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2,295,222

SPOOL FOR INDUSTRIAL THREAD

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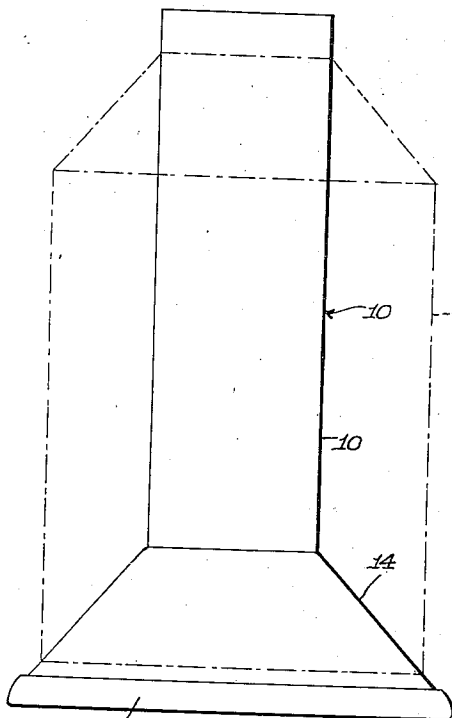


Fig. 1.

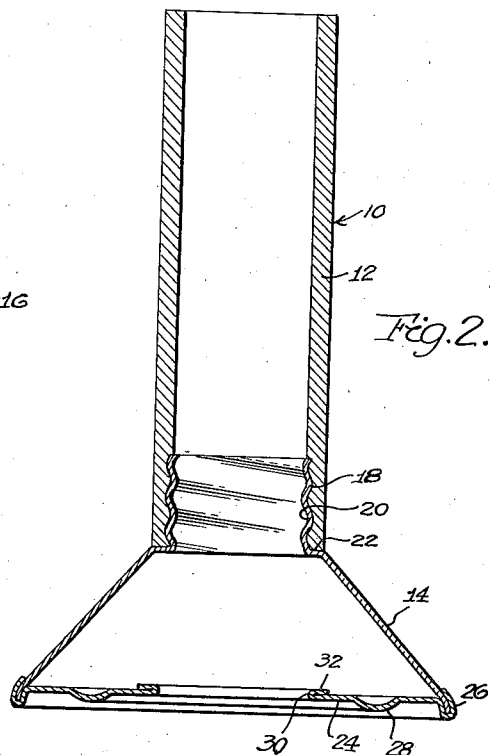


Fig. 2.

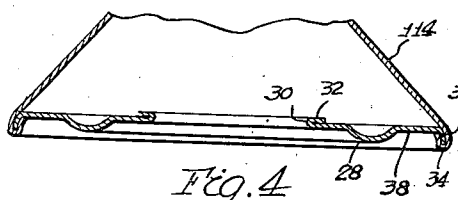


Fig. 4.

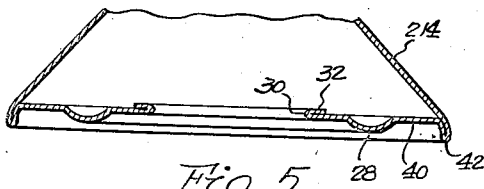


Fig. 5.

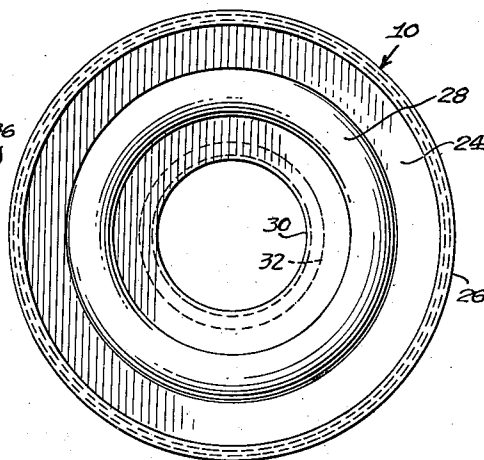


Fig. 3.

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SPOOL FOR INDUSTRIAL THREAD

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1 Claim. (Cl. 242—124)

This invention relates, in general, to spools and, in particular, to improvements in spools employed for holding industrial thread wound thereupon until such time as it is desired to utilize said thread.

A spool of the type to be described usually employs a spindle member and a collar member which are separably united, the thread being wound by the manufacturer thereof in orderly fashion upon the spindle up against the collar so that the thread is readily and faultlessly unwound therefrom. The materials employed in the spindle and collar members are usually different for the reason that it is impractical to re-use the spindle and practical to re-use the collar, the material in the spindle usually being inexpensive cardboard or other similar material and the material in the collar usually being somewhat more expensive because of the rigidity desired thereof, such as sheet metal or other relatively strong material. Therefore, after the thread has been used, the spindle member is discarded and the collar member returned to the thread manufacturer for a new unit. Because of the construction and type of material employed in the spindle, that waste or cost thereof which is realized in the discarding thereof after use is negligible.

In order for the collar member, which is returned to the thread manufacturer, to be re-used, it is obvious that the returned member must be in substantially the same shape as it was in when shipped to the user. This, however, is rarely the case because of the severe use to which the spool is put while in the hands, in many cases, of inexperienced users. It is true that the collar member is made rigid, but the allowable cost thereof has not warranted said member to be made so that it will withstand abnormal treatment, such as dropping same on the shop floor or otherwise doing something to it which will damage or distort its thread-carrying surface or its spindle-engaging section, it being remembered that a thread-spool unit weighs between one and two pounds, and it being appreciated and understood that slight damage either to said surface or to said section removes all possibility of re-using the returned collar member. Further, even though the collar member is not reused, damage to it during use will make difficult the removal of the thread therefrom.

Therefor, the main object of the present invention is to provide a new and improved thread-carrying spool in which former objections there-

to and disadvantages thereof have been alleviated.

Another object is to provide a new and improved thread-carrying spool so as to enable the retention of its original shape under severe handling conditions whereby the thread may be unwound therefrom in the same orderly progression as it was wound thereupon.

Another object is to provide a new and improved thread-carrying spool, without materially adding to the cost thereof, which may be dropped or carelessly handled without suffering any appreciable damage thereto or deformation thereof.

Another object is to improve a thread-carrying spool employing an end backing section, which may be re-used, so as to increase the life of said section.

Another object is to improve a thread-carrying spool employing an end backing section, which may be re-used, so as to increase the rigidity thereof without increasing the unit strength of the material therein or otherwise materially adding to the cost thereof.

Other objects and advantages of the invention will become readily apparent from a reference to the following specification taken in conjunction with the accompanying sheet of drawings, wherein:

Figure 1 is an elevational view of the spool and showing the invention incorporated therein, the outline of the thread body to be wound thereon being shown in dot, dash lines;

Fig. 2 is a vertical section through Fig. 1 and showing one form of the invention;

Fig. 3 is an elevational view looking from and toward the bottom of Fig. 2; and

Figs. 4 and 5 are vertical sections, similar to Fig. 2, but showing modified forms of the invention.

The spool illustrated in the figures is generally indicated at 10 and comprises, in general, a spindle 12 and a conical collar member or end backing section 14. Spindle 12 is hollow to receive a rotating mandrel (not shown) so that a body of thread, shown in dot and dash lines in Fig. 1 at 16, may be wound in orderly fashion thereon by the thread manufacturer and unwound therefrom by the user. Spindle 12 is preferably cylindrical and constructed of material, such as inexpensive cardboard, so that same may be discarded after the thread 16 has been unwound therefrom and used in any manner desired. Spindle 12 is preferably formed internally at one of its ends with a threaded portion 18 in which is removably received a threaded neck

portion 20 formed on and integral with the conical member 14. It is to be noted that the material out of which spindle 12 is formed is of no consequence to the invention herein, nor is the manner in which said spindle and the member 14 are removably joined together, it simply having been pointed out that said spindle is preferably made of cardboard because said material is inexpensive and sufficiently rigid for the use to which it is put, and it simply having been pointed out that said spindle and said member are threadedly joined together because of the simplicity of providing such a jointure and the resulting positiveness thereof.

In order to provide a smooth continuity between the thread-carrying surfaces of the spindle 12 and conical member 14, the latter is formed between its neck portion 20 and its conical portion with a planar shoulder portion 22, the outer diameter of said portion 22 being substantially the same as the outer diameter of said spindle, and the base of the threaded end of said spindle being operable for abutting said shoulder portion, in assembly.

In view of the possibility that it may be desired to re-use the collar member or backing section 14, and at least to make said member rigid enough to withstand the stresses exerted thereupon not only while the thread 16 is being wound on the spool 10 but also while said thread is being unwound therefrom, said member is preferably constructed of sheet metal or other similar material. At the base of the conical member 14 there is supported an annular, sheet metal plate 24 which is provided at its outer periphery with a flanged recess 26 which receives said base and is pinched or otherwise secured thereto, there being thereby provided an annular, triple-layered edge for the member 14, said edge being comprised of the two layers or walls of the recess 26 formed in the plate 24 and of the one layer provided by the base of the member 14 itself. Radially inwardly of this reinforced spool end edge 14-26 the plate 24 is annularly formed with a rib 28, such rib further strengthening said plate and adding rigidity to said reinforced edge. Formed in the plate 24 at its center and coaxially with the spindle 12 is an opening 30 which is preferably reinforced therearound by an over-turned flange 32, said opening serving to receive the aforementioned mandrel upon which the spool 10 is mounted while the thread 16 is being wound thereupon and unwound therefrom. The provision of the plate 24, its own reinforcement at the rib 28 and the peripheral reinforcement of the member 14 by the recessed portion 26 provide a spool which can be dropped or otherwise roughly handled without losing its original shape and without going to other than negligible expense to so improve the spool. It is possible to assemble a plate 24 similarly as shown onto an existing spool having an end backing member

similar to member 14. It is also possible to lighten the unit weight of the material in the member 14 because the plate 24 adds sufficient rigidity to the spool as to warrant such a weight decrease.

In the modification shown in Fig. 4, the collar 114 is similar to the collar 14 except that said collar 114 is provided peripherally at its free end with an internal flange 34 which provides an annular space into which is inserted and secured in any well known manner, such as by crimping or pinching, the flanged periphery 36 of an annular plate 38, said plate 38 being similar to plate 24 in that said plate 38 is provided with the rib 28, opening 30 and reinforcement 32, but being dissimilar from said plate 24 in the provision of said peripheral flange 36.

In the modification shown in Fig. 5, the collar 214 and the plate 40 are formed in one piece, the peripheral reinforcement of the free end being provided by the bent or doubled edge portion 42, and the rib 28, opening 30 and reinforcement 32 being provided similarly as in the first two forms.

Any one of the three disclosed and described forms of the invention provides an inexpensive and absolutely rigid reinforcement for the end collar member which radially supports the thread on the spindle so that the spool can successfully withstand dropping and other abnormally severe treatment and thereby maintain the thread in its exact pre-wound form and/or enable re-use of said collar member.

Although the invention has been described with some detail it is not intended that such detailed description is to be definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangement of parts as will come within the purview of the attached claim.

What I claim is:

An article of manufacture, comprising a frustro-conical base member, a tubular threaded extension formed on the upper end of the base member for receiving a deformable core member, the lower edge of said frustro-conical member being slightly curved inwardly to provide an angular marginal edge portion, a disk secured to said marginal edge portion within the confines of the lower edge thereof, said disk having its marginal edge bent downwardly and upwardly around the marginal edge of the frustro-conical base member, an annular reinforcing rib formed on the base member and extending around an aperture formed centrally of said disk whereby distortion of the base member will be minimized during the threading of the deformable core member into and out of said base member, said central opening having its marginal edge bent upwardly and outwardly in a direction parallel to the plane of the disk member.

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