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F. W. GELDER

DEVICE FOR APPLYING LUBRICANT TO TEXTILE SLIVERS

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Fig. 1.

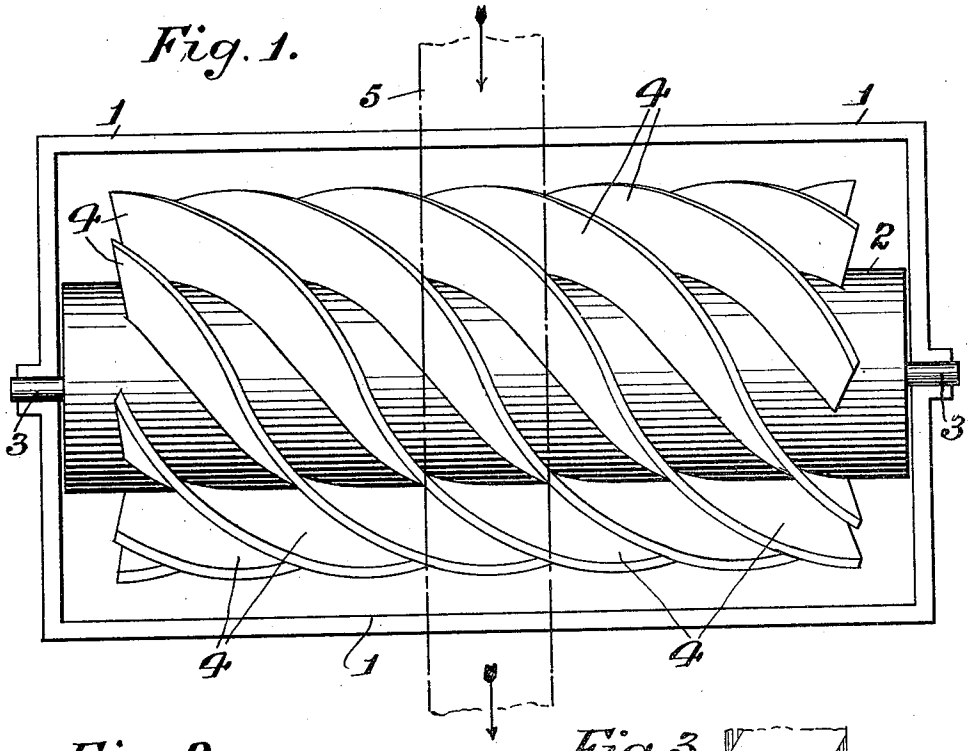


Fig. 2.

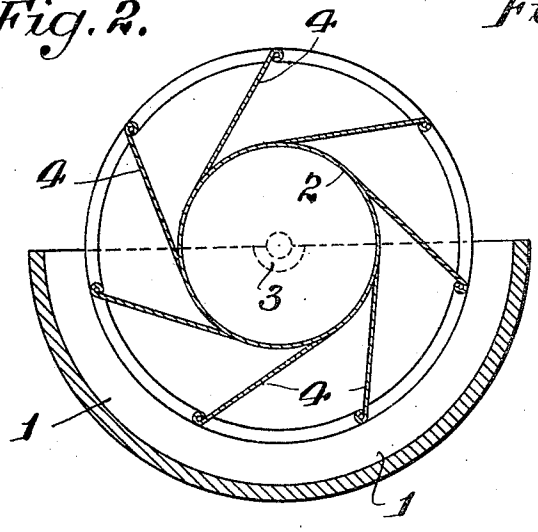
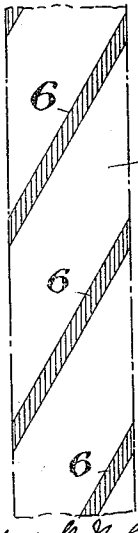


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR APPLYING LUBRICANT TO TEXTILE SLIVERS.

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To all whom it may concern:

Be it known that I, FREDERICK WILLIAM GELDER, a subject of King George V of Great Britain, residing at Halifax, in the county of York, England, have invented a new and useful Improvement in Devices for Applying Lubricant to Textile Slivers, of which the following is a specification.

In the process of preparing wool or other fibres for spinning by passing them through gill boxes or equivalent machines in the form of a sliver, it is customary to apply to the sliver a certain amount of a suitable lubricant as it enters the gill box, in order to "lay" the fibres and prevent fly in the later processes.

The application of the lubricant is sometimes effected by dropping the lubricant on to the traveling sliver. This method is objectionable for the reason that the lubricant does not become properly distributed over the fibres, but is apt to render certain parts of the sliver sticky whilst other parts remain unlubricated.

In an attempt to obtain a more effective distribution of the lubricant the sliver has been passed over a roller provided with radial blades extending longitudinally from end to end of same, parallel to the roller axis, the roller being mounted over a bath containing lubricant, so that the blades dip into the lubricant as the roller rotates and carry it up to the sliver by the edges of the blades.

In practice, this latter method presents certain objectionable features. The roller is dragged around by the engagement of the sliver, as it travels forward, with the edges of the longitudinal blades, and it is found that probably due to the resistance of the lubricant in the bath to the passage of the blades there is a tendency for the roller to stick and then jump forward by the increased tension of the sliver. This causes disarrangement of the fibres of the sliver, which is most undesirable. Further, the lubricant is applied in a series of bands extending transversely across the sliver at a greater or less distance apart, according to the setting or number of longitudinal blades with which the roller is provided.

My invention has for its object to provide improved means for effecting the distribution of lubricant to a sliver, whereby such distribution will be more evenly performed, and possible disarrangement of the fibres of the sliver through varying tension be entirely avoided.

According to my invention, I provide means whereby the lubricant is applied to the sliver in the form of diagonal bands of suitable width and spacing, and arranged preferably at such an angle that the end of one band of lubricant at one edge of the sliver is level with or slightly overlaps that of the next band immediately in advance of or behind it.

The manner in which the invention is carried into practice will be described with the aid of the accompanying drawing wherein Figs. 1 and 2 are, respectively, a plan view and a cross sectional view of a lubricant applying device according to the invention, whilst Fig. 3 illustrates the manner in which the bands of lubricant are disposed on the sliver.

According to my invention I employ, as usual, a bath 1 to contain the lubricant and a roller 2 mounted to revolve freely as in open bearings 3, 3, in the upper edge of the bath. The roller 2 instead of being provided with blades arranged longitudinally of the roller or parallel to its axis has blades 4 arranged helically around it.

The pitch of the helices, and the number of blades or the distance apart at which they are set are suitably determined according to the width of the sliver and the percentage of lubricant which it is desired to apply.

The sliver 5 is led over the roller in the usual manner to contact with the edges of the blades, which may be beaded, thickened, or shaped in any suitable manner to cause a band of the desired width to be applied by each blade.

By the arrangement set forth, I obtain many important advantages over previous devices. The lubricant, instead of being applied irregularly or in transverse bands with more or less wide gaps between them to which the lubricant can never be properly spread, is applied in diagonal bands 6 extending from edge to edge of the sliver as indicated in Fig. 3. The width of the gaps between the bands axially or longitudinally of the sliver is reduced, so that when subjected to the action of the gill pins a much better and more even distribution is obtained. A further advantage is that instead of the sliver having to pass over a series of relatively sharp edges it is supported, by

my improved device, practically solidly through a relatively large area of contact, and less tension is imparted to the sliver by the act of pulling the roller around. The tension is also perfectly uniform throughout the whole length of the sliver, and "thinning" or attenuation and displacement of the sliver at different points in its length such as have caused trouble hitherto are avoided.

Another feature presented by my improvement is that the resistance of the lubricant in the bath to the rotation of the roller is greatly reduced, the helical blades worming their way through it instead of having to displace it in the way the old longitudinal blades had to do. The worm-like action of the helical blades as the roller rotates also keeps the lubricant properly mixed so that the condition in which it is supplied throughout the length of a sliver is kept uniform.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A device for applying lubricant to textile slivers comprising means for applying the lubricant in diagonal bands.

2. A device for applying lubricant to textile slivers comprising a bath containing lubricant and a roller rotatably mounted in the tank, said roller being adapted to apply the lubricant to a sliver in diagonal bands.

3. A device for applying lubricant to textile slivers comprising a bath containing lubricant and a roller rotatably mounted therein, said roller having helical blades dipping into the lubricant.

4. A device for applying lubricant to textile slivers comprising a bath containing lubricant and a roller rotatably mounted therein, said roller having helical blades dipping into the lubricant and applying it to the sliver in diagonal bands when the sliver is drawn over the roller in a direction at right angles to the roller axis.

5. A device for applying lubricant to textile slivers comprising a bath containing lubricant and a roller rotatably mounted therein, said roller dipping into the lubricant and applying it to a sliver drawn over the roller at right angles to the roller axis in diagonal bands so arranged that the end of a band of lubricant at one edge of the sliver is level with the end of the band on either side of it.

In testimony whereof I affix my signature.

FREDERICK WILLIAM GELDER.