Sept. 30, 1947. R. MINKOW 2,428,316

FEED ROLL FOR WIRE STITCHING MACHINES

Filed Aug. 24, 1944

Fig. 1.

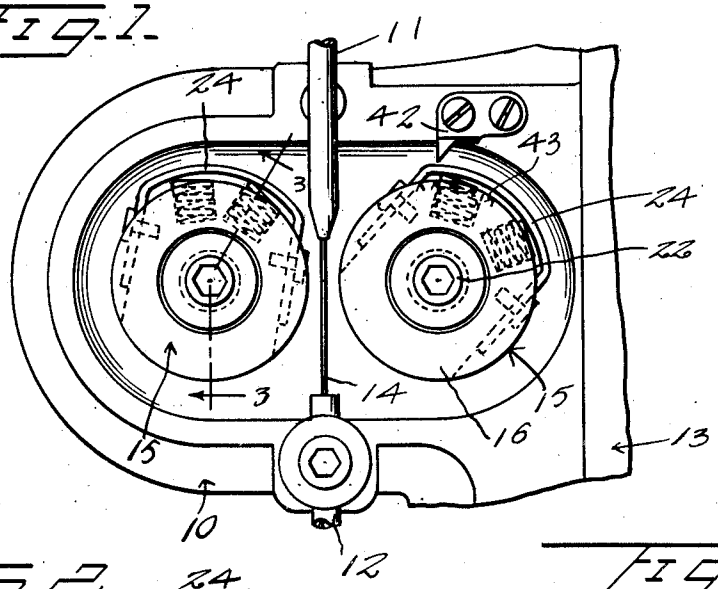


Fig. 2.

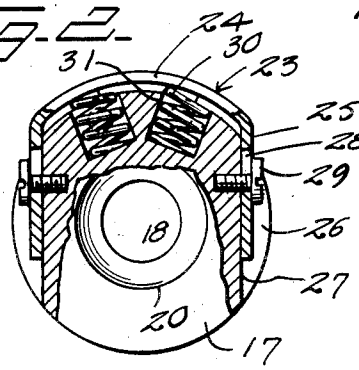


Fig. 3.

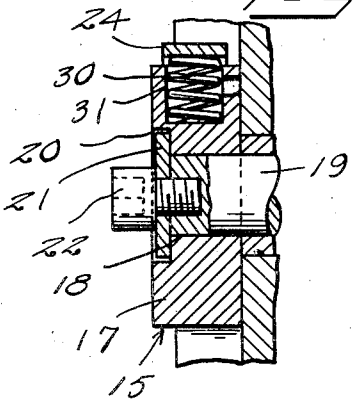
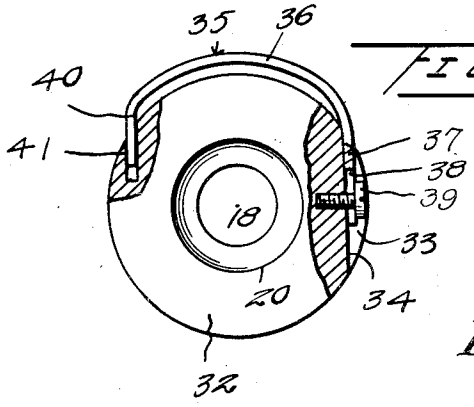


Fig. 4.



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FEED ROLL FOR WIRE-STITCHING MACHINES

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1 Claim. (Cl. 140—131)

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This invention relates to an improved feed roll construction for use with machines for forming and driving wire staples, and is an improvement over the feed roll mechanism disclosed in Patent No. 2,150,824 issued March 14, 1939.

An object of this invention is to provide an improved feed roll mechanism wherein the wire contacting portions thereof is of resilient construction so as to provide for the desired frictional contact with the wire to obtain the necessary positive feeding of the wire.

Another object of this invention is to provide a feed roll mechanism of this kind wherein the wire contacting means may be adjusted so as to provide for the positive feeding of wires of different thicknesses.

A further object of this invention is to provide a feed roll construction including a roller body and a substantially U-shaped resilient wire contacting member adjustably secured to said body.

A further object of this invention is to provide a feed roll construction including a roller body, a substantially U-shaped resilient wire contacting member adjustably secured to said body, and one or more springs seated in sockets formed in the body and bearing against the inner side of the bight of the U-shaped member.

A further object of this invention is to provide a feed roll construction including a roller body and a U-shaped resilient wire feeding member having an end thereof secured to the body and the other end free and slidable in a recess formed in the body.

To the foregoing objects, and others which may hereinafter more fully appear, the invention consists of the novel construction, combination and arrangement of parts, as will be more specifically referred to and illustrated in the accompanying drawings, but it is to be understood that changes, variations, and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a detail front elevation of a feed roll mechanism, constructed according to an embodiment of this invention, mounted on a wire forming and stapling machine, the latter being fragmentarily shown.

Figure 2 is a detail front elevation partly broken away and in section of one of the feed rolls.

Figure 3 is a fragmentary sectional view taken on line 3—3 of Figure 1.

Figure 4 is a detail front elevation partly broken away and in section of a modified form of this invention.

Referring to the drawing, the numeral 10 designates generally a supporting structure for a wire feeding means which is carried by a wire forming and stapling machine generally designated as 13. The support 10 includes an upper guide member 11 and a lower guide member 12 disposed in spaced apart relation so as to expose a length of wire 14 between the confronting ends of the guides 11 and 12.

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A pair of wire feeding rolls generally designated as 15 and 16 are rotatably carried by the support 10 and are movable in opposite directions so as to feed the wire 14 downwardly. The two rolls 15 and 16 are of like construction and each includes a roller body 17 which is formed with a central bore 18 within which a roller shaft 19 is adapted to engage. The body 17 is also formed with an outer recess 20 within which a washer 21 is adapted to seat and a bolt 22 extends through the washer 21 and is threaded into the shaft 19 so as to hold the body 17 against rotation with respect to the shaft 19.

The body 17 has adjustably secured thereto a U-shaped resilient wire feeding member generally designated as 23. The feeding member 23 includes an arcuate bight 24 which has a curvature coincident with the periphery of the roller body 17 and parallel legs 25 which are of straight construction extend from the opposite ends of the bight 24. The legs 25 engage in slots 26 formed in the periphery of the body 17, the slots 26 having parallel inner walls 27. Each leg 25 is formed with an elongated slot 28 through which a headed fastening member 29 is adapted to engage, the fastening member 29 being threaded into the body 17. The wire feeding member 23 is of inherently resilient construction so that the curved or bowed bight thereof may flex during the feeding cycle. In order to provide an additional tensioning means for the bight 24 I have provided for each feeding member 23 a pair of coil springs 30 which are seated in sockets 31 formed in the body 17 in a position where the outer ends of the springs 30 will bear against the inner concave side of the bight 24.

Referring now to Figure 4, there is disclosed a modified form of this roller construction. In this modification a roller body 32 is provided which is formed with a slot 33 opening through the periphery thereof and having a flat inner wall 34. A U-shaped wire feeding member 35 of inherently resilient construction has the arcuate bight 36 disposed thereof in outwardly spaced relation with respect to the periphery of the roller body 32. The U-shaped member 35 includes one elongated leg 37, having a slot 38 therein through which a headed fastening member 39 adjustably engages, the fastening member 39 being threaded into the body 32. The leg 37 engages within the slot 33, bearing against the straight inner wall 34 of this slot.

The opposite leg 40 of the feeding member 35 is substantially shorter in length than the leg 37. The leg 40 slidably engages in a recess 41 formed

in the body 32 and the leg 40 is free to slide in and out of recess 41 as the bight 36 moves into contact or out of contact with the wire.

In the use and operation of this feeding construction the two rollers 15 and 16 are secured to the shafts 19, the latter being geared together by a suitable gear train so that these shafts will rotate in opposite directions. In other words, roller 15 will rotate in a clockwise direction, whereas roller 16 will rotate in a counter-clockwise direction. Roller 16 is preferably adjusted with respect to roller 15, so that the bight of the feeding member carried thereby will be in circumferentially adjusted position with respect to the bight of the feeding member of roller 15. A pointer 42 is secured to the supporting structure 10 and the front face of roller 16 is formed with spaced apart indications 43 which are correlated with the pointer 42 so that roller 16 may be selectively adjusted to the desired degree. As rollers 15 and 16 rotate with their confronting peripheries moving downwardly, wire 14 will be gripped between the two bights 24, and will thereby be moved downwardly for the distance that the bights 24 are in confronting relation. As the bights 24 grip the wire 14 between the two guides 11 and 12, the wire will be moved downwardly and the bights 24 will flex inwardly against the tension of springs 30.

By providing an adjustable wire feeding construction wires of different thicknesses may be fed, it being only necessary to loosen fastening members 29 and adjust the legs 25 of the feeding members to position the bight 24 in the desired spaced relation with respect to the periphery of roller body 17. Furthermore, with a construction

of this kind in the event either one or both of the feeding members become worn, they may be readily replaced without requiring complete replacement of the roller construction.

What I claim is:

A wire feed roll comprising a disc-shaped roller body formed with a pair of diametrically disposed segment-shaped peripheral recesses and a pair of spring receiving sockets between said recesses, a U-shaped feeding member having an arcuate bight and parallel legs, the legs of said feeding member slidably engaging in said recesses, each leg having an elongated opening therein, a pair of headed fastening members engaging through said openings for slidably retaining said feeding member, and a pair of springs seated in said sockets and bearing against the inner side of said bight to normally urge said feeding member outwardly.

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