

R. F. McFEELY.
GRIPPER.

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1,019,904.

Patented Mar. 12, 1912.

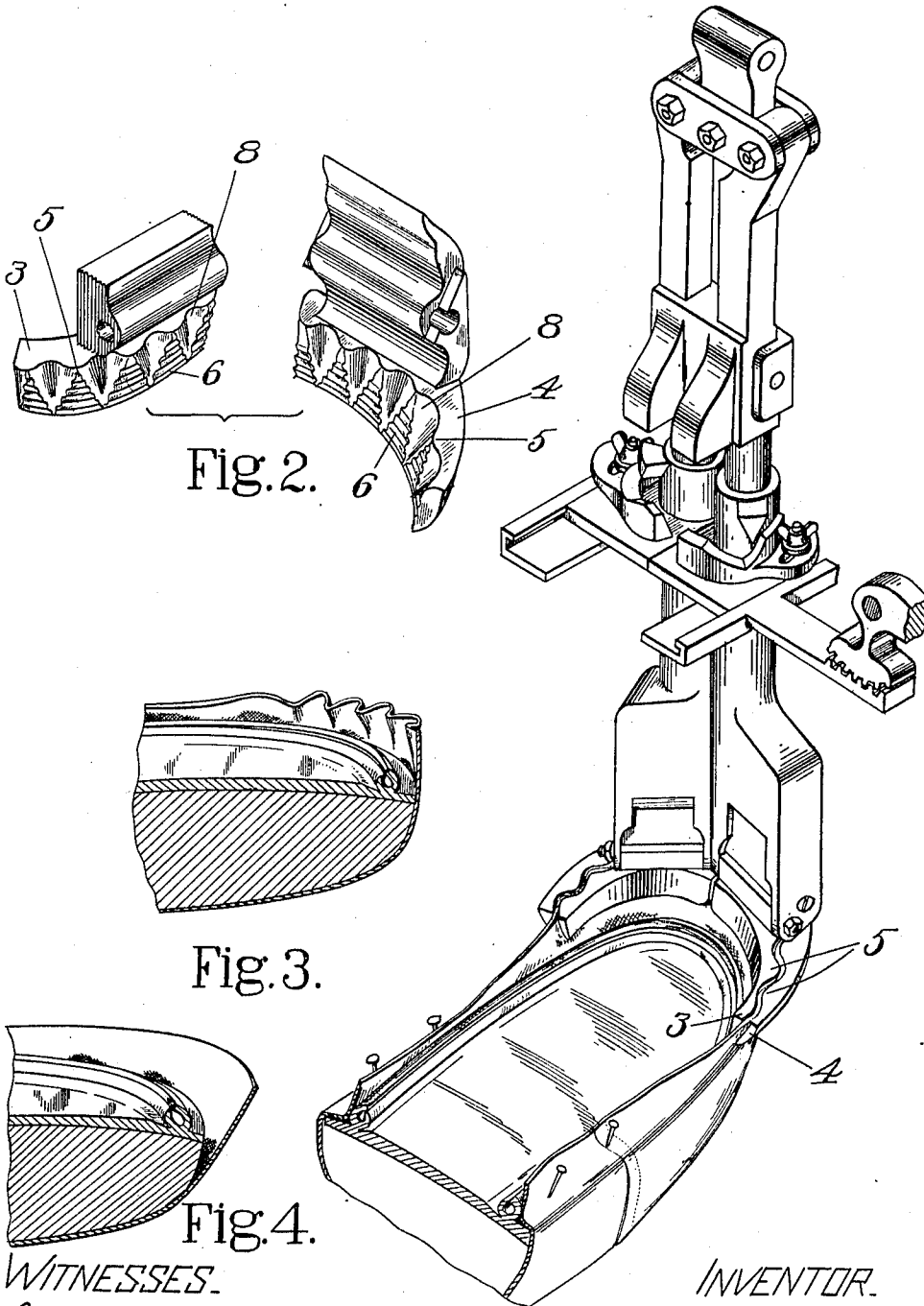


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1.

WITNESSES.

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RONALD F. McFEELY, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GRIPPER.

1,019,904.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RONALD F. McFEELY, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Grippers, 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 machines for working uppers over lasts and particularly to apparatus for pulling or otherwise stretching the toe portion of an upper over the forepart of a last.

It will be described as embodied in grippers although it is obvious that some of the advantages of this invention may be obtained in wipers and similar devices which are employed for engaging the marginal toe portion of the upper and working it inwardly over a convex end portion of a last. It has been proposed by me to employ curved toe grippers, the cooperating jaws of which are formed in one or in a plurality of sections, to seize the upper at the middle of the toe and at the opposite sides of the middle and pull the entire toe portion of the upper longitudinally of the last and upwardly, after which the edge portion of the upper is bent and crimped inwardly over the convex edge of the last. It has also been heretofore proposed to flute the gripping faces of straight narrow jaws to cause the jaws to crimp or crease the gripped portions of upper to facilitate the disposition of the upper inwardly over the convex edge of the last. In such constructions, however, the fluted formation at and adjacent to the lower edge of the jaws tended to stretch the upper along the edge of the last and the result was to produce fullness where fullness is to be avoided. In accordance with an important feature of this invention the gripping faces of the jaws are provided with flutes which taper in depth to a minimum depth at or near their lower edges or the edges that are nearest to the edge of the shoe while the upper is being pulled. By this formation the advantage of crimping the upper near its edge is obtained and the disadvantage of fulling the upper near where it is folded over the edge of the last is entirely avoided.

A preferred embodiment of the invention

is found in the wide curved sectional grippers herein illustrated which are formed to take in substantially the entire toe portion of the upper and the jaws are provided with an appropriate number and disposition of flutes to start and properly locate all the crimps or folds which will be required to take care of the fullness where the upper is lasted inwardly over the convex edge and down upon the bottom of the toe portion of the last. Preferably in wide toe grippers the flutes will be deep enough to draw the upper from the sides of the shoe toward the middle of the toe when the jaws are closed. Operating mechanism may also be arranged to close first the jaws at those portions which are nearest the middle of the toe. The upper is thus gathered laterally into the crimped portions of the jaws, being pulled for this purpose from the corners and sides of the toe toward the middle so that the sides of the upper are straightened and a more uniform distribution of the stock is obtained than heretofore. These and other features of the invention will more fully appear in connection with the detailed description of the preferred embodiment of the invention which is chosen for illustration herein for the purpose of explaining the invention and will then be pointed out in the claims.

Figure 1 is a perspective view of a gripper mechanism embodying this invention; Fig. 2 is a perspective view showing the gripper jaws separated to disclose the fluted formation of their gripping faces; Fig. 3 is a perspective view, partly in section, of the toe portion of a shoe illustrating the crimping effect of the tapering flutes of the gripping faces upon the marginal portion of the toe and upper, and Fig. 4 shows the normal outwardly flaring shape of the upper before it is gripped.

The general construction of the gripper mechanism as shown in Fig. 1 corresponds essentially with the disclosure in British Patent No. 17548/09 and as the same forms no part of the present invention it need not be herein described.

The curved sectional jaws 3 and 4 are each provided on their gripping faces with flutes which taper in depth upwardly from at or near the lower edge of the gripping faces as shown best in Fig. 2. Preferably the lower edges of the gripping faces are

uninterrupted and the flutes start from a slight distance above said lower edges. The flutes are so arranged on cooperating jaws that the high portions 5 on one edge come opposite the depressions on the other jaw so that when closed the adjacent faces of the jaws present a sinuous line at the upper edges of the jaws as shown in Fig. 1. Said gripping faces present at the lower edges an uninterrupted curved line. The high portions 5 of the gripping faces are preferably toothed, each toothed area being substantially triangular in shape with its base at the lower edge of the jaw. Each toothed portion is shown as arranged symmetrically with relation to an opposed smooth portion 8 on the opposite edge.

In the use of the grippers, the toe portion of the upper in its normal outwardly flared condition, as represented for example in Fig. 4, is inserted between open jaws and when the jaws are closed the marginal portion of the upper is crimped by the fluted portion of the jaws while the portion of the upper adjacent to or along the edge of the shoe bottom is seized by the uninterrupted lower edge portion of the gripping faces so that this portion of the upper which is to be bent over the edge of the last is held straight and without wrinkles. The illustrated jaws provided with the tapering flutes are deep enough to tend to draw forwardly the extreme edge portion of the upper in order to gather in the fullness for producing the crimps in the upper. By reason of this tendency the upper extends straight along the sides of the shoe at the rear ends of the grippers, instead of being puckered and full at these points as is liable to be the case when grippers having straight jaws are employed.

It is to be noted that in the illustrated embodiment of this invention employing curved sectional grippers which seize the entire toe portion of the upper all of the crimps are formed which are required for disposing of the fullness produced by bending the toe portion of the upper upwardly and inwardly over the convex end face and edge of the last. These crimps are properly located so that in the lasting operation they are laid down upon the last bottom in smooth plaits to present a minimum of unevenness upon the bottom of the lasted shoe. Having explained the nature of this invention and described a preferred construction embodying the same, I claim as new and desire to secure by Letters Patent of the United States:—

1. A gripper having cooperating jaws, the gripping faces of which are provided with flutes which taper toward their lower

edges from a maximum depth at the upper ends of the flutes.

2. A gripper comprising cooperating jaws, the gripping faces of which are provided with flutes which taper in depth and terminate near the lower edges of the jaws.

3. A gripper having cooperating jaws, the gripping faces of which are uninterrupted at their lower edges and fluted about said edges.

4. A gripper having cooperating jaws, the lower edges of which are formed to hold the gripped portion of upper which is adjacent to the edge of the last in a substantially smooth condition and which are formed above said lower edges to crimp the upper.

5. A gripper having curved sectional jaws adapted to seize a substantially continuous portion of upper extending from one side of the shoe around the toe to the other side and having their gripping faces formed to crimp the gripped portion of the upper.

6. A gripper having curved sectional jaws formed and arranged to gather the edge portion of the upper from the sides of the shoe toward the middle of the toe as the jaws are closed.

7. A gripper having cooperating jaws the gripping faces of which are provided with flutes which increase in depth from near the lower edge upwardly and the high portions of which flutes are provided with teeth.

8. A gripper having cooperating jaws the gripping faces of which are provided with a series of separate toothed areas decreasing in width from the lower edges of the jaws upwardly.

9. A gripper having cooperating jaws, the gripping face of one of which jaws is provided with alternate toothed and smooth areas, the toothed areas on one jaw being opposed to smooth areas on the other jaw.

10. A gripper having cooperating jaws, the gripping faces of which are provided with alternate toothed and smooth triangular areas, the toothed areas on one jaw being opposed to smooth areas on the other jaw.

11. A gripper having cooperating jaws, the gripping faces of which are provided with alternate toothed and smooth triangular areas, said triangular toothed areas having their bases at the lower edges of the jaws.

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

RONALD F. McFEELY.

Witnesses:

CHARLES H. HOYT,

CHARLES E. GRUSH.