Oct. 18, 1932. E. J. BERGER 1,883,494

YARN MOISTENING DEVICE

Filed Sept. 21, 1929

FIG. I.

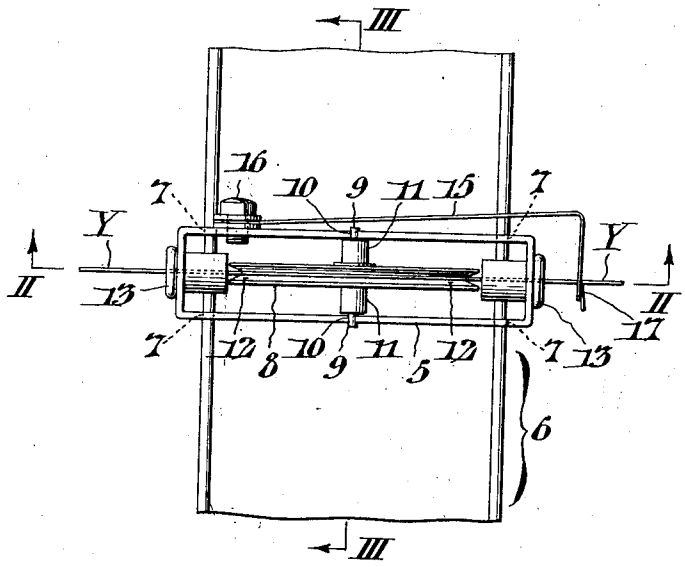


FIG. II.

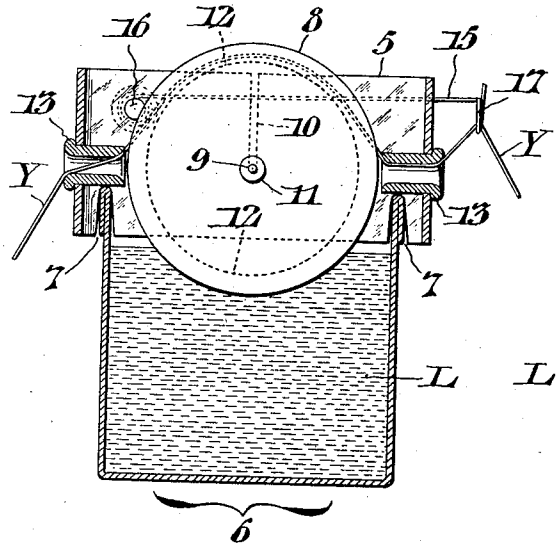
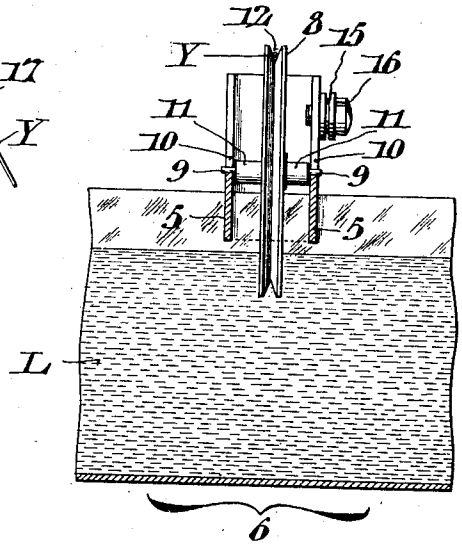


FIG. III.



WITNESSES

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UNITED STATES PATENT OFFICE

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YARN MOISTENING DEVICE

Application filed September 21, 1929. Serial No. 394,183.

This invention relates to yarn moistening devices useful with textile machinery, particularly with flat full fashioned hosiery machines and the like.

To facilitate working of the yarn by the loop forming instrumentalities of hosiery or other knitting machines, it is necessary that they be properly conditioned, i. e. rendered pliable through application of moisture. This was ordinarily accomplished heretofore by passing the yarns between opposing felt pads soaked with water or other moistening fluid. Under the indicated method, it was difficult to predetermine uniform moistening of the yarns or to maintain an even tension on them with attendant defects in the knitting from these causes. Moreover, irregularities like small knots or burrs would not readily pass through the pads and would thereby either strain or cause rupture of the yarns with resultant "press offs" in the machines.

My invention is directed toward overcoming the several drawbacks of previous practice above pointed out, through provision of a simple and inexpensive device whereby, incident to continuous passage of the yarn through it, just the requisite amount of moisture is applied and a predetermined uniform tension induced and maintained regardless of irregularities in the yarn.

In connection with moistening devices of the kind particularly referred to I moreover aim to facilitate their ready and quick attachment to and detachment from moisture troughs with which they are to be associated, as well as to render disassembling of their component parts very easy for purposes of cleaning and inspection.

Still other objects and attendant advantages of this invention will be manifest from the following detailed description of the attached drawing, wherein Fig. I is a plan view of my improved moistening device showing the same in association with the trough containing liquid which is to be applied to the yarn.

Fig. II is a sectional view, taken as indicated by the arrows II—II in Fig. I; and,

Fig. III is a sectional view, at right angles to the plane of Fig. II, and taken as indicated by the arrows III—III in Fig. I.

As herein delineated, the yarn moistening device of my invention comprises a bridge piece 5 designed for placement crosswise of a pan or trough 6 containing water or other moistening liquid L. The bridge piece 5 may be conveniently made of a hollow rectangular configuration from sheet metal with spaced notches 7, in the lower edges of its opposite sides to engage over the longitudinal edges of the trough 6. The device further comprises a member 8 having the form of a disk with trunnions 9 engaged for free rotation in vertical notches or slots 10 at the sides of the bridge piece 5, and with hub extensions 11 to prevent lateral play within said bridge piece. As a consequence of the described arrangement, the disk 8 can be lifted upward out of the slots 10 readily and thus removed from the bridge piece 5 for the purpose of inspection and cleaning. Referring to Figs. II and III, it will be observed that the depth of the slots 10 is such that the disk 8 is sustained above the trough 6 with a limited extent of its lower portion dipping into the moistening liquid L, and that said disk is formed with a circumferential groove 12, in this instance of V-shaped cross sectional configuration, for guidance of the yarn Y which is to be moistened, and for carrying up liquid L from the trough 6 to said yarn by capillary action. For the purpose of determining contact of the yarn Y over a predetermined circumferential extent in over-travelling the disk 8, as shown in Fig. II, I provide the bridge piece 5 in its opposite ends with guide eyes 13 of porcelain or the like in the plane of the groove 12 of said disk.

I furthermore equip the device with a tensioning means having the form of a spring finger 15, the same being secured to the bridge piece 5 by a screw 16 and provided at its free end with an eye 17 for passage of the yarn Y.

Incident to operation of the device, the yarn Y in over-travelling the freely revolving disk 8 will propel the same, and absorb moisture carried up to it by the circumfer-

ential V-groove 12 of said disk. The moisture thus applied to the yarn Y is definite in amount, and obviously predeterminable in practice, through proper proportioning of the groove 12 in the disk 8, by fixing the extent to which said disk dips into the liquid L, and by properly allocating the guide eyes 13 to define the extent of contact of the yarn Y with the disk 8 circumferentially.

It will further be apparent that through the freedom accorded the yarn Y in overtravelling the disk 8, the possibility of strain is absolutely precluded irrespective of knots or burrs so that a uniform tension can be maintained by the spring finger 15 incident to feeding said yarn to the loop forming instrumentalities of the knitting machine.

Having thus described my invention, I claim:—

1. A yarn moistening device comprising a receptacle for the moistening liquid, a hollow bridge-piece removably supported by opposed notches in its lower edges on the receptacle, a freely rotatable disk detachably journaled in the bridge-piece with hub extensions to prevent lateral play, said disk being adapted to be propelled by the yarn incident to being overtravelled by the latter and having a circumferential V-groove to carry up moisture from the receptacle by capillary action for absorption by the yarn, and a springy element projecting from the bridge-piece with means for imposing tension upon the yarn.

2. A yarn moistening device comprising a receptacle for the moistening fluid, a hollow rectangular bridge-piece removably supported against displacement over the receptacle by opposed vertical notches proximate its lower angular corners, a freely rotatable removable disk journaled in vertical notches extending downward from the top edges of the bridge-piece with hub extensions to prevent lateral play and adapted to be propelled by the yarn incident to being overtravelled by the latter, said disk dipping into the liquid and having a circumferential V-groove to carry up moisture from the trough by capillary action for absorption by the yarn, guide eyes in the bridge-piece in the plane of the disk V-groove and the axis of rotation to predetermine contact of the yarn over a definite circumferential portion of said disk, and a spring element projecting from the bridge-piece having an eye for maintaining the yarn under tension.

3. A yarn moistening device comprising a receptacle for the moistening liquid, a hollow rectangular bridge-piece removably sustained against displacement over the receptacle, a freely rotating removable disk journaled in opposed vertical notches extending downward from the top edges of the bridge-piece and adapted to be propelled by the yarn incident to being overtravelled by the latter, said disk dipping into the liquid and having a circumferential V-groove to carry up moisture from the trough by capillary action for absorption by the yarn, and a spring finger secured to one side of the bridge-piece with an eye at its free end in the plane of the disk groove for maintaining the yarn under tension during passage through the device.

In testimony whereof, I have hereunto signed my name at Lansdale, Pennsylvania, this 14th day of September, 1929.

EMIL J. BERGER.