

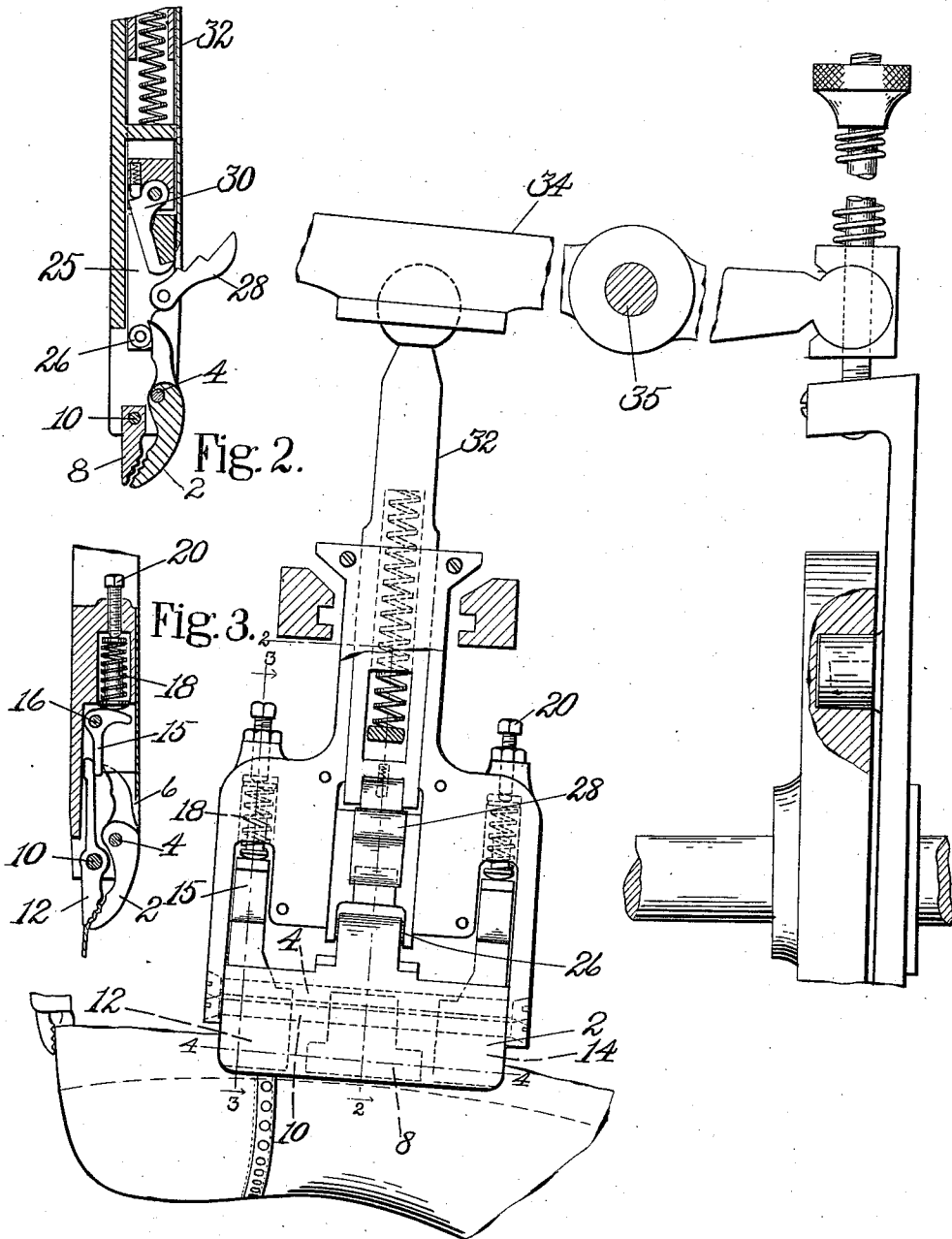
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GRIPPER.

APPLICATION FILED OCT. 28, 1907.

1,019,012.

Patented Mar. 5, 1912.



WITNESSES.
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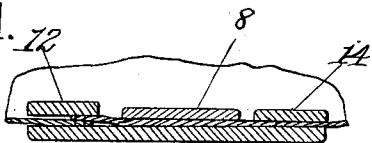


Fig. 4.

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GRIPPER.

1,019,012.

Specification of Letters Patent.

Patented Mar. 5, 1912.

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To all whom it may concern:

Be it known that I, ORRELL ASHTON, a citizen of the United States, residing at Lawrence, in the county of Essex and Commonwealth 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 grippers and particularly to mechanism for use in working an upper over a last.

The invention is herein shown as embodied in the side grippers mechanism of a pulling-over machine which may be of the type shown in United States Letters Patent No. 663,777, granted December 11, 1900. No limitation to this embodiment is to be understood, however, except as definitely stated in the claims.

An object of the invention is to provide a grippers mechanism by which different portions of the stock engaged by the grippers may be pulled to different extents. In working uppers over lasts different portions of the stock require to be pulled through different distances in order to conform them to the contour of the underlying portions of the last. For example, if the upper has a toe tip the seam renders it less elastic at the junction of the tip and vamp than it is in the rear of the seam. Also many lasts are cut out more or less on the top face over the middle of the ball and the upper has to be pulled to a much greater extent to draw it down to the last at this point designated for convenience the "middle of the ball," than at either side thereof.

An important feature of this invention consists in grippers which are constructed and arranged to grip the stock and hold different portions thereof with different degrees of security. When grippers embodying this feature of the invention are used for pulling an upper the portion of stock held less securely can slip while the more firmly gripped portion is pulled to a greater extent. In the illustrated construction the gripping jaws are arranged to hold one portion of the stock in a substantially unyielding manner while another portion is yieldingly held.

Another feature of the invention consists

in a grippers mechanism comprising one jaw for engaging one side of the stock and a plurality of opposed members for engaging the opposite side of the stock. Preferably the opposed members include relatively movable jaws arranged to cooperate with the single jaw on the other side of the stock for holding the stock with different degrees of security. As shown, the plurality of opposed jaws include a jaw mounted rigidly or substantially rigidly in the jaw support and a jaw located on one or both sides of the rigid jaw and yieldingly mounted in the support. Grippers having this construction and arrangement may be employed in a pulling-over machine where differential stretching of the upper may be necessary to conform the upper to the ball of the last without pulling the upper at the tip seam or on the side of the middle of the ball of the shoe more than it should be pulled because the yieldingly held upper will slip between the gripper jaws while the unyieldingly held portion will be retained.

A further feature of the invention consists in grippers comprising a plurality of members arranged to engage the same side of the stock and to be relatively positioned for differences in the thickness of the gripped stock at different points. As has been already explained the jaws shown for engaging one side of the stock comprise one or more yieldingly mounted members which, when stock is gripped that varies in thickness at different points, as for example an upper having a seam, can move relatively to the rigid jaw, and to one another if there are a plurality of yielding jaws, and thus obtain a grip upon the thin portions of the upper as well as upon the thicker portions of it.

These and other features of the invention, including certain details of construction and combinations of parts, will be more fully explained in the following description and then pointed out in the claims.

Figure 1 shows in front elevation pulling-over grippers embodying this invention. Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 1; Fig. 4 is a section on line 4—4 of Fig. 1.

A swinging jaw 2 is pivoted by the bolt 4 to the support or casing 6. Opposed to this jaw is a rigid jaw 8 fastened in the casing by a bolt 10. Mounted upon exten-

sions of this bolt 10 are jaws 12 and 14 having gripping faces in alinement with the gripping face of the rigid jaw 8. These jaws 12 and 14 are adapted to have a limited pivotal movement and have upward extensions as shown in Figs. 1 and 3 which are normally held against stop faces on the casing by levers 15. These levers are bell cranks pivoted at 16 and acted upon by strong springs 18. The tension of each spring can be adjusted independently of the other spring by its cap screw 20. One of the jaws 12 or 14 with its lever 15 and spring 18 may be omitted if desired. The jaw 2 is wide enough to coöperate with all the opposed relatively narrow jaws in gripping a piece of sheet stock, as for example,—a shoe upper. The jaw 2 is actuated by an operating device 25, see Fig. 2, provided with a roll 26 and a member 28 for engaging opposite sides of the upward extension of the jaw to swing it about its pivot 4. The operating device which slides up and down in the casing 6 is connected by a hook 30 with an endwise movable bar 32 suspended from a lever 34. The lever is pivoted at 35 and is operated for causing the grippers to be opened and closed. The hook 30 is shown as arranged to be disconnected from the operating device to disconnect that device from the bar for a purpose which is not necessary to consider in connection with the present invention.

In the use of the grippers the stock to be pulled is inserted between the jaws as shown in Fig. 3. The lever 34 is rocked to lift the bar 32 and the operating device 25 causing the roll 26, Fig. 2, to rock jaw 2 toward the other jaws to grip the stock. Further movement of the lever raises the parts to pull the upper about the last. The portion of the stock between the jaw 2 and the rigid jaw 8 is held in a substantially unyielding manner and normally will be pulled throughout the extent of the upward movement of the grippers. The portion of the stock between the jaw 2 and each of the jaws 12 and 14 is held yieldingly with a pressure dependent upon the adjustment of the springs 18 and these portions of the stock lying laterally of the portion rigidly held can slip between the jaws while that portion held by jaws 2 and 8 continues to be held and pulled. By this arrangement the illustrated grippers when used for pulling an upper at the side of a shoe as shown can be caused to pull the stock at the middle of the ball down to the last without tearing or excessively straining the upper at either side of the middle of the ball.

It will also be observed that the provision for relative movement of the jaws 8, 12 and 14 enables these jaws to adapt themselves to differences in the thickness of different lateral portions of the stock held

by the grippers as clearly indicated in Fig. 4. Thus in engaging the side portion of an upper which has a toe tip seam or a greater thickness at one point than at another the jaw 12 or 14 engaging the thicker portion of the upper will yield to enable the grippers to obtain a firm hold upon the adjacent thinner portion of the stock as indicated in Fig. 4.

Having explained the nature of the invention and fully described a preferred embodiment thereof I claim as new and desire to secure by Letters Patent of the United States:—

1. In a grippers mechanism a plurality of jaws to engage the same side of the stock, said jaws being mounted for relative movement automatically to adapt their relative positions to the thickness of the portion of the stock that is immediately against each of them, and a single means coöperating with all the jaws to engage the opposite side of the stock.

2. In a grippers mechanism, jaws arranged to engage the opposite sides of the stock and having provision for holding the stock engaged by one part of one of the jaws more firmly than a portion of the stock which is engaged by another laterally located part of that jaw.

3. A single gripper mechanism having, in combination, means arranged to engage the opposite sides of the stock including a plurality of members on one side and a common closing mechanism for all said members, said members and closing mechanism being constructed and arranged for applying to different portions of the stock engaged at one time distinctly different pressures from that applied to another laterally adjacent portion of the gripped stock.

4. A single gripper mechanism having, in combination, means for engaging opposite sides of the edge portion of sheet stock, said means being constructed and arranged to grip one portion of the stock lightly and another laterally located portion of the stock more securely.

5. In a grippers mechanism adapted to engage and pull the upper at the ball of the shoe and at one side of the ball, having a single gripping means constructed and arranged to hold the upper at the ball of the shoe more securely than the upper at the side of the ball.

6. In a grippers mechanism adapted to engage and pull the upper at the ball of the shoe and at opposite sides thereof, a single gripping means constructed and arranged to hold the upper securely at the ball while permitting the upper at the sides of the ball to slip in the gripping means.

7. In a shoe making machine, upper gripping and pulling mechanism comprising a jaw for engaging one side of the stock and

a plurality of opposed jaws cooperating therewith to engage the other side of the stock some of said jaws being resiliently held against the stock.

5 8. In a shoe making machine, upper gripping and pulling mechanism comprising a jaw for engaging one side of the stock and a plurality of relatively movable cooperating members provided with separate resilient
10 backings and adapted to engage the other side of the stock and hold securely against said jaw portions of the stock which vary in thickness.

15 9. In a grippers mechanism, a jaw for engaging one side of the stock and a plurality of opposed jaws to engage the other side of the stock, said mechanism having provision for causing the portion of stock engaged by one of the latter jaws to be held
20 with greater firmness than the portion of stock engaged by the other of said latter jaws.

10. In a grippers mechanism, a wide gripper jaw for engaging one side of the
25 stock and a plurality of opposed jaws to engage the other side of the stock, means for actuating the wide jaws toward the opposed jaws, means for supporting one of the latter jaws, and relatively yielding
30 means for supporting the companion jaw.

11. In a grippers mechanism, the combination with a pivoted jaw, means for yieldingly holding it in normal position, a stationary jaw in alinement with the pivoted
35 jaw, a jaw cooperating with both the first-mentioned jaws to grip the stock, and means for actuating the said cooperating jaw.

12. In a grippers mechanism, a rigid jaw, a yielding jaw arranged at each side of the
40 rigid jaw and having gripping faces in alinement therewith, a cooperating jaw opposed to the first mentioned jaws, and means for actuating the latter jaw.

13. In a grippers mechanism, a gripper
45 support, a wide jaw pivoted in the support, a narrow jaw fixed in the support, a second narrow jaw yieldingly mounted in the support, and means for actuating the wide jaw to grip stock against the narrow jaws.

50 14. In a grippers mechanism, a gripper support, a wide jaw pivoted in the support, a narrow jaw fixed in the support, a second narrow jaw fulcrumed in the support and a stop for limiting its movement, a lever engaging said second jaw, and a spring acting
55 on the lever to hold the jaw against its stop and adapted to permit the jaw to yield under tension of the gripped stock, and means for actuating the wide jaw to grip
60 stock against the narrow jaws.

15. In a grippers mechanism, a gripping support, a wide jaw pivoted in the support, a narrow jaw fixed in the support, other narrow jaws arranged on either side of the
65 fixed jaw and yieldingly held against the

pressure of the wide jaw, and means for actuating the wide jaw.

16. In a grippers mechanism, means for gripping an upper at the middle of the ball of a shoe and at either side of the middle of
70 the ball, said means being constructed and arranged to hold the upper more securely at the middle of the ball than at the sides.

17. In a grippers mechanism, means for gripping and pulling an upper at the middle of the ball of a shoe and at one side of
75 the ball, said means being constructed and arranged to hold the upper securely at the middle of the ball while it is being pulled and to permit the upper at the side of the
80 ball to slip in the grippers.

18. In a grippers mechanism, means for gripping and pulling an upper at the middle of the ball of a shoe and at either side
85 of the middle of the ball, and actuating mechanism therefor, said means being constructed and arranged to pull the upper at the middle of the ball to a greater extent than the upper at the two sides of the mid-
90 dle.

19. In a shoe making machine, upper gripping and pulling mechanism comprising a jaw for engaging one side of the stock, combined with a plurality of yieldingly actuated cooperating jaws arranged to engage
95 the opposite side of the stock and mounted for relative movement to grip securely stock differing in thickness at different portions.

20. In a shoe making machine, mechanism for gripping and pulling an upper comprising
100 cooperating jaws constructed and arranged to grip one portion of the upper yieldingly and another portion of the upper unyieldingly.

21. A grippers mechanism having, in combination, a yieldingly mounted normally stationary gripper member 12 pivoted at 10 and having an extension, the lever 15 engaging said extension, the spring 18 acting through said lever and extension to maintain the gripper member in its normal position, and a cooperating jaw.
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22. A gripper mechanism having, in combination, a pivoted jaw having an extension above the pivot, means acting through said extension to maintain yieldingly the normal position of said jaw, a cooperating jaw, and means for relatively actuating said jaws to grip and release stock.
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23. In a shoe machine a grippers mechanism, having in combination, a jaw formed and arranged to enter between the side of a last and a shoe upper for engaging one side of the stock, a plurality of cooperating jaws to engage the opposite side of the stock
120 and means for adjusting said jaws independently relatively to said jaw.

24. A single gripper mechanism, having in combination, cooperating jaws constructed and arranged for engaging opposite
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sides of an upper for pulling the upper over
a last and provision for causing said jaws to
engage more firmly one of the lateral por-
tions of the stock located between the jaws
5 than another portion is gripped by the same
mechanism.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

ORRELL ASHTON.

Witnesses:

ARTHUR L. RUSSELL,
CHARLES E. GRUSH.

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