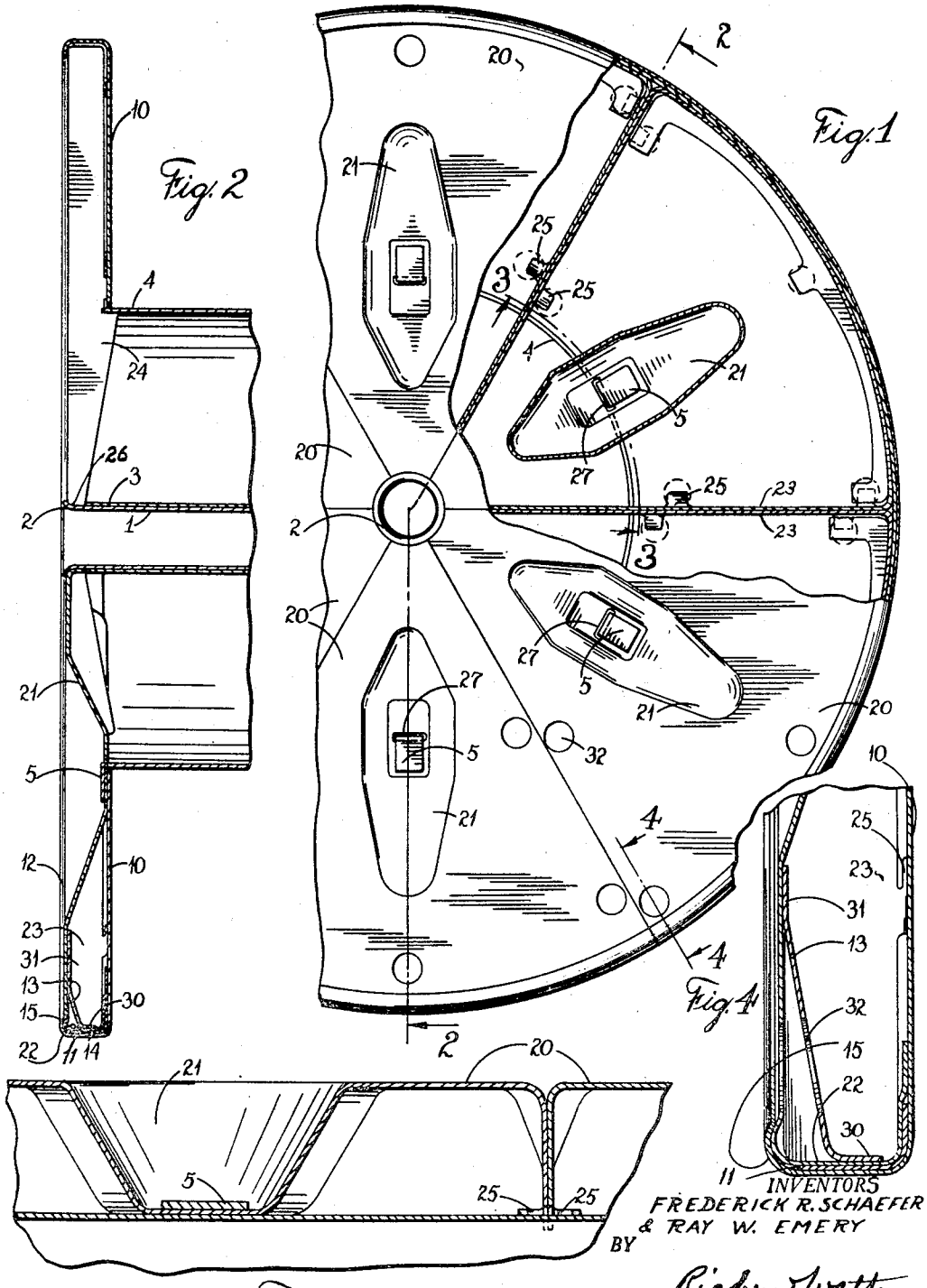
Jan. 10, 1950 F. R. SCHAEFER ET AL 2,494,521

CABLE REEL

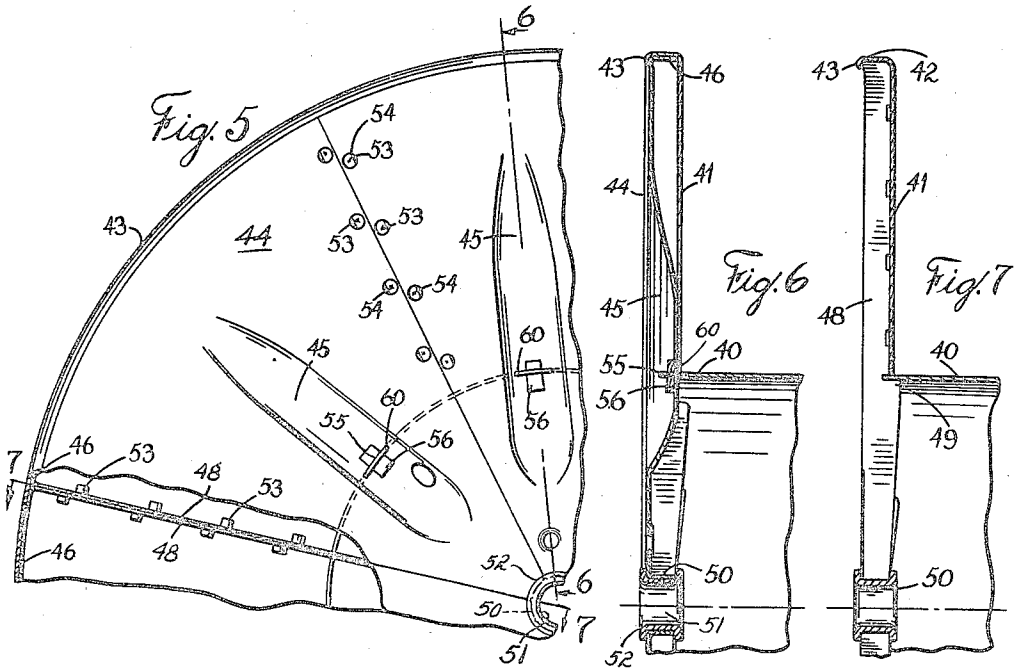
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CABLE REEL

Filed Sept. 15, 1945 3 Sheets-Sheet 2



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Jan. 10, 1950 F. R. SCHAEFER ET AL 2,494,521

CABLE REEL

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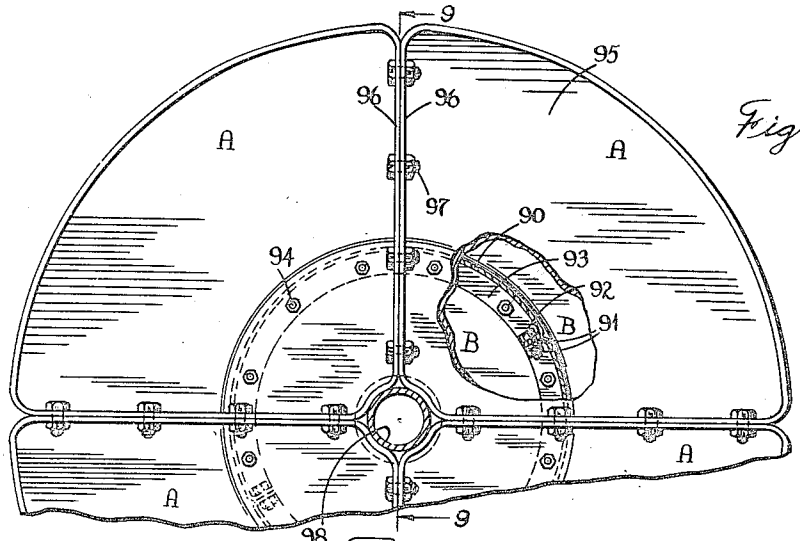


Fig. 8

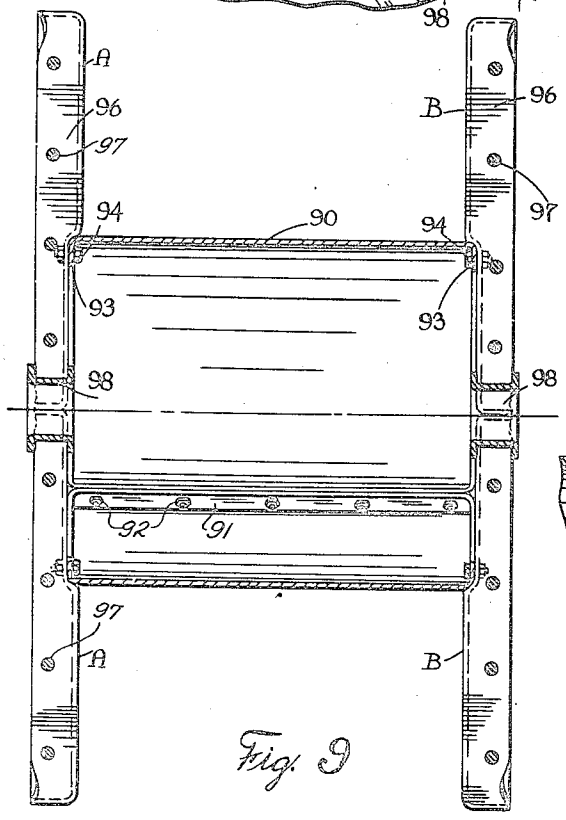


Fig. 9

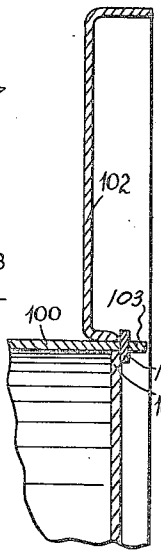


Fig. 10

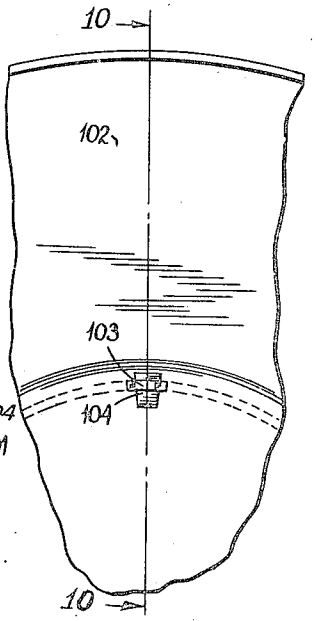


Fig. 11

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Patented Jan. 10, 1950

2,494,521

UNITED STATES PATENT OFFICE

2,494,521

CABLE REEL

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Application September 15, 1945, Serial No. 616,498

10 Claims. (Cl. 242—77)

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The present invention relates generally to the reel art and particularly to new reels for cable and the like and to new lagging for such reels.

Reels embodying the present invention comprise a small number of inexpensive parts or assemblies including a hub and ends. The ends comprise sheet metal assemlbies which are secured to the hub and may carry bushings or be attached to an inner hub. The peripheral portions of the ends are of reinforced construction and are adapted to fit lagging which may be connected thereto. Reels of this invention may be light in weight and yet strong enough for initial loading and for handling and shipping while loaded and may be so low in cost and assembled that they may be economically scrapped after their initial load is removed. They may also be heavier and stronger and suitable for repeated loading, handling and shipping.

The present invention will be better understood by those skilled in the art from the following description and from the drawings which form a part of the specification and in which

Figure 1 is a fragmentary end view, partly in section, of one form of apparatus embodying the present invention;

Figure 2 is a sectional view taken on line 2—2 of Fig. 1;

Figure 3 is an enlarged sectional view taken on line 3—3 of Fig. 1;

Figure 4 is an enlarged, fragmentary, sectional view taken on line 4—4 of Fig. 1;

Figure 5 is a fragmentary end view, partly in section, of a modified form of apparatus embodying the present invention;

Figs. 6 and 7 are sectional views taken on line 6—6 and 7—7 of Fig. 5.

Figure 8 is a fragmentary end elevational view of another modified form of apparatus embodying the present invention;

Figure 9 is a sectional view taken on line 9—9 of Fig. 8;

Figure 10 is an enlarged fragmentary sectional view taken on line 10—10 of Fig. 11 showing a modified form of means for connecting the drum and reel end of Fig. 8; and

Figure 11 is an end elevational view showing the connection of Fig. 10.

The reel shown in Figs. 1 to 4 comprises an inner hub, an outer hub and two end assemblies or units. The inner hub 1 is a cylindrical tube with ends 2 which are flared outwardly during assembly with the end assemblies or units. It is surrounded by a sheet metal shell 3 which, at each end, abuts the end assemblies and acts as an axial

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stop and spacer therefor. The outer hub 4, on which cable or the like is to be wound, is a sheet metal cylinder of considerably larger diameter than the inner hub 1. The ends of hub 4 are recessed to provide projections 5 which are secured, as by welding, to the end assemblies and serve, together with the flared ends of hub 1, to hold the end units in place relative to the hubs.

Each end unit or assembly includes an inner, metal ring 10, an annular, metal, reinforcing angle 11, a segmental, metal disc 12, and gussets 13. The ring 10 seats at its inner periphery on the outer surface of outer drum 4 and at its outer periphery is bent to form an axially extending flange 14 which, during assembly, is provided with an inturned flange 15. The angle 11 bears against and is secured to the inner surfaces of ring 10 and its flange 14.

The segmental disc 12 consists of a plurality of sector shaped units or segments 20. Each unit 20 is preferably formed from sheet metal and includes a flat face portion having peripheral flanges and a radially extending depression 21.

The outer peripheral flange 22 of unit 20 is shaped by being curved to nest within the flanges 14 and 15 of ring 10 and to bear on ring 10. The peripheral flanges 23 along the sides of unit 20, that is, along radii of the end units, extend to and bear against the opposed surface of ring 10 for part of their lengths. These flanges are of greater axial extent within outer drum 4 and bear against the inner surface of that drum, as is indicated at 24. Each flange 23 is provided with tabs 25 which extend laterally therefrom and project thru notches in the flanges of adjacent segments 20. The inner peripheral flange 26 of each segment seats on the outer surface of inner hub 1 and bears endwise against shell 3 on that hub. As will be noted from Figs. 2 and 3, the depressed portion 21 of segment 20 bears against the opposed surface of ring 10 and has openings 27 therethru in line with the projections 5 of outer drum 4.

A gusset 13 is associated with each segmental disc 12. Each gusset includes an outer flange 30 which bears against, and is preferably welded to, the inner surface of the peripheral flange 22, an inner flange 31 which bears against, and is preferably welded to, the inner surface of the flat portion of segment 20 and an angularly extending part 32 connecting flanges 30 and 31.

The apparatus of Figs. 1 to 4 may be assembled as follows:

Reinforcing angle 11 is placed in ring 10 and is attached thereto, as by being welded to the ring

and to its flange 14. The gussets 13 are placed in their segmental discs 12 and are attached thereto, as by welding flanges 30 and 31 thereto. Then the several thus assembled segmental units are placed on ring 10 and are attached thereto, as by welding tabs 25 to ring 10, and flange 14 is shaped at its edge to form flange 15 which grips the segments at their outer edges. One end of inner hub 1 is fitted into one end assembly and is deformed as at 2, to grip the outer side of the assembly. Shell 3 is slid onto hub 1 to abut that end assembly. The projections 5 of outer hub 1 are inserted thru openings 27 in the end assembly and are bent over to clamp the assembly against the drum. Then the other end assembly is secured in place at the opposite ends of hubs 1 and 4 in a similar manner.

The embodiment of the present invention illustrated in Figs. 5 to 7 generally resembles that of Figs. 1 to 4, but certain elements of that modification have been omitted and others altered. The reel of Figs. 5 to 6 comprises a hub 40 of large diameter and end assemblies attached thereto. Each assembly comprises an inner ring 41 which, at its inner periphery, seats on the outer surface of drum 40 and, at its outer periphery, has an axially extending flange 42 and an inturned flange 43. Each segment 44 is formed from a flat metal plate having a radially extending depression 45 and marginal flanges 46, 48 and 50. The outer peripheral flange 46 is of such a size as to be received in the channel rim of ring 41, that is, within flanges 42 and 43 and, if desired, a reinforcing angle may lie between flanges 46 and 42, substantially as shown in Figs. 1 to 4. The side flanges 48 of segments 44 extend toward and engage the surface of ring 41. Flanges 48 within drum 40 are of slightly greater axial length than the parts thereof opposed to ring 41 and bear radially against the inner surface of drum 40, as is indicated at 49. The inner peripheral flanges 50 of the several segments of an end assembly define an opening 51 in which a flanged bushing 52 may be secured. The side flanges 48 are provided with tabs 53 which project thru notches in the opposed flanges of adjacent segments and are welded to those adjacent segments, as by means of an electrode or welding rod inserted thru openings 54 in the segment above the tabs. The depressed portions 45 of segment 44 lie against the opposed surface of ring 41.

The ends of the drum 40 have projections 55. When the end assemblies are to be assembled with drum 40 the projections 55 of the drum are passed thru opening 60 of the end assembly and rings 41 are seated on drum 40 with the enlargements of flanges 48 bearing against the inner surface of the drum. Wedges 56 are inserted thru openings in projections 55 and driven into place to connect the end assembly to the drum.

It will be understood from the drawings and the foregoing description thereof that the illustrated reels are light, strong and quite substantial altho composed of parts which in themselves are not particularly strong. The drum on which cable or the like is wound is adequately supported at its ends both on its inner and outer surfaces by the flanges of the disc segments and by the inner rings. The end assemblies are substantial altho composed of a plurality of parts. The segments have a considerable degree of rigidity because of their flanges and such rigidity is increased by the ring and its channel-shaped outer periphery. The parts of the end assemblies are

attached together by welding and by being interfitted with one another. When the reel includes an inner hub it also adds materially to the strength and rigidity of the reel and when gussets are used they additionally support the periphery of the end assemblies. Similarly, the reinforcing angles add rigidity to the peripheries of the end assemblies.

In the modifications shown in Figs. 8 and 9 the hub 90 consists of two semi-circular parts having radial inturned flanges 91 which are connected by bolts 92. The inturned ends 93 of the hub are connected by bolts 94 to ends 95. Rivets or other suitable connecting means may be substituted for bolts 92 and 94 if desired. Also hub 90 may be made of a single piece of metal, or it may consist of three or more parts instead of the two parts shown in Figs. 8 and 9.

Each end 95 consists of a plurality of sector-shaped, sheet metal units, in this case four. These units have outwardly projecting, marginal flanges 96, the radial portions of which lie against each other and are connected together by bolts 97. The inner or opposed plane surfaces of ends 95 bear against flanges 93 of the hub. The flanges 96 at the inner extremities of the segments of each end 95 define an opening in which a flanged bushing 98 is located. Each sleeve has flanges at each end to bear against the inner surface of the segments and the outer surface of flanges 96.

The reel of Figs. 8 and 9 is inexpensive and may be disassembled for return shipment. It may be made strong enough for repeated use or only strong enough for one use. The flanges 96 and the recessing of ends 95 to receive hub 90 afford marked strength and rigidity even when the metal used is of light gage. It provides smooth surfaces for contact with a coil on the hub.

Figs. 10 and 11 show hub and end securing means alternative to those of Figs. 8 and 9. In this case the hub 100 is a cylinder which seats in a depression 101 in the ends 102 and has spaced projections 103 extending thru ends 102 and held in place by wedges 104 extending thru the projections and bearing against the segments.

Having thus described the invention so that others skilled in the art may be able to understand and practice the same, we state that what we desire to secure by Letters Patent is defined in what is claimed.

What is claimed is:

1. A metal reel comprising a cylindrical hub, and end assemblies secured to the ends of said hub, each end assembly comprising a one-piece sheet metal ring having a flange at its outer periphery and a disk including sector-shaped segments consisting of sheet metal having plane surface portions, outer and inner arcuate marginal flanges and radial flanges on said segments, the outer arcuate flanges nesting in the flanges of said ring, and means connecting together the radial portions of said flanges.

2. A metal reel comprising a cylindrical hub, and end assemblies secured to the ends of said hub, each end assembly comprising a one-piece sheet metal ring having a flange at its outer periphery and a disk including sector-shaped segments consisting of sheet metal and having plane surface portions, outer and inner arcuate marginal flanges and radial flanges on said segments, the outer arcuate flanges nesting in the flanges of said ring, means connecting together the radial portions of said flanges, and tubular

means concentric with said ends and projecting therethrough about their axes.

3. A metal reel comprising end assemblies and a hub bearing against said assemblies and having end projections extending thru said assemblies, each end assembly including a flat sheet metal ring having an outer peripheral flange and a disk consisting of a plurality of sector-shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, and side flanges engaging the opposed surface of said ring and the inner and outer surfaces of said hub.

4. A strong, light weight, metal reel comprising end assemblies and a hub bearing against said assemblies and having projections extending thru said assemblies, each end assembly including a flat sheet metal ring having an outer peripheral flange, an annular reinforcing angle bearing against the ring and the inner surface of said flange, and a disk consisting of a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring and bearing on the inner surface of said angle, and side flanges engaging the opposed surface of said ring and the inner and outer surfaces of said hub.

5. A strong, light weight, metal reel comprising end assemblies, each including a flat sheet metal ring having an outer peripheral flange and a disk consisting of a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, and side flanges engaging the opposed surface of said ring, and a hub bearing at its ends against the rings of said end assemblies and having projections extending thru said rings and said depressed portions of said units for securing the end assemblies to the hub.

6. A strong, light weight, metal reel comprising end assemblies, each including a flat sheet metal ring having an outer peripheral flange and a disk including a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, and side flanges engaging the opposed surface of said ring, and a hub bearing at its ends against the rings of said end assemblies and having projections extending thru said rings and said depressed portions of said units for securing the end assemblies to the hub, said side flanges of said units bearing against the inner and outer surfaces of said hub.

7. A strong, light weight, metal reel comprising end assemblies, each including a flat sheet metal ring having an outer peripheral flange and a disk including a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, and side flanges engaging the opposed surface of said ring and having tabs extending along said ring and secured thereto beneath adjacent units, and a hub bearing at its ends against the rings of said end assemblies and on its inner and outer surfaces against said side flanges and having end projections extending thru said end assemblies for attaching them to the hub.

8. A strong, light weight, metal reel comprising end assemblies, each including a flat sheet metal ring having an outer peripheral flange and a disk including a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, side flanges engaging the opposed surface of said ring and having tabs extending along said ring and secured thereto beneath adjacent units, and a gusset secured to the inner surface of each curved outer flange, and a hub bearing at its ends against the rings of said end assemblies and on its inner and outer surfaces against said side flanges and having end projections extending thru said end assemblies for attaching them to the hub.

9. A strong, light weight, metal reel comprising end assemblies, each including a flat sheet metal ring having an outer peripheral flange and a disk including a plurality of sector shaped units, each of said units having a plane surface portion with a central depressed portion engaging said ring, an outer curved flange within the flange of said ring, side flanges engaging the opposed surface of said ring, and an inner curved flange, said inner flanges of the assembled units defining a cylindrical opening, an inner hub in the said cylindrical openings of the end assemblies, a shell on said hub abutting said assemblies, and an outer hub secured to said assemblies and engaging said assemblies at its ends with its outer and inner surfaces radially bearing on said ring and on said side flanges, respectively.

10. A metal reel comprising a hub having end projections and hollow end assemblies attached to the hub, each end assembly including a flat sheet metal ring having its inner peripheral edge resting on said hub and having an outer peripheral flange and a disk including a plurality of sector shaped units, each of said units having a plane surface portion spaced apart from said ring and provided with a centrally disposed depressed portion engaging said ring, and provided with openings to receive the end projections of the hub, an outer curved flange within the flange of said ring, and side flanges engaging the opposed surface of said ring and the inner and outer surfaces of said hub, said end projections when positioned in the openings in the depressed portions of said units serving to secure the end assemblies and hub in assembled position.

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