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WORK POSITIONING MEANS FOR UPPER FORMING MACHINES.

APPLICATION FILED JULY 14, 1919.

1,349,669. Patented Aug. 17, 1920.

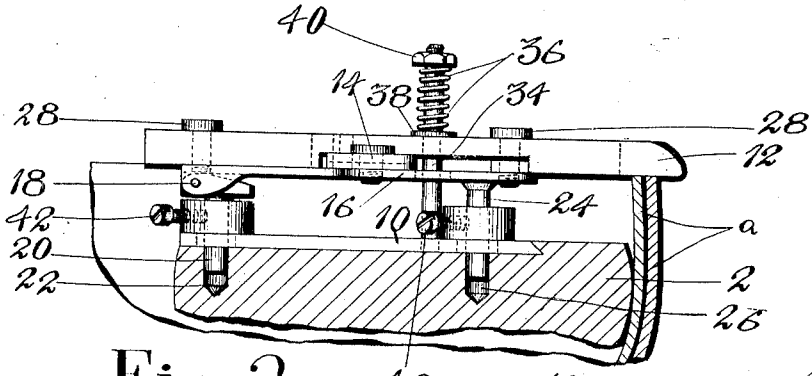


Fig. 2.

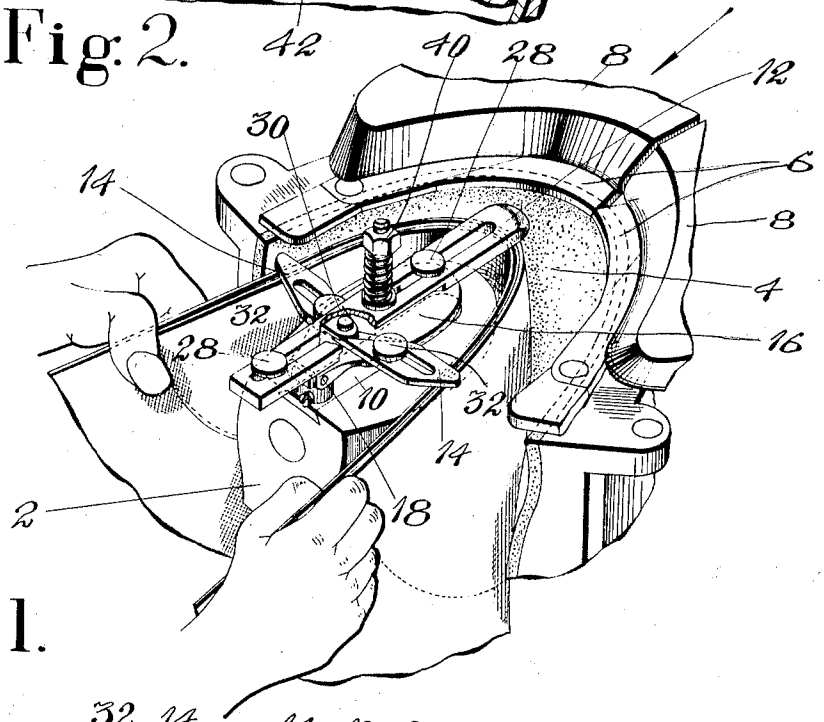


Fig. 1.

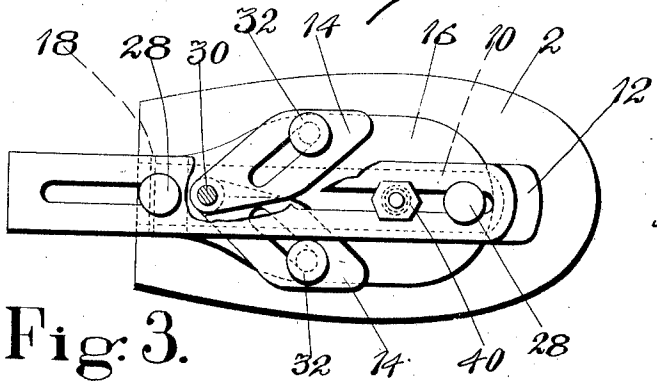


Fig. 3.

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WORK-POSITIONING MEANS FOR UPPER-FORMING MACHINES.

1,349,669. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed July 14, 1919. Serial No. 310,787.

To all whom it may concern:

Be it known that I, GEORGE J. GORSUCH, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Work-Positioning Means for Upper-Forming 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 work positioning means for upper forming machines used in the manufacture of boots and shoes, and is herein illustrated by reference to its use in a machine designed for molding the heel end portion of upper materials, although it is to be understood that the invention is not limited in utility to machines for performing molding operations nor to machines for operating on the heel end portion of the upper. It is also to be understood that the invention is not limited to use in combination with an abbreviated shoe end form as herein shown, and that the term "shoe form" as hereinafter used, unless required by the context, imports no limitation with respect to the specific character of the means over which the upper is to be shaped.

Upper forming machines heretofore in use have been provided with various devices designed to assist the operator in determining the correct relation of the upper to the form in order to provide the required width of margin to be wiped inwardly over the bottom face of the form. Such devices have been open to various objections, as opposing, for example, an obstruction to the proper manipulation of the work or to the operator's view of the work, or as failing to afford a sufficiently positive and reliable means for gaging the location of the upper. The present invention provides a novel construction and arrangement of gage mechanism so designed as to enable the operator to position the upper quickly and accurately in the correct relation to the form. The construction herein shown comprises a plurality of gage members arranged to project beyond the edge of the bottom face of the form at the end and at the opposite sides to serve as abutments for positive engagement with the edge face of the upper materials in the several locations, thus contributing to speed and accuracy in the presentation and adjustment of the work. In the illustrative construction, moreover, the several members are supported on the form for movement outwardly to operative position after the upper has been placed about the form and for return movement to an idle retracted position in response to pressure of the mechanism which wipes the margin of the upper inwardly over the form. Automatic means is thus provided for locating the gaging means initially in an out-of-the-way position whence it may be moved instantly to operative position at the required time. Still another advantageous feature of the construction shown consists in the provision of means for effecting a relative variation in the extent of projection of the margin of the upper beyond the plane of the bottom face of the form as between the end and the opposite sides of the form.

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

In the drawings,

Figure 1 is a perspective view of a portion of an upper forming machine including upper positioning means constructed in accordance with this invention,

Fig. 2 is a longitudinal vertical section through the heel end form shown in Fig. 1 with the work positioning means shown in side elevation, and

Fig. 3 is a plan view showing the work positioning means in its retracted or idle position.

For convenience the invention is herein illustrated in its application to a type of

upper forming machine such as shown in United States Letters Patent No. 1,197,439, granted on September 5, 1916, upon an application of Matthias Brock. This type of machine includes in its organization a heel end form 2 over which the heel portion of an upper *a* is to be molded, an outer form or molding device comprising a heel embracing band 4 which is closed about the upper around the end and sides of the form 2 with molding pressure, and end embracing wipers 6 which are secured to carrier members 8 and are advanced and closed inwardly by these members to wipe the margin of the upper materials over the bottom face of the form 2 and to mold them into an inwardly projecting flange. For the purposes of this invention, a supporting plate 10 which is dovetailed to slide in a guideway extending lengthwise of the bottom face of the form 2 has mounted thereon a gage member 12 which is adapted to extend over the edge of the upper materials at the rear end of the form and additional gage members 14 which are arranged to extend outwardly over the edge of the materials at the opposite sides of the form at a considerable distance from the heel end. For supporting the members 12 and 14 a plate 16 is provided, this plate being connected at one end by a horizontal pivot 18 to the head portion of a pin 20 which extends downwardly through the plate 10 and is adapted to engage in a recess 22 in the form. Near its opposite end the plate 16 rests normally upon the upper end of a pin 24 which likewise extends downwardly through the plate 10 into a recess 26 in the form. The gage member 12 is guided for lengthwise movement on the plate 16 by means of pins 28 which are fast on the plate and extend through slots in the member 12, these pins having heads which overlie the member and prevent its displacement. Midway of its length the member 12 is recessed underneath to receive the members 14 which are connected together and to the member 12 by means of a pivot pin 30. The members 14 are guided and controlled in their inward and outward movements by pins 32 which are fast on the plate 16 and project through slots in the respective members, these pins having heads which overlie the members 14 and serve as additional means to prevent their displacement. A pin 34 which is fast on the supporting plate 10 projects upward loosely through the plate 16 and through one of the slots in the gage member 12 and is provided at its upper end with a spring 36 which bears downwardly upon a washer 38 in frictional engagement with the member 12. The spring 36 thus applies pressure frictionally against the member 12 sufficient to guard against accidental displacement of the member from its operative or its inoperative position, the degree of pressure applied to the member being adjustable by means of a nut 40 on the pin 34.

It will be seen, by reference particularly to Fig. 2, that the pins 20 and 24 position the plate 16 and the supported gage members 12 and 14 at the proper distance above the bottom face of the form to permit these members by their outward projection beyond the edge of said face to serve as abutments for engagement with the edge of the upper materials and thus to determine the proper height of these materials to provide the correct width of margin to be wiped inwardly over the form. The pins are adjustably mounted in the plate 10 and in upstanding projections formed on the plate, and may be moved upwardly or downwardly to vary the height of the gage members. By relative adjustment of the pins, moreover, the plate 16 may be tipped to effect a relative variation in height between the outer end of the member 12 and the members 14, such an adjustment being sometimes desirable where the best results require a variation in the extent of projection of the margin of the upper as between the end and the sides of the form. Set screws 42 serve to retain the pins in adjusted position. It will be understood that in order to permit removal of the plate 10 and its supported mechanism from the form the pins 20 and 24 are to be raised a sufficient distance to withdraw their lower ends from the respective recesses 22 and 26.

In the normal position of the mechanism above described, prior to the use of the machine upon an upper, the gage members 12 and 14 occupy a retracted position, as shown in Fig. 3, the outer ends of these members thus being withdrawn inwardly from the edge of the bottom face of the form to permit the upper to be placed freely over the form. Having positioned the upper on the form with its bottom edge below the plane of the gage members, the operator by a quick movement pushes against the rear end of the member 12 and slides it outwardly into the position shown in Figs. 1 and 2, the members 14 being simultaneously swung outwardly by reason of their connection to the member 12 and their relation to the guide pins 32. All three members are then positioned to serve as abutments for engagement with the edge face of the upper, and by moving the latter upwardly over the form 2 the operator positions its edge against all three members which automatically determine its correct location. While holding the upper in this position, the operator starts the machine and the several molding operations are effected in the usual manner. When the wipers 6 are advanced to wipe the margin of the upper inwardly over the form, the carrier members 8 engage the outer end of the

member 12, and it may be also the ends of the members 14, and move the several members inwardly to their idle position. Automatically operative means is thus afforded for returning the gage members to the position illustrated in Fig. 3, where they remain while the work is withdrawn from the form and until after the operator has mounted another upper upon the form.

The spring 36, in addition to its function hereinbefore described, serves additionally as yieldable means against which the plate 16 and the gage members may be swung upwardly about the pivot 18 in case undue pressure is applied by the sloping front edges of the carriers 8 against the members 12 or 14 after the gage members have been forced to their limit of inward movement.

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 of the class described, the combination with a shoe form, of means for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said means being mounted for movement at the will of the operator into gaging position and for return movement to inoperative position automatically as an incident to the operation of the machine.

2. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said means being mounted on the form for movement at the will of the operator outwardly beyond the edge of said face and for return movement to an inoperative position inside of said edge as an incident to the operation of the machine.

3. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said means being mounted for movement by the operator to gaging position and for return movement to inoperative position automatically as an incident to the operation of the machine, and means for retaining said gaging means in its inoperative position until it is moved by the operator to gaging position.

4. In a machine of the class described, the combination with a shoe form, of means mounted on the form for gaging the position of an upper on said form, said means being movable at the will of the operator from a normal position out of the path of the upper in its movement over the form to an operative position in which it projects across the edge face of the upper.

5. In a machine of the class described, the combination with a shoe form, of upper gaging means mounted on said form to be moved by the operator from a normal retracted position inside of the edge of the bottom face of the form outwardly beyond said edge.

6. In a machine of the class described, the combination with a shoe form, of means mounted on the form for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said means being arranged to project across the edge of the upper in different locations at the end and the opposite sides of the form and at a distance from said plane corresponding to the width of the flange to be formed over said face.

7. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said means being arranged to project across the edge of the upper in different locations at the end and the opposite sides of the form and movable to an inoperative position inside of the edge of said face.

8. In a machine of the class described, the combination with a shoe form, of means mounted on said form for gaging the extent of projection of an upper beyond the plane of the bottom face of said form in different locations at the end and the opposite sides of the form, said means being movable inwardly over the form to an inoperative position, and means subject to the operator's control for retaining said gaging means in its inoperative position.

9. In a machine of the class described, the combination with a shoe form, of gage mechanism mounted on said form and comprising a plurality of members arranged to gage the location of the margin of an upper respectively at the end and the opposite sides of the form, said members being mounted for movement outwardly over the form to operative position at the will of the operator and for return movement to inoperative position automatically as an incident to the operation of the machine.

10. In a machine of the class described, the combination with a shoe form and wiper mechanism for wiping the margin of an upper inwardly over the bottom face of said form, of means for gaging the extent of projection of the margin of the upper beyond the plane of said face, said means being mounted on the form for movement at the will of the operator into position to project over the edge of the upper and for return movement to inoperative position in response to pressure of said wiper mechanism in its operative movement.

11. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of an

upper beyond the plane of the bottom face of said form, said means being mounted on the form for movement into or out of operative position, and means for retaining said gaging means in inoperative position while permitting it to be moved to operative position at the will of the operator.

12. In a machine of the class described, the combination with a shoe form, of a member for gaging the extent of projection of an upper beyond the plane of the bottom face of said form, said member being mounted on the form for movement into or out of position to project over the edge of the upper, and means for retaining said member in an inoperative position inside of the edge of the bottom face of the form while permitting it to be moved outwardly to operative position at the will of the operator.

13. In a machine of the class described, the combination with a shoe form, of a gage member mounted on said form for movement into or out of position to project over the edge of the upper at a distance from the plane of the bottom face of the form to gage the extent of projection of the upper beyond said plane.

14. In a machine of the class described, the combination with a shoe form, of gage mechanism mounted on said form and comprising a plurality of members movable into or out of position to project over the edge of the upper at a distance from the plane of the bottom face of the form at the end and the opposite sides of the form to gage the extent of projection of the upper beyond said plane.

15. In a machine of the class described, the combination with a shoe form, of gage mechanism mounted on said form and comprising members for gaging the extent of projection of the upper beyond the plane of the bottom face of the form at the end and the opposite sides of the form, said members being movable inwardly and outwardly over the form, and means for causing said members to be moved inwardly or outwardly together in response to pressure against one of them.

16. In a machine of the class described, the combination with a shoe form, of a gage member mounted on said form to be moved by the operator lengthwise of the form into gaging position, additional members for gaging the location of the margin of the upper at the sides of the form, and means for causing said additional members to be moved outwardly to operative position by the movement of said first named member.

17. In a machine of the class described, the combination with a shoe form, of a gage member mounted on said form for movement lengthwise of the form into or out of gaging position, additional members mounted for movement laterally of the form into or out of gaging position at the sides of the form, and means for causing said additional members to be moved into or out of gaging position by the movement of said first member.

18. In a machine of the class described, the combination with a shoe form, of a gage member movable lengthwise of said form into or out of gaging position, additional gage members pivotally connected to said first member for swinging movement laterally of the form, and guiding means to cause said additional members to be swung inwardly or outwardly in unison with the movement of said first member lengthwise of the form.

19. In a machine of the class described, the combination with a shoe form, of a gage support mounted on said form, a gage member slidably mounted on said support for movement lengthwise of the form into or out of position to project over the edge of the margin of an upper on the form, additional members pivotally connected to said first member to swing laterally of the form into or out of position to project over the edge of the upper at the sides of the form, and pin and slot connections between said additional members and the gage support to cause said members to be swung inwardly or outwardly in unison with the movement of said first-named member lengthwise of the form.

20. In a machine of the class described, the combination with a shoe form and wiper mechanism for wiping the margin of an upper inwardly over the bottom face of the form, of gage mechanism comprising a plurality of members for determining the correct location of the margin of the upper respectively at the end and the opposite sides of the form, said members being connected for movement in unison inwardly or outwardly over the bottom face of the form and arranged in the path of movement of said wiper mechanism to be moved inwardly from their operative position by the operative movement of said mechanism.

21. In a machine of the class described, the combination with a shoe form and wiper mechanism for wiping the margin of an upper inwardly over the bottom face of said form, of gage mechanism mounted on the form and comprising a member arranged to be moved by the operator lengthwise of the form into position to project over the edge of the margin of the upper at the end of the form, said member being mounted in the path of movement of the wiper mechanism to cause it to be moved reversely to inoperative position by said mechanism.

22. In a machine of the class described, the combination with a shoe form and wiper mechanism for wiping the margin of an up-

per inwardly over the bottom face of said form, of gage mechanism comprising a member arranged to be moved by the operator lengthwise of the form into position to project over the edge of the upper at the end of the form, and additional members connected to said first member for movement outwardly into position to project over the edge of the upper at the sides of the form, the several members being mounted in the path of movement of the wiper mechanism to cause them to be moved reversely to inoperative position by said mechanism.

23. In a machine of the class described, the combination with a shoe form, of a gage member mounted for movement over the bottom face of said form between operative and inoperative positions, and spring means arranged to bear frictionally on said member to retain it in the different positions.

24. In a machine of the class described, the combination with a shoe form, of gage mechanism mounted on said form and comprising members movable inwardly and outwardly over the bottom face of the form at the end and the opposite sides, respectively, and friction means for retaining said members in either their operative or their inoperative position.

25. In a machine of the class described, the combination with a shoe form, of means mounted on said form for gaging the extent of projection of the upper beyond the plane of the bottom face of the form, said means being adjustable to vary the extent of such projection of the upper.

26. In a machine of the class described, the combination with a shoe form, of means mounted on said form for gaging the extent of projection of the upper beyond the plane of the bottom face of the form, said means comprising a plurality of members movable over the form between operative and inoperative positions and arranged to gage the location of the upper respectively at the end and the opposite sides of the form, and means for adjusting said members in directions transverse to the plane of the bottom face of the form.

27. In a machine of the class described, the combination with a shoe form, of a gage support mounted on said form, a gage member mounted on said support for movement into or out of position to project over the edge of the upper to determine the correct location of the upper for producing an inturned flange of definite width, and means on the support for adjusting said member to vary its distance from the plane of the bottom face of the form.

28. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of an upper beyond the plane of the bottom face of the form, said means being adjustable to determine a relative variation in the extent of such projection of the upper as between the end and the opposite sides of the form.

29. In a machine of the class described, the combination with a shoe form, of a plurality of members arranged to gage the extent of projection of an upper beyond the plane of the bottom face of said form at the end and the sides of the form respectively, and means for effecting a relative variation in the distance between said plane and the respective end and side members.

30. In a machine of the class described, the combination with a shoe form, of a gage supporting plate on said form, gage members on said plate arranged to gage the location of the margin of an upper respectively at the end and the sides of the form, and means whereby said plate may be tipped to effect a relative adjustment as between said end and side members.

31. In a machine of the class described, the combination with a shoe form, of means for gaging the extent of projection of the upper beyond the plane of the bottom face of said form comprising members arranged to project over the edge of the upper at the end and the opposite sides of the form, and pins extending upwardly from the form and arranged to support said members; said pins being relatively adjustable to determine different extents of projection of the upper as between the end and the sides of the form.

32. In a machine of the class described, the combination with a shoe form, of gage mechanism comprising a base plate mounted on the form, pins projecting upwardly from said plate, and gage members supported by said pins and arranged to project over the edge of the upper in different locations around the form, the form having recesses into which said pins extend to lock said gage mechanism on the form.

33. In a machine of the class described, the combination with a shoe form and wiper mechanism for wiping the margin of an upper inwardly over the bottom face of said form, of means mounted on the form for gaging the extent of projection of the upper beyond the plane of said face, said means being yieldable inwardly in response to pressure of said wiper mechanism and also yieldable in a direction away from said plane in response to pressure of said mechanism.

34. In a machine of the class described, the combination with a shoe form and wiper mechanism movable to wipe the margin of an upper inwardly over the bottom face of the form, of gage mechanism comprising a member arranged to project over the edge of the upper at a distance from the plane of the bottom face of the form and to be moved inwardly over the form by the pressure of the wiper mechanism in its operative movement, and yielding means arranged to posi-

tion said member normally at a definite distance from the bottom face of the form while permitting the member to be forced away from said face by pressure of the wiper mechanism.

35. In a machine of the class described, the combination with a shoe form, of gage mechanism mounted on said form and comprising a supporting plate pivoted to swing toward or from the plane of the bottom face of the form, a gage member mounted on said plate for movement inwardly or outwardly over the bottom face of the form, and spring means for holding said plate at a normal distance from the plane of said face while permitting it to be swung away from said plane in response to abnormal pressure against the gage member.

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

GEORGE J. GORSUCH.