrier is driven from the last carrier by the frictional contact of the sole with

the form, the surfaces of the form and sole traveling at the same speed. As soon as the form is separated from the sole, the spring 29 acts to move the form carrier until the semi-cylindrical bearing in the link 7 is again engaged by the sleeve 26.

The nature and scope of the invention having thus been indicated and the preferred embodiment thereof having been specifically described, what is claimed as new is:—

- 10 1. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to draw the form over the sole while the pressure is proceeding in one direction and to cause the form to remain in contact with the sole without being drawn thereover while the pressure is proceeding in the opposite direction, substantially as described.
- 15 2. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to move the surfaces of the form and sole at different speeds while the pressure is proceeding in one direction and to move said surfaces at the same speed while the pressure is proceeding in the opposite direction, substantially as described.
- 20 3. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to impart a greater speed to the surface of the form than to the surface of the sole while the pressure is proceeding in one direction and to impart the same speed to said surfaces while the pressure is proceeding in the opposite direction, substantially as described.
- 25 3. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to impart a greater speed to the surface of the form than to the surface of the sole while the pressure is proceeding in one direction and to impart the same speed to said surfaces while the pressure is proceeding in the opposite direction, substantially as described.
- 30 3. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to impart a greater speed to the surface of the form than to the surface of the sole while the pressure is proceeding in one direction and to impart the same speed to said surfaces while the pressure is proceeding in the opposite direction, substantially as described.
- 35 3. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to impart a greater speed to the surface of the form than to the surface of the sole while the pressure is proceeding in one direction and to impart the same speed to said surfaces while the pressure is proceeding in the opposite direction, substantially as described.

4. A sole pressing machine having in combination, a sole pressing form, a last carrier, a form carrier, and mechanism for actuating said carriers to subject the sole of a shoe supported upon the last carrier to a rolling pressure acting to draw the form over the sole towards the heel while the pressure is proceeding from the heel towards the toe and to cause the form to remain in contact with the sole without being drawn thereover while the pressure is proceeding from the toe towards the heel, substantially as described.

5. A sole pressing machine having in combination, a sole pressing form, a pivotally mounted last carrier, a pivotally mounted form carrier, means for oscillating one of said carriers, a link connecting said carriers acting to oscillate one carrier from the other and arranged to impart a greater speed to the surface of the form than to the surface of the sole of a shoe supported upon the last carrier during the movement of the carriers in one direction, and a yielding connection in said link acting to cause the surfaces of the form and sole to move at the same speed during the movement of the carriers in the opposite direction, substantially as described.

6. A sole pressing machine having in combination, a sole pressing form, a pivotally mounted last carrier, a pivotally mounted form carrier, means for oscillating one of said carriers, and connections between said carriers arranged to positively actuate one carrier from the other during the movement of the carriers in one direction and to yield during the movement of the carriers in the opposite direction, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

BENJAMIN F. MAYO.

Witnesses:

FRED O. FISH,
HORACE VAN EVEREN.