

F. S. CULVER & L. J. MORIN.

SPINNING MACHINE.

APPLICATION FILED MAR. 31, 1909.

974,030.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.

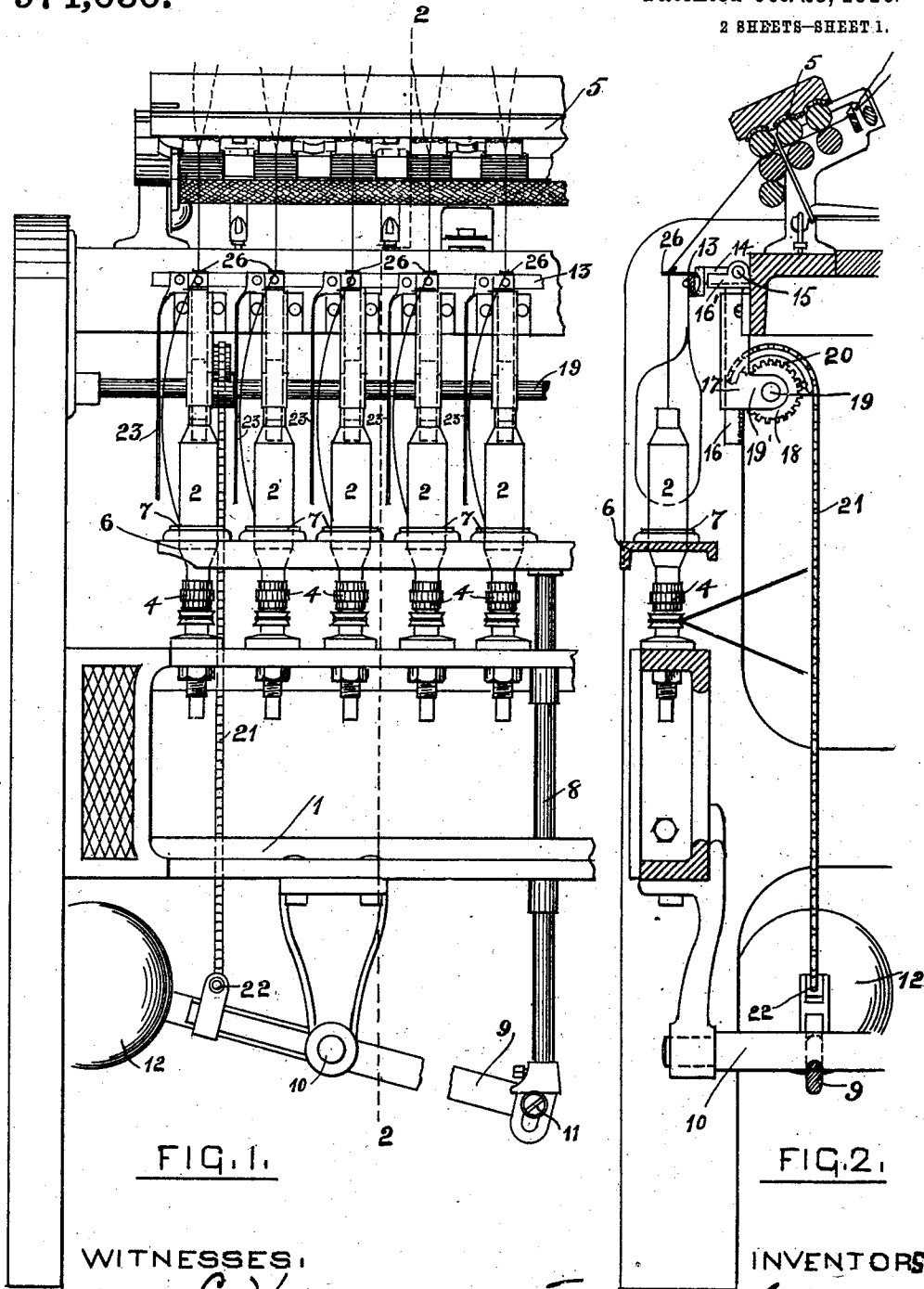


FIG. 1.

FIG. 2.

WITNESSES:

Ada E. Hagerty.
Elsa B. Dana

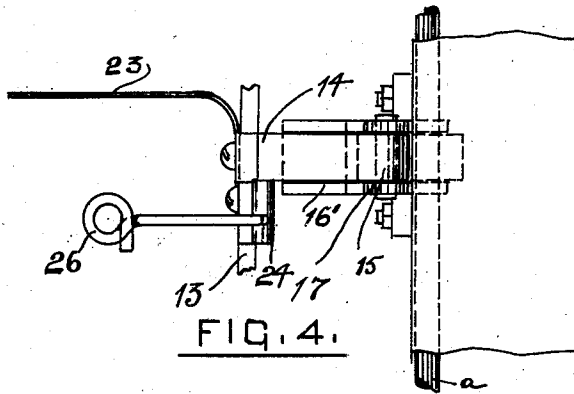
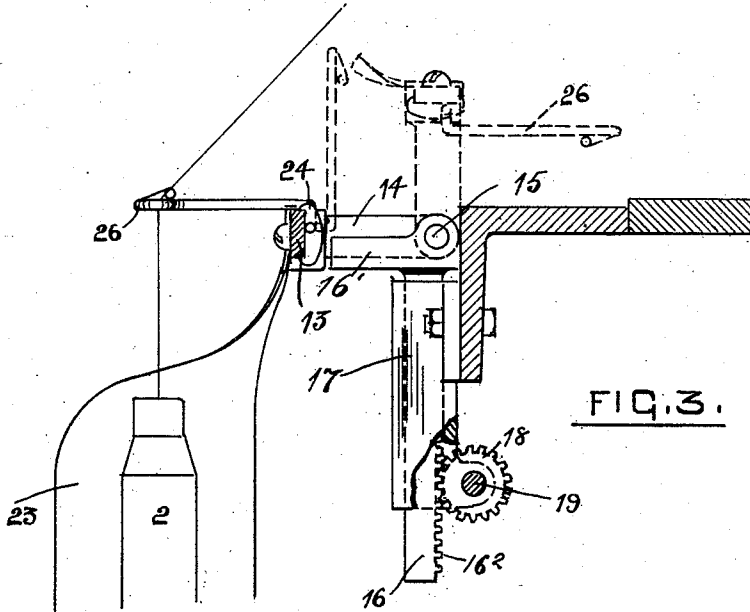
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UNITED STATES PATENT OFFICE.

FREDERICK S. CULVER AND LEON J. MORIN, OF TAUNTON, MASSACHUSETTS.

SPINNING-MACHINE.

974,030.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed March 31, 1909. Serial No. 486,990.

To all whom it may concern:

Be it known that we, FREDERICK S. CULVER and LEON J. MORIN, citizens of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Spinning-Machines, of which the following is a specification.

This invention relates to improvements in spinning machines, and has more particular reference to mechanism operating and automatically regulating the vertical movement of the separator plates and guide-eyes.

The principal object of our invention is to provide means for the movement of the separator plates and guide eyes in a vertical line, and with a perpendicular action.

A further object is to provide improved means for the simultaneous movement of the thread guides with the thread board movement to insure the greatest possible efficiency in the thread feed.

Further, it is our object to improve the construction of the thread guides to permit the ready doffing of the machine, and to permit the removal of a single bobbin.

Referring to the accompanying drawings, which form a part of this specification:—Figure 1 is a front elevation of a portion of a spinning machine, showing a number of the bobbins with our improved thread guides and elevating mechanism in operative position. Fig. 2 is a section through the machine along the line 2 2 of Fig. 1. Fig. 3 is a sectional elevation similar to Fig. 2, showing an individual thread guide and the thread guide rod elevated in dotted lines. Fig. 4 is a detail plan view of a portion of the thread guide rail, showing its mounting.

Referring more particularly to said drawings, 1 is the frame of the machine supporting the usual series of bobbins 2 on the revolving spindles 4, and having the roll mechanism 5 at the upper part of the frame. The ring rail 6 carrying the spinning rings 7 is operated vertically by means of the rod 8, said rod being linked by means of rock arm 9 to the rock shaft 10, rock arm 9 and rock shaft 10 constituting a part of the usual builder motion. The connection of the rock arm 9 with the rod 8 is adjustable, as by the slot and screw connection 11, and said rock arm 9 is weighted as at 12, to counterbalance the weight of the ring rail.

Coming now to the essence of our invention, 13 is a thread guide rail or rod, pref-

erably flat, which is secured as by screws to horizontal brackets 14 which are hinged or pivoted at a plurality of points, as at 15 to vertically slidable supports 16. Said supports 16 constitute vertical rods having trough-like horizontal projections 16', and operating in comparatively long narrow boxings or slide bearings 17. Said trough-like projections 16' form braces or rests for the brackets 14. Said boxings or slide bearings 17 are secured, as by bolts, to the upper rails of the frame 1.

Formed on the rear edges or sides of the supports 16 are racks 16² which mesh with the gear 18 on a shaft 19. Said shaft 19 extends from end to end of the machine frame and is journaled in bearings 19' extended rearwardly from the slide bearings 17 and also has its ends journaled in the end pieces of said frame behind the spindles and under the upper rail. Secured at a suitable point on shaft 19 is a segment or other member 20 having a peripheral surface, which has fastened over said periphery so as to loosely wrap the same a chain 21. Said chain 21 has its opposite or depending end fastened in a slotted pivot 22, which is adjustably secured to the aforesaid rock arm 9, said pivot 22 being clamped to the balanced end of said rock arm in the embodied construction. From the above it will be evident that as the rock arm 9 moves through its usual arc, a reciprocatory movement will be imparted to the shaft 19, which will be imparted through the gear 18, and rack 16² to the supports 16, as a vertical reciprocatory motion.

In the drawings only one segment and chain are shown, but, of course, in machines which carry a number of counter-balancing rock arms 9, a plurality of segments and chains may be provided.

The hinged thread guide rail 13 is disposed vertically in cross section and has fastened to its front face the separators 23. At its rear face it has secured, as by screws, the boxings or clips 24, in which the thread guides 26 are pivotally mounted. This is accomplished by bending said guides downwardly and then bending a short off-set to one side from the downwardly-extended portion (as shown in Figs. 3 and 4). This off-set, horizontally mounted in the clips 24, permits the said thread guides a swinging movement upwardly through an arc of ninety degrees, thereby permitting

the individual guides to be lifted to remove the bobbins singly or to repair broken threads.

From the above it will be seen that in operation there is imparted to the thread guide rail 13 an absolutely perpendicular reciprocatory motion, which is timed accurately with the movement of the ring rail, thereby giving a proper and highly efficient thread feed with no detriment to its movement. Furthermore, there is provided a double hinged movement to the thread guides which permits the individual or collective removal from the path of the thread, for replacing of single bobbins or the doffing of the entire machine, the guides by this double movement thus being entirely removed from the area of work, when the machine is to be doffed or replenished.

Having thus described our invention, we claim as new and desire to secure by Letters Patent;—

1. A spinning machine thread feeding mechanism, comprising, in combination with the machine frame, a vertically reciprocatory thread guide rail, a series of vertical racks depended therefrom, a rock shaft, a series of gears secured to said shaft and engaged with said racks for reciprocating the latter, an oscillatory arm operatively con-

nected to the builder motion of the machine, a chain having one end connected to said arm, and a segment mounted on said shaft and having the other end of said chain trained thereover and fastened thereto, whereby said shaft is rocked during the movements of said arm.

2. A spinning machine thread feeding mechanism, comprising, in combination with the machine frame, a vertically reciprocatory thread guide rail, a rock shaft, connections between the rail and said shaft for reciprocating the former during the rocking movements of the latter, an oscillatory arm operatively connected to the builder motion of the machine, a chain having one end connected to said arm, and a segment mounted on said shaft and having the other end of said chain trained thereover and fastened thereto, whereby said shaft is rocked during the movements of said arm.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FREDERICK S. CULVER.
LEON J. MORIN.

Witnesses:

HENRY S. CULVER,
JAMES F. LYNCH.