Sept. 5, 1944. C. PISTOR 2,357,422

SPINNING BUCKET

Filed Sept. 29, 1942 2 Sheets-Sheet 1

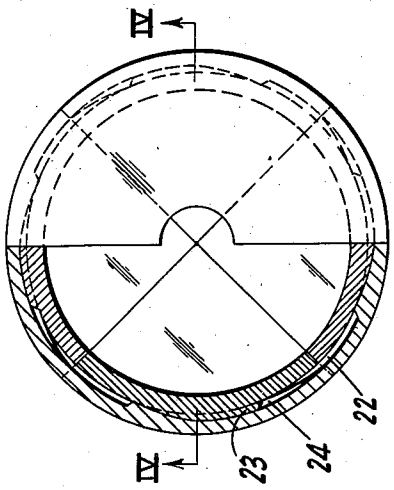


FIG-3-

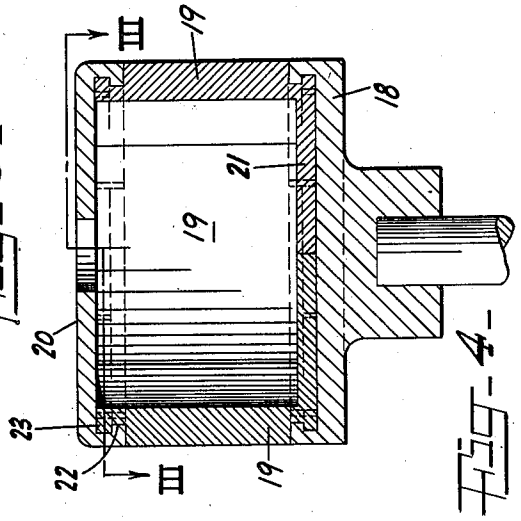


FIG-4-

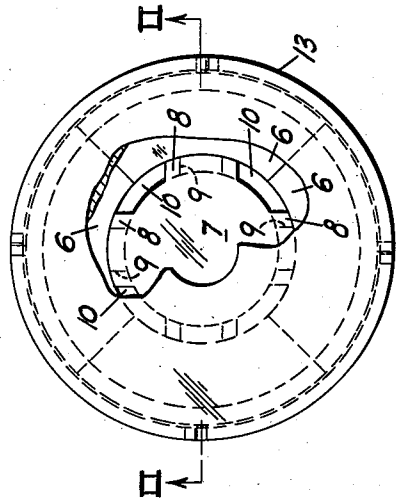


FIG-1-

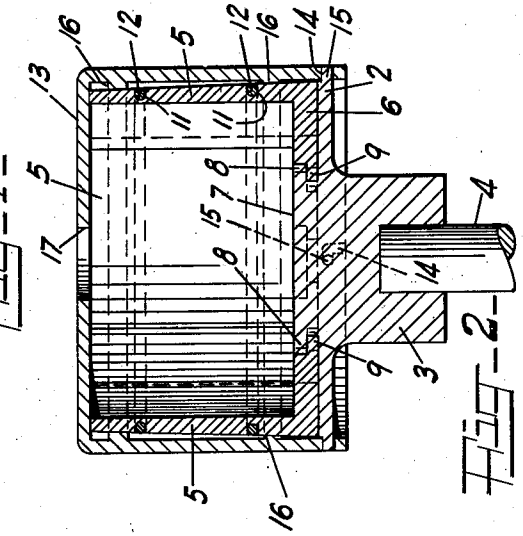


FIG-2-

INVENTOR.
CHRISTEL PISTOR
BY Thomas P. O'Malley
ATTORNEY.

Sept. 5, 1944. C. PISTOR 2,357,422

SPINNING BUCKET

Filed Sept. 29, 1942 2 Sheets-Sheet 2

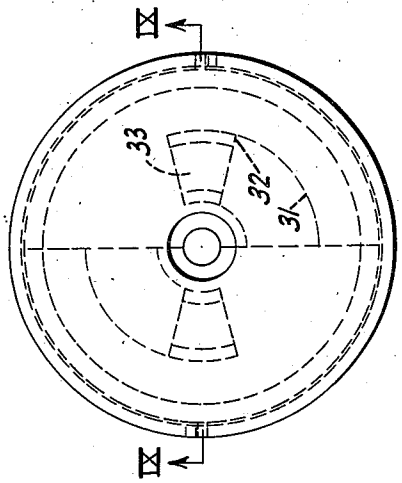


FIG-8-

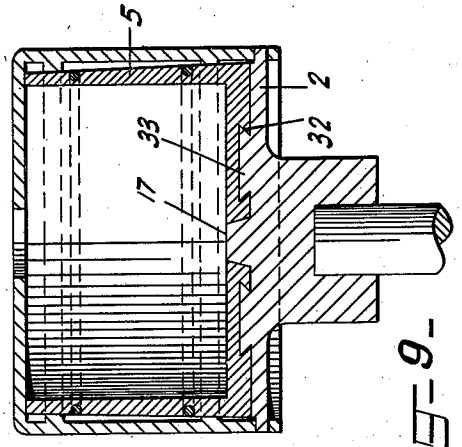


FIG-9-

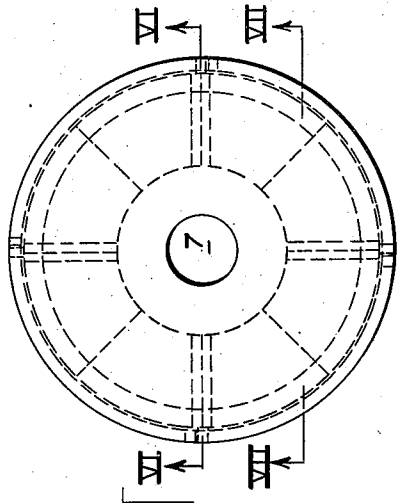


FIG-5-

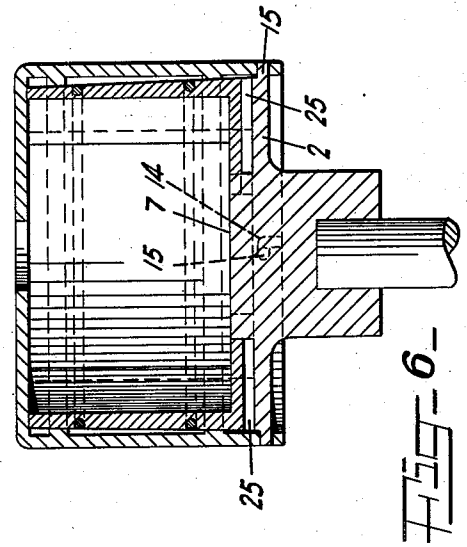


FIG-6-

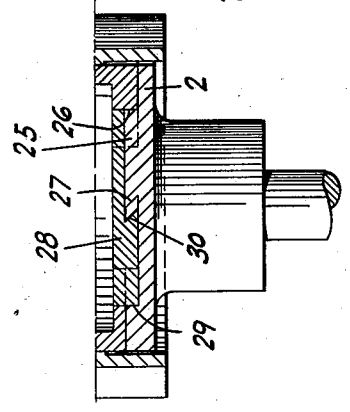


FIG-7-

INVENTOR.
CHRISTEL PISTOR
BY Thomas R. O'Malley
ATTORNEY.

Patented Sept. 5, 1944 2,357,422

UNITED STATES PATENT OFFICE

2,357,422

SPINNING BUCKET

Christel Pistor, Drexel Hill, Pa., assignor to American Viscose Corporation, Wilmington, Del., a corporation of Delaware

Application September 29, 1942, Serial No. 460,138

16 Claims. (Cl. 57—76)

The invention relates to spinning buckets adapted to receive artificial filamentary material.

In removing the "cake," particularly of freshly spun filaments, from the type of spinning bucket heretofore employed, injury frequently results from the insertion of the hands of the operators into the center of the cake when they at times reach in and grab the interior windings of the cake to assist in withdrawing it from the spinning bucket. At times, the cake does not fall out of the bucket as a unit so that the loosened cake affords greater opportunities for tangling and snagging during the subsequent handling and transportation. Again, the rubbing of the cake against the interior wall of the buckets as they are withdrawn therefrom may detrimentally affect the exterior windings thereof. Even those cakes of the best form and the least affected by removal from the buckets are frequently injured by handling and in transportation of the unprotected cake to the next scene of operations, such as the usual liquid treatment. As a result, it is usually a necessity to strip inside and/or outside windings from the cake to remove filaments that are soiled, torn or otherwise spoiled.

It is an object of this invention to provide a segmental filament receiving container which is readily removable from the filamentary material therein without damaging it and which is capable of serving, if desired, as a protecting cover or jacket for the filamentary material during handling and transportation thereof subsequent to the collection of the filamentary material therein. Further objects of the invention will be apparent from the drawing and the description thereof hereinafter.

In the drawings, illustrative of the invention,

Figure 1 is a plan view of one embodiment of the invention with a part of the cover cut away,

Figure 2 is a vertical cross-section on the line II—II of Figure 1,

Figure 3 is a top view with part in section along line III—III of Figure 4 showing a second embodiment of the invention,

Figure 4 is a vertical cross-section of the embodiment of Figure 3 taken on line IV—IV of Figure 3,

Figure 5 is a top plan view of a third embodiment,

Figure 6 is a vertical section taken on line VI—VI of Figure 5,

Figure 7 is a vertical section taken on the line VII—VII of Figure 5,

Figure 8 is a top plan view of a fourth embodiment, and

Figure 9 is a vertical section taken on line IX—IX of Figure 8.

The embodiment of Figures 1 and 2 comprises a base plate 2 provided with a hub 3 adapted to fit on the spindle 4 of a motor in the manner commonly employed heretofore and a container for receiving the filamentary material made up of a plurality (four being shown) of segmental elements 5 which together form the cylindrical shell against the internal wall of which the filamentary material is thrown. Each of the segments may be provided with a foot 6 in the form of a portion of an annulus which preferably extends inwardly at least a distance corresponding to the thickness of the cake to be built within the box. The central portion 7 of the base plate is elevated above the outer annular portion thereof by a distance substantially equal to the thickness of the feet of the segments so that the bottom of the container is substantially flat. The central platform 7 of the base is provided with a number of over-hanging projections 8 corresponding in number to the segments 5 and each of the segments is provided with a projection 9 extending inwardly from the lower portion of the foot thereof. The projections 9 from the feet of the segments are adapted to cooperate with the over-hanging projections 8 from the platform and the annular spaces 10 therebetween so that the four segments constituting the filament container may be held as a unit and set upon the base 2 by alignment the projections 9 from the feet of the segments with the spaces 10 between the projections 8 on the central platform 7 and then turned with respect to the base so that the projections of the segments are locked beneath the over-hanging projections from the central platform as shown in Figure 1. Annular recesses 11 may be provided about the circumference of the segments 5 and these recesses or grooves may be provided with elastic bands 12 of rubber or of coil springs adapted to hold the segments together tightly. A hood-like cover 13 in the form of an inverted cup is arranged to fit over the segments and is provided with slots 14 adapted to cooperate with projections 15 from the base 2 in the form of a bayonet joint. The slots 14 of the bayonet joint should be so arranged that the rotation imparted to the base 2 by the spindle 4 tends to force the projections 15 on the base into the locking position within the slots. The slots 14 shown in Figures 1 and 2 are arranged for operation with a spindle rotating in a counterclockwise direction as viewed from the top. To facilitate the application of the cover and removal of

it from the segments, the segments are provided with a taper outwardly from top to bottom and the interior of the hood-like cover is provided with annular ridges 16 which extend inwardly and are adapted to tightly engage the external circumference of the segments when the cover is locked in place. Instead of having two annular inwardly extending ridges 16 within the cover, the internal wall surface of the cover may be formed as a conical surface with a taper complementary to that of the segments. The top of the cover is also provided with the usual opening 17 adapted to permit the reciprocation of the funnel guide along the axis of the spinning pot.

The spinning pot of Figures 1 and 2 is shown ready for operation. After the completion of the collection of the cake within the pot, the cover 13 may be removed by turning it with respect to the base 2 until the bayonet joint 14, 15 is unlocked. It is to be noted that the turning movement made in unlocking the bayonet joint is insufficient to unlock the joint (8, 9) between the feet of the segments and the central platform so that upon lifting the cover from the base, the segments are necessarily held to the base. After removal of the cover, the segments 5 are still held unitarily by the elastic bands or springs 12. The segments 5 may be removed from the base 2 with the cake as a unit merely by turning them with respect to the base thereby unlocking the joint between them and they may then be used as a transporting container for the cake. When it is desired to move the cake from the segments, it is merely necessary to remove the elastic bands or springs 12 therefrom and then remove the segments, preferably one at a time, from the cake. Such removal of the segments may be accomplished without sliding them with respect to the cake so that no damage is done to the windings thereof. While no liquid discharge channels are shown in the bucket construction, both the segments 5 and the cylindrical wall of the cover 13 may be provided with such discharge channels in the form of relatively small perforations generally extending radially therethrough.

In Figures 3 and 4 a second embodiment is shown in which the spinning pot comprises the base 18, segmental walls 19, and a cover 20. In this embodiment, each segment constitutes a fourth of a cylindrical surface provided with a foot 21 in the form of a quadrant of a circle. The four feet rest upon the base and form the bottom of the filament receiving container. The segments are provided with interlocking joints for fastening it to the base and to the cover respectively. Both interlocking connections are similar and are constituted essentially of a type of joint used in fastening closures to jars and bottles. This interlocking connection is shown more particularly in the cross-sectional view of Figure 3 and consists essentially in providing the neck 22 of the segments with a ridge 23 which is adapted to cooperate with a groove 24 formed in an overhanging flange of the cover. The ridge 23 may be tapered off as clearly shown in Figure 3 in order to provide for tight engagement with the complementary tapering of the groove 24 in the flange of the cover. Alternatively, the ridge 23 may extend in a helical direction so that a tighter joint is made with respect to a vertical plane. Preferably, both the joint at the base and that at the cover, like the bayonet joint of Figure 2, should be so correlated to the direction of rotation of the pot that the tendency is for the joints to tighten themselves during rotation. As in the preceding embodiment, the walls of the segment, the cover and the base may be provided with liquid discharge channels in the usual manner.

In the embodiment of Figures 3 and 4, the segmental walls may be encircled by one or more elastic rings after the completion of the collection of the filaments therein. Thereafter, the cover may be removed from the segmental receptacle and the receptacle may be removed from the base 18 and serve for transporting the cake. If desired, the cover may be left in place on the segmental receptacle as an additional projection during transportation.

A third embodiment is shown in Figures 5 to 7. This embodiment is similar to that of Figures 1 and 2 except with respect to the interlocking arrangement between the base 2 and the feet 6 of the segments. Instead of having the locking projections on the central platform as in Figures 1 and 2, the embodiment of Figures 5 to 7 has a plain cylindrical platform 7 surrounded by an annular portion of the base which is provided with a plurality of upstanding sectors 25. Each of these sectors 25 (and there are four shown in the drawings) occupies approximately a 45° angle (that is, about half a quadrant) and has one of its radial faces 26 vertical and the other radial face 27 formed as an undercut groove. Each of the segments has its foot provided with a complementary sector 28 extending downwardly therefrom, again with one of its radial faces 29 vertical and the other of its radial faces 30 as an undercut groove. The result is that the segments may be placed upon the base with their sectors alternating with the upstanding sectors upon the base and the cover placed upon the assembly for collection of yarn. After completion of the collection of the filamentary material, the turning of the cover with respect to the base to unlock the bayonet joint 14, 15 turns the segments with respect to the base so that the undercut radial faces 27 and 30 of the sectors of the base and the feet of the segments are locked together. Thereupon, lifting of the cover effects its removal without also removing the segments with it. Afterwards, the segments may be lifted as a unit from the base merely by effecting a slight reverse turning movement.

Figures 8 and 9 are similar to the embodiments of Figures 1 and 2 and Figures 5 to 7 except for the interlocking arrangement between the base and the feet of the segments. In Figures 8 and 9, hemispherical segments are used and the central platform is reduced to a relatively small centering button. The bottom of feet of the segments is provided with an annular groove 31 whose sidewalls are vertical for a portion of the groove and sloped at another portion 32 in the manner shown to cooperate with a tongue 33 extending upwardly from the base 2 to form a dove tail joint. A sufficient length of the groove 31 should have plain vertical sides to permit the free entrance of the tongues 33 on the base when the segments are placed upon the base.

While preferred embodiments of the invention have been disclosed, the description is intended to be illustrative only, and it is to be understood that changes and variations may be made without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. A spinning bucket having a wall comprising a plurality of readily separable segments and having releasable means for holding the segments

together, said releasable means being substantially confined within the outer periphery of said segments.

2. A spinning bucket having a wall comprising a plurality of readily separable segments each generally constituting a portion of a cylinder and having releasable means for holding the segments together, said releasable means being substantially confined within the outer periphery of said segment.

3. A spinning bucket comprising a bottom and a wall comprising a plurality of readily separable segments, releasable means for holding the segments together, said releasable means being substantially confined within the outer periphery of such segments and means for releasably connecting the bucket to a rotatable member.

4. A spinning bucket comprising a rotatable base, a plurality of segments extending from said base and together forming a wall of the bucket, cooperating means on the base and segments for releasably interlocking them, a cover, and means on the cover for holding the segments together.

5. A spinning bucket comprising a rotatable base, a plurality of segments extending from said base and forming together a wall of the bucket, cooperating means on the base and the segments for releasably interlocking them, a cover, and cooperating means on the cover and the segments for releasably interlocking them.

6. A spinning bucket comprising a rotatable base, a plurality of segments having portions adapted to rest on the base and other portions extending from said base and together forming a bottom and a peripheral wall of the bucket, cooperating means on the base and the segments for releasably interlocking them, a cover, and cooperating means on the cover and the segments for releasably interlocking them.

7. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from said base and together forming a wall of the bucket, and means comprising a cover having a wall adapted to surround the segments for holding the segments together in place on the base.

8. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from said base and together forming a wall of the bucket, means for releasably locking the segments to the base, a cover, means on the cover for holding the segments together and cooperating means on the cover and the base for releasably securing them together.

9. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from said base and together forming a wall of the bucket, means on the cover for holding the segments together and cooperating means on the cover and the base for releasably securing them together, cooperating means on the segments and the base for preventing removal of the segments from the base upon release of the means for securing the cover to the base and the removal of the cover therefrom.

10. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from the base and together forming a wall of the bucket, means on the cover for holding the segments together and cooperating means on the cover and the base for releasably securing them together, and cooperating means on the segments and the base for releasably interlocking the segments to the base upon release of the means for securing the cover to the base and the removal of the cover therefrom.

11. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from the base and together forming a wall of the bucket, means for releasably locking the segments to the base, a cover having a wall adapted to surround the segments, at least one annular ridge inside the wall of the cover for holding the segments together when the cover is in place and means on the cover and base for releasably securing them together.

12. A spinning bucket comprising a rotatable base, a plurality of segments having foot portions adapted to rest on the base and having portions extending from the base and together forming a wall of the bucket, operating means on the foot portions of the segments and the base for releasably locking the segments to the base, a cover, means on the cover for holding the segments together and cooperating means on the cover and the base for releasably securing them together.

13. A spinning bucket comprising a rotatable base, a plurality of segments having foot portions adapted to rest on the base and having portions extending from the base and together forming a wall of the bucket, a cover, means on the cover for holding the segments together, cooperating means on the cover and the base for releasably securing them together, cooperating means on the foot portions of the segments and the base for preventing removal of the segments from the base upon release of the means for securing the cover to the base and the removal of the cover therefrom.

14. A spinning bucket comprising a rotatable base, a plurality of segments having portions extending from the base and together forming a wall of the bucket, means comprising a cover having a wall adapted to surround the segments for holding the segments together in place on the base, and additional means for holding the segments together independent of the cover on the base.

15. A protective covering for wound packages of filamentary material comprising a plurality of readily separable segments and releasable means for holding the segments together, said releasable means being substantially confined within the outer periphery of said segments.

16. A protective covering for wound packages of filamentary material comprising a plurality of readily separable segments having portions forming a peripheral wall surrounding the filamentary material and releasable means for holding the segments together, said releasable means being substantially confined within the outer periphery of said segments.

CHRISTEL PISTOR.