J. CLAYTON.

SPINNING BOX FOR ARTIFICIAL SILK.

APPLICATION FILED APR. 8, 1918.

1,385,306. Patented July 19, 1921.

Fig. 1.

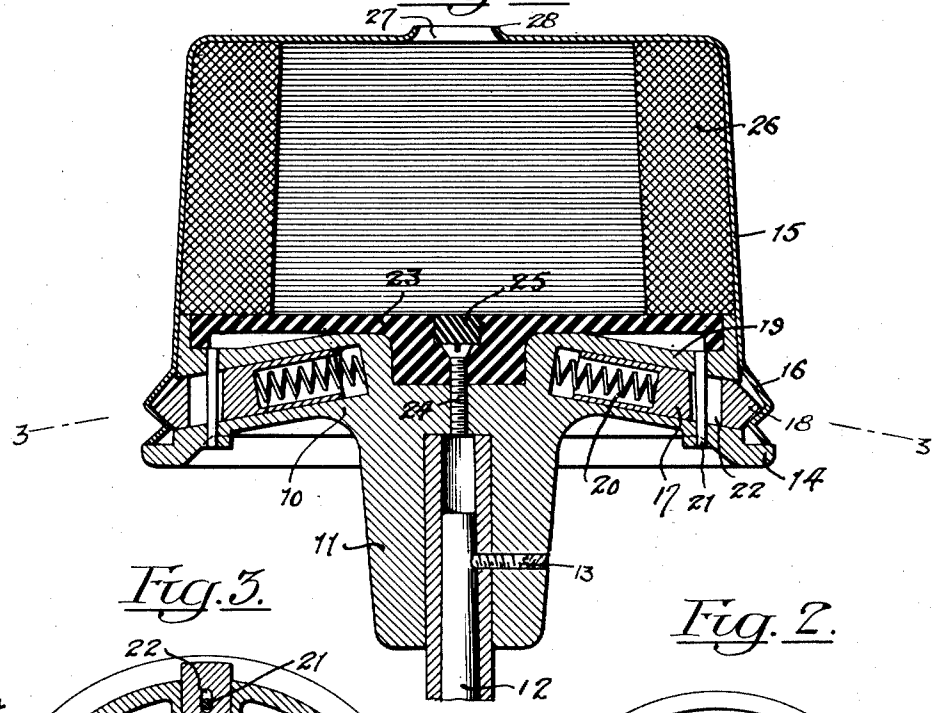


Fig. 3.

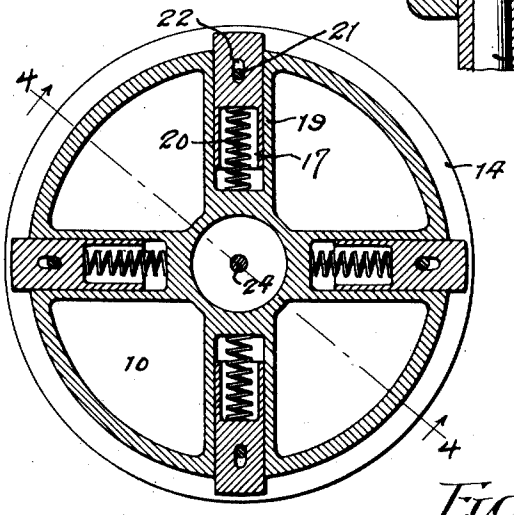


Fig. 2.

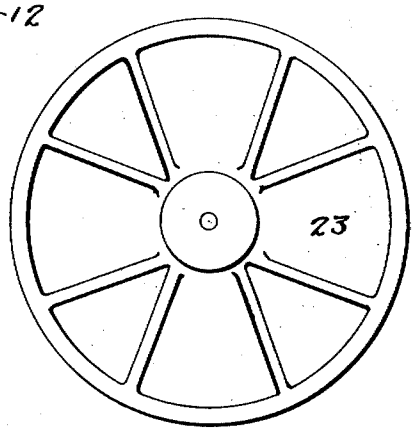
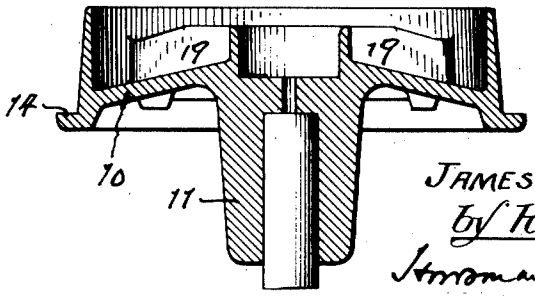


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SPINNING-BOX FOR ARTIFICIAL SILK.

1,385,306. Specification of Letters Patent. Patented July 19, 1921.

Application filed April 8, 1918. Serial No. 227,348.

To all whom it may concern:

Be it known that I, JAMES CLAYTON, a subject of the King of Great Britain, residing at 12 Middleborough road, Coventry, 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 use in the spinning of artificial silk, the object of my invention being to provide a box not only of lighter construction and greater capacity than heretofore within a given overall diameter, but also possessing certain features of novelty which greatly facilitate the removal of the coil of spun fiber from the box.

In the accompanying drawing,

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

Fig. 2 is an inverted plan of the bottom plate of the box;

Fig. 3 is a section on the line 3—3, Fig. 1 with the bottom plate removed;

Fig. 4 is a vertical section through the base of the box on the line 4—4, Fig. 3.

In my prior Patent 1,240,675, I have shown an apparatus for spinning artificial silk in which is disclosed the common type of spinning box heretofore employed by me. The box there shown comprises a relatively heavy structure, detachably supported upon a rotary spindle carrying a mushroom bushing for the box hub. After the fiber coil has been completed, the box is lifted from the spindle and the fiber coil or "cake" removed therefrom by turning the box upside down or otherwise manipulating the same to discharge the cake. In replacing a box of this type upon the spindle, the workman is very apt to shove it down sufficiently hard to displace the mushroom bushing on the spindle, and this disturbs the relationship between the spinning funnel and the box with the result that the quality of the fiber is impaired, since a precise relationship between the spinning box and spinning funnel must be maintained if the desired twist is to be imparted to the fiber. Moreover, there is considerable labor incident to the handling of a heavy box of this type, and the operation of lifting and carrying it requires considerable strength. Again, the removal of the fiber cake from the box not infrequently causes damage to the cake.

By the present construction I have provided a two-part box comprising a base, fixedly attached to the spindle, and a separable basket-like cover of light construction, which may be readily freed from the base, leaving the fiber cake exposed on the latter from which it may be readily removed. By my improved construction, the box is not only much lighter than heretofore, but its center of gravity is lower; and these facts, combined with the fixation of the base to the spindle, render it possible to drive the box at a considerably increased speed over that heretofore practised. Furthermore, the increased capacity of the box enables it to be operated for a longer period of time without interruption. This increased capacity is due to the construction of the basket-like cover, which, while of less overall diameter than heretofore, has an increased internal diameter. The easy removal of the fiber cake from the box dispenses with the labor of transporting the box and its contents, lessens the likelihood of damage to the box or injury to the fiber cake, while the mounting of the box base permanently on the spinning spindle not only avoids danger to the supporting mushrooms, bushes, springs, lids, etc., but insures the maintenance of the predetermined exact relationship between the spinning funnel and box which is essential to the production of a uniform, properly twisted fiber.

Referring to the drawing, the box here shown comprises a base 10 with hub 11 fitting the spinning spindle 12 and secured thereto in any suitable way, as by means of a set screw 13. The periphery of the base plate is slightly coned, and at its lower edge is provided with an offset flange 14, upon which the lower edge of the basket-like cover 15 rests in adjusted position. The cover is provided adjacent its lower margin with a V-shaped annulus 16, which not only stiffens the cover against injury, but affords means by which the cover may be retained in position on the base. The means here shown for this purpose comprises a series of locking pins 17 with beveled noses 18 which bear against the lower side of the V-shaped annulus 16 of the cover. The pins 17 work in housings 19

formed in the base, and are pressed outward by springs 20 confined within the housings. Stop pins 21 passing through slots 22 in the pins, prevent the escape of the latter from the base. The springs 20 serve merely to insure the initial engagement of the pins 17 with the annulus 16 in the cover. The pressure exerted by centrifugal force during the rotation of the box exceeds the pressure of the springs 20 and assures the firm engagement of the cover on the base. The downward pressure of the beveled noses 18 of the pins 17 forces the cover down with a wedging action on flange 14.

In order to protect the base as much as possible from the action of the acids entrained by the fiber entering the box, I provide the base with a cover plate 23 of acid-proof material such as rubber, and conforming to the contour of the base incident to the formation of the housings 17. This plate 23 is secured to the base by a countersunk screw 24 overlain by a plug 25 of rubber.

The box cover 15 is preferably conical, as indicated, in order the more freely to leave the fiber cake 26 when the cover is lifted, so that the cake remains upon the base 10 and may be readily lifted therefrom by hand and placed upon a conveyer or other suitable temporary rest. The top of the cover 15 is apertured at 27 to admit the spinning funnel, and preferably a collar 28 is formed to provide a rest for an opening tool of the type shown in my application of even date herewith, Serial No. 227,349.

While the present box is primarily designed for use on a spinning spindle which may be lifted to accessible position for the removal of the fiber cake, as shown in my second application of even date herewith, Serial No. 227,350, it may be utilized in any suitable spinning apparatus. In the construction illustrated I have shown the base 10 as a cast metal structure and the cover 15 formed of any suitable acid-resisting sheet metal, such as Monel metal or the like, which may be shaped in suitable forming apparatus. The latching means for the cover may be of any desired sort, and I do not limit my invention to the centrifugal pins illustrated. Various modifications in details of construction will readily occur to those skilled in the art which do not depart from what I claim as my invention.

I claim:—

1. A spinning box of the class described comprising a relatively heavy base adapted to be mounted in fixed position on a spinning spindle, and an independent relatively light basket-like cover adapted to rest on said base and form therewith a spinning chamber, and outwardly displaceable means carried by and permanently affixed to the base for detachably securing said cover to the base during the spinning operation.

2. A spinning box of the class described comprising a base adapted to be mounted in fixed position on a spinning spindle, an independent basket-like cover adapted to rest on said base and form therewith a spinning chamber, and centrifugally operated means housed in said base for detachably securing said cover to the base during the spinning operation.

3. A spinning box of the class described comprising a base adapted to be mounted in fixed position on a spinning spindle, an independent basket-like cover adapted to rest on said base and form therewith a spinning chamber, and centrifugal means carried by the base and having a downward as well as an outward motion under centrifugal force and engaging the cover with a wedging action to hold the cover securely down upon the base during the spinning operation.

4. A spinning box of the character described comprising a base adapted to be mounted in fixed position on a spinning spindle, an independent basket-like cover adapted to rest on said base and form therewith a spinning chamber, and means for detachably securing said cover to the base during the spinning operation, together with a marginal flange on the base and a cover plate of acid-proof material completely overlying the base within the area comprehended by said flange and forming the bottom of the spinning chamber.

5. A spinning box of the class described, comprising a base having a side wall and peripheral flange, a basket-like cover fitting over said base and resting on said base flange, together with centrifugally operated means bearing against said cover and having a downward and outward movement to engage said cover and force the latter downward firmly on said base flange.

6. A spinning box of the class described, comprising a base having a side wall and peripheral flange, a basket-like cover fitting over said base and resting on said base flange, said cover having an annular channel on its inner face within the base-engaging area thereof, together with centrifugally operated means engaging said channel in the cover and having a downward and outward engaging movement to force said cover downward firmly on said base flange.

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

JAMES CLAYTON.