March 21, 1933. G. E. CLARK 1,901,949

FASTENING MEANS FOR SECURING THE ENDS OF A LENGTH OF MATERIAL TO A REEL

Filed Dec. 20, 1930 2 Sheets-Sheet 1

Fig. 1.

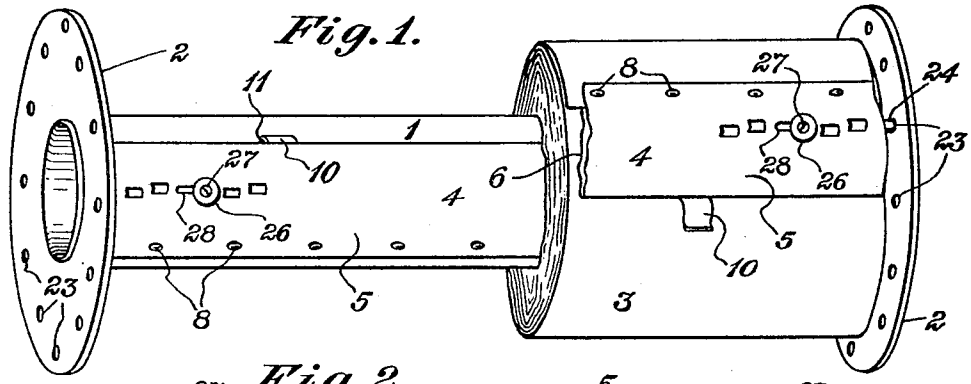



Fig. 2.

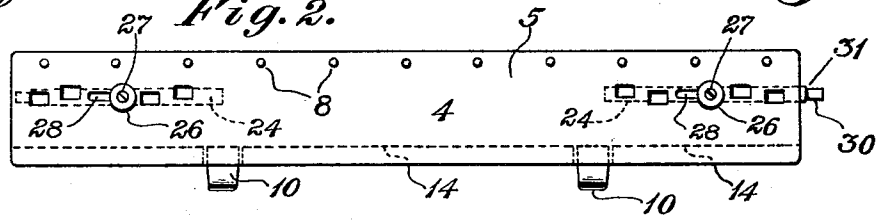



Fig. 9.

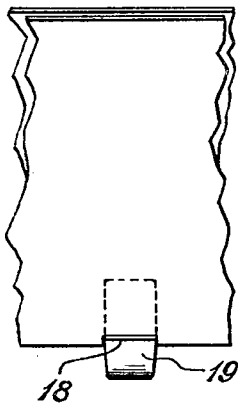



Fig. 10.

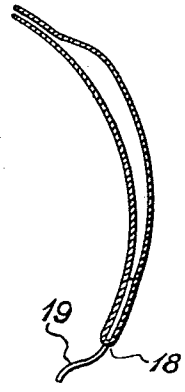



Fig. 7.

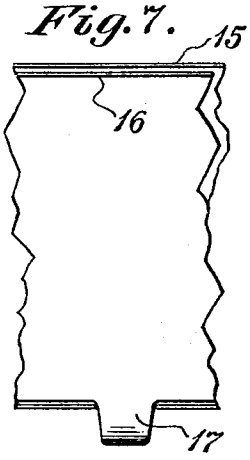



Fig. 8.

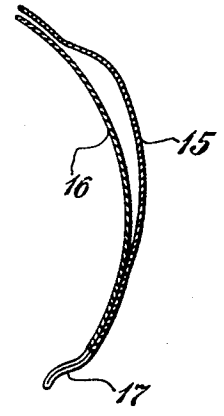



Fig. 11.

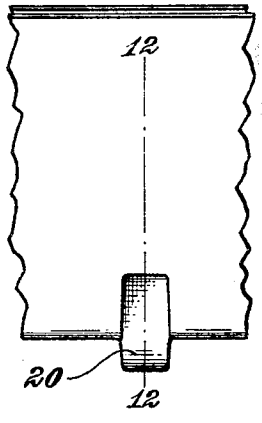



Fig. 12.

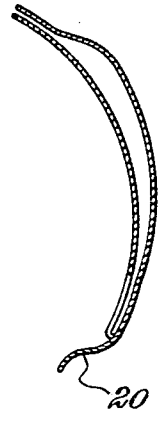
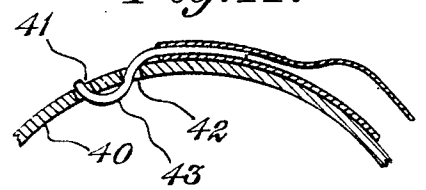



Fig. 14.




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FASTENING MEANS FOR SECURING THE ENDS OF A LENGTH OF MATERIAL TO A REEL

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*Fig. 3.*

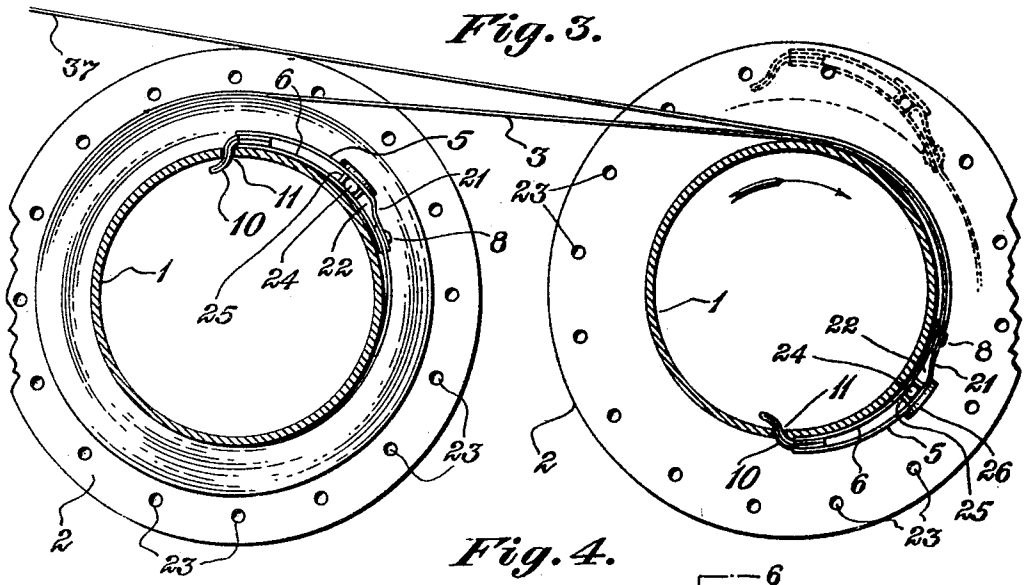



*Fig. 4.*

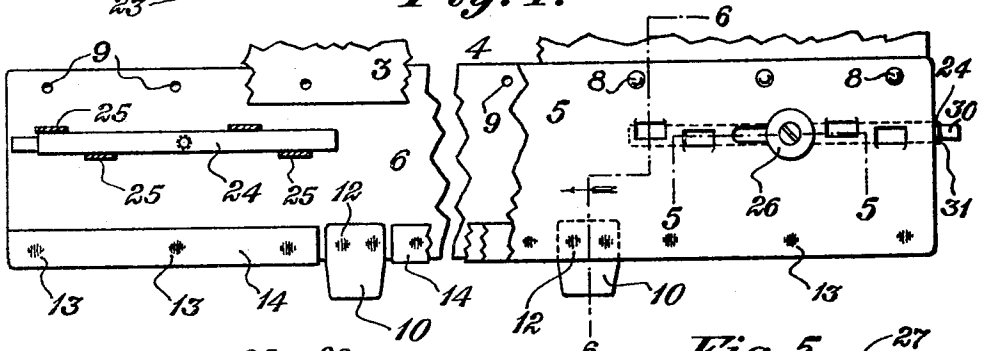



*Fig. 6.*

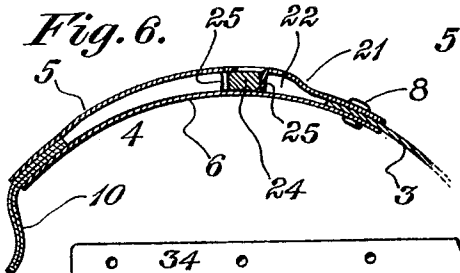



*Fig. 5.*

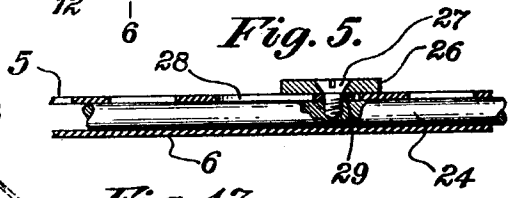
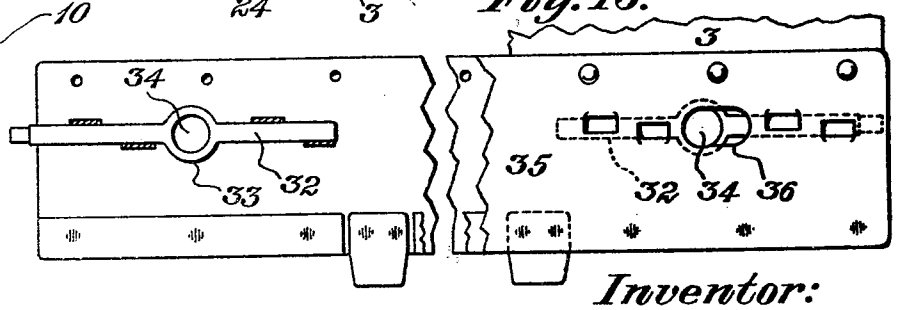



*Fig. 13.*




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Patented Mar. 21, 1933 1,901,949

# UNITED STATES PATENT OFFICE

GEORGE E. CLARK, OF WINDSOR LOCKS, CONNECTICUT, ASSIGNOR TO THE GEORGE P. CLARK COMPANY, OF WINDSOR LOCKS, CONNECTICUT, A CORPORATION OF CONNECTICUT

## FASTENING MEANS FOR SECURING THE ENDS OF A LENGTH OF MATERIAL TO A REEL

Application filed December 20, 1930. Serial No. 503,784.

This invention relates to fastening means for securing the ends of a length of material to a reel. Various sheet materials manufactured in long strips are wound upon reels for subsequent processing or transportation. The character of certain of these materials, such for example as that of rubber, is such that the material alone cannot be satisfactorily wound in a roll, a supporting surface being required to maintain the product in a normal unstretched condition. Such a support may be furnished by suitable fabric which may be wound up on a reel together with the material to be supported. The supporting fabric in the course of alternately receiving and releasing the material carried thereby is passed repeatedly from one reel to another and each end of the supporting strip alternately becomes the inner and outer end as the strip is wound up on respective reels. Preparatory to winding a supporting strip upon a reel it is necessary to secure to the drum or core of the reel that end of the strip which subsequently becomes the inner end of the roll to be formed. Then when the roll is finished the outer end of the strip is preferably secured as to the flanges of the reel to prevent accidental unwinding of the roll. Thus it will be apparent that means are desirable whereby each end of a supporting strip may be readily secured to the drum or the flanges of any one of a series of reels which are designed to cooperate with the means aforesaid and primarily the object of this invention is the provision of a simply constructed sheet metal wrapper bar which is a device adapted to be secured to an end of fabric and having associated therewith separate means for respectively engaging the device to the drum and flanges of a reel. Other objects of the invention will hereinafter appear.

In the drawings accompanying and forming part of the present specification I have shown convenient forms of embodiment of my invention which to enable those skilled in the art to practice the same is set forth fully in the following detailed description while the novelty of the invention is defined in the appended claims.

In the drawings,—

Figure 1 is a perspective view of a reel and associated fasteners or wrapper bars embodying my invention. A roll of material on the reel and the outer wrapper bar are indicated as partly broken away to disclose the inner wrapper bar and the drum of the reel.

Figure 2 is a top view of a wrapper bar.

Figure 3 is a transverse sectional view of a pair of reels showing in end elevation a pair of wrapper bars secured to the ends of a strip of material and in this view there is also indicated, in dotted lines, the position of one of the wrapper bars when it is secured to the flanges of a reel.

Figure 4 is a top view of a wrapper bar with an intermediate section thereof and one end of the top plate indicated as broken away.

Figure 5 is a sectional view on line 5—5 of Fig. 4.

Figure 6 is a sectional view on line 6—6 of Fig. 4.

Figure 7 is a detail view of associated wrapper bar plates and drum engaging means constructed in a modified form.

Figure 8 is a sectional view of the parts shown in Fig. 7.

Figures 9 and 10 are detail views similar respectively to Figs. 7 and 8, of another modified form of wrapper bar plates and associated drum engaging means.

Figures 11 and 12 are detail views, also similar respectively to Figs. 7 and 8, of still another modified form of wrapper bar plates and associated drum engaging means. The section shown in Fig. 12 is on line 12—12 of Fig. 11.

Figure 13 is a view similar to Fig. 4 except that the flange engaging bolts at respective ends of the wrapper bar are of modified form.

Figure 14 is a fragmentary detail view of a modified form of complemental fastening means associated with a wrapper bar and reel drum.

Referring to the drawings a reel constructed in accordance with my invention may in one convenient form comprise a hollow drum 1 provided with end flanges 2. In Fig. 1 such a reel is shown supporting a fabric strip 3 to each end of which is secured a device 4

formed of sheet metal or other suitable material and to which the term wrapper bar is hereinafter applied. As these wrapper bars 4 are identical in every respect a description of one of them will suffice but it is to be noted that they are designed to be used in pairs and that each may be engaged with the drum of respective reels as shown in Fig. 3 or one may be engaged with the drum and the other with the flange of the same reel as shown in Fig. 1.

The form of wrapper bar shown in Figs. 1 to 6 inclusive comprises an outer section of sheet material 5 which is concavo-convex in transverse sectional contour and a similar inner section 6. The two sections are united along corresponding longitudinal edges and form a two-ply bar separable opposite its united edge to receive between the plies a margin of fabric as the end of the supporting strip 3. To secure the fabric firmly between the two sections or plies rivets 8 may be used and to receive these rivets the sections are provided with suitably spaced perforations 9. The concavo-convex form of a wrapper bar permits it to lie close to either the drum of a reel or to the outside of a roll of material wound thereon, consequently use of the wrapper bars does not effect any substantial departure from cylindrical form of a roll including them.

Suitable means for securing a wrapper bar to the drum of a reel are clearly shown in Figs. 3 and 4 and in modified form in Fig. 14. The means shown in Figs. 3 and 4 comprise tongue and slot connections which may be readily engaged manually preparatory to a winding up operation and which will automatically release when the reel turns in an opposite direction to the extent of unwinding the entire strip to which the wrapper bar is attached. Tongues or clips 10 extending preferably from that edge of a wrapper bar where the plate sections are united and which are engageable with slots in a reel drum as at 11 may be provided in various ways. When the wrapper bar sections 5 and 6 are secured together as shown in Figs. 2, 3, 4 and 5 each tongue consists of a strip of metal folded upon itself. The free ends of this strip are inserted between the plate sections and the resulting superposed plies are secured together preferably by spot welding as at 12.

This method of fastening possesses the advantage of leaving the wrapper bar plates at both top and bottom uninterrupted with such surface projections as would be more or less objectionable. At both sides of each tongue the wrapper bar plates are also secured by spot welding as at 13. The welded spots 13 include intermediate filler or spacing strips 14.

As illustrated in Figs. 7 and 8 both the plate sections 15 and 16 and tongues 17 are formed of an integral sheet of metal folded upon itself, portions of the folded edge being cut away to leave projections which form the tongues. In a somewhat similar manner the plate sections shown in Figs. 9 and 10 are formed of an integral folded sheet with the folded edge cut away to form openings as at 18. Into these openings tongues as 19 are inserted and spot welded to the enclosing plate sections. Still another method of forming plate sections and tongues integrally is shown in Figs. 11 and 12 wherein the free end of the tongues as 20 are punched from one of the plate sections adjacent to the folded edge uniting it to the other. In some cases it may be desirable to provide between a wrapper bar and reel drum a connection less readily separable than the means already described, that is to say one which will require slight manipulation for release of the bar from the drum. Such a connection is illustrated in Fig. 14, where there is shown in the reel drum 40 a pair of slots 41 and 42 adjacently located and adapted to receive a wrapper bar tongue as 43.

Means provided for attaching a wrapper bar to the flanges of a reel, see Figs. 1 to 6, will now be described. It will be observed that one of the plate sections as 5 while substantially coinciding with the concavo-convex contour of the other, is partly eccentric thereto and reversely curved as at 21 to locate its fabric engaging edge adjacent to the fabric engaging edge of the other. Between the two sections a space 22 is thus formed and in this space is housed fastening means operable to engage perforations as 23, or their equivalent, in the flanges of a reel. As shown in Figs. 1 to 6 inclusive this fastening means comprises the slidable bolts 24 housed between the sections 5 and 6 at respective ends of the fastener. Any suitable guideways may be provided for the bolts, as shown, they are formed by lugs 25 punched from one of the plate sections as 6. These lugs extend across the space between the plates 5 and 6 and serve to so maintain said space as to prevent pinching of the bolts between said plates. At least a pair of the lugs 25 are preferably provided adjacent each end of each bolt 24, each lug of a pair being respectively on opposite sides of the bolt so that the latter is longitudinally aligned by the lugs and easily slidable endwise. Intermediate the ends of a bolt between respective series of lugs adjacent each end thereof, means are provided for facilitating manipulation of the bolt. This means as shown in Figs. 1 to 5 comprises a button 26, adjacent the outer surface of plate section 5. A screw or stud 27 connects the button to its bolt, said stud extending through an elongated slot 28 in plate 5, and a washer 29 being provided in the slot to space the button from the bolt. Adjacent the inner surface of each plate section the bolts are preferably flattened and the reel engaging end of each bolt is reduced as at 30, forming a shoulder

31, which may serve as a stop adapted to engage the side of a reel flange when the end of the bolt is slid into the before mentioned holes or recesses 23 in the reel flanges.

In Fig. 13 there is illustrated a flange engaging bolt 32 of a modified form. It comprises a single element which, transversely to the plate sections, is contained entirely within the space therebetween. Means for permitting manipulation of this bolt comprises a perforated laterally extended enlargement 33. Opposite the perforation 34 in this enlargement there is provided in the outer plate section 35 an elongated slot 36 through which may be introduced any suitable manipulating member as the thumb or finger of an operator.

A method of procedure in handling sheet material wherein the described reels and fabric fasteners or wrapper bars are of advantage is disclosed in Fig. 3. The strip of web or fabric 3, receives, as from rolls of a calendering machine, the material to be supported, as 37. The wrapper bar on the receiving reel is secured to the drum thereof and the reel is then turned in the direction indicated by the arrow. As the winding-up operation proceeds the supported material passes between the successive layers of supporting fabric formed as it comes from the roll on the unwinding reel and develops into a roll on the winding-up reel. When the forming roll has been completed to the extent permitted by the length of the strip of supporting material, the bar on the unwinding reel is automatically released, by the tongues 10 slipping from the slots 11. The supported material is then severed at a suitable transverse line and the bar on the outer end of the supporting fabric strip is secured to the reel flanges, thereby maintaining the loaded roll from unwinding until such time as the supported material thereon is to be delivered therefrom. Such delivery may obviously be effected by a reversal of the described operation.

While I have illustrated and described certain particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto, as the same may be variously modified and altered without departing from the spirit of my invention, it being my intention to claim my invention as fully and completely as the prior state of the art will permit.

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

1. In combination, a reel having a slotted tubular drum, a pair of flanges associated with the drum, each flange having a series of perforations near its periphery and being secured to its respective end of the reel drum with each perforation in one flange longitudinally aligned with a corresponding perforation in the opposite flange, a wrapper bar comprising transversely curved superposed plates united along one longitudinal edge and adapted at the other longitudinal edge to receive a fabric margin between the plates, one or more tongues extended from that edge of the wrapper bar where the plates are united, and a longitudinally operable bolt housed between the plates at each end of the bar, said tongue or tongues in one correlation of an associated reel and bar being engageable with the slotted drum and the bolts being operable in another correlation of a reel and bar to engage respective aligned holes in the reel flanges.

2. In combination, a reel having a slotted tubular drum, a pair of flanges associated with the drum, each flange having a series of recesses near its periphery and being secured to its respective end of the reel drum with each recess in one flange longitudinally aligned with a corresponding recess in the opposite flange, a wrapper bar comprising transversely curved superposed plates united along one longitudinal edge and adapted at the other longitudinal edge to receive a fabric margin between the plates, one or more drum engaging elements extended from that edge of the bar where the plates are united, and a shiftable flange engaging device housed between the plates at each end of the bar, said drum engaging element or elements in one correlation of an associated reel and bar being engageable with the drum and the shiftable devices being operable in another correlation of a reel and bar to engage respective aligned recesses in the reel flanges.

3. A wrapper bar comprising superposed plates united along corresponding edges to form one longitudinal edge of the bar, means at the opposite longitudinal edge of the bar to secure between the plates a margin of fabric, and separate means respectively for securing the bar to the drum of a reel and to the flanges thereof.

4. A wrapper bar comprising a thin elongated member having a concavo-convex cross-sectional contour and provided at one longitudinal margin thereof with means for securing an edge of fabric thereto, means at the opposite margin whereby the bar may be secured to the drum of a reel and at each end of the bar means whereby it may be secured to the flanges of a reel.

5. The combination with a reel having a drum and end flanges, of a wrapper bar constructed of sheet material and having a cross-sectional contour substantially matching that of the drum, means on one edge of the bar for detachably engaging the drum, means for securing a margin of fabric to the bar and means associated with the ends of the bar for detachably engaging the flanges of a reel.

6. The combination with a reel having a drum and end flanges, of a wrapper bar comprising united superposed plates having a cross-sectional contour substantially matching that of the drum, means extending from

between the plates for detachably engaging the drum, means for securing a margin of fabric between the plates, and means housed between the plates for detachably engaging the flanges of a reel.

7. A wrapper bar comprising united superposed plates, means extended from a longitudinal edge of the bar for detachably engaging the drum of a reel, bolts housed between the plates for detachably securing the bar to the flanges of a reel, and guiding means for the bolts comprising lugs punched from the material forming the plates.

8. A wrapper bar comprising united superposed plates, bolts housed between the plates for detachably securing the bar to the flanges of a reel and means for permitting the bolts to be manually actuated, one of said plates being slotted to provide access to said last mentioned means.

9. A wrapper bar comprising united superposed plates, bolts housed between the plates for detachably securing the bar to the flanges of a reel, and guiding means for the bolts comprising lugs punched from the material forming the plates.

10. A wrapper bar adapted to be associated with a margin of fabric and having associated therewith means for detachably connecting the bar to the drum of a reel, said means being automatically operable when the reel is turned in an unwinding direction to disengage the drum, and means associated with the bar for detachably connecting it to the flanges of a reel.

11. A wrapper bar comprising sheet material folded upon itself and having sections cut from its folded edge to leave tongues for attaching the bar to a reel.

12. A wrapper bar comprising sheet material folded upon itself and having sections cut from its folded edge to form openings, and strips of material inserted in said openings, secured to the bar, and forming tongues for attaching the bar to a reel.

13. A wrapper bar comprising sheet material folded upon itself and having portions punched from adjacent the folded edge and bent outwardly to form tongues for attaching the bar to a reel.

14. A wrapper bar adapted to be associated with a margin of fabric and having associated therewith for detachably connecting the bar to a reel in different correlation thereto, separate attaching means respectively extending transversely and longitudinally of the bar.

15. A wrapper bar adapted to be associated with a margin of fabric and having associated therewith for detachably connecting the bar to a reel in different correlation thereto, respectively separate attaching means, one including elements movable bodily with the bar and the other including elements movable longitudinally of the bar.

16. In combination, a reel having a drum and end flanges and a wrapper bar having means engageable with the drum to hold the wrapper bar in a certain relation to the reel and separate means engageable with the reel flanges to hold the wrapper bar in a different relation to the reel.

17. In combination, a reel comprising a drum and end flanges, a wrapper bar, complemental means associated with the bar and drum for thereby detachably connecting said elements with the wrapper bar in a certain relation to the reel and separate complemental means associated with the bar and reel flanges for thereby detachably connecting said elements with the wrapper bar in a different relation to the reel.

In testimony whereof I affix my signature.

GEORGE E. CLARK.