United States Patent

[11] 3,563,487

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[73] Assignee **Wanskuck Company**
a corporation of Rhode Island

[54] **METAL REEL**
4 Claims, 9 Drawing Figs.

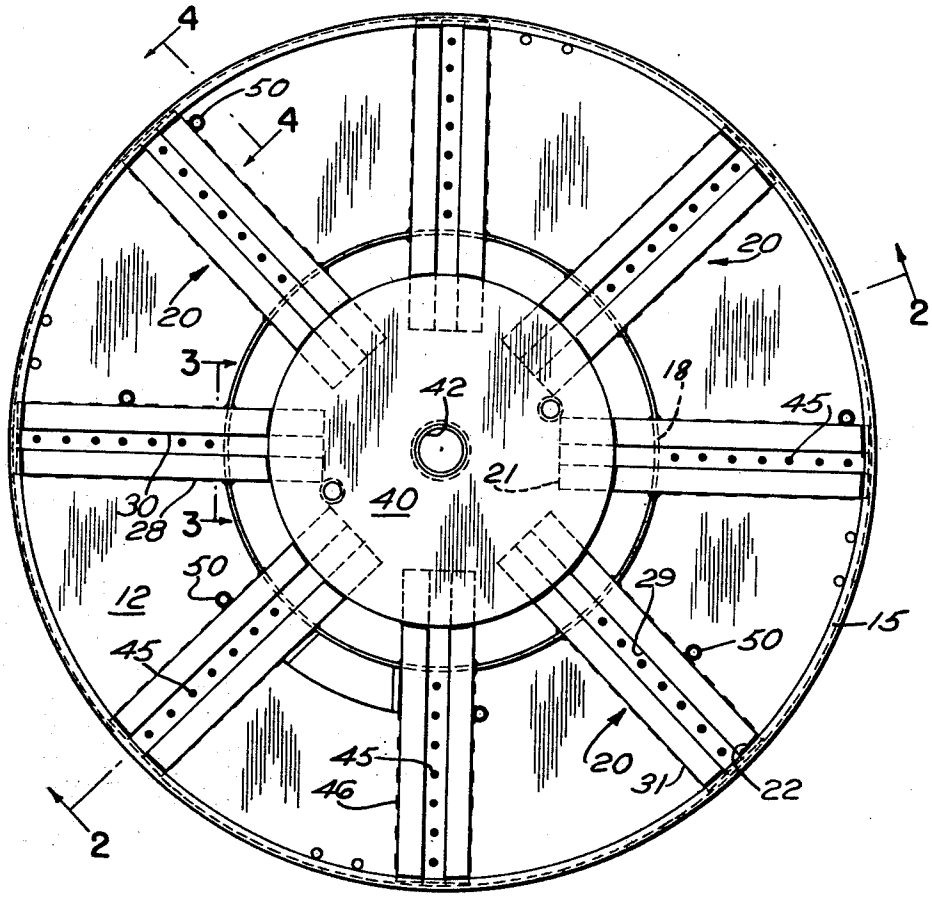
[52] **U.S. Cl.** **242/77.3**
[51] **Int. Cl.** **B65h 75/18**
[50] **Field of Search** 242/77.3, 77.4, 118.8

[56] **References Cited**
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ABSTRACT: A metal reel having a barrel with heads at each end, which heads are reinforced by a plurality of radially extending ribs, each rib comprising, in cross section, spaced channels opening toward the head, which channels are connected by an intermediate channel opening outwardly from the head, the inner ends of the ribs being tied together by a disc contacting their outer surfaces with the discs being tied together by a center tube.



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SHEET 1 OF 2

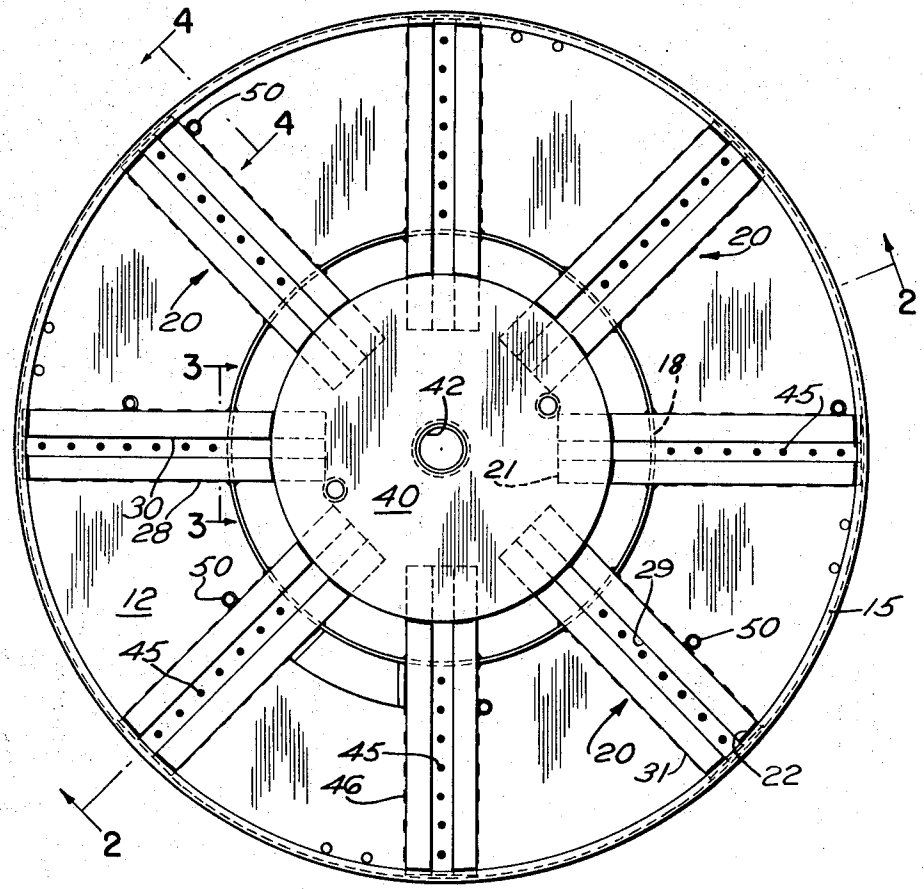


FIG. 1

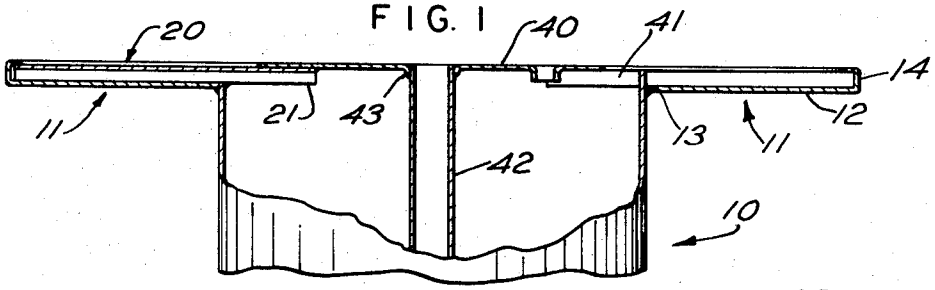


FIG. 2

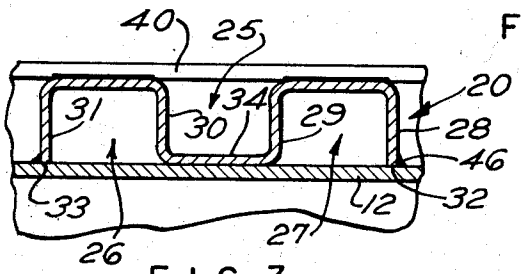


FIG. 3

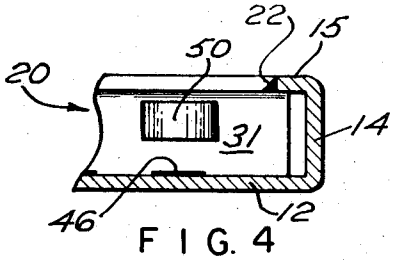


FIG. 4

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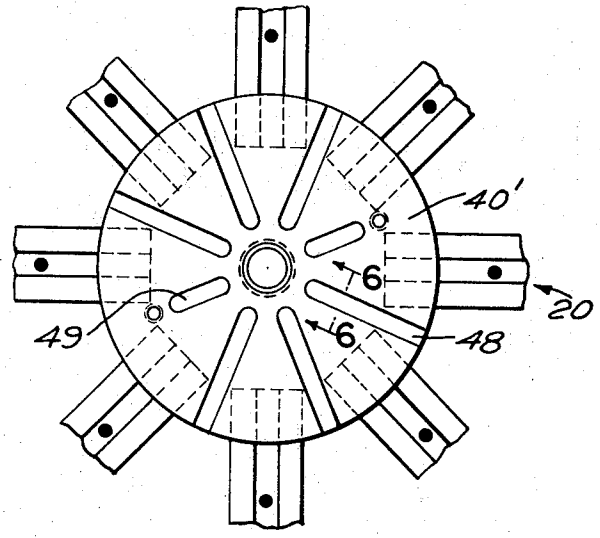


FIG. 5

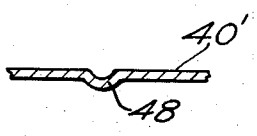


FIG. 6

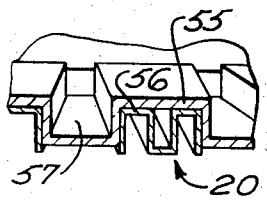


FIG. 8

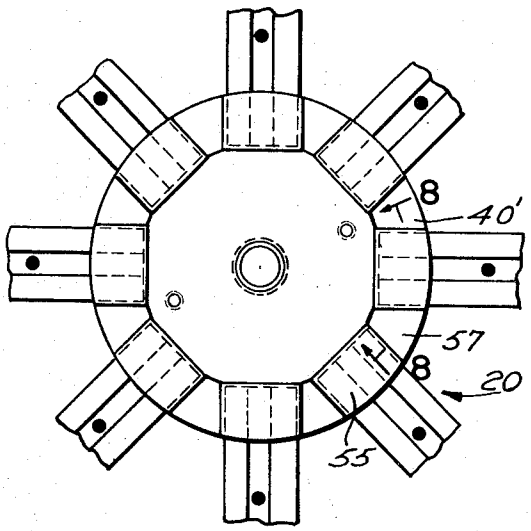


FIG. 7

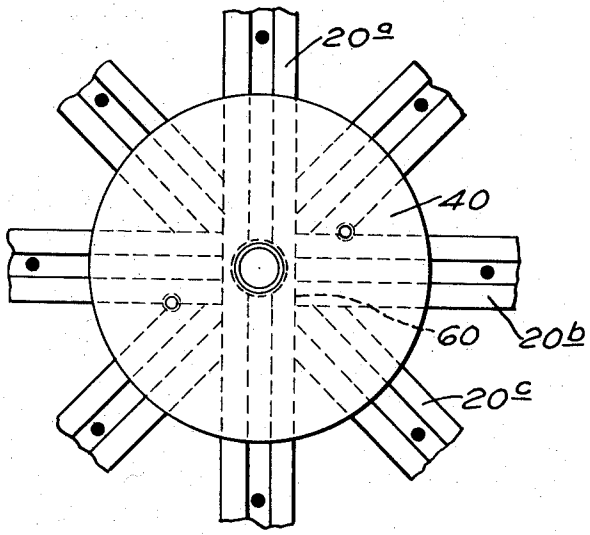


FIG. 9

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METAL REEL

BACKGROUND OF THE INVENTION

A reel upon which wire is wound after it has been subjected to drawing and annealing is subjected to tremendous strains, and flaring of the heads or distortion of the barrel or heads occurs, especially in a reel having heads of from 5 to 6 feet in diameter. Further such a reel with wire thereon is subjected to rolling and rough handling which is difficulty controllable by reason of the weight involved, and parts who which form the assembly are apt to come loose.

SUMMARY OF THE INVENTION

A reel comprising a barrel with heads at each end, each head having an annular portion which engages the outer cylindrical surface of the barrel and which is reinforced with a plurality of ribs which extend from the outer periphery of this annular portion inwardly to a point beyond the barrel, the barrel being notched to receive the ribs. A disc contacts the portions of the ribs inwardly of the barrel and is welded thereto on the outer face, and such discs are tied together by a center tube extending from one end of the reel to the other through the center of the barrel.BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view looking at the head of the reel;

FIG. 2 is a section on line 2–2 of FIG. 1 with the barrel partly broken away across a midportion thereof;

FIG. 3 is a section on line 3–3 of FIG. 1;

FIG. 4 is a section on line 4–4 of FIG. 1 illustrating the outer periphery of the head;

FIG. 5 is a fragmental plan view looking at a modified form of disc and ribs;

FIG. 6 is a sectional view through the disc at 6–6 of FIG. 5;

FIG. 7 is a fragmental plan view looking at the disc in still a different modified for form and ribs extending therefrom;

FIG. 8 is a sectional view on line 8–8 of FIG. 7; and

FIG. 9 is an end plan view of the disc showing a still different modified form of ribs at their inner ends.DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings, 10 designates the barrel which is formed of sheet metal rolled into cylindrical form. The head is designated generally 11 and comprises an annulus 12 of sheet stock, the inner edge 13 of which contacts the outer surface of the barrel and extends radially therefrom being turned outwardly as at 14 (FIG. 4) and then flanged inwardly as at 15 so as to stiffen the outer peripheral edge.

A plurality of ribs 20 (shown as eight in number and occurring at each 45° of arc) are secured to the annulus and extend inwardly from adjacent the outer periphery of the annulus to a point beyond the barrel, the ends 21 of the ribs being spaced from the axial center of the barrel and of such an extent as not to contact one another. The ribs in axial extent, as seen in FIG. 4, are of such a dimension as to extend from the outer surface of the annulus 12 to a point which will contact with the flange 15 which is rolled inwardly from the outward extension 14 and are there welded at 22. In cross section each of these ribs 20 is shown best by the section in FIG. 3. This cross section in effect provides an outwardly opening midchannel 25 with inwardly opening channels 26 and 27 at either side thereof. This forms four parallel walls 28, 29, 30 and 31 which extend at right angles to the annular plate 12, and when secured to this plate 12 by welding the walls 28 and 31 as at 32 and 33 and by spot welding of the bridging portion 34 connecting the walls 29 and 30 as at 45, this provides a secure support for the annulus 12 against outward flaring.

The ends of the barrel 10 are notched at 18 to receive the ribs which extend inwardly beyond the barrel.

A plate or disc 40 of a diameter less than the diameter of the barrel, as may be seen in FIG. 1 or FIG. 2, contacts the outer surfaces of the ribs with its periphery spaced from the edge of the barrel as may be seen at 41 and is welded to the ribs along their radially inner portion. A center tube 42 extends through a hole in disc 40 which is turned inwardly as at 43 to receive a

flared end of the center tube 42, and this center tube connects with a similar disc at the other end of the reel to tie the two discs together and the ribs on the opposite ends of the reel together.

In some cases to further stiffen the disc, it is shown in FIG. 5 at 40 having ribs 48 extending radially which ribs are formed by deflecting the stock of the disc inwardly from the general plane of its formation. These ribs will extend between the rib 20 heretofore referred to in all cases except where openings are provided in the disc and the ribs will be shortened as at 49 at these locations.

Another form of stiffening the discs by deflecting the same is shown in FIGS. 7 and 8 where the stock at 55 is deflected outwardly at the location of the ribs 20 providing a recess at 56 for the reception of the ribs 20, thus additionally strengthening the location of the inner ends of the ribs 20 and resisting any circular movement of the inner ends of the ribs. A further strengthening of the disc 40′ may be provided by deflecting the stock of the disc 40′ inwardly as at 57 between the ribs 20, this deflection being in the general form of a triangle or nearly a triangle in plan view with its sides in accordance with the angle made between the ribs 20 as they extend along the disc 40′. In this case there is a stiffening of the disc 40′ by a deflection out of its plane both inwardly and outwardly.

In FIG. 9 the disc 40 is the same as shown in FIG. 1 but in this case the ribs 20 are of a modified form in that the rib 20*a* extends completely across the diameter of the head while ribs 20*b* extend in to abut the rib 20*a* as at 60 at its center portion, while the ribs 20*c* are beveled along the angle made by the ribs 20*a* and 20*b* which in this case is a 45° angle on either side of the ribs 20*c* so as to fit snugly the ribs 20*a* and 20*b*. The ribs will be welded to each other and to the disc at their contacting points.

If there is a stress tendency to flare the head or annular portion of the head 12 outwardly, it will be resisted by the vertical walls 28, 29, 30, and 31, and any tendency of these ribs to swing outwardly about the edge of the barrel as a fulcrum will be resisted by the tie of the ribs together by the disc 40 which will further be resisted by the center tube being connected to and supported by the disc and the ribs of the head at the opposite end of the reel. Thus, a pull is transmitted from one head to the other through the ribs, and each head is mutually strengthened by the other.

The openings 41 between the disc 40 and the barrel and between the adjacent ribs permits of air circulation through the reel and consequent cooling of the same.

The ribs are spot welded to the annulus 12 as at 45 and are plug welded along the walls 28 and 31 to secure these walls to the annulus 12 as at 46. Tie collars 50 are provided at suitable intervals along the ribs.

By the above construction ballooning between ribs is prevented, and an elimination of flaring is secured, while an extremely strong reel is provided to resist shock deformation. The barrel will not collapse or develop flat areas.

I claim:

1. A metal reel comprising a cylindrical barrel of sheet stock with a head at the end thereof, said head comprising an annulus having its inner edge contacting the outer surface of the barrel and extending outwardly from the barrel, radial ribs secured to said annulus and extending from adjacent the outer periphery of the head inwardly beyond the barrel, said barrel projecting through said head, the end of said barrel having notches with said ribs in said notches, said head further comprising a disc member of a diameter less than the diameter of the barrel and contacting the ribs inwardly of the barrel and secured to said ribs, a center tube attached to said disc member and extending axially inwardly therefrom, said ribs having a cross section of two spaced channels opening toward said annulus connected by a channel opening outwardly from said head in the other direction, the bridging portion of the outwardly opening channel being welded to said annulus and the edges of the outer walls of the inwardly opening channels being welded to said annulus.

2. A metal reel as recited in claim 1 wherein one of said ribs extends completely across the diameter of the head while the other ribs extend into and abut the rib that extends completely across the head.

3. A metal reel as recited in claim 1 wherein said disc member has alternating peripheral portions first deflected outwardly to form recesses for the reception of said ribs and secondly deflected inwardly between said ribs to give additional strength to said disc member to resist any circular movement of the inner ends of said ribs.

4. A metal reel as recited in claim 1 wherein said disc has a plurality of radially formed ribs which have been formed by deflecting the stock inwardly from the general plane of its formation.