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Schmitz

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[54] **REEL CONSTRUCTION**

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[51] **Int. Cl.**..... **B65h 75/14**

[58] **Field of Search**..... 242/118.6, 118.61, 242/118.62, 118.7, 118.8, 118.4, 118.1, 77.3, 77.4

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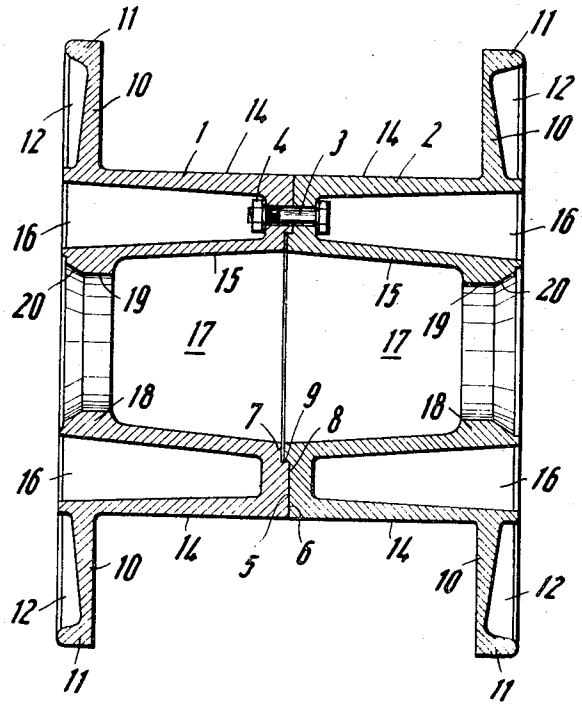
[57] **ABSTRACT**

A reel for cables and the like is composed of two reel sections each having a hub portion and a flange portion. Bolts or similar means connect the reel sections so that the respective hub portions abut one another in axially aligned relationship with the flange portions being axially spaced from one another.

4 Claims, 2 Drawing Figures



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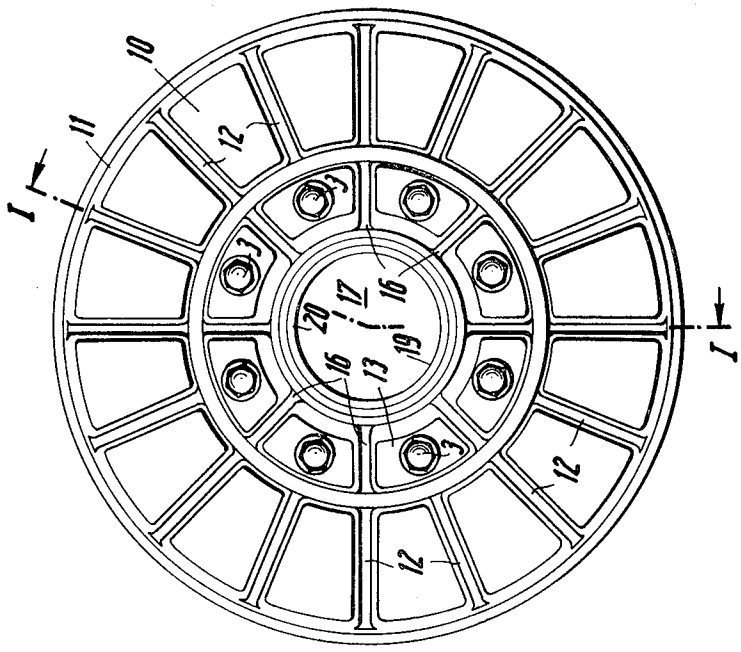

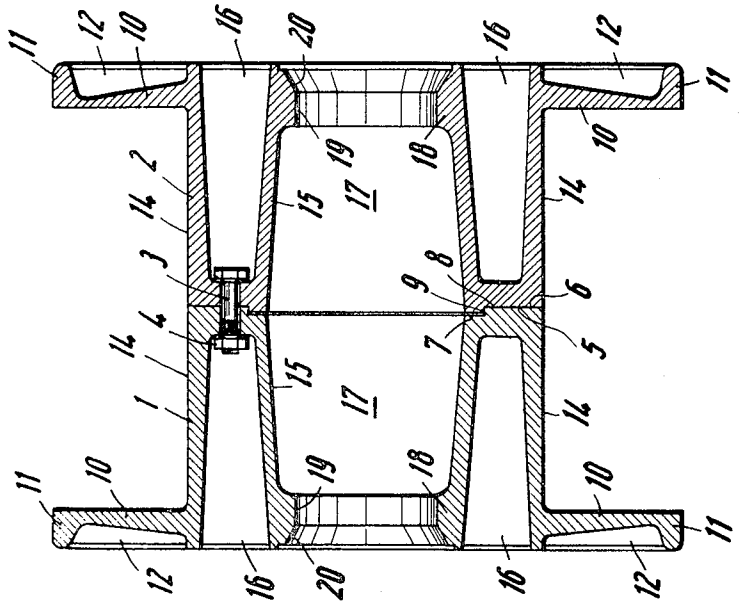

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REEL CONSTRUCTION

BACKGROUND OF THE INVENTION

The present invention relates generally to reels, and more particularly to reels for wires, cables and the like. Still more specifically the invention relates to a reel which is especially suitable for carrying wires, cables and the like which are to be annealed while on the reel.

It is already known to provide reels for this purpose, namely to carry wires, cables and the like which are to be annealed, so that the reel with its contents is placed into an annealing furnace and heated therein. Two types of such reels have become known, one type being made of sheet steel and the other being castings made of lightweight metal. The former type can be produced in any desired and necessary size, but has the disadvantage that it will become relatively readily deformed during storage or transportation, and that it becomes warped quite frequently during the annealing process. The result of this deformation or warping is that it is no longer possible to precisely position the wire, cable or the like on such a reel. This is disadvantageous and if the reel is to be wound with wire, cable or the like (or if such is to be unwound) on fully automated machines provided for this purpose, there is the further disadvantage that even if the reel is only slightly deformed or warped the resulting imbalance of the reel causes the wires quite frequently to become entangled and to tear.

The reels which are made as castings of lightweight metal do not exhibit the aforementioned disadvantages, but they have their own difficulties in that they can be made economically only to a certain size, approximately 400 mm diameter. If they are to be made larger, then their production (especially that of the casting molds required) becomes too expensive and is no longer economically feasible.

SUMMARY OF THE INVENTION

It is, accordingly, an object of the present invention to provide an improved reel of the type under discussion which is not possessed of the aforementioned disadvantages.

More particularly it is an object of the present invention to provide such an improved reel which can be economically manufactured in any desired size, including large sizes.

Still another object of the invention is to provide such an improved reel which, while it can be economically manufactured in any desired size, has the advantages of the aforementioned reels made of light-weight metal in that it neither warps nor is readily deformable.

In pursuance of the above objects, and of others which will become apparent hereafter, one feature of the invention resides in a reel for wires, cables and the like, which comprises a pair of reel sections having respective axially aligned and abutting hub portions, and respective axially spaced flange portions. Connecting means are provided for connecting the reel sections against separation.

The abutting axial end faces of the hub portions may advantageously be provided in stepped configuration, so that the steps on the end faces interlock to provide proper and automatic centering of the hub portions with reference to one another, to thereby assure proper axial alignment without any difficulties and without need for special adjustments.

To reinforce the reel sections, and to protect them against undesired deformation and warping, both the hub portions and the associated flange portion are provided with reinforcing ribs and the outer circumferential marginal portion of each flange portion may further be provided with a circumferentially extending reinforcing bead.

Formation of the hub portions can be facilitated by providing the central passage therein of conically diverging configuration, that is diverging in the direction away from the respective flange portion. The outer end of each hub portion is provided with an inwardly reinforced bead which after later working or finishing step will have an inner cylindrical and an outwardly conical part.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims.

The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a section through an embodiment of the present invention, taken on the line I—I of FIG. 2; and FIG. 2 is an end view of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Discussing now the drawing in detail it will be seen that the exemplary illustrated reel is composed of two reel sections which are respectively identified with reference numerals 1 and 2. The reel sections are connected by connecting means, here illustrated as screws 3 extending from one reel section into the other, and engaging at the other reel section cooperating nuts 4.

The drawing shows that to all intents and purposes the reel sections 1 and 2 are identical with one another; the only exceptions are the axial end faces provided on the hub portions of the two reel sections, which end faces abut one another. The end faces are identified with reference numerals 5 and 6, respectively, and the end face 5 is provided at its inner circumference with an annular step or recess 7 whereas the end face 6 is provided at its outer circumference with an annular step or recess 8. The result is a centering profile 9 which assures a simple and reliable centering of the reel sections with reference to one another so that they will automatically move to axially aligned position when placed together in the manner illustrated in FIG. 1. This prevents lateral or radial displacement of the reel sections 1 and 2 with reference to one another.

Each of the reel sections 1 and 2 is provided with a flange 10, and these flanges are axially spaced from one another as evident in FIG. 1. The outer marginal periphery of each flange 10 is provided with a reinforcing bead 11, and the outer sides of the flanges 10 are further provided with reinforcing ribs 12 which reinforce, stiffen and protect the flanges 10 against warping or deformation.

The hollows 13 which are provided between the outer winding surface 14 and the inner surface 15 bounding the central passage 17 defined by the two hub sections 1 and 2, and which are provided to decrease

the weight of the reel as opposed to a solid-cross section reel, are similarly reinforced by reinforcing ribs **16**. At the opposite axial ends of the passage **17**, one on each of the reel sections **1** and **2**, are provided inwardly extending reinforcing beads **18** whose inner portion **19** is cylindrical and whose outer portion **20** is conical, the configuration being usually obtained by a milling operation. This configuration, especially that of the portion, provides a proper and simple centering of the reel on a winding or unwinding machine. The passage **17** diverges inwardly in conical configuration from the region of its opposite ends.

The reel sections **1** and **2** can be produced as castings, for instance of light-weight metal, and have the decided advantage that the castings can be economically manufactured in any desired size because the form necessary for making the casting of each reel section is composed only of an upper and a lower portion and can be readily made. Also, of course, the two reel sections are identical except for the configuration at their axial end faces **5** and **6**, and as a result only a single form is required for producing both sections and if one section of a reel should be damaged, only this one section need be replaced instead of having to replace the entire reel. This means that only half the expense of replacing the whole reel is involved.

In addition, the reel sections can be worked—not only cast but also finished, for instance by producing the recesses in the end faces **5** and **6**—much more readily than reels which are cast of one piece, because they have only half the size and weight of a one-piece reel.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the types described above.

While the invention has been illustrated and described as embodied in a reel construction, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by Letters Patent is:

1. A reel for wires, cables and the like which are to be placed into an annealing device, comprising a pair of mirror-symmetrical reel sections each having a hub portion and a flange portion, said hub portions abutting one another axially and each having a center passage extending axially of said reel and further including an outer and an inner annular wall surrounding said center passage and defining between themselves an annular space which conically diverges towards and is open at the respectively associated flange portion; radially extending reinforcing ribs provided in said annular spaces; axially extending reinforcing ribs on each of said flange portions; and nut-and-bolt connectors in said annular spaces and connecting said hub portions with one another in axially aligned condition.

2. A reel as defined in claim **1**, said hub portions each having an axial endface facing the corresponding endface of the other hub portion; and wherein said endfaces are provided with interengaging profiles for preventing relative radial displacement of said hub sections.

3. A reel as defined in claim **2**, wherein said endfaces each comprise at least one of said profiles, and wherein the latter are of annular outline.

4. A reel as defined in claim **1**, wherein said reel sections are metallic castings.

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