April 10, 1956 W. AUPPERLE 2,741,442

YARN SPOOL

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Fig. 1

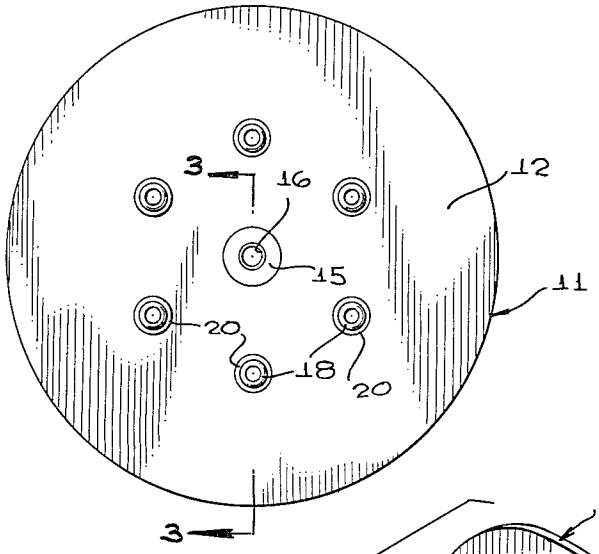
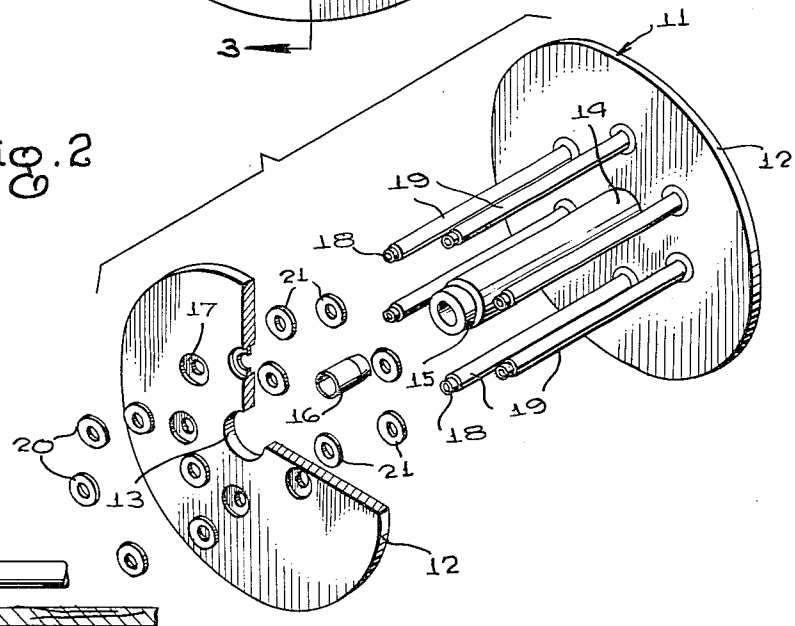


Fig. 2



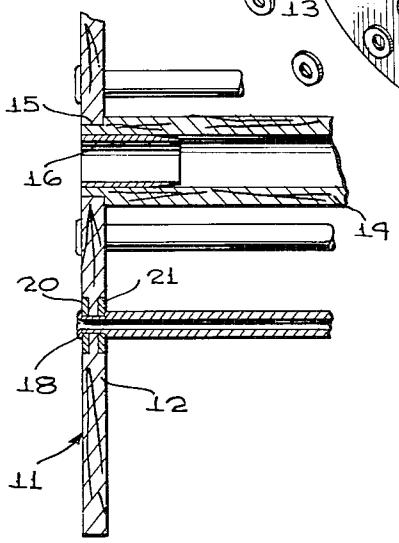


Fig. 3

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YARN SPOOL

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1 Claim. (Cl. 242—118)

This invention relates to spools, and more particularly to an improvement in yarn winding spools.

The main object of the invention is to provide a novel and improved yarn winding spool which is simple in construction, which is inexpensive to manufacture, and which is long lasting.

A further object of the invention is to provide an improved yarn winding spool which is compact in size, which is light in weight, which is rugged in construction and which minimizes breakage of yarn wound thereon.

Further objects and advantages of the invention will become apparent from the following description and claim, and from the accompanying drawings, wherein:

Figure 1 is an end view of an improved yarn winding spool constructed in accordance with the present invention.

Figure 2 is a perspective view of the yarn winding spool of Figure 1, the parts being shown separated and the end disc of the spool being shown broken away to reveal details of interior construction.

Figure 3 is an enlarged cross sectional detail view taken on the line 3—3 of Figure 1.

Referring to the drawings, the illustrated yarn winding spool is designated generally at 11 and comprises a pair of parallel end discs 12, 12 of inexpensive, relatively yieldable material, such as wood or the like, each of the discs being formed with a central aperture 13. Designated at 14 is a tubular core member of relatively yieldable inexpensive material, such as wood or the like, said tubular core member being formed at its ends with reduced portions 15 which are received relatively snugly in the apertures 13 of the discs 12, 12, in the manner illustrated in Figure 3. The reduced portions define shoulders arranged to bear against the inner sides of the discs 12, 12. Tightly engaged in the opposite end portions of the tubular core 14 are the respective metal tubular bearing sleeves 16, said bearing sleeves being adapted to receive the ends of the spindles on which the spool is journaled and to rotatably support the spool.

The discs 12, 12 are formed around the central apertures 13 with the circularly arranged apertures 17, said apertures 17 being countersunk on opposite sides of the discs and receiving the reduced ends 18 of the tubular rod members 19, said rod members being arranged between the discs parallel to the core 14 and at equal radial distances therefrom, as shown in Figure 2. As shown in Figure 3, the reduced end portions 18 of the rod members 19 extend through the apertures 17. Disposed on opposite sides of the discs and engaged on each of the reduced portions 18 of the rod members are the respective pairs of washers 20 and 21, said washers being received in the counterbores of the apertures 17. The washers 20 and

21 are tightly received in said counterbores and are thus substantially embedded in the relatively yieldable material of the discs 12. The shoulders defined by the reduced end portions 18 bear on the inside washers 21, as shown in Figure 3, and the outer ends of the reduced portions 18 are spun outwardly and over the washers 20, being lockingly engaged with the outside surfaces of said washers, whereby the tubular rods 19 are rigidly secured to the discs 12.

The spool 11 is thus provided with the axially extending central core element 14 and with the tubular rod members 19 arranged around the core member at equal radial distances therefrom, the yarn being supported on the tubular rod members 19. Since the surfaces of the rod members 19 are smooth and since said rod members are relatively rigid, the yarn cannot be damaged by contact with the surfaces of the rod members and breakage of the yarn wound on the spool is therefore minimized. Since a relatively large number of rod members 19 are employed, the rod members being evenly distributed around the core 14, the spool is rigidly braced and loosening of the discs 12, 12 relative to the remaining portions of the spool is substantially prevented.

While a specific embodiment of an improved yarn winding spool has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

In a yarn winding spool, a pair of axially spaced and aligned discs of relatively unrigid material, said discs having inner and outer sides and central holes therethrough, a hollow tubular core of relatively unrigid material having reduced end portions and a bore, said reduced end portions being fitted in said central holes and defining shoulders engaging the inner sides of the discs, rigid metal bearing sleeves fitted in the reduced end portions of the core and extending through said central openings, and rods extending between and secured to the discs, said rods being circumferentially spaced from each other around the core and radially spaced from the core, said rods being rigid metal and having reduced end portions defining shoulders spaced from the ends of the rods, said discs having rod holes therethrough in which the reduced end portions of the rods are fitted, the inner and outer sides of the discs having inner and outer counterbores surrounding the rod holes, inner and outer washers engaged in and fitting the inner and outer counterbores, respectively, with the rod shoulders bearing against the inner washers, said rods having ends projecting beyond the outer washer, said ends having spun portions bearing against the outer washers.

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