Nov. 12, 1935. A. M. BOWEN 2,020,873

SPINNING OR TWISTING DEVICE

Filed Oct. 26, 1934

Fig. 1.

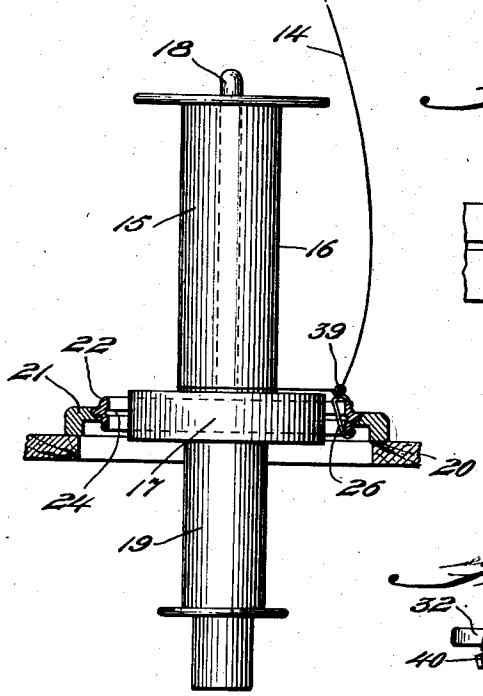


Fig. 2.

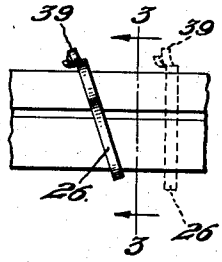


Fig. 3.

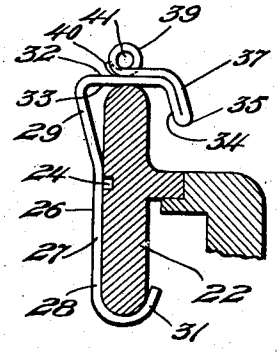


Fig. 4.



Fig. 5.



Fig. 6.

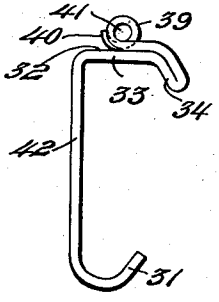


Fig. 7.

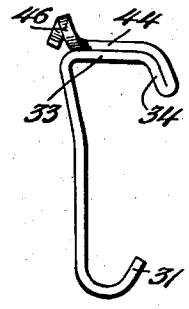


Fig. 9.

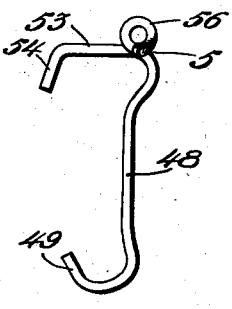


Fig. 10.

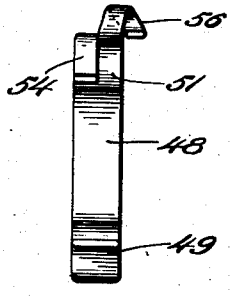


Fig. 11.

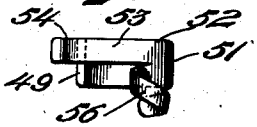
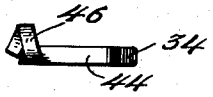


Fig. 8.



Inventor

Amos M. Bowen

By Horatio E. Bellows

Attorney

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UNITED STATES PATENT OFFICE

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SPINNING OR TWISTING DEVICE

Ames M. Bowen, Providence, R. I., assignor to U. S. Ring Traveler Company, Providence, R. I., a corporation of Rhode Island

Application October 26, 1934, Serial No. 750,088

16 Claims. (Cl. 118—61)

My invention relates to travelers for use upon spinning or twisting machines and particularly adapted for travel upon lubricated or non-lubricated rings of the vertical type.

The essential objects of my invention are to facilitate the threading of the traveler; to prevent the accidental escape of the thread therefrom; to retain the yarn, either while threading or while moving with the traveler, from accidental contact with any lubricant upon the ring, traveler, or elsewhere; to prevent excessive tilting of the traveler in the direction of its advance; and to reduce friction of the thread with the guide as it moves through the traveler.

With the above and other objects and advantageous features in view, the invention consists of an arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawing, and more specifically defined in the claims appended thereto.

In the accompanying drawing,

Figure 1 is a fragmentary central sectional view, partially in elevation, of a common spinning or twisting machine in which my invention is embodied, showing my traveler in running position upon the ring,

Figure 2, an elevation of a fragmentary segment of the ring as viewed from the center of the ring including my traveler mounted in running position thereon,

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

Figure 4, a plan view of the traveler in vertical position unmounted,

Figure 5, a similar view of a modified form of the traveler unmounted,

Figure 6, a side elevation of a further modified form of the traveler,

Figures 7 and 8, a side elevation and a top plan of another modified form, the traveler in vertical position unmounted, and

Figures 9, 10, and 11, a side elevation, a front elevation, and a top plan view respectively of a further modified form of my traveler in unmounted vertical position.

In Figure 1 of the drawing 14 represents the yarn, thread, or filament advanced from the feeding rolls, through the usual thread guide, of a spinning or twisting machine to the barrel portion 15 of the spool 16 above its base 17. The revolving spindle 18 with its whorl 19 carries the bobbin. 20 is the vertically reciprocating traverse rail supporting the holder 21 of the ring 22 of the vertical type provided with the lubricating groove 24 and upon which revolves my traveler 26 also of the vertical type under the impulse of the yarn 14 which slidably engages the latter.

My traveler, which is of the vertical type, is formed from lengths of steel, bronze, or alloys of any unusual, convenient, or preferred transverse sectional contour. As shown in Figures 3 and 4 it comprises a shank 27 having a vertical lower portion 28 and an upwardly directed rearwardly inclined upper portion 29. Integral with the lower end of the shank 27 is a curved foot or lower horn 31. A head or upper horn 32 comprises a forwardly extending top portion 33 and a downwardly directed nose portion 34 outwardly folded upon itself as at 35. The doubled back portion or arm 37 of the head is in overlapping contact with the nose portion 34 and extends rearwardly over the top portion 33 to an intermediate portion of the latter and in the vertical plane thereof, where the folded portion is bent into an upwardly extending laterally directed resilient helical coil 39 beginning substantially in the plane of the traveler and terminating in a tip 40. The coil forms a guide eye 41 for the passage of the filament 14 therethrough.

In Figure 4 the upwardly extending coil 39, when viewed from the front of the traveler, is directed to the right of the vertical plane of the latter. This direction of the coil is required when the twist being imparted to the filament 14 is in one direction, known as the "regular twist". When an oppositely directed twist, known as "reverse twist", is being imparted, the coil 39 is directed to the left of the traveler plane, as shown in Figure 5.

In operation the traveler 26 is, in running position, impelled around the ring 22 with a laterally forwarded tilt under the influence of the filament 14 passing through the guide eye or coil 39 and thence, because of the elevated position of the latter, to the spool 16 in a horizontal plane not lower than the top of the spool base 17 which shields the filament from any discolored lubricant thrown off from the spool base during their revolution when the base of the spool is within the ring during the traverse of the latter. The position of the coil 39 is such that it is inaccessible to any lubricant which may escape from the lubricated inner face of the ring 22 or from the lubricated surface of the traveler; and no portion of the coil is in contact with the ring and therefore there is no possibility of contact with the lubricant in threading or otherwise.

In broken lines in Figure 2 the traveler is shown in a position of rest. The position of the thread

guide 39, above the head 32 rather than below the latter and adjacent the inner lubricated face of the ring 22, maintains the filament remote from said face even when the traveler is in a position of rest.

The elevated position of the coil 39 increases the tendency of the filament to maintain the traveler while it is in motion from assuming such an excessive tilt as to cause the head and foot thereof to cramp upon the ring or engage the latter with excessive friction.

The helically coiled thread guide 39 is threaded by a single swift movement of the operator, standing in front of the traveler, who grasps the thread at interspaced points thereon between the thumb and first finger of each hand and thrusts the interspaced portion forwardly along the top surface of the arm 37, transversely thereof, against the side of the coil which yields to the thrust and admits the thread into the eye 41 in operating position. The downward and rearward curvature of the side of the coil impacted by the thread moving along the arm 37 serves to guide the thread into the eye. Not only is the threading operation instantaneous and certain, but at no time during the operation can the thread contact with any portion of the ring 22. Thus danger of soiling by the lubricant or accumulations upon the ring or any portion of the traveler head is avoided.

It will be understood that the shank 42 of my device may, as shown in Figure 6, be straight throughout its length without departing from my invention.

A modified form of my invention, shown in Figures 7 and 8, differs from the form shown in Figure 3 in substituting for the arm 37 and arm 44 which extends to a point near the rear end of the top portion 33 of the head, and terminates in a longitudinally directed helical coil 46, that is to say, a coil whose axial line is longitudinal with relation to said top portion 33. The coil 46 is in the same vertical plane as that of the traveler and permits a direct comparatively frictionless passage of the thread therethrough to the spool or bobbin 16 upon which the thread is wound. Furthermore this coil is composite in that it is utilizable in a single structure for both a "regular twist" or "reverse twist".

In travelers of greater width or weight than those above described the modification of construction of my traveler shown in Figures 9 to 11 inclusive is desirable, wherein a single piece of broad material is used throughout. It is composed of the shank 48 and foot 49. The former having a rearwardly and upwardly inclined upper portion 51 integral with a head 52 including a forwardly directed top portion 43 and downwardly directed nose portion 54, the portions 53 and 54 being but half the width of the shank 48. This is due to the fact that original material of the head was longitudinally bisected. One of the two bisected sections included the bearing portion and nose portion, while the second section was bent to form, at the rear end portion of the head, an upwardly extending laterally directed helical coil 56 forming an eye 58. The coil 56 is located in this instance upon the right half of the head for use in connection with "regular twist", it being understood that a location of the coil upon the left half of the head instead would be necessary in connection with "reverse twist".

I claim:—

1. A ring traveler of the vertical type having a vertical shank, a foot upon the lower end of the shank, and a head having a portion bent to provide a guide coil adjacent thereto and positioned above the head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

2. A ring travel of the vertical type having a vertical shank, a foot upon the lower end of the shank, a head upon the upper end of the shank, and having an extension shaped to provide a helical coil mounted adjacent to and positioned on said head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

3. A ring traveler of the vertical type, a foot upon the lower end of the shank, and a head upon the upper end of the shank having a portion bent to form a helical guide coil mounted adjacent to and positioned upon the top of said head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

4. A ring traveler of the vertical type comprising a shank, a foot upon one end of a shank, and a head upon the upper end of the shank having a portion bent to form a guide coil mounted adjacent to and positioned upon the head and directed laterally therefrom, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

5. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, and a head integral at one end with the shank and including upon its other end a terminal fold, the folded portion being adjacent the head and provided in its free end with a guide eye, said eye being positioned at right angles to said head and shank.

6. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, a head upon the shank including a terminal portion folded back upon itself, and a guide coil upon the end of the folded back portion adjacent the head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

7. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, and a head integral at one end with the shank and including upon its other end a terminal fold, the folded portion being adjacent the head and extending to a point above the head and provided with a terminal guide eye.

8. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, a head upon the shank including a terminal portion folded back upon itself, and a guide coil yieldingly mounted upon the end of the folded back portion adjacent to and above the head.

9. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, and a head connected at one end to the shank and including a nose portion at its other end outwardly doubled back upon itself and provided in its free end with a guide eye adjacent to the head.

10. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, a head comprising a forwardly directed top portion integral with the upper portion of the shank at one end and a downwardly directed nose portion upon its other end outwardly doubled back upon the nose portion and extending above the top portion and a helical coil upon the free end of the folded back portion adjacent to the head.

11. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, a head comprising a forwardly directed top portion integral with the upper portion of the shank at one

end and a downwardly directed nose portion upon its other end outwardly doubled back upon the nose portion and extending above the top portion, and a yielding helical coil integral with the free end of the folded back portion adjacent to the head.

12. A ring traveler of the vertical type, comprising a shank, a foot upon one end of the shank, a head upon the other end of the shank and having an extension shaped to provide a rearwardly directed guide coil mounted adjacent to and positioned upon the head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

13. In a ring traveler of the vertical type, a shank, a foot upon the lower end thereof, a head upon the upper portion of the shank including a terminal portion folded back upon itself, and a rearwardly directed helical guide coil upon the folded back portion adjacent the head, said coil comprising a plurality of turns and extending laterally beyond the plane of the head and shank.

14. In a ring traveler of the vertical type, a shank, a foot upon the lower end of the shank and a head integral with the upper end of the shank comprising two bisected sections, one section including a forwardly directed top portion and a downwardly directed forward end portion, and the other section including a guide member.

15. In a spinning or twisting machine, a ring, a traveler of the vertical type having a shank engageable with the inner face of the ring, a foot upon the shank engageable with the lower edge of the ring, a head upon the shank including a top portion extending over the upper edge of the ring including a downwardly directed terminal portion folded back upon itself and extending above said top portion adjacent the head and provided in its free end with a guide eye.

16. In a spinning or twisting machine, the combination with the spindle, the spool for receiving a thread, the traverse rail, and the ring carried thereby, of a traveler of the vertical type having a shank engageable with the face of the ring, a foot upon the shank engageable with the bottom of the ring, a head upon the shank extending over the top of the ring including a downwardly directed terminal portion folded back upon itself and a helical guide coil upon the free end of the folded back portion adjacent to and above the head adapted to receive the thread therethrough.

AMOS M. BOWEN.