

May 22, 1923.

1,456,458

C. NORDELL

ROLL COVER

Filed Sept. 19, 1922

Fig. 1,

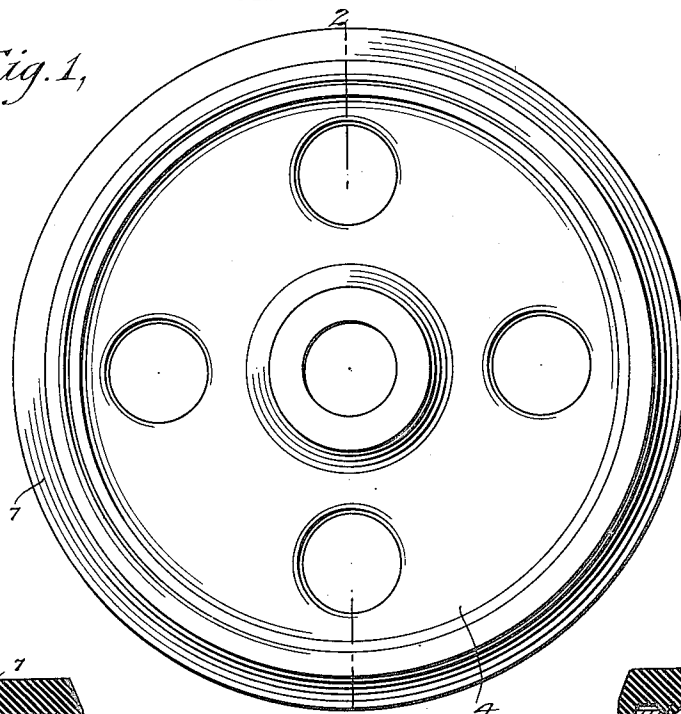


Fig. 2,

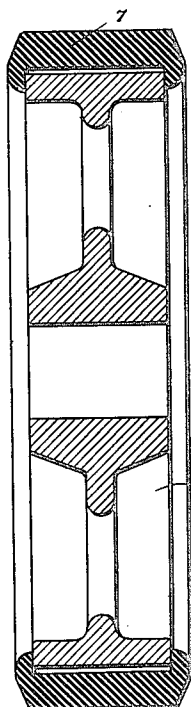


Fig. 3.

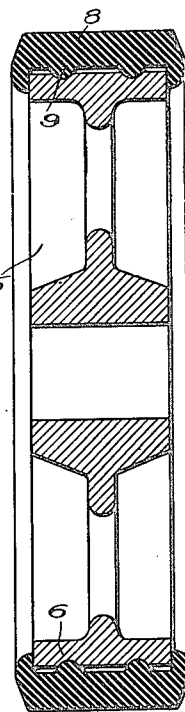
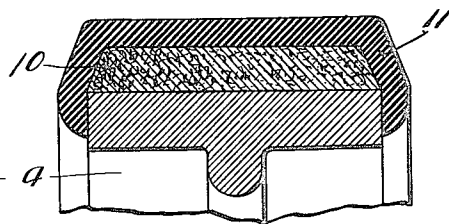


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

CARL NORDELL, OF GILBERTVILLE, MASSACHUSETTS.

ROLL COVER.

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To all whom it may concern:

Be it known that I, CARL NORDELL, a citizen of the United States, and a resident of Gilbertville, in the county of Worcester and State of Massachusetts, have invented a new and Improved Roll Cover, of which the following is a full, clear, and exact description.

This invention relates to rolls for textile machines, and more particularly aims to provide, as a new article of manufacture, a roll-cover of U-shaped cross-section, mountable or demountable relative to an unflanged roll, but without requiring a multi-part roll, or special machinery, tools, temperatures, or chemicals.

In connection with my discovery that such a cover as a new article of manufacture in the present art is of great ease of installation, satisfactory performance and exceeding durability, when completely preformed before being mounted on the roll, and hence not to be clamped to the roll by auxiliary metal plates or the like, I have found that the kind of roll hold established is quite important. This may be better understood perhaps from the following, although I do not offer it as necessarily the full or complete explanation of the above-mentioned advantages of my new cover: The ordinary cover as used heretofore has either been formed of very stretchable material, as india rubber, at a state of cure giving a stretchability about like that of rubber bands as sold by stationers, permitting a looseness or bulging or bagging to form in the cover ahead of the point of feed, or else the other extreme has been resorted to of providing a cover of considerable rigidity throughout.

According to my invention I provide a unitary cover as above for a one-piece unflanged roll, which cover has parts resilient but not stretchable sufficiently to permit it to be forced over the roll if the latter be provided with rigid integral flanges, at least without permanently distorting some portion of the cover so as to establish the same finally without a feeding surface of the required evenness. My new cover, on the contrary, being U-shaped in cross-section carries flanges at opposite sides, which themselves take about the opposite sides of an unflanged roll. In this connection one of the very important features of my new cover resides in the fact that these flanges on the cover are integrally carried by the main body of the cover, in such a way as not to be shiftable

bodily, especially in a lateral direction, as would be the case were such flanges connected to the main body by lines of stitching or the like, or any added anchoring means of a kind adapted to permit a bodily displacement of the flanges relative to the main body of the cover either as the result of a loosening or stretching of the anchoring means itself, or otherwise.

On the contrary, I have discovered, and this discovery is an important feature of the present invention, that a cover such as I provide herein, and having, among other qualities, an inherent stiffness or tendency to maintain itself truly circular, may be mounted with great satisfaction on its roll, either tightly thereon all over, or entirely loose thereon to act as a loose apron running between the two rolls.

Reference is now made to the accompanying drawing forming a part of this specification; in which drawing:

Figure 1 is a side elevation of a roll and cover pursuant to my invention;

Figure 2 is an axial section taken on the line 2-2 of Figure 1;

Figure 3 is a view similar to Figure 2, but showing a modification; and

Fig. 4 is a fragmentary view, taken in axial section, illustrative of the process preferably forming a part of the invention.

In the drawing the invention is illustrated as applied to a top spinning roll, such roll, it will be understood, being supported in a suitable frame and adapted to be rotated by traction with a revolving lower roll in a manner well known in the art, such frame and lower roll being not shown.

It will be noted that the roll 4 of Figure 1 differs from the roll 5 of Figure 3 solely in that the face of the roll 5 is provided with a plurality of peripheral grooves 6; and that both the rolls 4 and 5 are similar in that they are both unflanged.

It will likewise be noted that both covers 7 and 8 are generally similar in that each of them is a unitary annulus including a main heavy cover portion proper and a pair of side flanges or webs, these webs being made integral with the cover; the cover 7 of Figure 1 differing from the cover 8 of Figure 3 solely in that the main portion of the latter is provided internally with a plurality of peripheral projections, ribs or beads 9 to be seated in grooves 6.

These coacting grooves and beads on roll

and cover may or may not be employed; but when employed act merely as auxiliary securing means for the cover in a manner which will be well understood.

5 Each cover is of course made in the proper size to suit the particular machines to which it is to be applied. The side flanges on the cover being integral with the main body of the cover it follows that the cover is larger
10 than the roll, thus incidentally permitting oversizing of the cover, which oversizing may vary according to requirements.

From what has been said it will be seen that the herein proposed cover for use on
15 rolls in textile machinery, dispenses with the need of gluing, vulcanizing, or in any other way securing the cover to the roll, thus avoiding the necessity of removing the roll and carrying it away to receive attention
20 by a skilled worker, or to be subjected to heat treatment in a mold. The cover is unitary and completely fabricated before being mounted on the roll, has been found to be capable of very long life, may be quickly
25 and easily mounted on and demounted from the roll by slight distortions of the side flanges of the cover relative to its main body portion and when once on the roll is securely and permanently held thereon against side
30 slipping, creeping, bulging or rolling ahead in any part due to its non-elastic character, and yet presenting a radially yieldable and slightly resilient mass of material overlying the face of the roll for properly handling
35 the material to be fed. This last described character of the material of the cover constitutes a very important feature of the present invention; such material being leather or a rubber compound, or a combination
40 thereof, arranged or bonded into a single mass, such that the material of the mass is as yieldable and as relatively non-stretchable as a leather of the kind known in the leather and leather tanning trades as belting leather. In passing, it will be said that
45 in some cases it may be desirable to embed within the body of the cover an insert of wire cloth or fabric, positively to prevent stretch.

50 An important feature of the present invention is that the flange portions of the roll are united to its main portion by masses of material common to all such portions, whereby said flange portions may be warped relative to the main portion for mounting the
55 cover on an unflanged roll, such as illustrated in the drawing, but whereby such flange portions of the roll may not shift bodily relative to the main portion, thus to insure proper operation of the covered roll at all times. An almost equally important feature of the present invention is the shape and constitution of the new cover whereby it comprises a main portion and side flanges
60 on the main portion of considerably less

thickness than the thickness of the main portion.

Referring to Fig. 4, a very satisfactory form of cover pursuant to my invention is made of two different layers, an inner layer
70 of any suitable material, as fiber, which will expand when immersed in water or any suitable liquid, and which will subsequently contact on drying and an outer portion 11, which is the working part of the cover, made
75 of the material or materials mentioned in the last paragraph preceding. The manner of bonding these two portions together is preferably either by cementation or vulcanization, thus to form an integral completely
80 fabricated cover before application of the cover to the roll just as in the case of any cover constructed pursuant to the invention, as hereinabove explained.

Thus my invention also provides in addition to the various forms of cover already
85 specified herein, a process for facilitating the mounting of a cover on a roll; such process involving the steps of providing a cover of the type comprising a plurality of
90 layers including an inner layer of a material such that when moistened it expands, positioning such cover when thus moistened on a roll of the kind shown in the drawing, and then permitting said inner layer to dry,
95 thereby to contract to firmly unite the complete cover to the roll.

I claim:

1. A cover for a roll of the kind described, comprising, as a new article of manufacture
100 a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said portions
105 constituting a single integral finished structure completely permanently preformed into said central band portion and flanges before being applied to the roll.

2. A cover for a roll of the kind described, comprising, as a new article of manufacture
110 a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said portions
115 constituting a single integral finished structure completely permanently preformed into said central band portion and flanges before being applied to the roll, said structure being formed throughout of a material which
120 is as yieldable and as relatively non-stretchable as belting leather.

3. A cover for a roll of the kind described, comprising, as a new article of
125 manufacture a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said
130

band portion being of greater mass and also of greater thickness than said flanges and said portions constituting a single integral finished structure completely permanently preformed into said central band portion and flanges before being applied to the roll, said structure being formed throughout of a material which is as yieldable and as relatively non-stretchable as belting leather.

4. A cover for a roll of the kind described, comprising, as a new article of manufacture a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, both said flanges being united to the band portion by masses of material common to both, whereby said flanges may be warped relative to the band portion while being held against shifting relative to the band portion, said structure completely permanently preformed into said central band portion and flanges before being applied to the roll and being formed throughout of a material which is as yieldable and as relatively non-stretchable as belting leather.

5. A cover for a roll of the kind described, comprising as a new article of manufacture a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said portions constituting a single integral finished structure completely permanently preformed into said central band portion and flanges before being applied to the roll, said structure being formed throughout of a material which is as yieldable and as relatively non-stretchable as belting leather, said band portion being provided on its inner face with a plurality of peripheral beads.

6. A cover for a roll of the kind described, comprising, as a new article of manufac-

ture a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said band portion including a plurality of layers, the inner one of which is an annulus securely bonded to the next adjacent layer and formed of a moisture absorbing material, the cover being completely permanently preformed into said central band portion and flanges before being applied to the roll.

7. A cover for a roll of the kind described, comprising as a new article of manufacture a single member constituting a permanently closed annulus and having a central band portion and a pair of inwardly directed, definitely offset, peripheral flanges at opposite sides of the band portion, said band portion including a plurality of layers, the inner one of which is an annulus securely bonded to the next adjacent layer and including therein a material, which when moistened expands, and which when subsequently dried contracts, the cover being completely permanently preformed into said central band portion and flanges before being applied to the roll.

8. The process of mounting a cover on a roll of the kind described, which involves providing a cover in completely finished form, such form including a main portion having inwardly directed side flanges and also including inner and outer layers of dissimilar material, the inner layer being of a material, which when moistened expands, and which when subsequently dried contracts; moistening such inner layer; slipping the cover sidewise on the roll; and then permitting such inner layer to dry while leaving the cover on the roll, thereby to securely unite the cover to the roll, with the roll between said side flanges, when said inner layer is dried.

CARL NORDELL.