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WIRE FEEDING MECHANISM.

APPLICATION FILED APR. 22, 1918.

1,295,044. Patented Feb. 18, 1919.

FIG. 1

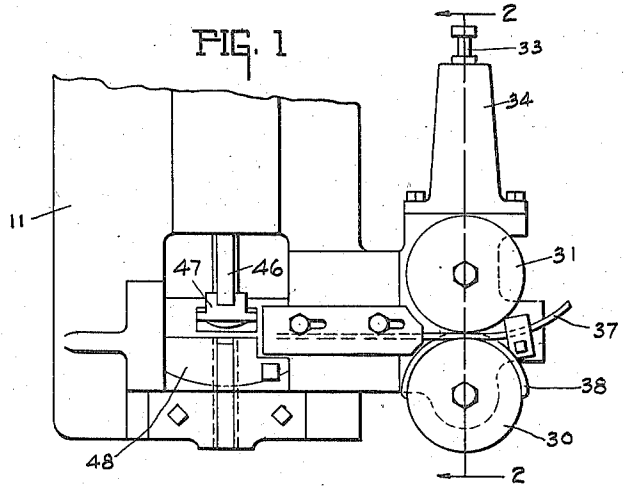


FIG. 2

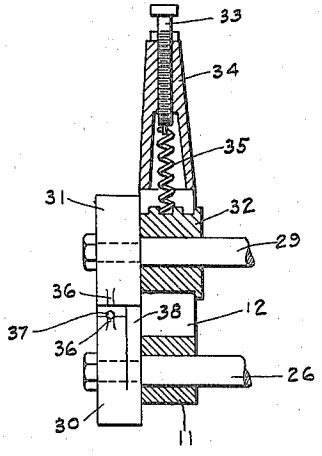
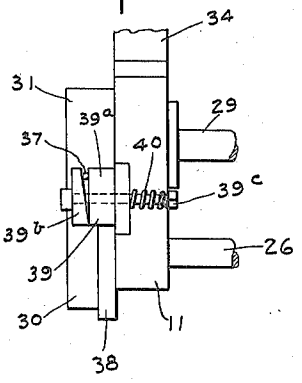


FIG. 3



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WIRE-FEEDING MECHANISM.

1,295,044. Specification of Letters Patent. Patented Feb. 18, 1919.

Original application filed February 12, 1917, Serial No. 148,132. Divided and this application filed April 22, 1918. Serial No. 230,052.

To all whom it may concern:

Be it known that we, SAMUEL C. LAY and FREDERICK M. BAKER, citizens of the United States, and residents of Ridgeville and Detroit, respectively, counties of Randolph and Wayne, respectively, and States of Indiana and Michigan, respectively, have invented a certain new and useful Wire-Feeding Mechanism; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

This invention relates to wire feeding mechanism for broom stapling machines, and is a division of our former application Serial No. 148,132, filed February 12, 1917.

The main feature of the invention is the means for feeding the stable wire into the machine at given intervals and predetermined lengths so as to provide the proper amount of wire to form each staple. This is accomplished by rotatably mounted rolls between which the wire is fed, one of the rolls being provided with a cam member for engaging the opposite roll and elevating it out of engagement with the wire so that the feeding thereof will be temporarily arrested until the length already fed into the machine has been formed into a staple and driven into the broom head.

A further feature of the invention is to provide yielding means for normally holding the rolls in engagement with each other and means for adjusting the same. A further feature of the invention is the provision of means for holding the wire stationary while the rolls are out of engagement therewith. Other objects and advantages will be hereinafter more fully set forth.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

Figure 1 is a detail side elevation of a portion of a broom stapling machine showing the wire feeding mechanism mounted thereon. Fig. 2. is a detail sectional view as seen on line 2—2 of Fig. 1. Fig. 3 is an edge elevation of the feeding mechanism, showing the wire holding mechanism in position thereon.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 11 indicates a part of the frame of a broom stapling machine, which carries staple forming and driving parts 46, 47 and 48, but as these parts are embodied in our former application it is not deemed necessary to further describe the same.

In devices of this class a strand of wire 37 is fed from any suitable point, such as a reel or spool (not shown) into the staple forming mechanism, where it is cut in lengths and formed into a staple and as said wire has to be fed intermittently it is passed between a pair of rolls 30 and 31, which rolls are mounted upon shafts 26 and 29 respectively. The shaft 26 extends through a bearing in the frame 11, while the shaft 29 extends through a bearing 32 which is vertically slidable in a slot 12 of the frame 11, and the roll 31 is held in engagement with the roll 30 by the tension of the spring 35, the lower end of which rests upon the bearing 32 while the upper end thereof is attached to a bolt 33, threaded through the upper end of a housing 34.

The rolls 30 and 31 are provided with grooves 36 through which the wire 37 extends and so long as the faces of the rolls are in engagement with each other the wire will be fed into the stapling mechanism.

As the wire is to be fed into the stapling mechanism intermittently, and in lengths, the roll 30 is provided with a cam portion 38 which extends partly around said roll and which engages the roll 31 as the rolls are rotated, the cam portion 38 forcing the roll 31 upwardly when turned into engagement therewith, thereby moving the bearing 32 upwardly and disengaging the roll 31 from the wire, whereupon the wire will remain immovable so long as the cam is in engagement with the roll 31 and will remain stationary until the cam again passes out of engagement with the roll 31, whereupon the spring will again bring the rolls together and feed an additional length of wire into the staple forming mechanism. It will thus be seen that the wire will be fed into the machine at given intervals and in given lengths depending upon the size of the cam.

To prevent movement of the wire after it is released by the rolls there is provided a clamping device 39 comprising a stationary jaw 39^a and a movable jaw 39^b, said

jaws being held together by extending a bolt 39c through openings in the jaws, said openings and bolt being preferably square in cross section to prevent rotation of the jaw 39b, or any other suitable means may be provided for holding the jaw 39b against rotation.

The inner face of the jaw 39b is preferably inclined so as to receive a wire 37 between the jaws, said wire being yieldingly clamped between the jaws by providing a spring 40 which surrounds that portion of the bolt 39c extending between the jaw 39a and the part of the frame to which it is attached, the spring being held around the bolt by means of a nut or other suitable means.

In operation, the wire is introduced between the rolls through the grooves 36, and as said rolls are rotated, a length of the wire will be drawn through the clamping device and fed into the staple forming device and when the cam 38 is turned so as to engage the roll 31, said roll will be moved upward and the wire released, thereby permitting the wire to remain stationary while the staple is being formed and driven, the wire being held against movement by the clamping device 39. As soon as the cam 38 has passed out of engagement with the roll 31, said roll will again descend and impinge the wire between the rolls and feed an additional section of wire to the staple forming device, thus intermittently feeding the wire to the staple forming device in predetermined lengths. As the wire rests loosely between the rolls when the cam is raising the upper roll, it is held against movement in either direction through the medium of the clamping device 39, thus always maintaining the proper length of wire to be fed to the stapling device.

The invention claimed is:

1. The combination with a pair of wire feeding rolls, and means for intermittently disengaging the rolls from the wire, of means for frictionally engaging the wire to prevent longitudinal movement thereof when the rolls are disengaged from each other, comprising a stationary jaw having a vertical wire engaging end wall, a movable jaw having an inclined wire engaging wall forming a wedge shaped gap between said jaws, a bolt extending transversely through said jaws, and means for yieldingly holding the movable jaw against a wire between said jaws.

2. The combination with a pair of wire feeding rolls, and means to intermittently separate the rolls, of a clamping device for frictional engagement with the wire to hold the same against movement when the rolls are disengaged, including a pair of jaws forwardly of said rolls, between which the wire passes before entering between said rolls, one of said jaws being stationary and having a flat face, and the other jaw being movable and having an inclined face forming a gap for receiving the wire, a bolt extending transversely through said jaws, a spring surrounding said bolt and pressing against the stationary jaw for holding the movable jaw in frictional engagement with the wire passing between the jaws.

3. The combination with a pair of wire feeding rolls, and means for intermittently separating said rolls and releasing the wire therebetween, of a clamping device for holding the wire against longitudinal movement when the rolls are separated, comprising a stationary jaw and a movable jaw, the outer face of the stationary jaw being straight and the inner face of the movable jaw being inclined, said faces forming a wedge shaped gap for receiving a wire, a bolt for holding said jaws together, and a spring surrounding the bolt between one of its ends and the fixed jaw adapted to hold the movable jaw in yielding engagement with the wire between the jaws.

In witness whereof, we have hereunto affixed our signatures.

SAMUEL C. LAY.
FREDERICK M. BAKER.