Jan. 23, 1923. 1,442,873

J. P. GAREY.

SPINNING FRAME AND THE LIKE.

FILED FEB. 10, 1921. 2 SHEETS-SHEET 1

Fig. 1

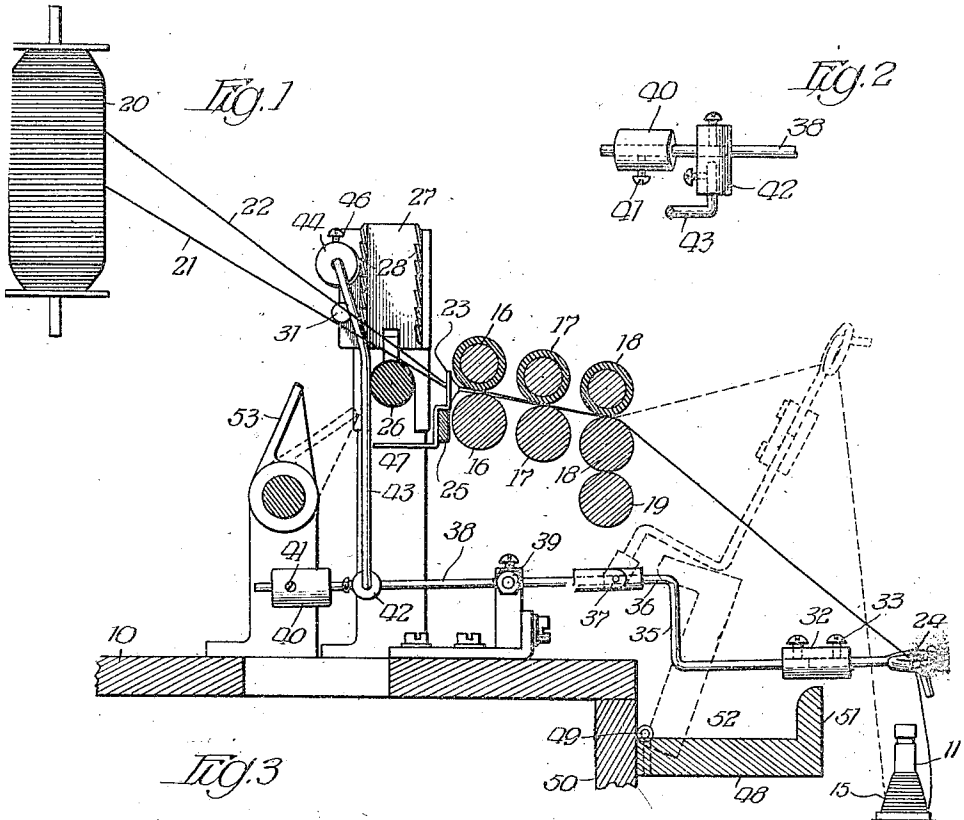
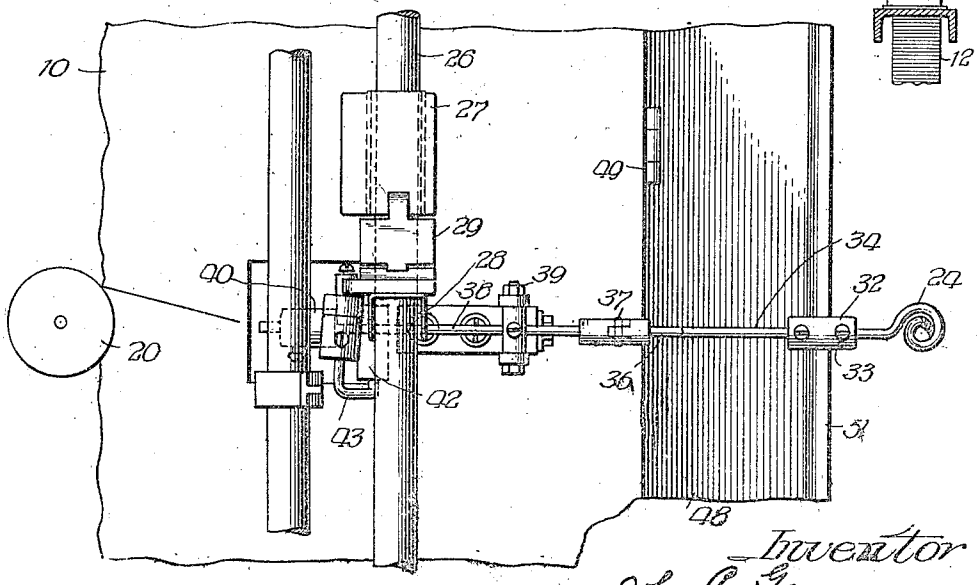


Fig. 2

Fig. 3



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2 SHEETS-SHEET 2

Fig. 4

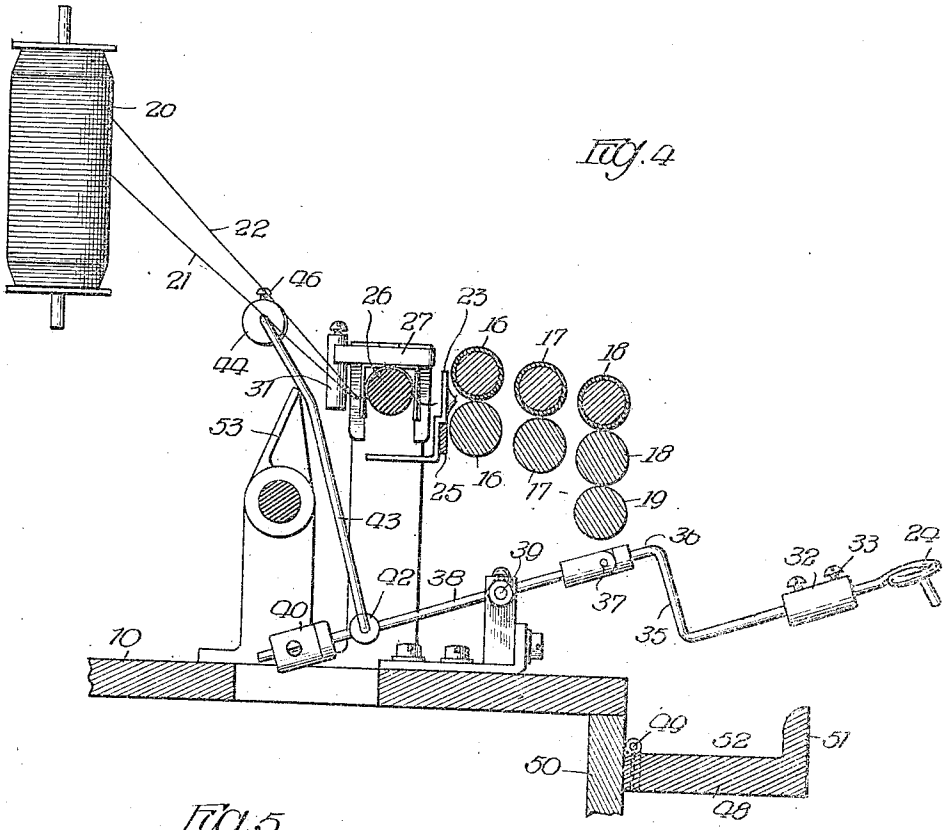


Fig. 5

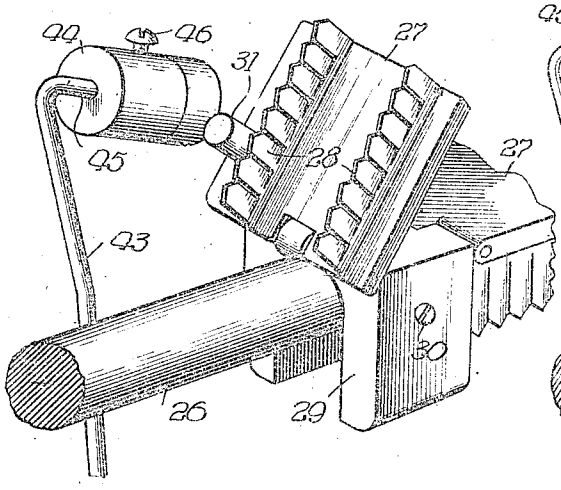
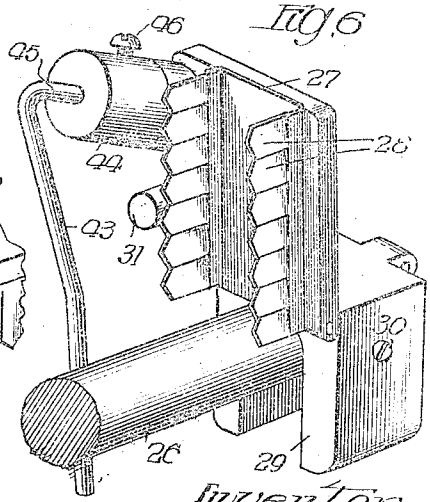


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN P. GAREY, OF ELMIRA HEIGHTS, NEW YORK.

SPINNING FRAME AND THE LIKE.

Application filed February 10, 1921. Serial No. 443,759.

To all whom it may concern:

Be it known that I, JOHN P. GAREY, a citizen of the United States, residing at Elmira Heights, county of Chemung, and State of New York, have invented certain new and useful Improvements in Spinning Frames and the like, of which the following is a specification.

My invention relates to spinning frames and the like, and the object thereof is to provide simple and efficient means to stop the feeding of rovings through the drawing rolls after the thread or yarn has been broken. My present invention is designed as an improvement upon that illustrated and described in my prior patent application, filed July 16, 1919, Serial No. 311,221. One of the main objects of the present invention is to provide simple means for automatically resetting the device or gripping means which severs or grips the rovings whereby the same are positioned for the next operation without dependence upon the care and forethought of the operator. The construction and arrangement are such that this device is reset by the act of the operator in rethreading and restoring the eye or guide to normal position.

Another object of my invention is to provide simple and efficient means, acting both to doff all of the bobbins simultaneously in a section and to collect the dust and lint at the front of the board of table.

My new structure embodies other novel and advantageous features of construction which will be apparent from the description hereinafter given.

In the drawings Fig. 1 is a vertical section through the spinning frame embodying my invention and also showing the doffing means operated; Fig. 2 a detailed view of a part of the controlling means; Fig. 3 a plan view of the parts shown in Fig. 1; Fig. 4 a view similar to Fig. 1 but showing the severing and gripping means and the controlling means in operated position;

Fig. 5 a perspective of the severing device and a part of the controlling means in a position to reset such device and Fig. 6 a similar view but showing said device reset.

The spinning frame may be and is shown as of the ordinary type, comprising suitable frame members including a board or table 10 on which are arranged a large number of spinning units in the usual manner. The spinning mechanism proper includes a spindle 11 rotated by suitable mechanism (not shown) on which is mounted a spool 12 to receive the thread or yarn, a ring board 13 constructed and arranged to be reciprocated vertically in order to carry the ring 14 and the traveler 15 thereon longitudinally of the spool during the winding operation.

The usual drawing rolls are employed, the same comprising three pairs of rolls 16, 17 and 18 revolved at progressively increasing speeds so that the rovings are drawn or lengthened by the relative movement of the fibers between successive pairs of rolls. A scavenger roll 19 is also employed to cooperate with the rolls 18. Supply bobbins 20, of which there are commonly 2 for each set of drawing rolls and spinning mechanism, are mounted behind the drawing rolls in position to feed the rovings thereon to the bite of the rolls.

Rovings 21 and 22 from the supply bobbins are carried through a trumpet guide 23 to the first pair of drawing rolls 16, thence through the rolls 17 and 18 to the eye or guide 24 which is arranged in the axis of rotation of the spindle 11 and from which the thread or yarn is carried through the traveler 15 and thence to the spool 12. This trumpet guide is mounted upon the usual reciprocating slide bar 25 which extends longitudinally of the frame and is common to all of the sets of drawing rolls, such slide being reciprocated by suitable mechanism (not shown). The horizontal bar 26 performs its usual function of supporting the bearings of the drawing rolls.

Except for the specific form and mounting of the thread guide 24, hereinafter described in detail, the mechanism as thus far set forth is that which is common to most spinning machinery and therefore need not be further described.

Referring to my stop mechanism, the same comprises a device for severing or gripping the rovings after one or more of them or the thread or yarn has been broken, and also controlling means operating in connection with the guide 24 and dependent upon the continuity of the thread in such guide. As shown this device consists of a plate or rack 27 having a pair of combs 28 projecting therefrom and adapted to fit upon opposite sides of the bar 26 when such plate is in its horizontal or operated position, with the result that the rovings will be gripped between the combs and this bar 26 and severed

or broken by the draft of the rolls. The plate 27 is pivoted to a bracket 29 which is secured or adjustably gripped to the bar 26 in suitable manner as by means of set screws 30. In practice these plates are provided in pairs working in opposite directions and pivoted to a single bracket 29 as shown in Fig. 3, so that a single bracket with the two stop devices will serve two adjacent spinning units. The plate 27 is provided with a projection such as a pin 31, located in a certain predetermined position on the inner or lower face of the plate, in the present instance at one side thereof and in the lower portion towards the pivotal point of such plate, such pin being provided for the automatic resetting of the severing device hereinafter explained.

Referring to the controlling means, the same carries at its forward end the guide 24 and at its rearward upward end a device cooperating direct with the pin 31 for the resetting operation and with the plate 27 to hold the latter in its inoperative position but ready to operate. As shown this guide is of the usual variety but is not secured to any fixed support but to said controlling device. In the present instance the stem of this guide is adjustably connected by means of the sleeve 32 and set screws 33 to a rod 34 having a right angled vertical portion 35 and a horizontal portion 36, the latter being pivotally connected in suitable manner at 37 to a substantially horizontal rod 38 which is suitably pivoted upon the board 10 as at 39. The rod 38 carries at its rearward end a weight 40 adjustably secured thereon in suitable manner as by means of the set screw 41. This rod 38 passes through and is secured to a horizontal and enlarged pin or cylinder 42 to whose end there is secured a substantially vertical rod 43 carrying at its upper end an enlarged pin or small cylinder 44 adjustably secured to the right angled horizontal portion 45 of the rod 43 in suitable manner as by the set screw 46.

The controlling means is preferably so adjusted as to be in substantial balance or equilibrium and the pressure and friction of the thread or yarn through the guide is sufficient to hold said controlling means in its normal or set position. When, however, the thread breaks such pressure on the guide will be relieved and the vibration of the spinning frame will serve to cause the controlling means to tilt rearwardly to the position shown in Fig. 4. Previously the cylinder 44 had been bearing against the inner or lower face of the plate 27 but the vibration of the frame in such space of time causes the relative movement of such cylinder 44 backward while in frictional contact with such face of the plate until it clears such plate whereupon such cylinder, acting as a weight together with the weight 40, will move the controlling means to the operated position shown in Fig. 4.

The operator rethreads the machine in the usual way and in such operation and as an incident thereto, the guide 24 is restored to its normal position, previous to which the operator has turned the plate 27 upwardly to the inoperative position shown in Fig. 5. When the guide 24 and the entire controlling means are tilted back to their normal position the curved surface of the cylinder 44 acting as a cam on the similar curved surface of the pin 31 will tilt the plate 27 to the operative position shown in Fig. 6 at which time such cylinder will take its position in the path of the plate and sustain it in said position, ready for operation by dropping by gravity.

By balancing the controlling means no additional pressure or friction is applied to the thread but it is evident that by slightly adjusting the weight 40 rearwardly, such controlling means may be overbalanced backwardly without applying any undue additional pressure to the thread. In this event the vibration of the machine need not be relied upon but the overbalance may be availed of either alone or coupled with the action resulting from vibration.

Also as in respect to the structure shown in my previous patent application a positive impulse may be given to the controlling means in order to release the latch arrangement between it and the severing device, such impulse being provided by means of the cam 47 carried by the reciprocating bar 25 and adapted to contact the vertical rod 43 and thereby displace it or move it backwardly slightly whereupon the overbalance thus produced in the controlling means will take care of the remainder of the tilting movement.

At the front end of the table or board I provide a horizontal plate or board 48 which is of sufficient length to take care of the section of spinning units. This board is pivoted in suitable manner as at 49 to the vertical board 50 of the frame and the same is provided at its front with a vertical flange 51, thereby providing a horizontal channel 52 which is adapted to collect dust and lint resulting from the spinning operations. The construction is such that this channel may be readily cleaned in any suitable manner even while the spinning operations are proceeding. This board 48 has a pivotal movement upwardly and the construction and arrangement are such that the flange 51 will simultaneously contact the controlling means for all of the units of a section and will throw the same upwardly and also hold them upwardly as indicated by the dotted lines in Fig. 1, for which purpose the front end of the controlling means,

that is the front rod thereof, is pivoted at 37. To prevent this action causing the severing means to drop into operated position the lock members 53 are turned, to the position shown in dotted lines, by any suitable means; thus locking the rod 43 against the bar 26, thereby retaining the plate 27 with its combs 28 in operative position.

I claim:

1. In a machine of the class described, the combination, with drawing rolls, of a device arranged adjacent the rolls for severing or gripping the roving, mechanism for controlling said device and normally holding the same out of contact with the roving, and means for setting such device from an inoperative to an operative position as an incident to the resetting of such mechanism.

2. In a machine of the class described, the combination, with drawing rolls, of a device arranged adjacent the rolls for severing or gripping the roving, mechanism controlling device and normally holding the same out of contact with the roving, and cooperating parts carried by said device and mechanism respectively for setting such device from an inoperative to an operative position as an incident to the resetting of such mechanism.

3. In a machine of the class described, the combination, with drawing rolls, of a roving severing device pivotally mounted adjacent such rolls, controlling mechanism including a thread guide in front of the rolls and a latch cooperating with said device, said latch and device having cooperating parts acting to set such device from an inoperative to an operative position as an incident to the resetting of the latch and guide to normal position.

4. In a machine of the class described, the combination, with drawing rolls, of a roving clamping device pivotally mounted adjacent such rolls, controlling mechanism including a thread guide in front of the rolls and a latch cooperating with said device, said latch and device having cooperating curved projections whereby such device is reset to operative position as an incident to the resetting of the latch and guide to normal position.

5. In a machine of the class described, the combination, with drawing rolls, of a roving clamping device pivotally mounted adjacent such rolls, controlling mechanism including a thread guide in front of the rolls and a latch cooperating with said device, said latch comprising a weight normally interposed in the path of movement of said device, and having a curved projection, and said device having a cooperating curved projection whereby when the latch is moved to normal or set position the device is automatically set to operative position.

6. In a machine of the class described, the combination, with drawing rolls, of a roving clamping device pivotally mounted adjacent such rolls, controlling mechanism including a thread guide in front of the rolls and a latch cooperating with said device, said latch comprising a cylindrical member whose end is normally interposed in the path of movement of said device, and said device having a projecting pin arranged in the path of movement of the side of said member whereby the device is first tilted to operative position and then held thereat by said member.

JOHN P. GAREY.