Sept. 24, 1935. C. HERRMANN 2,015,221

APPARATUS USED IN DRAWING YARN VERTICALLY FROM BOBBINS

Filed March 24, 1933

Fig. 1.

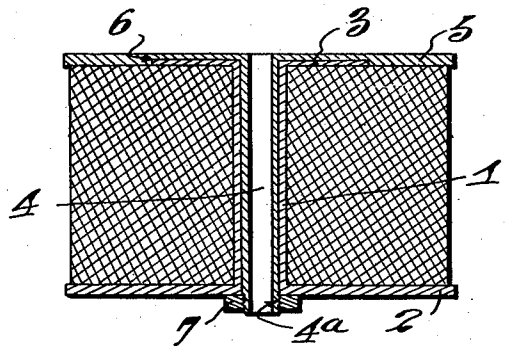
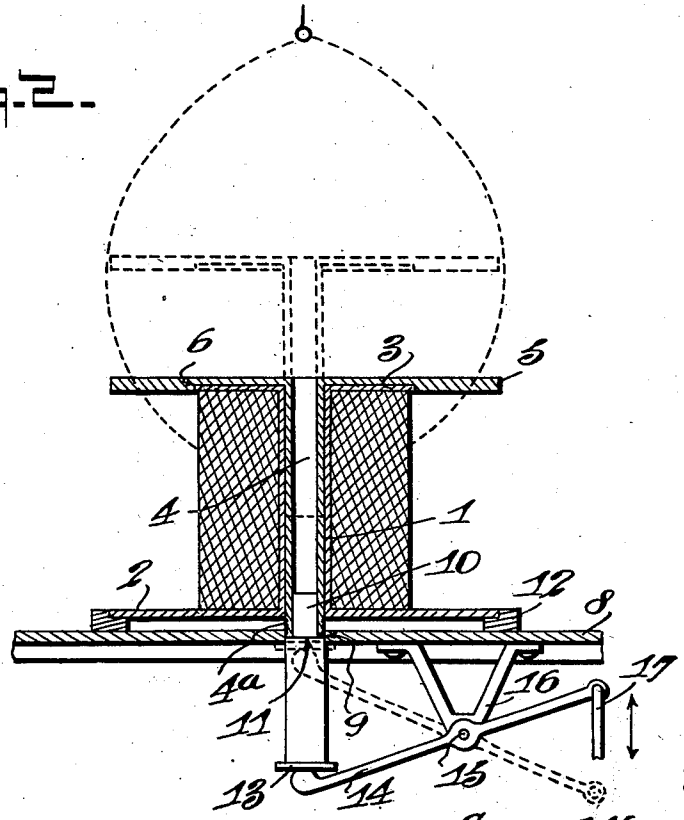


Fig. 2.



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Patented Sept. 24, 1935 2,015,221

UNITED STATES PATENT OFFICE

2,015,221

APPARATUS USED IN DRAWING YARN VERTICALLY FROM BOBBINS

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Application March 24, 1933, Serial No. 662,419
In Germany April 13, 1932

2 Claims. (Cl. 242—128)

This invention relates to a device for use in the manufacture of artificial filaments but primarily has for its object to provide an improved spool for drawing the yarn vertically therefrom without tension.

Another object of the present invention is to provide an improved spool having a removable end.

Still another object of the present invention is to provide an improved spool whereby when the yarn body has been unwound to a certain extent, the upper end can be raised to eliminate tension during unwinding.

These and other objects will in part become obvious and in part be pointed out in the following specification and attached drawing, in which:

Figure 1 is a vertical central section of a completely wound spool of the type which is the subject matter of this application; and

Figure 2 is a vertical central section of the parts illustrated in Figure 1 in position to have the removable end raised by the means illustrated.

In the constructing of disc spools it has heretofore been necessary to have the flanges or discs of the spool not exceed a certain proportion with respect to the core diameter of the spool. In the event that the disc diameter chosen does not correspond to this proportion, i. e., if it is larger than the proportion necessary, it is not possible to draw the filaments vertically from the bobbins or spools without encountering an excessive stress or tension due to friction of the thread against the upper disc.

Frequently however, it is desirable to wind a large quantity of yarn on disc spools. In order to protect the filaments from the extreme tensile stress involved during unwinding, it has been proposed to provide the spools with removable flanges. This has the disadvantage, however, of leaving the yarn package unprotected at the end from which the flange has been removed so that the thread layers tend to fall off or tangle. Moreover the fastenings of the flanges or discs cause certain difficulties. Further, it has been suggested to divide one disc in two concentric parts, and to first unwind the thread from such a spool only partially, i. e., up to a diameter of the yarn body which corresponds to the diameter of the inner part of the disc. After the removal of the outer part of the disc, the remainder of the yarn is drawn off. This procedure has the disadvantage that it is necessary to interrupt the take-up of the thread.

The subject matter of applicant's invention is therefore the devising of a spool and means for using such a spool which will overcome the aforementioned deficiences which arise in twisting operations where the thread is drawn vertically from the spools or bobbins.

In the drawing in which like numerals of reference indicate like parts, 1 represents the tube portion of the spool which has at its lower or base end a large disc portion 2 which is of a diameter large enough to take the maximum yarn package. The upper flange 3 is of a smaller diameter for reasons later more fully disclosed.

The tube of the spool 1 has inserted within it a smaller tube 4 having on its upper end a flange 5 of the same diameter as the base flange 2. The flange 5 has a recess 6 for the purpose of allowing the upper flange 3 of the spool to fit snugly within it.

The lower end of the tube insert 4 is threaded as at 4a for the purpose of being securely fastened by a nut 7. This arrangement acts then as the usual spool. However, the purpose of devising this type of spool is illustrated in Figure 2 of the drawing.

In order to unwind the yarn from the spool for such purposes as twisting or similar operations where the thread must be drawn vertically from the bobbin, the spool is laid upon table 8 provided with an opening 9 through which a bolt 10 projects. The nut 7 is first removed and the threaded end 4a of the tube insert member 4 is placed over the projecting bolt 10 which is shouldered at 11 for the purpose of acting as an abutment for the tube insert 4 which has a sliding fit within the spool tube 1. The table 8 has also a centering ring 12 within in which the base flange 2 is seated.

The bolt 10 is supported at its lower end 13 by an operating lever 14 which is pivoted at 15 to a bracket 16 secured to the under side of the table. The other end of the lever is connected to an operating rod 17.

After the thread has been drawn off to the extent illustrated in Figure 2, the lever 14 is drawn to the position shown in dotted lines, by the operating rod 17. By so doing the tubular insert member 4 is raised, thereby raising the flange 5 which at this point would cause an extreme tension on the thread. The consequence is the extreme stress which the disc 5 would occasion to the filaments through friction is eliminated.

Having now described the invention, it is believed that its construction, operation and ad-

vantages will be readily apparent to any one skilled in the art to which it refers.

What is claimed is:

1. In combination, a spool having flanges at each end, one of said flanges being smaller than the other, said smaller flange fitting within another larger flange, the last-named flange being integrally attached to a tube insert, which tube insert has a slidable fit within the spool body, and a table having centering means for positioning said spool and other means for raising said tube insert and flange integral thereto.

2. In combination, a spool having flanges at each end, one of said flanges being smaller than the other, said smaller flange fitting within another larger flange, the latter flange being integrally attached to a tube insert, which tube insert has a slidable fit within the spool body, and a table having centering means for positioning said spool and other means for raising said tube insert and flange integral thereto, said last-named means comprising a bolt projecting through an aperture in said table, said bolt being operable up and down through a lever pivoted at its center to a bracket under said table and operated by a draw rod attached at the opposite end of said lever.

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