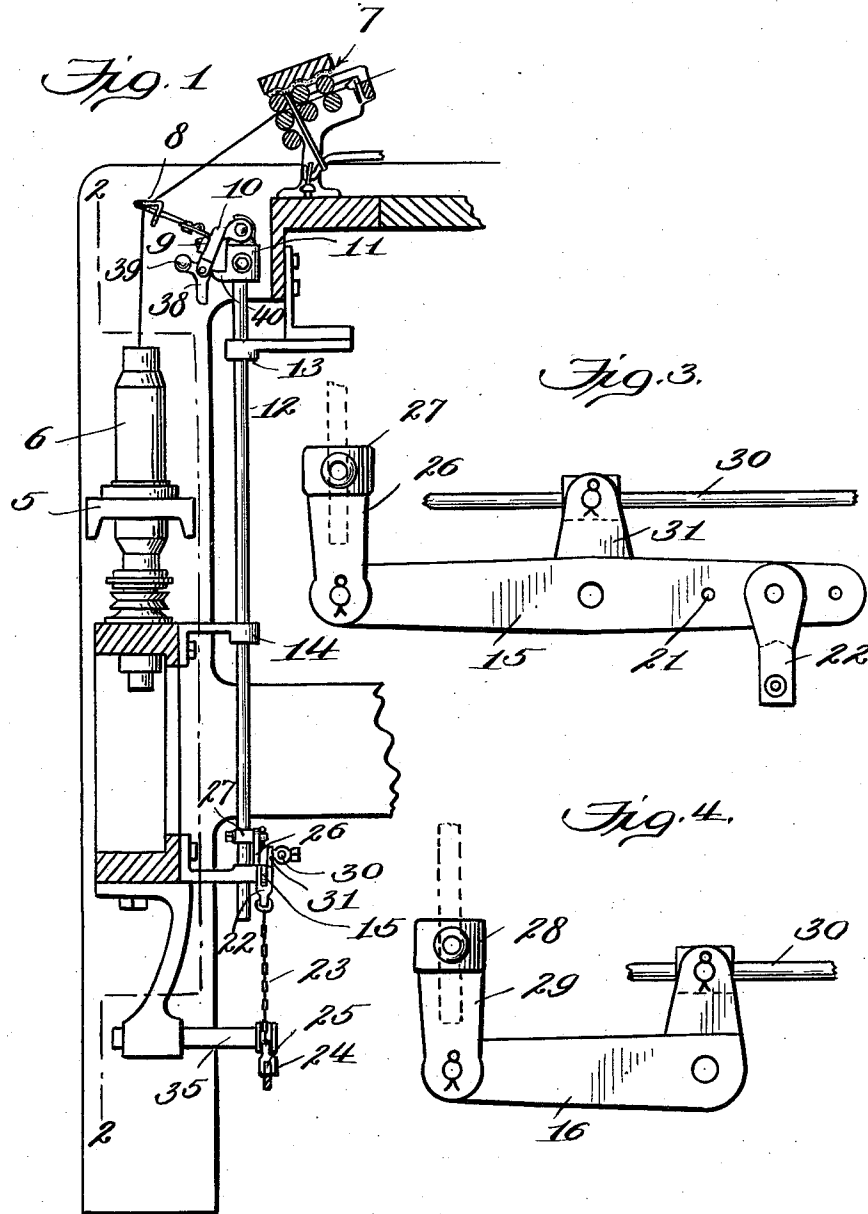


F. S. CULVER.
SPINNING MACHINE.
APPLICATION FILED JULY 16, 1910.

1,008,702.

Patented Nov. 14, 1911.

2 SHEETS-SHEET 1.



Witnesses:
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by Joseph A. Miller
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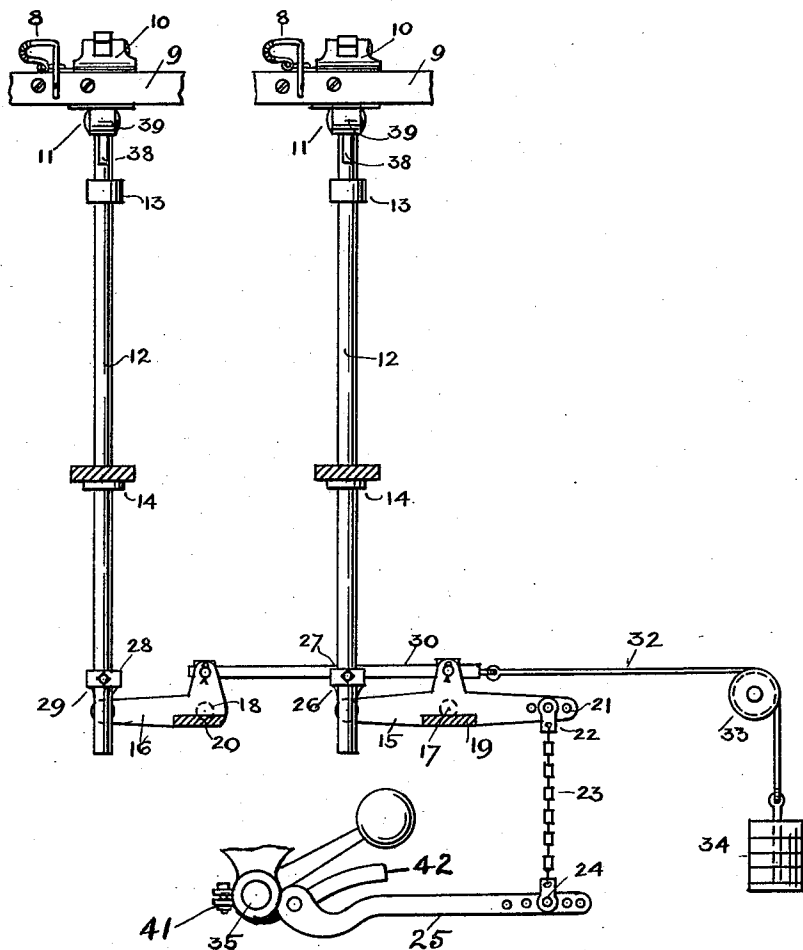


FIG. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

FREDERICK SLOCUM CULVER, OF TAUNTON, MASSACHUSETTS.

SPINNING-MACHINE.

1,008,702.

Specification of Letters Patent.

Patented Nov. 14, 1911.

Application filed July 16, 1910. Serial No. 572,279.

To all whom it may concern:

Be it known that I, FREDERICK S. CULVER, a citizen 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.

The present invention has reference to improvements in spinning machines, and more especially in or relating to the builder motions of such machines.

It comprehends primarily, the production of improved connections between the rockers and the rods which support the thread guide rail, for operating said rods in unison, and it further includes the production of devices associated with the afore-mentioned rods for retaining the guide rail in raised position during doffing.

A structural embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a fragmental side elevation, with parts in section, of the improved machine, Fig. 2 is a vertical sectional view taken on the line 2 2 of Fig. 1, and Figs. 3 and 4 are enlarged detail views of the two levers for operating the rail supporting rods.

In said drawings, 5 designates in a general manner the ring rail, 6 the bobbins, and 7 the drawing rolls from which the threads are led through the thread eyes or pig-tails 8 on the guide rail 9 to said bobbins as is customary. The guide rail is secured to pivoted arms 10 carried by the heads 11 mounted upon the upper ends of the vertical operating rods 12, which rods are maintained in position through the intermediary of guides 13 and 14 connected to the frame of the machine.

To obtain the desired vertical reciprocatory movement of the rods, there is provided a series of levers 15 and 16, pivoted respectively, at 17 and 18, to bearings or stands 19 and 20, likewise connected to the machine. The first of these levers is pivoted centrally to its stand 19 and has one end formed with a series of perforations 21 with which a link 22 is designed for interchangeable engagement, said link being connected to one end of a depending chain 23 provided at its other end with a similar link 24 adjustably connected to the adjacent end of the rocker arm 25. The other end of lever 15 has pivoted thereto an upstanding arm

26 provided with a collar 27 which embraces and is rigidly secured to the adjacent rod 12. The formation of the several perforations enables the leverage to be varied according as may be necessary. The other rod 12 of the pair shown is embraced at its lower end by a similar collar 28 fast thereon and provided upon an upstanding arm 29 pivoted to the long or horizontal arm of lever 16, this lever being of the bell crank type and pivoted at its apex to its stand 20. A connection between said levers 15 and 16 is provided in order to insure synchronous action thereof, and to this end the short or vertical arm of the latter lever is pivoted to one end of a horizontal rod 30 which is also pivoted at its opposite end to a centrally located upstanding arm 31 provided upon lever 15. There is also connected to the last mentioned end of rod 30 a chain or other flexible element 32 which is trained over a suitably mounted pulley 33 and has a weight 34 attached to its free end.

The rocker arm 25 is pivotally secured to the fitting 41 which is secured to the rock shaft 35 and is provided with the outwardly extending tongue 42. The arm 36 secured to the rock shaft 35 carries the usual weight 37 for counterbalancing the weight of the ring rail.

When the machine is running and the builder motion is, in consequence, in operation, the action of the rock shaft is in effect to bring the tongue 42 in contact with the rocker arm 25 at a predetermined time of adjustment, so that said rocker arm 25 will move in unison with the rock shaft and will effect a corresponding actuation of the lever 15 which will be transmitted in turn to lever 16, as will be apparent, through the connecting rod 30. As these levers are actuated, their pivoted arms 26 and 29 rise and fall and impart such movements to the corresponding rods 12, whereupon the thread guide rail 9 will likewise be lifted and lowered, so as to cause the guide eyes or pig tails 8 to advance toward and recede from the tops of the bobbins.

The foregoing operation is the same when any number of operating rods are employed, it being understood that the number of such rods and levers utilized is dependent primarily upon the length of the frame of the machine.

In order to retain the thread guide rail and its pig tails in raised position, when

doffing takes place, one of the rod heads 11 carries a latch. This latch comprises essentially a bell crank lever 38 pivoted to a lug formed on the arm 10 connected to said head, one arm of the lever being enlarged at its end, as indicated by the numeral 39, to constitute a weight, so that the lever is in effect gravity operated. The opposite arm of the lever is arranged for coöperation with a lug 40 formed on the head, the arrangement being such that when the rail carrying arm, and with it the rail, is raised, the second named arm of the lever will engage with said lug 40, thereby retaining the said rail carrying arm 10 and said rail in elevated position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a spinning machine, the combination, with the thread guide rail, and a vertical rod to which the same is connected; of a builder motion for imparting a reciprocatory movement to said rod comprising a lever provided at one end with an arm rigidly connected to said rod, a rock shaft, a rocker arm connected therewith, means connected with said shaft for operating said rocker arm and a connection between the other end of said lever and the adjacent end of said rocker arm.

2. In a spinning machine, the combination, with the thread guide rail, and a vertical rod to which the same is connected; of a builder motion for imparting a reciprocatory movement to said rod comprising a lever having an upstanding arm pivoted to one end thereof, said arm being provided with a collar rigidly secured to said rod, a rock shaft, a rocker arm connected therewith, means connected with said shaft for operating said rocker arm and a connection between the other end of said lever and the adjacent end of said rocker arm.

3. In a spinning machine, the combination, with the thread guide rail, and a vertical rod to which the same is connected; of a builder motion for imparting a reciprocatory movement to said rod comprising a lever provided at one end with an arm rigidly connected to said rod, a rock shaft, a fitting secured thereto, a rocker arm pivoted to said fitting at one end and having its other end connected to the other end of said lever, and a tongue carried by said fitting for operating said rocker arm.

4. In a spinning machine, the combination with the thread guide rail, and a vertical rod to which the same is connected, of a builder motion for imparting a reciprocatory movement to said rod comprising a lever provided at one end with an arm rigidly connected to said rod and at the opposite end with a series of perforations, a rocker arm, and means connecting said rocker arm and the other end of said lever, said means consisting of a link arranged for interchangeable engagement in said perforations, a link adjustably attached to said rocker arm, and a flexible element connecting said links.

5. The combination in a spinning machine of a vertical rod, a head attached to the upper end thereof and provided with a pivoted arm, a thread guide rail secured to said arm, and a latch carried by said arm and comprising a bell crank lever having the end of one arm weighted, and the other arm arranged to engage said head, to hold said pivoted arm and said rail in elevated position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK SLOCUM CULVER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."