July 21, 1931. G. H. GILLIGAN 1,815,502

MEANS FOR LUBRICATING SPINNING AND TWISTING RINGS

Filed Dec. 10, 1930 2 Sheets-Sheet 1

Fig. 1.

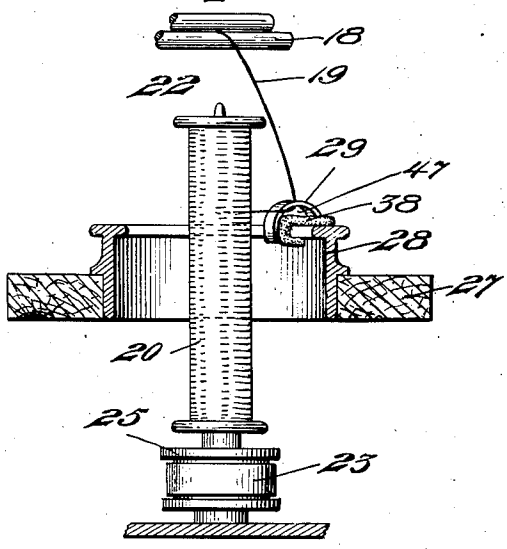


Fig. 2.

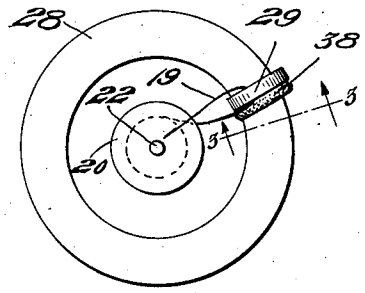


Fig. 3.

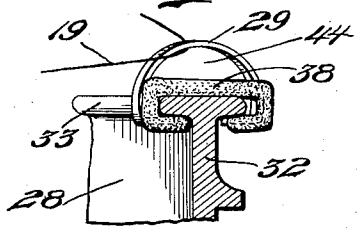


Fig. 4.

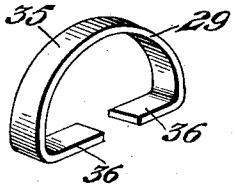


Fig. 5.

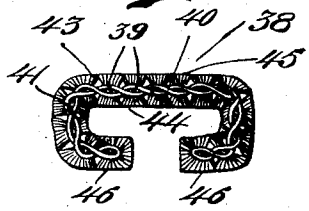


Fig. 6.

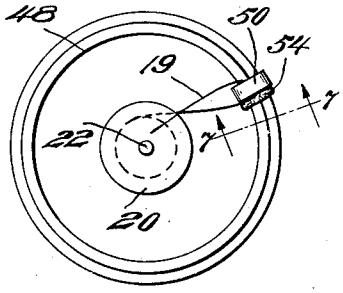


Fig. 7.

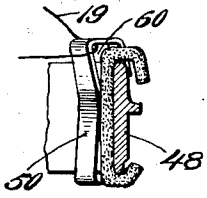


Fig. 8.

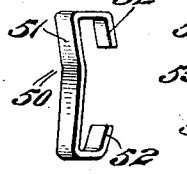
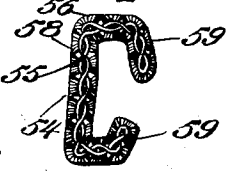


Fig. 9.



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MEANS FOR LUBRICATING SPINNING AND TWISTING RINGS

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Fig. 10.

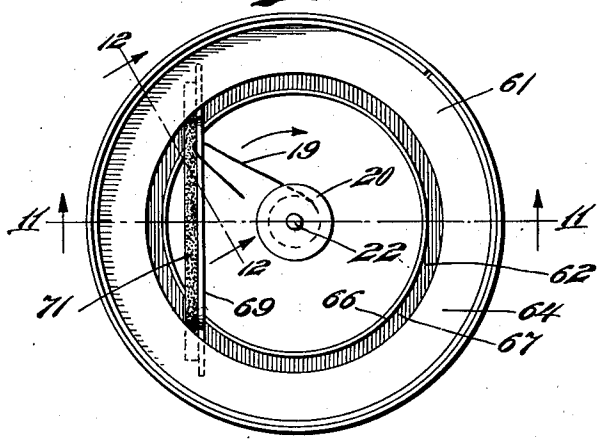


Fig. 11.

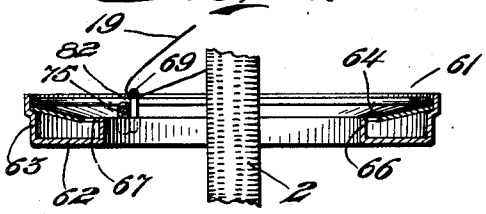


Fig. 12.

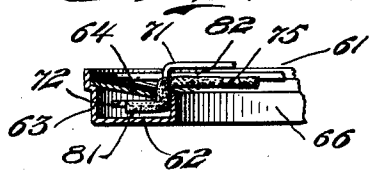


Fig. 13.

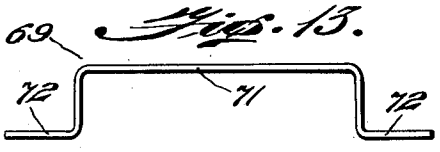


Fig. 14.

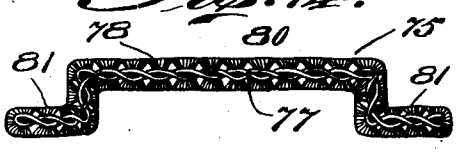
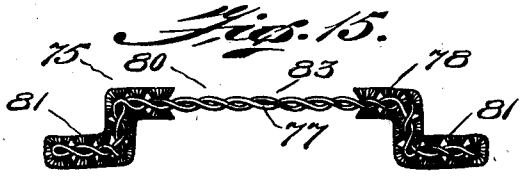


Fig. 15.



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Patented July 21, 1931 1,815,502

UNITED STATES PATENT OFFICE

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MEANS FOR LUBRICATING SPINNING AND TWISTING RINGS

Application filed December 10, 1930. Serial No. 501,207.

My invention relates to means for lubricating the rings and ring travelers employed upon spinning or twisting machines.

In the process of spinning or twisting, the mutual wear of the traveler and ring is varied by the differing character of the filaments or fibers passing through the traveler, and even under ideal conditions the friction between the ring and traveler is so great as to speedily wear the ring and traveler often discharging metal particles. It has been customary to manually smear the ring with a lubricant in an attempt to overcome the friction. This lubricant, of whatever melting point, when picked up by the traveler in its movement about the ring, is broken up and discharged in a spray against both the finished or unfinished products, thus soiling and otherwise injuring them. The soiling is particularly conspicuous when the lubricant has become blackened by long use.

My invention is purposed to overcome the deleterious results above adverted to, and, in a broad sense, to distribute a lubricant upon a spinning or twisting ring in an exceedingly thin and uniform film.

A further object is to provide a lubricating member for the ring and traveler capable of automatic operation by the normal movement of the traveler.

Additional objects are to insure in such a lubricating member an inherent capacity for adjustable accommodation to rings of various dimensions and shapes, as well as adaptability for inexpensive construction; and to collect from the ring any metal particles.

Other and ancillary objects of the invention will hereinafter appear.

My invention consists, therefore, in the means for producing the results above specified substantially as hereinafter claimed.

In the accompanying drawings which form a part of this specification, and which will illustrate the principle of this invention, and the best mode now known to me for applying that principle,

Figure 1 is a fragmentary sectional view of a portion of a common spinning or twisting machine in which my invention is incorporated,

Figure 2, a plan view of portions of the same,

Figure 3, a section on line 3—3 of Figure 2,

Figure 4, a detail view of the horizontal ring traveler,

Figure 5, a longitudinal central section of the lubricating traveler,

Figures 6, 7, 8 and 9, are views corresponding respectively with Figures 2 to 5 inclusive, of a second form of ring, and ring traveler, and a modified form of lubricating traveler,

Figure 10 is a plan view of a rail ring of the bar type carrying a bar type of ring traveler and a modified form of lubricating traveler,

Figures 11 and 12, sections of the same on lines 11—11 and 12—12 respectively of Figure 10,

Figures 13 and 14, detail views of the bar ring traveler and of a second modified form of lubricating traveler, and

Figure 15, a third modified form of lubricating traveler.

Similar characters of reference indicate similar parts throughout the views.

Referring in detail to Figure 1, 18 represents the delivery rolls for the thread 19 leading through a thread guide, (not shown), to the spool 20 upon the revolving spindle 22 driven by the tape 23 engaging the spindle whorl 25. The traverse rail 27 carries a rail ring 28 of the horizontal type, supporting a ring traveler 29 of corresponding type through which the thread passes. While the rail 27 moves up and down to guide the yarn evenly upon the spools, the traveler 29 slides circumferentially about the ring rapidly impelled by the yarn in its revolution around the spool. It is in conjunction with such familiar parts of a common spinning or twisting machine that my invention is hereinafter set forth.

In detail, 32 is the web, and 33 the horizontal flange, of the horizontal ring 28; and 35 is the body or arch, and 36 the inwardly directed horns, of the familiar horizontal ring traveler 29 illustrated in Figures 1 to 4 inclusive. Cooperating with these familiar elements is a lubricating member,

leader, or swab, constituting an auxiliary traveler 38. This is composed of pliable metal wires or strands 39 twisted together in spiral convolutions 40 to form a core 41. In this instance two strands are employed, but this member is not exclusive, and it will be understood that the strands, if preferred, may be integral with each other at their ends. Clamped between the strands by the convolutions are fibers of cotton, wool, silk, or the like, or textile filaments, felted or infelted, radiating circumferentially from the core and from the ends of the latter, and constituting a covering 43 for the core. The covering is soft and highly absorbent. The core with its incorporated covering is bent into the form of a traveler corresponding substantially in shape to the traveler 29 except that its arched body portion 44 has a flattened intermediate portion 45. At the end of the body portion are inwardly directed horn portions 46.

The auxiliary traveler 38 is applied to the ring 28 in advance of the ring traveler, and is in slidable contact with the flange 33 or web 32, or with both. As the member 38 is located in the path of the traveler 29 and in advance thereof, the member 29 in its revolutions around the ring continuously pushes or impels the former. The traveler 29 is impelled by the fiber or thread 19 which passes through the resultant opening 44 between the arch of the traveler 29 and the flattened portion of the arch of the member 38. Either before or after application to the ring the member 38 is impregnated with a lubricant, so that as it advances it deposits and maintains a thin film of lubricant upon the portions of the ring to be engaged by the following traveler 29.

The member 38 has a sufficient degree of stiffness or resiliency to retain in operation the shape imparted to it by bending when such bending has been employed for any reason.

In Figures 6 and 7 is shown the vertical type of rail ring 48, and in Figure 8, the corresponding type of ring traveler 50, commonly used thereon. This vertical type of traveler includes an irregularly arched or body portion 51 and inwardly inclined horn portions 52. In conjunction with this type of ring and ring traveler it is convenient to use the form of my lubricating traveler indicated as 54 in Figure 9, which includes a core 55 and cover 56 substantially like the core 41 and covering 43 respectively, but which is formed to correspond substantially in shape to ring traveler 50, except that the intermediate portion of the arch or body 58 is of less angularity than that of the corresponding portion of the arch of the traveler 50. There is, therefore, a resultant opening 60 for the admission of the fiber or thread 19. In Figure 6 the lubricating traveler is shown impelled upon the ring by the ring traveler 50.

In Figures 10, 11 and 12 are shown the bar type of rail ring 61 comprising an annular base 62, web 63, and downwardly inclined traverse ring 64, spaced from a vertical annular guard flange 66, to slidably receive in the resultant channel 67 therebetween the depending portions of the bar type of ring traveler 69 shown in detail in Figure 13 comprising a rectangularly arched or body portion 71 and outwardly directed horns 72.

Similarly mounted upon the ring 61 in advance of the traveler 69 is a modified form of my lubricating traveler 75 shown in longitudinal section in Figure 14. The latter includes a core 77 and covering 78 identically like the core 41 and cover 43 respectively, but is shaped to correspond with the ring traveler 69, having a rectangularly arched portion or body 80, and outwardly directed horn portions 81. The body 80 is slightly lower than the arched portion 71 of the traveler 69 forming a passage 82.

The ring traveler 69 is engaged and revolved in the channel 67 by the thread 19 engaging the body 71 through the passage 82, and sustaining the horns 72 in sliding engagement with the ring 64.

If preferred, the covering material may be omitted from the central portion of the body 80 of the absorbent member 75 as shown at 83 in Figure 15.

The term rail-ring herein employed to identify the member engaged by the travelers is commonly referred to in the art by the terms "spinning ring," "twister ring," or "twisting ring," according to the character of the machine in which the ring is mounted.

It will be observed that the lubricating member applies a sufficient quantity rather than a superfluity of lubricant, and that the latter is evenly and constantly applied. Further, that in the absence of accumulation of superfluous lubricant spattering is avoided, as well as any discoloration of the lubricant that would injure the thread or fabric in case contact therewith should occur. Likewise, that any metal particles upon the metal members will be collected by the lubricating member. It is also evident that the pliability of the lubricating member adapts it to use upon rings of various dimensions and shapes; also, that this member is light in weight, inexpensive to construct, and is operable solely by the usual and existing means for operating the ring traveler.

Without departing from the spirit of my invention other modes of applying the principle thereof may be employed instead of the ones explained, change being made as regards the construction herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I claim:—

1. As a new article of manufacture, a traveler for spinning and twisting rings comprising an elongated metallic core, and a covering of absorbent material, said material adapted to carry a lubricant.

2. As a new article of manufacture, a traveler for spinning and twisting rings comprising a pliable metallic core surrounded by an absorbent material, said material adapted to carry a lubricant.

3. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising intertwined strands interengaged with absorbent material.

4. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising spirally coiled metallic strands interengaging fibrous material.

5. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising a series of metallic spiral coils, and absorbent material interengaged with the coils.

6. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising an absorbent material intertwined with coils of metallic strands.

7. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising a body and horns formed with a core, and an absorbent material carried by the core.

8. As a new article of manufacture, a lubricating traveler for spinning and twisting rings comprising a body and horns composed of a pliable metallic core and a covering of absorbent material.

9. In a spinning or twisting machine, the combination with the ring, the ring traveler slidably engaging the same, and means for impelling the traveller, of a lubricating traveler slidably mounted on the ring in the path of the traveler and actuated by the traveler.

10. In a spinning or twisting machine, a ring, a ring traveler revolubly mounted on the ring comprising a body and terminal horns, a lubricating traveler revolubly mounted on the ring in the path of the ring traveler comprising a body centrally vertically spaced intermediate its length from the ring traveler to permit passage of a fiber therethrough, and terminal horns upon the last mentioned body, and means for actuating the ring traveler.

In testimony whereof I have affixed my signature.

GEORGE H. GILLIGAN.