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LASTING MACHINE FOR PREWELT SHOES

Original Filed Sept. 10, 1938

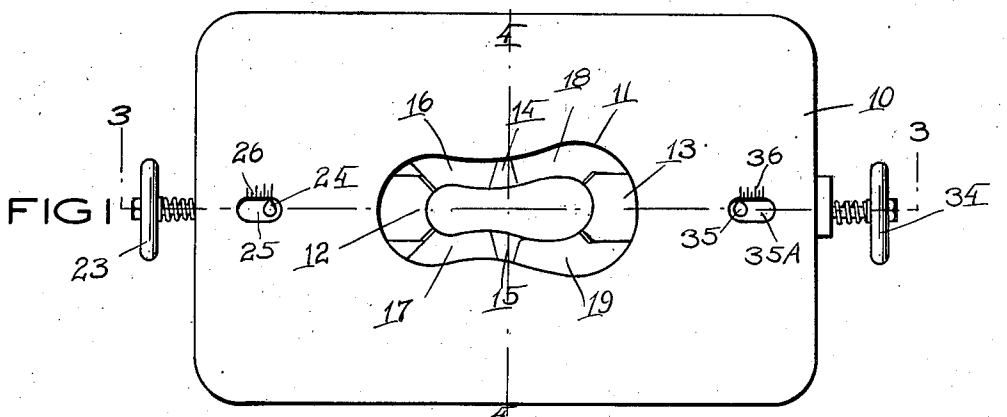



FIG 1

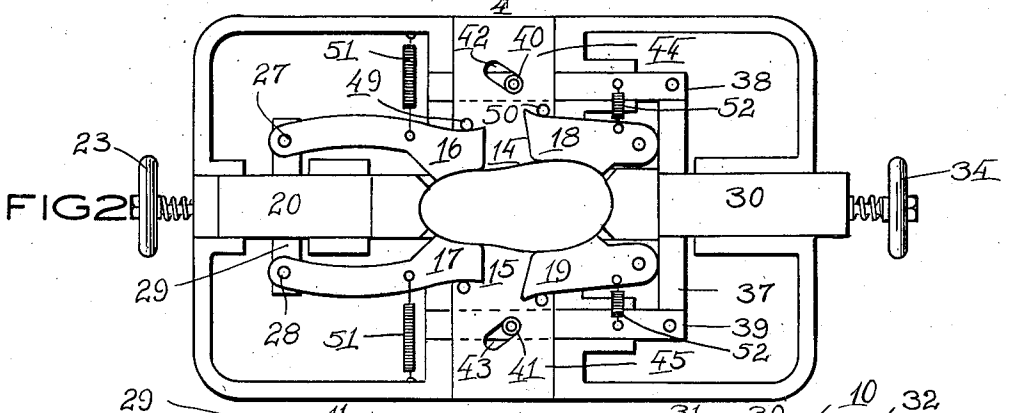



FIG 2

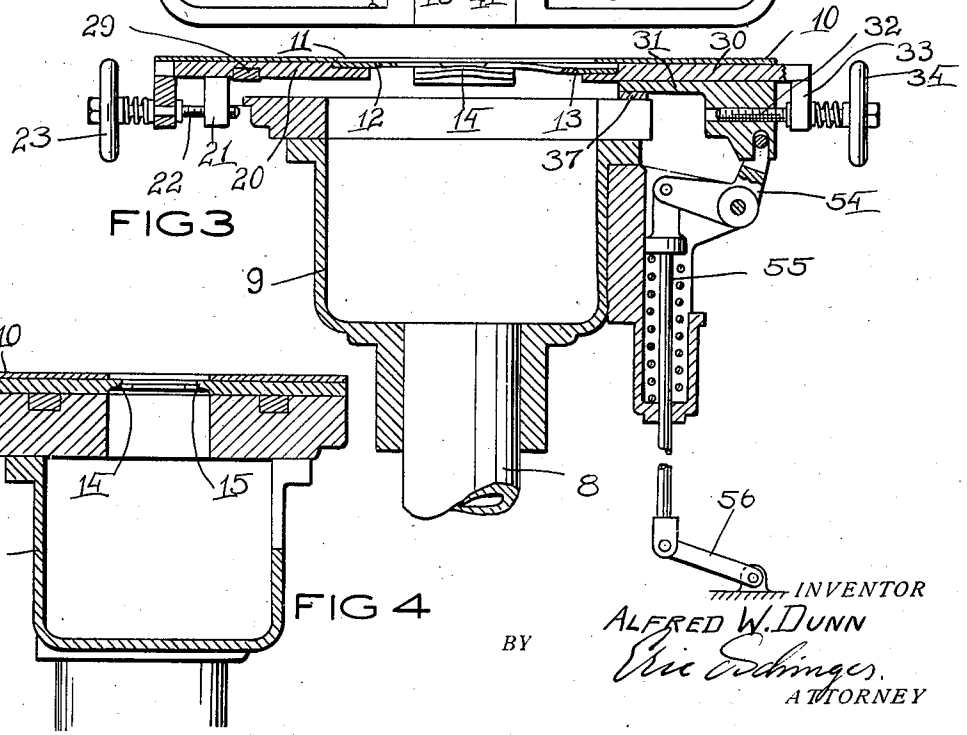



FIG 3




FIG 4

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## LASTING MACHINE FOR PREWELT SHOES

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12 Claims. (Cl. 12—7)

This application is a division of my prior application Serial No. 163,213 filed September 10, 1938, which issued as Patent No. 2,185,941 on January 2, 1940 and the invention disclosed herein relates to the manufacture of shoes and more especially to the lasting operation of pre-welt shoes prior to the attachment of a sole to the welt and one of the objects of the invention is to provide novel means for operating a plurality of wipers so as to provide an substantially maintain during their movement a continuity of the outline provided by the edges of the wipers for the engagement into the welt crease for the lasting operation and the support of the lasted shoe for the attachment of the sole thereto.

Another object of this invention is to provide novel means for the operation of a complementary wiper in conjunction with the operation of two master wipers.

A further object of this invention is to provide novel operating means for a complementary wiper so as to link its movement with that of two master wipers which operate substantially at right angles to each other.

All these and other objects and attendant advantages of this invention will become more clearly apparent from the detailed description thereof which follows, reference being had to the accompanying drawing in which

Figure 1 is a top plan view of the pre-welt lasting machine.

Figure 2 is a top plan view of the machine with the cover plate removed from it.

Figure 3 is a longitudinal sectional view of the machine taken on the line 3—3 of Figure 1.

Figure 4 is a transverse sectional view of the machine taken on the line 4—4 of Figure 1.

The apparatus, forming the subject matter of this invention is especially adapted for use in lasting pre-welt shoes by drawing the pre-welted portion of the upper over the edge portion of the bottom of the last in accurate conformity with the outline of the last. The apparatus is supported on a suitable standard 8 and includes a housing or hollow frame 9 with a cover plate 10 at the top thereof. The latter provides a table top with an opening 11 having preferably the enlarged shape of the bottom of the last in order to permit the lasting of varying sizes of shoes within this opening.

Located in this opening directly below the table top are the wipers which present their edges within the opening so as to form a continuous supporting ledge having an enlarged outline of the bottom of the last over which the upper is drawn in the lasting operation. During this operation all but the heel wiper are moved in drawing the welt over the last to thus support the welt on the ledge formed by the wipers while the upper and last are held clamped between them.

The wipers include the adjustable but otherwise fixed heel wiper 12, the adjustable and sliding toe wiper 13, the adjustable and sliding side wipers 14 and 15, which latter are jointly operated with the toe wiper and are adjustable relative to each other and the normally fixed heel wiper 12. Supplementary wipers 16 and 17 are located between the side wipers 14 and 15 and the heel wiper 12, are operatively connected with the heel wiper 12 so as to be adjustable therewith and are operatively connected with the side wipers. In this way these supplementary wipers are operated on the movement of the side wipers to maintain a connecting edge between the edges of the heel wiper and the side wipers. Additional supplementary wipers 18 and 19 are located between the toe wiper 13 and the side wipers 14 and 15 and these supplementary wipers are operatively connected with both the toe wiper and side wipers so as to be adjustable therewith and move relative thereto to maintain a connecting edge between the edges of the toe wiper and the side wipers.

The heel wiper comprises a plate member with a segmental recess formed in the end thereof and the edge of the recess is beveled for engagement into the welt crease formed around the upper by the attachment of the welt thereto. The heel wiper is carried by the slide 20 which is adjustably mounted for endwise movement in the top of the frame below the cover plate 10 thereof. A lug 21 is carried on the underside of the slide 20 and has the feed screw 22 threaded thereinto. The latter is journaled and held against endwise movement in a bearing provided on the frame so that the rotation of the hand wheel 23 keyed to the screw causes the heeled wiper to be adjustably moved endwise for the predetermined location of this wiper for predetermined sizes of shoes to be lasted by the apparatus and held lasted until the sole is attached to the welt of the upper. A pointer 24 is carried by the slide 20 at the top thereof and within the opening 25 in the cover plate 10 to indicate on the scale 26 provided along one edge of the opening the size for which the heel engaging member may be adjusted.

The complementary wipers 16 and 17 are mounted to swing at 27 and 28 on the cross bar 29 which is carried by the slide 20 so as to move

therewith. In this way these complementary wipers are adjusted with the heel wiper for operation on different sizes of shoes.

The toe wiper 13 is adjustable as well as movable and comprises a plate with a segmental recess at the outer edge for engagement into the welt crease formed around the upper by the attachment of the welt thereto. The plate is suitably fastened to the slide 30 so as to form a part thereof. The slide is carried by the guide member 31 and moves therewith when the latter is moved in the frame 9. Adjustment of the slide 30 on the guide member 31 is provided by the adjusting screw 32 which is journaled and held against endwise movement in the lug 33 carried by the slide 30 and is threaded into the guide member so that the rotation of the screw by means of the hand wheel 34 causes the slide to move on the guide member for adjustment of the toe wiper 13 and the complementary wipers 18 and 19 to the particular shoe size which is to be lasted by the apparatus. The complementary wipers are mounted to swing to one side of the toe wiper on suitable lateral projections of the plate forming the toe wiper.

A pointer 35 is carried by the slide 30 so as to project thru the opening 35A in the cover plate and indicates on the scale 36 along one side of the opening the size shoe for which the toe wiper is adjusted to perform its lasting operation. The adjustment is made so that the indication corresponds to that given by the pointer 24 on the scale 26 in order to have both the heel wiper and toe wiper with the side wipers and the complementary wipers adjusted for the same shoe size.

The side wipers 14 and 15 which engage into the welt crease at the sides of the shoes for the lasting operation are preferably made to operate in conjunction with the toe wiper 13 and its complementary wipers 18 and 19 and for this purpose are jointly operated, as for example by means of the cross member 37 carried on the under side of the guide member 31 and the slides 38 and 39 which are connected to the cross member at the ends thereof. The slides are suitably guided in a straight line motion and carry the rollers 40 and 41 respectively which project into the cam slots 42 and 43 provided in the transversely moving slides 44 and 45 respectively. In this way the endwise movement on the slides 38 and 39 by the guide member 31 to the left in Figure 2, causes the slides 44 and 45 to move transversely thereto so that the side wipers are moved inwardly for engagement into the edge of the welt and the lasting operation which draws the upper of the shoe over the bottom of the last at the edges thereof.

In order that the complementary wipers 16 and 18 cooperate with the side wiper 14 and the complementary wipers 17 and 19 cooperate with the side wipers 14 and 15 respectively in addition to their cooperation with the heel and toe wipers as above described, the complementary wipers are operatively connected with the side wipers so that the movement of the side wipers causes the complementary wipers to move and draw the shoe upper over the edge portions of the last intermediate the toe and side wipers and the heel and side wipers.

The movement of the guide member 31, which, as above pointed out, brings about the movement of the wipers except that of the heel wiper 12 for the purpose of drawing the upper and welt in place over the last prior to the attachment of the outer sole to the welt is provided by the bell crank 54, link 55 and treadle 56. The latter is suitably mounted at or near the base of the upright 8 and by stepping on it the link 55 is pulled down against the pressure of the spring 57 which surrounds the upper end thereof and acts to return the mechanism to its normal starting position after the treadle is released. The link 68 is pivotally attached to one end of the bell crank 54 while the other end of the bell crank engages into the bifurcated end of the lug 58 which depends from the guide member 31. Depressing the treadle thus swings the bell crank to move the guide member so as to cause the wipers to engage the welt crease of the upper placed into the apparatus and draw the upper with the welt over the edge portion of the last. The treadle is held depressed to hold the upper in this position to solidly support the welt on the ledge formed by the wipers while an outer sole is cemented thereto.

Such an operative connection is provided by the pins 49 and 50 on the side wiper 14 and their engagement with the back of the complementary wipers 16 and 18, and similar pins 49 and 50 carried by the side wiper 15 and their engagement with the complementary wipers 17 and 19. Suitable springs 51 and 52 hold the complementary wipers yielding against the pins carried by the side wipers so that the inward movement of the side wipers 14 and 15 causes the complementary wipers to swing therewith and cooperate with the side wipers and toe wiper to draw the welt and shoe upper over the edge portion of the last and hold the welt in position to have the sole attached thereto. The backs of the complementary wipers are cam shaped in order to provide the proper movement for these wipers when the pins 49 and 50 are moved to slide thereon. In the outward movement of the wipers for the release of the shoe after the sole has been applied thereto the action of the springs 51 and 52 causes the complementary wipers to follow the movements of the side and toe wipers to thus simultaneously release the upper and welt from the clamping action of all of the wipers.

The welt of the shoe overhangs the upper so that the welt rests on the edges of the wipers when the last with the upper and welt is inserted into the opening formed by the wipers in their inoperative position. Then when the wipers are moved inwardly to last the shoe, the under side of the welt is firmly supported by the edge portion of the wipers while the sole is forced or hammered thereagainst and cemented thereto.

I claim:

1. In a lasting machine for pre-welt shoes, a normally fixed end wiper, a longitudinally movable opposed end wiper, opposed laterally movable side wipers between said end wipers, a pair of complementary wipers operatively mounted one on each side of said normally fixed end wiper, an additional pair of complementary wipers operatively mounted one on each side of said movable end wiper, driving means for moving said side wipers and movable end wiper inwardly, each side wiper being operatively connected with two of said complementary wipers so as to impart lateral closing movement thereto.

2. In a lasting machine for pre-welt shoes, an end wiping plate, an end slide movable longitudinally toward and from said plate and having

an opposed end wiping plate, opposed side slides movable laterally toward and from each other between said end wiping plates and each having a side wiping plate, a pair of swinging complementary wiping plates carried on either side of said first end wiper plate and extending therefrom respectively to said side wiper plates, an additional pair of complementary wiping plates carried on said end slide one on either side of said opposed end wiping plate and extending therefrom respectively to said side wiper plates, said plates collectively forming a substantially continuous closed supporting ledge about a last bottom, means for driving said end and side slides inwardly, and means operated on the movement of said side slides for engaging and laterally moving said complementary wiping plates.

3. In a lasting machine for pre-welt shoes, end wiping means including a pair of laterally swinging wipers engageable in the welt crease around opposite sides of a shoe, opposed side wipers engageable in the welt crease at opposite sides of a shoe and respectively merging with said swinging wipers to form a substantially continuous welt crease engaging outline around a continuous welt supporting ledge, means for driving said end wiping means longitudinally inwardly and for driving said side wipers laterally inwardly, cam surfaces on said swinging wipers, and means movable with each of said side wipers for respectively engaging said cam surfaces to impart lateral closing movement to said swinging wipers during inward movement of said side wipers and said end wiping means, said cam surfaces and the means movable with said side wipers being arranged to provide predetermined swinging movement of said swinging wipers relative to the straight line movement of said side wipers.

4. In a lasting machine for pre-welt shoes, a side wiper engageable in the welt crease along the shank at one side of the shoe, means for moving said wiper along a rectilinear path toward and from the side of said shoe, a swinging wiper engageable in the welt crease along the forepart of a shoe and overlying and supported by said first wiper to form a substantially continuous welt crease engaging outline, means for moving said swinging wiper bodily along a rectilinear path toward and from the end of said shoe, and an operative connection between said side wiper and said swinging wiper whereby rectilinear movement of said side wiper causes swinging movement of said swinging wiper, said connection including a cam face carried with one of said wipers for engagement with a part of the other wiper, said cam face being arranged substantially to preserve the continuity of said welt crease engaging outline during bodily movement of said wipers along their respective rectilinear paths.

5. In a lasting machine for pre-welt shoes, and wiping means including a pair of laterally swinging wipers engageable in the welt crease around opposite sides of a shoe, opposed side wipers respectively slidable along straight line paths and engageable in the welt crease at opposite sides of the shoe, said side wipers respectively underlying and supporting said swinging wipers and merging therewith to form a substantialy continuous welt crease engaging outline along a continuous welt supporting ledge, means for driving said end wiping means longitudinally and for driving said side wipers laterally inwardly, operative connections between said side wipers and adjacent end wipers to impart swinging, closing movement to the end wipers upon inward movement of the side wipers, said connections including cam surfaces carried with one of said sets of wipers for engagement with the remaining set, said cam surfaces being arranged to provide predetermined, swinging movement of said swinging wipers relatively to the straight line movement of said side wipers.

6. In a lasting machine for pre-welt shoes, wiping means for the toe and heel end of a shoe comprising an endwise movable toe wiper and a normally stationary heel wiper, two pair of moving wipers, each pair of said wipers engaging opposite sides of the toe and heel end respectively of the shoe, means for imparting a laterally swinging movement to both pair of wipers, and means for imparting an endwise movement to one pair of said wipers and to said toe wiper.

7. In an apparatus of the class described the combination of an adjustable end clamping member, a movable end clamping member opposite to and movable toward and away from said adjustable clamping member, movable side clamping members, common means for moving said side clamping members and said movable end clamping member, two pair of swinging supplementary clamping members operatively connected with said side clamping members for movement thereby relative to said adjustable end clamping member and said movable end clamping member, one of said pair of swinging clamping members being operatively connected with said adjustable end clamping member for simultaneous adjustment therewith.

8. In an apparatus of the class described, the combination of an adjustably movable end clamping member, an adjustably movable and operatively movable end clamping member opposite to and movable toward and away from said first end clamping member, operatively movable side clamping members, means for operatively moving said side clamping members and said second end clamping members, supplementary clamping members operatively connected with said first end clamping member for adjustment therewith and operatively connected with said side clamping members for movement thereby, and supplementary clamping members operatively connected with said second end clamping member for adjustment therewith and operatively connected with said side clamping members for movement thereby.

9. In an apparatus of the class described having a table top with an opening in said top, the combination of a normally fixed adjustable clamping member and a series of movable clamping members grouped within said opening to provide a substantially continuous outline, said series of movable clamping members including a member opposed to and movable toward and from said normally fixed member, means for jointly adjusting said normally fixed clamping member with two of said movable clamping members, and means for jointly adjusting said opposed member and two others of said movable clamping members with relation to said normally fixed clamping member.

10. In an apparatus of the class described as set forth in claim 9 including indicating means connected with said normally fixed clamping member and adjustable therewith, and indicating means connected with said opposed

clamping member and adjustable therewith so as to indicate the relative adjustment of the clamping members.

11. In an apparatus of the class described the combination of a slide member, means for adjusting said slide member, a clamping member fixedly carried by said slide member, a pair of clamping members mounted to swing on said slide member, one on each side thereof and relative to said fixed clamping member, a longitudinally moving slide member, a clamping member fixedly carried by said moving slide member, a pair of clamping members mounted to swing on said moving slide member, one on each side thereof and relative to said fixed clamping member of said moving slide member, a pair of transversely and oppositely moving slide members each carrying a clamping member and means connecting said transversely moving slide members with said swinging clamping members to cause said swinging clamping members to move relative to said clamping members carried by said slide members.

12. In an apparatus of the class described and as set forth in claim 11 in which said connecting means connecting said transversely moving slide members with said swinging clamping members includes cam means for variably moving said swinging clamping members relative to said clamping members carried by said slide members.

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