Jan. 26, 1932.

E. J. BERGER

1,843,078

YARN MOISTENING AND TENSIONING DEVICE

Filed May 29, 1930

FIG. I.

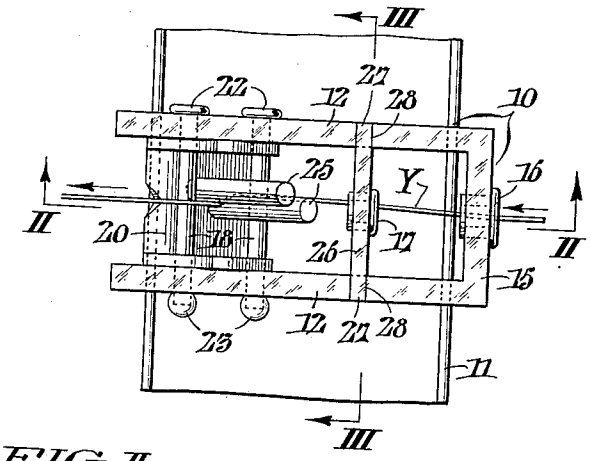


FIG. II.

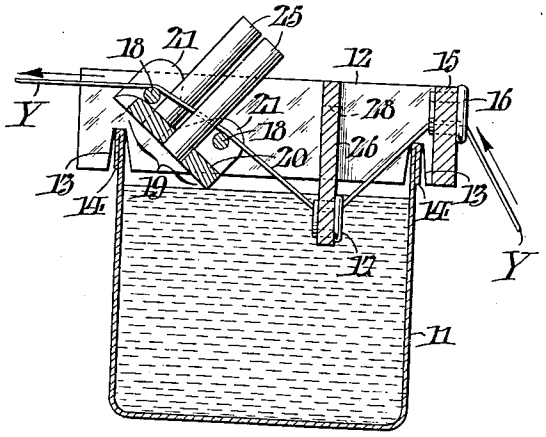
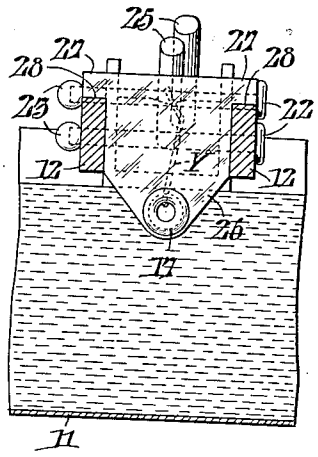


FIG. III.



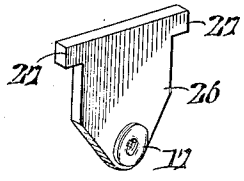


FIG. IV.

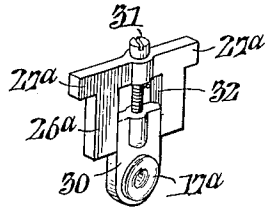


FIG. V.

WITNESSES

John A. Weidler

George M. Muschamp

INVENTOR:

Emil J. Berger,

BY Fraser & Paul

ATTORNEYS.

Patented Jan. 26, 1932 1,843,078

UNITED STATES PATENT OFFICE

EMIL J. BERGER, OF HATFIELD, PENNSYLVANIA, ASSIGNOR TO DEXDALE HOSIERY MILLS, OF LANSDALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

YARN MOISTENING AND TENSIONING DEVICE

Application filed May 29, 1930. Serial No. 456,942.

This invention relates to yarn moistening and tensioning devices useful in connection with textile machinery, and particularly with full fashioned hosiery knitting machines.

The main object of my invention is to provide a simple and inexpensive yarn moistening and tensioning device which is devoid of moving parts, and which may be relied upon to apply a definite amount of moisture to the yarns and to maintain them under a definite uniform tension as they are fed to the textile machines.

I also aim, through novel structural provisions, to facilitate threading of a yarn moistening and tensioning device having the above indicated attributes; and furthermore to facilitate replacement of its parts in the event of breakage of any of them.

Still other objects and attendant advantages of this invention will be manifest from the detailed description, attention being directed to the attached drawings; wherein Fig. I is a plan view of my improved yarn moistening and tensioning device.

Fig. II is a sectional view of the device taken as indicated by the arrows II—II in Fig. I.

Fig. III is a section taken as indicated by the arrows III—III in Fig. I.

Fig. IV is a perspective view of one of the parts of the device; and,

Fig. V is a view similar to Fig. IV showing a modification.

As herein delineated, the yarn moistening device of my invention comprises a frame 10 which is rectangular in plan and adapted for placement transversely of a receptacle 11—which may, for example, be a water trough such as used on full fashioned knitting machines. For security against displacement of the device on the trough 11, the side bars of the frame 10 are provided in their bottom edges with notches 13, see Fig. II, to engage over the longitudinal side edges 14 of said trough.

The cross bar 15, connecting the side bars 12 of the frame 10 at one end, is fitted with an eye 16 of porcelain or glass whereby the yarn indicated at Y which is being drawn from a spool or bobbin (not shown) in the direction of the arrows in Figs. I and II, and is directed over the top of the contiguous edge 14 of the receptacle 11.

An intermediate guide eye 17 serves, in coordination with the guide eye 16 and with a pair of guide rods 18 of glass or porcelain extending transversely of the side bars 12 of the frame 10 at the opposite end, to direct the yarn Y first downwardly at an angle, and then upwardly at an angle to determine passage thereof through the liquid in the receptacle 11 as shown to the best advantage in Fig. II. It will also be noted from Fig. II that the rods 18 are angularly arranged; and moreover that from the rods 18 is supported in suspension, a member 19 which affords an inclined surface 20 beneath the moistened segment of the yarn Y rising from the liquid in the receptacle 11, said surface serving as a back drain to direct excess moisture removed from the yarn, as presently explained, back into the receptacle 11. At opposite sides, the member 19 is formed with ears 21 which are pierced for the passage of the rods 18. As shown in Figs. I and II, the rods 18 have heads 22 at one end; and after assembling of the parts, a daub of sealing wax or the like is applied to said rods at the opposite ends which project beyond the frame 10, with formation of enlargements 23 for the purpose of retaining them. Upstanding from the sloping surface 20 of the member 19, in the interval between the rods 18, is a pair of staggeringly arranged pins 25 which are preferably of glass or porcelain and by which the yarn Y is diverted temporarily from a straight path or course through the device, with attendant extraction of moisture from it by squeegee action. A certain amount of moisture is also extracted from the yarn Y incident to its passage over the bars 18; and the moisture removed by the two agencies in the manner specified is conducted back into the receptacle 11 by the drain surface 20 of the member 19.

By joint action of the guide eyes 16, 17, the rods 18 and the pins 25, it is also evident that a definite and constant drag is induced in the yarn Y to tension it as it is delivered to

the textile machine with which the device is associated.

The intermediate eye 17, it will be noted, is secured centrally of the lower end of a supporting member 26 which is detachable from the frame 10, said member being illustrated in perspective in Fig. IV. As shown, this supporting member 26 has the form of a triangular plate with lateral shoulder projections 27 at its top for frictionally engaging aligned notches 28 in the top edges of opposite side bars 12 of the frame 10.

In the modification shown in perspective in Fig. V, the intermediate guide eye 17*a* is secured in a slide piece 30 which is adjustable up and down, by means of a screw 31, in a vertical guideway 32 of the member 26*a*. This member 26*a* has lateral shoulder projections 27*a* at the top for engaging the notches 28 in the side bars 12 of the frame 10, so that it may be used in lieu of the member 26 previously described. With use of the modified arrangement of Fig. V, the depth of penetration of the yarn Y into the liquid may be regulated to predetermine absorption of the desired amount of moisture in instances where extreme accuracy is necessary or important. Obviously, the adjustment also permits regulation of the drag or tension induced in the yarn Y.

The yarn moistening and tensioning device of my invention is thus very simple in construction, and easily threaded by virtue of the facility with which the medial guide eye 17 may be removed, as well as by virtue of the ready accessibility of the guide pins 25 from the top. In the event of breakage the rods 18 are replaceable at small expense; and the device is moreover unique in that it is devoid of moving or abrading parts and moisture absorbing pads, such as would be likely to induce strains or to injure the yarns Y incident to passage through it.

Having thus described my invention, I claim:

1. A yarn moistening and tensioning device comprising a rectangular frame embodying side bars and an end bar, said frame being adapted to be supported transversely of a receptacle containing the moistening liquid; guides at opposite ends of the frame; and an intermediate guide functional jointly with the aforesaid guides to direct the yarn downward and upward for passage through the liquid in the receptacle, said intermediate guide being frictionally and detachably supported by the side bars of the frame.

2. A yarn moistening and tensioning device comprising a rectangular frame embodying paralleling side bars and an end bar, said frame being adapted to be supported transversely of a receptacle containing the moistening liquid by notches in the lower edges of the side bars; guides at opposite ends of the frame; and an intermediate guide functional jointly with the aforesaid guides to direct the yarn downward and upward for passage through the liquid in the receptacle; said intermediate guide being supported by a triangular-form member with laterally projecting lugs detachably engaged in notches in the upper edges of the side bars of the frame.

3. A yarn moistening and tensioning device comprising a rectangular frame embodying paralleling side bars and an end bar, said frame being adapted to be supported transversely of a receptacle containing the moistening liquid by notches in the lower edges of the frame side bars; guides at opposite ends of the frame; and an intermediate guide functional with the aforesaid guides to direct the yarn downward and upward for passage through the liquid in the receptacle, said intermediate guide comprising an apertured slide piece having capacity for vertical adjustment in a supporting member embodying shoulder projections engaging opposing notches in, and being detachable from the frame.

4. A yarn moistening and tensioning device comprising a rectangular frame embodying paralleling side bars and an end bar, said frame being adapted to be supported transversely of a receptacle containing the moistening liquid by opposing notches in the lower edges of the frame side bars; guides at opposite ends of the frame; and an intermediate guide functional with the guides aforesaid to direct the yarn downward and upward for passage through the liquid in the receptacle, said guide comprising an apertured slide piece engaged, for the purposes of vertical adjustment, by a screw rotatable in a supporting member having lateral shoulder projections frictionally seating in and detachable from opposing notches in the side bars of the frame aforesaid.

In testimony whereof, I have hereunto signed my name at Lansdale, Pennsylvania, this 26th day of May, 1930.

EMIL J. BERGER.