Oct. 29, 1963 J. HILL 3,108,758

CABLE REEL HAVING SHEET METAL CHEEKS

Filed Nov. 21, 1961 2 Sheets-Sheet 1

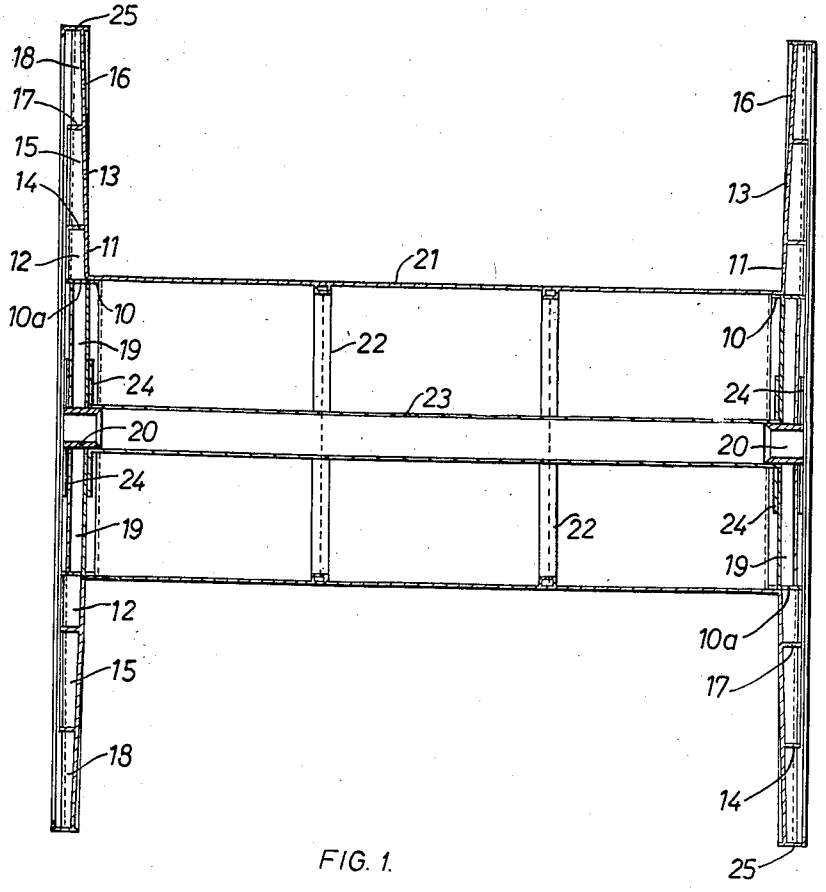


FIG. 1.

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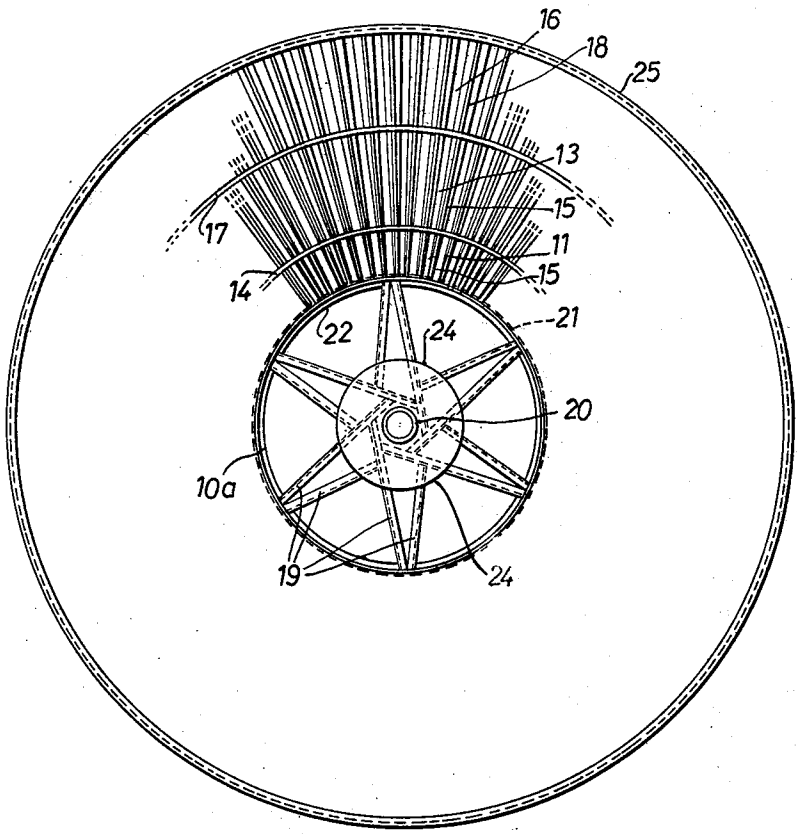


FIG. 2.

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CABLE REEL HAVING SHEET METAL CHEEKS

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6 Claims. (Cl. 242—77.3)

The present invention relates to reels, drums, wheels or the like and particularly to the production of the ends or cheeks of reels or drums used for carrying wound cables or wire rope.

It has already been proposed to produce annular ends, cheeks or the like of reels, drums and the like from a blank of flat rigid material provided with parallel transverse folds and bent into annular form so that the folds extend substantially radially of the annulus. This type of end or cheek is limited by the relationship between its diameter and the depth or radial dimension of the cheek and the width of the cheek or the depth of its folds.

In practice it has been found that the diameter of the inner periphery of a cheek should not be less than half of the diameter of its outer periphery. Again apart from difficulties of manufacture, the strength of the folds deteriorates with increase in length, while the depth of a fold cannot be indefinitely increased as it makes the cheek too thick at its inner periphery.

The object of the present invention is to overcome the above limitations with respect to cheeks of the described character, while retaining their inherent strength-to-weight ratio. In accordance with an aspect of this invention, the ends or cheeks of a drum or reel are of multi-deck construction, the decks being disposed radially between the inner and outer peripheries of the cheek, and each deck consisting of an annular cheek part with radial or substantially radial folds at regular intervals therein and an inner peripheral flange extending axially of the reel and being connected to the outer periphery of the next inner annular deck.

The invention is more particularly described with reference to the accompanying drawings which diagrammatically illustrate one form of construction by way of example and in which:

FIGURE 1 is a longitudinal section through a reel or drum the ends or cheeks of which are of multi-deck construction in accordance with the present invention, and

FIGURE 2 is a corresponding end view of the reel or drum of FIGURE 1 with only a portion of the whole of the folds thereof being illustrated.

In constructing each end or cheek of the embodiment illustrated, a blank of a predetermined width consistent with the required radial dimension of a cheek is initially selected to ensure that, when the blank is curved into annular form, the diameter of its inner periphery is not less than half that of its outer periphery, whereupon a peripheral flange **10** is secured to it, such as for example by welding, so as to lie substantially at right angles thereto and the whole is curved into annular form to produce the annular deck **11** with radial folds **12** of gradually increasing depth from the outer periphery of the annulus to the inner periphery to which the flange **10** is secured.

In place of the normal outer rim a further annular deck **13** with a similar inner peripheral flange **14** is welded to the outer periphery of the first annular deck **11** to form a dual deck construction with the radial folds **15** in the annular deck **13** being of less depth than those in the deck **11** and the inner peripheral flange **14** of the second annular deck **13** preferably being of narrower width than that of the outwardly projecting portion **10***a* of the first flange **10**. Thus each of the radial folds **15**, like the folds **12**, is tapered from one end to the other.

A third annular deck **16** is then welded, at its inner peripheral flange **17**, to the outer annular periphery of the deck **13**, the radial folds **18** in this annular deck **16** being of shallower depth than the folds **15** and the width of the flange **17** being less than that of the flange **14**.

If desired fourth and subsequent annuli, each having its own flange at its inner periphery, may be added progressively until each cheek or end as a whole achieves its required outer radial dimension. Irrespective of the number of the decks above one, however, the width or depth of the folded metal is controlled to maintain maximum strength and each annular folded deck is welded to its annular ring or flange. The folds **12, 15, 18** in the respective annuli of a multi-deck cheek or end may be co-aligned, that is to say they may be matched in direction and also in number and pitch, as shown in FIGURE 2, but this is not essential.

When sufficient annular decks have been formed, a cap or rim **25** is provided for the outer edge of the outer deck and is connected thereto, for example, by welding. In the embodiment shown this cap or rim **25** is of inwardly opening channel section, that is to say the arms of the section extend in a direction inwardly of the outer deck towards the axis of the cheek as a whole.

In the construction of each annular deck **11, 13, 16** and its flange **10, 14, 17** respectively, the folds **12, 15, 18** may be formed at regular intervals in a blank prior to the attachment of the flange thereto and the bending of the blank with the folds therein into annular form to produce a deck **11, 13, 16.**

Alternatively, however, the folds may be formed simultaneously with bending of the blank into annular deck form. In the latter event the blank may be fed between co-operating dies arranged to produced successive lateral folds in the blank which gradually vary in depth or width, or in both depth and width, from one longitudinal edge of the blank to the other and simultaneously effect bending of the blank into annular deck form.

After a pair of cheeks or ends is formed as described above, each cheek is supplied with arms or studs **19** conveniently disposed in the manner shown in FIGURE 2 and carrying at their inner ends a boss or hub **20**. Then the cheeks are applied to the opposite ends of a hollow cylindrical reel, drum body or barrel **21** having annular strengthening ribs **22**, and being diametrically dimensioned so that the edge portion of each flange **10** opposite the portion **10***a* thereof is located within and acts as a rest for the adjacent end of the barrel **21**. The hubs or bosses **20** similarly extend into the opposite ends of a hollow axle **23**.

If desired the flanges **10** may be connected to the body or barrel **21** by welding or brazing and the hubs **20** may be connected to the hollow axle in a similar manner. They may however be connected by bolts and nuts or by any other known means. Conveniently the inner ends of the arms or struts **19** are located between pairs of annular discs **24** extending outwardly from the hubs or bosses **20.**

By providing a multi-deck construction for the cheeks or ends, the latter acquire all the advantages of a single deck construction without the disadvantages of the latter and this applies particularly where the drum or reel needs to have a barrel of small diameter and cheeks of relatively large diameter or outer periphery.

In the foregoing the invention has been described with reference to a specific illustrative device. It will be evident, however, that variations and modifications may be made without departing from the broader scope and spirit of the invention as set forth in the appended claims. The specification and drawings are accordingly to be regarded in an illustrative rather than in a restrictive sense.

I claim:

1. A check for a reel adapted to carry wound cables

and the like, comprising a plurality of concentric annular decks of bent sheet metal having radial folds at regular intervals therein, an axial flange of sheet metal attached to the inner periphery of each of said annular decks, a hub part, and arms connecting said hub part with said axial flange of the innermost of said annular decks, the axial flange of each of the other annular decks being connected to the outer periphery of the adjacent next inner annular deck.

2. A cheek as in claim 1; wherein said axial flange of the innermost annular deck projects axially beyond both sides of the cheek substantially at right angles thereto.

3. A cheek as in claim 1; wherein said radial folds of each annular deck are radially aligned with the radial folds of each annular deck adjacent thereto.

4. A cheek as in claim 1; further comprising an outer rim part rigidly connected to the outer periphery of the outermost of said annular decks.

5. A cheek as in claim 1; wherein the axial widths of the successive axial flanges, considered in the radially outward direction, are progressively reduced so that the cheek is tapered outwardly in radial section.

6. A reel for use in carrying wound cables and the like; comprising a hollow cylindrical body; and a pair of end cheeks each including a plurality of concentric annular decks of bent sheet metal having radial folds at regular intervals therein, an axial flange of sheet metal attached to the inner periphery of each of said annular decks, a hub part and arms connecting said hub part with said axial flange of the innermost of said annular decks, the axial flange of each of the other annular decks being connected to the outer periphery of the adjacent next inner annular deck; and said axial flanges of the innermost annular decks of said cheeks being rigidly connected to the opposite ends of said cylindrical body.

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