Sept. 7, 1926. 1,598,912

P. R. HOOPES

SPOOL

Filed Nov. 2, 1925

Fig. 1.

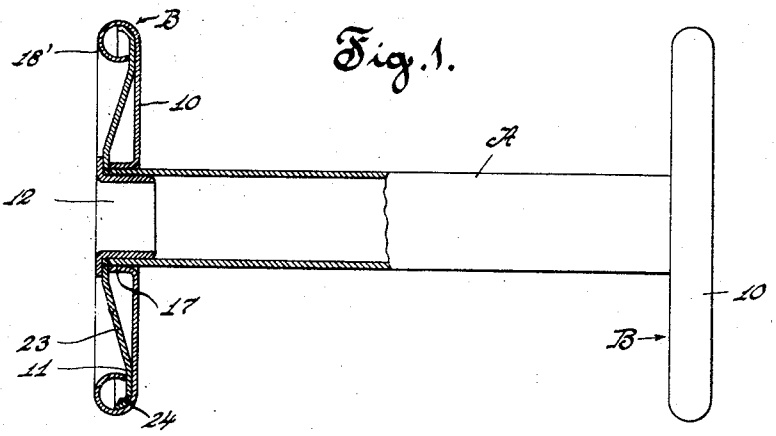


Fig. 2

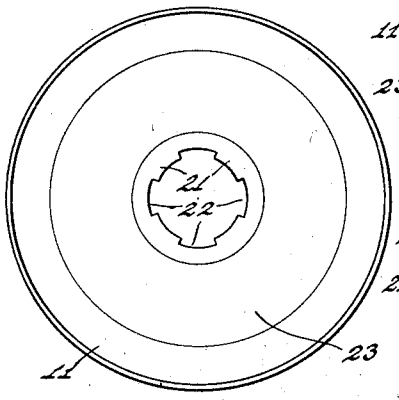


Fig. 3.

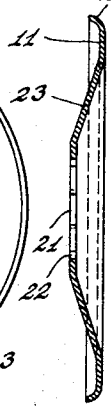


Fig. 5.

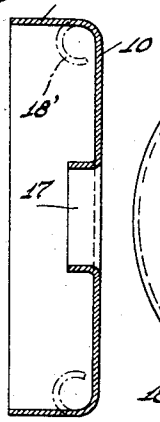


Fig. 4.

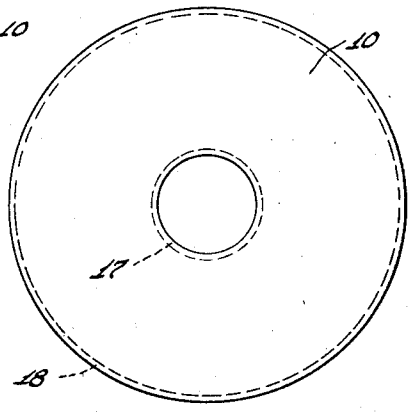


Fig. 6

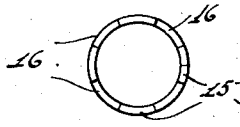


Fig. 7.

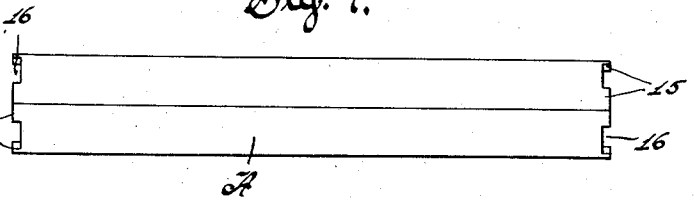


Fig. 8.

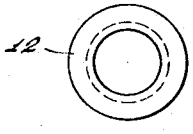
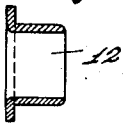


Fig. 9.



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UNITED STATES PATENT OFFICE.

PENROSE R. HOOPES, OF HARTFORD, CONNECTICUT.

SPOOL.

Application filed November 2, 1925. Serial No. 66,188.

The object of the present invention is to provide a spool or bobbin which is adapted generally for use wherever it is desired to wind up or unwind a strand or strands, and which finds particular application in the unwinding and winding of yarns and the like.

A more particular object of the invention is to provide an improved spool which is very simple in construction; which may be economically manufactured; which is light in weight; and which is strong and durable, collapsing, bending, or warping of the parts being guarded against.

A further object is to provide an improved spool, the parts of which are constructed of sheet metal, each of the parts being relatively simple and requiring a minimum of inexpensive operations in their production. The parts are such that they are easily assembled and securely held together in assembled condition.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

Other objects of the invention will, in part, be obvious and, in part, pointed out hereinafter more in detail.

In the accompanying drawings forming a part of this specification and in which similar reference characters refer to similar parts:

Fig. 1 is a side view of my improved spool, one end being an elevation and the other end being in central longitudinal section;

Fig. 2 is a face view of a reinforcing disk constituting a part of the head of the spool;

Fig. 3 is a sectional view of the disk shown in Fig. 2;

Fig. 4 is a face view of the partially formed body member or plate also constituting a part of the head of the spool;

Fig. 5 is a sectional view of the plate shown in Fig. 4;

Figs. 6 and 7 are, respectively, end and side views of the barrel of the spool, and

Figs. 8 and 9 are end and longitudinal section views, respectively, of one of the bushings.

Referring to the drawings in detail, it will be seen that my improved spool has a barrel portion A on each end of which is a head B. The heads are identical in construction and each comprises a body member 10 and a reinforcing member 11. For purposes of brevity and of convenience in terminology and claiming, the body member 10 and the member 11 are respectively referred to herein as a plate and a disk but it is to be understood that these terms are used solely for convenience and not by way of restriction. Each head is locked or secured in place on the barrel by a retaining member 12 which for convenience is herein referred to as a bushing.

The barrel A may, if desired, be formed of seamless tubing, but, by preference, it is constructed by stamping a blank from a sheet of sheet metal and then rolling the blank into tubular shape as by so doing the cost of manufacture thereof is reduced to a minimum. The barrel has, at each end, projections or lugs 15. These projections may be formed by cutting out notches 16 at the same time that the blank is stamped out.

The plate or body member 10 of the head is formed, preferably, of sheet metal. Each of these plates may be constructed, very economically, by stamping out a disk from a sheet of metal and drawing the disk to the shape shown in Figures 4 and 5. As illustrated in these figures, the plate has a central opening which is flanged so as to provide a hub or tubular extension 17. The plate also has a cylindrical skirt 18 which is adapted to be spun or turned over to provide a round bead 18'. The internal diameter of the hub 17 is substantially equal to the external diameter of the barrel so that it will slide onto and snugly fit about the barrel.

The disk 11 is also, by preference, formed from sheet metal by stamping out a blank and drawing the blank to the shape illustrated. The disk has a central opening provided with projections or lugs 21 and intervening notches 22 so arranged that the lugs 21 are adapted to engage in the notches 16 on the end of the barrel and the notches 22 are adapted to receive the lugs 15 of the barrel. The disk engages against the outer end of the boss 17. The disk is of somewhat dish or conical shape, as at 23, so as to have a truss action and bring the disk adjacent to its peripheral edge in engagement with the plate 10. By preference, the outer edge of the disk is slightly curved as at 24, so as to bring it into conformance with the

curvature at the juncture of the radial portion of the plate and its skirt or bead.

After the disk 11 and the plate 10 have been formed to the shapes shown in Figs. 2 to 5, the disk is positioned within the plate and then the skirt 18 is spun into the bead form shown by dotted lines in Fig. 5, and by full lines in Fig. 1. Owing to the fact that the disk is curved at 24 and this curve is adapted to fit a corresponding curve on the plate, the disk properly centers itself. The bead 18' securely holds the disk in place. This bead being round in cross section, and being relatively smooth, yarn or the like, which is being wound onto or unwound from the spool, will easily slide over the bead.

The disk and plate having been assembled as just described so as to form a unit head, they are now positioned on the end of the barrel with the boss 17 surrounding the barrel and the lugs 21 and 15 in interlocking relation. The bushing 12 is then inserted into the barrel. The bushing is slightly greater in external diameter than the internal diameter of the tube A so that it must be forced home, thereby expanding the end of the barrel against the boss 17 and insuring a rigid, tight and secure union between the parts. The flange of the bushing overlies the edge of the opening of the disk thereby locking the latter in place. Owing to the interlocking lugs or projections 15 and 21, the head and barrel are held against relative rotary movement and owing to the engagement of the lugs 21 against the bottoms of the notches 16, the head is prevented from moving towards the center of the barrel.

It will be seen from the foregoing description, taken in connection with the accompanying drawings, that my improved spool is extremely simple in construction and may be manufactured at a relatively low cost. The spool is extremely strong so that it will withstand severe usage and the strains to which it may be subjected. It will be further noted that the bushing does not extend beyond the plane of the bead so that the spool may be stood on its end.

It is of course obvious that my invention is susceptible to various modifications and changes which are within the spirit of my conception without departing from the scope of the appended claims.

What I claim is:

1. A spool of the character described, having a barrel, a member provided with a central hub surrounding said barrel and a radially extending portion, a disk interlocking with the end of said barrel and engaging said member adjacent its outer periphery, and independent means for securing said member and disk to said barrel.

2. A spool of the character described having a barrel, a plate having a hub surrounding said barrel, a disk secured to said plate and engaging the outer end of said hub, and interlocking lugs between the end of said barrel and said disk.

3. A spool of the character described having a barrel, a plate having a hub portion surrounding said barrel, a disk having its periphery secured to said plate and engaging the outer end of said hub portion, and a bushing driven into said barrel to expand the same in said hub to lock the parts together.

4. A spool of the character described, having a barrel, a head comprising a plate having a hub fitting on said barrel, a radially extending portion and a peripheral bead; said head also including a disk engaging the end of said barrel and secured to said plate by said bead, interlocking lugs between the end of said barrel and said disk, and a bushing driven into said barrel to expand the same and having a flange overhanging said disk.

5. A spool of the character described having a barrel, a head comprising a plate having a hub portion fitting on said barrel and a radially extending portion; said head also including a disk secured to said radially extending portion and engaging the outer end of said hub portion; interlocking lugs between the end of said barrel and said disk, and a bushing driven into said barrel and having a flange overhanging said disk.

PENROSE R. HOOPES.