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J. C. CROWTHER

YARN MOISTENING DEVICE FOR KNITTING MACHINES

Filed Dec. 13, 1926

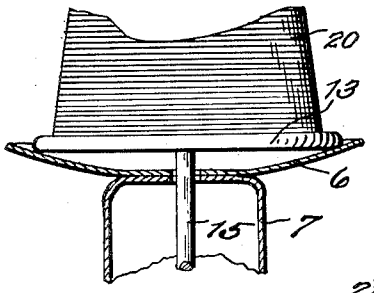


Fig. 2.

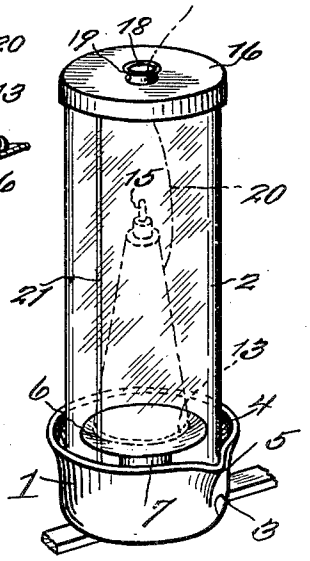


Fig. 1.

Fig. 5.

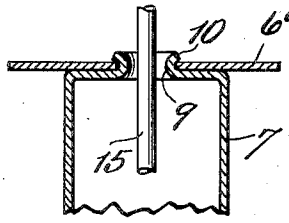


Fig. 4.

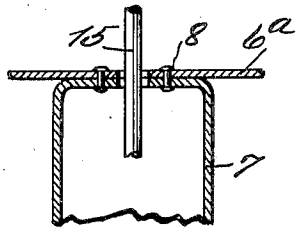
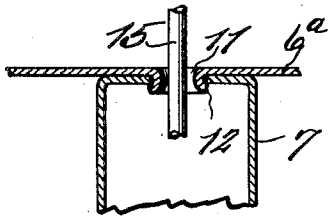


Fig. 6.



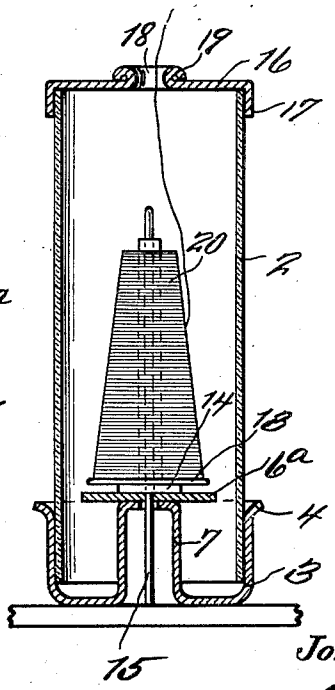


Fig. 3.

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UNITED STATES PATENT OFFICE.

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YARN-MOISTENING DEVICE FOR KNITTING MACHINES.

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The present invention is adapted for use in connection with knitting machines, and it relates to an improved moistener for maintaining the silk yarn in perfect knitting condition. By not keeping the yarn moist, it incessantly breaks, hence interrupting the knitting machine in its operations.

The moisteners now in use consist of a cup base, a glass cylinder, and a cap for the latter, and many of such cylinders in being transported to knitting factories, are received broken, which is a great loss to the factory, if not made good; and those which are received in good condition, due to their frangibility, readily break as a result of rough usage by those operating the knitting machines. Also it is necessary to dismantle the entire moistener now used, for the purpose of refilling the same with water or other moistening fluid, and it is, at the time of dismantling the now used moisteners, that they receive the most rough usage, especially when reassembling the moisteners. Furthermore such glass cylinders sweat or perspire which permits evaporation of the moistening fluid to more easily take place, hence necessitating replenishing the fluid quite frequently.

It is the purpose of this particular invention to overcome the above disadvantages, and in accomplishing this result it is the aim to provide a cylinder constructed of any suitable non-frangible composition material of a transparent character, preferably such as celluloid, zyl, zylonite, cellulose or the like, which is non-perspiring, thereby greatly relieving the evaporation of the moistening fluid, and also lessening the necessity of replenishing the cylinder with such fluid. By constructing the cylinder of non-frangible transparent material, breakage thereof is entirely avoided.

Another purpose is to provide a moistener with improved means, whereby the cylinder may be readily refilled without dismantling the entire moistener and thereby avoiding subjecting the moistener to rough usage and consequently rendering the device more durable.

Still another purpose is to provide means to facilitate the insertion of the nonfrangible cylinder into the cup base when assembling the moistener, and to so limit the cylinder in its insertion into such cup base as to afford a passage for the moistening fluid, to enable it to seek its level within the cylinder.

It is to be understood that the particulars herein given are in no way limitive and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the device according to circumstances.

The invention comprises further features and combinations of parts to be hereinafter set forth, shown in the drawing and claimed.

In the drawings:

Figure 1 is a view in perspective of the improved yarn moistener for knitting machines constructed in accordance with the invention.

Figure 2 is a sectional view through the moistener, more clearly showing the concavity of the disk 6.

Figure 3 is a sectional view of an entire moistener wherein the disk 6^a, is constructed flat, showing a felt washer between the base of the bobbin and the disk.

Figure 4 is a detail sectional view showing a modified structure of mounting a bobbin supporting disk on an upstanding support which rises from the bottom of the base cup.

Figure 5 is a detail sectional view through another modified structure for mounting the disk shown in Fig. 4.

Figure 6 is a detail sectional view of still another modified arrangement for mounting the disk shown in Figures 4, and 5.

Referring to the drawing, 1, identifies a base cup, which is supported on the frame of a knitting machine. This base cup constitutes an element of the yarn moistener, which also includes an open ended transparent cylinder to be constructed of any suitable non-frangible non-perspiring composition material. As disclosed in the drawing this cylinder 2, is inserted into the base cup, which may be constructed in any manner, preferably spun from one piece of metal without seams, thereby avoiding leakage.

The lower interior corner 3, of the cup base is arcuate in cross section, which acts to limit the cylinder 2, in its insertion into the cup base or base cup, which allows the moistening fluid such as water to seep through in order that it may seek a level a trifle below a flared margin 4, of the base cup.

This flared margin acts to guide the cylinder in its insertion into the base cup, when assembling the moistener.

At a suitable location on the base cup, the flared margin merges into a filling spout 5, enabling the moistener to be easily filled or refilled with moistening fluid without dismantling the moistener. Also the flared margin enables an operator or an attendant of the knitting machine to gauge the level of the moistening fluid within the cylinder. In practice it is the aim to gauge the level of the fluid a short distance below the under surface of a bobbin supporting disk 6.

Spun with the base cup and rising from the bottom of the latter, is a support 7, for the disk 6, the under surface of which is preferably flush with the edge of the flared margin 4, though not necessarily, as it is obvious that the upper face of the disk may be flush with the edge of such margin, or slightly below the edge.

In some instances the disk 6, may simply rest on the support 7, as shown in Figures 1, and 2, or may be riveted at 8, to the support 7, as shown in Figure 4.

It may be possible to mount the disk 6, on the support 7, by providing the support with a flanged opening 9, the flange 10, thereof being peened or swaged over on the disk 6 as shown in Figure 5.

Another modified structure of mounting the disk 6, is disclosed in Figure 6, and consists of providing the disk 6^a, with a flanged opening 11, the flange 12, of which passes through the upper wall of the support 7, and is peened over. In other words the structure in Figure 6, is simply a reversal to that in Figure 5.

As previously noted the disk supports a bobbin 13, on which silk yarn is wound, there being a suitable washer 14 as in Fig. 3, of any thickness and diameter. This washer is constructed of any suitable material, preferably felt or other absorbing material, and is adapted to gather the moisture from the moistening fluid, the moisture being in turn transmitted to the bobbin through capillary attraction and hence to the silk yarn.

A suitable spindle 15, may be carried by the frame of the knitting machine in a conventional manner, and this spindle passes through the support 7, and through the disk 6, and felt washer 14 as in Fig. 3, the bobbin 13, being telescopically mounted thereon.

A cap 16, provided with a flange 17, fits the upper open end of the cylinder 2, and is spun from a single piece of metal without seams. The cap has a central opening 18, the margin of which is peened over as shown at 19, the opening 18, acting as a guide for the strand of silk yarn 20, from the bobbin, as it feeds to the knitting machine not shown.

The cylinder 2, in its construction may have a single vertical seam 21, though not necessarily, as it is possible to make this cylinder seamless through the medium of any conventional method, for instance by an extruding process.

As a further purpose of this improved moistener, the structure thereof as described tends toward preventing the surface of the moistening fluid from seeking a substantial higher level than the supporting disk for the bobbin which carries the silk yarn. Also there is a slight vibration to the frame of the knitting machine, which acts to agitate the moistening fluid and thereby enabling the silk yarn to more readily gather the moisture.

In order to prevent the strand of silk yarn, as it leaves the bobbin, from wedging between the margin of the base of the bobbin and the disk, the latter is concaved, with the base of the bobbin at its margin resting on the surface of the concavity of the disk, with the marginal portion of the disk extending slightly upwardly and beyond the edge of the base of the bobbin, hence preventing the yarn from binding between the bobbin and the disk.

In Figure 3, the concaved disk is eliminated and in lieu thereof a flat disk 6^a, is employed with a felt washer between the disk and the base of the bobbin.

The invention having been set forth, what is claimed is:

1. A yarn moistener for a knitting machine, including a base cup and a cap, the base cup adapted to operatively support a bobbin of yarn and a transparent non-frangible cylinder supported between the base cup and the cap.

2. A yarn moistener for a knitting machine including a non-perspiring transparent cylinder, a base cup adapted to operatively support a bobbin of yarn and cap for the cylinder.

3. A yarn moistener for a knitting machine including a non-perspiring non-frangible transparent cylinder, a separable base cup adapted to operatively support a bobbin of yarn and a cap for the cylinder.

4. A yarn moistener for a knitting machine including a transparent cylinder, a base cup adapted to operatively support a bobbin of yarn and cap engaging with the opposite ends of the cylinder, said cup having a filling spout, whereby the cup may be filled without dismantling the structure of the yarn moistener.

5. A yarn moistener for a knitting machine including a cylinder for housing the yarn on a bobbin, a cap for the cylinder, and a base cup to operatively support a bobbin of yarn, and being separable from the lower end of the cylinder, said base cup provided with means to permit the cup to be filled with moistening fluid without dis-

mantling the moistener and removably lifting the cylinder

6. A yarn moistener for a knitting machine including a non-frangible transparent cylinder for housing the yarn on a bobbin, a cap for the cylinder, and a base cup provided with means to permit the cup to be filled with moistening fluid without dismantling the moistener.

7. A yarn moistener for knitting machines including a non-frangible transparent cylinder for housing the yarn on a bobbin, a cap for the cylinder, and a base cut provided with a filling spout to permit the cup to be filled with moistening fluid without dismantling the moistener.

8. A yarn moistener for knitting machines including a transparent cylinder for housing the yarn on a bobbin, a cap for the cylinder, and a base cup for the cylinder provided with a flared margin to permit the cylinder to be inserted readily into the base cup when assembling the moistener.

9. A yarn moistener for knitting machines including a transparent cylinder for housing the yarn on a bobbin, a cap for the cylinder, and a base cup for the cylinder and provided with a flared margin to permit the cylinder to be inserted readily in the base cup when assembling the moistener, said flared margin merging into a filling spout at a suitable location on the base cup to permit the cup to be filled without dismantling the moistener.

10. In a yarn moistener for knitting machines, the combination with a transparent open ended cylinder, of a cap for the cylinder, a base cup for the cylinder, means within the base cup interiorly of the cylinder for the support of a bobbin of yarn, said base cup provided with a flared margin to permit easy insertion of the cylinder into the base cup, said flared margin merging into a filling spout to permit the moistener to be supplied with moistening fluid without dismantling the moistener.

11. In a yarn moistener for knitting machines, the combination with a non-frangible transparent open ended cylinder, of a cap for one end of the cylinder, a base cup for the opposite lower end of the cylinder, means within the base cup interiorly of the cylinder for the support of a bobbin of yarn, said base cup provided with a flared margin to permit easy insertion of the cylinder into the base cup, said flared margin merging into a filling spout to permit the moistener to be supplied with moistening fluid without dismantling the moistener.

12. In a yarn moistener for knitting machines, the combination with a non-frangible non-perspiring transparent open ended cylinder, of a cap for one end of the cylinder, a base cup for the opposite lower end thereof, means within the base cup interiorly of the cylinder for the support of a bobbin of yarn, said base cup provided with a flared margin to permit easy insertion of the cylinder into the base cup, said flared margin merging into a filling spout to permit the moistener to be supplied with moistening fluid without dismantling the moistener.

13. In a yarn moistener for knitting machines, the combination with a transparent open ended cylinder, of a cap for one end of the cylinder, a base cup for the opposite lower end, means within the base cup interiorly of the cylinder for the support of a bobbin of yarn, said base cup provided with a flared margin to permit easy insertion of the cylinder into the base cup, said flared margin merging into a filling spout to permit the moistener to be supplied with moistening fluid without dismantling the moistener, said means comprising an upstanding support on the bottom of the base cup, a disk, and means for mounting the disk on the upstanding support.

14. A yarn moistener for knitting machines including a non-frangible transparent cylinder for housing the yarn on a bobbin, a cap for the cylinder, a base cup provided with a filling spout to permit the cup to be filled with moistening fluid without dismantling the moistener, and means to permit the moistening fluid to enter and elevate to the desired level within the cylinder.

15. A yarn moistener for knitting machines including a non-frangible transparent cylinder for housing the yarn on a bobbin, a cap for one end of the cylinder, a base cup for the opposite lower end thereof and provided with a filling spout to permit the cup to be filled with moistening fluid without dismantling the moistener, means to permit the moistening fluid to enter and elevate to the desired level within the cylinder, and means to avoid the level of the moistening fluid overrunning the base of the bobbin which supports the yarn.

16. A yarn moistener for knitting machines including a transparent cylinder for housing a bobbin of yarn, and a disk with a concavity in which the marginal edge of the base of the bobbin engages, the marginal portion of the disk extending annularly beyond the base of the bobbin.

17. A yarn moistener for knitting machines including a transparent open ended cylinder, a cap therefor, a base cup with a disk supported therein, the disk being concave, permitting only the marginal edge of the base of the bobbin to engage therewith, hence preventing the strand of yarn from binding between the bobbin and the disk.

In testimony whereof I affix my signature.

JOSEPH C. CROWTHER.