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E. O. STARRATT  
HEAVY DUTY METALLIC REEL  
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3,468,495

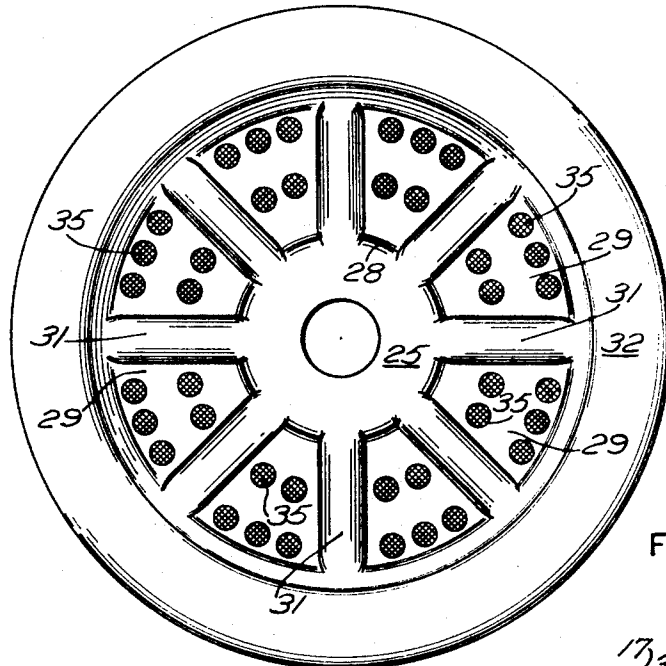


FIG. 1

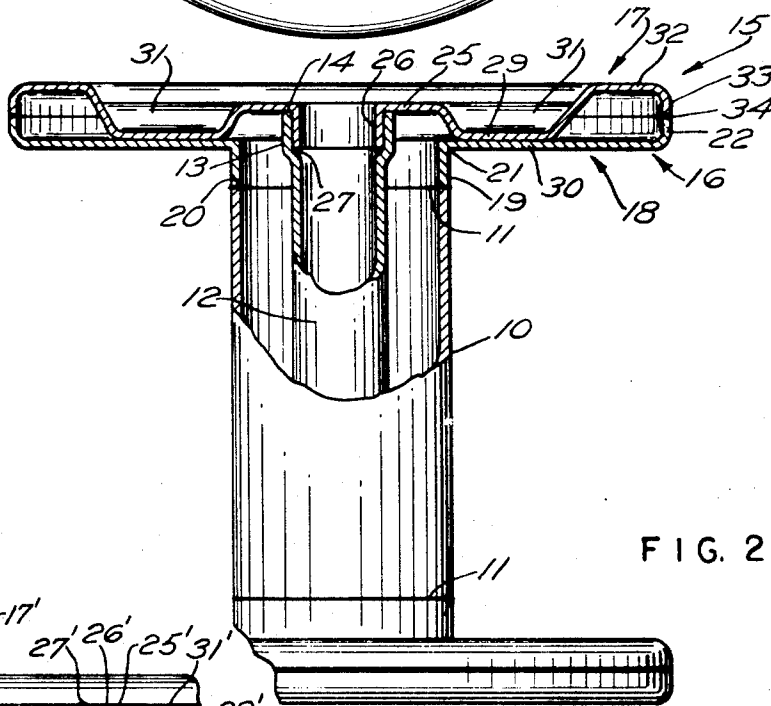


FIG. 2

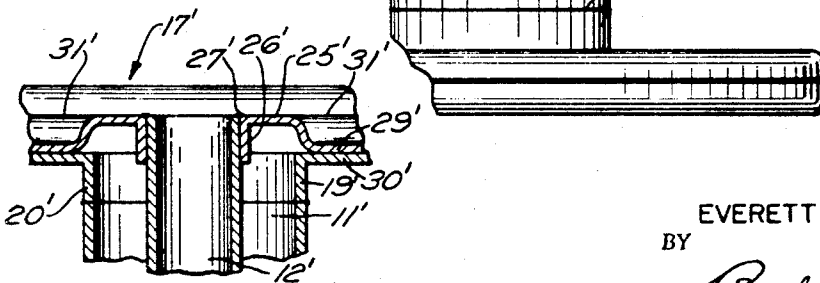


FIG. 3

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1

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## HEAVY DUTY METALLIC REEL

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5 Claims

### ABSTRACT OF THE DISCLOSURE

A metal reel having a barrel and center tube with heads at each end, the heads being formed of two parts with the inner part having a neck to abut the ends of the barrel and the outer part shaped to stiffen the head and be secured to the center tube of the barrel.

### Background of the invention

Reels upon which wire is wound after the wire has been drawn are subjected to heating for annealing the wire and subsequent cooling in which process severe strains are exerted upon the reel. Further severe tension in the wire being wound requires that the inner guiding surface of each head of the reel must be at exactly right angles to the surface of the barrel at its juncture therewith so that as the reel is rotated the wire may enter and be wound upon the reel without fluttering so as to provide an even wrap of wire about the barrel as the multiple layers of wire are built up, and this is very essential especially where high speed operation is involved.

### Summary

The reel has a barrel with a concentric coaxial center tube within and heads at each end. The ends of the barrel and ends of the center tube are machined to each be in a plane at right angles to the axis of the barrel and center tube while the head is provided in two parts each part having a wall with a neck portion extending inwardly on an axis coaxial with the barrel and center tube and at right angles to the plane of the wall from which the necks extend, the neck of the inner part of the head having its end machined in a single plane and abutting the end of the barrel, while the machined end of the center tube abuts the wall of the outer part of the head adjacent the neck which extends therefrom. The neck of the outer part of the head is in telescoping relation with the center tube. The head parts are secured together, as by welding, and are shaped to provide radial stiffening.

### Description of the drawings

FIG. 1 is a plan view of the reel showing the outer end of the head;

FIG. 2 is an elevation partly in section showing the parts of the head and barrel as they are secured together; and

FIG. 3 is a fragmental elevation partly in section of a modified form.

### Description

The metal barrel is designated 10 and is of cylindrical form with its ends 11 machined into a single plane at exactly right angles to the cylindrical axis of the barrel. A cylindrical center tube 12 is located within the barrel and is coaxial therewith. At its end portions 13 it is enlarged in diameter, as seen in FIG. 2, while its end surface 14 is machined in a single plane also at exactly right angles to the axis of the tube and spaced outwardly from the plane of the end 11 of the barrel.

A box-type head, which is at each end of the barrel, is designated 15 and comprises two parts, an inner part 16 and an outer part 17. The inner part 16 is provided

2

with a wall 18 having an inner surface in a plane from which there extends inwardly a neck portion 19. This neck portion is cylindrical and is of the same diameter as the diameter of the barrel 10. Its end surface 20 is machined in a single plane at right angles to its axis and abuts the machine surface 11 at the end of the barrel and is secured thereto by welding. A suitable form of welding is a T.I.G. welding. The wall 18 of this inner part of the head is in a single plane at right angles to the axis of the neck portion 19 and thus at right angles to the axis of the barrel 10 and forms with the neck portion at 21 a right angle as is seen, thus providing a good right angle joint or juncture between the neck and the wall 18 which serves as a guiding surface as the wire is wound upon the barrel. The outer peripheral edge of the inner part of the head is flanged outwardly as at 22 for abutting relation with the outer part of the head as will now be described.

The outer part of the head 17 has a wall 25 with its inner surface in a single plane from which there extends inwardly a neck portion 26. This neck portion 26 has an outer diameter to snugly fit the inner diameter of the expanded portion 13 of the center tube and has a telescoping fit therewith. It is of a length to extend into the tube a substantial extent and may be welded at its end as at 27 to secure it therein. The wall 25 is in a plane at right angles to the axis of this cylindrical neck portion 26 and thus at right angles to the axis of the barrel and center tube. It also has a machine surface to contact the machine surface 14 of the center tube so as to locate it at right angles thereto and spaced from the wall 18 of the inner part. Thus, there is provided two locations at right angles to the axis of the center tube and barrel to locate the head with reference to the barrel with its guiding surface as desired.

The outer part of the head 17, as will be seen in FIG. 1, has this wall portion 25 extending from the neck radially outwardly to approximately the line 28 and then this wall portion is deflected downwardly as at 29 to an extent to contact the outer surface of the inner part 18 as at 30 (see FIG. 2), while leaving other portions 31 as radially extending ribs spaced from the inner part 18, there being eight of these ribs shown at equally angularly spaced portions about the circumference of the head. It is understood that any number of ribs may be used. The wall adjacent its outer periphery as at 32 is raised from the lower part 29 and also from the rib portion 31 to an extent higher than the center wall portion 25 about this marginal periphery as it further extends radially outwardly, while at its very outer peripheral edge it is turned downwardly as at 33 providing a flange the edge of which abuts the edge of the flange 22 and is there welded as at 34 as seen in FIG. 2. Thus there is provided a box-type construction of head in which the inner and outer parts are spaced from each other about the periphery and also radially inwardly where the ribs occur and yet the parts are secured together at their periphery and also at a number of intermediate points by spot welding as at 35 providing a strong and rigid head for withstanding both horizontal and axial stresses and radial stresses having good resistance to stresses in all directions and providing a very rigid head.

An alternate form of adjoining the head to the barrel is illustrated in FIG. 3 wherein like parts have the same reference numerals with a prime. As will be seen in FIG. 3, the outer wall 25' of the head 17' has an inwardly extending neck portion 26' that has an inner diameter to snugly fit the outer diameter of the center tube 12'. It has a telescoping fit therewith and may be welded thereto as at 27'. If the center tube 12' has an accurate dimension, the end wall thereof will serve as a locating point for the surface of the wall 25' so that the weld 27' will

3

in reality be a surface weld as illustrated. The remaining structure is identical to that described above in connection with the showing of FIG. 2.

I claim:

1. A reel comprising a barrel and a coaxial center tube within, each having an abutting end in a single plane at right angles to its axis, said planes being spaced and parallel, a head unit having inner and outer parts, the inner part having a wall in a single plane with a first neck extending inwardly therefrom, said first neck having an end in a single plane parallel to the plane of said wall and at right angles to the axis of the barrel and abutting the end of the barrel to provide a first point of alignment of said barrel and head, the outer part including a wall in a single plane with a second neck extending therefrom in telescoping relationship within the center tube and the inner surface of the wall of the outer part is in a single plane and abuts the end of the center tube to provide a second point of alignment of said barrel and head unit.

2. A reel as in claim 1 wherein the inner head part is at right angles to the first neck at their juncture.

4

3. A reel as in claim 1 wherein the head parts contact along radial lines at spaced intervals.

4. A reel as in claim 1 wherein the head parts contact along radial lines and are spaced from each other to provide radial ribs spaced angularly from each other.

5. A reel as in claim 1 wherein the head parts are spaced from each other about their periphery and are turned toward each other and contact at their peripheral edges.

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