

(No Model.)

2 Sheets—Sheet 1.

E. M. WHITTUM.
SEPARATOR FOR SPINNING MACHINES.

No. 555,911.

Patented Mar. 3, 1896.

Fig. 1.

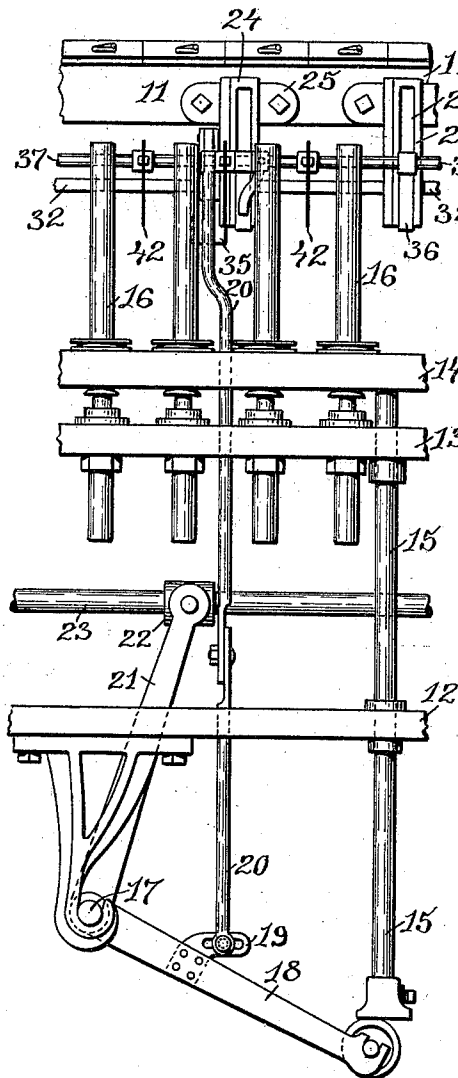
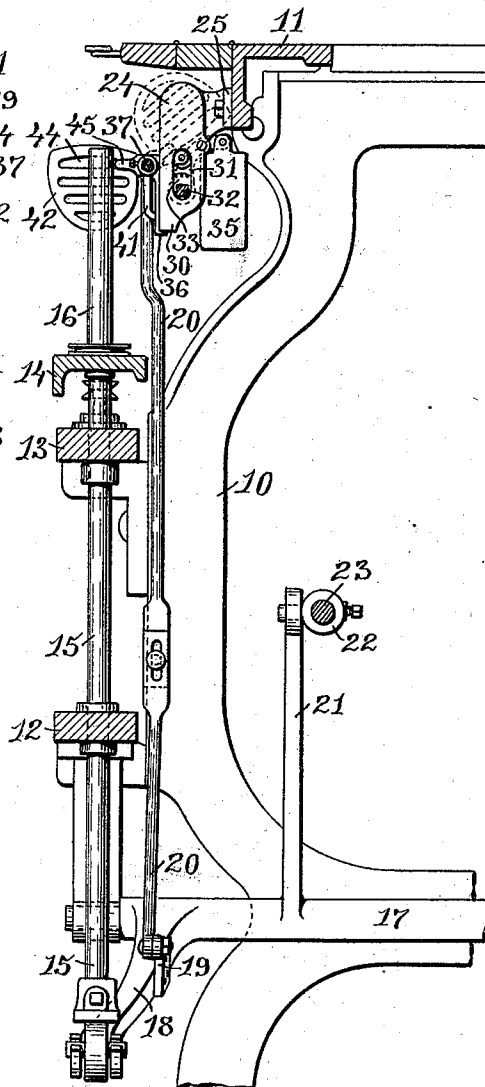


Fig. 2.



WITNESSES:

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INVENTOR:

Edward M. Whittum
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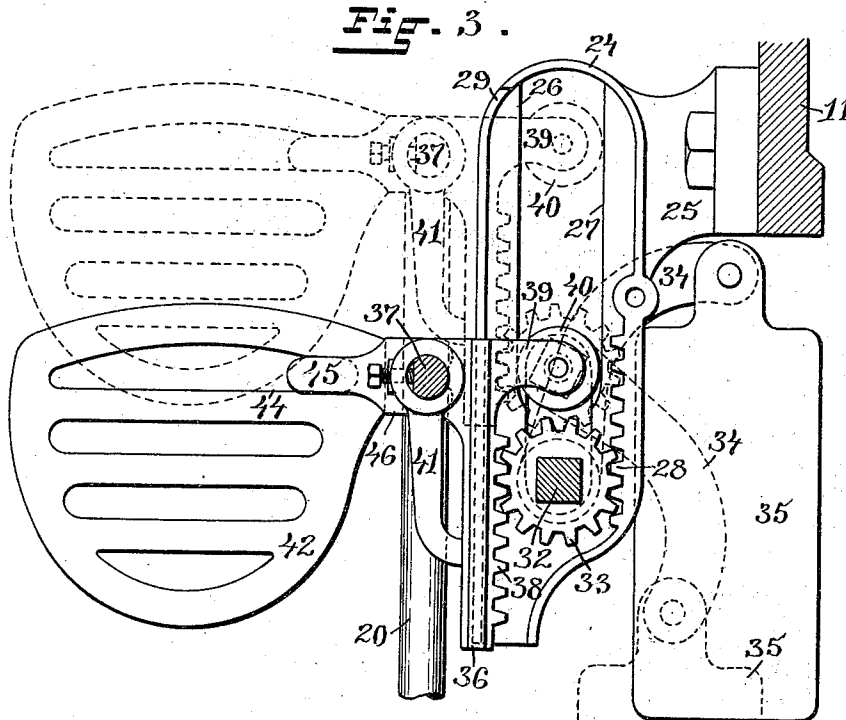
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INVENTOR:

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UNITED STATES PATENT OFFICE.

EDWARD M. WHITTUM, OF FALL RIVER, MASSACHUSETTS.

SEPARATOR FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 555,911, dated March 3, 1896.

Application filed January 10, 1894. Serial No. 496,365. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. WHITTUM, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain
5 new and useful Improvements 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
10 of this specification.

This invention has reference to improvements in devices for separating the yarn passing to one spindle of a spinning-machine from that passing to the next spindle, together with
15 mechanism for supporting and operating these devices.

The invention consists in such novel features of construction and combination of parts as may hereinafter be more fully described, and pointed out in the claims.
20

Figure 1 represents a front elevation of portions of a spinning-machine provided with my improved separator. Fig. 2 represents an elevation of the same in cross-section. Fig.
25 3 represents an enlarged detail view of the separator counterbalancing and actuating mechanism.

Similar numbers of reference designate corresponding parts throughout.

30 Yarn-separators as heretofore supported have been mounted on a separator-shaft and were actuated in a radius therewith. To enlarge the radius in which the blades were moved the separator-shaft has sometimes
35 been supported on pivoted levers, so as to secure, as far as possible, a vertical movement of the separator-blades between the spindles during the traverse nearly in line with the spindles, it being evident that the larger the
40 radius in which the separator-blades are moved the nearer they will follow the vertical plane of the spindles and the more constant will be their action of separating the yarns, as their blades or portions of them will be in
45 better positions to separate the yarns passing to the spindles. An important feature of my invention is, therefore, to so mount the separator-blades that they can be moved vertically in the plane of all the spindles during

the spinning operation, but can also be swung
50 back from between the spindles during doffing.

Separator-blades have been made of cast metal or sheet metal, the securing-shanks in either case requiring considerable shaping
55 and being expensive. I have therefore produced a combination of the two, in which the light inexpensive sheet-metal blade is provided with a durable shank which requires
60 little finishing and adjusting and can be manufactured at small cost, being also adapted for securing the blades to separator-shafts of various cross-sectional shapes.

In the drawings, 10 represents one of the frames or samsons of the machine. At the upper
65 portion is secured the roller-beam 11, and to the sides are secured brackets on which are mounted the lower rail, 12, and the bolster-rail 13, the ring-rail 14 being supported
70 on rods 15, which are movable through perforations in the lower rail and bolster-rail and are operated in the usual manner to elevate and depress the ring-rail, and carried by
75 the bolster-rail are journaled spindles 16 16, which are driven by bands in the usual way.

The rock-shaft 17 is transversely mounted in bearings at the lower portion of the machine. Extending laterally from this rock-shaft is the arm 18, on the outer end of which,
80 or on a bearing carried by this end, the lower end of the rod 15 is supported. Secured to the arm 18 about midway of its length is the slotted bracket-plate 19, to which the separator actuating-rod 20 is adjustably secured.
85 The rocking of the shaft 17 is accomplished in the usual manner by means of the arm 21 extending from said shaft and pivotally secured to the collar 22, which is clamped to the reciprocating rod 23.

To the front of the roller-beam, at suitable
90 distances apart, are secured casings 24 by means of the bases 25. Each of these casings is furnished with vertical guide-plates 26 and 27 and at the lower rear portion has a vertical rack 28, the forward portion of the casing
95 having a narrow slot 29 of a length equal to the length of the traverse of the separator-blades. The open side of the case is closed

by the cover 30, having an opening 31 at its lower portion, and in the opposite side of the case is formed a similar opening. Extending through these openings is the shaft 32, which
 5 may be of any cross-sectional shape and usually extends the whole length of the machine. On this shaft, within the several cases and intermeshing with the teeth of the rack 28, are gears 33, and secured to this shaft 32 are
 10 one or more arms 34, from which the counterweight 35 is suspended, the action of this weight tending to rotate the shaft 32 and gear 33.

The bracket 36, of which one is provided
 15 for each casing 24, is furnished at its outer end with a transverse sleeve, through which the separator-shaft 37 extends, but is not held from rotation. This bracket has the rack 38, which intermeshes with the teeth of the gear
 20 at the front side and is provided with an inwardly-extending arm 39, on which the roller-bearing 40 is rotatably mounted. This roller-bearing 40 moves between the guides 26 and 27 to prevent the dropping forward of the separator-shaft; but it is evident that the edges
 25 of the slot 29 may form guides in which the bracket 36 may move. Adjacent to each of these brackets the stop-arm 41 is clamped to the separator-shaft 37, and bearing on the
 30 lower portion of the bracket 36 prevents the undue rotation of the separator-shaft by the weight of the separators, as well as tending to push the lower portion of the bracket inward toward the gear.

The actuating-rod 20 is made in two parts, which can be adjustably secured together. At the upper end this rod is furnished with a sleeve loosely surrounding the separator-shaft 37, and on the separator-shaft are
 40 mounted the separator-blades.

My improved separator-blade and mounting consists of a thin blade 42 of sheet or cast metal having a straight edge 43 at one side and a slot 44. This slot is shown as extending
 45 across the blade, but may be shortened, if desired, being designed as a recess to receive portions of the clamping-arms 45 of the shank. This shank is formed of malleable metal and is furnished with a base 46, having the arms
 50 45, separated by a space about equal to the thickness of the separator-blade, and with the clamping-lips 47, which are bent over the separator-shaft to secure the shank thereto, while longitudinal movement of the shank on this
 55 shaft is prevented by the spur 48, extending from the rear of the base, which enters a small depression or recess in the shaft.

The base 46 is shaped at the rear to correspond with the shape of the separator-shaft
 60 and between the two arms 45 is constructed to bear against the shoulder or edge 43 of the blade. In securing the blade to the shank the blade is inserted between the arms 45, which are then compressed together, a portion
 65 of each arm entering the slot or recess 44. The shank may now be secured in place on

the separator-shaft by simply bending the lips 47 around the same.

During the process of spinning the ring-rail is moved upward and downward by the rods
 70 15 to carry the yarn to different portions of the spindle. While this movement is going on the actuating-rod 20 is reciprocated in unison with the rod 15, but in a less degree. As the actuating-rod moves upward it carries
 75 with it the separator-shaft and the blades mounted thereon, as well as the brackets 36, the racks 38 on which engaging with the gears 33 rotate the same, as well as the shaft 32, this rotation being assisted by the counter
 80 weight or weights 35. As the gears 33 in their rotation engage the teeth of the fixed rack 28 they traverse upward on said rack until the top of the same is reached, when the separator-shaft will have been raised the required
 85 distance, or twice the length of the rack 28, as the bracket 36 advances a distance equal to a tooth on each rack while the gear 33 advances one tooth on the rack 28, the shaft 32 having in the meantime made about one-third
 90 of a revolution. The doffing being generally done when the ring-rail is at its lowest traverse, the separator-blades may be swung back from between the spindles until their forward upper edges strike against the roller-beam,
 95 as is shown in dotted lines in Fig. 2, leaving the spindles wholly unobstructed.

In the drawings I have shown the separator-blades located between the upper portions of the spindles; but it is obvious that the point
 100 of lowest traverse of these blades depends upon the length of the traverse as well as the distance below the thread-board at which the cases 24 and their co-operating mechanism is secured, in any event being sufficiently
 105 high, so that the separator-blades will not obstruct the traverse of the ring-rail.

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

1. In a separator, the combination with brackets having toothed racks, roller-bearings rotatably mounted on said brackets, and separator mechanism carried by the brackets,
 110 of vertical guides between which the roller-bearings are movable, a rack at the lower portion of the rear guide, a shaft extending transversely between said rack and the front guide, gears mounted on said shaft and intermeshing with the racks of the guide and of
 115 the bracket, and a counterweight carried by said shaft.

2. In a separator, the combination with the brackets 36 having the arm 39, the roller 40 journaled on said arm, the separator-shaft 37
 120 journaled in said brackets, separators rigidly secured to the shaft, and the stop 41 clamped to the separator-shaft and bearing on the lower portion of the bracket, of vertical guides between which the roller 40 is movable, and actuating mechanism for traversing the brackets
 130 and shaft upward and downward.

3. In a separator, the combination with
brackets having toothed racks, and separator
mechanism carried by the brackets, of guides
for directing the movement of the brackets,
5 a toothed rack adjacent to one of said guides,
the shaft 32, gears 33 mounted on the shaft
and intermeshing with the racks, the arm 34
secured to the shaft 32, and the counterweight

35 pivoted to the outer end of said arm, as
and for the purpose described.

In witness whereof I have hereunto set my
hand.

EDWARD M. WHITTUM.

Witnesses:

HENRY J. MILLER,
M. F. BLIGH.

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