Aug. 7, 1928. 1,679,573

W. M. HIND

KNOCKDOWN REEL

Filed Feb. 18, 1924 2 Sheets-Sheet 1

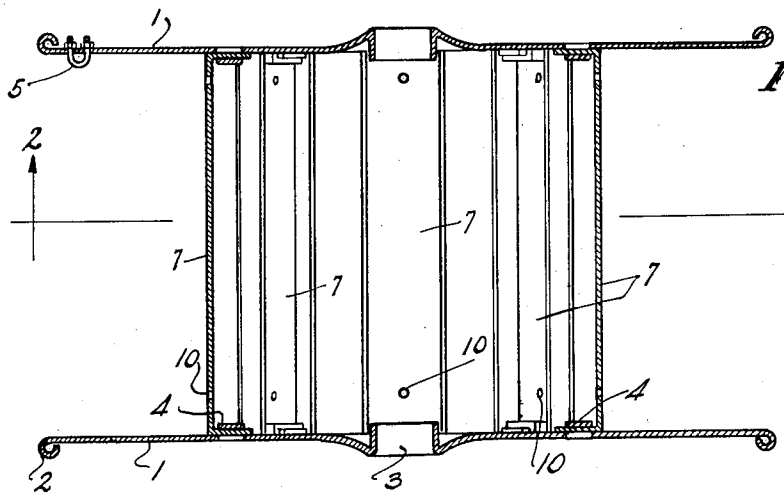
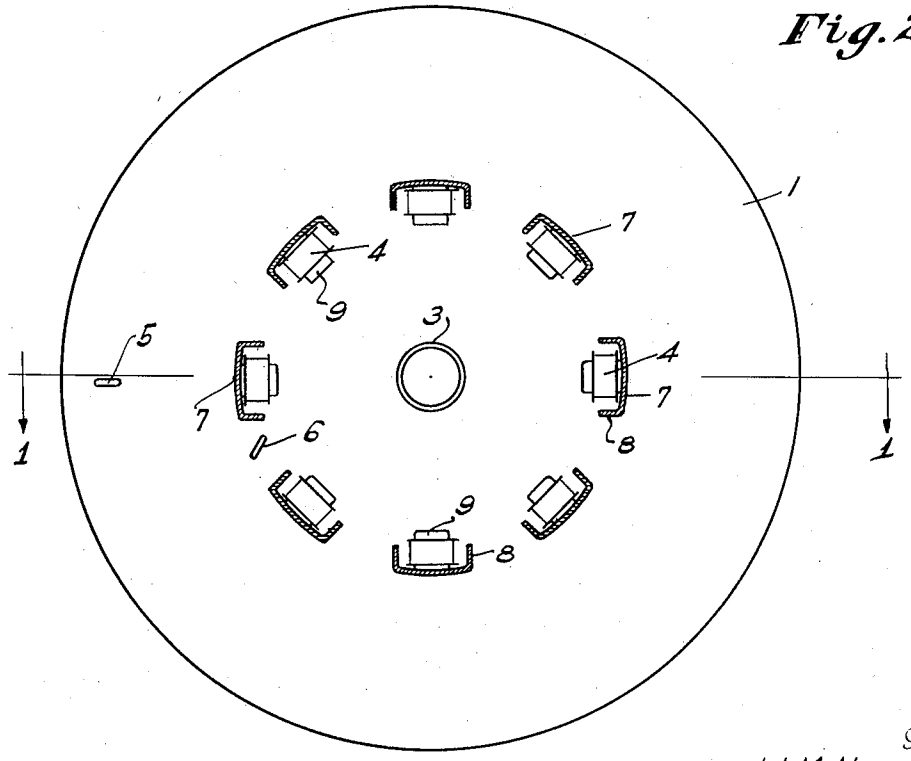


Fig. 1

Fig. 2



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Fig. 3

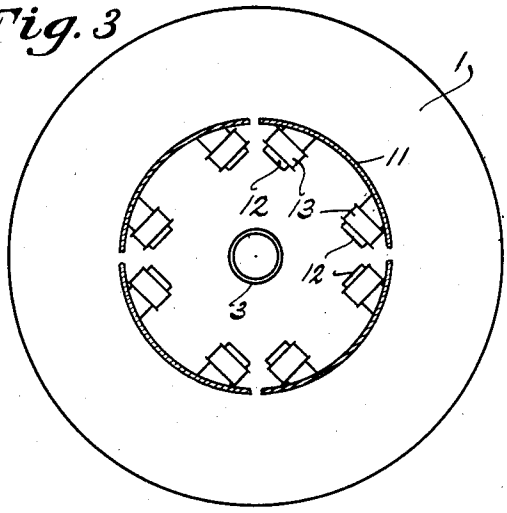


Fig. 4

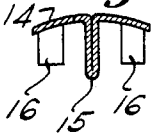


Fig. 5

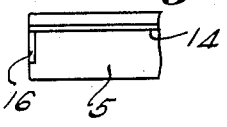


Fig. 7

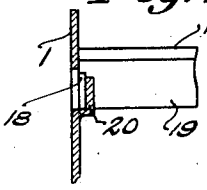


Fig. 6

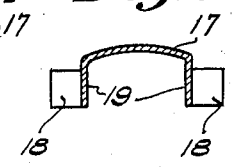


Fig. 8

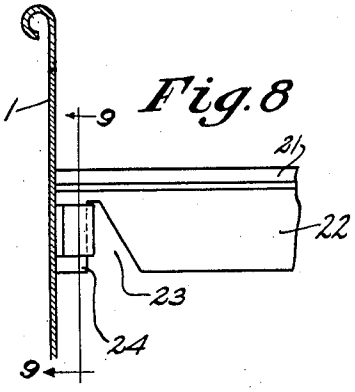


Fig. 9

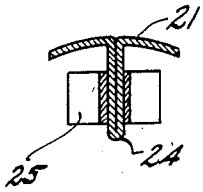


Fig. 10

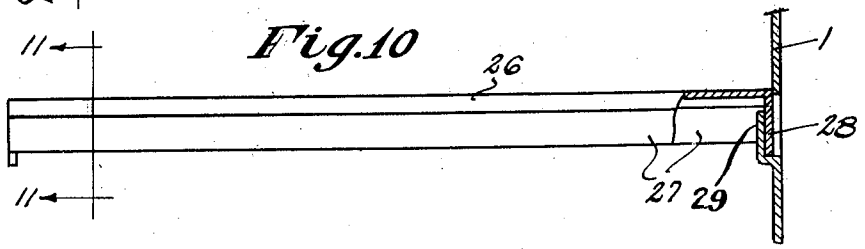
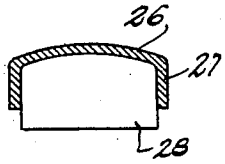


Fig. 11



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Patented Aug. 7, 1928. 1,679,573

UNITED STATES PATENT OFFICE.

WILLIAM M. HIND, OF BUFFALO, NEW YORK.

KNOCKDOWN REEL.

Application filed February 18, 1924. Serial No. 693,477.

My invention relates to reels and particularly metallic reels so constructed and assembled that they can be knocked down and assembled readily, thus facilitating handling, lowering cost of return shipments of the empty reels, and reducing the space required to store the reels.

My invention contemplates the provision of end reel members, preferably in the form of metal disks, but the shape or conformation of these end members may be widely varied according to the material to be wound on the reel and the duty required of the reel. These end members I connect and brace by detachable cross members which are disposed to receive the cable, rope, etc., wound on the reel and are preferably held engaged with the end members by the encircling cable.

My invention in its preferred embodiment contemplates the provision of a tongue and groove interlock between the cross braces and the reel ends and that the braces be designed so as to have a longitudinal stiffening or reinforcing web or webs which will engage and brace the reel ends.

My invention contemplates various manners of forming a tongue and groove interlock between the cross members and the reel ends, but all are designed to permit the ready taking apart and quick assembling of the reel ends and cross members preferably by relative radial movement only.

Moreover, my invention contemplates that the cross members shall afford sufficient bracing to hold the reel ends in position without requiring the use of any hub connection.

My invention has the distinct advantage of enabling the capacity of the reel to be varied by the use of standard end members, it being only necessary to use longer or shorter cross connecting members. Thus there is need to stock only standard reel ends with connecting members of the lengths needed to take care of the various reel requirements of a plant.

My invention contemplates the arranging of the cross members circumferentially about the axis of the reel end, the cross members being suitably spaced and preferably having a curvature in transverse cross section which will present an appropriate support for all classes of cable, rope, etc., without deforming the coils.

My invention also contemplates the various novel details of construction and arrangements of parts, which are hereinafter more particularly described and claimed, and which are shown in the various embodiments of my invention illustrated in the accompanying drawings which form a part of this specification, and in which:—

Fig. 1 is a cross-sectional view through a reel constructed in accordance with my invention, the section being taken on the line 1—1 of Fig. 2.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view corresponding to Fig. 2, showing a wide type of cross brace with a double tongue interlock.

Figs. 4 and 5 are views in cross section and partial side elevation of a double tongue center web cross brace.

Fig. 6 is a cross-sectional view of a brace with double side tongues.

Fig. 7 shows the brace in Fig. 6 interlocked with the reel end by a modified type of socket joint.

Fig. 8 is a cross-sectional view through part of a reel end showing an attached socket to receive a tongue formed as a part of the center web of the cross brace.

Fig. 9 is a cross-sectional view taken on the line 9—9 of Fig. 8.

Fig. 10 is a side elevation of a cross brace enlarged with a full width end tongue shown in cross section at one end interlocked with a lip on the reel end.

Fig. 11 is a cross-sectional view on the line 11—11 of Fig. 10.

Similar reference numerals refer to similar parts throughout the drawings.

In the embodiment of my invention, illustrated in Figs. 1 and 2, I show a metallic knock-down reel comprising two duplicate circular ends 1 formed of sheet metal with a rolled rim bead 2, a center hub 3 and having any desired structural conformation in its body portion to give it the requisite strength to take care of the duty required of it. I arrange concentrically in each reel end 1 an annular series of sockets formed by punching in strips of the metal which will give the sockets the necessary width and length. Preferably, these sockets are equi-distantly disposed in a circle having a diameter approximately half that of the disk, but obviously they may be mounted in any desired position on the disks relative to their hubs, according to the quantity and

character of the material to be wound on the reel. Holes are punched in each of the disks to receive clips 5 and 6 by which the ends of the cable or other material to be wound on the reel can be made fast. The hubs 3 comprise just such metal as can be deformed from the center of the disks 1. As shown they have sufficient bearing surface to support the weight of the reel on any mandrel or axle used for winding or unwinding the reel, but it is especially to be noted that my invention contemplates no connecting hub or center for the reel ends. The center hole in the disk can be punched to any shape required to suit any type of winding mandrel.

The duplicate disks 1 are set up with their sockets projecting inwardly from their inside faces and they are connected by a series of cross brace bars 7. These bars are stamped from metal plates and are provided with longitudinal stiffening or reinforcing elements such as the depending side flanges 8 and they have end tongues 9 adapted to be received and fit snugly in the sockets 4. It is contemplated that the ends of flanges 8 shall abut against reel ends and that the cable or rope supporting surface of the cross bar shall be arcuate in transverse cross section coresponding substantially to the curvature of the circle in which the several bars are disposed. It is contemplated that the tongues 9 shall be forced into the sockets 4 and fit therein tight enough to hold the reel assembled when it has been set up and mounted on the winding mandrel, but the connection will not be such as to prevent the cross bars being readily knocked loose to disassemble or knock-down the reel after the cable or other material has been unwound therefrom. If desired the bars can be provided with end holes 10 by means of which the several cross bars of a knock-down reel can be tied together for shipment.

In Fig. 3 I show the cross braces formed of wider bars 11 provided at each end with a pair of tongues 12 adapted to engage in pairs of sockets 13 formed like the sockets 4, Fig. 1, on the reel ends 1. Here the curvature in transverse cross-section of the wide brace plates gives the necessary bracing to the end disks 1, though obviously end flanges 8 could be used if desired.

In Figs. 4 and 5 I form the cross braces 14 of metal doubled along its center to form a bracing web 15 and having end tongues 16 on each side, corresponding to the tongues 12 and adapted to be received in pairs of sockets 13.

In Fig. 6 I show the cross brace 17 substantially corresponding to cross bars 7 of Fig. 1, but here the tongues 18 are formed by laterally out-turned end portions of the side stiffening flanges 19 and these tongues are adapted to be received in sockets formed by radial tongues 20 which are punched out of the disk and offset inwardly in spaced parallelism with the inner face of the disk to provide open top sockets or seats.

In Figs. 8 and 9 I show a cross brace member 21 similar to 14, except that here the center or bracing web 22 is notched at 23 to form end tongues 24 lying in the plane of the web and these tongues are adapted to be received in sockets 25 which are here shown as formed by separate brackets attached to the disks 1, but obviously such sockets can be formed in any practical manner.

In Figs. 10 and 11 I show the cross braces 26 having side stiffening flanges 27 and having a wide end tongue 28 extending across the full width of the bar at each end and each tongue is received in a socket formed by punching in a wide lip 29 corresponding to 20 in Fig. 7.

All the various embodiments of my invention above described are in a general sense alike and the manner of assembling and knocking down the form shown in Figs. 1 and 2 will be typical of the manner of all of the other forms.

Assuming that the requisite parts for making up a reel are taken from stock, the reel is set up by mounting the cross connecting members 7, one at a time by mounting their tongues 9 in the sockets 4 formed on the reel ends 1 and forcing the tongues firmly into the sockets. After all the connecting members have been thus set in place the reel is ready to be mounted on the winding mandrel and it is so mounted and the inner end of the cable, rope, etc., is made fast to the inner clip 6, whereupon the winding commences and when completed the free end of the rope or cable is made fast to the other clip 5. The reel is then removed from the mandrel and shipped, and it will be observed that the cable or rope, being wound tightly about the cross braces 7 will hold them positively interlocked in their respective sockets and the reel will be amply braced both by the cross connecting bars and their bracing flanges or ribs and by the coiled material between the outer margins of the reel end disks. The reels will thus hold their shape and can be readily transported and handled in the manner customary with reels of various types.

As soon as the rope or cable has been unwound from the reel, it is obvious that the connecting brace bars can be knocked loose from the end sockets and the reel knocked down, whereupon the connecting brace bars are suitably tied together through the openings 10 provided therein and the brace bars and end plates are stocked in comparatively small space until ready for return shipment.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is:—

1. In a knock-down reel, disk-like end members, and cross brace members interlocked with and outwardly detachable from the end members and arranged to receive the material to be wound on the reel, the centers of the disk being deformed to provide elongated hubs for the mounting of the reel on axial supports.

2. A knock-down reel in accordance with claim 1, in which the disk has tongues struck up therefrom circumferentially to interlock with the brace members, and the brace members have radially disposed end portions which bear against the inner face of the disk end members.

3. A knock-down reel formed by end supporting members, and detachable cross members adapted to secure the end members together and having longitudinal stiffening elements adapted to engage and brace the end members.

4. In a knock-down reel, end members, and cross members detachably secured to the end members and having brace means abutting said end members and having means to hold said members in spaced parallelism, said brace means having transversely arched supporting surfaces arranged concentrically about the center of the end members.

5. A knock down reel formed by annular end members and rigid transversely arched longitudinally reinforced plates forming cross braces which have their ends detachably interlocked with intermediate elements on the end members, thereby securing said members together, said braces being arranged concentrically about the reel center and adapted to receive the material to be wound on the reel.

6. A knock-down reel comprising a pair of metallic disks forming reel ends and having a concentric series of sockets on the inside face of each disk, and a plurality of reinforced plates having end tongues adapted to interlock in said sockets and to detachably secure said reel ends together.

7. A knock-down reel comprising a pair of metallic disks forming reel ends and having a concentric series of sockets on the inside face of each disk, and a plurality of reinforced plates having end tongues adapted to interlock in said sockets and to detachably secure said reel ends together and having longitudinal stiffening ribs adapted to abut against said disks and brace them.

8. A knock-down reel, comprising a pair of end members, and a plurality of end-connecting members, each secured to the inner face of each of said end members abutting thereagainst, and detachable therefrom by movement radially of the reel, whereby each of said connecting members constitutes a removable combined tie and strut.

In testimony whereof I affix my signature.

WILLIAM M. HIND.