

E. A. TRIPP.  
HEEL BUILDING MACHINE.  
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1,025,551.

Patented May 7, 1912

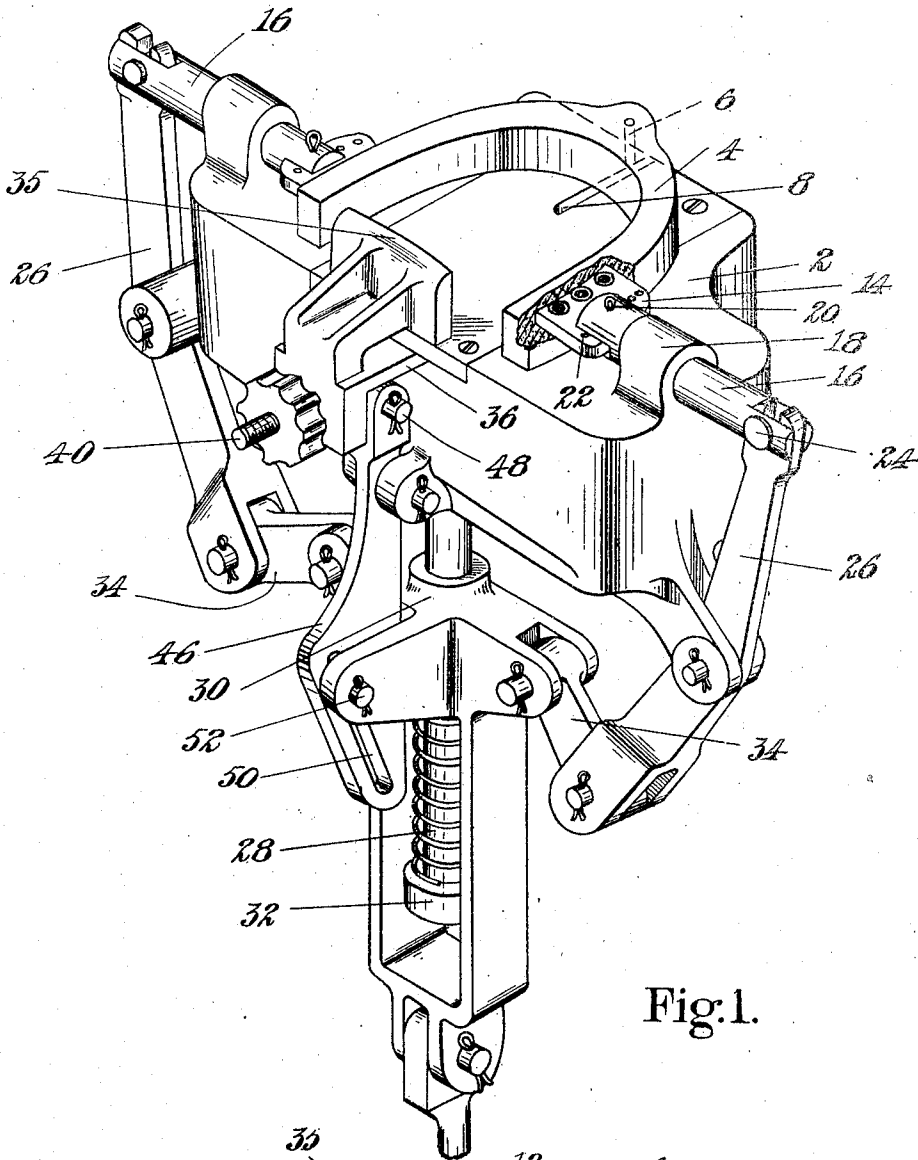


Fig. 1.

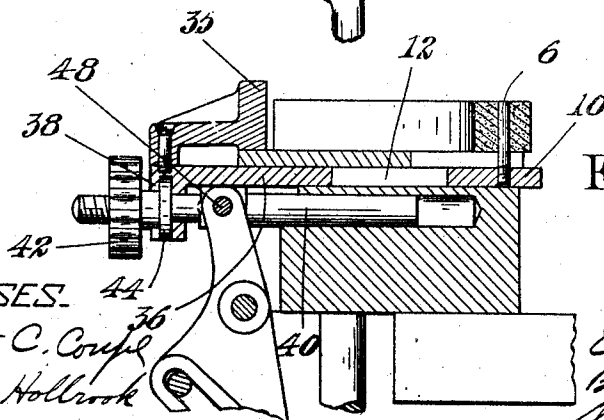


Fig. 2.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## HEEL-BUILDING MACHINE.

1,025,551.

Specification of Letters Patent.

Patented May 7, 1912.

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*To all whom it may concern:*

Be it known that I, ELIPHALET A. TRIPP, a citizen of the United States, residing at Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Heel-Building Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to heel building machines and has for its object to provide an improved machine of this class.

The invention is shown embodied in a machine wherein lifts to form a heel are assembled within a mold, the walls of which are in part constituted by a form constructed in one continuous piece of yielding elastic material and shaped to embrace the heel lifts at their sides and curved ends, and in part by a breast gage which cooperates with the form to provide a lift-receiving space. In the use of machines of this construction the mold is contracted laterally by mechanism having engagement with opposite sides of the form and said mold is contracted longitudinally by movement of the breast gage. It will be understood that by means of this arrangement the lifts are centered and held in proper relation while they are secured together.

The opening and the closing movement of the sides of the form is effected by members connected to said sides adjacent to the breast ends of the form, said members being arranged for simultaneous actuation in opposite directions. In a machine of this type it is desirable that the sides of the form be pressed against the lifts by pressure applied at the proper point in the length of the form to insure that the sides of the form, which are longitudinally flexible, will have engagement with the lifts throughout substantially the entire length of said lifts. A feature of the present invention accordingly consists in an arrangement whereby the point of application to the form of the laterally closing pressure may be shifted longitudinally of the form to suit heels of different sizes or contours. In the construction shown this result is secured by adjusting longitudinally of the form the connection between the sides of the form and their actuating members. According to a convenient construction, the

actuating members are arranged for movement in fixed paths and the form is adjusted bodily in the direction of its length to secure connection with said members at the desired points.

A further feature of the invention consists in arranging the breast gage for adjustment longitudinally of the mold. This adjustment may be effected independently of that given the flexible form and permits the breast gage to be given the precise position necessary to shift the lifts longitudinally into symmetrical relation. The breast gage is preferably formed with a rigid lift-engaging surface in order that it may exert a positioning action upon the breast edges of the lifts as it presses the lifts rearwardly of the mold cavity.

A further feature of the invention consists in means for preventing lateral displacement of the rear end of the flexible form. According to the arrangement shown, this end of the form is so controlled that it is free to move longitudinally of the mold but is held from movement laterally thereof. Liability of an objectionable distortion of the form with the consequent production of a heel of unsymmetrical contour, such as might be occasioned by lateral displacement of the rear end of the form, is thereby prevented.

Another feature of the invention consists in a novel means for securing the sides of the form to their actuating mechanism. This consists in providing the form with lugs permanently embedded in the material of the form and adapted to be connected with said actuating mechanism.

The invention also consists in certain features of construction and arrangements of parts which will be hereinafter described and defined in the appended claims.

In the drawings which illustrate the preferred embodiment of the present invention,—Figure 1 is a perspective view of my improved heel building machine; Fig. 2 is a sectional view taken longitudinally of the mold cavity.

Referring to the drawings, 2 is a table having a U-shaped form 4 arranged upon its work-supporting surface. The form 4 is constructed of soft, vulcanized rubber and its inner face conforms approximately in inclination to the pitch of the heels to be assembled. A vertical pin 6 extending

through a slot 8 arranged in the table longitudinally of the mold cavity is secured at its lower end to a slide 10 mounted in a guideway parallel with said slot. The pin 5 6 is arranged to be detachably engaged by the center of the rounded end of the form which is provided with an opening to receive said pin. A lug 14 is embedded in each arm of the rubber form and is provided with 10 openings into which the rubber extends as shown in Fig. 1, in order to hold the lug securely in its embedded position. If desired, projecting pins may be formed upon each lug to assist in retaining it within the 15 rubber. Each lug 14 is pivotally connected with a slide 16 mounted in a guideway 18 on the table by means of a detachable pin 20 carried by the slide and extending through one of a series of openings 22 in the lug. With this arrangement it will be 20 observed that the points of connection between the form and the slides 16 may be varied to correspond with the size of heel to be built and, whenever desired, a new 25 form of different shape or size may be readily substituted for the original one.

Each slide 16 is provided with a vertical slot in its outer end and a horizontal pin 24 30 extends through said slot. A lever 26 is pivoted upon each side of the table 2 and a slot is formed in the upper end of each lever and arranged to engage one of the pins 24. A vertical rod 28 is secured at its upper end in the table 2 at a point centrally of the 35 points of pivotal support for the levers 26, and a head 30 is mounted for sliding movement upon this rod and arranged to be depressed by a suitable treadle. A coil spring mounted upon the rod 28 and engaging at 40 its upper end the head 30 and at its lower end a collar 32, adjustably secured upon the rod, tends to hold the head in its upper position. Upon each side of the head 30 is 45 pivoted at its upper end a toggle link 34 and each link has its lower end pivotally connected with one of the levers 26. As will be apparent from the drawings, the arrangement is such that in the downward 50 movement of the head the levers are moved equally in opposite directions, thus moving together the two sides of the form 4.

A breast gage 35, having an unyielding lift-engaging surface, is secured upon the 55 outer end of a plate 36 that is arranged to slide in the guideway 12. The plate is provided with a depending flange 38 having a horizontal opening through which extends the threaded end of a slide 40 arranged in a suitable guideway for movement longitudinally 60 of the mold. A nut 42, adapted to be manipulated by the operator, is mounted upon the threaded end of the rod and is provided with a circular flange 44 arranged to engage a vertical recess formed in the 65 depending flange 38. It will be seen with this

construction that the position of the breast gage with relation to the slide 40 may be varied to suit heels of different lengths.

A lever 46 pivoted between its ends on the front of the table 2 has a yoke at its 70 upper end provided with openings arranged to engage the ends of a pin 48 extending through the slide 40. The lower end of the lever 46 is provided with an inclined cam slot 50 arranged to receive a pin 52 carried 75 by ears secured to the head 30. The cam slot is so inclined and arranged that depression of the head causes the breast gage to be moved inwardly toward the rear of the mold and upward movement of the head 80 causes the breast gage to be moved away from the mold.

Preliminary to use of the machine shown, the parts of the mold are adjusted to accommodate the size and the contour of the particular heels to be assembled. To this end the 85 connections between the sides of the form and their actuating slides are adjusted into proper position longitudinally of the form to secure the best results. This position may 90 be determined by trial and varies with the size and contour of the heels to be built. It will be understood that since the sides of the form are longitudinally flexible they may conform to the curvature of the sides 95 of the lifts, even though that curvature is different from the normal curvature of the sides of the form. To insure that the form will be pressed into even engagement with the lifts throughout their entire length, it is 100 important that the closing pressure be applied to the form at points so chosen as to bend the sides of the form into conformity with the lifts in case the normal curvature of the form differs from the contour of the 105 lifts. Furthermore it will be seen that if the points of connection between the form and its actuating mechanism were in advance of the breast corners of the heel, the sides of the form at points back of the breast 110 instead of being pressed into engagement with the heel by the pressure applied to the form might be bent outwardly away from the heel about the breast corners as fulcrums. For 115 reasons such as the foregoing the adjustment permitted said connections is of advantage in securing a symmetrical positioning of the lifts.

After the connections between the form and the actuating slides have been properly 120 adjusted by trial, the breast die is adjusted longitudinally of the form into such position that when the mold is closed the lifts will be pressed firmly into engagement with the curved end of the form. As will be ob- 125 vious, the breast die may be conveniently adjusted from time to time to secure the best results. The breast die is of advantage not only in that it insures close contact between the walls of the mold and the ends of the 130

heel, but also in that it tends to bring the lifts into such relative position that their breast edges are parallel. This is due to the fact that the face of the die is rigid and by its engagement with the lifts thus tends to position their breast edges in a parallel relation.

In the use of the machine, the lifts to be assembled are successively introduced into the mold and their contacting surfaces covered with paste. The mold is closed upon the lifts as each lift is introduced and thus shifts the lifts into symmetrical relation. In the opening and closing of the mold the curved end of the flexible form moves longitudinally of the mold and is guided in such movement by the slide 10. The curved end of the form is thus prevented from lateral displacement such as might be occasioned, for example, by an irregularity in contour of the lift. This feature is of advantage in facilitating the production of heels of a symmetrical contour, since if the form is distorted laterally it causes the lifts to be assembled in an unsymmetrical relation. After the heel has been built to a desired height, the lifts are secured together by one or more nails and the completed heel is then removed from the mold.

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

1. A heel building machine, having in combination, a flexible U-shaped form arranged to provide a lift-receiving space and means for closing the form upon a plurality of lifts by pressure applied to its opposite sides at predetermined points in the length thereof constructed and arranged to permit the points of application of said pressure with respect to the length of the form to be varied.

2. A heel building machine, having in combination, a flexible U-shaped form arranged to provide a lift-receiving space, means for pressing the sides of the form inwardly against the lifts being assembled, and means for guiding the curved end of the form for movement in the direction of the length of the lift-receiving space.

3. A heel building machine, having in combination, a flexible U-shaped form arranged to provide a lift-receiving space, means for pressing the sides of the form against the lifts being assembled, a breast die arranged for movement longitudinally of the lift-receiving space, and means for positively moving said die toward the rear of the form simultaneously with the closing movement of the sides of the form.

4. A heel building machine, having in combination, a U-shaped form of flexible material arranged to provide a lift-receiving

space, means for pressing the sides of the form against the lifts being assembled, a breast die arranged for movement longitudinally of the lift-receiving space, means for positively moving the die toward the rear of the form simultaneously with the closing movement of the sides of the form, and means for adjusting the extent of rearward movement of said die independently of the actuation of the form.

5. A heel building machine, having in combination, a table provided with a flexible U-shaped form on its work supporting surface arranged to embrace a heel at its sides and curved end, guideways arranged on opposite sides of said surface, slides in said guideways having their inner ends connected with said form, levers pivoted between their ends on said table having ends connected with said slides, means for imparting equal movement to said levers and means for guiding the curved end of the form for movement in the direction of the length of the lift receiving space.

6. In a heel building machine a table provided with a contractile form on its work supporting surface, levers pivoted between their ends on the sides of said table and arranged to actuate said form, a guideway in said table extending longitudinally of said form, a slide in said guideway, a breast gage arranged for movement with said slide, a lever, having a cam slot, pivoted on the front of said table and arranged to actuate said slide, and means for imparting simultaneous movement to each of said levers comprising a movable head provided with toggle links arranged to transmit motion to said side levers and a pin carried by said head arranged to engage the cam slot in said front lever.

7. In a heel building machine, the combination of a form constructed of a continuous piece of flexible material arranged to provide a lift receiving space, the sides of said form being relatively movable transversely and the rear end being freely movable longitudinally of the lift receiving space, means for effecting relative movement of the sides of the form to press them against the edges of the lifts being assembled, a breast die having a rigid lift engaging surface for forcing the lifts rearwardly into the form, and means for positively moving said breast die longitudinally of the form.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELIPHALET A. TRIPP.

Witnesses:

BERNARD BARROWS,  
ALLAN H. BARROWS.