May 13, 1930. A. STRADER 1,758,864

SPINNING MACHINE

Filed April 10, 1929

FIG. 1.

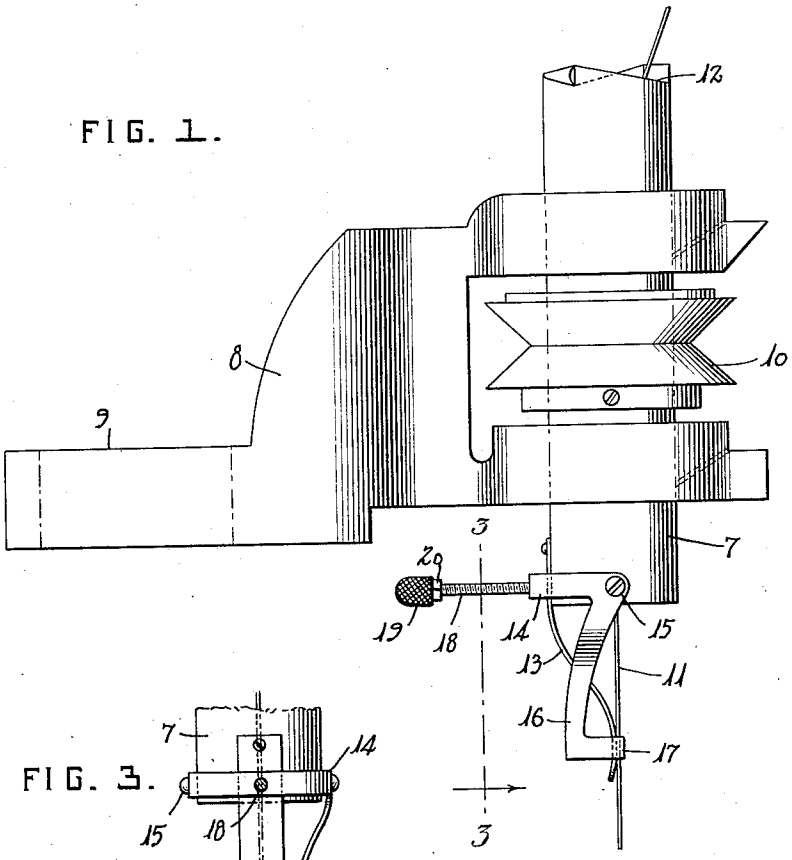
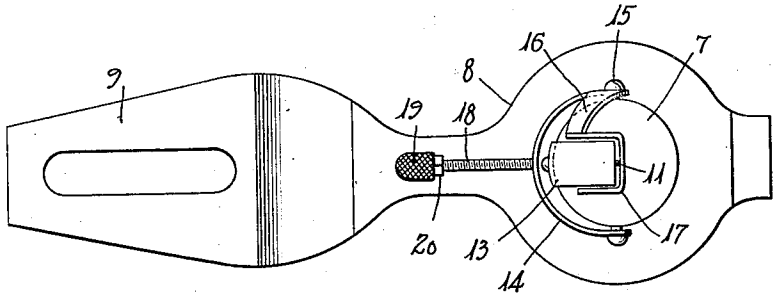


FIG. 3.

FIG. 2.



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UNITED STATES PATENT OFFICE

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SPINNING MACHINE

Application filed April 10, 1929. Serial No. 354,004.

The present invention relates to spinning machines, and aims to provide a novel and improved nipper device for rotating the cord or strand.

Another object of the invention is the provision of a device of the kind indicated which is semi-automatic in operation in that it is only necessary to stop the rotation of the tube carrying the device in order to thread the cord through the device in the event that the cord breaks.

A further object is the novel formation of the entrance end of the spindle tube in order to aid in the formation of a false twist of the cord.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of the invention as embodied in an attachment for a spinning machine.

Fig. 2 is a bottom view thereof.

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

A spindle tube 7 is rotatable in a bracket 8 which has a slotted portion 9 for attaching the device to a spinning machine, and a pulley wheel 10 is secured on said spindle to enable the spindle to be rotated by a belt.

The cord or strand 11 passes downwardly through the tube, and the upper or entrance end of the tube is formed with ratchet teeth 12 to move across the cord in succession, so as to cause the cord to have more of a twisting and rolling action, and to be held long enough to cause the cord to drop over the ends of the teeth, thereby aiding in the production of the false twist. As shown, there are three teeth 12.

The nipper is carried by the lower end of the tube, and includes a leaf spring finger 13 welded or otherwise secured to one side of the tube at the lower end thereof and having its lower free terminal adjacent to the axis of the tube for the contact of the cord 11. A yoke 14 is disposed astride the tube 7 and is pivoted thereto, as at 15, on a transverse axis. An arm 16 extends downwardly from the yoke and has a jaw 17 cooperable with the free terminal of the nipper finger 13, to grip the cord 11 between said finger and jaw, in order to rotate the cord with the tube.

The yoke 14 has an outstanding threaded stem 18 on which a weight 19 is threaded for adjustment, and a lock nut 20 on said stem contacts with the weight to maintain the adjustment.

The arrangement is such that when the tube 7 is rotating, the weight 19 is moved by centrifugal action so as to hold the jaw 17 against the cord 11 and finger 13 with sufficient pressure to grip the cord.

When the tube 7 is at rest, the weight 19 will gravitate, thereby swinging the yoke 14 so as to move the jaw 17 away from the finger 13. This provides for the semi-automatic threading of the cord when a break occurs, as will presently appear.

The action of the weight 19 in closing the nipper when the tube is rotated and in opening the nipper when the tube is stopped is due to the fact that the weight is arranged at that side of the finger 13 opposite to the side where the jaw 17 is located. The arrangement is such that when the weight swings downwardly the jaw 17 may be swung a relatively large distance away from the finger 13.

Should the cord 11 break, it is doubled back about six to eight inches from the broken end. The tube 7 is then stopped by pressing against or grasping same. The stopping of the tube will permit the pivoted nipper member to swing open, the weight 19 moving downwardly and the jaw 17 moving away from the finger 13. This affords ample space for the cord to pass between the finger 13 and jaw 17 to the rolls (not shown) below. As soon as the slack has been taken up by the rolls, the tube 7 is released, and will resume its rotation, and the centrifugal action of the weight 19 will bring the jaw 17 back against the cord to grip the cord between said finger and jaw.

The threading operation is thus semi-automatic, in that it takes place automatically after the tube or spindle is stopped by hand. No manipulation of the nipper members is necessary.

Having thus described the invention, what is claimed as new is:

1. A device of the character described comprising a rotatable tube, a pair of nipper members carried by the tube for gripping a cord passing through the tube, one of said members being mounted to swing to and from the other member at one side thereof, and a weight carried by the first-named member at the opposite side of the second-named member for moving the first-named member toward the second-named member by centrifugal action when the tube is rotated and for swinging the first-named member away from the second-named member when the tube is stopped.

2. A device of the character described comprising a vertical rotary tube, a nipper finger depending from said tube, a nipper member pivotally connected with said tube and having a jaw cooperable with said finger at one side thereof for gripping a cord extending through the tube, and a weighted stem movable with said member and extending away from the opposite side of said finger and arranged to swing to a substantially horizontal position by centrifugal action, when said tube is rotated, to move said jaw against said finger, and to swing downwardly by gravity, when the tube is stopped, to move said jaw away from said finger.

3. A device of the character described comprising a rotary tube, a finger carried by said tube, a yoke disposed astride said finger and pivoted to said tube, said yoke having an arm with a jaw cooperable with one side of said finger to grip a cord extending through the tube, an outstanding stem carried by said yoke and projecting from the opposite side of the finger, and an adjustable weight on said stem, said stem being so arranged that the centrifugal action of said weight, when the tube is rotated, will move said jaw against said finger, and that the weight in swinging downwardly, when the tube is stopped, will move said jaw away from said finger.

In testimony whereof I hereunto affix my signature.

ALFRED STRADER.