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FLOATING RING SPINNING

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FIG. 1.

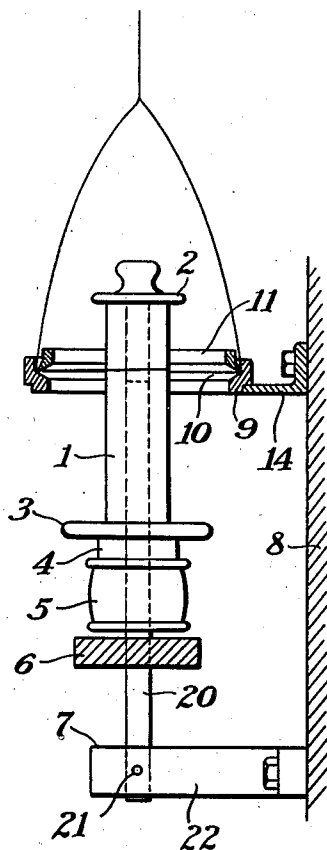


FIG. 2.

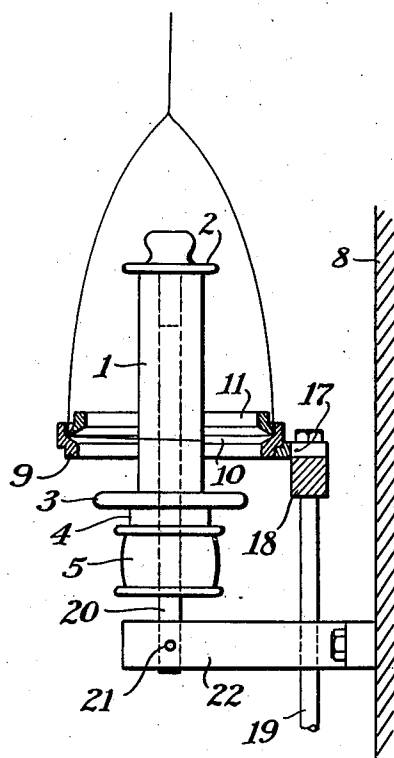


FIG. 3.

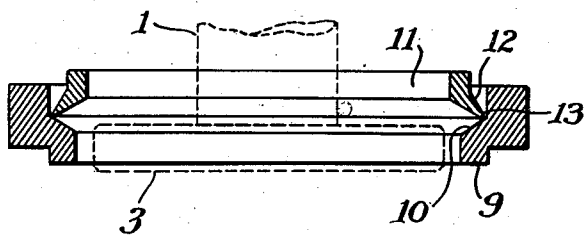
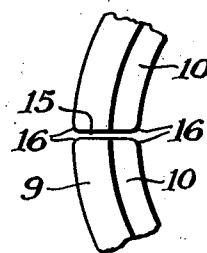


FIG. 4.



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FLOATING RING SPINNING

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3 Claims. (Cl. 118-60)

This invention relates to an improvement in the art of spinning artificial silk. One object of my invention is to provide a spinning mechanism which can be used as a substitute for known types of cap spinning and ring and traveler spinning machines. Another object of my invention is to provide a simple type of spinning device which can be used in spinning artificial silk directly from the spinning cabinets. Another object of my invention is to provide a spinning device in which doffing can be readily accomplished. Another object of my invention is to provide a simple type of spinning mechanism which can be readily made and assembled and which is adapted for use in the various spinning operations necessary with artificial silk, and other objects will appear from the following specification, the novel features being particularly pointed out at the end thereof.

In known types of spinning, such as cap spinning and ring and traveler spinning each type has certain advantages and disadvantages. Cap spinning is generally used for spinning yarn coming directly from a spinning cabinet because it permits rapid doffing. Caps for cap spinning are heavy, expensive and have other disadvantages which my present invention is designed to overcome by making a lighter weight and less expensive device which can also be readily doffed. While primarily intended for spinning machines my invention may if desired be applied to other types of machines, as for instance twisting machines.

Coming now to the drawing, wherein like reference characters denote like parts:

Figure 1 is a part side elevation and part section of a floating ring type of spinning device constructed in accordance with and embodying a preferred form of my invention.

Figure 2 is a view similar to Figure 1 but of a slightly modified form of device.

Figure 3 is an enlarged sectional view through a ring and ring support such as are shown in the preceding figures.

Figure 4 is a fragmentary plan view showing a portion of the ring support or seat.

My improved form of spinning device can be briefly described as a ring which may rest in a seat in a support when not in use and which, when in use, floats in the sea. That is to say, the yarn passes around a smooth periphery on the ring, and the rapidly rotating bobbin causes the yarn to exert a force upon the ring so that it will rise from its seat a short distance and be

more or less suspended by the yarn as the yarn is wound upon the bobbin.

More specifically, in the embodiment of my invention shown in Figure 1, a bobbin 1 having the usual flanges 2 and 3 is mounted on a base 4 having a driving contact with a whorl 5 which may be driven in the usual manner. The whorl 5 and the bobbin 1 may be vertically moved by the traverse rail 6 as is customary in such machines, this traverse rail being mounted above the stationary 10 rail 7 which may be attached to the machine frame partially shown at 8. As thus far described, the construction is well known in the spinning art.

Also attached to the machine frame 8 is a ring 15 support 9 having a flange bevelled inwardly at 10, forming a seat for a ring 11. As best shown in Figure 3, the ring 11 is provided with an outwardly projecting flange 12, terminating in a smooth, rounded yarn engaging periphery 13.

The support 9 may be carried by a bracket 14 supported by the machine frame 8, and the support 9 as best shown in Figure 4 may be provided with a slot 15 preferably extending radially through the supporting member and preferably having smooth edges rounded at the corners 16 so as not to damage yarn passing through the slot.

In the form shown in Figure 1 the support 9 is fixed relative to the bobbin 1 which, as above explained, is adapted to move vertically up and down through the support and through the ring 11.

If desired, as a modification of this form of my invention as shown in Figure 2, the ring 9 may be carried by bracket 17 supported by a bar 18 which can be moved up and down by a rod 19 which moves the traverse rail 18. In this case the bobbin 1 and whorl 5 are together in such a manner that their only motions with respect to the support 9 are rotational and as a vertical traverse. The shaft 20 may be fixed as by a pin 21 to a stationary rail 22 attached to the machine frame 8.

Thus it will be seen that it is only necessary to have the bobbin 1 and the ring 11 move relative to each other, and it is immaterial which one of the two members is the part which is moved.

The ring 11, as can be seen from Figure 3, is a simple part which can readily be turned up on a lathe. It is preferably made of steel, smoothly finished or polished, so that it will not mar or damage the delicate strands of yarn passing beneath the ring.

An important feature of my invention is the speed with which a bobbin may be doffed. If the artificial silk is coming directly from the spinning cabinets, it is necessary to attach the thread to a rapidly rotating bobbin. Moreover, since the yarn is coming from the cabinet at a uniform rate of speed, it is necessary to attach the yarn moving at this speed to a bobbin moving at a speed somewhat higher than the speed of the yarn. Doffing is accomplished by drawing out a loop of yarn, passing it through the slot 15 in the support 9, and thus passing it beneath the ring 11 and throwing the thread upon the rotating bobbin by a movement of the hand. This threading operation, insofar as throwing the yarn upon the bobbin goes, is similar to the ordinary doffing with the cap type spinning machines. However, it differs from threading a cap type spinning machine in that the yarn in my improved form of device is passed through the threading slot 15 before throwing upon the reel. Thus, in a spinning machine constructed in accordance with my invention, the doffing operation is quite as simple and easy as in the case of cap spinning but, because a light ring is used for ballooning the thread onto the bobbin, the structure does not have the mechanical disadvantages of cap spinning. Moreover, since doffing can be readily accomplished, my improved floating ring type of spinning device has the advantages of the known traveler type of spinning device.

While I have shown and described preferred embodiments of my invention, various changes can readily be made without departing from the scope thereof, and I consider as within the scope of my invention all such forms as may come within the scope of the appended claims.

What I claim is:

1. In a machine for twisting artificial silk yarn

to be used with a rotating bobbin, the combination with a support including an annular seat having a slot extending through the support, of a ring loosely mounted in the seat and adapted to be held axially of the support therein when in a position of rest, said ring being adapted to float axially in said seat when yarn is ballooning around the ring as it is being wound on the bobbin, and means included in the seat for preventing movement other than axial during the floating movement of the ring.

2. In a machine for twisting artificial silk yarn to be used with a rotating bobbin, the combination with a support including an annular seat having a slot extending through the support, said seat comprising a cylindrical wall and a beveled wall, of a ring loosely mounted in the seat and of a size and shape to be held axially of the seat by the beveled wall when in a position of rest in the seat, the cylindrical wall of the seat being adapted to prevent movement eccentric to the seat axis when said ring is floating in the seat as yarn balloons around the ring in being wound upon the bobbin.

3. In a machine for twisting artificial silk yarn to be used with a rotating bobbin, the combination with a support including an annular seat having a slot extending through the support, said seat comprising a cylindrical wall and a beveled wall, of a ring loosely mounted in the seat, said ring including a beveled wall and a cylindrical wall, the diameter of the beveled wall being such that the ring may be axially positioned by the beveled wall of the seat and may be axially guided by the cylindrical wall of the seat as the ring floats in the seat when yarn is ballooning around the ring.

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