Aug. 2, 1932. G. W. BUNGAY 1,869,408

SPOOL

Filed May 11, 1928

Fig. 1.

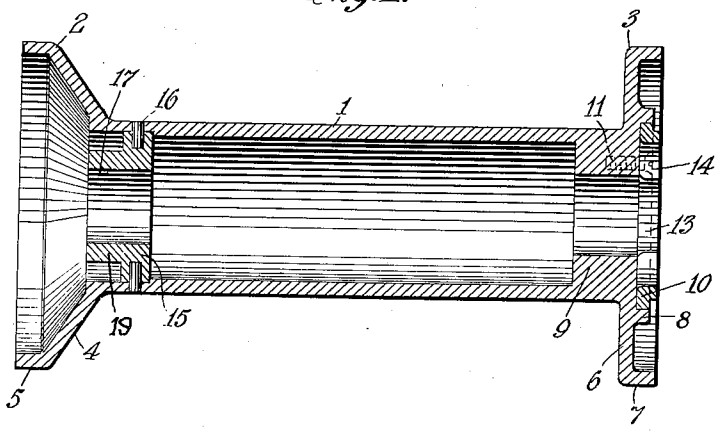
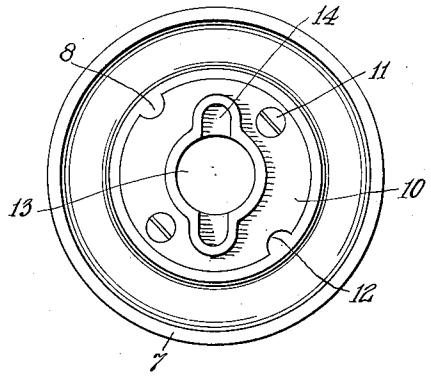


Fig. 2.



George W. Bungay INVENTOR

BY

Wm. S. Cuthard

ATTORNEY

Patented Aug. 2, 1932 1,869,408

UNITED STATES PATENT OFFICE

GEORGE W. BUNGAY, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO ALUMINUM COMPANY OF AMERICA, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

SPOOL

Application filed May 11, 1928. Serial No. 276,902.

This invention relates to a spool and more particularly to a spool on which artificial silk, such as cellulose acetate, is wound.

In the manufacture of artificial silk and especially cellulose acetate silk, the filaments or threads as they issue from the spinning cell are wound on spools or bobbins. They are subsequently rewound on spools, during which operation the threads may be twisted. Prior to my invention, these spools were made of wood and, due to this, had many undesirable features and disadvantages. In the winding operation, the first several layers are wound on the spool in a more or less confused and interwound state. Due to this confused interwinding, these several layers of threads cannot be unwound in the usual manner and constitute what is known in the art as waste. Before the spool can again be used this waste must be removed. In practice it is removed by cutting the layers of threads with some sharp cutting edge, such as a razor blade. In so cutting, the spool is frequently cut and mutilated, whereby it is rendered more susceptible to splintering. The mutilation of the spool, as well as the splintering, has a tendency to injure, break or cut the artificial silk threads. Furthermore, in the course of winding or spooling, the artificial silk threads wound on the spool cut grooves therein. These grooves, in addition to rendering the spool more susceptible to splintering, also injure and break the threads. If the threads have not been thoroughly freed from the compounds used in the manufacture of the silk, the wooden spool may be affected thereby. In addition to the injury to the threads, the above described defects make the life of the spools very short and the number of replacements large. In a cellulose acetate silk plant many thousands of spools are employed and it is thus seen that the use and replacement of wooden spools is very expensive. I have found that I can eliminate and overcome all the above-mentioned disadvantages by making a spool of metal such as aluminum or an alloy thereof.

It is, therefore, an object of this invention to produce a spool adapted to be used in the artificial silk industry which will not be easily mutilated and which is capable of withstanding any of the ingredients that may be present in the cellulose acetate silk.

It is a further object of this invention to provide a spool made of a metallic material such as aluminum or alloy thereof.

Further objects will appear from the following description, appended claims and the accompanying drawing, in which:

Figure 1 is a vertical section of a spool constituting my invention, and

Figure 2 is an end view thereof showing a key-receiving or locking member.

Referring to the drawing, in which like reference numerals designate like parts, there is illustrated a spool constituting my invention and wherein the reference numeral 1 designates a hollow body member. Disposed at opposite ends thereof are flanges 2 and 3. The flange 2 is of the usual type. It comprises an inclined surface 4 adjacent the end of the body member 1 and terminating in a small horizontal surface 5. The oppositely disposed flange 3 comprises a vertical shoulder 6 adjacent the body member 1 and a horizontal surface 7 adjacent the shoulder. On its inner face the flange member 3 is provided with lugs or projections 8, the purpose of which will be hereinafter explained.

In the interior of the body member 1, and integrally formed therewith at the end adjacent the flange 3, is a bushing 9 adapted to receive a driving shaft. Positioned on the lugs 8 and on the inner face of the flange 3 is a key-receiving member or locking member 10, which is removably, though securely, fastened to the spool by means of screws or bolts 11, exending into the bushing 9. The key member 10 is provided with two diametrically disposed cut-away portions 12 adapted to engage the lugs 8, whereby the key member is positioned on and in the flange 3. In the center of the key-receiving member 10 there is a hole or bore 13 which is adapted to receive a driving shaft of the winding or spooling machine. Adjacent the hole or bore 13 and diametrically disposed are two slots or key openings 14 which are adapted to receive a locking member on the driving shaft whereby the spool is locked to and driven by said shaft.

By this construction the key-receiving member is easily applied and removed from the spool. This is a great advantage and expedites the preparation of the spools for insertion in the machine.

In the interior of the body member 1, adjacent the flange 2, there is a bushing 15. This bushing is securely fastened to the body member 1 by means of pins or screws 16. It has a hole or bore 17 through the center thereof whereby it is adapted to receive a driving shaft or some holding mechanism. The upper portion of the bushing 15 has a cut-away portion forming a shoulder or flange 19, which, when in place in the interior of the body member 1, forms an annular space which may, if desired, receive an element on the shaft or holding mechanism whereby the spool is prevented from oscillatory or vibratory movement.

The spool above-described may be made of any suitable metal, preferably aluminum or an alloy thereof. Of course, it is obvious that various methods may be employed to manufacture the spools, but I find that I can obtain satisfactory results by die-casting. When this method is employed the spool, after removal from the dies, is finished and polished.

In operation, since the spool is made of aluminum or alloy thereof, none of the compounds that may be present in the cellulose acetate silk will have any affect thereon. Due to the hardness of the spool, the removal of the waste from the spool and the threads themselves will be prevented from mutilating, grooving or cutting the spool as in the case of wooden spools. If the spool should be marred in any way, the marks would be very fine and small and would have no detrimental effect on the silk. They also could be readily removed by polishing.

Furthermore, in my invention, if the locking member is injured, it does not render the whole spool useless. By my construction the locking member may be removed and a new one inserted without destroying or lessening the life of the spool.

I do not intend to limit myself to the exact details above described except as set forth in the claims, since it is obvious that modifications may be made without departing from the nature of the invention.

I claim:

1. A metallic spool comprising a hollow body member, flanges disposed on opposite ends thereof, bushings disposed within and at opposite ends of said body member adjacent said flanges, one of said bushings having a portion of its outer end cut away, and an extending shoulder whereby when in position an annular space is provided.

2. A metallic spool comprising a hollow body member, flanges disposed on opposite ends thereof, bushings disposed within and at opposite ends of said body member adjacent said flanges, one of said bushings having a portion of its outer end cut away and an extending shoulder whereby when in position an annular space is provided, a locking member disposed adjacent the other bushing, said locking member provided with a central bore and oppositely opposed slots.

3. A metallic spool comprising a hollow body member, flanges disposed on opposite ends thereof, bushings disposed in and at opposite ends of said body member adjacent said flanges, one of said bushings having a portion of its outer end cut away and an extending shoulder whereby when in position an annular space is provided, and a locking member disposed adjacent the other bushing.

In testimony whereof, I have affixed my signature to this specification.

GEORGE W. BUNGAY.