April 14, 1936. H. M. RICHARDSON 2,037,536

COVER LOCK FOR RAYON SPINNING BUCKETS

Filed Oct. 19, 1934

Fig. 1.

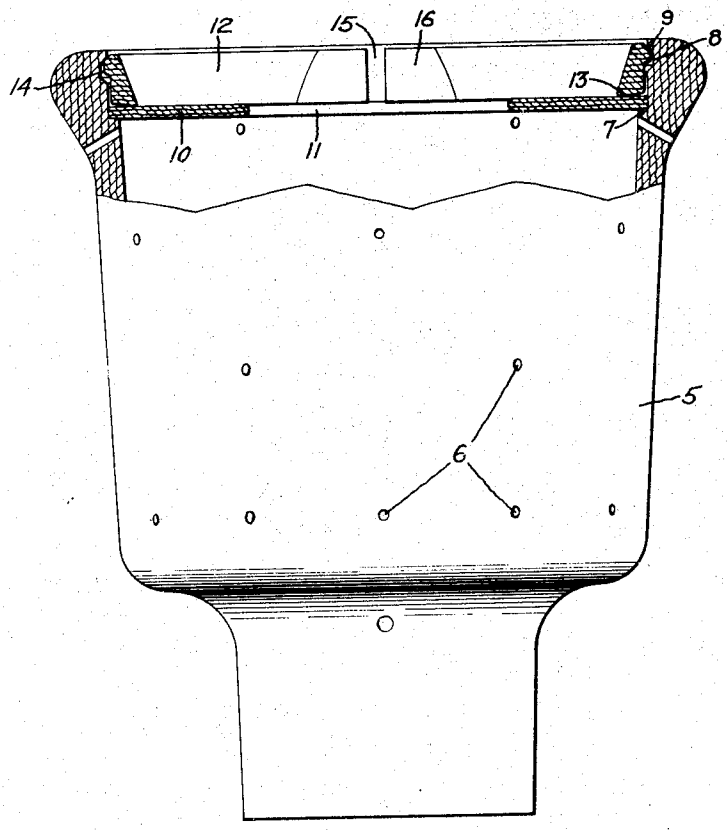


Fig. 2.

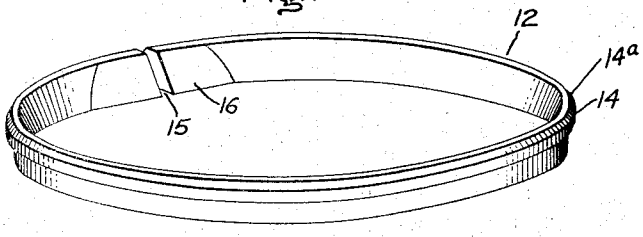


Fig. 4.

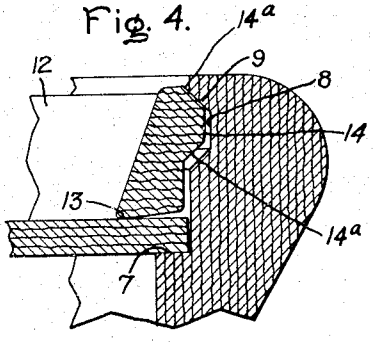
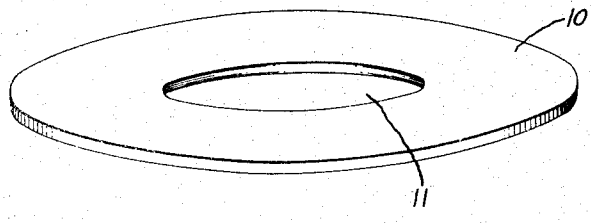


Fig. 3.



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COVER LOCK FOR RAYON SPINNING BUCKETS

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4 Claims. (Cl. 117—27.5)

The present invention relates to rayon spinning buckets and especially to cover locks for rayon spinning buckets.

The object of the invention is to provide an improved locking means for holding the cover of a spinning bucket firmly in place when the bucket is in motion but which is easily removable when the bucket is standing still.

In the drawing, Fig. 1 shows a side elevation, partly in cross section, of a spinning bucket equipped with a locking ring embodying the invention in the position it would assume when the bucket is standing still; Fig. 2 is a perspective view of a locking ring embodying the invention; Fig. 3 is a perspective view of a cover used with a spinning bucket, and Fig. 4 is an enlarged cross sectional detail view of a locking ring embodying the invention, and immediately adjoining parts, in the positions they would assume when the bucket is rotating at a high speed.

Referring to Fig. 1 of the drawing, 5 indicates a spinning bucket of a known type. The wall of the bucket 5 is pierced by a plurality of holes 6 which act as ducts to drain off the acid used in the manufacture of rayon. Spaced downward from the top edge in the inside of the bucket is a shoulder 7 which extends around the entire circumference of the top of the bucket wall. Lying between the shoulder 7 and the top edge of the bucket is an annular beveled groove 8. The top side 9 of the groove is beveled at an angle of considerable magnitude, the one shown being 45°. The bottom side is also shown beveled at 45° but it need not necessarily correspond to the top side angle. These surfaces, instead of being beveled, may be rounded if desired.

A cover 10 having an opening 11 in its center sets inside of the bucket and rests on the shoulder 7.

The cover 10 is held on the shoulder 7 by a locking ring 12. The cross section of the ring is of irregular outline. The front face slants backwardly from the vertical and the base slants upwardly from the horizontal to form a toe 13. Extending outwardly from the top outer edge of the ring is a flange 14. The upper and lower edges of the flange are beveled as is indicated at 14ª, the upper edge being beveled at an angle to fit the beveled side of the groove 8. Or, if the groove 8 has rounded sides the locking ring is similarly rounded. The ring is slit transversely as indicated at 15 to increase its flexibility. In order to compensate for the loss of weight due to the material removed at slit 15 so as to maintain the dynamic balance of the ring, the portions of the ring next to the slit are thickened as shown at 16.

In use, the cover is first put in place. The lock ring is then set on the cover with the flange 14 resting in the groove 8 of the bucket. In inserting the locking ring, the lower beveled edge 14ª slides against the top edge of the bucket, thus allowing easy insertion of the ring into the bucket. The ring has sufficient spring so that it snaps into place in the groove and will easily support the weight of the cover if the bucket is turned upside down. The ring, however, can be easily removed by inserting the fingers in the opening 11 in the cover and pulling upwardly. The ring readily snaps out of the groove but will not fall to the floor as it will be caught on the operator's wrist. This prevents breakage of rings.

The action of the ring when the bucket is in motion is as follows: The ring has two bearing points, one a contact between the beveled surface 9 of the groove 8 and the beveled surface 14ª of the ring, and the other a contact between the toe 13 and the cover 10. As the bucket comes up to speed, the ring, as a result of centrifugal force, is acted upon in two ways. The ring, using the bearing point between the two beveled surfaces 9 and 14ª as a point of rotation, tends to move the toe 13 outwardly around this point of rotation. This results in a component of force being exerted downwardly on the cover, holding it firmly in place. The second action of the ring due to centrifugal force is the tendency for the beveled edge 14ª to slip deeper into the groove 8 along the beveled edge 9. This action also tends to force the ring downwardly against the cover, holding it more firmly in place. The ring is split to permit it to expand and get the full benefit of the actions above described.

The cover locking construction above described has the advantage that the ring may be quickly and easily put in place and removed when the bucket is standing still but it holds the cover firmly in place when the bucket is in motion. It is simple in construction and may be manufactured at low cost.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. The combination with a spinning bucket having a shoulder extending around the circumference of the inside of the bucket and an angular groove spaced between the shoulder and the top edge of the bucket, of a cover adapted to seat on the shoulder, and a locking ring which has one bearing point on the cover and one against the upper side of the groove in the bucket, the

surfaces of contact between the groove and the ring being of similar shape and providing a bearing about which the ring pivots under the action of centrifugal force.

2. The combination with a spinning bucket having a shoulder extending around the circumference of the inside of the bucket and an angular groove spaced between the shoulder and the top edge of the bucket, of a cover adapted to seat on the shoulder, and a locking ring having a transverse slit and two bearing points, one against the cover and the other against the upper side of the groove, the surfaces of contact between the groove and the ring being of similar shape and providing a bearing about which the ring pivots under the action of centrifugal force.

3. The combination with a spinning bucket having a shoulder extending around the circumference of the inside of the bucket and a groove spaced between the shoulder and the top edge of the bucket, of a cover adapted to seat on the shoulder, and a locking ring having a portion at its upper outer edge adapted to enter the groove and engage the surface at the top side of the groove, the surfaces of contact between the groove and the ring being of similar shape and providing a bearing about which the ring pivots under the action of centrifugal force, said locking ring having at its lower inner edge a toe adapted to engage the cover at a point spaced inward from the inner surface of the bucket.

4. The combination with a spinning bucket having a shoulder extending around the circumference of the inside of the bucket and a groove spaced between the shoulder and the top edge of the bucket, of a cover adapted to seat on the shoulder, and a locking ring having a portion adapted to enter the groove and engage the surface of the top side of the groove, the surfaces of contact between the groove and the ring being of similar shape and providing a bearing about which the ring pivots under the action of centrifugal force, said locking ring having at its lower edge a toe adapted to engage the cover at a point spaced inward from the inner surface of the bucket, the greater portion of the mass of the ring being below the surface of contact between the groove and the ring.

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