

UNITED STATES PATENT OFFICE

2,461,855

TRAVERSE FEED CONTROL MEANS

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Application August 30, 1947, Serial No. 771,476

4 Claims. (Cl. 242—158)

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The present invention relates to winding machines, as for instance for threads, and particularly to the traverse feed means employed in such machines.

An object of this invention is to provide a novel and improved construction for the traverse feed means of winding machines, whereby adjustments are easily made to change the length of stroke of such feed, to accommodate spools of different lengths.

A further object hereof is to provide a novel and improved adjustable traverse feed means of the character mentioned, which is of simple construction, cheap to manufacture, easy to use and efficient in carrying out the purposes for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

In the accompanying drawings forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a front elevation of an embodiment of this invention. Included, is a double acting cylinder whose piston, having a reciprocatory movement, serves as the traverse feed arm, for supporting and conveying the thread. The mechanism is here shown in its condition when the piston is at one end of its stroke or travel. Means are included for adjustment of such stroke.

Fig. 2 is a fragmentary view of Fig. 1, showing the condition of the mechanism when the piston is at the other end of its travel.

Fig. 3 is a fragmentary section taken at line 3—3 in Fig. 1, showing a frictional device used in this embodiment.

Fig. 4 is a wiring diagram of an electrical circuit employed in this embodiment.

In the drawings, on a frame 15, is mounted a double acting cylinder 16, controlled by a solenoid valve 17. This valve is in circuit with a "micro" switch 18, and a source of electrical current 19. The cylinder 16, may be actuated, meaning its piston moved, by either oil, water, air or steam. The numerals 20 and 21 indicate pipes connecting the valve means 17 with the respective ends of the cylinder. The numeral 22 designates the piston rod. The apparatus set forth in this paragraph, needs no further explanation as to construction and operation, as same is well known.

A screw 23, has reduced unthreaded ends 24 and 25, at which ends it is suspended and slidably mounted through a frame bracket 26 and a device 27, respectively. Said screw 23, is positioned spaced from and parallel to the piston 22. This screw carries a pair of members 28 and 29 thereon,

which really are comparative large nuts associated respectively with independently moveable small lock nuts 30 and 31 therefor. All said nuts are in threaded engagement with said screw 23. It is evident that the respective positions of the members 28 and 29, along said screw, are manually adjustable.

One end of the piston rod 22 is interiorly threaded as a nut along the line of its axis to receive a screw 33. The amount of extension of the screw 33 forward of said end of the piston rod 22, is of course adjustable and its position maintained by a lock nut 34. The forward end of said screw 33, carries a member 35 secured thereto. Said members, are preferably hubbed discs, of a size that the disc portion of member 35 travels between and can contact the other of said discs of the members 28 and 29, respectively.

The micro switch 18, is of the push-button type, and is positioned on the frame whereby its push button 18', may be contacted and moved by an end of the screw member 23. The device 27, is intended to hold the screw member 23 in frictional engagement against longitudinal movement by the spring 36 when stressed, but yet, permit such longitudinal movement of said screw member 23, when caused by movement of the piston 22. Said device 27, includes a pair of blocks 37, having opposite concave channels through which screw end 25 lies and slides. Adjustment of the screws 38, against springs 39, will determine the frictional grip on said screw member 23, meaning on the latter's end portion 25. The other end of the piston 22, may have the bar 40 extending laterally therefrom, which bar carries a suitable thread eye 41, for guiding the thread 42 along the spool 43, on rotary spindle 44.

To set the apparatus, piston 22 is set to a position for guiding the thread 42 onto and at end A of the spool 43. Screw 23 is manually shifted to push button 18' to a position where the switch 18 is in "closed" condition. Members 35 and 28 are brought in contact, and lock nuts 30 and 34 tightened. Piston 22 is now moved to a position for guiding the thread onto and at end B of the spool 43. Screw 23 is manually shifted so that push button moves outward and switch 18 is in "open" condition. Member 29 is now brought into contact with member 35, and lock nut 31 tightened. Screws 38 are adjusted. The cylinder 16 is now operated, and discrepancies noted. Adjustment thereof is then made by slight change of position of the members 28, 29 and 35, until traverse movement of the thread 42 with respect to the spool 43, is proper.

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In operation, consider the apparatus in condition as in Fig. 1. Piston 22 is at one end of its travel, members 35 and 28 are in contact, switch 18 is "closed," operating medium now reaches the cylinder through pipe 20, because when the switch is closed, valve means 17 so functions. The thread 42 is fed at end A of the spool 43. The piston 22 will move so that arm 40 travels towards end B of said spool. By the time the thread reaches said spool end B, the member 35 will have contacted member 29, as shown in Fig. 2, and switch 18 will be "open," causing valve means to direct operating medium to cylinder 16 through pipe 21, and piston will return to its position as in Fig. 1, when the cycle repeats.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired and that the specific embodiment herein shall be deemed illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific description herein to indicate the scope of this invention.

I claim:

1. In a traverse feed control means of the character described, the combination of a double acting cylinder having a piston, means carried on the piston for guiding a thread, a valve means for the control of the passage of operating medium to the cylinder, a solenoid for operating the valve means, a frame, a bar axially slidably mounted on the frame, a spring button contact switch mounted on the frame and positioned to be contacted by the bar whereby the switch is placed in closed condition, in a certain position of the bar, means mounted on the frame, adjustably frictionally contacting said bar whereby the ease of movement of said bar is alterable,

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a first and second members carried on the bar and moveable therealong, means carried on the bar to lock said members respectively on the bar at predetermined spaced positions thereon, a third member carried on the piston in a position between and adapted upon movement of the piston within the cylinder, to intercept said members on the bar respectively and an electrical circuit including said switch and solenoid.

2. A combination as defined in claim 1, wherein the third member is moveable along the axial line of the piston and including means to secure said member against movement with respect to the piston.

3. A combination as defined in claim 1, wherein the means frictionally contacting the bar comprises a two-part bearing supporting said bar between them and means to alter the distance between said parts carried on the frame, whereby the frictional contact of said bearing parts with the bar is alterable.

4. A combination as defined in claim 1, wherein the third member is moveable along the axial line of the piston and including means to secure said member against movement with respect to the piston, and wherein part of the bar is threaded and the first and second members are nuts on and in threaded engagement with said bar.

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