May 2, 1933. J. K. TAYLOR 1,906,777

SPOOL

Filed Dec. 17, 1930

FIG. 1.

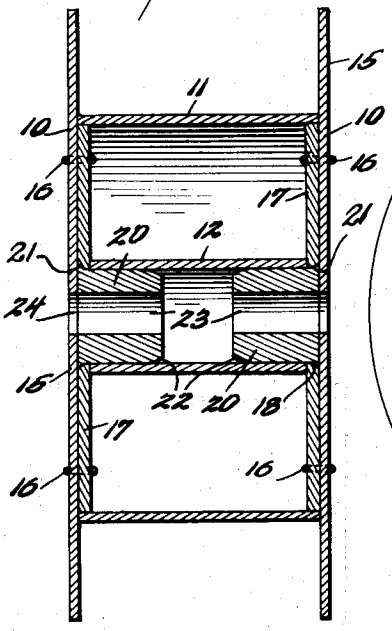


FIG. 2.

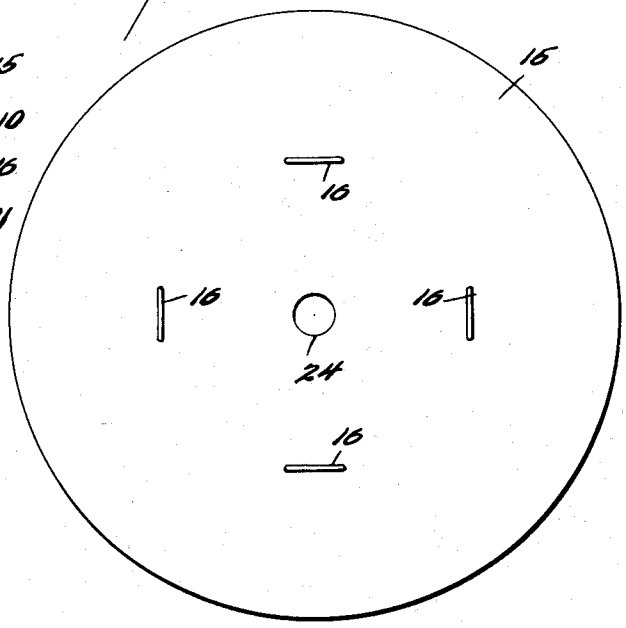
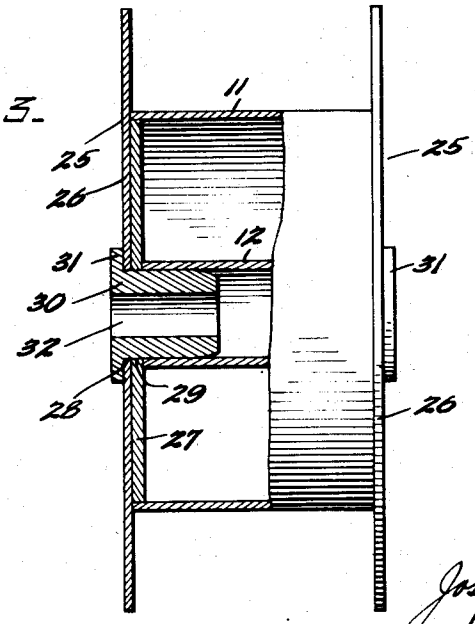


FIG. 3.



Inventor

Joseph K. Taylor,

By Watson, Cole, Morse & Grindle

Attorneys

Patented May 2, 1933 1,906,777

UNITED STATES PATENT OFFICE

JOSEPH K. TAYLOR, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO SONOCO PRODUCTS COMPANY, OF HARTSVILLE, SOUTH CAROLINA, A CORPORATION OF SOUTH CAROLINA

SPOOL

Application filed December 17, 1930. Serial No. 503,073.

This invention relates to spools, reels, or similar winding devices and has for its objects the provision of a novel spool construction and a method of assembling the same.

The present invention contemplates the provision of a spool or reel which is of exceptionally sturdy and durable construction and is well adapted for use in the textile, electrical, or other industries for receiving and winding thread, cordage, wire, or any other type of strand or filamentous material.

Among the important features of the present construction are the reinforcing and securing means for the barrel and end discs of the spool which permit the construction of a spool of relatively large diameter and having a substantially smooth and uninterrupted end surface with a minimum of projecting parts.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawing in which certain embodiments of my invention are illustrated by way of example.

In the drawing:

Figure 1 is a vertical, longitudinal, sectional view of a spool embodying the principles of my invention;

Figure 2 is an end view thereof; and

Figure 3 is a view in side elevation of another embodiment with a portion thereof shown in cross-section.

The embodiment of my invention which is illustrated in Figures 1 and 2 of the drawing comprises essentially the end members or heads which are designated generally by the numeral 10, the outer barrel member 11, and the inner barrel member 12. In the preferred forms, the outer barrel or drum 11 is of a diameter relatively larger than that of the ordinary bobbin or spool and, of necessity, the additional bracing and reinforcing elements are provided.

The end members or heads 10 are of exactly the same construction at either end of the spool so but one of them will be described. These end members comprise an outer end disc or flange member 15 to the inner surface of which there is secured either by gluing or by stitching by means of staples 16, the inner disc 17. This inner disc 17 is centrally provided with the aperture 18 through which is inserted a plug or bushing 20. A beveled flange 21 is formed at the outer end of the plug 20 and the peripheral edge of the inner end is preferably chamfered or beveled as at 22 to aid in the ready insertion of the plug into the barrel member. The flange 21 is designed to overlie the margin of the aperture 18 in the disc 17 and the outer end surface of the plug or bushing 20 is adapted to abut the central portion of the inner surface of the end disc 15. For the purpose of providing a bearing for a shaft or axle upon which the spool or reel may turn, the bushing 20 and the end disc 15 are provided with the registering perforations 23 and 24.

As will be clearly seen in Figure 1 of the drawings, the outer barrel or drum 11 is adapted to fit tightly around the peripheries of each of the inner discs 17 and the bushings or plugs 20 are wedgingly inserted in the ends of the inner barrel 12. The abutting surfaces of the barrel 11, end discs 15, and inner reinforcing discs 17 may be coated with a suitable adhesive composition in order to bind them securely together. It is also preferred to coat the contacting surfaces of the inner barrel 12 and the bushings 20.

The spool illustrated in Figures 1 and 2 is preferably assembled in the following manner. The end members or heads 10 are prepared by first inserting the bushing or plug 20 through the aperture 18 in the reinforcing disc 17, then applying the end disc 15 to the outer surfaces of the disc 17 and bushing 20 so that the end disc aperture 24 registers with the bushing aperture 23. If the discs 15 and 17 are to be secured by an adhesive composition, they are, of course, coated with such a composition prior to the assembly thereof. In case the staples 16 are employed, either alone or in combination with an adhesive substance, they are applied to the superposed discs by means of a suitable machine. The outer surface of the

plug or bushing 20 of one of the end members is then coated with adhesive as is also the outer peripheral surface of the discs 17. The interior end surfaces of an outer barrel 11 and of an inner barrel 12 are then coated in a similar manner and applied, respectively, to the margin of the disc 17 and then to the plug or bushing 20. Next, a previously assembled end member 10 is coated with adhesive in a similar manner to the other end member 10 and is inserted within the ends of the barrels 11 and 12. The assembled spool is then preferably pressed together laterally and allowed to dry.

In the embodiment illustrated in Figure 3 of the drawing, barrel members 11 and 12 are employed just as in the previous modification but the end members are of a different construction and are designated by the numerals 25. Each end member 25 comprises an outer disc or flange member 26 and an inner reinforcing disc 27 which may be secured together either by the use of a suitable adhesive substance or by the use of staples or may be merely superposed and held in that position by the clamping action of the plug or bushing which will be described. In this case, the perforations 28 and 29 of the outer discs 25 and the inner discs 27, respectively, are of substantially the same diameter and are disposed in registry. The internal diameter of the barrel 12 is also of the same dimension as the diameters of these perforations. The plug or bushing 30 in this modification is provided with a substantial radial flange 31 which is adapted to overlap the outer margin of the perforation 28 in the end disc 25. The plug or bushing 30 may be provided with a bore 32 for the reception of a shaft or axle. The barrels 11 and 12 are preferably secured to the peripheries of the disc 27 and the plug 30 by a suitable adhesive substance as in the previously described embodiment.

The manner of assembling the spool last described will be readily understood. The discs 26 and 27 are superposed with their central apertures in registry, the plug or bushing 30 is then inserted from the outer side of the disc 26, and, if desired, these elements are suitably secured together. The barrels 11 and 12 are then applied as in the first case and the previously assembled opposite end member 25 is applied to the other ends of the barrels 11 and 12.

It will be understood that various changes and modifications may be made in the embodiments shown and described without departing from the scope of the invention as defined in the following claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A spool, reel, or like winding device comprising, in combination, a pair of heads or end members, each of said members composed of an outer flange disc, an inner disc of less diameter than said flange disc and disposed against the inner surface thereof, and an axially disposed plug projecting inwardly from each of said members, an inner barrel provided with openings in the ends thereof which receives said plugs, and an outer barrel provided with openings in the ends thereof which receives the peripheries of said inner discs.

2. A spool, reel, or like winding device comprising, in combination, a pair of heads or end members, each of said members composed of an outer flange disc, an inner disc of less diameter than said flange disc, said inner disc being secured to the inner surface of said outer disc and provided with a central aperture, and a bushing entering said aperture and provided with a flange which overlies the margin of said aperture, a portion of said outer disc overlying the outer end of said bushing, an inner tubular barrel member, each end of which receives a portion of the bushing of one of the end members, and an outer tubular barrel member, each end of which receives the peripheral edge of one of said inner discs.

3. A spool, reel, or like winding device comprising, in combination, a pair of heads or end members, each of said members composed of an outer flange disc, an inner disc of less diameter than said flange disc, said inner disc being secured to the inner surface of said outer disc and provided with a central aperture, and a bushing which enters said aperture and is provided with a flange which overlies the margin of said aperture, a portion of said outer disc overlying the outer end of said bushing, an inner tubular barrel member, each end of which receives a portion of the bushing of one of the end members, and an outer tubular barrel member, each end of which receives the peripheral edge of one of said inner discs, the contacting surfaces of said barrel member and of the bushings and inner discs being glued together by means of a suitable adhesive substance.

4. A spool, reel, or like winding device comprising, in combination, a pair of heads or end members, each of said members composed of an outer flange disc, an inner disc of less diameter than said outer disc, said discs being superposed and having registering central apertures, a flanged bushing extending inwardly through said apertures with the flange of said bushing bearing against the outer surface of said outer flange disc at the margin of the aperture therein, an inner tubular barrel member, each end of which receives a portion of the bushing of one of the end members, and an outer tubular barrel member, each end of which

receives the peripheral edge of one of said inner discs.

5. A spool, reel, or like winding device comprising, in combination, a pair of heads or end members, each of said members composed of an outer flange disc, an inner disc of less diameter than said outer disc, said discs being superposed and having registering central apertures, a flanged bushing extending inwardly through said apertures with the flange of said bushing bearing against the outer surface of said outer flange disc at the margin of the aperture therein, an inner tubular barrel member, each end of which receives a portion of the bushing of one of the end members, and an outer tubular barrel member, each end of which receives the peripheral edge of one of said inner discs, the contacting surfaces of said barrel member and of the bushings and inner discs being glued together by means of a suitable adhesive substance.

In testimony whereof I hereunto affix my signature.

JOSEPH K. TAYLOR.