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APPARATUS FOR GUIDING FILAMENTS ONTO BOBBINS

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Fig. 1.

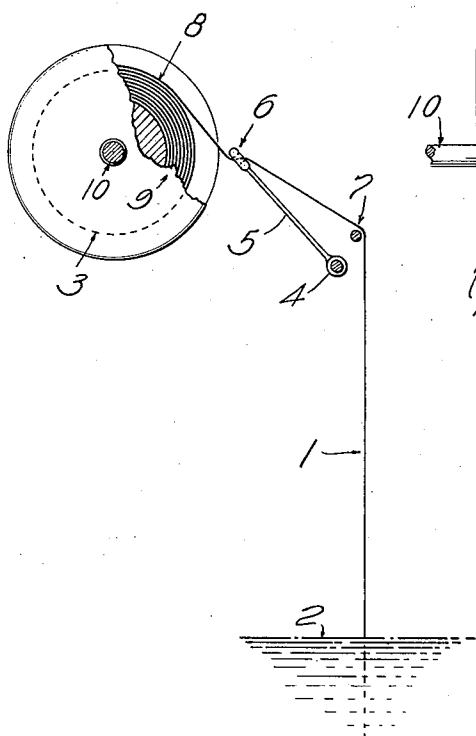


Fig. 2.

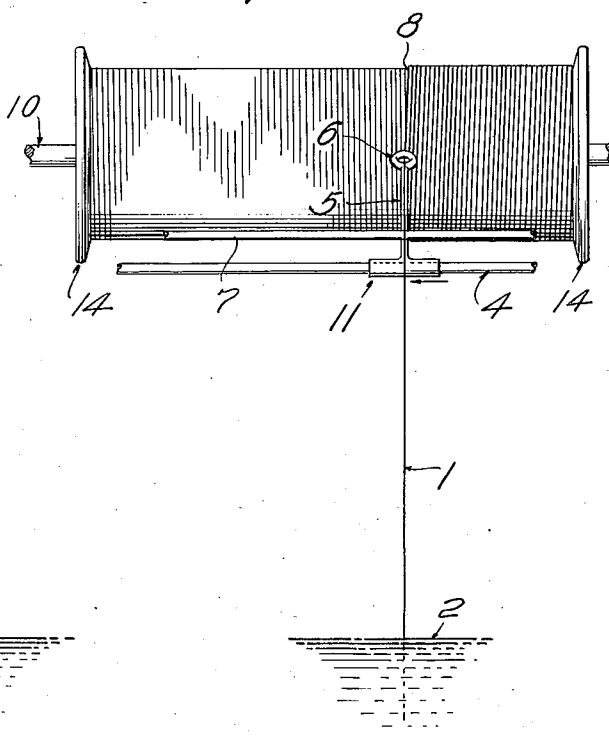


Fig. 3.

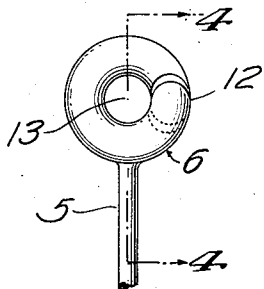
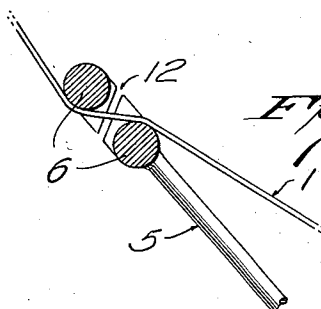


Fig. 4.



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APPARATUS FOR GUIDING FILAMENTS
ONTO BOBBINS

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In Germany December 21, 1931

1 Claim. (Cl. 18—8)

This invention relates to apparatus for guiding threads or filaments of artificial silk and other textile fibers while running onto bobbins and is directed to certain improvements in such apparatus.

In apparatus of this character it has been customary to provide a means for holding a bobbin and a guide to hold the thread while it is being wound on the bobbin. Usually the structure has been rigid causing certain disadvantages. The guide was at varying distances from the wound thread which, particularly in the case of artificial silk, may cause flattening and distortion of the thread and interference with the winding thereof on the bobbin. The tension of the prior art devices was constant so that breaks often occurred in the filaments comprising the thread.

The present invention is adapted to obviate the difficulties of prior devices and it resides in the use of a guide which is mounted for free oscillation and which is held in proper operative position by the tension of the thread. The tension is usually obtained by the resistance of the spinning bath in the case of artificial silk, and the thread being in frictional contact with the guide counteracts the weight thereof and holds it a short distance from the outermost layer of the thread. There is thus substantially no tendency of the thread to flatten out.

The device according to the invention has the advantage over the usual thread guides that e. g. an untwisted thread of artificial silk consisting of many capillary filaments preserves its circular cross section in running onto the bobbin, on account of the very short distance between the thread guide and the outermost layer of threads on the bobbin, while with the thread guides as used hitherto said circular cross section is changed into a rectangular one and the round thread into a small band. Thereby the threads obtain a different length at the end of each layer of threads on account of the change of direction of the thread windings which then takes place. This difference in length may cause the formation of eyes in twisting which are the reason for damages to the rayon which become evident only after the operations following the twisting process.

In the accompanying drawing constituting a part hereof, and in which like references indicate like parts,

Figure 1 is a side elevational view, some parts being shown in cross section,

Figure 2 a front view of an apparatus for winding a thread of artificial silk on a bobbin;

Figure 3 shows a plan view and

Figure 4 a cross section of a suitable thread guide.

According to Figures 1 and 2 the device for guiding the artificial silk thread 1 vertically upward from the spinning bath 2 to the bobbin 3 consists of a rod, bar or the like 4, arranged in parallel direction to the axis 10 of the bobbin 3 and reciprocating parallel to said axis 10, and of a swinging arm or guide 5 which is mounted for free oscillation on the rod 4 by means of any suitable connection, e. g. a sleeve 11 (Figure 2) in such a manner that it takes part in the reciprocating movement of the rod 4. The swinging arm 5 terminates in a narrow eye 6 serving as the actual thread guide and with which the thread 1 makes frictional contact. The opening 13 of this eye is turned toward and faces the bobbin 3.

As illustrated, the swinging arm 5 is inclined toward the bobbin 3. If the thread 1, the direction of which is changed by the draw roller 7 from the vertical to the upwardly inclined direction, did not possess any tension, the eye 6 would be in contact with the bobbin or the bobbin lap on account of the weight of the swinging arm 5. But due to the thread tension the eye is kept at a short distance from the outermost layer 8 of threads on the bobbin. Thus, it can not slide or rub on the threads already wound. The distance between the eye 6 and the outermost layer 8 of threads depends on the thread tension, the weight of the swinging arm 6 and the angle of running onto the bobbin or the angle of deviation. It is so short and the thread guide 6—the eye—is of such shape that the thread will not be wound on the bobbin in the form of a small band of rectangular cross section but will preserve its circular shape, in contrast to the thread guides as used hitherto.

The Figures 3 and 4 illustrate in enlarged form the upper part of the swinging arm 5 terminating in the eye 6. 13 indicates the hole by which the thread 1 is guided to the bobbin and 12 an opening in the eye 6 through which the thread is introduced into the hole 13 and which is arranged in such a manner that slipping out of the thread 1 from the hole 13 is absolutely impossible.

Although I have described a single specific apparatus, my invention is not limited thereto as modifications may be made by those skilled in the art in accordance with the principles herein set forth. For example, the eye 6 need not have a split opening 12 but may be solid. A different type of guide may be substituted therefor. The guide 5 may be mounted in a different manner;

it being merely necessary to give it the free oscillation upon which this invention is based. Artificial threads or filaments are not necessary in this invention as, although it is particularly
5 adapted for the same, it is also applicable to other textile fibers. These and other changes may be made in my invention within the spirit and scope thereof.

What I claim as my invention is:—

- 10 A thread guide device for winding freshly spun artificial silk threads, comprising a thread guide

including an arm provided with an eye, said arm of the thread guide being attached to a traverse bar in a manner to permit free transverse oscillation of the guide with respect to the bar, said
5 guide being so light in weight that the tension in a freshly spun thread is sufficient to maintain the guide eye at a constant distance from a body of thread as it is increased in size by the collection of thread passing through said eye thereby to
10 avoid injury to the thread.

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