

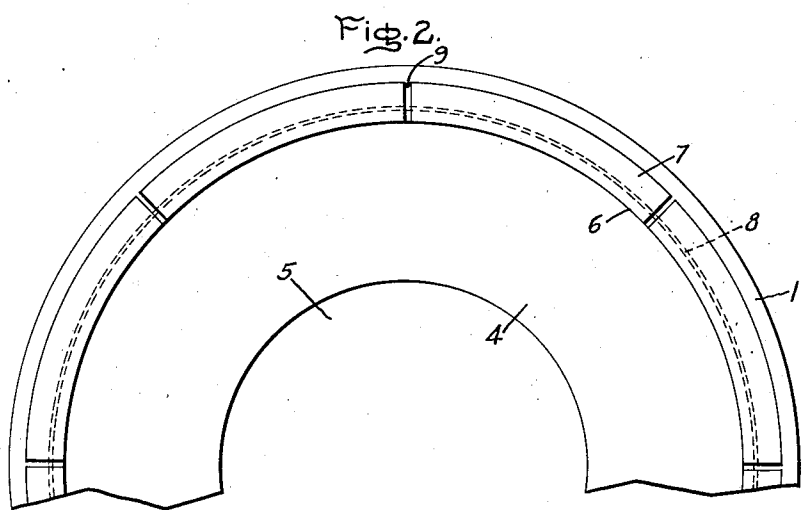
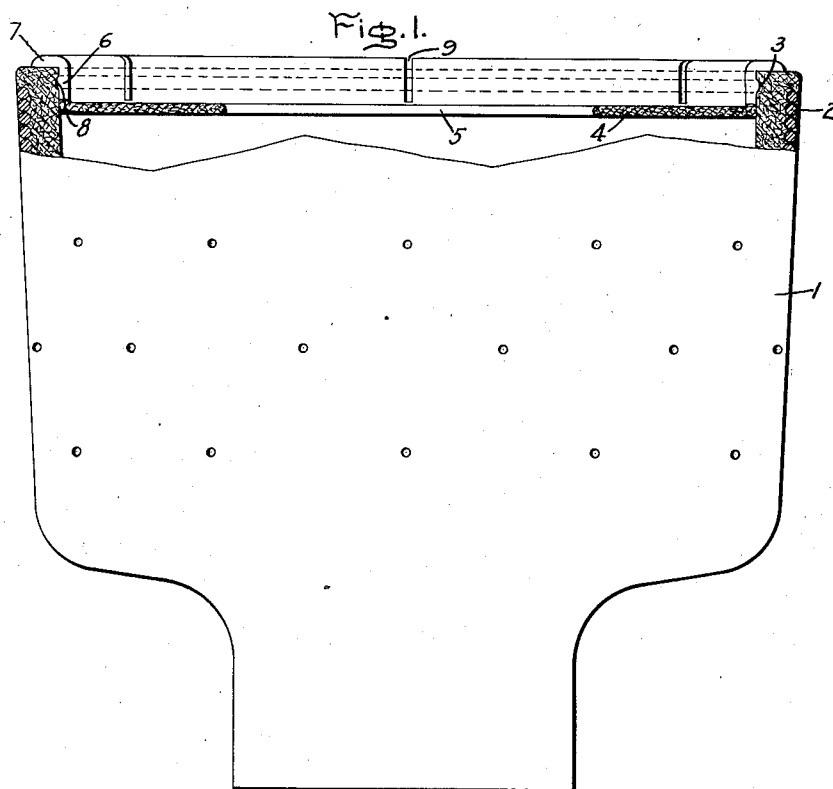
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RAYON SPINNING BUCKET

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RAYON SPINNING BUCKET

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6 Claims. (Cl. 118—49)

The present invention relates to spinning buckets such as are used in the manufacture of rayon.

Spinning buckets of this type are required to revolve at high speeds, for example, speeds of the order of 10,000 R. P. M. This means that the buckets are subjected to centrifugal stresses of a high order, and to withstand such stresses must be of uniform construction in order to give the greatest strength for a given weight and thickness of material. During the spinning operation, the bucket is closed with a cover. It is required that while running, the cover be held firmly in place in a manner such that the axial pressure from the rayon cake being wound up inside the bucket will not raise the cover. However, when the bucket is stopped, it is desirable that the cover be capable of being removed readily.

The object of my invention is to provide an improved spinning bucket and cover therefor wherein the cover may be easily inserted and removed when the bucket is not running and is locked firmly in place when the bucket is running. At the same time, the bucket rim is of uniform strength, requiring no grooves for the reception of a locking ring.

For a consideration of what I believe to be novel and my invention, attention is directed to the following description and the claims appended thereto.

In the drawing, Fig. 1 is a side elevation, partly in section, of a bucket and cover embodying my invention, and Fig. 2 is a plan view of a portion of the cover and bucket.

Referring to the drawing, 1 indicates a rayon spinning bucket of any suitable type. In the present instance, I have indicated the bucket as being of a molded type. It may be formed of textile fibres united by an artificial resin such as a phenolic condensation product and reinforced by a winding of wire as is indicated at 2. For example, it may be a bucket such as that disclosed in the application of Bergman, Serial No. 622,272, filed July 13, 1932.

As will be seen from Fig. 1, the upper edge of the bucket wall is of uniform thickness and is provided on its inner surface with a shallow annular groove 3. By this arrangement, the rim of the bucket is not weakened by a relatively deep groove for a cover locking ring as is the usual practice.

The cover comprises a bottom 4 having a central opening 5, a side wall 6, and a flange 7. Side wall 6 fits snugly within the upper end of bucket

1 and flange 7 engages the top of the bucket. Side wall 6 is provided with a bead 8 which fits into groove 3. Flange 7 and side wall 6 are provided with a plurality of slots 9 which extend down substantially to bottom 4. The slots serve to give a certain amount of flexibility to the flange and rim.

With the above described arrangement, the cover can be inserted readily into the bucket, the side wall 6 yielding sufficiently to permit bead 8 to engage in groove 3. In the practical use of this arrangement, it is desirable that the bucket may be lifted from the spindle by the machine operator grasping the cover at the opening 5. Flexure of the cover caused by a direct upward lifting force at the rim of opening 5 causes the bead 8 to engage more firmly in groove 3, thus causing the cover rim to hold against the bucket with a force sufficient to enable the bucket to be lifted from the spindle by means of the cover. It is also desirable that the cover be easily removable from the bucket. This is accomplished by the operator exerting downward pressure at the rim of opening 5 together with a turning movement about an axis in the plane of the cover; which combination of forces tends to disengage the bead 8 from the groove 3 and lift the cover at one side allowing it to be easily removed. When the bucket is running, centrifugal force causes the side wall 6 to engage tightly the wall of the bucket whereby the cover is locked firmly in position. The cover fits the inside of the bucket snugly so strands of rayon yarn cannot work their way under the edge of the cover. At the same time, excess acid which may gather between the top bucket drain holes and the cover finds its way around the edge of the cover and out through the slots 9. Thus the slots serve not only to lend flexibility to the side wall 6 of the cover but serve also for the escape of acid.

Since there are no projections on the cover, the windage losses are reduced to a minimum. Also the cover has the advantage that the centrifugal load transmitted by it to the rim of the bucket is a minimum, and since the rim of the bucket is of uniform thickness and without a deep groove such as is found on the conventional type of rayon spinning bucket, there is provided a construction wherein the rim of the bucket is capable of withstanding high centrifugal stresses. This means, in substance, that by the use of my improved cover, I am enabled to so construct a bucket that it is capable of operating at a speed higher than would be the case otherwise.

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

1. The combination with a rayon spinning bucket having an upper end of substantially uniform thickness, of a cover having a bottom, a side wall which fits against the inner wall of the bucket and a flange which seats on the top of the bucket to limit inward movement of the cover, said flange and side wall being provided with spaced slots to lend flexibility thereto and to provide passages for the escape of acid. 80
2. The combination with a rayon bucket having an upper end of substantially uniform thickness provided with a shallow groove, of a cover having a bottom, a side wall which fits against the inner wall of the bucket and has a bead which fits into said groove, and a flange which seats on the top of the bucket to limit inward movement of the cover, said side wall and flange being provided with spaced slots to lend flexibility thereto and to provide passages for the escape of acid. 85
3. The combination with a rayon spinning bucket having a groove in its inner surface adjacent to its upper end, of a cover having a bottom and a side wall provided with spaced slots to lend flexibility thereto, means providing engaging surfaces on the bucket and cover to limit movement of the cover into the bucket, and a bead on the cover side wall which engages in said groove. 90
4. In combination, a rayon spinning bucket having a side wall, a cover having a bottom and a side wall adapted to fit in the bucket provided with spaced slots to lend flexibility thereto, and means providing engaging surfaces on the bucket and cover to limit movement of the cover into the bucket, said side walls being provided with interlocking projections which are brought into firm engagement due to the action of centrifugal force when the bucket is spinning. 95
5. A rayon spinning bucket cover comprising a bottom wall, a side wall having slots therein to render it capable of expanding under the action of centrifugal force, and projecting means forming an integral part of said side wall for interlocking with the side wall of a spinning bucket. 100
6. A rayon spinning bucket cover comprising a bottom wall, a side wall and a flange surrounding the side wall, said side wall and flange being provided with slots to render them capable of expanding under the action of centrifugal force, and projecting means forming an integral part of said side wall for interlocking with the side wall of a spinning bucket. 105

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