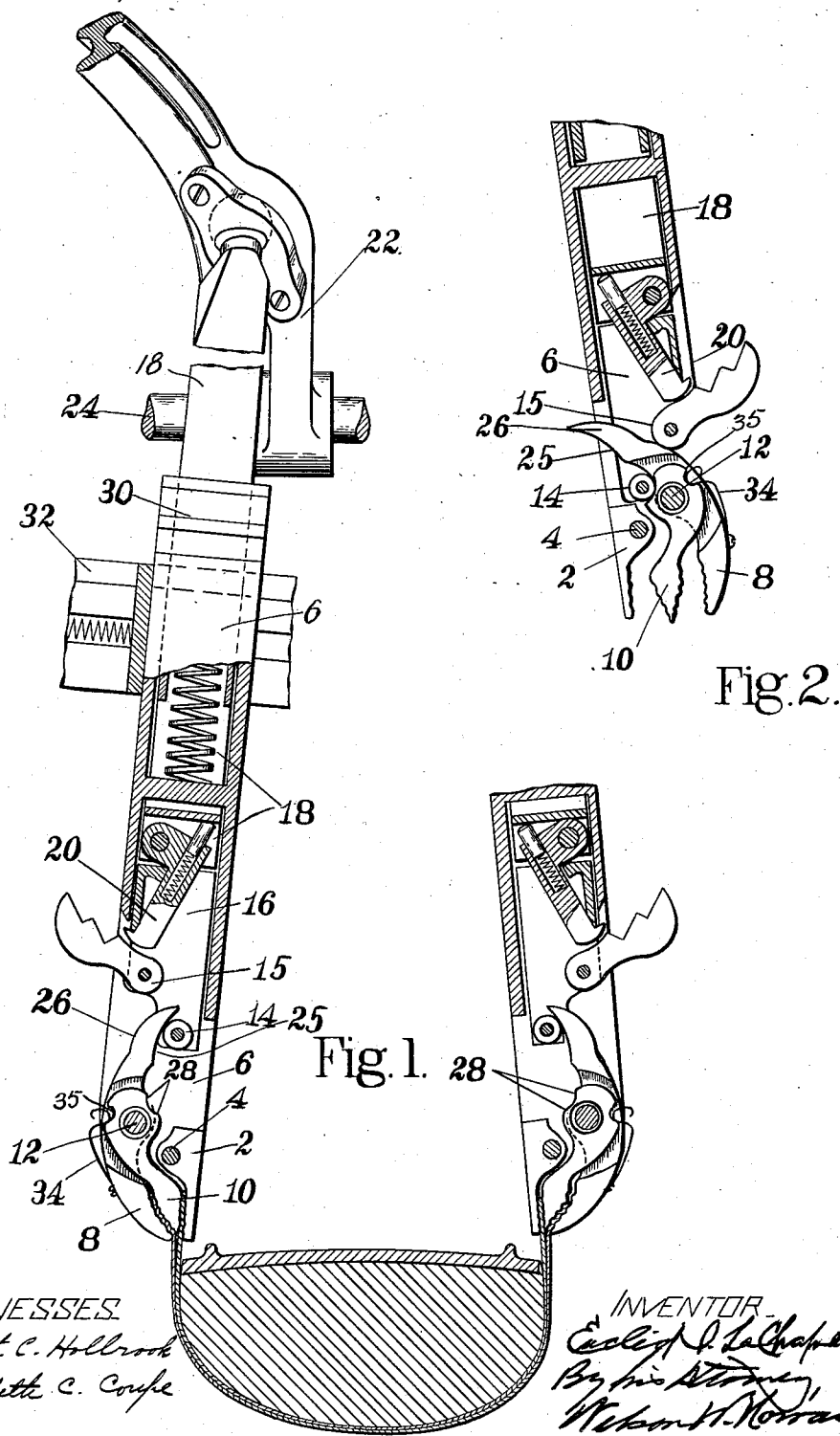


E. I. LA CHAPELLE.
GRIPPER.
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1,014,710.

Patented Jan. 16, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

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GRIPPER.

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To all whom it may concern:

Be it known that I, EUCLID I. LA CHAPELLE, a citizen of the United States, residing at Beverly, 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 mechanisms and particularly to mechanisms employed in working an upper over a last. The upper material usually comprises a plurality of thicknesses of stock, including a lining. The upper leather is usually pulled to an extent to stretch it more or less while the lining, whether it is made of cloth or of a thin leather, does not need to be stretched to so great an extent and in some instances it is considered sufficient merely to straighten the lining and draw it snugly to the last without stretching it at all. An object of this invention is to provide a grippers mechanism by which two thicknesses of stock may be pulled through different distances.

An important feature of the invention consists in gripping mechanism comprising jaws having gripping faces of different formation adapted to hold different thicknesses of stock engaged by them with different degrees of security. This may be effected by providing the jaw engaging one thickness of stock—as, for example, the upper leather of a shoe, with a roughened gripping face and the jaw engaging the shoe lining with a less rough or a smooth gripping face.

Another important feature of the invention consists in a grippers mechanism comprising a plurality of superjacent gripping jaws constructed and arranged to hold two thicknesses of superposed stock out of contact. In the illustrated construction the jaws include a member adapted to be interposed between two thicknesses of stock. These gripping faces engaging the two superposed thicknesses of stock may be of the same or of different formation and the jaws may be actuated to grip the stock with the same degree of pressure or with different forces. As herein shown, the intermediate jaw has on one side a roughened face co-operating with a similarly formed face on

one outer jaw to hold the upper and said intermediate jaw has on its other side a relatively smooth face to coact with a similar face on the other outer jaw to grip the lining. In the preferred form of the invention the intermediate jaw is pivoted between the outer jaws, one of which is rigidly mounted and the other is pivotally mounted and arranged for movement to engage the thickness of stock between it and the intermediate jaw and to move the intermediate jaw toward the fixed jaw for gripping the thickness of stock between that jaw and the fixed jaw. It will be observed that it is characteristic of the illustrated embodiment of the invention that the intermediate jaw is interposed between the two thicknesses of stock which it is desired to hold with different degrees of firmness or security and that the thicknesses of stock are separated in the grippers, thus reducing the frictional resistance to relative movement of the different superposed thicknesses while they are being pulled.

A further feature of the invention consists in the provision of means for actuating the intermediate jaw to separate it from the outer jaws for the insertion of the stock when said intermediate jaw is pivotally mounted between the outer jaws. As herein shown, the outer pivoted jaw is actuated by a closing and opening device, herein referred to as the "operating device," and the intermediate jaw is provided with a face for engagement with said operating device. The construction and arrangement are such that when said device moves into position to rock the outer pivoted jaw away from the fixed jaw it engages the coöperating face on the intermediate jaw and rocks the latter through a less distance than the outer jaw is rocked and holds it in a balanced position between and separated from both the outer jaws.

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

In the drawings, which represent a preferred embodiment of the invention,—Figure 1 is a front view partly in section of pulling-over machine grippers embodying the present invention. Fig. 2 is a similar view showing the grippers jaws open.

The jaw 2 is rigidly connected by the bolt 4 to the casing or support 6. The outer jaw 8 and the intermediate jaw 10 are pivoted on the pin 12 which forms a fulcrum for jaw 8, the upper arm of which extends between a roll 14 and a hub 15 carried by the operating device 16. This operating device is movable upwardly and downwardly in the casing 6 and is operated by the endwise movable bar 18 to which it is detachably connected by the swinging hook 20. The operating bar is connected to the lever 22 which is fulcrumed at 24. Upward movement of the bar lifts the operating device 16, causing the roll 14 to engage the face 25 of the upper arm of jaw 8 and swing that jaw toward the intermediate and fixed jaws. Downward movement of the bar effected by the lever forces the operating device toward the jaws and causes the hub 15 to engage face 26 of jaw 8 and move that jaw away from the fixed and intermediate jaws. From this construction it will be noted that one of the gripping devices is arranged upon the other and is superjacent to the other as distinguished from being displaced from the other in the direction of the edge of the upper and that, therefore, the grippers are adapted to grip superposed layers of the upper.

The intermediate jaw is formed above the pivot pin 12 with inclined stop faces 28 to be engaged by the roll 14 for rocking that jaw away from the fixed jaw into a balanced position between the two outer jaws as shown in Fig. 2 when the operating device is in its lowest position. The casing 6 has shoulders 30 which engage the frame at 32 to hold the grippers while the bar 18 is moved downwardly, pushing the operating device 16 into the position shown in Fig. 2 where the roll 14 and hub 15 hold the jaws separated. A spring 34 may also be provided having a head shaped to fit in the seat 35 for the same purpose. Preferably the gripping face of the jaw 8 and the adjacent gripping face of the intermediate jaw 10 will be toothed or roughened to hold the upper securely while the gripping face of the fixed jaw 2 and the adjacent face of the jaw 10 will be formed relatively to the other gripping faces to permit the stock held by them to slip between the jaws.

In the use of the grippers the thicknesses of stock to be separately pulled are placed in the grippers as shown in Fig. 2, the parts, as the upper of a shoe, which are to be pulled to the greatest extent being placed between the jaws 8 and 10 and the parts, as the lining of a shoe, which are to be pulled to a less extent are inserted between the jaws 2 and 10. The jaws are then closed by uplifting the lever bar and operating device, the latter moving into the position shown in Fig. 1. In this operation the jaw 8 is rocked against

the stock between it and the jaw 10, causing the latter jaw to swing toward the rigid jaw 2. When the grippers are to be opened the lever is depressed, forcing down the bar 18 and the operating device 16, causing the hub 15 to engage the outer face 26 of jaw 8 and the roll 14 to seat itself against the stop face 28 on the jaw 10 to hold the jaws open for the reception of the work.

Having explained the nature of the invention and fully described one construction embodying the invention in the best form now known to me, I claim as new and desire to secure by Letters Patent of the United States:

1. In a gripper mechanism, means for gripping and pulling an upper, and means for gripping the portion of lining under the gripped portion of upper, said two means comprising a plurality of jaws constructed and arranged to hold the two thicknesses of stock out of contact and actuating mechanism for closing and moving said jaws to pull both thicknesses of the gripped stock.

2. In a pulling grippers mechanism an outer jaw and an intermediate jaw formed with cooperating gripping faces extending in substantially the direction that the stock is to be pulled, and a second outer jaw having a gripping face cooperating with a second gripping face on the intermediate jaw and extending at an angle to the direction in which the stock is to be pulled.

3. A gripper mechanism for pulling over and similar machines, having in combination, a member arranged to be interposed between the lining and the upper of a shoe, means for gripping the upper against one side of said member, means for gripping the lining against the other side of said member, and mechanism for moving said two means and member together to effect pulling of both the upper and the lining, said means having relative structural variations for maintaining differential tensions upon the lining and upon the upper.

4. In a gripper mechanism, two outer jaws and an intermediate jaw arranged to hold upon opposite sides of the intermediate jaw a plurality of thicknesses of stock and having gripping surfaces formed to hold one thickness of the stock with greater security than another thickness is held, and actuating mechanism to effect movement of all three jaws together after they are closed to pull the upper and the lining.

5. In a gripper mechanism, the combination with devices for holding a plurality of thicknesses of stock including a jaw arranged to be interposed between two of the superposed thicknesses of the stock, and means shaped for holding the stock on one side of said jaw with a different degree of security from the stock on the other side of said jaw, of operating mechanism for closing the up-

per holding devices and for uplifting all of said devices, whereby the thicknesses of upper stock are stretched in proportion to the relative degrees of security with which they are held.

6. In a grippers mechanism, the combination with an outer jaw having an extended gripping face provided with serrations and an outer jaw having a relatively smooth gripping face, of an intermediate jaw.

7. In a grippers mechanism, the combination with an outer jaw having a roughened gripping face and an outer jaw having a relatively smooth gripping face, of an intermediate jaw provided upon its opposite sides with gripping faces of similar formation to the adjacent gripping faces of the outer jaws.

8. In a grippers mechanism, outer jaws and an intermediate jaw loosely mounted between the outer jaws and yielding means for determining the normal position of the intermediate jaw out of contact with both other jaws.

9. In a grippers mechanism for pulling over and similar machines, outer jaws and an intermediate jaw having converging gripping surfaces constructed and arranged to grip and pull separately the superposed layers of upper material of the shoe, gripping faces formed on said jaws, and means for holding the intermediate jaw with its gripping faces normally out of contact with the gripping faces of the outer jaw.

10. In a grippers mechanism, a carrier, a pivoted jaw, a jaw which is rigidly connected with the carrier, and a jaw intermediate said pivoted and rigid jaws combined with mechanism for actuating said jaws to do their work.

11. In a grippers mechanism, a carrier, a pivoted jaw, a jaw which is rigidly connected with the carrier, and a movable jaw intermediate said outer jaws and arranged to be actuated toward the stationary jaw by the pivoted jaw combined with mechanism for actuating said jaws to do their work.

12. In a grippers mechanism, jaws having gripping faces provided with cooperating serrations for holding a shoe upper and relatively smooth gripping faces for holding a shoe lining.

13. In a grippers mechanism, the combination with outer jaws, one only of which is pivotally mounted, of an intermediate jaw movably mounted, and operating means for actuating the two movable jaws together to open the grippers, said mechanism having provision for moving the outer pivoted jaw in the same direction and through a greater distance than the intermediate jaw.

14. In a grippers mechanism, the combination with a stationary carrier, outer jaws one of which is rigidly connected with the carrier and the other of which is pivotally

mounted, of an intermediate jaw movably mounted, and a single operating device for actuating the two movable jaws relatively to the other jaw.

15. In a grippers mechanism, three jaws for holding in separated relation different thicknesses of superposed stock interposed between them, one of said jaws having converging gripping surfaces and a single operating device for opening and closing the jaws, said mechanism having provision for automatically separating the gripping faces of the three jaws from one another to open the grippers for the insertion of the stock.

16. In a grippers mechanism means for gripping and pulling a portion of a shoe upper, means for gripping and pulling the adjacent portion of the lining, and a common actuator to effect pulling by both of said means, said lining pulling means having provision for gripping and holding the lining with less security than the upper gripping means holds the upper, whereby the upper will continue to be pulled after the lining begins to slip.

17. In a grippers mechanism for pulling over and similar machines, means for gripping and pulling an upper, and means for gripping and pulling a portion of lining located under the gripped portion of upper, said gripping means being differently formed so as to continue pulling the upper after ceasing to pull the lining.

18. In a grippers mechanism, means for gripping two superposed portions of stock and actuating means for causing both portions of the stock to be pulled, said mechanism having provision for causing the pull on one portion of stock to be continued through a greater distance than the pull on the other portion of the stock.

19. A gripper mechanism, having in combination, a carrier 6 and a stationary jaw 2 thereon, the jaw 8 pivoted to the carrier, the gripper closing device 16 for said pivoted jaw 8, the intermediate jaw 10, and the spring 34 carried by the pivoted jaw 8 and having a sliding connection with the intermediate jaw 10 for yieldingly controlling the position of the intermediate jaw.

20. A gripper mechanism for a pulling-over machine, having in combination, means for gripping the lining of the shoe upper, including a jaw shaped and arranged to extend between the side of the last and the lining, and means for gripping the upper, including a jaw arranged outside of the upper, said lining and upper gripping means also including a device shaped and arranged to extend between the lining and the upper and cooperate with both of said jaws and operating means for moving said jaws in the same direction together for pulling the gripped upper and the lining.

21. In the gripping mechanism of a pull-

ing-over machine, the combination with
outer gripping jaws having oppositely dis-
posed gripping faces formed to enable the
shoe stock to be gripped without being per-
5 forated, of a jaw arranged between them
and having on its opposite sides gripping
faces which coöperate with those of the
outer jaws and one of which has a different
formation from the other to enable it to
10 hold the upper of the shoe being pulled
more firmly than the lining is held between
the other face of the intermediate jaw and

the outer jaw which coöperates with said
other face, and operating means for moving
said outer gripping jaws in the same direc- 15
tion together for pulling the gripped stock.

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

EUCLID I. LA CHAPELLE.

Witnesses:

ARTHUR L. RUSSELL,
LAURA M. GOODRIDGE.

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