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T. MUNGEN

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SPOOL

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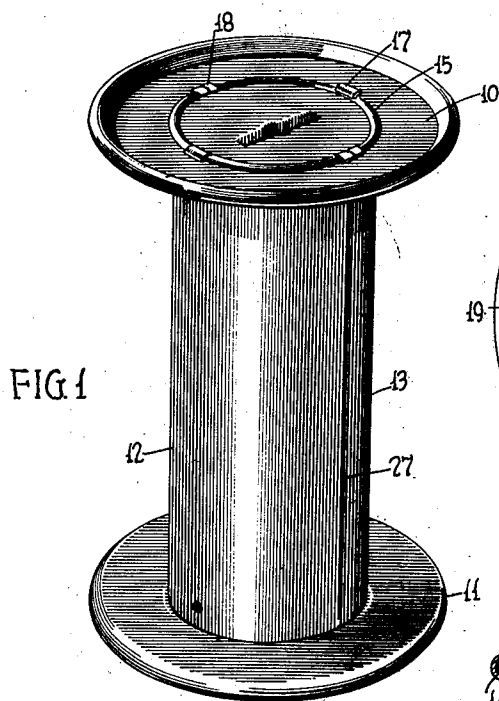


FIG. 1

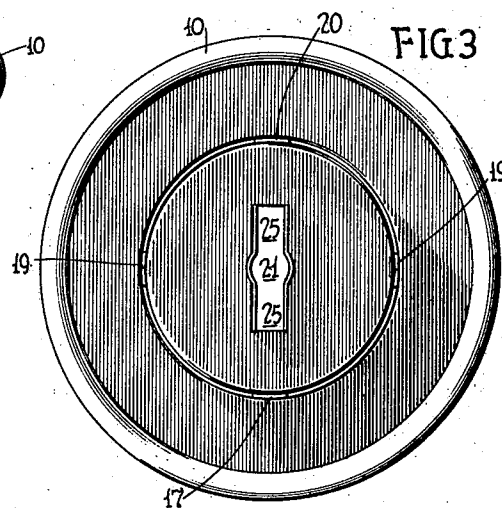


FIG. 3

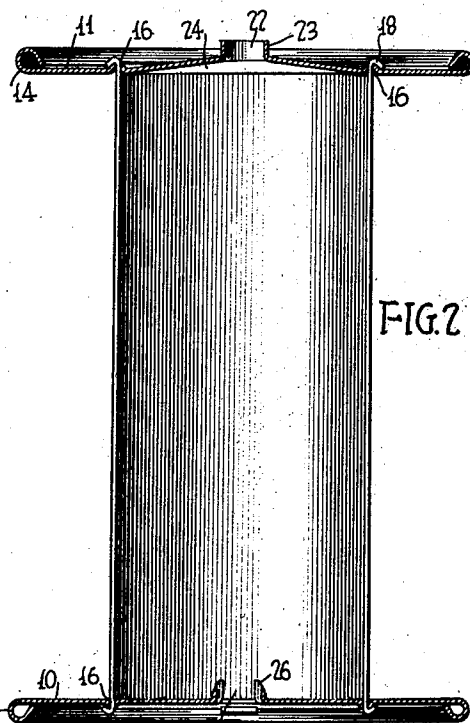


FIG. 2

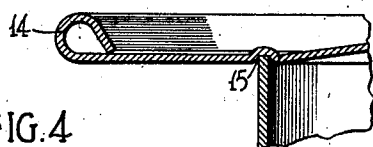


FIG. 4

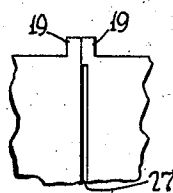


FIG. 6

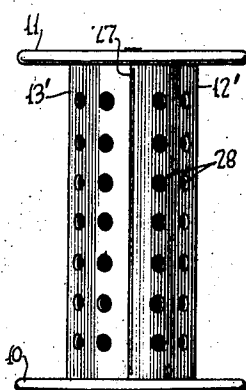


FIG. 5

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SPOOL

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2 Claims. (Cl. 242—123)

The invention relates to spools and particularly to spools made of sheet material for use in the textile industry.

Such spools have commonly been made of wood with fibre ends. Such spools are subject to various drawbacks, among them being lack of uniformity in weight and trueness, liability to warping due to atmospheric conditions, damage through handling, etc.

It is an object of my invention to produce a spool of this class which avoids these difficulties, which can be economically produced, which is rugged and durable in construction and hence assured of long life in use, and one which had other advantages not heretofore present in spools of this class or at any rate not present to the same degree.

I attain this and other objects by constructing the parts of the spool of ordinary sheet material, such as sheet steel, and make the parts in such number that they may be very economically stamped out of scrap steel, and I so form the various parts that they may in the final assembly, be made to serve a number of useful functions. Long life is assured by the strength and ruggedness of the material, and by the treatment to prevent corrosion. Not a little of this advantage is due to the method of manufacture which consists first in stamping out the individual parts entering into the spool, then coating them individually so that every part is thoroughly coated, with a corrosion resistant material, such as a plating of cadmium, and finally assembling the parts into the completed spool.

Other objects and advantages will appear from the following detailed description when read in conjunction with the drawing forming a part hereof.

In the drawing:

Fig. 1 is a perspective view of a spool according to my invention.

Fig. 2 is an axial cross sectional view taken in the plane between the body halves.

Fig. 3 is an end elevational view.

Fig. 4 is a detail sectional view showing the seating between the body and an end wall.

Fig. 5 is a side elevational view of a slightly modified form of spool.

Fig. 6 is a detail view showing the relation of the slot to the attaching extensions of the body parts.

As shown in the drawing the spool of my invention is constructed of but four main parts, namely, the end walls 10 and 11 and the cylindrical

body made preferably for ease of manufacture, and economy of material especially when made from scrap, of two semi-cylindrical halves 12 and 13. The halves are identical and hence can be made from the same set of dies.

The end walls 10 and 11 are each formed from a flat plate and have their peripheral margin curled over outwardly at 14 to provide a strong marginal construction and a smooth surface on their inner faces to receive the yarn or other material wound thereon.

Some distance inwardly of the margins the ends are each formed with an annular depression or channel as 15 adapted to snugly receive the opposite ends of the body of the spool. The seating of the ends of the body in these depressions avoids the possibility of the yarn or the like being drawn in between the body and the end of the spool.

To secure the body of the spool firmly to the end walls in this relation, the end walls are provided at the bottom of the annular depression 15 with a plurality of openings 16 in the form of slots and each of the body halves 12 and 13 is provided with corresponding projections 17 and 18, respectively adapted to pass through the slots and to be clinched over as indicated at 19 on the outside faces of the end walls to lock the parts together.

In the form illustrated I have shown four such slots in each end wall of the spool, and each body half is formed with three projections, two marginal ones 19 of approximately half the width of a slot, and one intermediate one of substantially the full width of a slot. In this way the marginal projections 19 of adjacent edges of the body halves are adapted to pass through the same slot and thus secure the margins of the body parts firmly to the end walls of the spool.

To facilitate the placing of the spool so constructed upon a spindle (not shown) and to insure the placing of the spool upon the spindle in only one way, so that the yarn or the like is always unwound from the proper end, I form the end walls 10 and 11 with the following differences. Each end wall is provided with a central aperture 21 and 22, respectively, to receive the spindle, but the end 11 which goes over the spindle last is formed with an outwardly projecting flange 23 around the spindle receiving aperture and this aperture corresponds substantially to the cross section of the spindle received thereby.

To facilitate entry of the spindle end into the

aperture and to give added strength to the end wall 11 its central portion surrounding the spindle opening is dished outwardly, providing a cone 24 which aids in bringing the spindle in line with the aperture.

The opposite end wall 10 is provided with lateral extensions 25 on opposite sides thereof providing a balanced construction, one or both of said extensions being adapted to receive a driving lug or lugs (not shown) usually associated with a spindle, receiving the spool. In the margins of the aperture 21 and the extensions 25 there are provided inwardly extending flanges 26 forming a substantial bearing engagement with the spindle and driving lug and leaving the outer face of this end of the spool substantially flat.

In spools of this class, it is often desirable to remove yarn or the like which is defective from a spool. To avoid unwinding this yarn which is a slow and tedious process, it has heretofore been the practice to cut it by running a knife longitudinally of the spool, but such process was very likely to injure the spool. By my invention I avoid the possibility of such injury by forming a slot or slots 27 extending throughout substantially the length of the body of the spool between the two halves 12 and 13 of such body. The knife blade can readily be inserted through such slot or slots and the defective yarn or the like cut from the spool. The slot can readily be located by the operator by observing the location, at the outer face of either of the ends, of the joint between the two half cylinders of the body.

The spool of my invention, because of its hollow open construction, is also adapted for use where it is desired to dye or otherwise treat the yarn or the like while wound on the spool. To this end and to facilitate the uniform penetration of the dyeing or other fluid through the yarn, I may use the modified construction illustrated in Fig. 5, where the cylindrical body of the spool is formed of a pair of sections 12' and 13' each provided throughout with a plurality of closely spaced perforations 28. This also lightens the spool without materially affecting its strength and sturdiness, which is desirable.

In the manufacture of the improved spool, the parts are preferably die stamped to substantially their final shape out of sheet steel, which can be of light gauge and yet give adequate strength. To protect every exposed surface of the steel parts against corrosion, to which spools of this class are in many cases, subject due to the atmospheric conditions in textile and yarn factories, I then treat each part individually to cover the entire surface thereof with a coating

of a corrosion-resistant material, and a material which I have found very satisfactory is a plating of cadmium. After each part has been so protected, the parts are assembled into the complete spool, hereinbefore described in detail.

Numerous advantages flow from the method of manufacture and the manufactured spool according to my invention as hereinbefore pointed out, but it will be obvious to those skilled in this art that these advantages in large part can be attained by minor departures from the specific form described, and it is my purpose to include such departures within the spirit of the invention as fall within the scope of the appended claims.

What I claim is:

1. In combination, in a textile spool, a thin-gauge sheet steel hollow cylindrical body including duplicate longitudinally divided halves, each having a longitudinal marginal portion extending straight therealong and beyond the ends thereof along half axial projections, another longitudinal marginal portion recessed between points within the ends of the body, half axial projections longitudinally opposite said recessed edges, and integral whole axial end projections peripherally between said half projections, sheet metal end discs of the same gauge as said body having central apertures, curled over outer perimeters and annular channels substantially midway radially between said central apertures and said perimeters, said end walls having axial slots in said channels through which said projections extend and are crimped over the outer sides of the discs, the axial half projections of each body half each being paired with a half projection on the other body half to form a whole projection, which, with the integral whole projections are crimped in the channel slots, the bottom disc being flat and the top disc being convex outwardly whereby to lead a spindle from within the body to said central aperture therein, about which there is an outwardly projecting flange, the opening in the bottom disc being formed for cooperation with a driving lug, and all of the parts being cadmium plated both on the exposed surfaces and on surfaces engaging other parts of the spool.

2. A sheet metal spool comprising end walls and a body portion, one of said end walls being circular and having an annular depression formed therein substantially concentric with respect to the periphery of said end wall, the portion of said end wall radially inward of said depression being dished to form a radial arch and having a central aperture, and a cylindrical body member secured in said annular depression.

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