April 25, 1944. J. M. GERRARD 2,347,552

BAND REEL

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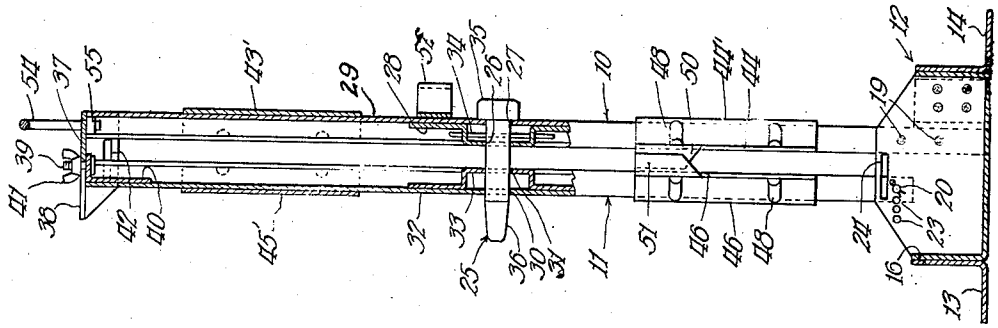


Fig. 2

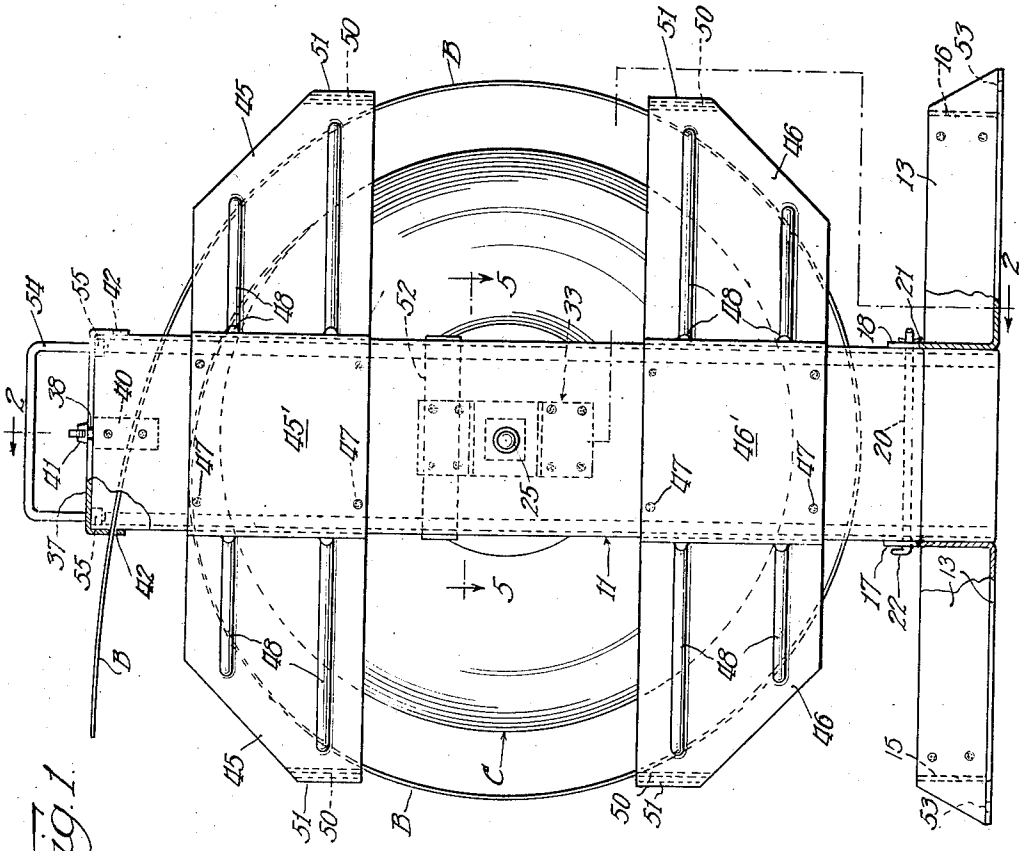


Fig. 1

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Fig. 3

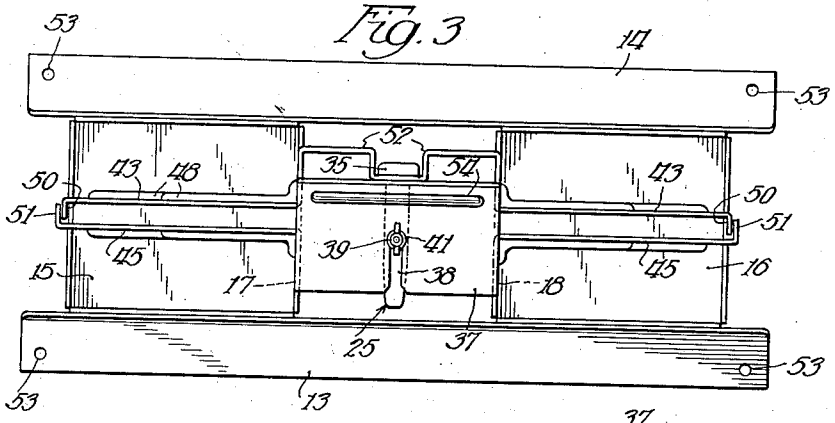


Fig. 4

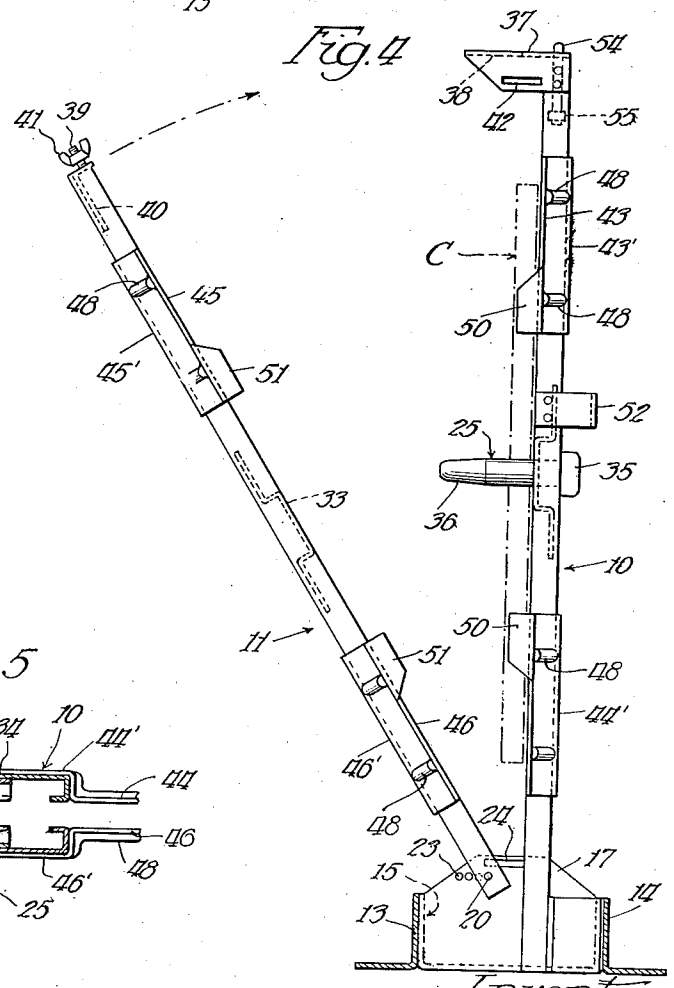
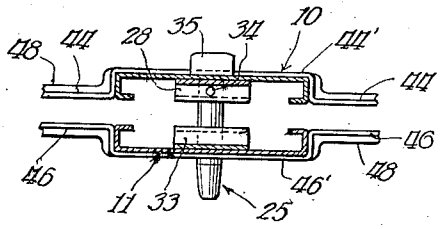


Fig. 5



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UNITED STATES PATENT OFFICE

2,347,552

BAND REEL

John M. Gerrard, Chicago, Ill.

Application October 1, 1942, Serial No. 460,335

2 Claims. (Cl. 242—105)

The present invention relates to a reel primarily devised for supporting band coils that are utilized for packing and crating. One of the main objects of the invention is to provide a reel of the character described which includes adjustable features for accommodating band coils of various widths, interchangeability of the coils being easily and readily effected.

Another object of the present invention is to provide a reel having suitable brake mechanism that will automatically prevent unraveling of the band of the coil whenever the coil over-spins.

In addition to the last related object, the present reel also provides the braking feature noted which is operative by its novel arrangement to stop unraveling of bands regardless of the widths of bands which are placed in the band reel.

Among the other features to be noted is the fact that the reel devised is primarily portable, but may also be secured in place adjacent a packing table or the like.

Other objects and advantages shall hereinafter appear in the following detailed description of a preferred form of my invention as directed to the accompanying drawings.

In the drawings:

Fig. 1 is a side elevational view of the band reel.

Fig. 2 is a vertical cross-sectional view of the band reel shown in Fig. 1 as taken substantially along the line 2—2 in Fig. 1.

Fig. 3 is a top view of the reel illustrated in Fig. 1.

Fig. 4 is an end view of the reel with the base thereof in section, this figure illustrating a loading position of the reel, and

Fig. 5 is a plan sectional view taken substantially along the line 5—5 in Fig. 1, with the band reel omitted.

The reel primarily consists of a fixed standard 10 and a movable standard 11 disposed in parallel spaced relation by means of a supporting base 12. Any suitable base may be employed to support these standards for movement toward or away from one another, but in the construction herein shown the base 12 is a welded sheet steel construction having longitudinally extending angles 13 and 14 joined by means of the box members 15 and 16. The box members 15 and 16 produce a very rigid base structure and also are so made as retainers for holding different metal seals of the type that are commonly employed in fastening the ends of the bands about the package or packing box to which the band material is being applied in cut lengths, or otherwise, from the reel.

The centrally disposed walls of the boxes 15 and 16 are extended upwardly as shown at 17 and 18 in Figs. 1 and 2 to provide suitably spaced walls for supporting the uprights or standards 10 and 11. The standard 10 is fixedly secured to these walls while the standard 11 is pivotally secured thereto by means of a pin 20. The latter pin is readily removed by drawing out the cotter pin 21 and pulling the pin by its head end 22 and out of the aligned openings 23, a plurality of the latter having been provided in aligned and spaced relation in each of the walls 17 and 18 to permit adjustment of the pivotal point of standard 11 with respect to the standard 10 and to the base 12. When different widths of band coils are being placed into the band reel, it is only necessary to shift the pin 20 into the necessary aligned openings to properly space the standard 11 a sufficient distance from the standard 10 for accommodating the width of band being used. Guide slots such as shown at 24 in Fig. 2 are also provided in the walls 17 and 18 of the box members for the purpose which will hereinafter be explained.

Various forms of mechanims may be employed for rotatably supporting the band coils, but in the present device the band coils are placed upon a spindle 25 suitably located substantially midway between the top and bottom of the standards 10 and 11. This spindle, as best shown in Fig. 2, is located in a plurality of aligned openings, two of which at 26 and 27 being located in a bracket 28 and wall 29 of the standard 10 respectively, while the other two openings at 30 and 31 are in the wall 32 of the standard 11 and in the bracket 33 secured to the latter, respectively. The spindle member 25 is secured to the standard 10 by means of the pin 34 which passes through suitable openings in the bracket 28, and the head 35 of the pin will also help to hold the pin against displacement. The free end of the pin is preferably tapered or rounded as at 36 so as to readily receive the standard 11 as the latter is moved toward or away from the standard 10 about its base pivot pin 20. A cap 37 is suitably secured to the top end of the standard 10, the cap being slotted as at 38 in Figs. 1, 2 and 3 for the reception of the screw stud 39 which is carried by the bracket 40 secured to the standard 11. A suitable fastening member such as a thumb screw 41 is connected with the stud and may be screwed down against the face of the cap member 37 to hold the upright or standard 11 in the necessary parallel aligned relation for holding the band coil upon the reel spindle.

From the above description it is apparent that in swinging the movable standard 11 toward the fixed standard 10 and relative to the base 12, the

standard 11 cooperates with the coil holding spindle 25 to hold the coil upon said spindle ready for use. It should be further noted that the oppositely disposed brackets 28 and 33 carried by the standards provide suitable abutments or bosses for centering a band coil between the oppositely related inner faces of the standards 10 and 11. Also, in connection with the cap member 37, it should be noted that suitable guide slots 42 are provided in each downturned leg of the cap which are provided for the same purpose as the previously described band guiding slots 24 in the walls 17 and 18 of the box members.

As best illustrated in Fig. 1, a band coil shown at C in its entirety is pivotally supported on the spindle 25, the coil having its loose end somewhat uncoiled and spiralling progressively outwardly and the terminal end of the band is projected through one of the slots 42 in the cap member 37. In this manner the terminal end of the band B is maintained in a position where it will be readily available for use in connection with packing and crating and it should also be noted that although the coil C is positioned as shown in Fig. 1, the same may be reversed side for side with the terminal end of the coil projected through the opposite opening 42 for use at the opposite end of the reel. Similarly, the coil C may be inverted with the loose terminal end thereof passed through one or the other of the slots 24 depending primarily out of which end of the reel the packer wishes to operate. Attention is directed to the fact that the slots 24 and 42 are all elongated to accommodate the different band widths, but their effective openings are all determined by the amount of overlap of the edge faces of the standard 11 when in coil holding position as best shown in Fig. 2.

In order to prevent the unraveling of the outer band coils of the reel beyond the general confines of the reel, suitable braking means have been incorporated and supported on each of the standards 10 and 11. These braking members are secured and carried by each of the upright standards and are in the form of upper and lower pairs of longitudinally extending arms, the upper pair of arms being connected with standard 10 and are designated as 43, and the lower pair of arms thereon are shown at 44, while the upper pair of arms carried by the standard 11 are shown at 45 with the lower pair at 46. The pairs of arms 43, 44, 45 and 46 are each contiguous with the U-shaped plates 43', 44', 45', 46', such plates each being adapted to straddle the respective upright standards to which they are fastened by means of spot welding as at 47 or by any other desirable method. Each pair of plates are also ribbed longitudinally as at 48 and such ribbing extends around the corners adjacent the upright standards and terminates substantially flush with the outer faces of the plates connecting each respective pair of arms.

As best shown in Fig. 1, the outer extremities of the arms 43, 44, 45 and 46 terminate at spaced points radially disposed with respect to the pivotal mounting of the band coil. Each of the arms are provided at these terminal spaced ends with inwardly extending wings 50 and 51 respectively, the wings 50 being carried by the arms connected with the upright 10, while the wings 51 are carried by the arms on the upright standard 11. As best shown in Figs. 2 and 4, the wings 50 and 51 are all oppositely related and of such length as to overlap for all the various adjustments of standards 10 and 11 within the range of the various widths of band coils which can be carried by the reel of the present construction. The overlapping wings 50 and 51 are disposed in the path of any of the spiralling band coils which may result due to unraveling of the coil whenever the coil C over-spins during use.

In connection with the braking action supplied by the wings of the arms, it should be noted that the arms themselves are limitedly resilient and can be moved substantially against the oppositely disposed faces of the band coil C by the relatively movable upright standards 10 and 11, and held in this position by means of the thumb nut fastening against the cap 37. Although the arms in the illustrations shown are in longitudinal parallel relation, it should also be noted that the same may be constructed somewhat angularly disposed with respect to each other by bending the same in an inwardly urged relation to contact the coil C thereby braking over-spinning of the coil by such additional contact with the faces of the coil as acquired by such inwardly disposed relationship. Merely the cooperative action of the arm ribs and the inherent resiliency of the metal arms can produce the same result.

Since the band reel of the present construction has been devised to afford a complete unitary structure for packing and crating, a double looped strap iron 52 has been welded to the upright 10 as a means for supporting the necessary crimping and applying tools which are used in connection with applying connecting seals to the ends of the band when packing, such seals being conveniently located in the box units 15 and 16 as heretofore described.

As the band reel has been devised for stationary use or portable use, suitable openings 53 are provided in the angle irons 13 and 14 as best shown In Fig. 3 as means for securing the band reel to the floor or table adjacent the place of use. As a convenience for carrying the band reel about when portably used, a retractable handle 54 is connected with one of the upright standards as at 10 by having the ends of the handle passing through suitable openings in the cap 37 with the stops or nuts 55 secured to the ends of the handle to limit the outward movement thereof. The handle 54 is illustrated in carrying position in Figs. 1 and 2, and in retracted and inoperative position in Fig. 4.

It should also be noted that the band reel is practically of sheet metal construction throughout and is readily assembled by spot welding and forms a very rigid and convenient band coil holding unit. Although uprights of any material or character may be employed, attention is called to Fig. 5 wherein the upright standards 10 and 11 are illustrated as preferably being of channel construction for enhancing the rigidity of the coil carrying reel.

The foregoing detailed description has been directed to the exemplary structural portrayal of the device of this invention as revealed in the accompanying drawings. Changes and deviations are contemplated, however, and the extent of such variations shall be only limited by the claimed concept of the invention as hereinafter set forth.

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

1. A band coil reel comprising a pair of coil supporting members one arranged for movement toward and away from the other and adapted for pivotally carrying a band coil, and cooperative

upper and lower pairs of brake elements carried by said supporting members and extending beyond the circumference of said band coil, said brake elements being oppositely related with respect to the supporting members, respectively, and each cooperative pair having inturned wings at their ends that overlap each other for coaction with the band to check the unraveling of the same during use.

2. A band coil reel having a pair of standards disposed in parallel spaced relation to each other, one of said standards being pivotally connected with relation to the other of said standards for movement toward and away therefrom, spindle holding means connected with said standards, adjustable means for changing the distance between said parallel standards to accommodate different widths of band coils, and cooperative brake means carried by said standards to coact with the coil to prevent unraveling of the coil band whenever said coil over spins, said brake means including inturned units that overlap each other to maintain said braking action during any of the allowable spaced positions of said standards.

JOHN M. GERRARD.