July 1, 1941. O. E. CRITES 2,247,874

CLOTHES WRINGER DEVICE

Filed Dec. 16, 1938

Fig. 1.

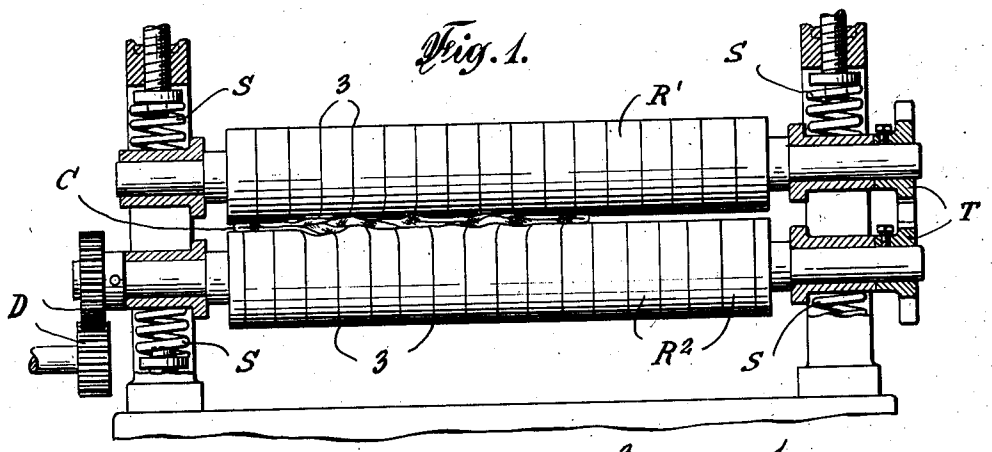
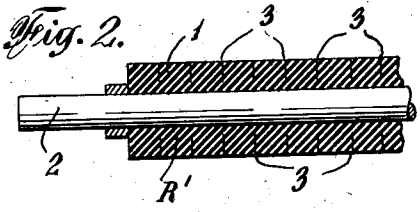


Fig. 2.



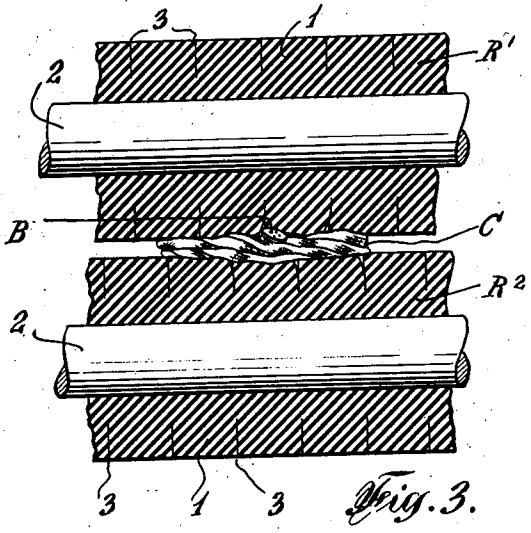
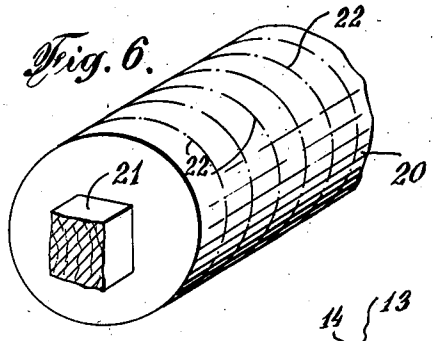


Fig. 3.

Fig. 6.



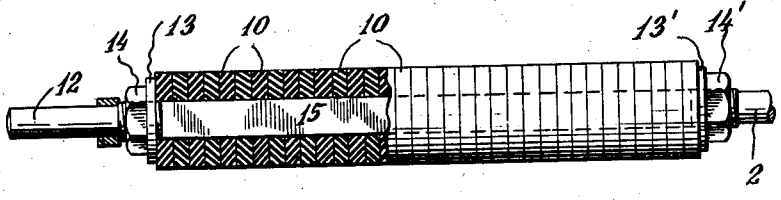


Fig. 4.

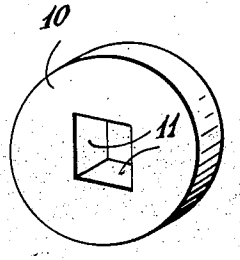


Fig. 5.

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CLOTHES WRINGER DEVICE

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Application December 16, 1938, Serial No. 246,008

3 Claims. (Cl. 68—277)

This invention relates to clothes wringer devices and more particularly to the rollers utilized in said devices. One of the objects of the invention is to provide an improved roller for said devices. Another object is to provide a more efficient wringer device. Still another object is to provide a means for more effectively wringing water from wet clothes. Other objects and advantages will be apparent as the invention is more fully disclosed.

In accordance with these objects I have devised an improved roller for a wringer device of which the following description and the accompanying drawing is a full and complete disclosure. In the drawing Fig. 1 is a side elevational view of a clothes wringer device improved in accordance with the present invention; Fig. 2 is a cross-sectional view of one of the rollers of said device; Fig. 3 is an enlarged section illustrating the operating efficiency of the present invention; Fig. 4 is a side elevational view partly in section of a modified form of the present invention; Fig. 5 is a perspective view illustrating the first stage of manufacture of the modified form of Fig. 4; and Fig. 6 illustrates in perspective the second step in the manufacture of the modification illustrated in Fig. 4.

Referring to the drawing, the wringer device illustrated in Fig. 1, except for rollers R1—R2, is old in the art. In such a device, means is provided to sustain the rollers R1—R2 horizontally in close spaced relation substantially as indicated with spring tensioning means S arranged to urge the two rollers together substantially as shown, means, such as indicated at D, is provided to rotate one roller R2 and means, such as indicated at T, is provided to reversely drive roller R1 so that clothes C may be gripped by the rollers R1—R2 and drawn therethrough, the spring tensioning means S operating to yieldingly maintain the rollers R1—R2 in close spaced relation against the clothes C to squeeze water therefrom irrespective of relatively large variations in the thickness of clothes C.

Heretofore in the art, rollers R1 and R2 have been substantially identical in size, shape, configuration and structure. As illustrated in Fig. 2, the roller (R1) is comprised of a solid mass of a flexible rubber composition 1 molded around and united to shaft 2 in any convenient manner to form a unitary and integral structure. The flexibility of the rubber and the give in tensioning means 8 has heretofore been depended upon to take up any un-evenness in the thickness of clothes C passing through the wringer device.

I have found, however, that by providing a plurality of yield points along the length of rollers R1 and R2, as by providing a plurality of slits 3, preferably annular, as shown, in the surface of the roller the efficiency of the roller in the extraction of water from the clothes C is remarkably improved. Careful observation of the operation of the roller improved in accordance with the present invention, indicated that the slits 3 provide spaced areas or points of yield which absorb local variations in clothes thicknesses and variations in thicknesses incident to the passage of hard articles, such as buttons B, through the rolls without substantial displacement of the rollers R1 and R2 from the normal spaced relation controlled by spring tensioning means S. This is illustrated schematically in Fig. 3. The result of the provision of a plurality of zones or areas of yield in the surface of the roller is essentially that the roller pressures are applied throughout a wider range of clothes thicknesses thereby increasing the efficiency of the rollers in the extraction of water from the clothes. Moreover, the tendency of the rollers to strip off or to crush buttons is greatly minimized and, in fact, substantially eliminated.

The manner in which the plurality of zones, or areas of yield, may be introduced into the roller surface may be widely varied without substantial departure from the present invention as will be apparent to one skilled in the art. Where a solid rubber roller is improved in accordance with the present invention, such as by the provision of slits 3, it is most convenient to make the slits annular in shape, substantially as shown, and to space the slits along the length of the roller in some determined spaced relation, depending upon the specific rubber composition comprising the roller. As the composition of the rubber varies widely, it is apparent that exact specifications in this respect cannot be given. However, with standard rubber compositions most common in the art, I have found that a spacing of ¼ to ½ inch is quite effective for the purposes of the present invention.

The depth of the slits 3 also may be widely varied without departure, depending upon the rubber composition and the extent of additional local flexibility desired in the roller, but with standard rubber compositions now in use I have found a depth of ⅜ inch sufficient for the purposes of the present invention.

The adaptation of the present invention to any roller will also depend in part upon the specific type of tensioning means S employed and as to

how strong or weak the tensioning pressure might be. However, the above noted spacing and depth of slits 3 appear to be useful under a wide variety of tensioning means now being utilized. The present invention offers the opportunity of greatly improving the method of manufacture of wringer rollers as indicated in Figs. 4–6 inclusive. Heretofore in the art, the rollers R1 (R2) have been comprised of a solid mass of some rubber composition molded about shaft 2 and sealed thereto in any convenient manner. In accordance with the present invention, the roller may be formed by assembling a plurality of rubber discs 10 provided with a central opening 11 onto a shaft 12, the plurality of discs 10 being side pressed together to form a unitary structure between washers 13—13' and nuts 14—14' substantially as indicated in Fig. 4.

Shaft 12 is provided with a squared off section 15 corresponding to the contour of center opening 11 of disc 10 to insure the rotating of the plurality of discs 10 with rotation of shaft 12. It is believed apparent that the shape and configuration of center opening 11 and of the section 15 of shaft 12 may be widely varied without departure from the present invention.

To illustrate the extent of improvement in the method of manufacture of rollers R1 and R2 in accordance with the present invention, discs 10 may be molded separately in the form indicated in Fig. 5 by any means heretofore known in the art or they may be formed by molding as an extended cylindrical length 20 of material, as indicated in Fig. 6, about a central core 21 and the desired thickness of disc 10 cut therefrom in any suitable manner, as by slicing, as indicated along dotted lines 22. To facilitate the slicing, core 21 preferably should be removable and should be comprised of material such as wood, for example, which can be cut or sliced at the same time the rubber composition is sliced.

From the above description and the drawing it is believed apparent that the invention may be widely modified without departure from the same and all modifications and departures are contemplated as may fall within the scope of the following claims.

What I claim is:

1. A roller for a clothes wringer device, said roller comprising a solid cylindrical body comprised of rubber secured onto a shaft, the cylindrical surface of said body being provided with a plurality of spaced apart slit openings, each said slit extending inwardly from the surface a distance at least sufficient to provide a point of yield on said surface, the said slits being of such a small width and the spaces therebetween being of such relatively larger width as to normally effect a substantially smooth outer surface.

2. A roller for a clothes wringer device, said roller comprising a solid cylindrical body comprised of rubber secured onto a shaft, the cylindrical surface of said body being provided with a plurality of spaced apart slit openings extending annularly about said surface, each said slit extending inwardly from the surface a distance at least sufficient to provide a point of yield on said surface, the said slits being of such a small width and the spaces therebetween being of such relatively larger width as to normally effect a substantially smooth outer surface.

3. A roller for a clothes wringer device, said roller comprising a cylindrical body consisting of a flexible rubber composition, the cylindrical surface of said body being provided with a plurality of spaced apart slit openings, each said opening extending annularly about the said surface and inwardly a distance at least sufficient to provide a localized area of yield on said surface, the said slits being of such a small width and the spaces therebetween being of such relatively larger width as to normally effect a substantially smooth outer surface.

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