June 2, 1942. F. J. RODE ET AL 2,285,358

COIL CRADLE

Filed Jan. 22, 1940 2 Sheets-Sheet 1

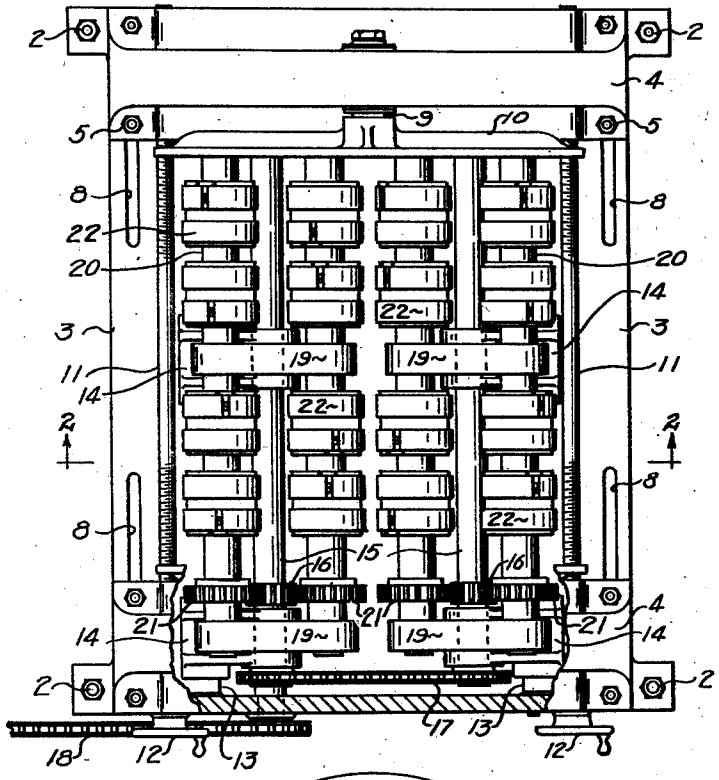


FIG. 1

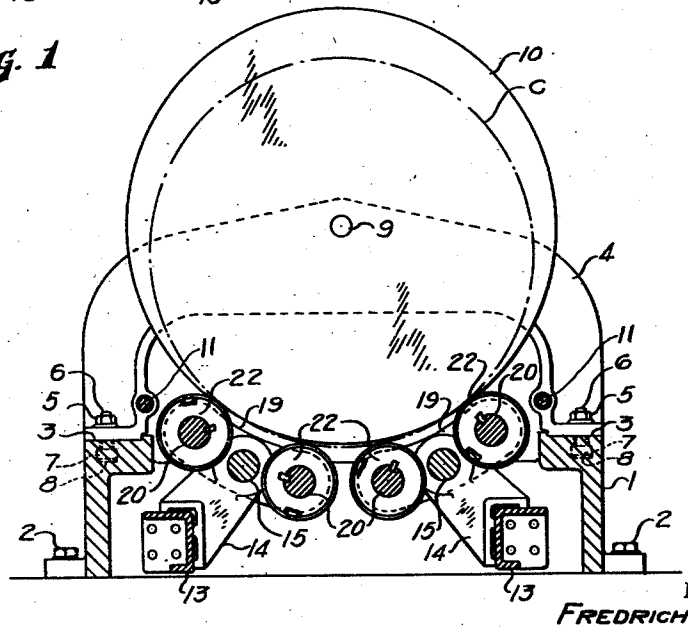


FIG. 2

INVENTORS
FREDRICH J. RODE
MEREDITH R. HATCH

BY Fay, Golrick, Williams & Fay
ATTORNEYS

June 2, 1942. F. J. RODE ET AL 2,285,358

COIL CRADLE

Filed Jan. 22, 1940 2 Sheets-Sheet 2

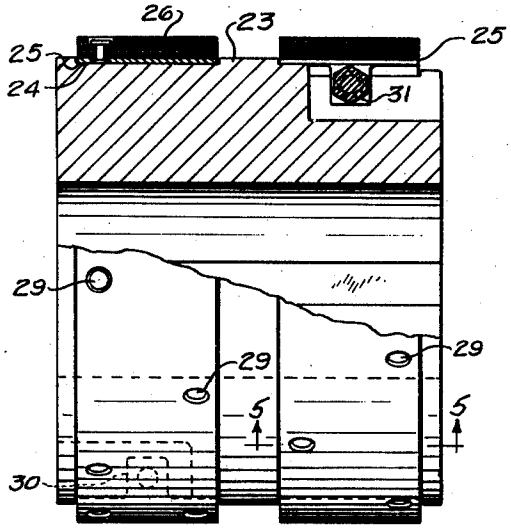


Fig. 3

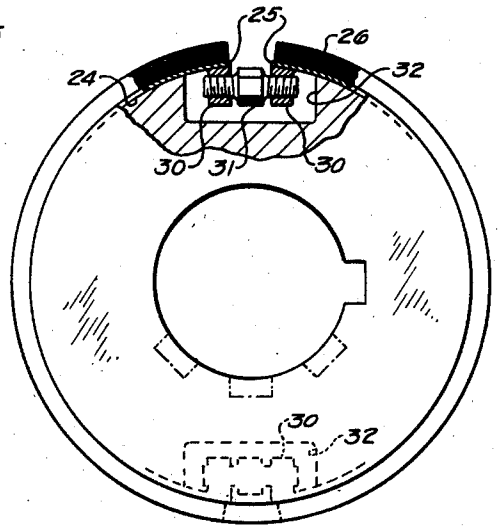


Fig. 4

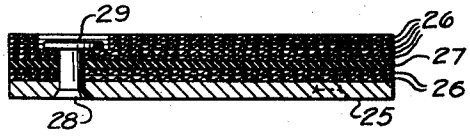


Fig. 5

INVENTORS
FREDRICH J. RODE
MEREDITH R. HATCH

BY Ray, Golrick, Williams & Ray
ATTORNEYS

Patented June 2, 1942 2,285,358

UNITED STATES PATENT OFFICE

2,285,358

COIL CRADLE

Fredrich J. Rode and Meredith R. Hatch, Toledo, Ohio, assignors to E. W. Bliss Company, Brooklyn, N. Y., a corporation of Delaware

Application January 22, 1940, Serial No. 315,132

3 Claims. (Cl. 242—78)

This invention relates, as indicated, to coil cradles, but has reference more particularly to the coil supporting portion thereof and its contemplated replacement upon wear.

Coil cradles of course are of well known construction and have been in use for a long period of time. They are however, subject to certain disadvantages which are eliminated by our present invention. The coils are normally supported on a series of rolls which in turn are carried on parallel shafts, the shafts being mounted for bodily displacement to correspond with the constantly decreasing diameter of the coil. The cradles have necessarily been of relatively heavy construction to handle the loads represented by a heavy coil of steel. The rolls of the cradles are normally coated with a yieldable wear-resisting material to aid in establishing frictional contact between the coils and rolls and to decrease the wear present.

The friction surfaces of the rolls under the foregoing conditions were subject to heavy wear and frequently had to be replaced. As the parts of the cradle were normally of heavy construction it was difficult to replace the rolls readily and the surfaces thereon.

The general object of our invention therefore has been to provide a device of the character described which is subject to easy repair and in which the friction surfaces may be readily replaced. A further object of the invention has been to provide a detachable friction material which may be readily secured to the rolls of the cradles as desired. Still another object of the invention has been to provide an improved friction drive to the coil from an outside source of power.

To the accomplishment of the foregoing and related ends, said invention, then consists of the means hereinafter fully described and particularly pointed out in the claims; the annexed drawings and the following description setting forth in detail certain structure embodying the invention, such disclosed structure constituting, however, but one of various forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a plan view of the coil cradle;

Fig. 2 is a transverse cross-sectional view of the coil cradle, taken on the line 2—2 of Fig. 1;

Fig. 3 is a view, partly in side elevation and partly in section of one of the cradle rolls;

Fig. 4 is a view partly in end elevation and partly in section of the cradle roll shown in Fig. 3; and

Fig. 5 is a cross-sectional view through the cradle roll, taken on the line 5—5 of Fig. 3.

Referring more particularly to the drawings, the coil cradle will be seen to comprise a base or frame 1 of generally rectangular form, which is secured to a floor or other support as by means of bolts 2, the frame having slideways 3 in its upper portion, upon which is mounted for sliding movement a pair of longitudinally spaced pedestals 4.

The pedestals have secured thereto, as by means of nuts 5, bolts 6, the heads 7 of which are disposed in elongated T-slots 8 in the frame 1. The pedestals, therefore, can be moved along the slideways 3 and locked in adjusted position by turning the nuts 5.

Each pedestal has journalled therein intermediate its ends a stub shaft 9 upon which is mounted an end plate 10 of circular form.

Means are provided for the purpose of varying the spacing between the end plates 10 so that coils of various widths may be carried by the cradle. Such means consists of laterally spaced rods 11 which are in threaded engagement with the ends of the pedestals, one end of each rod being threaded oppositely from the other end thereof, so that when the rods are rotated in one direction, as by means of hand wheels 12, secured to the rods, the plates will approach each other and when rotated in the opposite direction, will be moved apart.

Secured to the ends of the frame 1, adjacent the base of the latter, is a pair of transversely spaced beams 13, which extend longitudinally of the cradle, and provide supports for longitudinally spaced brackets 14, which extend inwardly, angularly to the beams. In the present case, each beam has three such brackets. Each set of three brackets has journalled therein a drive shaft 15, provided adjacent one end with a pinion 16. The shafts 15 are also provided at their ends with sprockets which are engaged by an endless sprocket chain 17. One of the shafts is extended and provided with a second sprocket engaged by a drive chain 18, so that when the chain 18 is driven, the shafts 15 will be simultaneously rotated in the same direction.

Pivotally mounted on each of the shafts 15, at points therealong spaced to correspond with the spacing of the brackets 14 are yokes 19, having roll shafts 20 journalled in the ends thereof. Each of the shafts 20 has keyed thereto adjacent one end a gear 21 which is in mesh with the pinion 16, so that rotation of the pinions

16 will cause all of the shafts 20 to rotate in the same direction.

Each of the shafts 20 has keyed thereto four rolls which are generally designated in Figs. 1 and 2 by reference numeral 22, but the construction of which is best illustrated in Figs. 3, 4 and 5.

Each roll consists of a cylindrical body portion 23 having spaced annular grooves 24 in the periphery thereof for the reception of removable straps, which, as shown, consist of metallic bands 25, which lie in the grooves 24, and whose outer surfaces are substantially flush with the outer surface of the roll body 23, and layers of canvas 26 and rubber 27 secured thereto, as by copper rivets 28, the heads 29 of which are countersunk in the straps. The layer 27 of rubber is preferably interposed between layers of canvas, and the layers of canvas and rubber are preferably cemented to each other, in addition to their being collectively secured by the rivets to the bands 25.

The bands 25 have welded thereto at their ends lugs 30, to which are threadedly secured adjusting screws 31, operable in a manner similar to a turnbuckle to tighten or loosen the straps. The roll body is recessed or relieved as at 32 for the reception of the lugs 30 and screw 31, as clearly shown in Fig. 4, and since the ends of the straps are spaced somewhat when the straps are in position, leaving a gap, one of the gaps is preferably spaced circumferentially from the other approximately 180°, so that each roll, at all times provides a continuous support for the coil of metal to be supported by the cradle.

It will be further noted that the gaps of each roll on each shaft are staggered relatively to the gaps on the other rolls, this being accomplished by keying each of the rolls to the shaft at a point spaced circumferentially from the points at which the other rolls are keyed to the shaft. This is indicated more or less diagrammatically by the dotted lines in Fig. 4. By thus staggering the gaps of the rolls on each shaft, continuous support for the coil is always provided, and greater uniformity of wear is attained.

As a further refinement, the shafts 20 may be turned with respect to each other so as to cause the gaps of the rolls on each shaft to be staggered relatively to those of the rolls on the other shafts.

The manner in which a coil of metal C is supported by the cradle is indicated in Fig. 2, and, at this point, it may be noted that since the shafts 20 can rock or oscillate to a considerable extent about the shafts 15, that the coil will be substantially supported at all times irrespective of slight changes in the outside diameter of the coil or variations from true cylindricity.

The construction of the straps is such that the canvas affords considerable wear resistance, the rubber provides a desired cushioning effect, and the metal backing bands hold the straps in a desired truly annular form. Moreover, due to their removable character, the straps, when worn, can be readily taken off the supporting rolls and replaced, without in any way disturbing the rolls.

In the use of the device, the coil C will be supported on the rolls 22, and the rolls driven through the intermediary of the chain 18 to actively rotate the coil for the purpose of assisting in the uncoiling of the coil.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We claim:

1. In a device of the character described, a plurality of rolls for supporting a coil of metal, said rolls having straps removably secured thereto, each of said straps having its ends spaced to form a gap, and the gap of each strap being staggered from those of other straps.

2. In a device of the character described, a plurality of spaced drive shafts, a plurality of coil supporting rolls mounted on each shaft, each roll having a strap removably secured thereto, the ends of each strap being spaced from each other to form a gap, and the gap of each strap being in staggered relation to those of the other straps circumferentially of the shaft upon which the rolls are mounted.

3. In a device of the character described, a coil-supporting roll having a pair of axially-spaced straps removably secured thereto, the ends of each strap being spaced to form a gap, and the gap of one strap being spaced circumferentially of the roll substantially 180° from the gap of the other strap.

FREDRICH J. RODE.
MEREDITH R. HATCH.