Nov. 5, 1929. H. HELLWEG 1,734,293

MOISTENER

Filed June 16, 1924

Fig. 1.

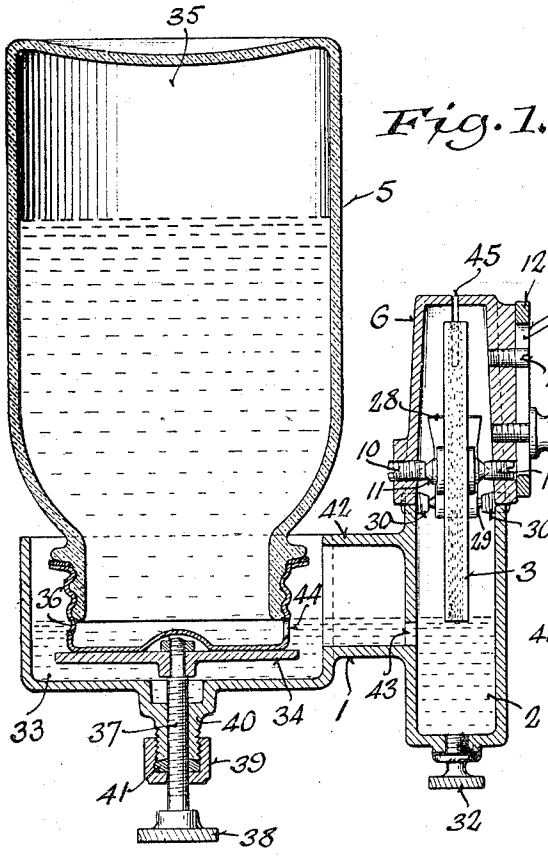


Fig. 2.

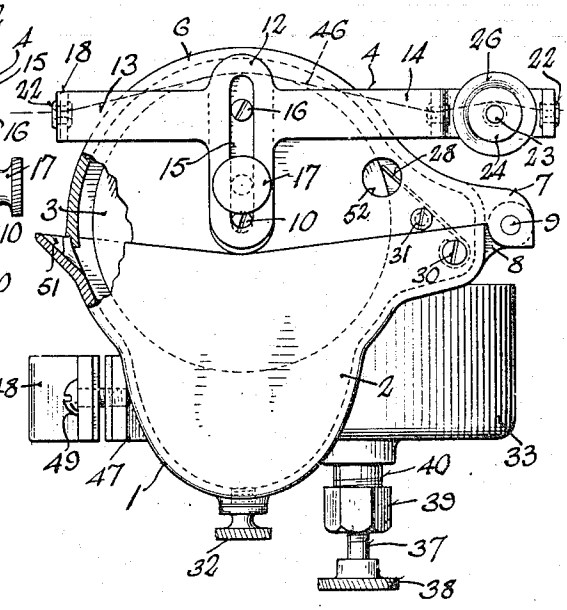


Fig. 3.

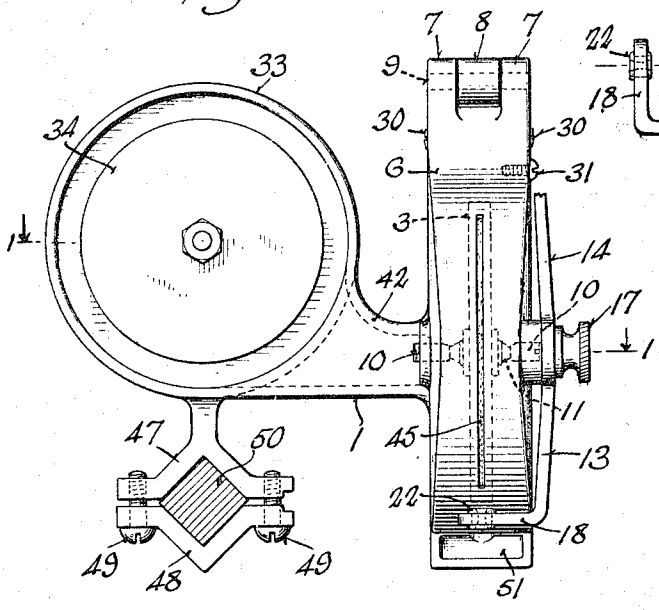


Fig. 4.

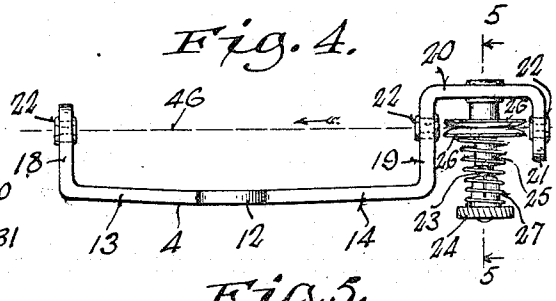
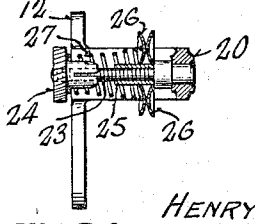


Fig. 5.



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MOISTENER

Application filed June 16, 1924. Serial No. 720,199.

This invention relates to a moistener.

It relates particularly to a machine for use on a knitting machine to moisten the yarn or silk thread before it is knit into a fabric.

In accordance with the invention, a wheel is supported for rotation so that the periphery thereof passes through a suitable liquid, and means are provided to hold the yarn or silk thread in engagement with the periphery of the wheel so that it is moistened by the thin film of liquid thereon and drives the wheel at the required speed.

An object of the invention is to provide a moistener having a wheel supported for rotation through a liquid and means for holding the yarn or silk thread into operative engagement with the wheel.

Another object is to provide a moistener having a wheel supported for rotation through a liquid, and means for controlling the speed of the wheel.

Another object is to provide a moistener having improved means to regulate the amount of liquid or oil applied to the yarn or silk.

Another object is to provide a moistener having a wheel supported for rotation through a liquid, and adjustable means to hold the yarn or silk thread in driving engagement with the wheel so that the speed thereof can be regulated.

Another object is to provide a moistener which is simple, easily cleaned, and which may be economically manufactured.

Other objects and advantages will hereinafter appear.

For the purpose of illustrating the invention, an embodiment thereof is shown in the drawings, in which:

Figure 1 is a section on the line 1—1 of Fig. 3;

Fig. 2 is an end elevation partly in section;

Fig. 3 is a plan view;

Fig. 4 is a detail plan view; and

Fig. 5 is a section on the line 5—5 of Fig. 4.

The invention comprises, in general, a body or base 1 formed to provide a reservoir 2, a wheel 3 supported for rotation within the reservoir so that the periphery thereof passes through liuid in the reservoir, guiding means 4 to hold the yarn or thread in driving engagement with the wheel 3, and means 5 to regulate the level of the liquid within the reservoir 2.

The reservoir 2 is provided with a cover 6 which supports the wheel 3 and carries the guiding means 4 for holding the yarn or thread in driving engagement with the periphery of the wheel. The cover 6 may be provided with lugs 7 and the reservoir 2 with a lug 8 to receive a pin 9 for pivotally connecting the cover to the reservoir. The sides of the cover are increased in thickness at the center, as shown in Figs. 1 and 3, to receive screws 10 between which the wheel 3 is rotatably supported.

A pin 11 passes through the center of the wheel 3 and is provided with conical ends to fit into conical recesses in the ends of screws 10, to provide a pin bearing for the wheel.

The guiding means 4 for holding the yarn or thread in driving engagement with the periphery of wheel 3 may comprise a bracket 12 provided with arms 13 and 14 and a slot 15. The bracket 12 is adjustably mounted to the cover 6 by means of a screw 16 and a set screw 17. When the set screw 17 is loosened, the bracket 12 may be adjusted with respect to the cover 6.

The head of screw 16 fits loosely in the slot 15 and holds the bracket 12 against rotation about set screw 17 as a center.

The end 18 of arm 13 is bent as shown in Fig. 4, and is provided with an opening to receive the yarn or thread. The end of arm 14 is bent as shown, to form portions 19, 20 and 21. The portions 19 and 21 are provided with openings arranged to register with the opening through end 18. These openings may be provided with porcelain eyelets 22 to provide a smooth surface for the yarn or thread and prevent the same from being broken.

A bolt 23 has one end thereof fixed to the portion 20 and the other end threaded to receive a nut 24. A glass collar 25 may be fitted to the bolt 23 to provide a smooth surface over which the yarn or thread may pass in moving through the eyelets 22.

A pair of discs 26 are loosely mounted on the glass sleeve or collar 25.

The yarn or thread passes between these discs, and the tension thereof is adjusted by varying the pressure between the discs. A spring 27 arranged on the bolt 23 between nut 24 and discs 26 provides means for varying the pressure between the discs upon movement of the nut axially with respect to the bolt.

A scraper 28 is pivotally supported between the sides of the reservoir 2 and arranged to engage the periphery of the wheel 3. One end of scraper 28 may be provided with a pin 29, similar to the pin 11 for wheel 3, to fit into the ends of screws 30, similar to screws 10, threaded into the sides of the reservoir 2.

The cover 6 may be provided with suitable means such as a bolt or screw 31 arranged to engage the under side of scraper 28 when cover 6 is raised, to support and hold the scraper from engagement at this time with wheel 3 and to prevent the scraper from dropping down into reservoir 2.

The bolt or screw 31 is positioned so that it will be out of contact with scraper 28 when cover 6 is closed, as shown in Fig. 2.

The reservoir 2 may be provided with a drain plug 32.

The means 5 for regulating the level of the liquid within the reservoir 2 may comprise a second reservoir 33 and an adjustable platform 34 for supporting a container 35, as shown in Fig. 1. The container 35 may be a glass jar having a metal cap 36. The platform 34 is fixed to the end of a bolt 37 in any suitable way for rotation therewith. The bolt 37 is threaded upwardly through the bottom of reservoir 33 and adjusted axially with respect thereto by means of a suitable knob 38.

A cup-shaped member 39 may be fitted upon the bolt 37 and screwed to a downwardly extending portion 40 of reservoir 33 to hold packing 41 in position to prevent leakage of the liquid from the bottom of the reservoir between bolt 37 and extension 40.

The body or base 1 may be cast from aluminum and formed to provide the reservoirs 2 and 33 connected together by a neck 42.

The side of reservoir 2 adjacent to reservoir 33 is provided with an opening 43. The reservoir 33 is thereby made to communicate with reservoir 2 so that the level of liquid in reservoir 2 will be the same as that in reservoir 33.

The cap 36 is provided with an opening 44.

The level of liquid in the reservoirs 2 and 33 may be varied by turning knob 38 to adjust bolt 37 axially with respect to reservoir 33. The platform 34 and the container or jar 35 are thereby raised or lowered. When the container 35 is raised, the upper edge of opening 44 in cap 36 will be raised a like amount above the level of the liquid. Air will then enter container 35 through opening 44 and permit a sufficient amount of liquid to flow therefrom into reservoirs 2 and 33, until the level of the liquid is again even with the top edge of opening 44.

The portion of the periphery of wheel 3 which passes through the liquid may thereby be varied. The wheel 3 is very sensitive to slight changes in the level of the liquid, and the speed thereof decreases as the portion of its periphery which passes through the liquid is increased. The speed of the wheel 3 may thereby be regulated by turning the knob 38 to change the level of the liquid in reservoirs 2 and 33.

The cover 6 is provided with a slot 45 through which the yarn or thread 46 passes.

An arm 47 may be cast integrally with reservoir 33. A clamp 48 may be secured to arm 47 by means of bolts 49 to secure the device to some part of the knitting machine such as a post or rod 50.

The periphery of wheel 3 is provided with minute indentations as indicated in Fig. 1, whose function is to hold the required amount of liquid on the periphery to properly moisten the thread or silk and to lessen slippage between the wheel and the thread or silk.

The end of reservoir 2 may be extended beyond cover 6, as shown in Figs. 2 and 3, and provided with a trough 51 communicating with the interior of reservoir 2. Any liquid which may accumulate at the last eyelet 22 will drop into trough 51 and return to reservoir 2.

The cover 6 may be provided with a slight opening 52.

The operation of the device is as follows:

The yarn or thread 46 passes through eyelets 22 and between tension discs 26, moving in the direction of the arrows, as shown in Figs. 2 and 4, and is held in engagement with the periphery of the wheel 3 by bracket 12. The wheel is thereby driven by the thread 46.

By loosening set screw 17 and adjusting bracket 12 vertically with respect to cover 6, the portion of the periphery of the wheel which is engaged by the thread may be increased or decreased. This adjustment of bracket 12 will increase or decrease the traction or contact between thread 46 and wheel 3 to cause a corresponding change in the speed thereof and a corresponding change in the amount of liquid which the thread takes up. If bracket 12 is lowered, there will be greater traction or contact between thread 46 and the wheel and consequently less slippage. The speed of wheel 3 will then increase, as well as the amount of liquid taken up by the thread.

If bracket 12 is raised, the traction between the thread and wheel will decrease and the amount of slippage increased. The speed

of the wheel will then decrease, as well as the amount of liquid taken up by the thread.

It is thereby possible to regulate the speed of the wheel and the amount of liquid taken up by the thread by adjusting bracket 12.

The level of the liquid in reservoirs 2 and 33 is adjusted by raising or lowering container 35, as explained above, so that the periphery of wheel 3 passes through the liquid and takes up the required amount for moistening the thread 46. The wheel 3 is very sensitive to changes in level of the liquid. If the level is raised a greater portion of the periphery of wheel 3 will pass through the liquid, and the rotation of the wheel retarded. If the level of the liquid is lowered it will offer less resistance to rotation of wheel 3 and the speed thereof will increase correspondingly. It is thereby possible to regulate the speed of wheel 3 by changing the level of the liquid in reservoirs 2 and 33.

The scraper 28 removes any excess oil which may adhere to the periphery of wheel 3, so that only the liquid retained by the indentations on the periphery of the wheel is taken up for moistening the thread 46, and the throwing of the liquid from the periphery of the wheel by centrifugal force prevented.

Any lint which may accumulate at the bottom of reservoir 2 may be removed after raising cover 6.

Various changes of structure and arrangement of the parts may be adopted without departing from the spirit of the invention or the scope of the claims.

The invention claimed is:

1. A moistener of the character described comprising a reservoir, a cover for said reservoir provided with an opening, a wheel arranged in said cover with its periphery in alignment with and in proximity to said opening, said wheel being rotatably supported by said cover at the edge thereof whereby the lower portion of said wheel extends into said reservoir, and means associated with said moistener for holding said thread in alignment with said opening for movement therethrough, the arrangement of said opening being such as to permit engagement of the thread with the periphery of said wheel whereby the latter is rotated upon said movement of the thread.

2. A moistener including a base having a reservoir and a second reservoir connecting with the first reservoir so that the level of liquid in one reservoir will be the same as the level of liquid in the other, one of said reservoirs being provided with means to vary the level of liquid in said reservoir, said means comprising an adjusting screw and a platform positively interconnected with the screw so as to be constrained to move axially therewith and a liquid container provided with a discharge port emptying into the associated reservoir, the lower end of the container being engaged with and supported by the platform.

3. A moistener comprising a base provided with a reservoir, a moistening wheel for a thread supported for free rotation within said reservoir, guides for the thread located on the opposite sides of the wheel and means mounted on the cover for sliding adjustment and connected with and common to both guides for moving the same relative to the wheel, whereby to cause the thread on both sides of the center of the wheel to have more or less traction or contact with the wheel.

4. In a moistener, in combination, a base provided with a reservoir, a cover arranged to close said reservoir, a wheel supported by said cover for rotation within said reservoir, and means carried by said cover and arranged to hold thread in engagement with the periphery of said wheel.

5. In a moistener, in combination, a base provided with a reservoir, a cover arranged to close said reservoir, a wheel supported by said cover for rotation within said reservoir, and means carried by said cover and arranged to hold thread in engagement with the periphery of said wheel, said means comprising a bracket preferably adjustably mounted to said cover.

6. A moistener of the character described comprising a reservoir, a member pivotally connected to said reservoir for covering the same, a wheel arranged in said member and rotatably supported thereby in such wise that the lower portion of said wheel extends into said reservoir, said member being provided with a slot aligned with the periphery of said wheel, a bracket carried by said member and arranged for adjustment with respect thereto, said bracket being provided with eyelets arranged in alignment with said slot and on either side of the axis of rotation of said wheel for guiding thread and holding the same in driving contact with the periphery of said wheel whereby the latter is caused to rotate upon movement of the thread through said eyelets.

7. In a moistener, in combination, a base provided with a reservoir, a cover pivotally connected to said reservoir, a wheel supported by said cover for rotation within said reservoir, means carried by said cover and arranged to hold thread in engagement with periphery of said wheel, a scraper pivotally mounted within said reservoir for engagement with the periphery of said wheel, and means carried by said cover and arranged to engage and support said scraper when said cover is raised with respect to said reservoir.

In witness whereof I hereto affix my signature.

HENRY HELLWEG.

4

CERTIFICATE OF CORRECTION.

Patent No. 1,734,293. Granted November 5, 1929, to

HENRY HELLWEG.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 92, claim 5, strike out the word "preferably"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of February, A. D. 1930.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.