Oct. 18, 1932. H. P. ARKEMA ET AL 1,882,718

REEL

Filed May 31, 1929

Fig. 1.

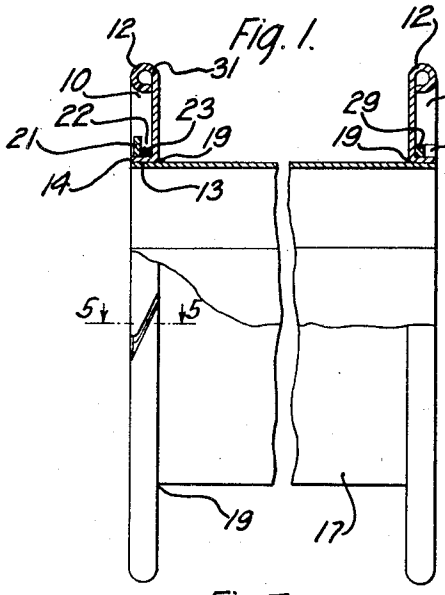


Fig. 2.

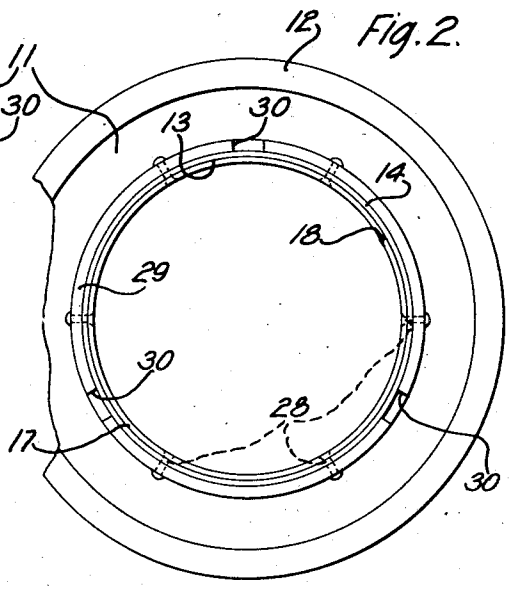


Fig. 7.

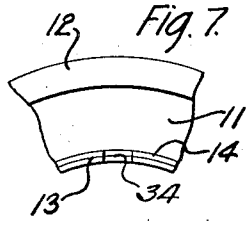


Fig. 6.

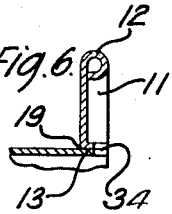


Fig. 4.

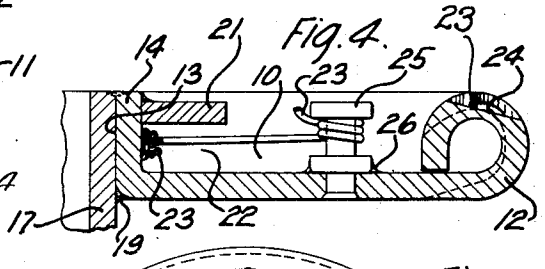


Fig. 5

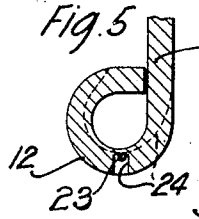


Fig. 8.

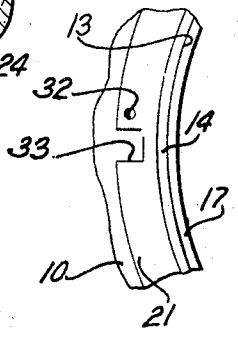
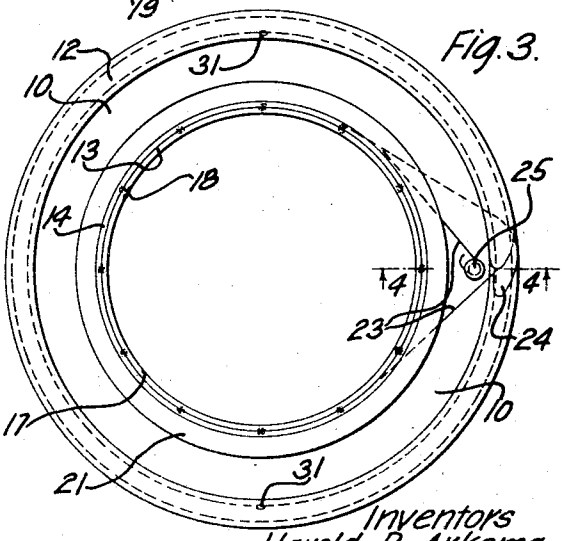


Fig. 3.



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Patented Oct. 18, 1932 1,882,718

UNITED STATES PATENT OFFICE

HAROLD PETER ARKEMA, OF CHICAGO, AND BRUNO MAX ALFRED TREBES, OF BERWYN, ILLINOIS, ASSIGNORS TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

REEL

Application filed May 31, 1929. Serial No. 367,271.

This invention relates to reels, and more particularly to metal reels.

The object of this invention is to provide a reel which is simple and rigid in construction, economical to manufacture and durable in service.

In accordance with one embodiment, the invention contemplates a metal reel applicable either as a strand take-up or supply reel in which each head has its peripheral edge turned outwardly at an angle to its inner face and an axial aperture surrounded by an outwardly extending flange. The outer edge of the flange is flush with the end of a drum which extends between the heads and which is welded thereto at the inner juncture between it and the heads. One of the flanges has a ring welded thereto to form an annular channel for supporting in coiled formation a length of the inner end of the strand wound on the reel whereby the outer end of the strand wound on one reel may be interconnected with the inner end of the strand wound on another reel without disturbing the main portion of the coiled strand. The peripheral surface of the head having the strand supporting channel is slotted through which the inner end of the strand is directed to the channel, the extreme free inner end of the strand being retained by a button secured to the outer face of the head adjacent the slot. Surrounding and riveted to the opposite flange and flush with its edge is a notched ring forming a driving connection with a driving arbor when the reel is used as a take-up reel.

Other objects and advantages of this invention will more fully appear from the following detailed description taken in connection with the accompanying drawing, wherein

Fig. 1 is an elevational view, partly in section, of one form of reel embodying the features of this invention;

Fig. 2 is a fragmentary end view of the reel shown in Fig. 1 looking at the right end thereof;

Fig. 3 is an end of the reel shown in Fig. 1, looking at the left end thereof;

Fig. 4 is an enlarged detail horizontal section taken on the line 4—4 of Fig. 3;

Fig. 5 is an enlarged detail horizontal section taken on the line 5—5 of Fig. 1;

Fig. 6 is a fragmentary detail section of the reel showing another embodiment of the driving connection at one end thereof;

Fig. 7 is an end view of Fig. 6 looking at the right end thereof, and

Fig. 8 is a fragmentary end view of the left end of the reel showing another embodiment of the means for retaining the free inner end of the strand coiled in the strand supporting channel.

Referring now to the drawing in detail in which like reference numerals refer to similar parts throughout the several views, one form of the improved reel as illustrated particularly in Figs. 1 to 5, inclusive, comprises a pair of heads 10 and 11, each formed from a disk of sheet metal having its peripheral edge rolled outwardly into a continuous annular bead 12 and provided with an axial aperture 13 surrounded by a continuous annular flange 14 formed by turning the metal of the disk outwardly from the outer face of the head and at right angles to the plane of the disk. Interconnecting the heads 10 and 11 is a cylindrical drum 17 of a uniform diameter throughout its length formed from sheet metal with the abutting longitudinal edges thereof preferably electrically welded by a continuous line of welding 18. The opposite ends of the drum 17 extend into the apertures 13, snugly fitting the inner periphery of the annular flanges 14 and terminate flush with their outer edges. It will be observed, referring to Fig. 1, that the flush edges of the drum 17 and the annular flange 14 at each end of the reel are disposed flush with the extreme outer surface of the outwardly formed peripheral bead 12 of the heads 10 and 11. The purpose of this arrangement is to permit the reels to be stacked one on the other, such as a position 90° from that shown in Fig. 1, without causing damage to certain elements to be presently described, and also to cause the reels when stacked to be level. Under such circumstances the stresses in the heavy reels when wound with metal

strand, such as copper wire, are equalized, since the weight of the strand coiled on the drum is not directly supported by the bead 12 of the head only, but also by the flush annular edges of the flange 14 and the drum 17. The heads 10 and 11 and the drum 17 are secured together preferably by a continuous line of electric welding 19 at the junction of the inside faces of the heads with the peripheral surface of the drum thus providing a homogeneous, rigid, and durable reel.

The flange 14 associated with the head 10 has electrically welded to its periphery slightly inside its outer edge an annular flat ring 21, which with the inner periphery of the flange 14 and the outer face of the associated head provides an annular channel 22 for supporting in coiled formation a length 23 of the inner end of the strand (Figs. 1, 3 and 4) wound on the drum 17. Thus a sufficient length of the inner end of the reeled strand is maintained separate from the main portion wound on the drum 17, whereby, in a well known manner, the inner end coiled in the channel 22 may be unwound therefrom and connected to the outer end of a strand wound on another reel without disturbing the main winding on the first reel or interfering with the withdrawal thereof. A slot 24 is formed in the bead 12 of the head 10 and extends diagonally across it and substantially around it, but as clearly shown in Fig. 5, does not extend through the thickness of the metal which permits the strand to pass readily from the main portion of the strand coiled on the drum 17 to the channel 22 without extending outside the periphery of the head. In the drawing the reel has not been shown with the main portion of the strand wound on the drum 17, but only the length 23 of the strand which is coiled in the channel 22, since it is not believed necessary to a complete understanding of this invention. A button 25 is fixed by electric welding 26 and riveting to the outer face of the head 10 adjacent the slot 24 for retaining the free inner end of the strand length 23 coiled in the channel 22. It will be apparent that by mounting the ring 21 and the button 25 inside of the flush edges of the flange 14 and drum 17 with the outer surface of the bead 12 flush therewith, as hereinbefore described, no damage will occur to the ring or the button in stacking one reel on the other.

Surrounding and riveted, as indicated at 28, to the flange 14 of the head 11 is a ring 29 provided with a plurality of equally spaced notches 30 in its outer edge, the ring being flush with the edge of the associated flange 14. The notches 30 in the ring 29 serve to form a driving connection with a driving arbor (not shown) when the reel is used as a take-up reel, one or the other of the notches 30 being engaged with a driving lug provided on the driving arbor. It will be observed that the ring 29 may be readily removed and replaced with another when wear occurs on the edges thereof adjacent the sides of the notches 30 by simply removing the rivets 28, the ring then being slipped off the flange 14. Apertures 31 (Figs. 1 and 3) are formed in the bead 12 of the head 10 at diametrically opposite points, either of which may be used to retain the outer end of the strand (not shown) wound on the drum 17.

In Figs. 6 and 7 is illustrated another embodiment of the driving connection afforded by the notched ring 29 wherein notches 34 are formed in the flush annular edges of the flange 14 and the drum 17.

In the construction shown in Fig. 8 the button 25 for retaining the extreme free inner end of the strand length 23 coiled in the channel 22 is dispensed with, an aperture 32 being formed in the ring 21 adjacent its periphery and on the side of the head opposite to that having the slot 24 and through which aperture the end of the strand is led and tied. For indicating the position of the slot 24 relative to the aperture 32, which is of relatively small diameter, a comparatively wide notch 33 is formed in the periphery of the ring 21 adjacent the aperture.

It will be observed that in the first described reel the strand retaining button 25 is arranged on the same side of the head 10 as the slot 24, while in the construction shown in Fig. 8 it will be understood that the strand retaining aperture 32 is arranged on the head diametrically opposite to the slot 24. The purpose of this arrangement in each construction is to provide a more evenly balanced reel which is very essential, particularly when the reel is being used as a take-up reel, in which case the reel is driven at a comparatively high speed. In the first described construction the material removed in forming the slot 24 is balanced by the addition of the button 25 and in the latter case the material removed in the forming of the slot 24 is balanced by the removal of material in the forming of the aperture 32 and the adjacent notch 33 at the opposite side of the head.

What is claimed is:

1. In a reel, a head having an axial aperture surrounded by an outwardly extending annular flange, means secured to the head extending into the aperture flush with the edge of the flange, and a ring fixed to the periphery of the flange slightly inside its edge providing an annular channel for supporting a length of strand extending to the interior portion of the coil wound on the strand receiving means, whereby the outer end of the strand wound on one reel may be interconnected with the inner end of the strand wound on another reel without disturbing the main portion of the coiled strand.

2. In a reel, a head having an axial aperture surrounded by an outwardly extending annular flange and a slot in its periphery,

means secured to the head for receiving strand material extending into the aperture flush with the edge of the flange, a ring fixed to the periphery of the flange slightly inside its edge providing an annular channel for supporting in coiled formation a length of strand extending to the interior portion of the coil wound on the strand receiving means, whereby the outer end of the strand wound on one reel may be interconnected with the inner end of the strand wound on another reel without disturbing the main portion of the coiled strand which passes from the interior portion of the coiled strand to the channel without extending outside the periphery of the head, and means fixed to the outer face of the head for retaining the free end of the strand.

3. In a reel, a pair of heads, each having a peripheral portion extending at an angle to an inner face thereof, and an axial aperture surrounded by an outwardly extending annular flange, means interconnecting the heads for receiving strand material extending into the apertures thereof flush with the edges of the surrounding flanges, and a ring fixed to the periphery of one of the flanges slightly inside its edge providing an annular channel for supporting in coiled formation a length of strand extending to the interior portion of the coil wound on the interconnecting means, whereby the outer end of the strand wound on one reel may be interconnected with the inner end of the strand wound on another reel without disturbing the main portion of the coiled strand.

4. In a reel, a pair of heads, each having an axial aperture surrounded by an outwardly extending annular flange, means interconnecting the heads for receiving strand material extending into the apertures thereof flush with the edges of the surrounding flanges, and a ring fixed to the periphery of one of the flanges slightly inside its edge providing an annular channel for supporting in coiled formation a length of strand extending to the interior portion of the coil wound on the interconnecting means, the peripheral portion of the associated head having a slot to permit the strand to pass from the interior portion of the coiled strand to the channel without extending outside the periphery of the head.

5. In a reel comprising a drum for receiving strand material, a head having an aperture for receiving a portion of the strand material and an outwardly extending flange for accommodating the drum, the drum extending flush with the edge of the flange, and a ring fixed to the periphery of the flange slightly inside its edge for securing the portion in the aperture.

6. In a reel for strand material having a drum and two heads delimiting a principal strand receiving space, means on the outer side of one head to delimit an auxiliary strand receiving space, this head being slotted to allow a strand to pass from one space to the other, and means to compensate for rotary unbalance of the head due to the slot.

7. In a reel for strand material having a drum and two heads delimiting a principal strand receiving space, means on the outer side of one head to delimit an auxiliary strand receiving space, this head being slotted to allow a strand to pass from one space to the other, and means to compensate for rotary unbalance of the head due to the slot comprising a strand fastening peg located in radial alignment with the slot.

In witness whereof, we hereunto subscribe our names this 22nd day of May A. D., 1929.

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