W. J. YOUNG.

MACHINE FOR FORMING OUTTURNED SHOE UPPERS.

APPLICATION FILED NOV. 4, 1908.

1,165,482.

Patented Dec. 28, 1915.

2 SHEETS—SHEET 1.

Fig. 2

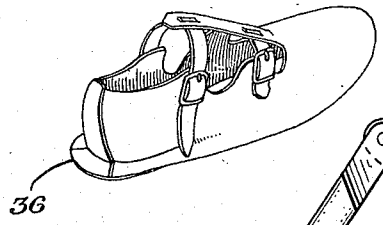


Fig. 1

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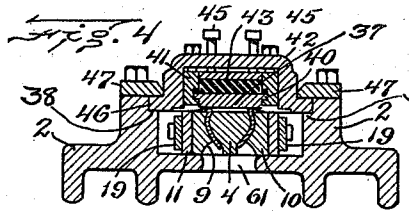


Fig. 4

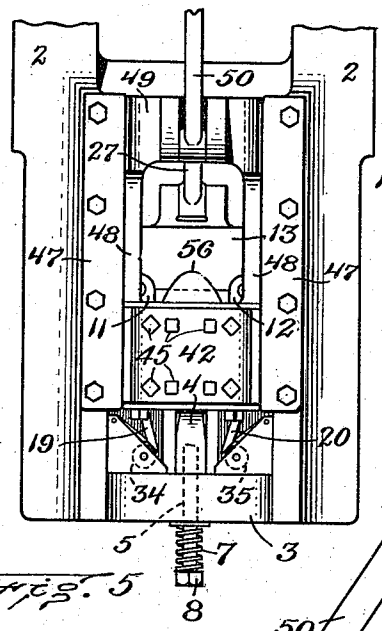


Fig. 5

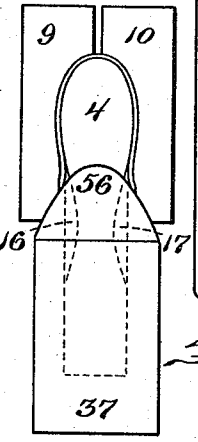


Fig. 7

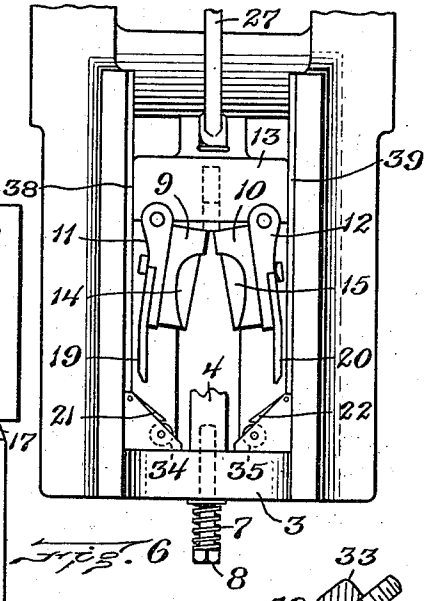


Fig. 6

Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM J. YOUNG, OF LYNN, MASSACHUSETTS, ASSIGNOR TO W. J. YOUNG MACHINERY COMPANY, OF LYNN, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR FORMING OUTTURNED SHOE-UPPERS.

1,165,482. Specification of Letters Patent. Patented Dec. 28, 1915.

Application filed November 4, 1908. Serial No. 461,026.

To all whom it may concern:

Be it known that I, WILLIAM J. YOUNG, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Forming Outturned Shoe-Uppers, of which the following is a specification.

This invention relates to a machine for molding shoe uppers, especially the heel parts of the same, with the edge which is attached to the boot or shoe sole turned outwardly. Heretofore in making shoes in which the sole is attached to the upper by outward flanges on the upper, or "outturned uppers", it has been the practice to turn out the edges of the upper, by which the attaching flanges are formed, by hand.

Accordingly my invention has for its object to provide a machine capable of performing the work hitherto done by hand, that is, of forming boot and shoe uppers with outwardly turned flanges for attachment to the sole of a boot or shoe.

The invention consists in the instrumentalities constructed, arranged and operating according to the principles set forth in detail in the following specification and more particularly pointed out in the claims.

Of the accompanying drawings, Figure 1 represents an elevation of a counter molding machine, showing the preferred embodiment of the principles of my invention. Fig. 2 represents a perspective view of a shoe upper having an outwardly turned edge at the rear or counter portion thereof, the same being the product of this machine. Fig. 3 represents a longitudinal section of the machine, showing the parts in the position they occupy when a counter is operated upon. Fig. 4 represents a cross-section of the counter mold and flange former, taken on line 4—4 of Fig. 3. Fig. 5 represents a plan view of the same. Fig. 6 represents a plan view of the female mold and the parts by which it is operated, the machine being represented as having the edge turner and presser and its guides removed and the male mold or last broken away. Fig. 7 represents a plan view showing the relative positions of the molds, the counter blank, and the presser at the beginning of the operation of turning out the edge of the counter.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, the frame of the machine is represented by 1, upon which are supported inclined bars 2 connected at the front of the machine by a cross-piece 3. Supported by the cross-piece 3 between the members 2 is a male mold or last 4 which is fastened to a bolt 5 passing through an aperture 6 in the cross-piece 3, and is held against the latter by a spring 7 acting against the head 8 of the bolt. The female mold or mold proper consists of two parts 9 and 10 secured to levers 11 and 12 which are pivoted upon a cross head 13. The parts 9 and 10 of the mold are recessed at 14 and 15 in their adjacent inner sides, these recesses together forming a mold which, when the members 9 and 10 are pressed toward each other, is of the shape of the counter or rear portion of a shoe upper. The last or male mold 4 is shaped at its end and sides so as to correspond with the contour of the recesses 14 15 to coöperate with the female mold in giving the shape to the upper. The sides of the last are recessed, as shown by dotted lines at 16 and 17, so that the sides of the upper at the shank of the shoe may be brought inward nearer together than they are at the heel portion.

The male mold or last is normally stationary and abuts against the cross-piece 3 of the frame. The female mold is brought down to the last and its members moved inward to bend the heel portion of the upper around the last, by means of stiff spring fingers 19 and 20 which project beyond the ends of the levers 11 and 12 and are brought against inclined wedge members 21 and 22. The reciprocating movement necessary to carry the mold from the position shown in Fig. 6 to that in Figs. 3 and 5, is given by a cam 23 acting through a roll 24 upon a rod 25, which latter is connected to the knuckle 26 of a toggle joint 27 28. The abutment for the toggle is a plunger 29 which thrusts against a spring 30 held by a bolt 31 and adjusting nut 32 which bears against a cross bar 33 at the upper and rear end of the machine. When the mold is in the closed position, the ends of the fingers 19 and 20 are held against rolls 34 35.

The upper or outermost surfaces of the molds 4 9 and 10 are flat and lie all in the same plane, and when a shoe upper, with or without a counter stiffener between its quarter and lining is clamped between them, its edge, which is adapted to lie nearest the sole

of the boot or shoe, projects somewhat above this plane. The means for bending this edge outward so as to form the outwardly-projecting flange 36, consists of a presser or bender 37 which is arranged to reciprocate in guides 38 39 in a plane parallel with the upper surfaces of the molds, and removed therefrom by a distance equal to the thickness of the edge of the counter.

The presser or bender 37 is provided with ribs 40 at its opposite sides which are contained in grooves in a frame 41 (see Fig. 4), which frame is mounted in a carriage 42 and carries also an elastic pad or cushion 43 and a backing plate 44 which is pressed down upon the pad with more or less force by adjusting screws 45 so as to regulate the force with which the presser is caused to bear against the edges of the blank after it has bent the same over. The carriage 42 has flanges 46 which run in the guides 38 39 and are held therein by retaining strips 47. The side members 48 of the carriage extend to a cross head 49 to which is connected a link 50, the latter being pivoted to a bell-crank lever 51 having an arm 52 to which is pivoted a connecting rod 53 having a roll 54 which enters the groove of a positive cam 55.

As shown in Figs. 3, 5 and 6, the flange presser 37 has one end 56 formed as a rounded blunt end, and when not in operation, the presser is normally held in front of the molds with its blunt end extending in the same direction as the last 4 and pointing toward the curved rear end of the latter and the bottom of the recess 14 15 in the female mold. It is caused by its operating mechanism to reciprocate in the same direction as the cross head 13 carrying the members 9 10 of the mold is moved. Both the cams 55 and 23 are mounted upon the same shaft 57, which is driven from a counter shaft 58 through a pinion 59 and gear 60. These cams bear such an angular relation to each other that when the machine is at rest, the members of the mold are separated from one another and the presser is at its greatest distance in front of the mold, leaving the latter uncovered so as to receive an upper between them. After insertion of an upper, this being accomplished through the space between the sides 48 and the parts 42 49 of the carriage, the machine is set into motion. The first part of the operation of the machine is effected by the cam 23 and causes the members of the mold to be closed about the last, shaping the counter portion of the upper and holding it in position to be operated on by the presser. A long dwell of the cam 23, extending nearly through 180°, as shown by dotted lines in Fig. 1, holds the molds while the presser is carried over them. In its movement, the presser advances toward the open end of the socket in the female mold, its wedge-shaped end 56 entering between the ends of the U-shaped blank. As it progresses toward the rear end of the blank, it forces the edge thereof which projects from the molds outward and lays it against the plane surface of the female mold. The elastic pad 43 allows the presser to yield as it passes over the edge of the upper, and at the same time presses it firmly against the same so as to give a permanent set to the flange 36, which is made by so laying over this edge. The presser remains in the position shown in Fig. 3, holding the overturned edge while the dwell from *a* to *b* of the cam 55 travels past the roll 54. The presser is then retracted, the female mold withdrawn, and the upper is released so that it falls through an opening 61 between the members 2 of the frame. When the members 9 10 of the mold are withdrawn, they are separated from one another by a pin 62 which is pressed against them between the pivots of the levers 11 and 12 by a spring 63.

I claim:—

1. A machine for forming outwardly turned flanges on shoe uppers comprising a stationary last adapted to fit the interior of the upper, a mold consisting of two separable members having cavities which together correspond to the form of the last and are adapted to contain a shoe upper placed on the last, a slide to which said mold members are pivoted and from which said members extend toward the last, said slide being movable in line with the last, mechanism for moving the slide forcibly toward the last, inclined guides located at each side of the last arranged to act upon the mold members when the latter are moved toward the last to force them against the sides of the last, a flange presser, a carriage to which said presser is attached, arranged when in the normal position of rest to hold the presser over the last in a position in front of the mold, said presser having a wedge-shaped end projecting in the same direction as the operative end of the last and toward the mold, and mechanism for moving said carriage in the direction in which the wedge-shaped end of the presser extends.

2. A machine for forming outwardly-turned flanges on shoe uppers, comprising a male mold having a rounded end and recessed sides, a two-part female mold having curved interior surfaces corresponding in form to the exterior of the male mold, means for separating said molds and for bringing them together and causing the parts of the female mold to embrace the male mold, whereby a portion of an upper may be shaped and clamped between said molds with an edge projecting above said molds, a presser having a wedge-shaped end, arranged with its wedge-shaped end pointing in the same direction as the male mold, a

carriage for said presser, said carriage having an opening arranged to give access to the molds, when the machine is at rest with the molds separated and means for reciprocating said carriage in such a manner as to cause the end of the presser to enter between the sides of the upper clamped between the molds and force said projecting edge outward over the female mold.

3. A machine for forming outwardly-turned flanges on shoe uppers, comprising a male mold having a rounded end and recessed sides, a two-part female mold having curved interior surfaces corresponding in form to the exterior of the male mold, said molds being relatively movable in the direction of length of the male mold to shape and clamp an upper between them, means for bringing the parts of the female mold toward the sides of the male mold when said molds are moved relative to each other, a presser normally held away from said molds in the direction toward which the mouth of the recess in the female mold is directed and having a wedge-shaped end extending toward the inner end of said recess, a carriage for said presser overlying the molds in the normal position of rest, and having an aperture to give access to the molds, and mechanisms for relatively moving the molds and reciprocating the presser, said mechanisms being operable first to clamp an upper and then to bring the wedge-shaped end of the presser between the sides of the upper toward its curved end, causing the presser to rub over the edge of the blank and bend the same outward.

4. A machine for the purpose specified, comprising molds coöperating to grip the end of a shoe upper with its edge projecting, a carriage guided to travel across such projecting edge, a presser plate secured on said carriage on the side thereof next to the molds, and automatic mechanism for reciprocating said carriage, arranged to bring the carriage to rest in a position overlying the molds and with the presser plate in front of the location of the heel end of an upper, and the carriage having an opening through it to admit an upper to the molds.

5. An upper molding machine including in combination with a last and a two-part mold having cavities formed to fit the exterior of an upper placed on the last, a carriage guided to travel over the faces of the last and mold, a presser plate loosely mounted in such carriage adjacent to the faces of the last and mold, and regulatable yielding means arranged to bear on said presser plate and force the same with a regulated yielding pressure toward the last and mold.

6. A machine for turning out the edge of a shoe upper comprising a stationary last adapted to fit the interior of one end of a shoe upper, a carriage guided to travel in line with the last toward and from an operative end thereof, a two-part mold consisting of members pivoted to said carriage and having cavities shaped to fit the exterior of an upper which has been placed on said last, means for moving said carriage toward the last far enough to place the members of the mold at opposite sides of the last, means for pressing the members of the mold toward the last when in this position, a wedge presser having a wedge-shaped end, normally placed in a location forward of the open front end of the mold with such wedge-shaped end projecting toward the back of the mold, and means for moving said presser with its wedge-shaped end foremost from a point in front of the operative end of the last toward and beyond such operative end.

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

WILLIAM J. YOUNG.

Witnesses:
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P. W. PEZZETTI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."