

Nov. 1, 1932.

R. ELSSNER ET AL

1,885,192

SPOOL AND HOLDER THEREFOR

Filed April 20, 1931

2 Sheets-Sheet 1

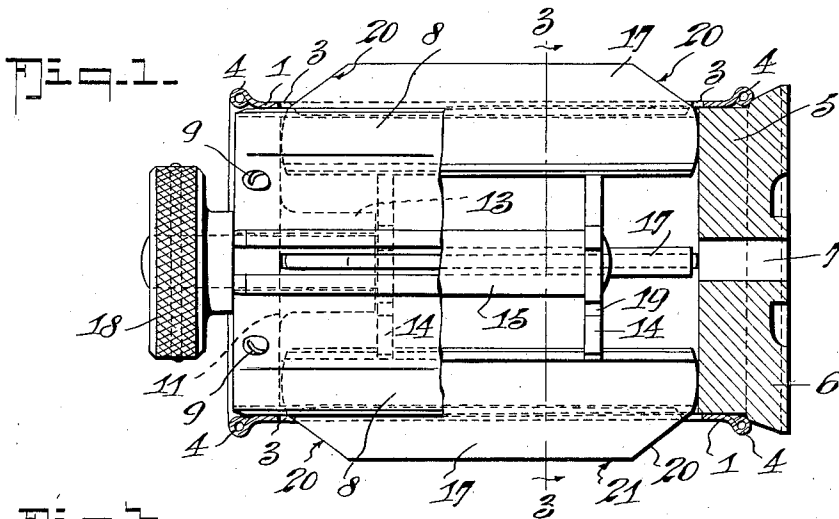


Fig. 3.

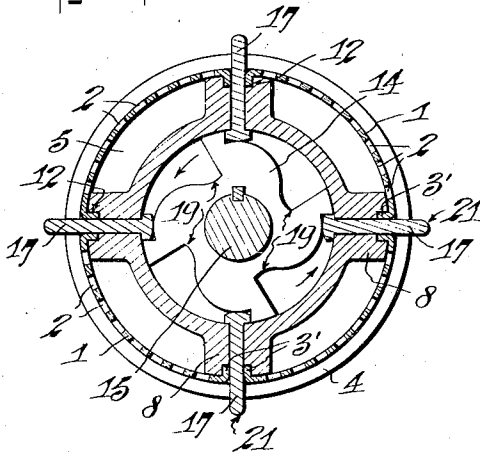


Fig. 2.

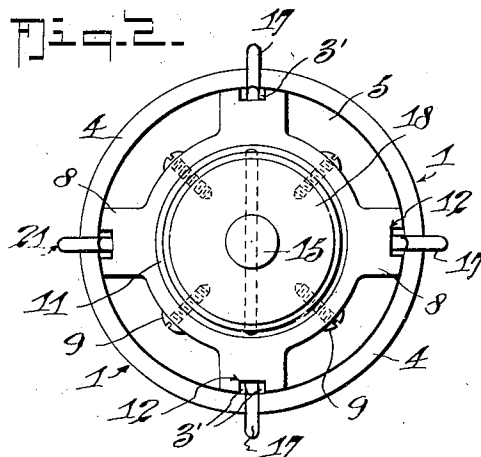


Fig. 4.

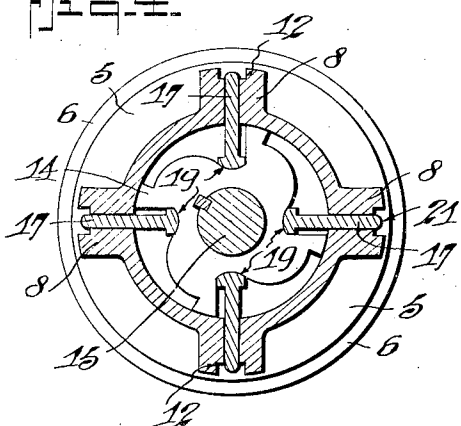
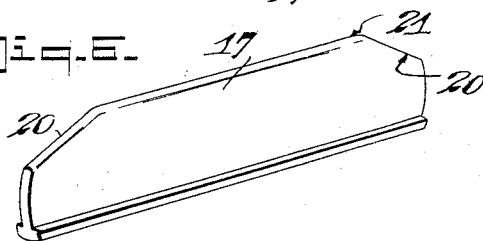


Fig. 5.



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2 Sheets-Sheet 2

Fig. 5.

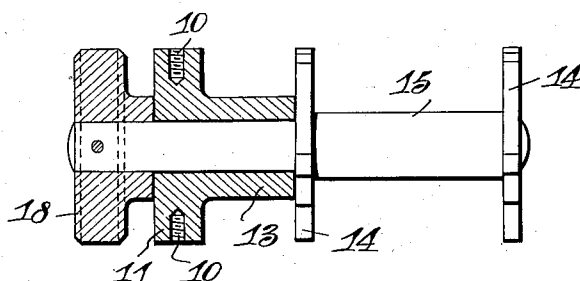


Fig. 6.

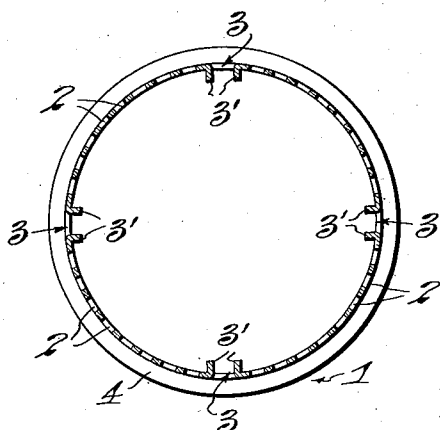


Fig. 7.

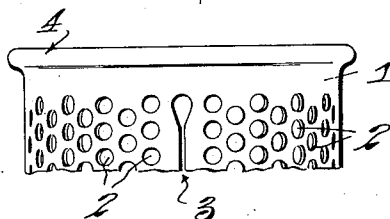
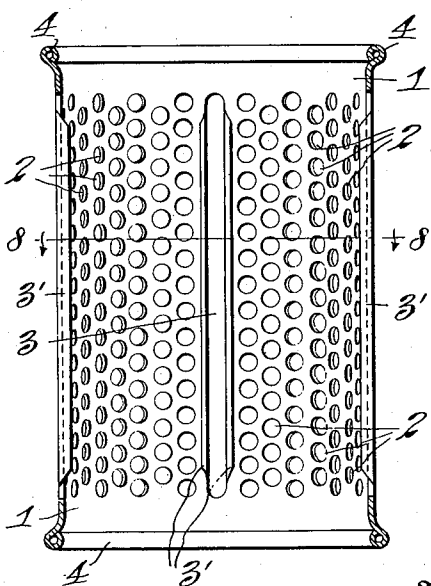


Fig. 8.



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SPOOL AND HOLDER THEREFOR

Application filed April 20, 1931. Serial No. 531,566.

Our present invention has to do with a new type of spool and holder for use in the handling and treating of artificial filaments.

One object of our new invention is to provide a new spool, the use of which will give finished filaments a greater shrinking power.

Another object is to provide a new spool arrangement which will permit the filaments to lie more loosely upon the spool during the wet treatment thereof, and thus enable the wet treatment steps to be more efficiently accomplished.

Other objects will become apparent from a study of the following specification and the accompanying drawings, in which;

Figure I is an assembly view, shown partly in cross-section of our spool and holder;

Figure II is an end view showing the manner in which the two portions of the holder are secured together;

Figure III is a cross-sectional view on the line 3—3 of Figure I, looking in the direction of the arrows;

Figure IV is a view similar to that of Figure III showing the rib-like projections in a withdrawn position;

Figure V is a view of the rotating portion of the holder before its assembly with the fixed portion;

Figure VI is a perspective view of one of the ribs or blades;

Figure VII is a view of the top portion of the spool showing the longitudinal slot "3" before the ribs "3'" are pressed into place;

Figure VIII is a cross-sectional view of Figure IX taken on the line 8—8; and

Figure IX is a longitudinal cross-sectional view of the spool.

The present device is intended for any use in any art to which it appertains where such a spool may be used, but the present description, for matters of convenience, is given with regard to the manufacture of filaments by the viscose method.

In the viscose process an alkali cellulose solution is treated with carbon bisulphide to form a xanthate, and this water-soluble cellulose solution, called viscose, is extruded into baths where the filaments so extruded are hardened to a certain degree. It is necessary

to then desulphurize, wash, bleach, and otherwise handle these filaments, and these processes are referred to as the wet treatment steps. For the sake of convenience in handling, etc. the filaments may be handled in the wet treatment steps while on perforated spools, and the present invention has to do with a specific spool and holder therefor for this treatment.

In the ordinary spools now in use the filaments are often wound so tightly that the filaments, or at least some of them, are not accessible to the treating liquids. It is a great advantage when a looser winding may be accomplished, and the present device permits this. When the filaments are loosely wound upon the spools they are more accessible to the treating liquids, also those filaments next to the spool are allowed to shrink properly during the drying process, and a more efficient and economical treatment may be accomplished.

In the drawings, Figures VIII and IX disclose a view of our new type spool. The spool (1) is perforated (2) throughout, and provided with longitudinal slots (3). These slots may be to the number of three, four, or any other convenient number. In the drawings four slots are shown, but this is not to be construed as limiting our invention. The spools are provided with the usual beaded edges.

The slots (3') are provided by first stamping narrower slots (3), Figure VII, which are then rolled so that the slot is widened, Figure VIII. The edges (3') which are thus turned under, act as guides to locate spools on the spool holder directly over the supporting blades, this turned edge also prevents filaments from being broken over a sharp corner which would otherwise be present (to be described later), also act as strengtheners for the spool, and act to guide the spool properly upon the holder arrangement. The manner in which the edges (3') project into the interior of the spool is clearly shown in Figures III, VIII and IX.

A holder (5), Figure I, is provided whereby these spools may be supported and held in operative position on a machine. This hold-

er comprises a base portion (6) which is permanently associated with the machine, the spindle for rotating the holder entering the orifice (7). Four projecting arms 8—8, are an integral part of the base portion (6), and, by means of screws (9), Figure VIII is secured into a position in the holder portion of the holder shown in Figure I. The screws (9) engage the holes (10) in the portion (11) of the said complementary portion. The portion (11) aside from acting as a securing means, also acts as a positioning means in properly locating shaft (15) and cams (14) longitudinally. As shown in Figures II and III, a groove (12) is provided in arms (8) which cooperates with the portions (3') to properly guide the spool onto the holder. Projecting portion (13) secures the portion (11) in place on the rotating shaft (15). Permanently attached to this shaft (15) are the cam-like elements (14) which act to actuate the blades or ribs (17). A knob, usually knurled, or a hex or square projection or socket, (18), is provided whereby the shaft (15) and consequently the cam-like elements (14) may be turned. Figure III shows these elements (14) in operative position, and when the knob is turned the ribs (17) drop into the recesses (19) and are thus lowered from engagement with the filaments.

The ribs or blades are shown in detail in Figure VI. They consist of blade-like portions, rounded on the outer edge (21) and tapering (20) usually to the same degree as the thread wound upon the spool. These blades may be constructed of any acid-resistant material. The spool holder itself may be of aluminum, rubber, bakelite, etc.

In operating our new device, the spool is placed upon the holder so that the portions (3') engage in the channels (12), and the knob (18) is then turned. This causes the cams (14) to engage the inner ends of the ribs (17) and raise them through the openings (3'). The thread is then wound upon the spools, and, after the winding, the knob is turned in the reverse direction so that the ribs are disengaged. The upper ribs, from the action of gravity, and the tension of the filaments, fall into place so that the removal of the spool is not hampered. When the spool is slightly moved in withdrawing it the sloping edges of the rib (20) gently force the rib to become disengaged and to return to its non-operative position. This action generally applies only to those ribs on the lower portion of the spool. The full spool, with the filaments relaxed thereon, is then removed, and a new spool arranged on the holder.

What we claim is:

1. In combination, a spool comprising a perforated body portion, elongated slots running longitudinally thereof, and provided

with inturned edges projecting into the said spool body portion, a spool holder including rib-like elements and means actuated by an element of the spool holder whereby the rib-like elements may be caused to enter and project outwardly through the slots of the spool.

2. In combination, a spool comprising a perforated body portion, elongated slots running longitudinally thereof, and provided with inturned edges projecting into the said spool body portion, a spool holder including rib-like elements and means actuated by an element of the spool holder, whereby the rib-like elements may be caused to enter and project outwardly through the slots of the spool, the inturned slot edges acting to position the said spool on the said holder.

3. A spool comprising a body portion having a plurality of slots running longitudinally thereof, the edges of said slots terminating in guiding means.

4. A spool comprising a body portion having a plurality of slots running lengthwise of the spool, the edges of said slots terminating in inturned projections.

5. A spool comprising a cylindrical, one-piece, foraminated body portion having a plurality of slots running lengthwise of the spool, the edges of said slots terminating in inturned projections.

6. In combination, a spool having slots running longitudinally thereof, terminating in inturned edges, blades to fit the slots, a holder having an actuating member, and means whereby relative motion of said actuating member with respect to the holder will cause said blades to project through said slots.

7. In a spool holder and spool, in combination, a spool and a holder therefor including a base portion, rib-like elements, a head portion, a rotatable shaft projecting from said head portion, and means, associated with said shaft, which, upon rotation, actuate the rib-like elements.

8. In a spool holder and spool, in combination, a spool and a holder therefor including a base portion, a head portion, rib-like elements, a rotatable shaft projecting from said head portion, and cams directly connected with said shaft, which, upon rotation, actuate the rib-like elements.

9. In a spool holder and a slotted spool to be held thereby, in combination, a slotted spool, and a holder therefor comprising a base portion, a head portion, rib-like elements, a rotatable shaft projecting from said head portion, and means directly connected with said shaft which, upon rotation, actuate the rib-like elements so as to cause them to enter the slots in said slotted spool.

10. In combination, a spool comprising a body portion having elongated slots running longitudinally thereof, a spool holder, ribs associated therewith, and rotatable means

comprising a portion of the spool holder, which, upon rotation, cause the said ribs to enter and project through the slots in said spool.

5 11. In combination, a spool with a perforated body having slots therein, said slots terminating in inturned edges, a spool holder having associated therewith a plurality of rib-like elements, a portion of said spool holder being rotatable, and, upon rotation, 10 being adapted to cause the said rib-like elements to enter the slots in said spool.

12. In combination, a spool comprising a body portion having elongated slots running 15 longitudinally thereof, a spool holder including rib-like elements, arms provided with channels projecting therefrom, said channels being positioned beneath said slots, and means actuated by an element of the spool 20 holder whereby the rib-like elements may be caused to enter and project outwardly through the slots in the spool.

13. In combination, a spool comprising a body portion having elongated slots therein, 25 said slots terminating in inturned edges, and a spool holder provided with arms having channels which are adapted to cooperate with said inturned portions of said spool to position the spool on the holder.

30 14. In combination, a one-piece perforated spool, the body portion of which is slotted longitudinally, the portions of the spool defining said slots terminating in inturned edges adapted to act as guiding means, and 35 a spool holder comprising a head portion, a base portion and a shaft extending from said head portion, arms on said shaft, channels in said arms so positioned as to cooperate with said beforementioned inturned edges to position the spool upon the holder, and rib-like 40 elements associated with said spool holder whereby, upon rotation of a portion of said holder, said rib-like elements are caused to project through the slots in said spool.

45 15. In combination a slotted spool and a holder therefor, said holder including arms adapted to support the spool, and provided with channels adapted to act; in cooperation with the slots of the spool, to position the 50 spool on the holder.

16. In combination with a spool as set forth in claim 4, a spool holder, including arms adapted to support the spool body, and 55 said arms having channels positioned to contact with the said inturned portions to position the spool upon the holder.

In testimony whereof we affix our signatures.

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