

E. A. STIGGINS.
GRIPPER.
APPLICATION FILED JULY 29, 1909.

954,008.

Patented Apr. 5, 1910.

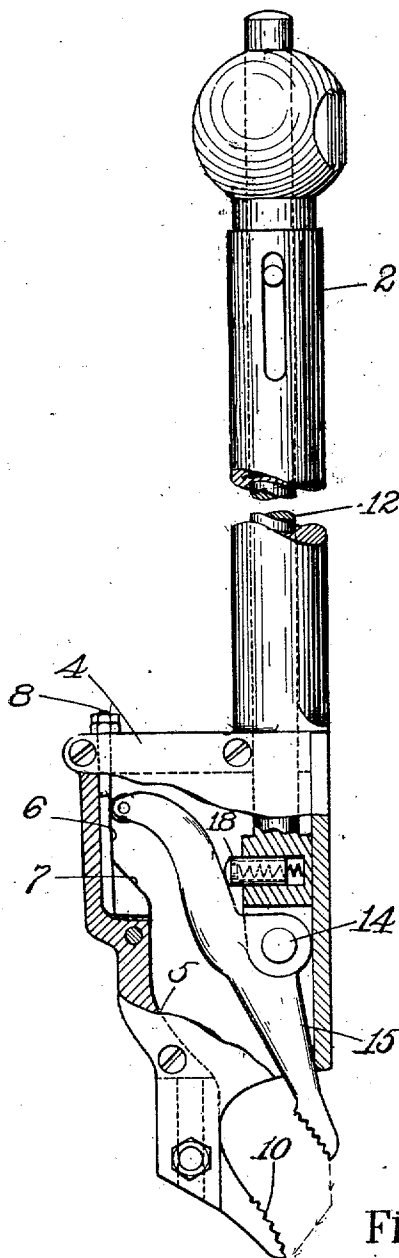


Fig. 1.

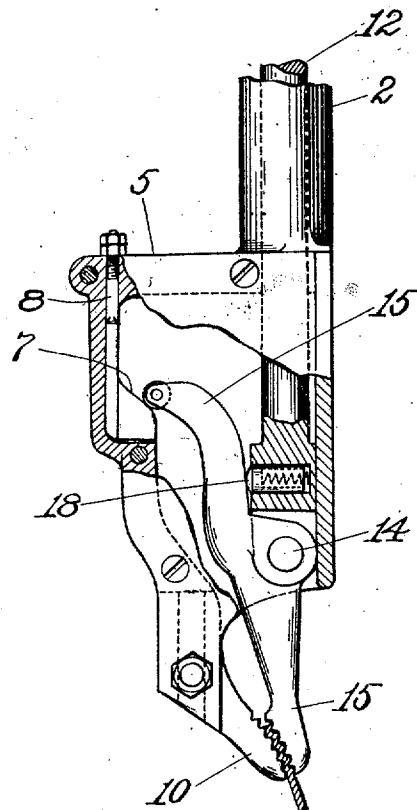


Fig. 2.

WITNESSES.

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GRIPPER.

954,008.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed July 29, 1909. Serial No. 510,236.

To all whom it may concern:

Be it known that I, EDWARD A. STIGGINS, 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 grippers and particularly to the grippers of shoe lasting and other upper pulling machines.

The invention has for its object to provide a gripper mechanism comprising a single, strong and compact construction having a small number of parts which are so formed that they are not likely to get out of order or to wear objectionably during use.

A feature of the invention consists in a gripper mechanism comprising a carrier having a fixed jaw and a cam, combined with a closing bar having a jaw pivoted thereto between its ends to be moved downwardly by the bar and rocked by the cam. This invention is herein shown as embodied in a gripper's mechanism in which the jaws are closed by a movement of the operating bar in one direction, and are uplifted for pulling the upper by a movement of the gripper carrier, together with the operating bar, in the opposite direction. The movable jaw is formed as a lever directly pivoted to, or fulcrumed upon, the operating bar substantially midway of its length and having its upper end formed to engage, and be rocked by, the cam mounted in the gripper carrier. A spring is preferably employed for holding the upper arm of the movable jaw continuously against the cam and, as illustrated, provision is made for adjusting the cam to vary the point in the movement of the operating bar at which the closing shall be effected. The cam is shown as detachably connected to the gripper carrier so that it can be removed and replaced by a cam of different shape for giving a different closing movement to the pivoted jaw. These and other features of the invention will be fully explained in connection with the following description of the preferred embodiment of the invention which is shown as a gripper adapted for use in the hand method type of lasting machines, an example of which is

shown in United States Letters Patent No. 55 584,744, granted June 15, 1897.

Figure 1 is a side elevation, partly in section; Fig. 2 is a similar view showing the jaws closed.

The gripper carrier or shank 2 has a box-like extension 5, the inner wall of which supports a cam. This cam, while it might be formed as a surface upon the inner wall of the extension 5, is herein shown as a plate 6 having a jaw closing surface 7 and adapted, by means of the screw-threaded extension 8 and locking nuts, to be adjusted for varying its relation to the gripper's jaws. One side face 4 of the extension 5 is shown as removable to give convenient access to the interior of the cam box for permitting the removal of the cam and the substitution of a cam of different shape, if that is desired; this also permits a worn cam to be replaced. The lower end of the extension is formed as a clamp within which is secured the rigid gripper jaw 10 of usual construction.

The operating bar 12 is arranged to be reciprocated endwise in the tubular portion of the gripper carrier 2 and to the lower end of the bar is directly pivoted the movable jaw 15 of the grippers. This jaw is formed as a lever with the pivot point or fulcrum 14 located substantially midway between the ends of the lever. The upper end of the lever is extended laterally toward the cam plate 6, 7, and may be provided with a roll to form a non-wearing contact with the cam. A spring operating against a plunger 18 is arranged in the bar 12 to hold the upper arm of the jaw lever 15 against the gripper closing cam.

In the use of the grippers, the jaws are closed by the downward movement of the bar 12 which carries the jaw 15 toward the jaw 10 in a path determined by the formation of the cam, first to embrace and then to seize the stock. As shown, the cam has a substantially straight surface at its upper end and an oblique surface near its lower end and this formation causes the jaw 15 to follow a path substantially like that indicated by the dotted line which connects the tips of the two jaws in Fig. 1. In opening the grippers, the spring plunger 18 holds the upper arm of the jaw lever 15 against the cam, thus preventing any loose movement of lever 15 and insuring that the jaws

will stand separated, as shown in Fig. 1, while the operating bar is raised. A powerful leverage for gripping the stock against the jaw 10 is provided by the arrangement as will be appreciated from examination of Fig. 2. The gripper carrier is formed with a ball head by which the grippers are uplifted for pulling the stock as described in said patent. One merit of this construction is found in the simple design and strong form of the comparatively few elements comprised in the mechanism and another advantage is found in the provision for adjustment to vary the movement of the pivoted jaw and the opportunity to replace one jaw-closing cam by another cam.

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

1. A gripper mechanism having, in combination, a carrier provided with a fixed jaw and a cam, and a closing bar having a jaw pivoted directly thereto substantially midway between the ends of the jaw and arranged to be moved downwardly by the bar and rocked by the cam to embrace and grip the upper.

2. A gripper mechanism having, in combination, a carrier provided with a fixed jaw and a cam, a closing bar having a jaw

pivoted thereto substantially midway between the ends of the jaw and arranged to be moved downwardly by the bar and rocked by the cam, and a spring mounted in the bar and arranged to hold the upper arm of the jaw continuously against the cam.

3. A gripper mechanism having, in combination, a carrier provided with a fixed jaw and a cam, and a closing bar having a jaw pivoted thereto and arranged to be moved downwardly by the bar and rocked by the cam, said mechanism having provision for adjustment of the cam to vary the point in the downward movement of the bar at which the gripping of the stock will be effected.

4. A gripping mechanism arranged to be closed by force applied in one direction and to be actuated to pull the stock by force applied in the reverse direction, having, in combination, a carrier provided with a fixed jaw and a removable cam, and a closing bar having a jaw directly pivoted thereto midway between its ends to be moved downwardly by the bar and rocked by the cam.

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

EDWARD A. STIGGINS.

Witnesses:

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