Sept. 30, 1930. L. A. WESTON ET AL 1,776,874

WIRE THREADING MACHINE

Filed May 22, 1929

Fig. 1.

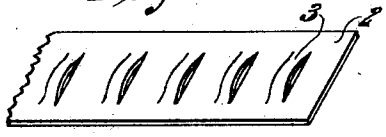


Fig. 2.

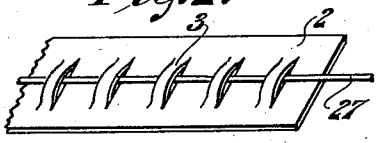


Fig. 3.

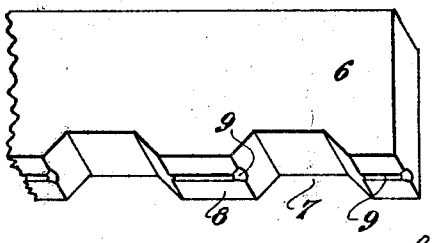


Fig. 4.

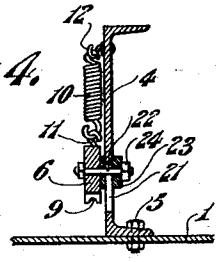


Fig. 5.

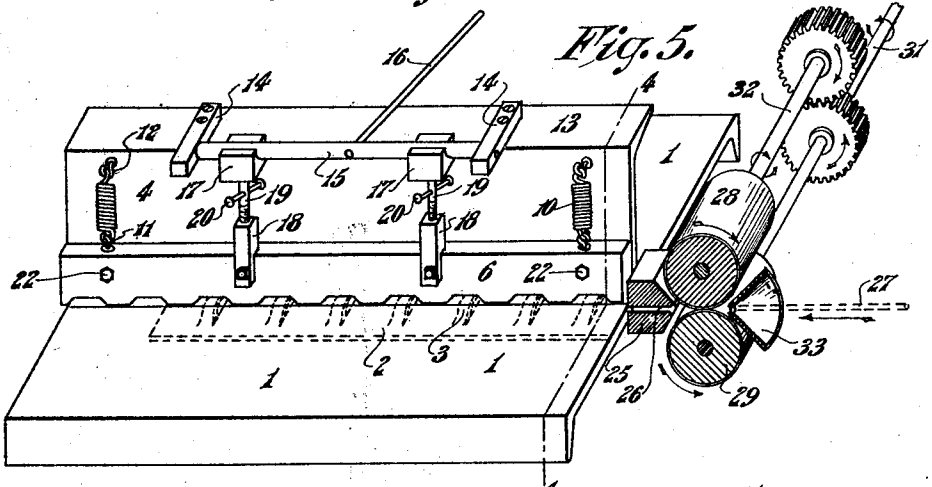


Fig. 6.

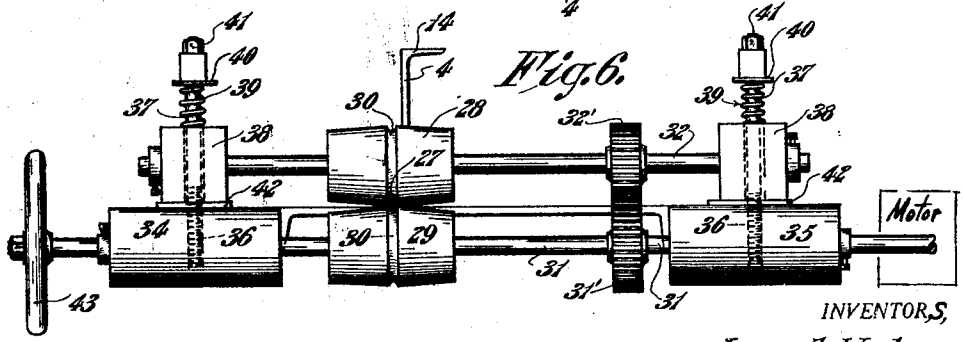
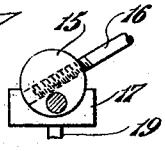


Fig. 7.



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UNITED STATES PATENT OFFICE

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WIRE-THREADING MACHINE

Application filed May 22, 1929. Serial No. 365,076.

This invention relates to improvements in a wire threading machine.

An object of the invention is to provide a machine for inserting or threading wire into a blank having struck-up portions. The wire, when inserted, is passed through openings in the struck-up portions. The invention is, broadly, adapted for inserting wire into a blank of sheet metal which is used for forming a pipe joint, as for example, a sewer pipe, shown and described in my prior patent numbered 1,237,003, dated August 14, 1917, entitled "Device for retaining joint forming material".

Broadly, it comprises a table or bench member on which the blank is placed and a movable clamping member for holding the blank firmly on the table during the insertion of the wire. Means is provided for forcing the strand of wire through the struck-up portion. Means is further provided for varying the pressure of the wire feed rollers on each other, and means is provided for automatically releasing the blank clamping member at the end of the threading operation.

Referring to the drawings:

Fig. 1 is a blank having the struck-up portions, prior to the threading of the wire.

Fig. 2 is a blank showing the wire threaded in the struck-up portions.

Fig. 3 is a detail view of the blank clamping member.

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 5, showing the clamping block, the table and the automatic spring for returning the blank clamping member.

Fig. 5 is a complete machine illustrating the driving shafts, the wire feeding rollers, the driving and the driven shafts, and the table with the parts assembled thereon.

Fig. 6 is a view looking from the right of Fig. 5 illustrating the device for varying the tension of the rollers and the hand feed wheel, and

Fig. 7 is a detail view of the cam for operating the blank clamping member.

Referring to the drawings in detail:

1 designates the table, or bench, on which the blank shown at 2 is placed, which blank is formed with the struck-up portions 3 to receive the wire 27. Secured to the table is a channel-shaped member 4, by any suitable means, as the bolts 5. Slidably mounted on the flat face of the upright 4 is a blank clamping member 6. This member is shown in detail in Fig. 3 and is formed with the cutaway portions 7 and the clamp or bearing portions 8, which latter portions are formed with the aligned grooves 9. The member 6 is suspended by means of the springs 10, one end of which is connected to the hooks 11 and their upper ends to the hooks 12, see Fig. 4. Secured to the upper horizontal surface 13 are the bearing blocks 14. Rotatably supported in these blocks is a cam shaft 15, which is operated by the handle 16, a detail of which cam and handle is shown in Fig. 7. The cam shaft 15 rests in the movable bearing blocks 17.

Secured to the clamping member 6 are the threaded members 18 into which the adjusting bolts 19 are threaded, and the handle 20 for adjusting the bolts. The bolts 19 rest against the under side of the bearing blocks 17. The springs 10 automatically move the bearing block 16 upwardly for holding the bearings 17 in close contact against the cam shaft 15, whereby, when the handle 16 is operated, the clamping block 6 is forced downward onto the blank 2 against the tension of the springs 10, and when the handle 16 is moved in the opposite direction, the springs 10 will elevate the blank clamping member 6.

For the purpose of retaining the member 6 on the face of the upright 4, there is formed in this upright a slot 21. Located in this slot, is the bolt 22 and arranged on the opposite sides of the upright 4 are washers 23 and the securing nut 24, as shown.

Arranged in alignment with the grooves 9 is a wire guide block 25 having an opening 26 therethrough for the wire 27. 28 and 29 are two rollers, which have a semi-circular groove 30. These rollers are driven from the drive shaft 31, and, the driven shaft 32 in opposite directions, as shown by the arrows. A funnel 33 is located opposite the contacting surfaces of the rollers. 34 and 35 are bearings for the shaft 31. These bearings are threaded, as shown at 36, for receiving the threaded rods 37, which pass loosely through the bearing blocks 38 of the shaft 32. Expansion springs 39 are interposted between the blocks 38 and the washers 40 and adjusting nuts 41 are located at the upper ends of the threaded bolts 37. Located between the bearings 38, 34 and 35 are shims 42, whereby, when one or more of the shims are removed or replaced the distance between the wire feed rollers 28 and 29 may be varied, since the bolt 37 is threaded into the bearing blocks 34 and 35, whereby the positions of the upper bearing blocks may be varied, relative to the lower bearing blocks, 34 and 35.

43 is a hand wheel for feeding the wire 27, back, in the event the wire does not properly enter the openings, in the struck-up portions 3. The operation is as follows: The blank, shown in Fig. 1, is placed on the table. The handle 16 is now operated for moving the clamping block 6 downward by reason of the cam construction, shown in Fig. 7. The wire is then forced between the rollers 28 and 29, through the opening 26 in the guide block 25. It then passes alternately through the grooves 9, and under the struck-up portions 3. The completed threading operation is shown in Fig. 2. At the end of the threading, the handle 16 is thrown backwards again and the springs 10 will automatically lift the blank clamping member 6 upward, whereby the blank 2 may be removed. A suitable treadle construction may be attached to the handle or rod 16, as this construction is obvious and it is not illustrated. It should be stated that the radius of the grooves 30 in the rollers, 28 and 29, is slightly smaller than the radius of the wire 27, for the purpose of obtaining a good grip on the wire by these feed rollers.

What we claim is:

1. A wire threading machine comprising in combination with a supporting table on which an article, having struck-up portions is placed, means for clamping the article to the table, the clamping means having alternate notches and elevations, the elevations having grooves for receiving the threading wire, and means for forcing the wire under the struck-up portions of the article, as a blank, and along in the grooves of the elevations of the clamping member.

2. A wire threading machine comprising in combination with a supporting table on which an article, as a piece of sheet metal, having struck-up portions is placed, means for clamping the article to the table, the clamping means having alternate notches and elevations, the elevations having grooves for receiving the threading wire, means for forcing the wire under the struck-up portions of the blank and along in the grooves of the elevated portions of the clamping member, and means for automatically withdrawing the clamping member at the end of the threading operation.

3. A wire threading machine for the purpose described comprising in combination with a receiving table, an upright member secured thereto and formed with slots, a clamping block slidably mounted on the upright member and having bolts located in the slots for securing the sliding member to the upright member, bearing blocks secured to the upright member, a cam shaft supported in the bearing blocks, means for varying the distance between the cam shaft and the blank clamping block member, means for operating the cam shaft for forcing the blank clamping member downward onto the table, and means for automatically returning the blank clamping member to its original position.

4. In a wire threading machine, for the purpose described, comprising a table for receiving the article in which a wire is to be threaded, means for clamping the article on the table, means for threading the wire through the struck-up portions on an article, as sheet metal, said means comprising a pair of grooved rollers for feeding the wire forward, a guide block opposite the meeting surfaces of the rollers between which the wire is threaded, and means for operating the rollers.

5. In a wire threading machine, for the purpose described, comprising a table for receiving the article to be threaded, as a sheet metal blank having struck-up portions, means for clamping the article on the table, means for threading the wire, under struck-up portions on the article, said means comprising a pair of grooved rollers to receive the wire in the grooves for feeeding the wire forward, a guide block opposite the meeting surfaces of the rollers having an opening and through which the wire is threaded, and means for operating the rollers, means for varying the pressure between the rollers, and means for varying the distance between the rollers, whereby the pressure of the wire being threaded may be varied.

6. As an article of manufacture, a clamping block having alternate elevations and depressions, the elevated parts having grooves therein for receiving the wire and the depression parts serving to receive struck-up portions of a blank, under which portions, the wire is to be threaded.

7. In a machine for the purpose described, a pair of grooved feed rollers, driving and driven shafts for the rollers, bearing boxes for the said shafts, one of the bearing boxes having threaded openings, threaded bolts in the threaded openings, the other bearing boxes having an opening to loosely receive the threaded bolts, shims located between the two shaft bearing boxes, means for threading the bolts into the threaded bearing boxes for varying the pressure between the rollers, said shims being for the purpose of varying the distance between the rollers, as described.

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