Aug. 26, 1930. F. K. HENDRICKSON ET AL 1,774,371

TWISTER HEAD

Filed July 27, 1928

Fig. 3.

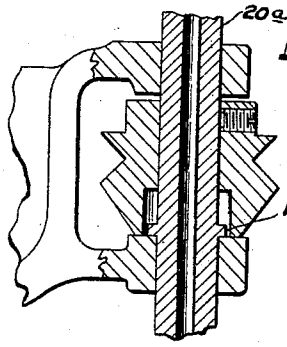


Fig. 1

Fig. 2.

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UNITED STATES PATENT OFFICE

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TWISTER HEAD

Application filed July 27, 1928. Serial No. 295,806.

This invention relates to a twister head of the general type shown in the prior patent to Pease, No. 983,641, issued February 7, 1911.

Such a twister head requires axial adjustment toward and from the drawing rolls to adapt it to different lengths of fiber and to different conditions of operation. It has been customary to mount the twister head to slide axially in its bearings, and to determine its axial position by securing the driving whirl thereto by a set-screw connection. This set-screw at times became loosened, allowing the twister head to drop down until the yarn nippers engaged the drawing rolls, frequently causing serious damage thereto.

It is one of the objects of our invention to prevent the occurrence of such damage by providing a safety device, limiting axial movement of the twister head toward the drawing rolls.

Another object of our invention is to provide an improved yarn guiding member in such a twister head, by which the durability of the head is substantially increased.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention and a slight modification thereof are shown in the drawings in which

Fig. 1 is a sectional side elevation of a twister head embodying our improvements, and portions of a twisting frame associated therewith;

Fig. 2 is a detail front elevation, looking in the direction of the arrow 2 in Fig. 1, and

Fig. 3 is a partial sectional side elevation of a modification.

Referring particularly to Figs. 1 and 2, we have shown portions of a twister frame comprising rails 10 and 11, a frame member 12 supporting a fixed drawing roll 14 and a movable drawing roll 15, and brackets 16 for the twister heads, all of these parts being of the usual construction. One or both of the drawing rolls 14 and 15 are positively rotated to draw the yarn Y downward during twisting operations.

Twister heads 20 are freely rotatable in spaced bearings 21 and 22 on the brackets 16. The main or shaft portion of each twister head 20 is cylindrical, and is freely adjustable axially in the bearings 21 and 22.

A driving whirl 24 is mounted on each twister head 20 and is rotated by a cord or band 26, driven from any usual source of power, not shown. The whirl 24 substantially fills the space between the fixed bearings 21 and 22 and is thus held in a definite vertical position. The whirl 24 is loose on the twister head 20 but may be secured in adjusted position thereon by a set-screw 28.

The yarn Y passes downward through an axial opening 30 in the twister head 20, and is engaged by a fixed jaw or nipper 31 and a yieldingly movable jaw or nipper 32, the latter being provided with a weighted upper end 33 which acts by centrifugal force to grip the yarn as the twister head is rapidly rotated.

Thus far described, the twister head is of the usual construction, as shown in the patent to Pease previously mentioned.

In the previous construction, however, the twister head was free to slide downward, if the set-screw 28 became loosened, until the jaws 31 and 32 engaged the drawing rolls 14 and 15, thereby causing serious damage thereto.

To prevent such accidents, we have provided the safety device herein shown, which in the preferred form is achieved by forming a circumferential groove 35 in the twister head 20 and by snapping a spring ring 36 into said groove, thereby forming a shoulder on said twister head. The ring and groove are so positioned axially of the head 20 that the ring 36 will engage the top surface of the lower bearing 22, as the jaws 31 and 32 move downward and approach the drawing roll, and will thus limit such downward movement before the jaws can engage and damage the rolls.

The whirl 24 is provided with a recess 38 in its lower face to permit upward movement of the ring 36, when it is desired to adjust the twister head to a raised position.

With our improved construction, we therefore permit vertical adjustment of the twister

head to meet specific conditions of operation, as heretofore, while at the same time we positively limit downward movement of the twister head so that the jaws 31 and 32 cannot engage the drawing rolls.

In Fig. 3 we have shown a slightly modified structure, in which an annular flange 40 is formed on the twister head 20ª, such flange being the substantial equivalent of the ring 36 and performing the same function.

A further feature of our invention relates to the provision of a special guide member 44 (Fig. 1) at the upper end of the twister head 20. It has been customary previously, as shown in the Pease patent, to insert two pins directly in the upper end of the twister head. These pins may become loosened and lost, and the top portion of the twister head, which is of relatively soft metal, has been found to wear quite rapidly by the friction of the yarn thereon.

The member 44 is preferably formed of hardened steel, with the pins or projections 45 integral therewith, and by the use of this improved guiding member the wear of the twister head is substantially eliminated, as well as possible loss of the driving pins.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed otherwise than as set forth in the claims, but what we do claim is:—

1. In a twisting machine having drawing rolls, in combination, a twister head vertically adjustable toward and from said rolls and operative in any of a plurality of adjusted positions, said head having a cylindrical shaft portion, spaced bearings for said shaft portion, a driving whirl mounted on said shaft portion and rotatable between said bearings but held from downward movement thereby, means to adjustably secure said whirl to said twister head and to thereby determine the vertical operative position of said head relative to said rolls, and means additional to said whirl effective to limit axial downward movement of said twister head in said bearings toward said drawing rolls.

2. The combination in a twisting machine as set forth in claim 1, in which said limiting means comprises a shoulder on said shaft portion positioned to engage an end surface of one of said bearings when said twister head reaches its extreme lower operative position.

3. The combination in a twisting machine as set forth in claim 1, in which said limiting means comprises a shoulder on said shaft portion positioned to engage an end surface of one of said bearings when said twister head reaches its extreme lower operative position, and in which said whirl is recessed in said lower end portion to permit upward adjustment of said twister head and shoulder.

4. The combination in a twisting machine as set forth in claim 1, in which the cylindrical shaft portion has a circumferential groove formed therein and in which a spring ring snapped into said circumferential groove provides a shoulder positioned to engage an end surface of one of said bearings when said twister head reaches its extreme lower operative position.

In testimony whereof we have hereunto affixed our signatures.

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