J. CLAYTON.

SPINNING BOX FOR ARTIFICIAL SILK.

APPLICATION FILED NOV. 11, 1920.

1,417,455.

Patented May 23, 1922.

2 SHEETS—SHEET 1.

Fig. 2.

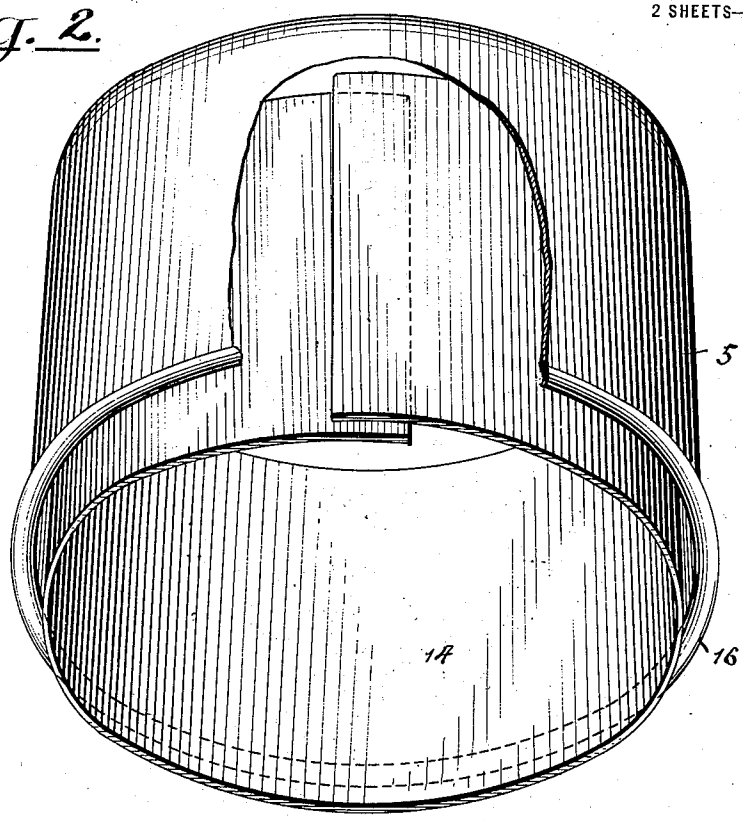
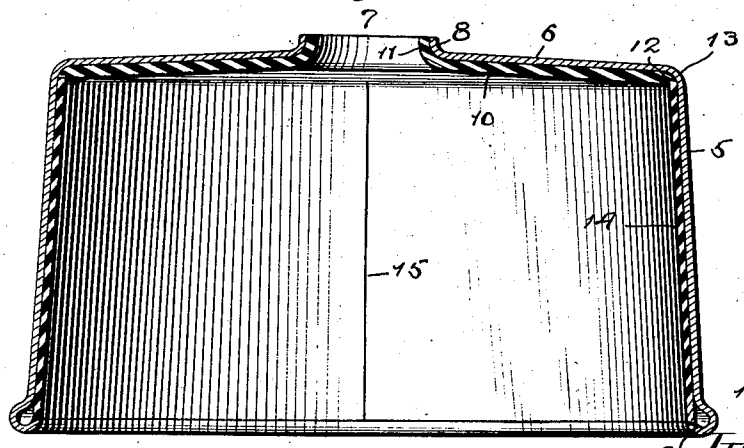


Fig. 1.



Inventor:
James Clayton
by his Attorneys
Strong and Strong

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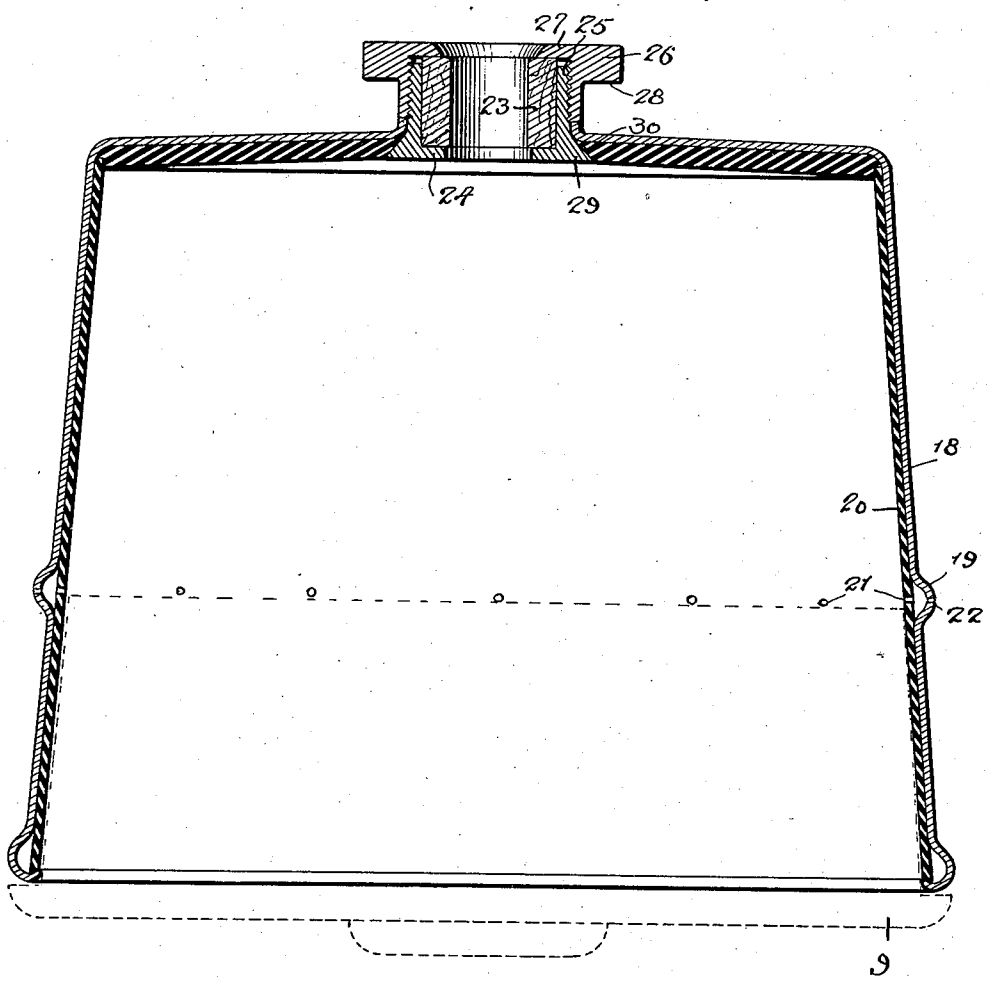

Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES CLAYTON, OF SEBAKWE, BABBACOMBE, ENGLAND, ASSIGNOR TO THE VISCOSE COMPANY, OF MARCUS HOOK, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SPINNING BOX FOR ARTIFICIAL SILK.

1,417,455. Specification of Letters Patent. Patented May 23, 1922.

Application filed November 11, 1920. Serial No. 423,315.

To all whom it may concern:

Be it known that I, JAMES CLAYTON, a subject of the King of Great Britain and Ireland, and a resident of Sebakwe, Babbacombe, county of Devon, England, have invented certain new and useful Improvements in Spinning Boxes for Artificial Silk, of which the following is a specification.

My invention relates to spinning boxes, and particularly to boxes for spinning artificial silk. The object of my invention is to provide a practical and efficient spinning box of metal, lined to prevent discoloration of the silk by contact with the metal walls of the box.

In the accompanying drawings—

Fig. 1 is a vertical section through a box in which my invention is embodied in one form;

Fig. 2 is a broken perspective of a box showing one manner of installing the lining for the side wall; and

Fig. 3 is a vertical section through a box of modified construction.

In apparatus for spinning artificial silk, the filaments of silk coming from the setting bath are led into a box rotated at high speed, so that the filaments are twisted together into a thread which is thrown by centrifugal force outward against the side walls of the box, and is there built up into a so-called fiber cake. The filaments carry with them certain chemicals from the setting bath, and the presence of these chemicals in contact with metal has been found to result in discoloration of the threads which lie in contact therewith. Inasmuch as this discoloration persists after washing the threads, it has been impracticable to use a metal box by reason of the waste incidental to this discoloration. The spinning box has therefore customarily been made of rubber, which is not only heavy, thus requiring greater power for the drive, but is also not particularly well suited to withstand the centrifugal strains imposed upon it, particularly when the box is subjected to very rapid rotation. By the present invention I provide a relatively light metal box lined with a material which causes no discoloration of the threads by reason of their contact therewith in the presence of the acids carried over from the setting bath.

As shown in Figs. 1 and 2, the box comprises a metallic shell or casing 5, preferably of some acid-resisting material, such as monel metal, in sheet form, which is stamped, spun or drawn, or otherwise formed to truncated cone shape, open at the bottom, but closed at its narrower top by the end plate 6. The latter is centrally apertured at 7 to permit the introduction of a guide funnel (not shown), through which the filaments are led into the box. The margins of the aperture are preferably upturned to form a collar flange 8. In operative position the casing is seated upon a base 9 (Fig. 3) of any suitable sort, and to which rotary motion is imparted in any convenient manner.

The acid-proof lining of celluloid, cellulose acetate, ebonite, rubber or the like, comprises a top plate 10, which, as shown in Fig. 1, is molded to shape and has a central aperture and boss 11 lining the collar flange 8 of the metal shell 5. The outer margin of the lining plate 10 is shaped on its upper face to the contour of the box corner 13, while its lower face is peripherally offset to afford a shoulder 12 adapted to be engaged by the upper edge of the side wall lining 14. The latter is formed from similar acid-resisting material, and may be cut from a flat sheet in a form so generated that when fitted within the conical side wall of the box the edges of the sheet meet in a straight line at 15. When so formed it may be readily placed in position by partially coiling the same, as indicated in Fig. 2. Upon its release the lining automatically expands against the inner face of the box body 5, and may then be forced upward and seated against the shoulder 12 of the top lining plate 10. The conical shape of the box sides automatically forces toward each other the side edges of the lining sheet 14, so that they meet at 15 when the sheet is forced home. In order to retain the side lining in position, I form a bead 16 at the bottom of the box, the inner edge 17 of which is preferably beveled, and when rolled over into engagement with the lower edge of the lining 14, not only holds the latter up against the shoulder 12 of the top lining plate 10, but also presses the lining 14 outward against the side wall of the box. This construction has the further advantage of protecting the lining against mechanical injury or displacement during the operations

of removal from, or replacement upon, the supporting base 9.

In Fig. 3 I have shown a slightly modified construction, in which the box body 18 is of somewhat greater height in order to afford more room above the base 9 for the reception of the fiber cake. In this construction the wall of the box is beaded at 19 at approximately the level of the top of the base 9, and both the lining 20 and the bead 19 are perforated at 21 and 22 to permit the escape of the chemicals from the box. In this construction the hole in the top of the box is provided with a bushing 23, such as referred to in my co-pending application, Serial No. 320,019, filed August 26, 1919. This is supported on the inwardly projecting flange 24 of the ferrule 25, which passes through the opening in the top of the box and is externally threaded to receive the clamping nut 26. The inwardly projecting flange 27 on the latter overlies the top of the bushing 24, thus securely holding the latter in place when the nut is screwed down upon the bushing 25. A shoulder 28 beneath the head of the nut affords means for lifting the box from the base 9 when it is desired to remove the spun fiber cake. An annular foot piece 29 on the bushing 25 engages the beveled central opening 30 in the top lining plate 31, and serves to hold the latter firmly in position.

Various modifications of construction will readily occur to those skilled in the art, without departing from what I claim as my invention.

I claim—

1. A spinning box for use in the manufacture of artificial silk, comprising a metallic box body of truncated cone shape, substantially closed at one end, a lining plate for said closed end, and an independent lining for the side wall of the box.

2. A spinning box for use in the manufacture of artificial silk, comprising a metallic box body of truncated cone shape, substantially closed at one end, a lining plate for said closed end, and an independent lining for the side wall of the box, said end and side linings making joint at the periphery of the end lining plate.

3. A spinning box for use in the manufacture of artificial silk, comprising a sheet metal box body of truncated cone shape, substantially closed at its end of less diameter, in combination with a discoloration preventing lining for the end and side wall of said box.

4. A spinning box for use in the manufacture of artificial silk, comprising a sheet metal box body, a lining for the side wall thereof, and a bottom flange on said wall pressed against the edge of said lining to hold the same in position.

5. A spinning box for use in the manufacture of artificial silk, comprising a sheet metal box body, a lining for the side wall thereof, and a bottom flange on said wall pressed against the edge of said lining to hold the same in position, together with a lining plate for the top of the box engaged under pressure by said side lining.

6. A spinning box for use in the manufacture of artificial silk, comprising a metallic box body of truncated cone shape, and a side lining therefor formed from flat material developed to fit the conical body of the box.

7. In a spinning box for use in the manufacture of artificial silk, a box top centrally apertured to receive a spinning nozzle, a bushing passing through said aperture from one face of the box top, a clamping nut engaged on said bushing from the opposite face of the box top, and a bearing bush confined between said nut and bushing.

8. In a spinning box for use in the manufacture of artificial silk, a box top centrally apertured to receive a spinning nozzle, a bushing passing through said aperture, a clamping nut on said bushing, and a bearing bush confined between said nut and bushing, together with a top lining for said box, and a flange on said bushing engaging said lining to hold the same in place.

In testimony whereof I have signed my name to this specification.

JAMES CLAYTON.