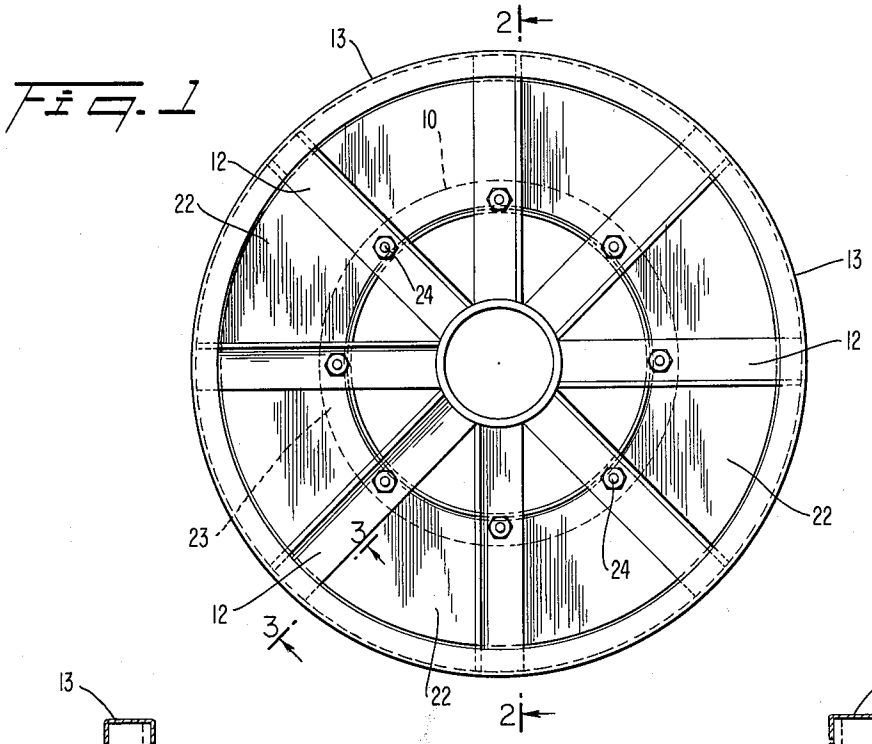
March 15, 1966 R. L. GENTILE 3,240,444

STEEL CABLE REEL

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Fig. 1



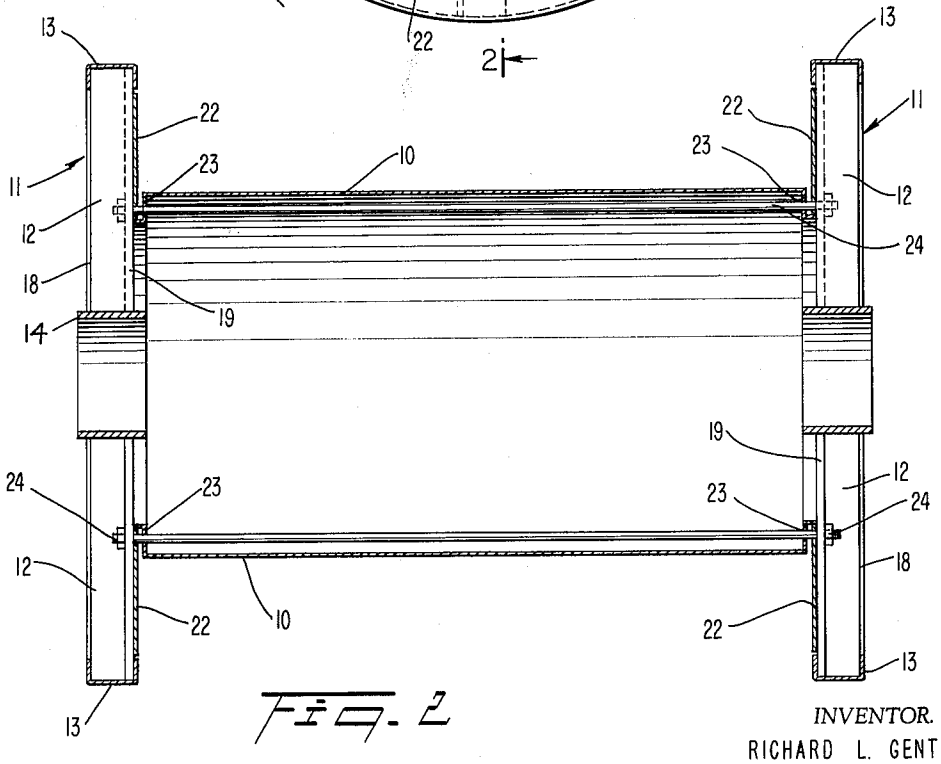


Fig. 2

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STEEL CABLE REEL

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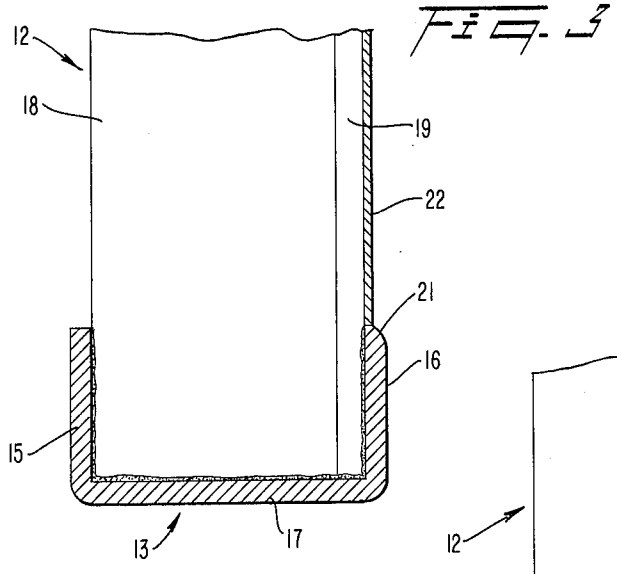


FIG. 3

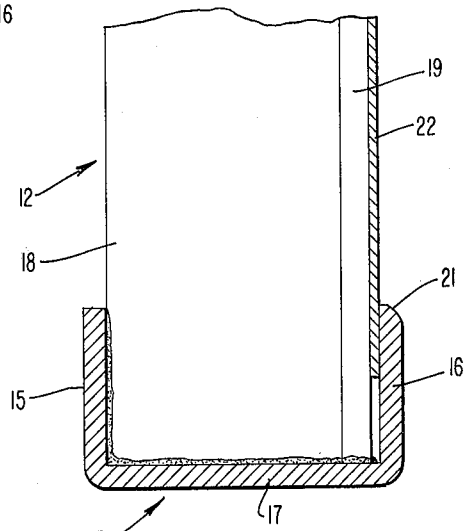


FIG. 4

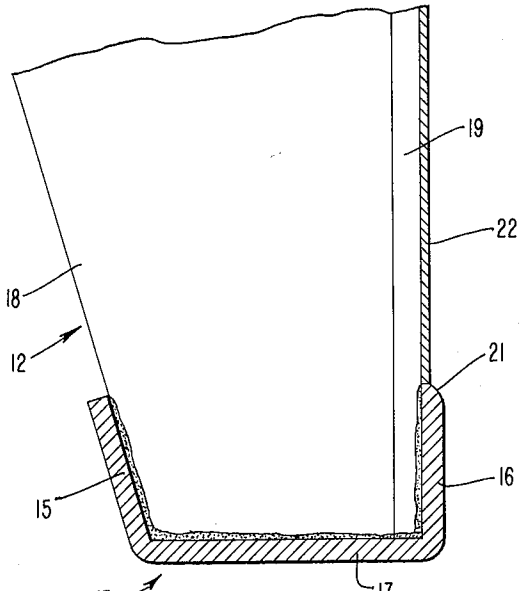


FIG. 5

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United States Patent Office 3,240,444
Patented Mar. 15, 1966

3,240,444

STEEL CABLE REEL

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Filed May 2, 1963, Ser. No. 277,568
5 Claims. (Cl. 242—77.4)

This invention relates to improvements in reels, and more particularly to metal reels for supporting heavy cables and the like.

The currently available cables used in power transmission are very heavy and consequently require the use of metal reels to support such cable while it is being transported to the job sites. Such reels are also used in the plant during the manufacturing of the cable. During transportation the loaded reels are frequently dropped small distances and otherwise subjected to rough treatment all of which subjects the reels to extremely high and sudden impact loads. Metal reels used in the shop during cable manufacture are subjected to mishandling by fork lift truck operations. The currently available metal reels tend to deform under such sudden impact loads and especially to bend at the rim portion of the reel heads, thus damaging the reel as well as the cable carried thereon. It is therefore an object of this invention to provide a heavy duty metal reel which can withstand heavy usage without damage thus enabling the reels to be reused many times.

Another object is to provide a metal reel which can be quickly disassembled when empty for return to the factory in a "knocked down" condition.

Another object is to provide a metal reel having a head construction that will withstand sudden increases in loads.

Another object is to provide a reel head whereby the load is transmitted evenly throughout the entire rim which encircles the head.

Another object is to provide an improved joint between the rim and the spokes of a reel head whereby the load is simultaneously transmitted from the spokes to the entire area of the rim.

A still further object is to provide an improved reel construction which has a smaller total weight and increased strength over known metal reels.

The above and further objects and novel features of the present invention will more fully appear from the following detailed description when the same is read in connection with the accompanying drawings. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not intended as a definition of the limits of the invention.

In the drawings, wherein like reference characters refer to like parts throughout the several views,

FIG. 1 is a side elevational view of the reel;

FIG. 2 is a cross-sectional view taken along line 2—2 of FIGURE 1;

FIG. 3 is an enlarged cross-sectional detail view taken along line 3—3 of FIG. 1;

FIG. 4 is a view like FIG. 3 showing an alternative structure; and

FIG. 5 is an enlarged cross-sectional view like FIG. 3 showing a modification.

Referring now to the drawings, it will be seen that the reel comprises a horizontally extending drum 10 and two head members 11 one of each of which is secured to opposite ends of the drum. Each of the head members is of identical construction and therefore a description of one will be sufficient for an understanding of both. Each head comprises a plurality of spokes 12 L-shaped in transverse section and positioned to extend radially outwardly from the peripheral surface of a

hub 14. The outer ends of the spokes 12 engage a rim 13 which is made from a flat sheet formed in the cross-sectional shape of a U-shaped channel member and which is then rolled into a closed ring for supporting the outer ends of all the spokes 12. The inner ends of spokes 12 are secured to each other and to hub 14 by suitable means such as by welding. Each end of drum 10 has an inwardly extending flange 23. Tie rods 24 are each positioned to pass through suitable openings in flanges 23 and each of the spokes 12 so that the reel heads are removably secured to the drum. The rim 13 is formed from a flat sheet to have a pair of radially and circumferentially extending flanges 15 and 16 connected by a web portion 17 and having a sharp, well defined angle at the point where the inner surfaces of the flanges and the web intersect thus forming straight walled flanges. Each of the spokes 12 has leg members 18 and 19 extending at right angles to each other. In the disclosed embodiment the width of the web 17 of the rim 13 is made equal to the width of the spoke leg 18 and the spoke leg 19 extends parallel to and in contact with the flange 16 of the rim at the joint where the outer end of the spokes 12 join rim 13.

A modification is shown in FIG. 5 wherein the leg 18 of the spokes 12 is formed whereby one edge of that leg is not parallel to its other edge. Due to the fact that the rim 13 is formed from a flat sheet the angle between flange 15 and web 17 of the rim can be formed to be parallel to the tapered edge of leg 18. The inside angles thus formed between the flanges 15 and 16 and the web 17 of rim 13 are sharp and well defined so that the radially outward end of each spoke contacts the entire inner surface of flanges 15 and 16 as well as the entire inner surface of the web 17.

The legs 18 and 19 of each of the spokes have an uninterrupted straight edge from end to end so that all portions of the ends of the said legs contact the web portion and the flange portions of the rim 13. The contacting surfaces of the outer end of the leg 18 are welded to the flange 15 and to the web 17. The contacting surfaces of the outer end of leg 19 is welded to the flange 16 and to the web 17. It will be observed that the flat inside surface of the flanges and the web portion of the rim 13 permit the full width of the legs 18 and 19 of each of the spokes to be seated all the way down between the flanges and onto the web portion of the rim as well as to contact the entire inside surface of each flange. Since there is no reduction in the net area of the spoke the entire area of the rim is utilized to transfer load through the flanges and through the web portion of the rim to distribute the load equally throughout the cross-section of the rim. The legs 18, 19 of each of the spokes act as a column section and provide a bearing surface with the flanges and the web of the rim. Furthermore, this construction permits a greater welding surface because of the greater area of the inner surface of the rim in contact with the legs 18 and 19 of the spokes. This feature is critical because reels as disclosed in this invention support very heavy cable and during the normal handling of the reels they are subjected to impact force caused by dropping the reel containing the cable and it is essential that such an impact force be distributed over as large an area as possible to prevent damage to the reel. In other reel constructions currently in commercial use the rims and spoke members become broken or fractured because upon such impact force the load is concentrated in one area of the rim rather than distributed throughout as in this invention.

The radially inward edge of flange 16 may be rounded as at 21 to prevent the cable from being damaged as it is being unrolled. In order to prevent the cable from engag-

ing or contacting the spokes **12** a circular lining plate **22** is suitably secured to the inside surface of leg **19** of each of the spokes such as by welding or other means. If desired the outer circumferential edge of the lining sheet may be inserted for a short distance between the flange **16** and each of the spokes in order to more securely anchor the lining sheet to the reel as shown in FIG. 4. Since the lining sheet is made of relatively thin material the spacing between the flange **16** and each of the spokes **12** is not substantially affected since each leg **19** of each spoke can still be welded to the flange **16**.

While the description and the accompanying drawings set forth one embodiment of the invention, it is to be expressly understood that various changes may be made in the particular shape of the parts without departing from the spirit and scope of the invention. For a definition of the limits of the invention, reference is had primarily to the appended claims.

What is claimed is:

1. In a reel for cable, a drum having its ends inwardly flanged, first and second reel heads each comprising a generally cylindrical hub, a plurality of spokes L-shaped in cross section and each having its inner end unitized with and extending radially from the exterior surface of said hub, a circular channeled rim having a cylindrical web and radially inwardly and circumferentially extending axially spaced flanges, the outer end of each said spoke having a smooth fit between said flanges and in contact therewith and with said web, and unitized with said rim along the lines of contact, one arm of each said spoke lying in a common plane, the full length of the inner ends of each of said arms being in contact with and unitized with the hub and forming a substantially complete circular support therefor, and means detachably uniting each said head to a respective end of said drum, with its said hub coaxial of said drum, said means comprising a plurality of through-bolts each passing through a pair of axially aligned holes in the respective flanges of said drum and two aligned holes each of which is in a coplanar arm in a spoke of a respective one of said heads, to directly secure the coplanar arms of all spokes of a head to the flange of said drum.

2. A cable reel as described in claim **1** in which a circular lining plate of relatively thin metal is secured to the inside surface of each spoke and the outer circumferential edge thereof terminates short of the web of the rim but is inserted for a short distance between the inner flange of the rim and the adjacent part of the spoke.

3. In a reel for cable, a drum having its ends inwardly flanged, first and second reel heads each comprising a generally cylindrical hub, a plurality of spokes L-shaped in cross section and each having its inner end unitized with and extending radially from the exterior surface of said hub, a circular channeled rim having a cylindrical web and radially inwardly and circumferentially extending axially spaced flanges, the outer end of each said spoke having a smooth fit between said flanges and in contact therewith and with said web, and unitized with said rim along the lines of contact, said unitizing being by a weld which connects one end of an arm of the spoke with the web of the rim and by a weld which connects the side of an arm of the spoke with a flange of the rim, one arm of each said spoke lying in a common plane, the full length of the inner ends of each of said arms being in contact with and unitized with the hub and forming a substantially complete circular support therefor, and means detachably uniting each said head to a respective end of said drum, with its said hub coaxial of said drum, said means comprising a plurality of through-bolts each passing through a pair of axially aligned holes in the respective flanges of said drum and two aligned holes each of which is in a coplanar arm in a spoke with a respective one of said heads, to directly secure the coplanar arms of all spokes of a head to the flange of said drum.

4. A cable reel as described in claim **3** in which the arms of the spokes have uninterrupted contact with the web portion and the two flange portions of the rim, and are welded thereto substantially from edge to edge of the rim channel.

5. A cable reel as described in claim **1** in which one of the flanges of the rim is not parallel to the other flange, an arm of the spoke is tapered to fit the angles of the two flanges of the rim, and the rim is welded to the arms of the spoke substantially from edge to edge of the rim channel.

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