

No. 612,000.

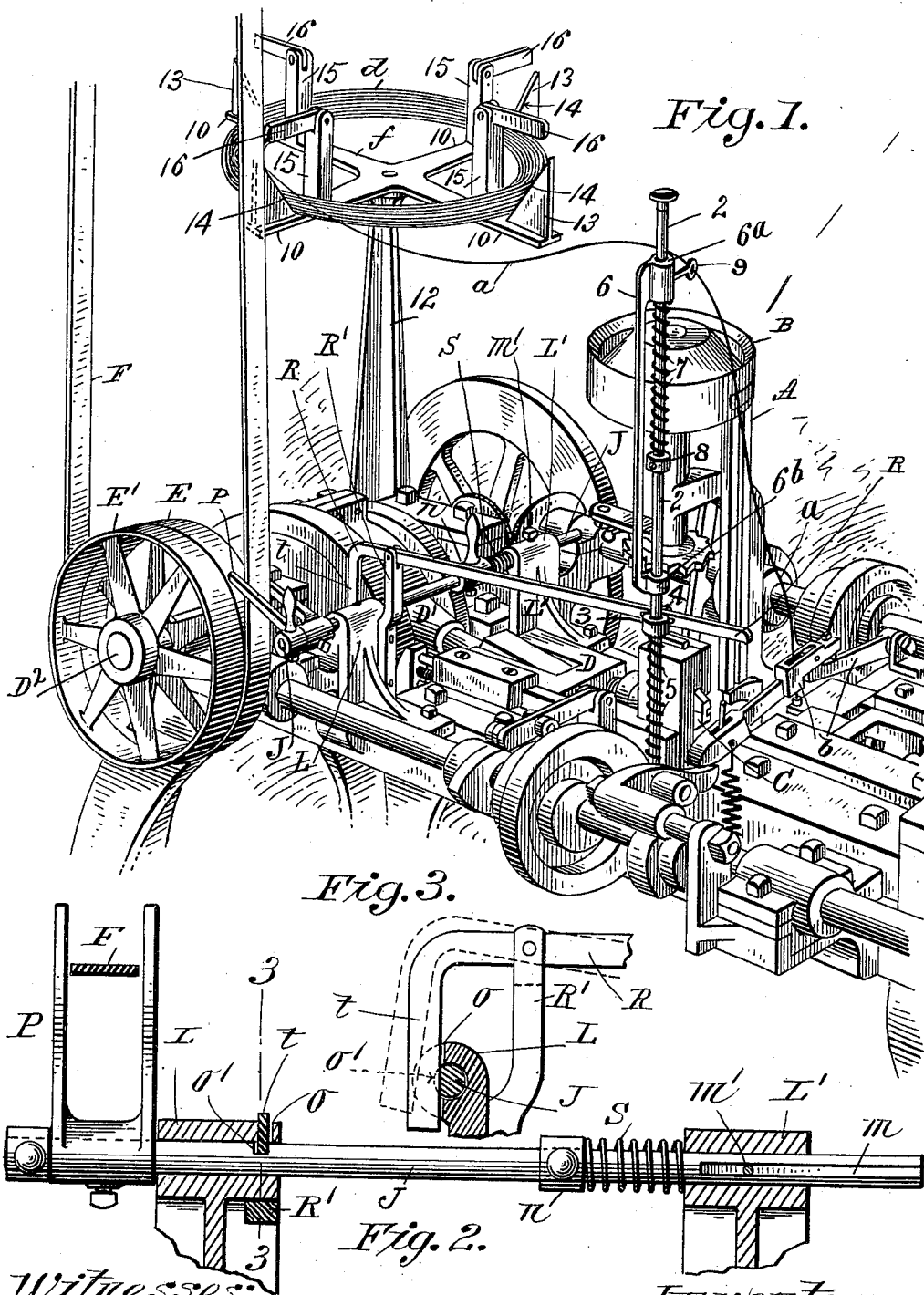
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H. T. JENKINS.

AUTOMATIC STOP MECHANISM FOR WIREWORKING MACHINES.

(Application filed Dec. 30, 1897.)

(No Model.)



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AUTOMATIC STOP MECHANISM FOR WIREWORKING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 612,000, dated October 4, 1898.

Application filed December 30, 1897. Serial No. 664,636. (No model.)

To all whom it may concern:

Be it known that I, HERBERT T. JENKINS, a citizen of the United States of America, residing at Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Stop Mechanism for Machines for Forming Articles from Wire, of which the following is a specification.

This invention relates to machines for manufacturing shank-buttons, such as shoe-buttons, wherein the shank of the button is formed of wire; and the object of the invention is the construction of a stop mechanism for machines of this class whereby any obstruction which prevents the free uncoiling and feeding of the shank-forming wire to the machine will automatically stop the latter; and the invention consists in the construction hereinafter fully described, and set forth in the claims.

In the drawings forming part of this specification, Figure 1 represents in perspective a machine for manufacturing shank-buttons of the class described having my improved stop mechanism applied thereto. Fig. 2 is a plan view of the belt-shipping rod in its bearing on the machine, said bearing and some other parts being in section. Fig. 3 is a sectional view on line 3 3, Fig. 2.

Referring to the drawings, the machine shown in Fig. 1 is a button-making machine of the class described, comprising means for feeding blanks from which the body of the buttons is formed, which means consist of a conveyer A, leading from a hopper B containing said blanks to suitable mechanism at the lower extremity of said conveyer, which grasps the blank and inserts it in proper position between the jaws C for having a wire loop-shaped shank forced into it from one side, while a sliding cross-head D, carrying a suitably-formed punch, operates on the opposite side of said blank to press it into suitable spherical shape. Said cross-head, through an arm D', is operated by an eccentric on the main shaft D² of the machine, on one end of which are located tight and loose driving-pulleys E and E', over which runs a belt F. Said loop-shaped shank is formed on the machine from the wire a, fed thereto by

the feed-arms b, and by which said wire is drawn off as needed from the coil d, supported in suitable position on the reel f, adapted to receive it.

This brief description of the construction of the machine shown herein and of the function of its component mechanisms is sufficient to make clear the construction and operation of the stop mechanism adapted thereto and which forms the subject of this application; but for a more detailed description thereof reference may be made to the United States Letters Patent for a button-machine issued to Fred. H. Hardman May 3, 1892, No. 474,320.

One serious inconvenience in the use of machines of this class has been that at times the wire fails to unwind freely from the coil d, and owing to the tensile strength of said wire the unwinding strand thereof would either become deeply embedded in the coil and break off therein or subject to serious strain the wire-feeding mechanism, and after said wire had been broken or at the proper time cut by the machine and the said unwinding strand released from the wire-feeding mechanism the blank-feeding mechanism would continue feeding blanks, which would pass on through the machine and be wasted, and consequently the machines required constant supervision by the operative and the number of machines an operative could tend was small.

By means of the stop mechanism herein described the machine is instantly stopped as soon as any strain above the normal is put upon the wire, said stop mechanism being operated by said strain to stop the machine before any damage can result from the imperfect unwinding of the wire.

Said stop mechanism is constructed as follows: A shipper-rod J is supported in suitable bearings L L' on the frame of the machine and has a sliding movement in said bearings in a line parallel with the main shaft D². Said shipper-rod where it passes through one of said bearings L' is provided with the groove m, and a pin m' through the side of said bearing enters said groove and prevents the rotation of said rod, but allows the endwise movement thereof, as stated. The other of said bearings L for the shipper-rod is pro-

vided with a vertical slot *o* at right angles to the axis of said rod and cutting through the wall of said bearing into the hole bored there-through for the reception of the shipper-rod 5 J, which is also provided with a rectangular slot *o'* of the same width as the said slot *o* and cut therein transversely to the axis thereof in such position that said slots will register with one another where the shipper- 10 fork P on the end of the shipper-rod J lies opposite the tight pulley E, as shown in Fig. 1 of the drawings. When said shipper-rod J is moved in its bearings to bring said fork P opposite the tight pulley E it oper- 15 ates to compress a coiled spring S, located between a collar *n* on said rod and the end of the bearing L'. On said collar is a suitable handle which may be grasped for moving said rod, and another handle is located on the end 20 of the rod near the tight and loose pulleys E and E'. To hold said shipper-fork P opposite said tight pulley E against the tension of the spring S, a lever R is pivotally hung on a standard R', which is shown secured to 25 the side of the bearing L, but which may be located, if desired, at any other convenient point on the frame which will give the short downturned end *t* of said lever the proper throw toward and from the bearing L when 30 the long end of said lever is moved vertically. Said short end *t* of the lever R is made of proper width and is so located as to enter the slot *o* in the bearing L and the slot *o'* in the rod J, and thus lock said rod against endwise 35 movement as long as the opposite long end of the lever R is not permitted to move downward.

If desired, the slot *o* in the bearing L may be omitted, and the slot *o'* in the shipper-rod 40 may be so placed thereon that one edge thereof may be in line with the inner end of said bearing when the belt is on the driving-pulley of the machine, and the end of the lever R will then have a bearing against the end 45 of said support instead of against the side of the slot *o*. (Shown in the drawings.) The preferred construction, however, is that shown.

To maintain the short end *t* of the lever R in operative position to keep the parts in their 50 relative positions above described, a vertical rod 2 is located in such position on the machine or elsewhere that it will lie close to the side of said lever R and close to the line of movement of the wire *a* as it passes from the 55 reel *f* to the machine. A collar 3, having a free sliding movement on said rod 2, is secured by a screw 4 to the long end of the lever R, which lies contiguous thereto, as stated, and a spring 5 on said rod, whose lower ex- 60 tremity has a bearing on another collar (not shown) fixed on the rod, supports said collar 3 and holds said short end *t* of lever R in engagement with the slot *o'* of the shipper-rod J. A wire-supporting piece 6 is provided with 65 short sleeves 6^a and 6^b at the upper and lower ends thereof, through which said rod 2 passes and on which said piece 6 may slide freely.

The bearing ends of said piece 6 are widely separated to the end that the long spring 7 may be located under the said sleeve 6^a and 70 that the sleeve 6^b may be in proximity to the collar 3, to which the said lever R is secured. The said spring 7 is supported by a collar 8 on the rod 2, with its upper end in contact with the under side of the sleeve 6^a. Said collar 75 8 is adjustable on the rod 2 and secured thereon in any desired position by a set-screw. A screw-eye 9 is screwed into the sleeve 6^a, and the wire *a*, running from the reel *f* to the machine, passes through said screw-eye. Thus 80 a yielding support is provided for said wire, and said support may have a certain degree of movement on the rod 2 without actuating the lever R to stop the machine, and that degree of movement may be varied at will by 85 loosening the collar 8 and moving it up or down on the rod 2 to increase or lessen the distance between the sleeve 6^b and the collar 3. Should any obstruction to the free un- 90 winding of the wire *a* from the coil on the reel take place, the piece 6 would be forced downward on the rod by the continued take up of the wire by the feed mechanism and the consequent tightening of said wire, and the sleeve 6^b, coming in contact with the collar 3, fixed 95 on the rod 2, would force the end of the lever R secured thereto downward, thus causing the short end of said lever to move from the position shown in full lines in Fig. 3 to that shown in dotted lines, thus releasing the ship- 100 per-rod J, which, actuated by its spring S and moving endwise in its bearings L and L', causes the fork P, engaging the driving-belt, to ship the latter to the loose pulley E' and stop the machine before any damage could result from 105 the failure of the wire *a* to unwind.

The reel *f* consists of the four arms 10, supported to rotate in a horizontal plane on the top of the standard 12, and on the ends of said arms 10 the pieces 13, having the inclined 110 edges 14 for centering the coil of wire, which bears only on said inclined edges when the coil is first put onto the reel. Posts 15 are secured to the arms 10, at right angles thereto, to maintain the original diameter of said coil 115 of wire during the unwinding thereof, and hinged to the top of said posts are the arms 16, adapted to be swung up while said coil is being put on the reel and then swung down to the position shown in the drawings to pre- 120 vent the wire from being thrown up over the posts 15 by the sudden action of the spring 7, acting on the piece 6, to which the screw-eye 9 is secured.

It is evident that a weight adapted to move 125 the shipper-rod J endwise in its bearings may be substituted for the spring S, but the latter is the preferred construction.

Having thus described my invention, what I claim, and desire to secure by Letters Pat- 130 ent, is—

1. In a machine for making wire-shank buttons, a stop mechanism therefor consisting of a shipper-rod having a belt-engaging fork

thereon, supports for said rod, a slot in said rod, a pivoted lever, one end of which engages said slot and bears against one of said shipper-rod supports when the machine is in operation, a wire-support actuated by the wire thereon to move the opposite end of said lever, whereby its said slot-engaging end is moved out of engagement with said slot and said shipper-rod support, and means for moving said shipper-rod endwise, substantially as described.

2. In a machine for making wire-shank buttons, a stop mechanism therefor consisting of a shipper-rod having a belt-engaging fork thereon, means for holding the said fork opposite the driving-pulley of said machine, consisting of a pivoted lever, a slot in said shipper-rod, and means for holding one end of said lever in said slot to prevent the endwise movement of said rod; a wire-support normally held in proximity to the opposite end of said pivoted lever and actuated by the wire to move against said pivoted lever to disengage it from said notch in said shipper-rod, and means for moving the latter endwise, substantially as described.

3. In a machine for making wire-shank buttons, a stop mechanism consisting of a belt-

shipping rod, a transverse slot in said rod, a pivoted lever, a vertical rod, means for supporting one end of said pivoted lever for vertical movement on said rod, and for normally holding the opposite end of said lever in engagement with said transverse slot in the shipper-rod, a wire-support on said vertical rod, a spring for normally holding said wire-support out of contact with the end of said pivoted lever, and means for moving said shipper-rod endwise, substantially as described.

4. In a machine for making wire-shank buttons, a belt-shipper, means for automatically moving said shipper whereby the machine is stopped, and for retaining said shipper and the belt engaged thereby in position to run the machine, means engaged by the wire in its passage to the shank-forming devices and acting in consonance with said shipper-retaining devices, whereby any obstruction to the free delivery of the wire to said shank-forming devices effects the shipping of said belt and the stoppage of the machine, substantially as set forth.

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