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1,652,992

H. KRANTZ

QUICK TRAVERSE BOBBIN FOR DYEING, WASHING, AND LIKE TREATMENT

Filed March 30, 1926

Fig. I

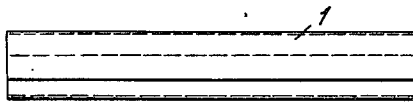


Fig. I^a



Fig. II

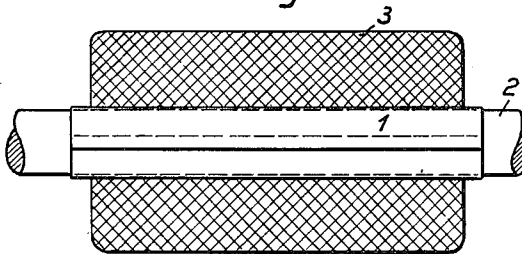


Fig. II^a

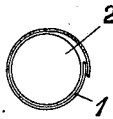


Fig. III

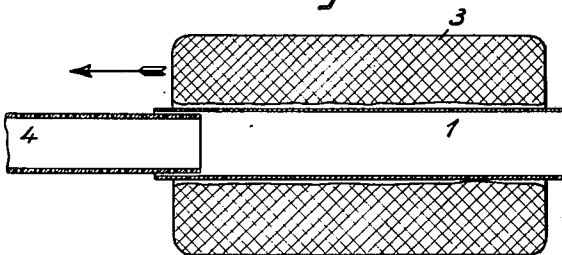


Fig. III^a

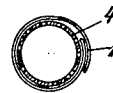


Fig. IV

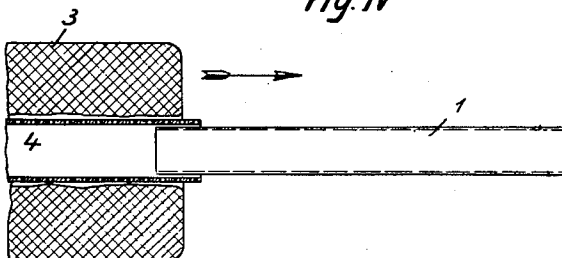
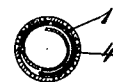


Fig. IV^a



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UNITED STATES PATENT OFFICE.

HUBERT KRANTZ, OF AACHEN, GERMANY.

QUICK-TRAVERSE BOBBIN FOR DYEING, WASHING, AND LIKE TREATMENT.

Application filed March 30, 1926, Serial No. 99,530, and in Germany June 3, 1924.

The dyeing, washing, et cetera of the yarn bobbins, known on the market as quick-traverse bobbins, is rendered difficult by the paper or pasteboard tubes on which the yarn is wound. In the dyeing of such bobbins it has therefore been tried to remove the tubes from the bobbins manually or mechanically and to replace them by tubes of another material or of a small diameter or by elastic tubes. The paper tubes have, for instance, been replaced by sheet metal tubes because the latter are more appropriate for the dyeing process. The paper tubes on which the yarn was wound, have also been replaced by tubes of a smaller diameter for the purpose of loosening-up the inner layers of yarn of the bobbin so as to allow the liquor to easily penetrate through the inner portion of the bobbin. Finally, the ordinary tubes have been replaced by elastic tubes in order to facilitate the compression of the quick-traverse bobbins when being dyed in bundles and to avoid the disadvantageous spaces between the bobbins during such dyeing.

In all of these tests it has been made out that the removing of the tubes is not feasible with quick-traverse bobbins because of the long surface of contact and the small diameter of the tubes, the ordinary tubes having for instance a length of 145 millimeters and a diameter of 14 millimeters. In removing such tubes from the bobbins the inner yarn layers are deranged so that the re-insertion of the tubes after the dyeing is rendered impossible. With the view of overcoming this drawback it has been proposed to fix the yarn before the removal and re-insertion of the tubes by completely drying the yarn through the application of heat. However, this operation takes considerable time and is not at all a safe means for preventing the derangement of the inner yarn layers on withdrawing and re-inserting the tubes. It has further been tried to wind the yarn from the beginning on special tubes consisting of steel wire wound so as to form a cylinder. These special tubes have the disadvantage that they are very expensive and must remain in the yarn during the dyeing.

Now, the invention has for its object to provide a new method of preparing quick-traverse bobbins for the dyeing, washing, et cetera of the bobbins without tubes on cylindrical dye spindles in a circulating liquor, the method consisting in winding the

yarn on a resilient tube of variable diameter when the tube is in a circumferentially expanded condition, slipping the yarn bobbin from the tube on a dye spindle of smaller diameter when the tube is in its normal condition and re-inserting the tube into the tubeless bobbin after the dyeing when the tube is in a circumferentially contracted condition. The slipping of the quick-traverse bobbin on and off the resilient tube is effected without any danger of injuring the yarn. As the tubes do not remain in the bobbin during the dyeing or like operation, they may be made of paper or pasteboard rolled or glued together.

In order to allow of the invention to be more readily understood it will now be described with reference to the accompanying drawing in which:

Fig. I is a side view of the resilient bobbin tube in its normal condition;

Fig. I^a is an end view of the tube according to Fig. I;

Fig. II is a side view of the tube in its expanded condition seated on a winding-frame spindle and carrying a quick-traverse bobbin;

Fig. II^a is an end view of the tube and spindle according to Fig. II;

Fig. III is a view similar to Fig. II illustrating the slipping of the bobbin from the tube onto a hollow cylindrical dye spindle, the tube being in its normal condition;

Fig. III^a is an end view of the tube and dye spindle according to Fig. III;

Fig. IV is a fragmentary view illustrating the reinsertion of the tube in its contracted condition into the bobbin after the dyeing or like treatment; and

Fig. IV^a is an end view of the tube and dye spindle in the position according to Fig. IV.

The tube 1 consists of a strip of paper, pasteboard or sheet metal rolled into a cylinder with overlapping edges. The tube is made resilient so that it may be expanded and contracted circumferentially without any auxiliary means. When not in use the tube 1 assumes its normal condition which is shown in Figs. I and I^a.

In carrying out the present method, the tube 1 is first circumferentially expanded and mounted on a winding-frame spindle 2 which has a diameter larger than that of the tube in its normal condition. In case the diameter of the existing winding-frame

spindles should be too small, a lining for widening the tube may be used. After the tube has been properly seated on the spindle 2, as shown in Figs. II and II^a, the yarn 5 is wound on it so as to form the quick-traverse bobbin 3. The tube 1 together with the bobbin 3 is then drawn off the spindle 2, whereupon the tube 1 relapses into its normal condition separating to a certain extent from 10 the yarn bobbin 3, so that the latter may be readily slipped from the tube onto the cylindrical dye spindle 4 without injuring the inner yarn windings. Figs. III and III^a show this operation of slipping the bobbin 15 during which the dye spindle 4 is inserted by a short piece into one end of the tube 1 which is in its normal condition. In order to facilitate this slipping operation the dye spindle 4 may be provided with a detachable 20 centering pin.

After the bobbin has been dyed, the tube 1 is contracted as shown in Figs. IV and IV^a and slightly inserted into one end of the dye spindle 4, whereupon the dyed bobbin which 25 is only loosely mounted on the spindle 4, may be readily slipped from the latter on the contracted tube which has only a small diameter. When the tube 1 with the bobbin 3 on it is

withdrawn from the spindle 4, it will snap into its normal condition and bear against 30 the yarn, so that the dyed bobbin may be subjected on the tube to the ordinary further treatments.

Having thus described my invention, what I claim as new and desire to secure by 35 Letters-Patent, is:—

A tube for preparing quick-traverse bobbins for dyeing, washing, and similar treatment, comprising a resilient tube-like element divided longitudinally with its divided 40 edges overlapping in all extended and contracted relations of the tube, whereby the tube may be expanded to fit over the winding frame spindle to receive the bobbin, partially 45 contracted to separate from the bobbin while at the same time carrying the bobbin onto the dye spindle and further contracted to fit within the dye spindle to permit the bobbin to be moved again onto the tube, the resilient tube in all positions of contraction 50 and expansion maintaining its divided edges lapped to facilitate such expansion and contraction without interference of such edges.

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

Dr. HUBERT KRANTZ.