H. A. BALLARD.

PULLING OVER MACHINE.

APPLICATION FILED AUG. 30, 1905. RENEWED JUNE 1, 1910.

1,015,932.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.

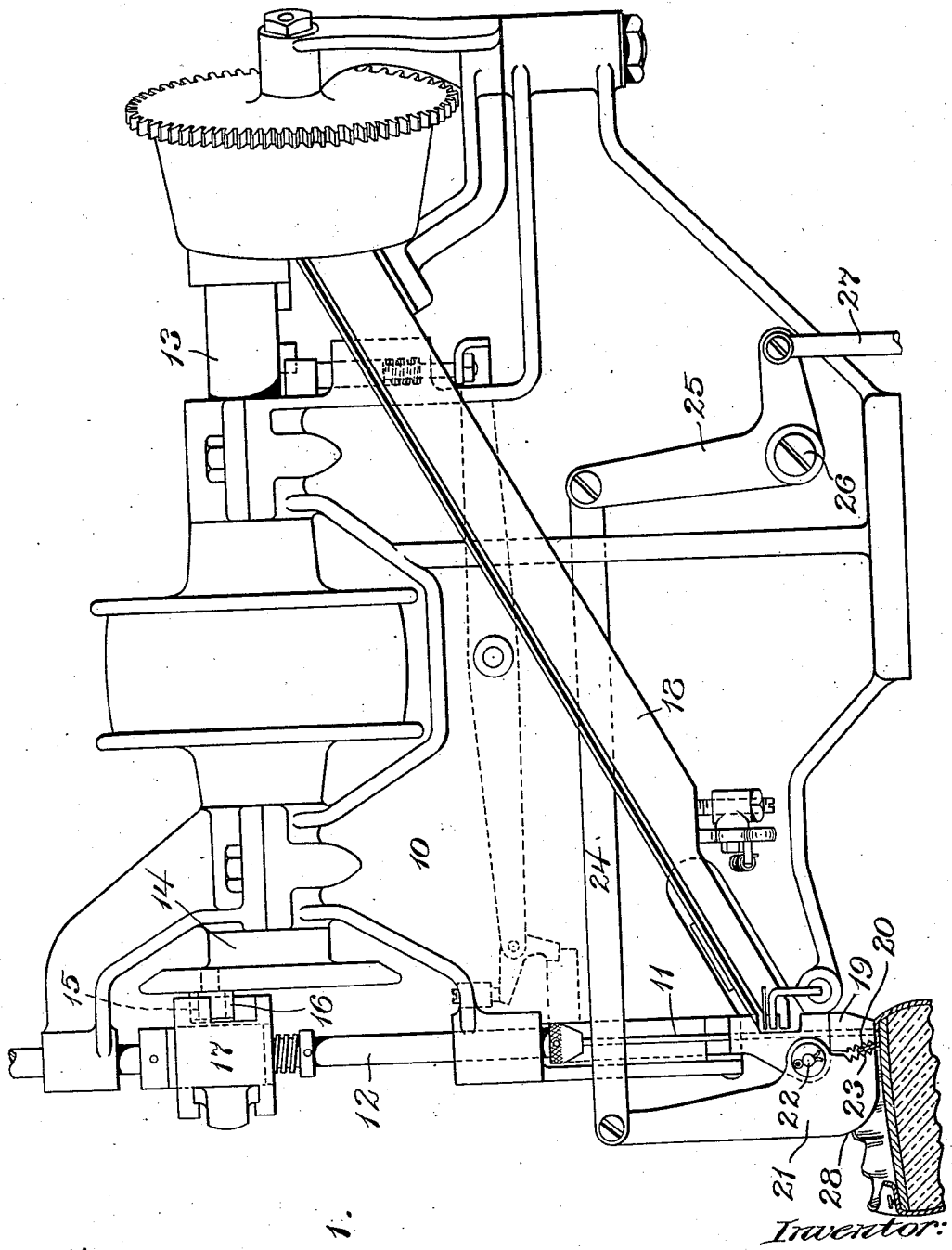

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

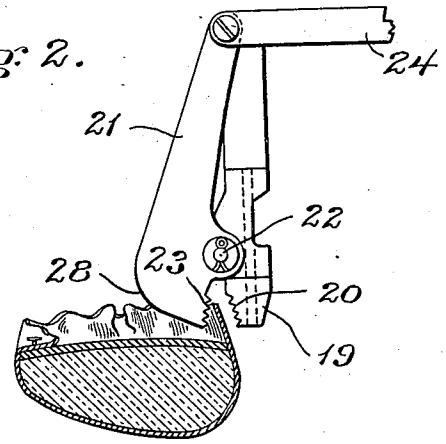
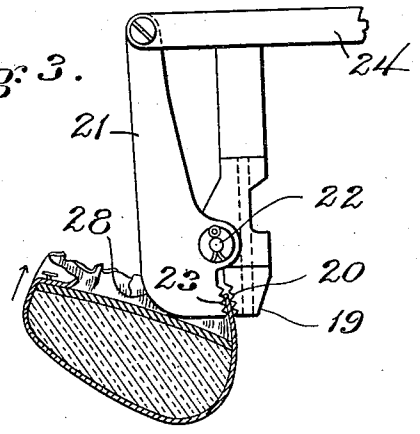


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRIE A. BALLARD, OF ASHLAND, MASSACHUSETTS, ASSIGNOR TO THE BOYLSTON MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

PULLING-OVER MACHINE.

1,015,932. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed August 30, 1905, Serial No. 276,399. Renewed June 1, 1910. Serial No. 564,455.

To all whom it may concern:

Be it known that I, HARRIE A. BALLARD, of Ashland, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Pulling-Over Machines, of which the following is a specification.

This invention has for its object to provide a machine which may be employed for pulling over boots and shoes, that is,—for positioning the upper upon a last and stretching the upper tightly about the last.

The invention consists of a machine having the features specified in the claims herein, and may be conveniently embodied in the machine which is illustrated in the drawings and described in the specification.

Referring to the drawings:—Figure 1 represents the machine in side elevation. Figs. 2 and 3 represent the grippers in different positions, Fig. 3 representing the manner in which the shoe, as a whole, may be rocked about an abutment after the upper has been gripped for the purpose of positioning or stretching the upper so that it may be subsequently fastened in place.

The details of construction of the machine are described in my co-pending application Serial No. 564,454, filed June 1, 1910. It is provided with a head or frame 10 which may be mounted upon a suitable support, and has means for feeding or driving fasteners through the upper into the innersole of the shoe. It may be briefly stated that the driver 11 by which the tacks or other fasteners are inserted is mounted in the end of the driver-bar 12 which is reciprocated by a power-shaft 13. The shaft is provided with a disk 14 having a crank-pin 15 with a roller 16 thereon which is adapted to travel in a slot on a block 17 connected to the driver-bar 12.

The tacks or other fasteners are fed from a chute or raceway 18, and are delivered by suitable feeding devices into the path of the driver 11, by which they are forced through a nipple 19 into the work. When the nipple is raised it causes by suitable clutch mechanism, the power shaft to make one complete rotation and thereby cause the driver-bar to be moved downward and upward for driving a fastener.

The front face of the nipple is corrugated as at 20 and constitutes one jaw of a gripper, the other jaw 21 being pivoted as at 22 to the nipple. The jaw 21 has a corrugated face 23 complemental with that at 20. The jaw 21 is in the form of a two-armed lever, the upper arm of which is connected by a link 24 with a bell-crank 25 fulcrumed at 26 on the frame. The rearwardly extending arm of the bell-crank is connected by the link 27 with a foot-treadle, (not shown), so that when the treadle is depressed, the gripper-jaws are closed to engage the edge of an upper which may be inserted between them. After the upper has been positioned or drawn taut about the last, the gripper may be moved bodily upward, whereupon the driver will be actuated as previously described.

The gripper jaw 21 is provided with a rounded corner 28 which constitutes an abutment or fulcrum against which the innersole may rest and about which the shoe may be rocked bodily when the edge of the upper is between the grippers to position the upper or to draw it taut. In this connection it will be observed that there is a clear space below and in front of the gripper for the convenient manipulation of the shoe.

In operation, the partially formed shoe is presented to the gripper as illustrated in Fig. 2, the jaws being at this time open. The operator depresses the treadle and causes the jaws to grip the edge of the upper. The operator then, (if this be the first operation of the machine), moves the last bodily to position the upper and the shoe is then given a forward and upward rocking motion which causes the innersole to bear against the abutment 28, as illustrated in Fig. 3. Then, while continuing the tension on the upper, the operator moves the shoe into the position shown in Fig. 1 and bodily lifts the gripper and the nipple to cause the insertion of a fastener through the stretched upper into the innersole.

The operator may insert as many fasteners into the shoe as he may deem desirable or necessary to enable the shoe to be subsequently lasted or to be otherwise dealt with in its operation.

As a result of combining the abutment 28 and the jaw 23 in the nature of a movable unit, an advantage is provided, in that the force by which the shoe is rocked to stretch the upper acts upon the abutment in a way which causes the jaw to grip the upper with variable pressure. The effect of this advan-

tage may be seen by reference to Fig. 3 in which an arrow indicates the direction in which the force is exerted. An increase of force against the abutment as indicated causes an increase of pressure of the movable jaw upon the gripped portion of the upper, in which case the point between the jaws becomes the fulcrum of the action, and the abutment becomes the load between the fulcrum and the actuating force. In this way, the gripping pressure of the jaws increases with an increase of tension upon the upper. In the same way the original pressure of the movable jaw is augmented when the shoe is pressed backwardly to receive a fastener, as shown in Fig. 1.

Having thus explained the nature of the invention, and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I declare that what I claim is:

1. A machine of the character described, comprising a frame and gripping means on the frame, including a pair of jaws respectively stationary and movable, an abutment formed on the movable jaw and terminating at the extremity thereof, and means for actuating the movable jaw.

2. A machine of the character described, comprising a frame, and gripping means on the frame including a relatively stationary jaw, a relatively movable member having a gripping jaw adapted to coöperate with said stationary jaw and having an abutment movable to and from said stationary jaw, and upon which the sole of a shoe may be rocked when the upper is held by the gripping jaws.

3. A machine of the character described, comprising a frame, a stationary gripping jaw thereon, an abutment for the work movable toward and from said jaw, and a complemental jaw formed on said abutment and adapted to coöperate with the stationary jaw.

4. A machine of the character described, comprising a pair of jaws for gripping the upper of a shoe, said jaws being respectively stationary and movable, and an abutment on the end of the movable jaw by which said jaw may be forced toward the stationary jaw by pressure of the work on said abutment.

In testimony whereof I have affixed my signature, in presence of two witnesses.

HARRIE A. BALLARD.

Witnesses:
M. B. MAY,
C. C. STECHER.