Oct. 30, 1951 W. SCHWEITER 2,573,367

EJECTOR AND THREAD CLAMP

Filed July 1, 1947

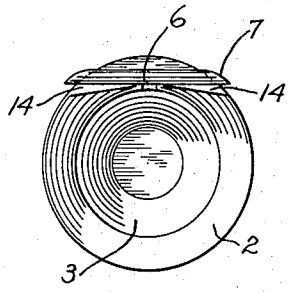


FIG. 1.

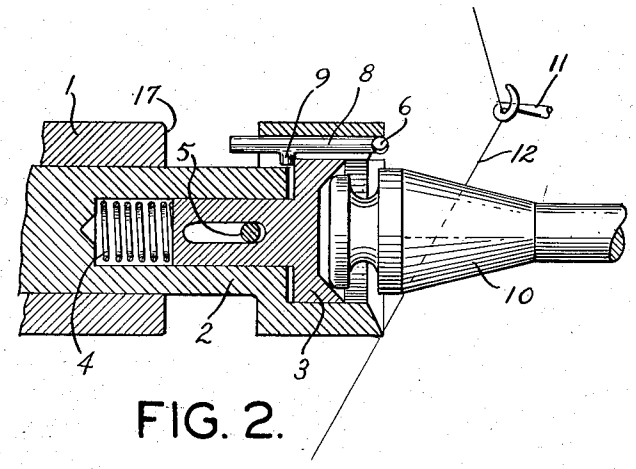


FIG. 2.

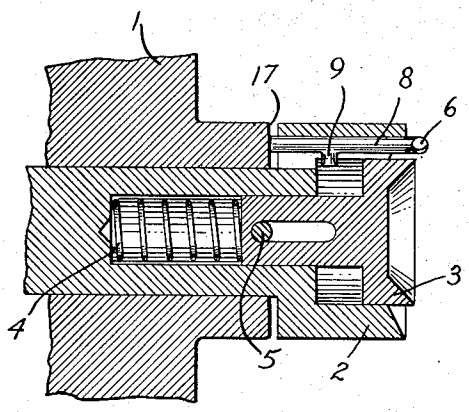
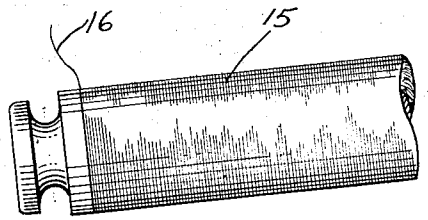


FIG. 3.



INVENTOR.

BY Walter Schweiter

Stanley Frost

ATTORNEY.

Patented Oct. 30, 1951

2,573,367

UNITED STATES PATENT OFFICE

2,573,367

EJECTOR AND THREAD CLAMP

Walter Schweiter, Horgen, Switzerland, assignor to Maschinenfabrik Schweiter A. G., a corporation of Switzerland

Application July 1, 1947, Serial No. 758,246
In Switzerland July 1, 1946

3 Claims. (Cl. 242—41)

1

My invention relates to apparatus for initiating the winding operations in machines for winding bobbins, cops, pirns, etc., and the like, and especially those winding machines that automatically wind one package after another repeatedly. For brevity I shall refer to bobbins alone hereafter.

When a wound or filled bobbin is discharged from a winding machine it is necessary, of course, to attach the thread extending from it (either before or after severance of that thread) to the empty bobbin that is substituted for it, or to the winding head. According to my invention, a catcher for this thread is attached to the winding head, and this catcher is actuated to release the thread when the substituted bobbin is itself wound or filled. Also, preferably, an ejector is incorporated in the winding head to eject the filled bobbins from the head and coact with the catcher to hold the catcher in thread-catching position. The whole arrangement may be simple and is readily applied to winders of existing designs.

The accompanying drawings illustrate the best form of my invention of which I am now aware. Fig. 1 is a front elevation of a winding head having an ejector as well as a thread catcher. Fig. 2 is a substantially vertical longitudinal section of the same head. Fig. 3 is a section showing the parts at the discharge of a filled bobbin.

For explanatory purposes, it can be considered that the winding head and yarn guide of the drawing are operated about as the winding head and yarn guide of my copending application Serial No. 345,255, filed July 13, 1940, now Patent No. 2,449,328, dated September 14, 1948, that the winding machine has a tail stock to support the opposite end of the bobbin as shown in that application and which is operated about as the tail stock of that application is operated and that wound bobbins are discharged and fall about as shown in that application. Also for explanatory purposes it can be considered that the present winding machine incorporates or is associated with bobbin supplying mechanism substantially like that shown in my copending application Serial No. 728,833, filed February 15, 1947.

In the drawing a bearing 1 of the winding machine carries the winding head. As customary this head is rotated by power in winding bobbins, and is movable axially to discharge wound or filled bobbins and to receive empty bobbins to be wound. Within the cylindrical shell 2 of the winding head an ejector 3 is mounted slidably. A spring 4 presses this ejector axially outwardly,

2

and a cross-pin 5 both prevents the ejector being thrust out of the shell by the spring and forces the ejector to rotate with the shell. The thread catcher or thread holder 6 is mounted on the shell 2. Primarily this thread catcher or holder consists of at least one projection or arm 7 extending from the shell and a bar 8 extending more or less parallel to the axis of the winding head and slidable substantially axially in its seat in the head. If the winding head is to rotate in one direction only, only one arm or projection will be necessary, this extending in a proper direction to catch the thread as will be understood from the description of the operation hereafter; if the head is to rotate sometimes in one direction and sometimes in the opposite direction, the thread catcher can have two projections extending in opposite directions as illustrated. In either case the projection or projections may comprise, in effect, a cross bar attached to the end of an axial supporting bar 8. On the longitudinal or axial bar 8, a butt 9 is provided back of and in the path of the ejector 3. The end of the longitudinal bar opposite the cross bar 7 extends or is extensible from the back of the shell 2, so that it may strike, say, the face of the bearing 1 when the head or shield is retracted to release a filled bobbin (Fig. 3). The bobbin 10 being wound is held between the winding head and a tail stock in substantially a conventional manner. The thread 12 being wound may be guided to the bobbin by a thread guide 11 that is moved along the bobbin in conventional manner. Preferably a slot 14 is provided in the face of the shell 2 for the projection or projections 7 of the thread catcher as will be understood from Fig. 1.

As heretofore proposed, the thread guide 11 is brought to about the position shown in Fig. 2 as or immediately after a bobbin is filled, and as the filled or wound bobbin is released by retraction of the winding head (Fig. 2), and perhaps an opposite retraction of the tail stock, the bobbin in falling is allowed to slide in such a direction that the thread 12 extending from it to the thread guide 11 crosses the winding head edge after the latter has been restored to bobbin-holding position again, and holds an empty bobbin (Fig. 2). The winding head is now rotated to start winding on the empty bobbin, and as the head rotates the cross bar 7 strikes the thread and catches it between the bar and the adjacent portion of the shell; for example, in the notch 14 in which the bar now rests. The cross bar or other thread-catching projection is held in this thread-catching or holding position by the

action of the ejector 3 on the butt 9 of the longitudinal member 8. At an appropriate time the thread is severed of course, between the previously discharged filled bobbin and the winding head, say by such shears as have been used heretofore at such locations. As the winding head continues to rotate, the retention of the thread in the holder 7 causes the thread to start to wind on the empty bobbin of course. Thence the winding continues in the conventional manner until the bobbin is filled. When this stage is reached, the retraction of the winding head to drop the newly filled bobbin brings the tail of the longitudinal bar 8 against, say, the face of the bearing 1 as before mentioned, and in effect this moves the cross bar 7 away from the face of the shell 2, e. g. out of the notch 14, and thereby releases the thread end 16 that it has been holding (Fig. 3), so that the newly filled bobbin can fall freely. This completes the cycle of course, and another empty bobbin now can be inserted between the winding head and tail stock and the cycle repeated.

It will be understood that the invention is not limited to the details of construction and operation described above and shown in the drawing except as appears hereafter in the claims.

I claim:

1. In a winding machine, a retractable winding head including a movable thread holder and a member to engage said thread holder to maintain the same in holding position, and a member engageable by the thread holder on the retraction of the winding head to move the holder to thread-releasing position.

2. The subject matter of claim 1, characterized by the fact that the first mentioned member is a bobbin-ejector.

3. In a winding machine, a retractable winding head including an outer shell and a bobbin ejector within and slidable substantially axially of the shell, a spring pressing said ejector outwardly from the end of the shell, a bar slidable in and substantially axially of the shell, and a cross bar on said slidable bar, said slidable bar having a butt projecting into the path of the ejector for pressing said cross bar toward the face of the shell, and said slidable bar projecting from the shell to engage a member on retraction of the winding head to displace the cross bar from the face of the shell.

WALTER SCHWEITER.

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The following references are of record in the file of this patent:

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