Oct. 28, 1941. O. POETZSCH 2,260,755

BOBBIN FOR THE WET TREATMENT OF ARTIFICIAL SILK SPINNING CAKE

Filed Oct. 9, 1937

FIG. 1.

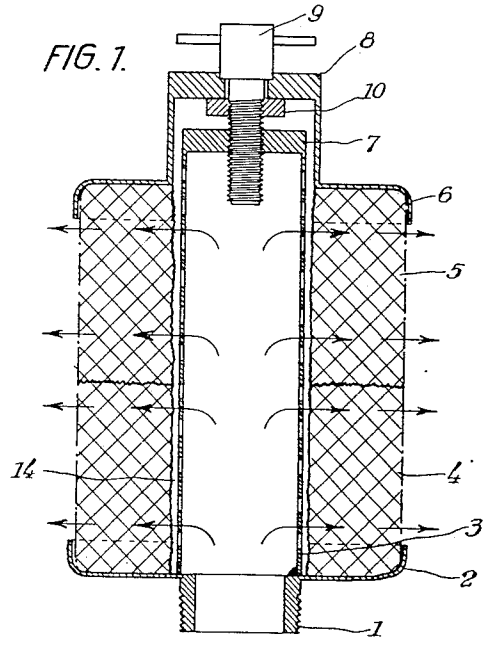
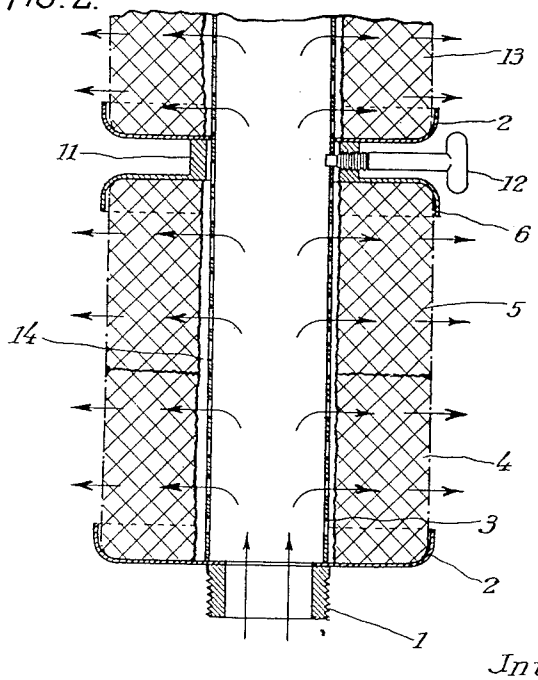


FIG. 2.



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Patented Oct. 28, 1941 2,260,755

UNITED STATES PATENT OFFICE

2,260,755

BOBBIN FOR THE WET TREATMENT OF ARTIFICIAL SILK SPINNING CAKE

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Application October 9, 1937, Serial No. 168,168
In Germany July 19, 1937

2 Claims. (Cl. 68—198)

This invention relates to a bobbin for the wet-treatment of artificial silk spinning cake.

The dyeing of artificial silk spinning cake in an apparatus in which the goods are tightly packed and the dye-bath is circulated through the material could not be performed but in a few exceptional cases in which some especially easily applicable dyes were used. It was, however, not possible to dye the artificial silk spinning cake on the bobbin by this method by means of a strongly alkaline dye-bath. The alkaline dye-bath causes a contraction of the spinning cake which is then displaced generally on the one side of the bobbin. Consequently, it is dyed thoroughly on one side, while its opposite side remains undyed or shows a greatly different shade, so that a useful dyeing cannot be obtained.

This difficulty can be avoided by using my present invention. According to this invention the artificial silk spinning cake is bordered on the bobbin by a holding device preventing the threads from deviating and the spinning cake from being displaced. The holding device comprises plates which are fixed on a skewer and form a cavity which is enclosed on top and at the bottom by said plates and on the side by the spinning cake. This cavity I denote in my present specification as a stowage space.

The invention will now be described by way of example with reference to the accompanying drawing in which

Figure 1 is a section through a device constructed in accordance with one embodiment of the invention holding two spinning cakes one upon another and

Figure 2 shows partly in section a construction according to a further embodiment of the invention in which more than 2 spinning cakes are arranged one upon another.

In the drawing like reference letters refer to like parts.

Referring to Figure 1 a foot piece 1 is provided with a thread and may be screwed into a plate not shown in the drawing. The dished plate 2 and the perforated tube 3 are fastened on said foot piece and the spinning cakes 4 and 5 are placed on said perforated tube. The dished plate 6 and the cover 8 seal the upper frontal side of the spinning cake 5 and the threaded disc 7 seals the tube 3. The spindle 9 and the adjusting ring 10 secure the desired position of the cover 8.

For the wet-treatment of more than two spinning cakes on one bobbin the device shown in Figure 2 may be used. The spinning cakes are arranged on the perforated tube 3. Between two pairs of the spinning cakes intermediate pieces are arranged, said intermediate pieces consisting of two dished plates 6 and 2 and the intermediate ring 11. The winged screw 12 serves for fixing the desired position of said intermediate piece.

In dyeing the artificial silk spinning cake the dye-bath flows through the foot piece 1 and the tube 3 and enters through the perforations of the tube the space 14. The plates 2 and 6 and the inner surfaces of the spinning cakes form a closed space and the artificial silk is subjected under a uniform pressure to the action of the dye-bath in the space 14. Consequently, a uniform penetration of the material to be dyed is attained. If the stream of the dye-bath is reversed, the space 14 disappears because the spinning cakes now lie uniformly close to the perforated tube 3 on account of their previous uniform compression. There are no forces which could cause a non-uniform position of the spinning cakes.

In the devices previously used the pressure of the dye-bath entering the spinning cake from its inner side always caused a displacement of the threads, a formation of holes in the spinning cake and, therefore, a non-uniform penetration and dyeing of the material treated. According to my invention the liquid in the stowage space 14 effects a uniform strain on the threads. The flow of the dye-bath along the plates 2 and 6 is prevented because the material to be treated is impacted between the plates 2 and 6 and pressed against these plates thus preventing the liquid from flowing along said plates.

I have found that the optimum height of the space 14, necessary for obtaining the best results in uniform dyeing, depends upon the composition of the dye-bath on one hand, and upon the swelling capacity, number and density of the threads to be treated on the other hand. This height, which I refer to in my present specification and claims as an "optimum height," may be determined by experiments. Its control may be secured with the device shown in Figure 1 by means of a spindle 9 and an adjusting ring 10. The use of several spinning cakes according to Figure 2 requires an especially strict control of the necessary distance between the plates 2 and 6 in order to avoid a non-uniform compression of the threads to be treated. The strict control of this height may be secured by means

of the intermediate pieces 11 fastened by the winged screws 12.

The device described may also be used for dyeing and the wet-treatment of cross wound bobbins of artificial silk.

What I claim is:

1. In a device for dyeing a plurality of artificial silk spinning cakes, a central perforated tube, a disk sealing the upper end of said perforated tube, a lowermost stationary dished plate fastened on the lower end of said perforated tube, a cover, an uppermost dished plate fixed on said cover, two intermediary dished plates, one of said two intermediary plates and said lowermost plate being adapted to support and compress the lower spinning cake to prevent lateral displacement thereof and to maintain the cake radially spaced from said perforated tube, the other one of said two intermediary plates and said uppermost plate being adapted to support and compress the upper spinning cake to prevent lateral displacement thereof and to maintain the cake radially spaced from said perforated tube, means connecting said cover with said disk and adapted to press said cover against said disk, and further means to secure said two intermediate plates in any axial position to said perforated tube.

2. In a device for dyeing at least two artificial silk spinning cakes, the combination of a foot piece, a central perforated tube fastened on said foot piece, a threaded disk sealing the upper end of said perforated tube, a lower stationary dished plate fastened on said foot piece, a cover, an uppermost dished plate fixed to said cover, said uppermost plate being adjustable in regard to said threaded disk by a screw turnable in said cover, intermediary members comprising two dished plates, one of said two dished plates and said lower stationary plate being adapted to support the lower spinning cake radially spaced from said perforated tube and to prevent lateral displacement of the cake, the other one of said two dished plates and said uppermost plate being adapted to support the upper spinning cake radially spaced from said perforated tube and to prevent lateral displacement of the cake, whereby a free cylindrical space is provided between said perforated tube and the cakes, said intermediary members being axially adjustable by a screw fastening said members to said perforated tube.

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