

(No Model.)

C. A. TAFT.
SEPARATOR FOR SPINNING MACHINES.

No. 486,798.

Patented Nov. 22, 1892.

Fig. 1.

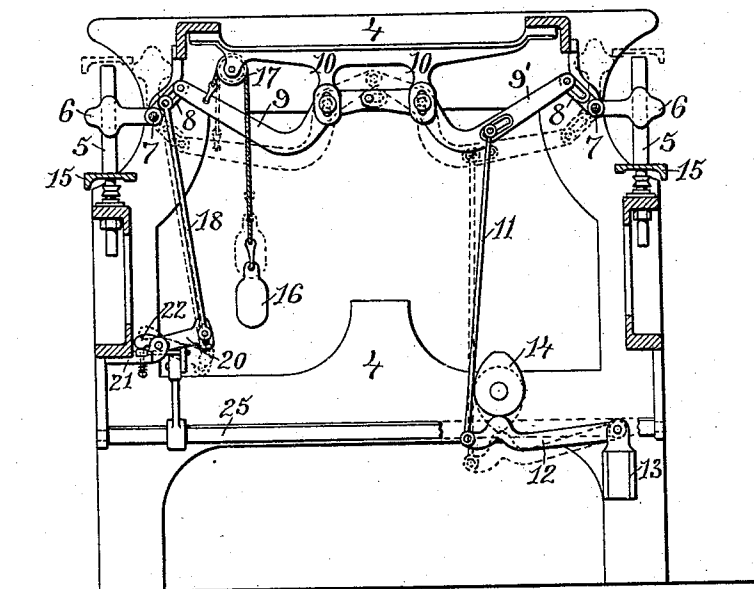


Fig. 2.

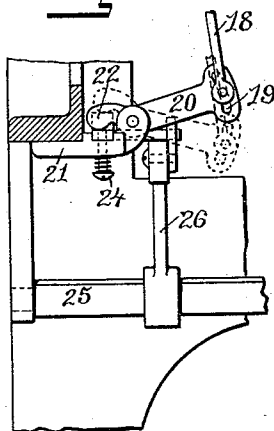
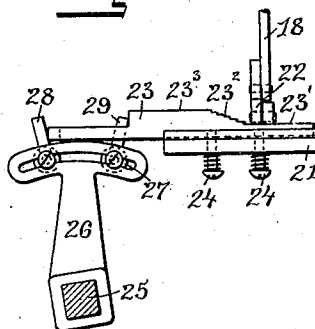


Fig. 3.



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UNITED STATES PATENT OFFICE.

CYRUS A. TAFT, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO THE
WHITIN MACHINE WORKS, OF SAME PLACE.

SEPARATOR FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 486,798, dated November 22, 1892.

Application filed June 15, 1892. Serial No. 436,782. (No model.)

To all whom it may concern:

Be it known that I, CYRUS A. TAFT, of Whitinsville, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Separators for Spinning-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in separators for spinning-machines in which a metal plate secured to a rocking shaft is placed between two spinning-spindles to prevent the yarn of the two spindles from interfering with each other; and it consists in the peculiar and novel device by which the motion of the separator is controlled and the machine adapted for spinning filling-yarn and winding the same on a cop or bobbin in conical layers, as will be more fully set forth hereinafter.

The invention is applicable to all kinds of spinning-machines in which the separator-plates are secured to a rocking shaft. For the purpose of illustrating the operation of the improvement it is shown in connection with the mechanism for operating the separators shown and described in Patent No. 365,155, granted June 21, 1887, to Gustavus E. Taft, for a yarn-separating device for spinning-machines.

Figure 1 is a vertical transverse section of a spinning-machine frame, showing the mechanism for operating the separator-plates and also the mechanism by which the downward movement of the separator-plates is controlled so as to correspond with the building up of the cop. Fig. 2 is an end view, and Fig. 3 a side view of the device by which the movement of the separator-plates is controlled.

In the modern spinning-machines the spindles are placed as close together as possible, and they are rotated at the highest possible speed. Under these otherwise desirable conditions the threads from adjacent spindles are liable to interfere. To prevent this interference, separator-plates are placed between each pair of spindles. These separators are required only when the ring-rail is on the lower portion of its vertical traverse

and in filling-frames only when the yarn is wound on the lower part of the spindle, cop, or bobbin, and then only while the yarn is wound on the lower and larger diameter of the conical layers, for then only will the yarn form balloons wide enough to interfere with each other.

The object of this invention is to arrest the motion of the separator-plates as the cop is built upward and remove the separator from between the spindles and out of the way of the ring-rail while the yarn is being wound on the upper part of the cop.

In the drawings, 4 indicates the frame of the spinning-machine; 5, the spinning-spindles; 6, the separator-plates; 7, the rock-shaft on which the separator-plates are secured, and 8 an arm secured to the rock-shaft.

9 and 9' are two levers, each pivoted on one of the arms 10, connected at the outer ends with the arms 8 and connected together at their inner ends by a pin secured near the end of one and extending through a slot in the other lever, so that the motion of one lever will be transmitted to the other. The lever 9' is connected by means of the rod 11 with one end of the arm 12, pivoted at the other end in the bracket 13. The cam 14 is secured to a shaft and is driven by suitable gears, so as to revolve once to every reciprocation of the ring-rails 15. The weight of the mechanism is slightly more than counterbalanced by the weight 16, so that the arm 12 will always bear against the cam 14. The weight 16 is connected by means of a cord or rope extending over a pulley 17 with the arm 9.

The mechanism so far described is the mechanism shown and described in Patent No. 365,155, above referred to; but any other mechanism or means by which the rock-shaft 7 is turned to operate the separators can be used in connection with my present invention, which I will now proceed to describe more fully.

To the arm 8 I connect the rod 18, the lower end of which is adjustably and pivotally secured to an adjustable stud-bolt in the slot 19, formed in the outer end of the arm 20, pivoted on the bracket 21. The short end of the arm 20 extends over the wedge 23, which slides in a groove formed in the bracket 21

and is held in place by the screw-post 24, surrounded by a spiral spring.

25 is one of the rock-shafts used in spinning-machines to support the bell-crank levers used to reciprocate the ring-rails. The arm 26 is secured to the rock-shaft 25 and is provided with the curved slot 27, in which the pins 28 and 29 are adjustably secured. The wedge 23 is provided with a lateral projection, against which the pins 28 and 29 can bear, and it is also provided with the lower extended surface 23', the stepped inclined surface 23², and the upper extended surface 23³. The positions of all the parts when the separators are in position between the spindles are shown in solid lines, and the positions when the separators are raised and out of the way are shown in broken lines in the drawings.

The operation of the device is as follows: When a spinning-machine adapted to spin filling-yarn and wind the same in conical layers on the spindle, cop-tube, or bobbin is started, the ring-rails are at the lowest of the vertical traverses. The ring-rails are raised and lowered by the bell-crank levers secured to the rock-shaft 25 to lay the yarn in a conical layer. At each downward motion of the ring-rails these are stopped at a point slightly higher, corresponding with the building up of the cop. This is done by means of the take-up mechanism connected with the bell-crank levers secured to the shaft 25—an arrangement well known in the art of filling spinning-machines. The arm 26, being also secured to the shaft 25, moves with the bell-crank lifting-levers and the pin 28 pushes at each greater oscillation the wedge 23 forward under the end 22 of the arm 20, and this end of the arm is not arrested in its descent first by the straight portion 23', but is gradually more and more restricted by the stepped portion 23², until when the upper half of the cop is reached and the separators are no longer required the end 22 of the arm 20 is arrested on the straight upper portion 23³ of the wedge 23, so that the separators are held stationary until the cop is

completed. When the cop is completed, the lifting mechanism or, as it is called, the "cop-building mechanism" is wound back, the shaft 25 is thereby turned to its original position and the pin 29, secured to the arm 26, engages with the lateral projection on the wedge 23 and draws the wedge out into the position shown in Fig. 3, ready to control the separators at the building of the next cop. During the building up of the cops, while the end 22 of the lever 20 is over the flat portion 23' of the wedge, the cam 14 continues to operate the separators, and as the stepped incline 23² is pushed under the arm end 22 more and more the descent of the separators is resisted until when the flat portion 23³ is under the end 22 the separators and the actuating mechanism are held in the position shown in broken lines in the drawings and the cam 14 revolves without affecting the operation of the separators.

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 spindles, the ring-rail, and the mechanism for reciprocating the ring-rail, so as to build the cops, of the rock-shaft 7, the separator-plates 6, secured to the shaft, the arm 8, also secured to the shaft 7, mechanism adapted to automatically vary the motion of the separators, and means for oscillating the separators, as described.

2. In a machine for spinning filling, the combination, with the spindles, the separators, and the mechanism for operating the separators, of the ring-rails and the mechanism for reciprocating the ring-rails, the rock-shaft 25, the arm 26, the pins 28 and 29, the wedge 23, the pivoted arm 20, and the rod 18, the whole adapted to limit the oscillation of the separators, as described.

CYRUS A. TAFT.

Witnesses:

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