

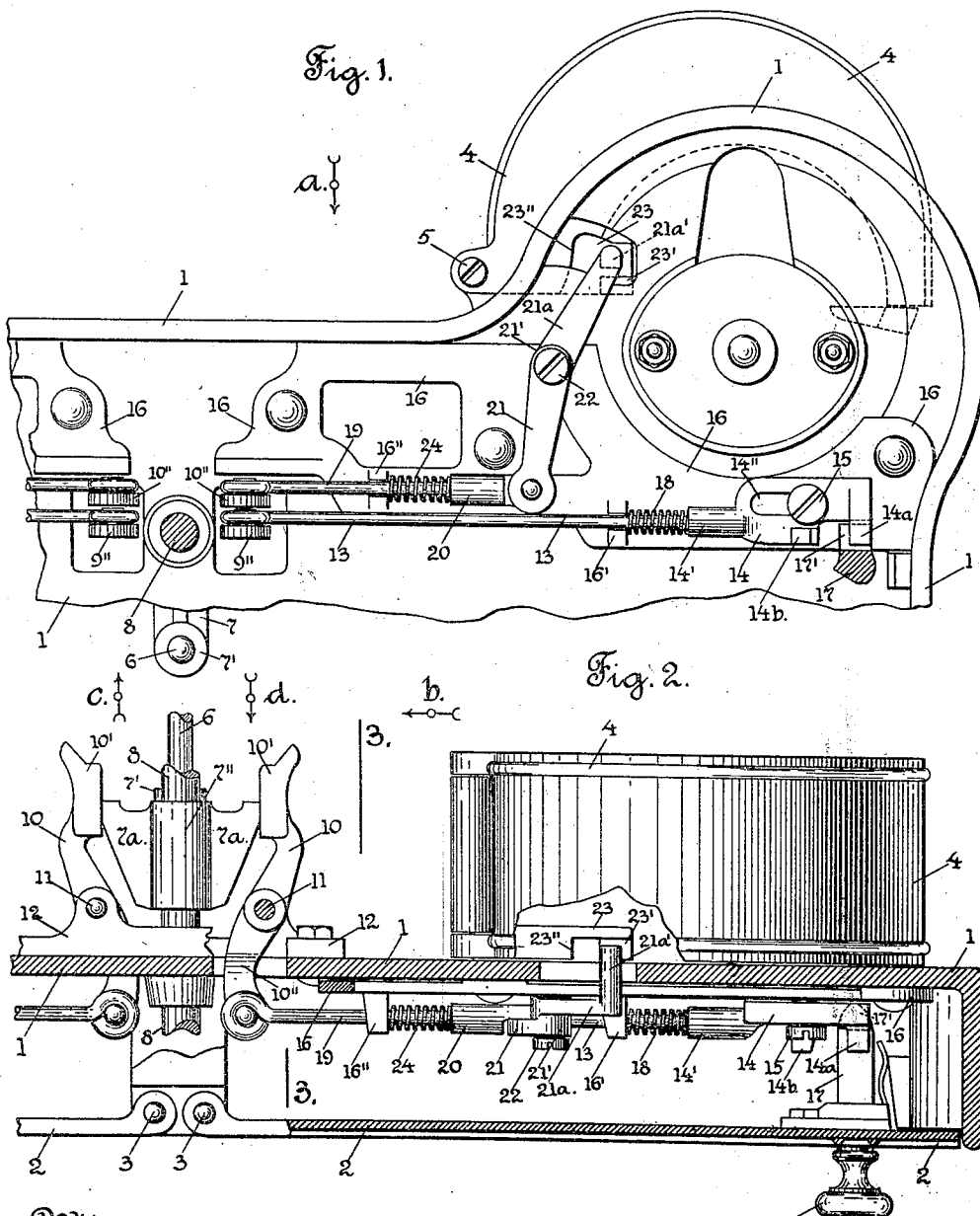
H. G. BEEDE.
SPINNING FRAME.

APPLICATION FILED DEC. 1, 1911.

1,064,281.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

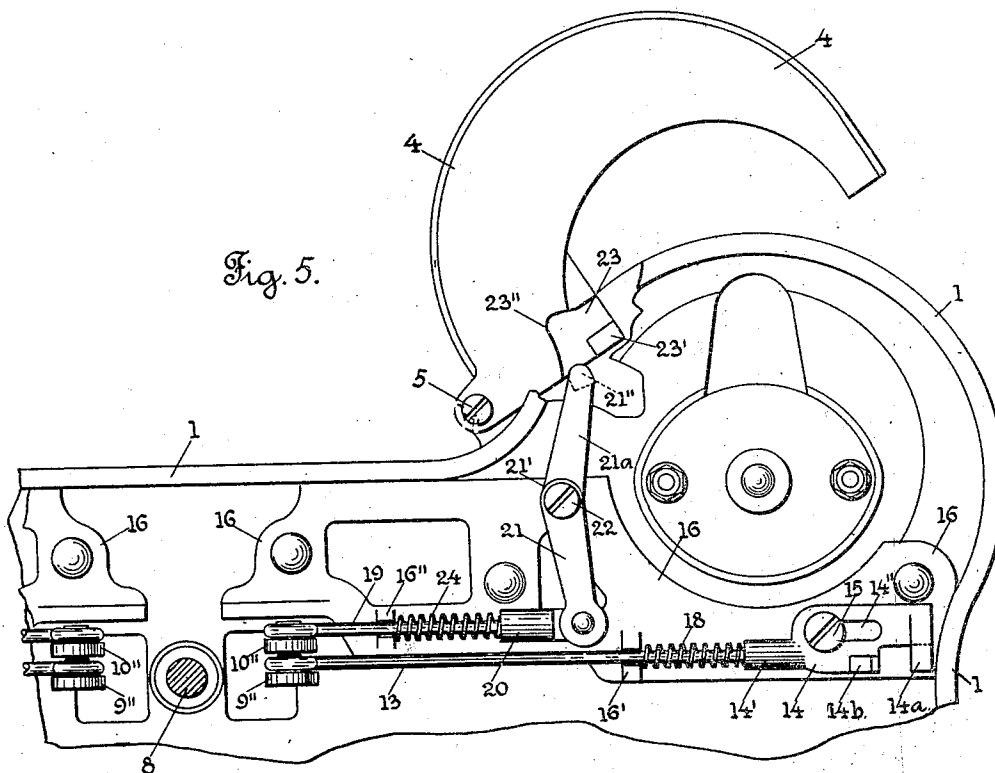
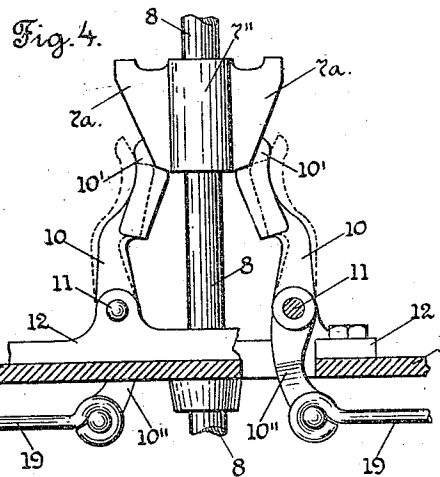


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2 SHEETS—SHEET 2.



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SPINNING-FRAME.

1,064,281.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERBERT G. BEEDE, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spinning-Frames, of which the following is a specification.

My invention relates to spinning frames, and particularly to locking mechanism for the head end doors, and the draft gearing bonnets. Said locking mechanism is preferably operated by the shipper mechanism.

The object of my invention is to provide a locking mechanism, to be combined with the head end doors, and with the draft gearing bonnets, to lock the same in closed position, when the machine is in operation, and to prevent the starting of the machine in case the same are not closed.

In my locking mechanism, as shown in the drawings, and hereinafter described, the head end doors, and the draft gearing bonnets are prevented from being opened while the machine is in operation, and if one of the doors, or one of the bonnets remains open, the machine cannot be started until the same is closed. The starting of the machine, through the operation of the shipper mechanism, causes the head end doors, and the draft gearing bonnets to be securely locked, and held locked while the machine is in operation, and the stopping of the machine, through the operation of the shipper mechanism, unlocks said doors and bonnets.

In my improvements, as shown and described herein, I provide a supplemental sliding rod, which is operated through its connection with the shipper rod, and causes, by means of a collar thereon, provided with inclined or wedge-shaped surfaces, levers to be operated, which levers, by their movement on the starting of the machine, are adapted, through intermediate connections, to operate locking slides, and levers, which lock the head end doors, and the draft gearing bonnets, and hold them securely closed, while the machine is operating. If one of the head end doors, or one of the draft gearing bonnets remains open, the shipper rod is prevented from being moved to start the machine. The movement of the shipper rod to stop the machine will unlock the head end doors, and the driving gear bonnets.

I have only shown in the drawings detached parts of a spinning frame, with my

improvements in locking mechanism combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is an end view of a detached portion of the head end of a spinning frame, with my improvements attached thereto; the end door is left off in this figure. Fig. 2 is a plan view of the parts shown in Fig. 1, looking in the direction of arrow *a*, same figure. The frame is shown partially in section, and also the head end door, which is not shown in Fig. 1. Fig. 3 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *b*, same figure. Fig. 4 shows the locking mechanism shown at the left in Fig. 2, in a different position, and Fig. 5 corresponds to Fig. 1, but shows the bonnet open, and the locking mechanism in its opposite position.

In the accompanying drawings, 1 is a portion of the end frame of a spinning machine, 2, Fig. 2, is the head end door, on one side of the frame; said door is shown in section. The door 2 is pivotally mounted on a stud 3, to be opened outwardly by means of a handle 2'.

4 is the draft gearing cover or bonnet, pivotally mounted on bolts 5 on the frame 1, to be raised upwardly, as shown in Fig. 5.

6 is the ordinary shipper rod, extending in the direction of the length of the machine, and which, through a longitudinal movement communicated to it by manually operated means, not shown, acts to start, or to stop the machine.

All of the above mentioned parts may be of any usual and well known construction.

I will now describe my improvements in locking mechanism. The shipper rod 6 has in this instance secured thereon the hub 7' of an upwardly extending arm 7, see Fig. 3. The upper end of the arm 7 has a hub 7'' thereon, which in this instance is secured on a sliding transverse rod 8, suitably mounted in bearings in the frame 1. The hub 7'' is provided on opposite sides thereof, with cam or wedge-shaped projections or wings 7^a, which engage and operate two pairs of horizontally extending levers 9, and 10, which have their engaging ends notched at their upper ends 9', and 10'. The levers 9 and 10 are pivotally mounted on the studs 11 on the stand 12, see Fig. 2. An extension on each lever 9 and 10, 9'' and 10'', respec-

tively, extends outwardly through an opening in the frame 1, see Fig. 2. The extension 9'' has pivotally connected thereto one end of a connector rod 13, see Fig. 1. The other end of said rod 13 has connected thereto the boss 14' on a sliding block 14, which in this instance is held in position, to have a reciprocating sliding motion, by a screw bolt 15, extending through an elongated opening 14'' in the block 14, and into the plate 16, secured to the end frame 1. The sliding block 14 is provided with a projection 14^a, which is adapted to extend on the outer side of a projection 17', see Fig. 1, on a lock bolt 17, which in this instance extends inwardly on the head end door 2, see Fig. 2. A helically coiled expansion spring 18 encircles the rod 13, and bears at one end against a boss 14' on the sliding block 14, and at its other end against the projection 16' on the plate 16. The spring 18 acts to yieldingly hold the lever 9 in engagement with the wedge-shaped projection 7^a on the hub 7''.

When the parts of the locking mechanism are in the position shown in Figs. 1 and 2, the head end door is positively locked. When the shipper rod 6 is moved in the direction indicated by arrow *c*, in Fig. 2, to stop the operation of the machine, the hub 7'' and the projections 7^a thereon will be moved into the position shown in Fig. 4, and allow the spring 18 to act to move the rod 19 and carry the projection 14^a on the block 14 beyond the projection 17' on the lock bolt 17, to release said lock bolt, and allow the door 2 to be opened, as shown in Fig. 5.

The extension 10'' on the lever 10 has pivotally connected thereto one end of a rod 19, see Fig. 2; the other end of said rod 19 has a rod-head 20 adjustably secured thereto, see Fig. 1, which has pivotally connected thereto the lower end of an upwardly extending lever 21, which has its hub 21', see Fig. 2, pivotally mounted on a bolt 22 secured on the plate 16. Extending upwardly from the hub 21' is an arm or lever 21^a, which has on its upper end a projection or pin 21'' extending inwardly, and through an opening in the end frame 1, see Fig. 2. The projection 21^a is adapted, on its movement to the right in Fig. 1, to extend above a lug 23' on a plate 23, which in this instance is secured to the draft gearing bonnet 4, see Fig. 2. A helically coiled expansion spring 24 encircles the rod 19, and bears at one end against the rod-head 20, and at its other end against a projection 16'' on the plate 16. The spring 24 acts to yieldingly hold the lever 10 in engagement with the wedge-shaped extension 7^a on the hub 7''.

On starting the machine, by moving the shipper rod 6, and the arm 7, thereon, in the direction indicated by the arrow *d* in

Fig. 2, through the wedge-shaped projection 7^a on the hub 7'', the lever 10 is operated, and through intermediate connections to the lever 21, the lever 21 is moved, and also the lever 21^a with its projection 21'', toward the right, to carry said projection 21^a above the lug 23' on the bonnet 4, to positively lock said bonnet.

When the machine is stopped, and the shipper rod 6, and the arm 7 thereon, is moved in the opposite direction, indicated by the arrow *c* shown in Fig. 2, to the position shown in Fig. 4, the wedge-shaped projections 7^a allow the levers 9 and 10 to move into the position indicated by dotted lines in Fig. 4. The lever 10, which in this instance is connected to the upright lever 21, causes, through said lever 21 the lever 21^a, and the projection 21'' thereon to move away from the lug 23' on the bonnet 4, until said projection 21'' engages the extended edge 23'' on the plate 23, the relative position of which corresponds to the position of the lever 10, shown by dotted lines in Fig. 4. The draft gearing bonnet 4 is now unlocked, and free to be opened by the operator, and raised on its hinged connections, as shown in Fig. 5.

When the draft gearing bonnet 4 is raised, as shown in Fig. 5, the edge 23'' thereon is disengaged from the projection 21'' on the lever 21^a, and allow said lever 21^a to be moved farther to the left and through the action of the expansion spring 24, the lever 10 is moved inwardly at its upper end, until the notched end 10' of said lever engages the inclined end on the wedge-shaped projection 7^a on the hub 7'' as shown by full lines in Fig. 4, and acts to hold the hub 7'' in its inoperative position, and prevent the same and the shipper rod 6 from being operated, to start the machine, until the bonnet is closed again, to move the lever 10 to the position shown by dotted lines in Fig. 4, through the engagement of the edge 23'' on the plate 23, with the pin 21'' on the lever 21^a.

The sliding block 14, which is adapted to lock the head end door 2, see Fig. 2, moves toward the right in said figure, when the operating lever 9 has been moved into the position shown by dotted lines in Fig. 4, and the machine is stopped. A projection 14^b on the lock slide 14 engages the locking bolt 17 on the head end door 2, and the projection 14^a is moved out of the path of the projection 17' on the lock bolt 17, and allows the head end door to be opened by the operator.

When the lock bolt 17 is moved out of the path of the projection 14^b in opening the door 2, the helically coiled expansion spring 18 acts to move the slide 14 farther toward the right, as shown in Fig. 5, which causes, through intermediate connections to the lever 9, said lever to be moved from the dotted

position to the position shown by full lines in Fig. 4, to cause the notched end 9' to engage the lower end of the wedge-shaped projection 7^a, to lock the hub 7'' in its inoperative position, and prevent the same, and the shipper rod 6 from being operated to start the machine, until the head end door 2 is closed, to move the lever 9 to the position shown by dotted lines in Fig. 4, through the engagement of the lock bolt 17 with the projection 14^b.

It will be understood that in ordinary spinning frames there are two doors, and two sets of draft gearing bonnets, and consequently my locking mechanism is made in duplicate, and operated by a single hub 7'' having wedge-shaped projections 7^a on opposite sides thereof.

I have only shown in the drawings, one head end door, and one draft gearing bonnet, as the connections to the other head end door, and the driving gear bonnet will be duplicates of the parts shown and described.

The operation of my improvements will be readily understood by those skilled in the art.

When the head end doors, and the draft gearing bonnets are closed, preparatory to starting the machine, the movement of the shipper rod 6 to start the machine, will cause, through intermediate connections, the movement of the wedge-shaped projections 7^a, and through the engagement thereof with the levers 9 and 10, will cause the outward movement of said levers, and will cause, through intermediate connections, the movement of the lock plate 14 carrying the projection 14^a, and the engagement of said projection 14^a with the locking bolt 17 to lock the head end door, and will also cause the movement of the locking pin 21^a to lock the bonnet, as shown in Figs. 1 and 2. When the shipper rod 6 is moved in the opposite direction, to stop the machine, the wedge-shaped projection 7^a, through intermediate connections, is also moved in the opposite direction, to allow the expansion springs 18, and 24 to act, to move the locking plate 14 and disengage the locking bolt 17, and also move the locking pin 21^a out of engagement with the projection 23', to allow the door 2 to be opened, and the cover 4 to be raised.

The raising of the cover 4 will cause the hub 7'' carrying the wedge-shaped projection 7^a to be locked in its inoperative position, and the further movement of the locking plate 14, as above described, when the door 2 is opened, will also act to hold the hub 7'' with the wedge-shaped projection thereon in its inoperative position, and the machine cannot be started until both the cover 4, and the end door 2 are closed, and locked in their closed position, all as will be fully understood by those skilled in the art.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:

1. In a spinning frame the combination with a head end door, of means for locking the same in a closed position, said means comprising a sliding block adapted to extend in the path of a device secured to said end door, to prevent the opening thereof, said block attached to a rod mounted in suitable bearings to have a sliding motion, and said rod, and a spring to move it and said block attached thereto, in one direction, a pivotally mounted lever attached to said rod, and extending in the path of and adapted to be engaged and operated by a cam shaped projection on an arm or plate, having one end secured to the shipper rod, and said arm or plate, and shipper rod.

2. In a spinning frame, the combination with a head end door, of means for locking the same in a closed position, said means comprising a sliding block adapted to extend in the path of a device secured to said end door, to prevent the opening thereof, said block attached to a rod mounted in suitable bearings to have a sliding motion, and said rod, and a spring to move it and said block attached thereto in one direction, a pivotally mounted lever attached to said rod, and extending in the path of and adapted to be engaged and operated by a cam shaped projection on an arm or plate having one end secured to the shipper rod and said arm or plate, and shipper rod, and a sliding rod parallel to said shipper rod, on which sliding rod said cam shaped projection is secured.

3. In a spinning frame, the combination with a draft gearing bonnet, of means for locking the same in closed position, said means comprising a lever pivotally mounted intermediate its ends, and having a projection on one end adapted to extend in the path of a lug or projection on said bonnet, a rod having a sliding motion, and pivotally attached at one end to one end of said lever, a spring to move it in one direction, a lever pivotally attached to the other end of said rod, and extending in the path of and adapted to be engaged by a cam shaped projection on an arm or plate having one end secured to the shipper rod, and said arm or plate, and shipper rod.

4. In a spinning frame, the combination with a draft gearing bonnet, of means for locking the same in closed position, said means comprising a lever pivotally mounted intermediate its ends, and having a projection on one end adapted to extend in the path of a lug or projection on said bonnet, a rod having a sliding motion, and pivotally attached at one end to one end of said lever, a spring to move it in one direction, a lever pivotally attached to the other end of said rod, and extending in the path of and

adapted to be engaged by a cam shaped projection on an arm or plate having one end secured to the shipper rod, and said arm or plate, and shipper rod, and a sliding rod 5 parallel to said shipper rod, on which sliding rod, said cam shaped projection is secured.

5. In a spinning frame, the combination with a draft gearing bonnet, of means for 10 locking the same in closed position, and preventing the starting of the machine when said bonnet is not closed, said means comprising a lever pivotally mounted intermediate its ends, and having a projection on 15 one end adapted to extend in the path of a lug or projection on said bonnet, a rod hav-

ing a sliding motion, and pivotally attached at one end to one end of said lever, a spring on said rod to move it in one direction, a lever pivotally attached to the other end of 20 said rod, and extending in the path of and adapted to be engaged by a cam shaped projection on an arm or plate having one end secured to the shipper rod, and said arm or plate, and shipper rod, and a sliding rod 2 parallel to said shipper rod, on which sliding rod said cam shaped projection is secured.

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