

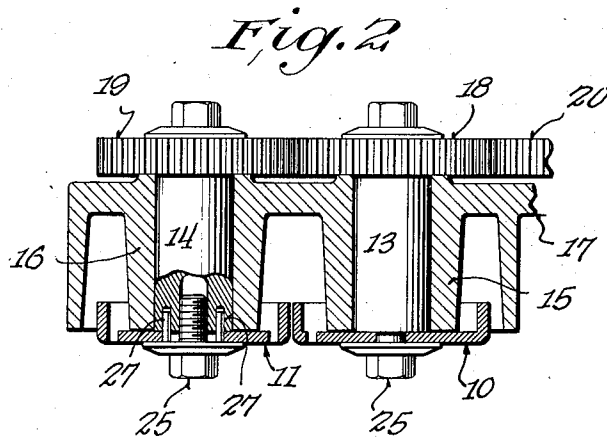
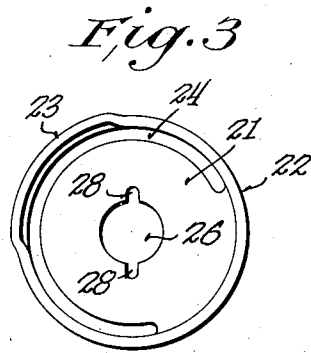
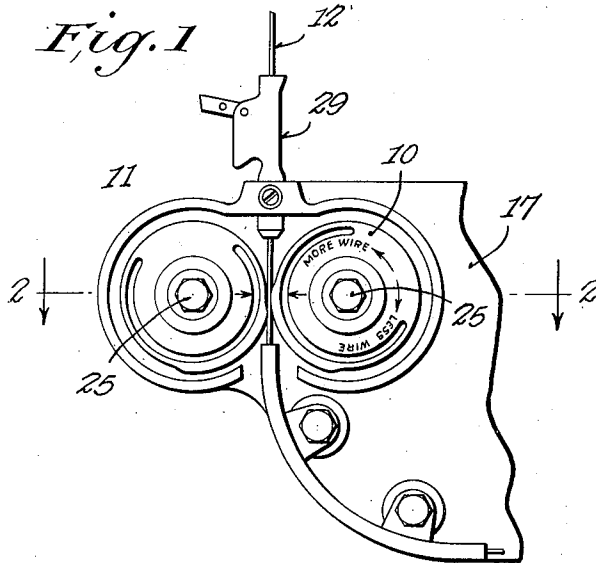
April 30, 1940.

R. G. HOFFERT

2,199,241

WIRE FEED MECHANISM

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BY

INVENTOR.
ROY G. HOFFERT
Ralph Brown
ATTORNEY.

UNITED STATES PATENT OFFICE

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WIRE FEED MECHANISM

Roy G. Hoffert, Racine, Wis.

Original application July 16, 1937, Serial No. 153,998. Divided and this application August 17, 1938, Serial No. 225,474

6 Claims. (Cl. 140—131)

This invention relates to wire feed mechanisms, primarily for stitching or stapling machines.

A stapling machine of a type in which the present invention may be utilized to advantage is disclosed in my copending application Serial No. 153,998, of which the present application is a division. In the machine therein disclosed the wire from which the staples are formed is supplied under tension from an overhead reel and is intermittently advanced rapidly and in accurately measured lengths to the staple forming and driving mechanism. This requires a pull of considerable magnitude upon the wire and a secure grip quickly and accurately applied and released.

An object of the present invention is to provide a wire feed mechanism having improved feed rolls designed to effect prompt and accurate intermittent feeding of the wire to desired lengths and a secure grip thereon without injury to the wire.

Another object is to provide a wire feed mechanism having the above advantageous characteristics and capable of being inexpensively produced.

Other more specific objects and advantages will appear, expressed or implied, from the following description of a wire feed mechanism constructed in accordance with the present invention.

In the accompanying drawing—

Figure 1 is a front elevation of a wire feed mechanism constructed in accordance with the present invention.

Fig. 2 is a sectional view on a slightly larger scale of the wire feed mechanism taken substantially along the line 2—2 of Fig. 1.

Fig. 3 is a view in elevation on a still larger scale of the rear of one of the feed rollers shown in Fig. 1.

The wire feed mechanism shown comprises a pair of feed rollers 10 and 11, designed to grip between them the wire 12 which is to be fed to the machine. The rollers 10 and 11 are each mounted upon the forward end of a shaft 13 or 14, the shafts being carried in appropriate bosses 15 and 16 formed on a bracket arm 17 extending laterally from the frame work of a stapling machine. The rollers are rotated in synchronism and in opposite directions by intermeshing gears 18 and 19 of the same size, mounted upon the rear ends of shafts 13 and 14. These gears are driven through a gear 20 from the main shaft of the machine in a manner to effect one complete revolution of the rolls 10 and 11 for each

cycle of operation of the machine, as disclosed in my copending application above identified.

The feed rollers 10 and 11 are of novel design, each comprising a rather heavy sheet metal stamping shaped to provide a disk-like central supporting web 21 and a substantially cylindrical flange 22 having a portion struck up to provide a slightly projecting, concentric wire feed cam portion 23 of predetermined length. In this instance the cam 23 and adjacent portions of the flange 22 of each roller is freed from the web by appropriate means, such as an arcuate slot 24 provided in the periphery of the web, so as to render the freed portions of the flange more or less yieldable and thereby permit the intermediate cam portion, supported thereby, to yield very slightly under the wire gripping pressure. By thus yieldably supporting the cam portion 23 at both ends, a more effective and secure gripping of the wire is obtained and all danger of marring the wire is eliminated.

Although in the machine shown, the cam portion of both rolls is thus yieldably supported, excellent results are attainable if only one of the rollers is thus equipped.

Each of the rollers 10 and 11 is removably fixed to the end of its supporting shaft 13 or 14 by appropriate means, such as a bolt 25, which passes through a central aperture 26 in the web 21 and serves to clamp the web against the end of the shaft. One of the rollers is preferably locked against rotation with respect to its shaft by keys or pins 27 positioned in the shaft and projecting through appropriate notches 28 formed in the periphery of the aperture 26. In order to vary the length of the overlap of the opposed cam portions 23 of the rollers, to thereby regulate the length of the wire advanced therebetween at each cycle of operation, the keys 27 are omitted from the other of the rollers to permit angular adjustment thereof with respect to its shaft.

As the wire under tension comes from the feed reel above, it is directed to the feed mechanism by a guide 29. As the rollers 10 and 11 rotate, the cam portions 23 approach each other, and at the moment when the leading edge of one cam comes into close proximity to the opposed cam 23, the wire is gripped therebetween, and carried forward until the trailing edge of the other cam starts to recede from the first mentioned cam, at which moment the wire is released from the rollers and comes to rest. Since the wire is gripped between the rollers only during that portion of their cycle when one of their cam surfaces 23 is actually opposed by the other, rotative ad-

justment of one roller upon its shaft, that is, with respect to the other roller, will cause a greater or less portion of the cam surfaces 23 to overlap each other during each cycle, and will thus vary the length of wire that will be delivered at each revolution.

Various changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the appended claims.

I claim:

1. A wire feed mechanism comprising a pair of oppositely rotating members each having an arcuate feed cam portion for coaction with a corresponding cam portion of the other to intermittently advance the wire therebetween, and a separate yieldable support for each end of the feed cam portion of at least one of said members.

2. A feed mechanism comprising a pair of oppositely rotating members, at least one of said members having an arcuate cam portion for coaction with the other member to intermittently advance a strip of material interposed therebetween, and separate means for yieldably supporting said cam portion at each end.

3. A feed mechanism comprising a pair of oppositely rotating members, each having an arcuate feed cam coacting with the feed cam of the other to intermittently advance a strip of mate-

rial interposed therebetween, and separate means for yieldably supporting at least one of said feed cams at each end, at least one of said members being rotatably adjustable relative to the other to regulate the extent of advance of the strip fed thereby.

4. A feed mechanism comprising a pair of oppositely rotating members, at least one of said members comprising a metal stamping having a supporting web and a peripheral flange and projecting laterally therefrom, a portion of said flange being formed to provide a radially projecting arcuate cam for coaction with said other member to intermittently advance a work strip interposed therebetween.

5. A feed roller of the character described comprising a metal stamping having a supporting web and a peripheral flange, a portion of said flange being shaped to form an arcuate cam, said web having a slot adjacent said cam and extending beyond the ends of the latter to permit said cam to yield relative to said web.

6. In a wire feed mechanism of the type described, a rotating feed member comprising a central web, an outer portion formed integrally therewith and having an arcuate peripheral cam, said cam being separated from said central web by a slot extending throughout the length of said cam and beyond each end thereof.

ROY G. HOFFERT.

CERTIFICATE OF CORRECTION.

Patent No. 2,199,241.

April 30, 1940.

ROY G. HOFFERT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 10, claim 4, strike out "and" after "flange"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of June, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.