No. 822,224. PATENTED MAY 29, 1906.

C. RYDEN.

BOBBIN FOR WINDING MACHINES.

APPLICATION FILED JUNE 6, 1905.

FIG. 1.

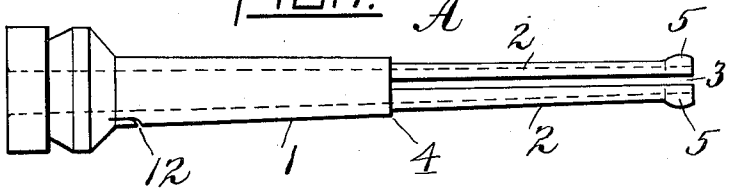
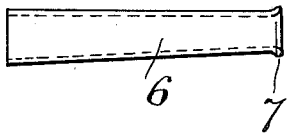


FIG. 2.



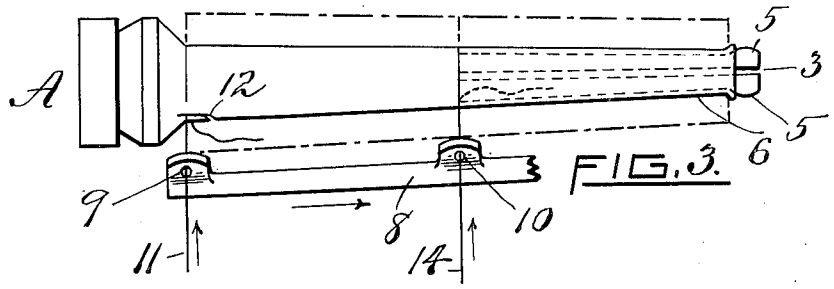


FIG. 3.

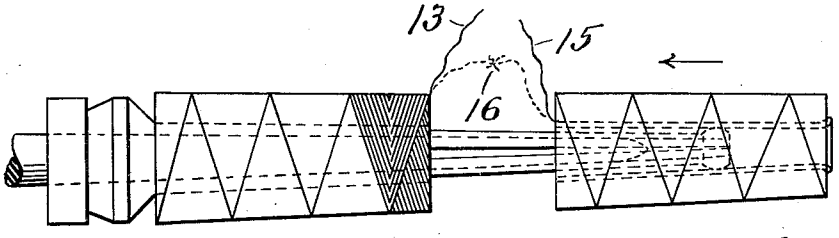


FIG. 4.

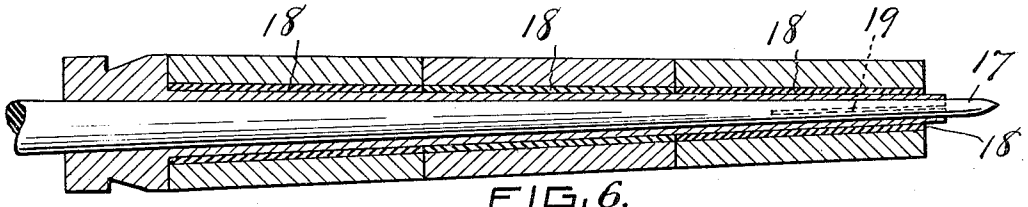


FIG. 6.

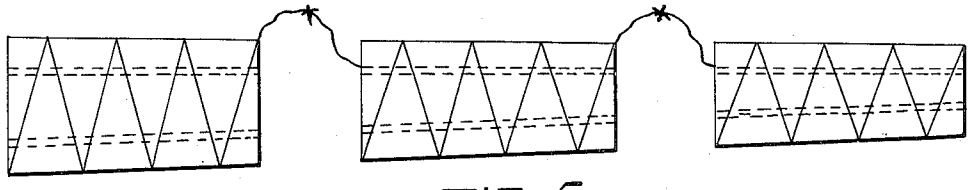


FIG. 5.

WITNESSES.

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BOBBIN FOR WINDING-MACHINES.

No. 822,224. Specification of Letters Patent. Patented May 29, 1906.

Application filed June 6, 1905. Serial No. 264,016.

To all whom it may concern:

Be it known that I, CLAES RYDEN, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Bobbins for Winding-Machines, of which the following is a specification.

It is a well-known fact that when a cop is wound so as to expose but one continuous strand of thread forming a cop-section or layer extending the entire length of the bobbin the ballooning effect of the thread in operation causes a short and long drag thereupon, with the natural result that breakages frequently take place in the thread.

The object of my invention is to overcome this difficulty in that I provide a bobbin with a removable sleeve, upon the surfaces of which are formed two independent cops of comparatively short lengths, said cops having free thread ends for uniting or tying together after the cops are formed in the winding operation and so arranged that the thread as it is fed from the loom-shuttle will have a short even drag upon each cop, whereby breakage of the thread is prevented.

The detailed construction will appear as the description proceeds, reference being had to the accompanying drawings, forming a part of this specification, like characters indicating like parts throughout the several views, in which—

Figure 1 is a plan view of my improved bobbin for a winding-machine and upon which bobbin a short-length cop is wound. Fig. 2 is a plan view of a metallic sleeve employed in connection with said bobbin and upon which sleeve a short cop is wound. Fig. 3 is a plan view of the bobbin with its sleeve in position thereon and showing the relation of the bobbin to the reciprocating thread-guide lever of a cop-winding machine, and which lever directs the threads to form cops upon said bobbin and sleeve, respectively. Fig. 4 is a plan view showing two cops, each mounted upon the bobbin and sleeve, the latter partially removed from said bobbin and the threads of the adjacent ends being connected, as shown in dotted lines. Fig. 5 represents a modification in which a series of cops are mounted upon paper tubes of conical contour, and Fig. 6 is a sectional view illustrating the cops and tubes mounted upon a bobbin of ordinary construction.

In the accompanying sheet of drawings, A designates my improved bobbin, having an enlarged shank 1 and a reduced end portion 2, which is provided with a central longitudinal slot 3 and terminates adjacent the shank 1, forming a shoulder 4. The reduced end portion of the bobbin A is formed with enlarged extremities 5 5, arranged to hold in position a metallic sleeve 6, which is provided with a flared end 7, to abut said enlarged extremities of the bobbin. The slot arrangement of the bobbin, as described, forms an expansible portion for securing the sleeve upon said bobbin by frictional contact.

When the sleeve is mounted in its normal position upon the bobbin, as seen in Fig. 3, the shank 1 and sleeve 6 present a smooth continuous conical surface upon which short-length cops are wound, the cops decreasing in diameter in the same manner as a single cop of the same length as the bobbin and formed from a continuous thread.

In Fig. 3 the bobbin A and sleeve 6, concentrically disposed thereupon, are mounted upon an automatic thread or cop-winding machine, (not shown,) in which a reciprocating thread-guide lever 8 is employed, having thread-eyes 9 and 10, through which the threads are fed to the shank 1 of the bobbin and sleeve 6, respectively. In this operation the thread 11, fed through the eye 9, has its end caught in the usual slit 12, formed in the bobbin, there being a free outer end 13 left after the winding operation, as shown in Fig. 4. The thread 14 is fed through the eye 10, there being a free inner end 15 left after the winding operation adjacent to the end 13 of the thread 11. The end of the thread 14 is placed within the opening of the sleeve prior to mounting the latter upon the bobbin in order to hold the end of this thread by frictional contact between both said parts. The cops are separated after the winding operation in order to make the adjacent thread ends 13 and 15 accessible for tying together, as shown at 16 in dotted lines in Fig. 4. The cops thus formed and united present the appearance of a single cop having a conical surface, as indicated by broken line in Fig. 3, and the cops mounted on the bobbin and sleeve, as described, are now ready for the weaver to place upon the spindle 17 of a shuttle.

As a modification to my invention I have arbitrarily chosen to show three cops, as illustrated in Fig. 5, which cops are wound on paper tubes 18 18 of conical contour. These

tubes are mounted successively upon a common bobbin of extra length, as shown in Fig. 6, and these cops on tubes are formed with free ends for uniting, and which free ends are secured by said tubes in the same manner hereinbefore described. This common bobbin is provided with a longitudinal slot 19, which forms an expansible portion that coacts to perform the function above set forth. After these latter cops are formed by the winding operation the cops with tubes therein are withdrawn from the bobbin and packed for shipment to the knitting manufacturer, and the ends of these cops are left free for uniting by the knitter.

It will be readily understood that forming each cop in a predetermined length not only permits of two or more cops to be mounted for weaving or knitting, but also allows of an even drag of the thread in operation, whereby breakage of the thread is prevented.

It is obvious that any number of cops may be wound upon my improved bobbin, and at the same time minor changes may be made without departing from the spirit or scope of my invention as defined in the appended claims.

Having fully described my invention, I claim—

1. The combination with a bobbin having a tapering winding-section, of a removable winding-section of tapering form.

2. The combination with a bobbin whose shank has a reduced bifurcated portion, of a removable sleeve adapted to fit and hold by frictional contact upon the bifurcated portion of said bobbin.

3. The combination with a bobbin whose shank has a reduced bifurcated portion which terminates in enlarged extremities, of a removable sleeve adapted to fit upon the bifurcated portion of the bobbin-shank, and having a flared end to abut the enlarged extremities of the same.

4. The combination with a bobbin having a tapering shank whose inner portion forms a winding-section and whose outer portion is reduced and bifurcated, of a removable sleeve adapted to be mounted on the bifurcated portion of the bobbin-shank and forming a winding-section, and a cop formed upon the inner portion of said bobbin-shank and said sleeve respectively and having free adjacent thread ends for connecting together.

In testimony whereof I affix my signature in the presence of two witnesses.

CLAES RYDEN.

Witnesses:
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