

United States Patent

[11] 3,623,675

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[21] Appl. No. **869,705**
[22] Filed **Oct. 27, 1969**
[45] Patented **Nov. 30, 1971**
[32] Priority **Oct. 30, 1968**
[33] **Italy**
[31] **23,139**

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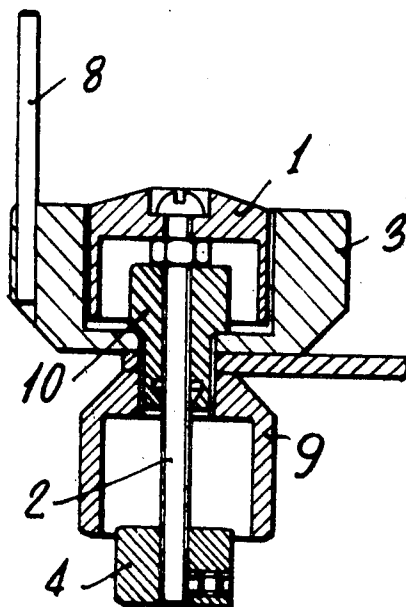
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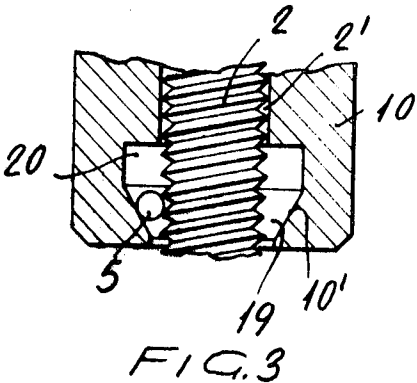
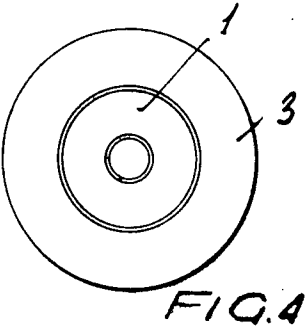
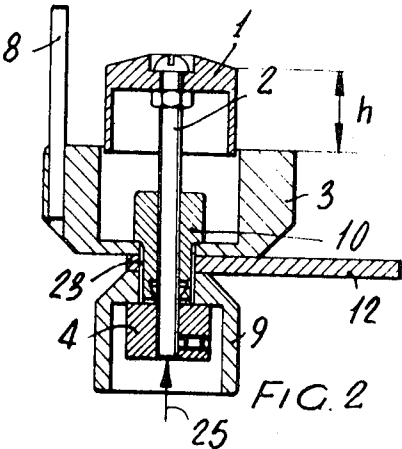
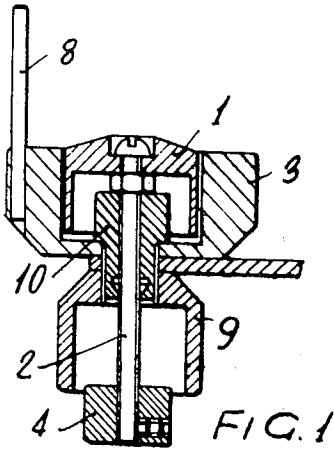
[54] **DEVICE FOR WINDING UP THE INITIAL THREAD SUPPLY AT THE END OF A BOBBIN**
5 Claims, 6 Drawing Figs.

[52] U.S. Cl. 242/18 PW
[51] Int. Cl. B65h 54/34
[50] Field of Search 242/18 PW,
18; 57/34 TT

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ABSTRACT: A device for winding up the initial thread supply at the end of a bobbin comprises a drum which is pushed up into a position to be engaged by the thread traveling between the thread supply and the bobbin. The thread turns the drum and runs the drum back down in a screw-threaded connection, thereby to disengage the thread from the drum after the thread has rotated the drum a certain number of rotations. A one-way screw-threaded connection is provided, comprising a ball which is urged by an inclined surface against the screw thread on a shaft carried by the drum, so that upward movement of the shaft disengages the ball and downward movement entrains the ball with the screw thread.





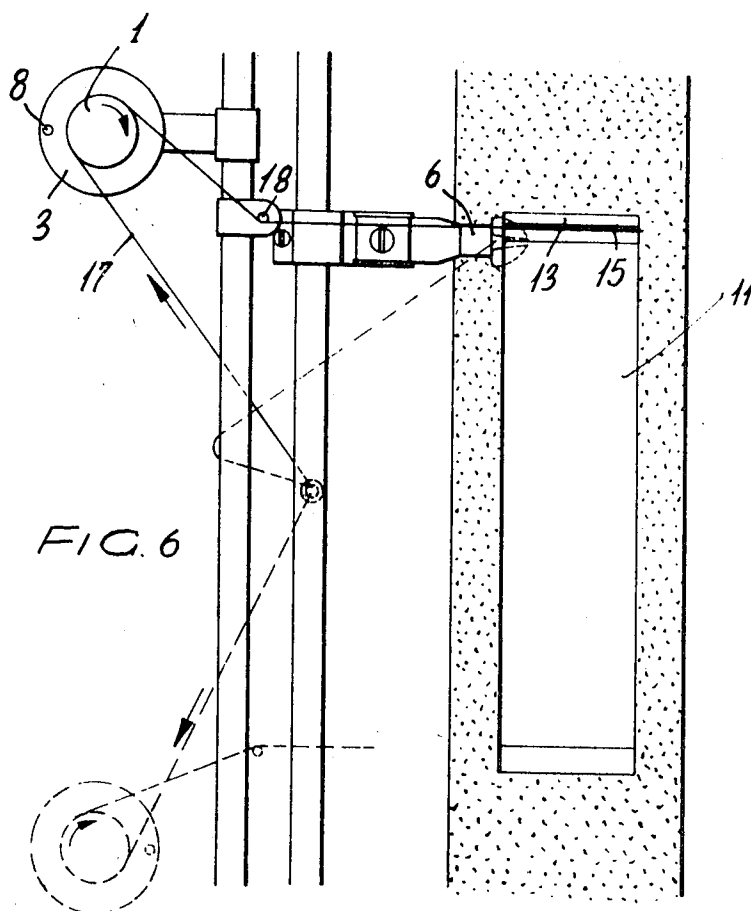
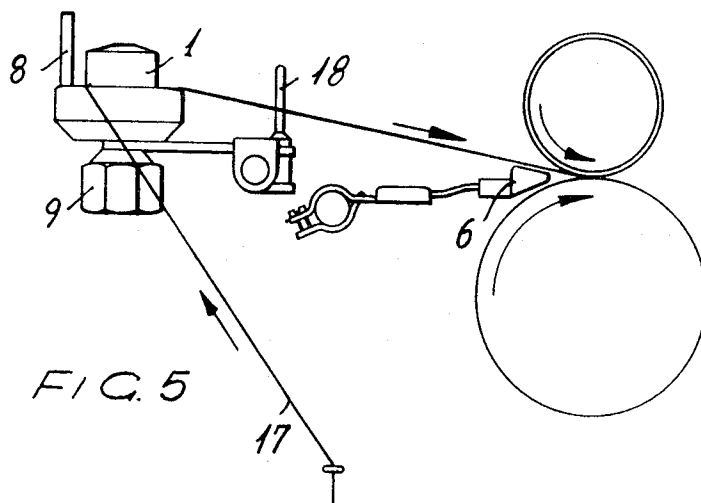
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DEVICE FOR WINDING UP THE INITIAL THREAD SUPPLY AT THE END OF A BOBBIN

It is known that the present bobbins and the like used in the textile industry comprise a tube on which the yarn is zigzag wound up in a great many superimposed layers.

In order to facilitate the withdrawal of the initial thread end at the tube to connect it to the adjacent manufacture or member and to effect a series unwinding, usually an initial thread supply is wound up at the tube end, a supply which protrudes from all of the manufacture or member.

Normally, this supply is wound up at the winding beginning, manually holding the thread for some time out of the normal path for the thread guide.

The present invention, having the purpose of improving the evenness and practical execution for the above operation, comprises a drum, at the periphery of which the thread is caused to rest in order to start the thread supply on the tube, the drum being fast with a threaded spindle turning with minimum friction within a bushing restrained on the machine frame and which may also axially slide therein for a length corresponding to the drum height, at its end projecting from said bushing, said spindle terminating in a portion acting as a pushbutton for causing the axial sliding; this drum being protected by a housing from which it can completely protrude when said pushbutton is axially urged and into which housing it can completely reenter when said spindle, owing to the drum rotation due to thread friction, is entirely threaded within its bushing, thereby disengaging the thread from the drum for commencing the normal winding up of said thread on the tube.

For a better understanding, the appended drawings show a preferred, but not restrictive embodiment of the device according to the invention.

FIG. 1 shows an axial sectional view of the device, wherein the drum is fully retracted within its housing.

FIG. 2 is also an axial sectional view showing the device, wherein the drum is fully projecting from the housing.

FIG. 3 is an enlarged view showing the detail of the mechanism allowing the threading and axial sliding of the spindle.

FIG. 4 is a top plan view showing the drum and housing.

FIG. 5 is a side view of the device as mounted on the machine for winding up the thread supply on the tube.

FIG. 6 is a top plan view showing the device when winding up the thread on the tube.

Referring to the several figures: the device (FIGS. 1 and 2) comprises a drum 1, on the periphery of which a thread 17 (FIG. 6) is caused to rest for starting the thread supply 15 on the tube 11.

The drum is fast with the threaded spindle 2 (FIGS. 1 and 2) threading with minimum friction within the bushing 10 which, in turn, is restrained on the machine frame 12 by screw thread 23. In addition to threading within said bushing 10, the threaded spindle 2 may also axially slide within said bushing, moving upward through a length corresponding to height *h* of said drum 1 (FIG. 2) and raising the pushbutton 4 which is attached to the lower end of said spindle.

The drum is protected by the housing 3 carrying a thread guide shaft 8, from which it can completely protrude (FIG. 2) when said pushbutton 4 is axially urged in the direction of arrow 25, or into which housing it can completely reenter (see FIG. 1) when, due to the rotation of said drum as imparted by thread 17 (FIG. 6), is fully threaded within its bushing 10.

The threaded spindle 2 threads within the bushing 10 (see FIG. 3) through a rolling member comprising in the particular example shown a ball 5 on one side partially entering the spindle screw thread and on the other side resting and reacting against the inclined wall 10' of the frustoconical cavity 19 within the bushing 10 and connected with an overlying cylin-

drical cavity 20. The latter has such a width as to allow said ball 5 to disengage from thread 2' of spindle 2 and return by gravity in a downward direction, that is within the underlying frustoconical cavity 19 when said spindle 2 is upwardly biased by said pushbutton 4.

Also said pushbutton 4 is protected by the auxiliary housing 9, projecting therefrom at the lowermost position (FIG. 1).

The operation is as follows:

Normally, the device is carried in advance of main thread guide 6 (FIGS. 5 and 6) laterally of tube 11 and is manually loaded by urging the pushbutton 4 in the direction of arrow 25 (FIG. 2).

Prior to winding up, thread 17, confined within a suitable notch 13 of tube 11 (FIG. 6), is wound up about drum 1 for about half a periphery thereof (FIG. 6).

Upon threading, thread 17 starting the building up of supply 15 on tube 11, passes about thread guide shaft 18 and rotatably drives said drum 1, thus causing said threaded spindle 2 to be threaded within its bushing 10 and resulting in the lowering of drum 1 until fully reentering its housing 3 (FIG. 1). When drum 1 has been fully retracted, thread 17 is free, or disengages from said drum, being no more capable of gripping thereon and now the thread is grasped by the thread guide 6 to start its regular winding up on tube 11 and providing the manufacture.

By varying the length of drum 1 protruding from its housing 3, which is provided by varying the location for the pushbutton on the spindle 2, the length of thread being wound up at supply position 15 can be varied as desired.

Provision is made so that the device for allowing the threading of spindle 2 within bushing 10 and simultaneous axial sliding under the action of the thrust of pushbutton 4, may be carried out by mechanical mechanisms also differing from those as shown (ball 5—cavities 19 and 20—pushbutton 4), or of a known type, without departing from the patent scope.

What is claimed is:

1. A device for winding up the initial thread supply at the end of a bobbin, comprising a rotatable drum, and means mounting the drum for axial movement into an extended position in which a thread passing between a supply of thread and a said bobbin can pass about and rotate the drum, and a retracted position in which the drum is out of contact with the thread, said mounting means comprising a screw-threaded spindle within a bushing, said spindle carrying said drum and being freely movable in said bushing toward said extended position, and means engaging between the bushing and the screw-threaded spindle to engage in the screw thread of said spindle to restrain movement of said spindle toward said retracted position to helical movement whereby rotation of said drum under the influence of said thread returns said drum to said retracted position.

2. A device as claimed in claim 1, and a housing from which said drum projects in said extended position and into which said drum retracts in said retracted position, said housing disengaging the thread from the drum in said retracted position.

3. A device as claimed in claim 1, said engaging means comprising a rotatable member engaging between said screw thread and an inclined surface on said bushing whereby said screw thread overrides said rotatable member when moving toward said extended position, said rotatable member being urged by said inclined surface against the screw thread during movement toward said retracted position.

4. A device as claimed in claim 3, in which said spindle is upright and said rotatable member is urged by gravity against said inclined surface and said screw thread.

5. A device as claimed in claim 4, said rotatable member being a sphere.

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