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MACHINE FOR OPERATING UPON SHOE PARTS

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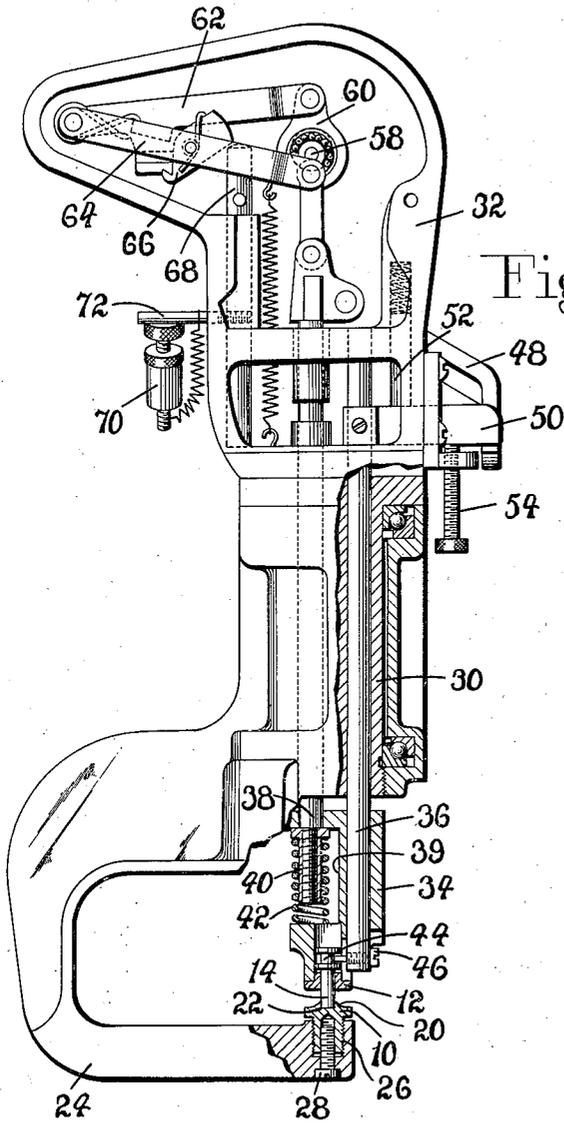


Fig. 1.

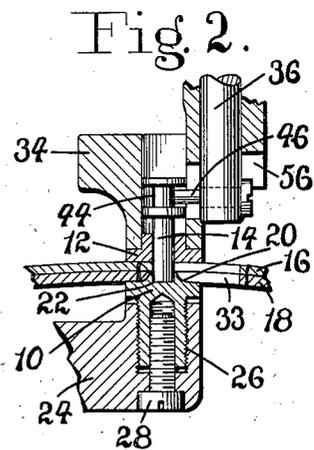


Fig. 2.

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UNITED STATES PATENT OFFICE

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MACHINE FOR OPERATING UPON SHOE PARTS

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11 Claims. (Cl. 12—53)

This invention relates to machines for operating upon shoe parts and is herein illustrated as embodied in a machine for reducing the thickness of edge portions of shoe parts.

5 In the manufacture of women's shoes it is common practice to make use of uppers which have cut-out portions forming ornamental patterns, it being customary in assembling the uppers to leave the linings bridging the openings of said cut-out portions until the shoe is practically completed in order to hold the upper in shape against forces employed in pulling the upper over the last in lasting and other operations. The portions of the upper which bridge the openings are trimmed away generally just before the shoe is packed, this operation being performed by machines such as the trimming machine illustrated in United States Letters Patent No. 1,700,624, granted January 29, 1929, upon an application filed in the name of G. Boulton. The edges of the cut-out portions of the linings thus produced are exposed and in some cases present an objectionable appearance.

10 In view of the foregoing it is an object of the present invention to provide a machine for reducing the thickness of edge portions of blanks and especially adapted for the operation of reducing the thickness of the edge portions of cut-out openings. To this end and as illustrated the invention provides in a machine having presser members, a gage located centrally of said members and adapted to be inserted in an opening in the work for limiting the operation of the presser members to edge portions of the work immediately surrounding the opening. Preferably, and as shown, the presser members comprise an anvil and a hammer arranged for reciprocation relatively to the anvil, and the gage is in the form of a pin extending through the hammer into a recess in the anvil and movable relatively to the anvil to provide for insertion of the work between the hammer and anvil. As shown, the anvil is mounted upon a U-shaped supporting member so arranged that the anvil can be inserted in an assembled shoe thereby permitting the edge reducing operation to be performed in the later stages of shoemaking.

15 By the use of a machine constructed as above outlined it is possible rapidly to compress the edge portions of the material surrounding cut-out openings in assembled shoes, thus to impart a finished appearance to the uppers of the shoes.

20 Other features of the invention will be apparent from the following detailed specification

when taken in connection with the accompanying drawing and will be pointed out in the claims.

In the drawing,

Fig. 1 is a view in front elevation and partly in section of the head of a machine embodying the invention; and

Fig. 2 is a view showing on an enlarged scale the anvil and hammer in operative relation to a shoe upper.

As shown in the drawing, the machine comprises an anvil 10 and a hammer 12 mounted for reciprocation relatively to the anvil, there being a work gage in the form of a pin 14 extending through the hammer 12 into engagement with the anvil. As shown in Fig. 2 the gage 14 is adapted to contact with the edge portions of work such as a shoe upper 16 and its lining 18 in locating edge portions of the upper and lining relatively to the surfaces of the hammer and anvil.

The anvil 10 is generally cylindrical in shape but has an upper surface which terminates in a frusto-conical portion 20 adapted for cooperation with the flat striking surfaces of the hammer 12 to force the under portion of the work back from its edge and thereby tending to compact the material thereof and reduce the edge portion. The central portion of the anvil 10 is provided with a recess 22 for receiving the gage 14. The anvil is mounted upon one arm of a U-shaped member 24, being adjustable heightwise thereof by means of screw threads 26 and arranged to be held in adjusted position by a set screw 28.

The U-shaped member 24 is pivotally mounted upon a boss 30 forming part of the head 32 of the machine, the axis of the member coinciding with the axis of the anvil. This construction provides for the insertion of the anvil and its supporting arm within a shoe to be operated upon, the gage 14 at the time of the insertion being withdrawn as will later be described, thus permitting the location of the anvil in line with an opening, such as a cut-out opening 33, in the upper of the shoe.

The hammer 12 is carried by a block 34 which is slidably mounted upon a rod 36 extending through the boss 30. The block, and consequently the hammer, are arranged for reciprocation by means of a rod 38 slidably mounted in the boss 30 and loosely extending through a portion of the block 34. The lower end of the rod 38 extends into a recess 39 in the block and is retained therein by a bushing 40 threaded upon the rod and adapted to engage the upper surface

of the recess in moving the hammer upwardly. Downward movement of the rod is transmitted to the block by a spring 42 which surrounds the bushing 40 and engages the lower surface of the recess with the result that upon reciprocation of the rod the hammer is forced resiliently toward the anvil in effecting a pressure applying operation of the hammer upon the work.

The gage 14 is mounted for movement independently of the block 34 and is normally located with the lower end portion of the gage pin located within the recess 22 of the anvil. To this end the gage is provided with a groove 44 within which is located a set screw 46 extending through the lower end of rod 36. The rod 36 is arranged for movement heightwise of the head 32 by a lever 48 which may be operated by a treadle not shown, the lever making connection with the rod by means of a bar 50. The rod 36 and consequently the gage pin 14 are normally forced downwardly by a spring pressed plunger 52, downward movement of the gage being limited by an adjustable stop screw 54 which engages the under surface of the bar 50. The mechanism just described provides means for moving the gage away from the anvil so that work can be inserted between the hammer and anvil with the anvil located in alinement with an opening in the work and after such insertion the gage can be returned to its normal position in which the gage will extend through the opening. It is to be noted that the gage is maintained in contact with the anvil during the reciprocation of the hammer which slides over the gage, there being a recess 56 in the block 34 which provides for a clearance for the set screw 46 as the block slides over the rod 36.

In causing reciprocations of the hammer 10 the rod 38 may be driven by any convenient mechanism. That herein shown comprises a shaft 58, a crank 60 and links 62 and 64 operatively connected to the upper end of rod 38, there being a latch 66 under the control of a rod 68 operable by means of a lever 70 which engages a projection 72 upon the rod, and which is actuated by a treadle not shown. The construction is such that operation of the shaft in initiating reciprocating movements of the hammer is under control of the lever 70, it being desirable to have the machine parts at rest during such time as the work is being positioned relatively to the anvil. The mechanism for reciprocating the rod 38 is not herein described in detail but for a complete description of the construction and operation of such mechanism reference may be had to the aforesaid United States Letters Patent.

In the operation of the machine the gage 14 is raised above the surface of the anvil 10 through operation of lever 48, and the work such as a shoe part or shoe having cut-out openings, is positioned over the lower arm of the U-shaped support 24 with the axis of the anvil located within the opening. The gage is then returned to its normal position in engagement with the anvil and the lever 70 is operated to cause reciprocations of the hammer 12. The operator then feeds the work across the surface of the anvil maintaining edge portions thereof in engagement with the gage 14. Operation of the hammer upon the work results in compacting edge portions thereof against the frusto-conical portion of the anvil resulting in the reduction of the thickness of the edge portions of the cut-out.

Having thus described my invention, what I

claim as new and desire to secure by Letters Patent of the United States is:

1. A machine for operating upon shoe part blanks comprising a plurality of presser members arranged for relative movement toward and away from each other in pressure applying operations upon a blank, and a gage so positioned centrally of said members as to be entirely surrounded by the operative faces of the members and constructed and arranged continuously to present a work engaging surface during operations of the presser members.

2. A machine for operating upon shoe part blanks comprising an anvil, a hammer mounted for reciprocation relatively to the anvil, and a gage entirely surrounded by the operative faces of the hammer and extending into engagement with the anvil for guiding edge portions of work presented between the anvil and hammer.

3. A machine for operating upon shoe part blanks comprising an anvil, a hammer mounted for reciprocation relatively to the anvil, the anvil having a recess therein, and a gage pin extending through the hammer into the recess, and means for moving the gage pin out of the recess to provide for the location of work between the hammer and anvil.

4. A machine for operating upon shoe part blanks comprising a plurality of presser members movable toward and away from each other in applying pressure to shoe part blanks having cut-out openings, a gage extending through the operative faces of the presser members, and means for moving the gage relatively to the members to provide for the location of the shoe part with a cut-out opening surrounding the gage and edge portions thereof located in operative position between the members.

5. A machine for operating upon shoe part blanks comprising an anvil and a hammer provided with surfaces arranged to cooperate in applying pressure to a blank, a gage normally extending through the hammer and anvil within the limit of the surfaces, and means for moving the gage into inoperative position to provide for the location of an opening in the blank with the edge portions in alinement with the surfaces.

6. A machine for operating upon shoe part blanks comprising an anvil having a frusto-conical work engaging surface, a hammer cooperable with the anvil to apply pressure to a blank, and a work gage extending through the operative face of the hammer and within the frusto-conical surface.

7. A machine for operating upon shoe part blanks comprising an anvil having a recess therein, a gage extending into the recess, a rod operatively connected to the gage and movable heightwise of the anvil for removing the gage from the recess, a block slidably mounted upon the rod, a hammer carried by the block and surrounding the gage, and means for reciprocating the block to produce oscillations of the hammer relatively to the anvil.

8. A machine for operating upon shoe part blanks comprising a frame, an arm carried by the frame and mounted for pivotal movement about an axis, an anvil carried by the arm and positioned in alinement with the said axis, a hammer mounted for movement toward and away from the anvil, and a gage member extending between the hammer and anvil along said axis.

9. A machine for operating upon shoe part

blanks comprising an anvil having a frusto-conical work engaging surface, a hammer, means for causing relative movement between the hammer and anvil, and a gage pin positioned within the work engaging surface and extending axially of the anvil between the hammer and anvil.

10 5 10. A machine for operating upon shoe part blanks comprising an anvil, a hammer, a gage having portions positioned within the operative faces of the hammer and anvil and having a work engaging surface extending between the operative faces, and means for moving the gage in an axial direction to provide for insertion of work between the hammer and anvil.

11. A machine for operating upon shoe part blanks comprising cooperating hammer and anvil members, means for producing relative movement between the members to effect a pressure applying operation upon a blank, one of the members having a flat work engaging surface and the other of said members having a frusto-conical work engaging surface, and a gage extending from one of the members to the other and completely surrounded by the work engaging surfaces.

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