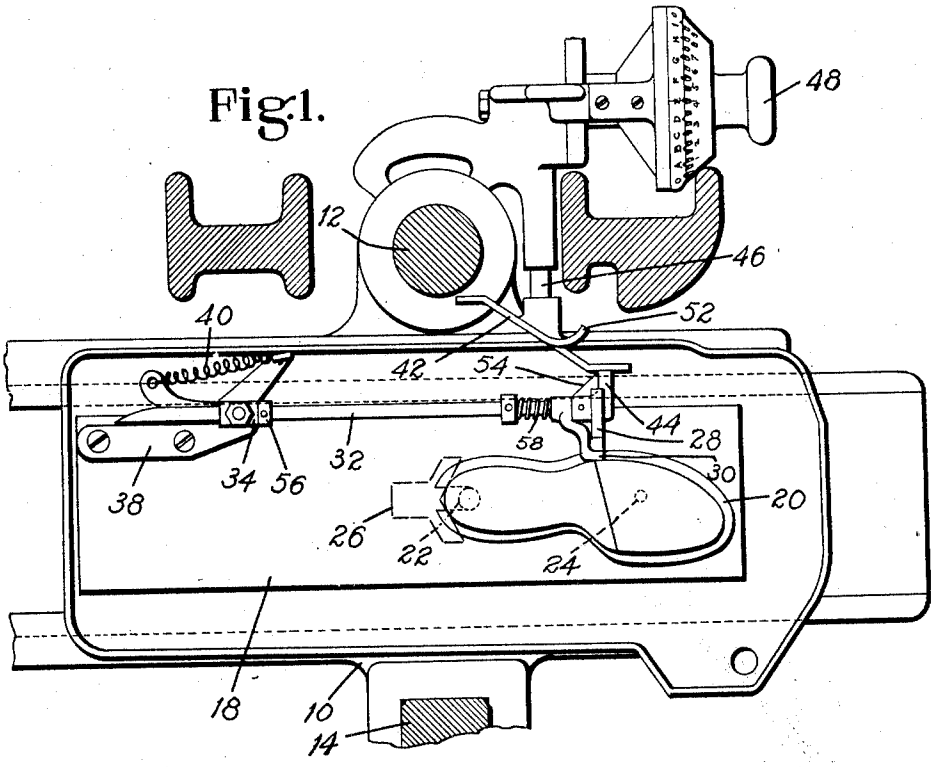
May 14, 1929. H. A. BARWICK 1,712,482

MACHINE FOR OPERATING ON SHOE SOLES

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Fig. 1.



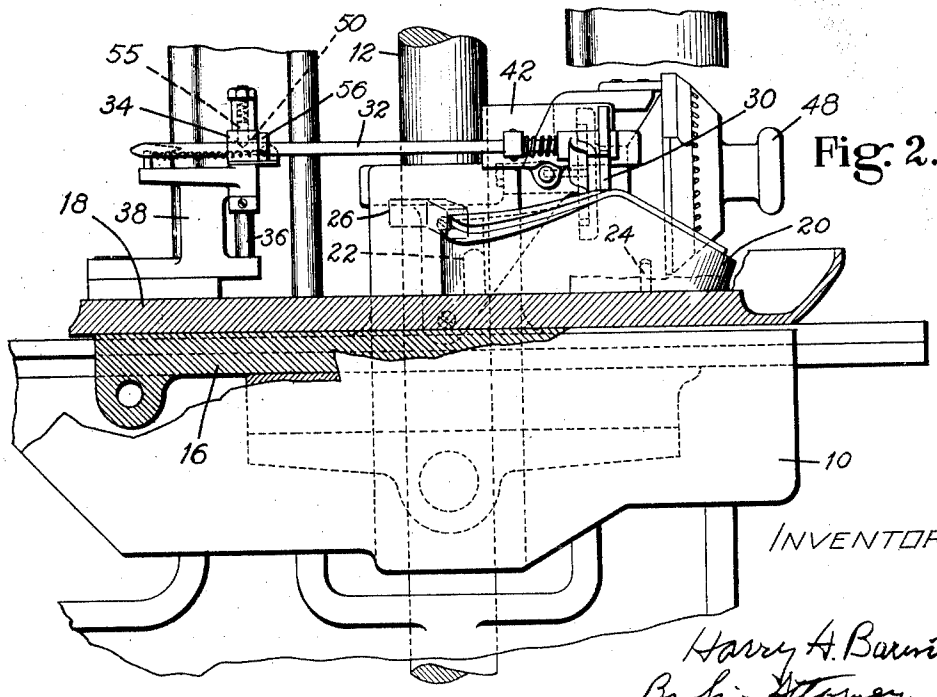




Fig. 2.

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MACHINE FOR OPERATING ON SHOE SOLES.

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Fig. 6.

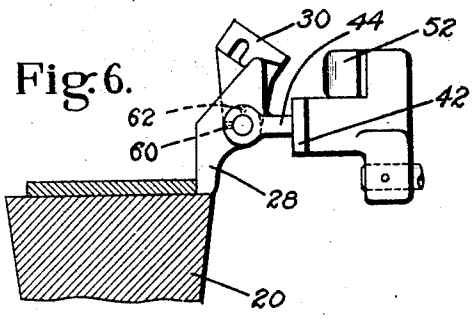



Fig. 7.

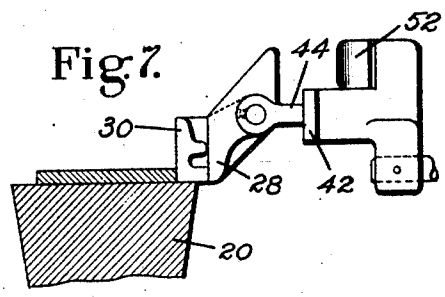



Fig. 4.

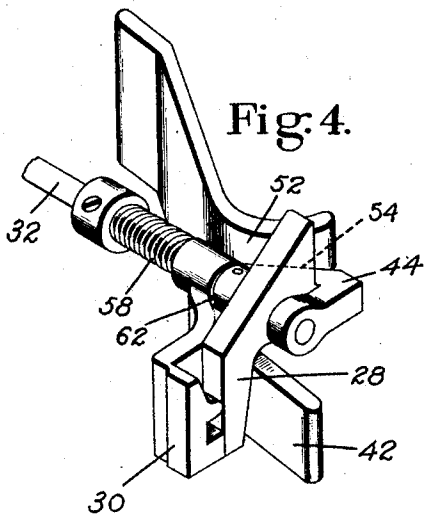
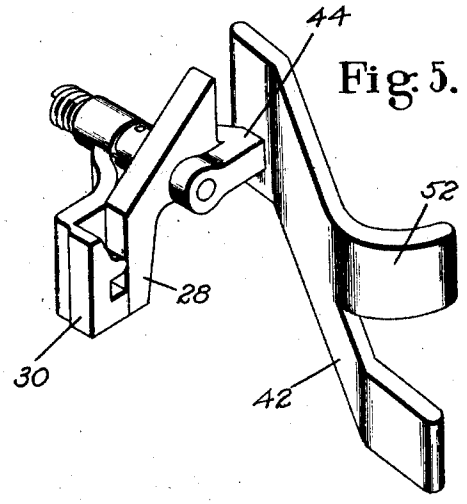



Fig. 5.



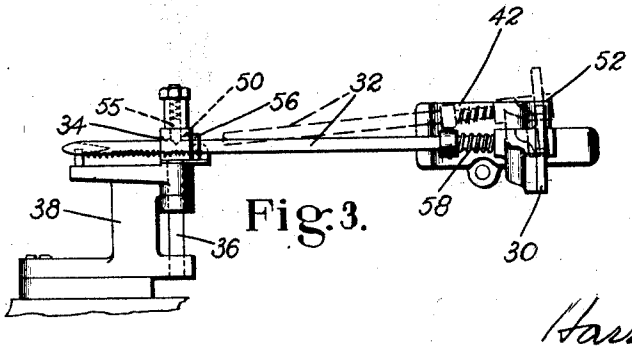




Fig. 3.

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Patented May 14, 1929. 1,712,482

# UNITED STATES PATENT OFFICE.

HARRY A. BARWICK, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## MACHINE FOR OPERATING ON SHOE SOLES.

Application filed March 30, 1927. Serial No. 179,648.

This invention relates to machines for operating on soles before they are incorporated in boots or shoes, and more particularly to gaging mechanism for determining the proper relation of the sole to the means which operates thereon. The invention is herein illustrated in its application to a machine for applying molding pressure to soles, which is of the same general type as that disclosed in United States Letters Patent No. 1,004,076, granted on Sept. 26, 1911, upon an application of E. N. Preble. It will be recognized, however, that in its more general aspects the invention is not limited to that particular type of machine nor to machines for molding soles.

Machines of the above-mentioned type are provided with mechanism for engaging the side edge of the sole to position the sole laterally in relation to the lower pressing or molding form on which it is supported. A well-known mechanism for that purpose is shown in United States Letters Patent No. 1,222,866, granted on April 17, 1917, upon an application of J. J. Heys. That mechanism comprises an edge gage which moves with the lower form as the latter travels horizontally between its work-receiving position and its operating position, the gage being controlled by a relatively stationary cam at the side of the form which moves it into position over the form when the latter is moved forwardly into work-receiving position and permits it to be moved by a spring laterally away from the form as the latter is moved rearwardly with the sole into operating position. When the machine is at rest with the lower form in work-receiving position the gage is thus held by the cam in a position over the form.

It is an object of the present invention to provide a construction such that the sole gage may be readily displaced from its operative position, for example in order to afford ample room for the removal of the form in a machine of the type illustrated, and also such as to insure against damage to the machine if the gage is not returned to normal position before the machine is next started. As herein illustrated there is provided a construction which permits the gage to be quickly moved to a position out of operative relation to the form and to its controlling cam without objectionable strain on any of the parts, together with means which in the next succeeding operation of the machine will insure the return of the gage into operative relation to its cam without such interference between the gage mechanism and any portion of the machine as to result in breakage or other damage to the machine.

A further feature comprises a novel gage so constructed as to adapt it for convenient use with a wide range of sizes of soles, the construction shown comprising different relatively displaceable sole-engaging members, one for use with comparatively large soles and the other with small soles.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly described by reference to the accompanying drawings and pointed out in the claims.

In the drawings,

Fig. 1 is a view, partly in plan and partly in section, of a portion of a machine in which the invention is embodied;

Fig. 2 is a view in side elevation of the portion of the machine shown in Fig. 1, with parts broken away;

Fig. 3 is a view in side elevation of the gage mechanism, illustrating by broken lines how the gage may be displaced from operative position;

Fig. 4 is a perspective view on an enlarged scale showing the gage in displaced position;

Fig. 5 is a view similar to Fig. 4 showing the gage after its return into operative relation to its controlling cam; and

Figs. 6 and 7 are views illustrating the use of different gage members with soles of different sizes.

As more fully disclosed in the above-mentioned Letters Patent No. 1,004,076, the machine in which the invention is herein shown as embodied is a twin machine having two sets of sole-molding mechanisms only one of which is herein illustrated. Each set comprises a cross-head 10 which is reciprocated vertically on guide rods 12 and 14, and a mold-carrying table or slide 16 which is reciprocated horizontally on the cross-head. In the construction shown the slide 16 carries a plate 18 which is formed to serve as a drip pan in accordance with the disclosure of United States Letters Patent No. 1,291,880,

granted on January 21, 1919, upon an application of J. J. Heys, and on the plate 18 is supported a lower sole-pressing form or mold 20. To position and hold the form 20 in proper relation to the plate 18, the plate is provided with upwardly projecting studs 22 and 24 which enter recesses in the form. It will be understood that above the cross-head 10 the machine is provided with a co-operating downwardly facing upper form or mold (not shown), and that in the operation of the machine the cross-head is reciprocated to perform the molding operation and the slide 16 also is reciprocated to carry the lower form 20 alternately into a work-receiving position near the front of the machine (Figs. 1 and 2) and into an operating position directly under the upper form.

When the lower form 20 is in its work-receiving position with the machine at rest, as illustrated in Figs. 1 and 2, the operator places a sole upon it in a position determined by a rear end gage and a side gage. The rear end gage is indicated at 26, and need not be further described since it forms no part of the present invention. The side gage in the construction herein shown comprises two sole-edge-engaging members 28 and 30 arranged to be used respectively in operating on wide and narrow ranges of sole sizes, as more fully hereinafter described. These members are supported on a rod 32 the rear end portion of which extends through an opening in a holder 34 fast on a vertical rock shaft 36 mounted in bearings in a bracket 38 which is secured to the plate 18. The gage is thus carried forwardly and rearwardly with the form 20 in the movements of the slide 16, and is also carried upwardly and downwardly by the crosshead 10, and in addition it is mounted for swinging movement laterally of the form about the axis of the rock shaft 36. A spring 40 connected at one end to the bracket 38 and at the other end to an extension of the rod holder 34 tends to swing the gage away from the form, and co-operating with this spring to determine the position of the gage is a cam member or plate 42 which is carried by the cross-head 10 and therefore moves vertically with the form 20 but is fixed against movement forwardly and rearwardly therewith. An extension 44 of the gage member 28 engages the cam member 42 and is held against said member by the action of the spring 40. It will be understood that when the form 20 is in its work-receiving position the gage member 28 or 30, according to which of these members is in use, is maintained in operative position over the form by the cam 42, and that when the form is moved rearwardly to its operating position the gage is swung away from the form by the spring 40 under control of the cam, so as to be out of the way in the molding operation. When the form is returned to its work-receiving position the gage is returned to operative position by the cam. The general organization of the side gage mechanism as thus far described is similar to that disclosed in Letters Patent No. 1,222,836 above referred to. The cam 42 is mounted on a rod 46 which is carried by the cross-head 10, and to vary the position of the gage laterally of the form for different sizes of soles the rod 46 is moved lengthwise by adjusting mechanism including a rotatable member 48, as also more fully disclosed in said last mentioned Letters Patent.

It will be seen that in the removal of the form 20, for example to permit the substitution of a form of different shape, the form must be lifted in order to detach it from the studs 22 and 24. For purposes of the present invention the side gage mechanism is so constructed that the gage may be conveniently swung to an out-of-the-way position when the lower form is thus to be removed. To this end, the rod 32 is mounted in an opening 50 in the holder 34 which is enlarged or flared vertically, as shown in Figs. 2 and 3, so that the rod may be swung upwardly with the gage, without any substantial strain on the rod, far enough to permit the extension 44 and a portion of the gage member 28 to be swung outwardly over the top of that portion of the cam 42 which is nearest to the form, as illustrated in Fig. 4 and by broken lines in Fig. 3. The gage is thus displaced out of operative relation to the cam 42, and it will be understood that the spring 40 tends to hold it in its displaced position.

After placing different forms in the machine, the operator will usually start the machine one or more times before proceeding with the regular molding work in order to determine whether the forms are in proper relation to each other, and in that event he may forget to return the side gage into operative relation to the cam 42. The invention accordingly provides means for insuring against damage to the machine by contact of the moving gage mechanism with a relatively stationary part if the gage is left in displaced position, the construction shown comprising means for returning the gage automatically into operative relation to the cam 42 upon the starting of the machine. For this purpose there is provided a cam 52 above that portion of the cam 42 which is nearest to the form, the cam 52 being arranged to engage an inclined face 54 on the extension 44 and thus to swing the gage inwardly toward the form 20 when the form and the gage are moved rearwardly in the next operation of the machine. The gage is thus swung inwardly far enough to drop back by gravity into operative relation to the cam 42, so that when the lower form 20 is moved forwardly again after the forms have separated the gage will be returned by the cam into operative

relation to the form ready for use in gaging the next sole that is placed on the form. It will be further noted that the cam 52 is in position to limit the movement of the gage when it is swung outwardly to the position illustrated in Fig. 4.

For retaining the rod 32 in the holder 34 there is provided a spring-pressed detent 55 having a V-shaped end which enters a correspondingly shaped notch in the rod, as illustrated in Figs. 2 and 3. The detent 55 is thus yieldable in response to a pull on the rod, so that the side gage may be readily removed from the machine if desired. It will be understood that the operator, if he desires, may thus remove the gage instead of displacing it in the manner hereinbefore described. The rod 32 is tapered at its end to facilitate its return movement into the opening 50 under the detent, and it is provided with a collar 56 for engaging the holder 34 to limit its return movement. It will be further understood that the spring-pressed detent 55, in addition to holding the rod detachably in place, assists gravity in swinging the gage down into operative relation to the cam 42 when the gage is swung inwardly by the cam 52.

In order conveniently to increase the range of the side gage for widely different sizes of soles, the gage member 30 is mounted for turning movement about the rod 32 so that it may be used in place of the member 28 for comparatively small soles, as illustrated in Fig. 7, or may be turned up to permit the member 28 to be utilized for comparatively large soles, as shown in Fig. 6. A spring 58 (Fig. 4) presses the hub portion of the member 30 toward the hub portion of the member 28 which has a notch 60 (Fig. 6) to receive a pin 62 on the member 30 to assist in retaining this member in operative position.

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

1. In a machine for operating on soles, the combination with means for operating on a sole, of a sole gage for determining the proper position of a sole relatively to said operating means, said gage being manually displaceable from operative position when the machine is at rest, and automatic means for returning the gage to operative position as an incident to the next operation of the machine.

2. In a machine for operating on soles, the combination with means for operating on a sole, of a sole gage for determining the proper position of a sole relatively to said operating means, controlling means for moving said gage toward said operating means in the operation of the machine, the gage being manually displaceable out of operative relation to said controlling means, means for maintaining the gage in displaced position, and a device arranged to act automatically to return the gage into operative relation to said controlling means if the operator leaves it in displaced position.

3. In a machine for operating on soles, the combination with a sole support, of a sole gage for determining the proper position of a sole on said support, controlling means for moving the gage into operative relation to the support in each operation of the machine, the gage being manually displaceable out of operative relation to said controlling means when the machine is idle, and a device arranged to act automatically if the gage is thus displaced to insure its return into operative relation to said controlling means as an incident to the next succeeding operation of the machine.

4. In a sole-pressing machine, the combination with a sole-supporting form, of a sole gage movable into and out of operative relation to said form in the operation of the machine, means for controlling said gage including a device for moving it automatically into operative position and for maintaining it in that position with the machine at rest, the gage being manually displaceable out of operative relation to said device when the machine is at rest, means for maintaining it in displaced position, and automatic means for insuring the return of the gage into operative relation to said device as an incident to the next succeeding operation of the machine.

5. In a sole-pressing machine, the combination with a sole-supporting form, of a sole gage movable into and out of operative relation to said form in the operation of the machine, a cam for controlling the gage and for determining its relation to the form, the gage being manually displaceable out of operative relation to said cam when the machine is at rest, and a device constructed and arranged to act as a stop to limit such displacement of the gage and also to insure its return into operative relation to the cam as an incident to the next operation of the machine.

6. In a sole-pressing machine, the combination with a sole-supporting form movable in the operation of the machine between a work-receiving position and operating position, of a sole gage movable with the form and movable also relatively to the form into and out of operative position, a cam for controlling the movement of the gage relatively to the form in the movement of the form, the gage being movable manually out of operative relation to the cam when the machine is at rest, and automatic means for returning the gage into operative relation to the cam in the next operation of the machine.

7. In a sole-pressing machine, the combination with a sole-supporting form movable lengthwise in the operation of the machine between a work-receiving position and operating position, of a sole gage movable with the form and movable also laterally of the form into and out of operative position, a con-

trolling cam arranged to move the gage laterally of the form into operative position as the form is moved into work-receiving position, the gage being so mounted as to permit it to be raised and moved outward relatively to the cam to an inoperative position when the machine is at rest, and a device arranged to act automatically in the next operation of the machine to move the gage inwardly toward the form far enough to permit it to drop back into operative relation to the cam.

8. In a sole-pressing machine, the combination with a sole-supporting form movable lengthwise in the operation of the machine between a work-receiving position and operating position, of a sole gage movable with the form and movable also laterally of the form into and out of operative position, a controlling cam arranged to move the gage laterally of the form into operative position as the form is moved into work-receiving position, the gage being so mounted as to permit it to be raised and moved outwardly over the cam to an inoperative position when the machine is at rest, and a device constructed and arranged to limit such outward movement of the gage and to act as a cam to move the gage inwardly toward the form far enough to permit it to drop back into operative relation to the controlling cam in the next operation of the machine.

9. In a sole-pressing machine, the combination with a sole-supporting form, of a gage for determining the proper position of a sole in relation to the form, a rod on which said gage is supported, and a holder for said rod mounted for turning movement to permit the gage to be swung laterally away from the form, the rod being so mounted in said holder as to permit the gage also to be swung upwardly from the form without straining the rod.

10. In a sole-pressing machine, the combination with a sole-supporting form, of a gage for determining the proper position of a sole in relation to the form, a rod on which said gage is supported, and a holder for said rod mounted for turning movement to permit the gage to be swung laterally away from the form, said holder having an opening to receive the rod of such height as to permit the rod and the gage to be swung upwardly without straining the rod, and a spring-controlled detent for holding the rod in proper lengthwise position in said opening.

11. In a sole-pressing machine, the combination with a form, of a gage for determining the proper position of a sole in relation to the form, and automatic means for moving said gage out of operative position in time relation to the sole-pressing operation, said gage comprising different sole-engaging members relatively movable to permit them to be used respectively in positioning engagement with soles of different sizes.

12. In a sole-pressing machine, the combination with a form, of a gage for determining the proper position of a sole in relation to the form, and automatic means for moving said gage out of operative position in time relation to the sole-pressing operation, said gage comprising different sole-engaging members one of which is mounted for swinging movement into or out of a position in front of the sole-engaging face of the other to permit the different members to be used respectively in positioning engagement with soles of different sizes.

In testimony whereof I have signed my name to this specification.

HARRY A. BARWICK.