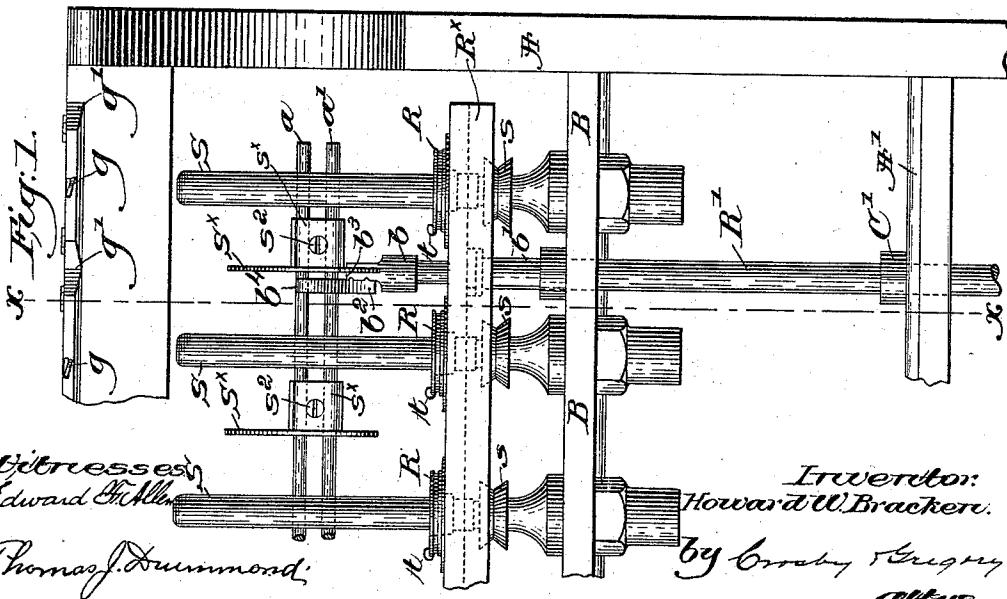
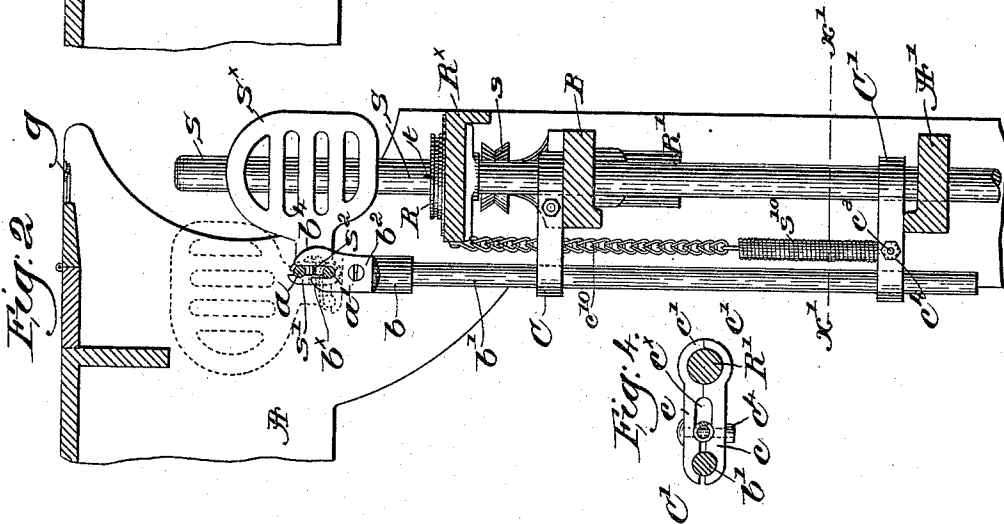
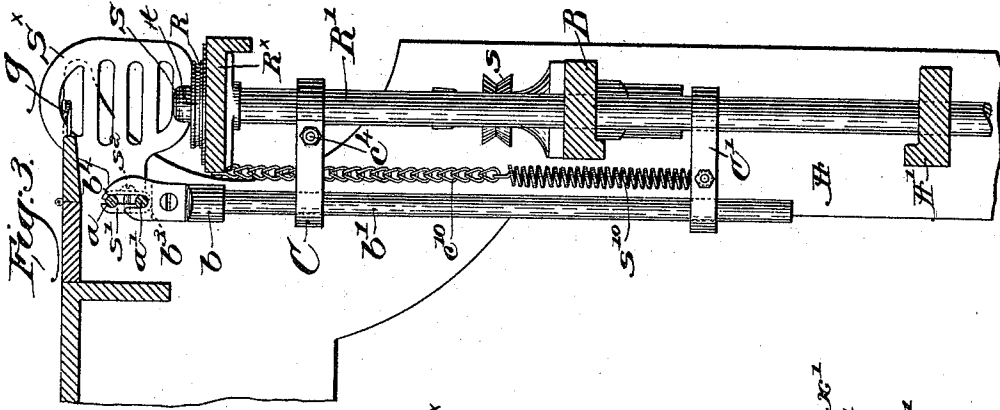


(No Model.)

H. W. BRACKEN.
SEPARATOR FOR RING SPINNING FRAMES.

No. 570,423.

Patented Oct. 27, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

HOWARD W. BRACKEN, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
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SEPARATOR FOR RING-SPINNING FRAMES.

SPECIFICATION forming part of Letters Patent No. 570,423, dated October 27, 1896.

Application filed July 17, 1896. Serial No. 599,461. (No model.)

To all whom it may concern:

Be it known that I, HOWARD W. BRACKEN, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Separators for Ring-Spinning Frames, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In ring-spinning machines separator blades are interposed between adjacent spindles to prevent the yarns in their rotation from whipping together and breaking as they bow out between the guides and travelers, and, inasmuch as the yarn bows out to the greatest extent about opposite the center of the bobbin, this is the point at which protection is most needed. The separator-blades are usually mounted either directly on the ring-rail or so connected therewith that they are operated by it or its actuating mechanism. As the separators are generally operated so as to stop when the ring-rail is part way down and then begin rising when the rail meets them again on its upward motion, it is evident that at the time the rail or its actuating parts meet the separators a sudden strain is put on the ring-rail which may slightly check the speed of the rising rail, any temporary hindering of the motion causing a poorly or unevenly wound bobbin.

This invention effectually obviates any checking of the speed of the ring-rail, and this is effected by interposing between the ring-rail or the part rising with it and the separator-carrier a yielding connection, which will be described.

This invention consists, essentially, in the combination, with a ring-rail, devices to raise and lower the same, and a series of separators and devices carrying them, of yielding connections operated by the rising of the rail to lift the separator-carrying devices in a yielding manner, whereby the strain to lift the said separators is applied gradually to the rising ring-rail, substantially as will be described.

Figure 1 represents in front elevation a sufficient portion of a ring-spinning frame of usual construction with my improvements embodied thereon. Figs. 2 and 3 are vertical

sectional views thereof on the line $x x$, Fig. 1 looking toward the right, with the ring-rail at the bottom and top of the traverse, respectively; and Fig. 4 is a sectional detail taken on the line $x' x'$, Fig. 2.

The end frame A, cross-girt A', spindle-rail B, spindles S, mounted thereon and provided with usual whirls s , the ring-rail R^x, having a series of rings R thereon, and the lifting-rods R' for the ring-rail, only one of such rods being shown, are and may be all as usual in ring-spinning frames.

The yarns are omitted for the sake of clearness in the drawings, they in practice passing from the guide-eyes g to the travelers t on the rings, the hinged boards holding said eyes being cut away, as at g' , to permit the separator-blades to rise freely at the top of the traverse, as in Fig. 3.

The offset-feet s^x of the separator-blades S^x are preferably grooved to engage two rods $a a'$, arranged in parallelism and extending the length of the series of spindles, or less if desired, a clamping-plate s' being secured to each blade-foot s^x by a suitable screw, as s^2 , whereby the blades are rigidly secured to the carrier-rods $a a'$.

The rods $a a'$ are mounted on the heads b of vertically-movable slide-rods b' , only one being shown, each head having an upturned vertically-slotted plate b^2 , secured thereto, or forming a part of it, offset to leave a horizontal shoulder b^3 below the lower end of the slot b^x .

As shown in Figs. 2 and 3, the plate b^2 at the rear of the slot is so located and of such dimensions that when the blades S^x are turned into dotted-line position, Fig. 2, for doffing it will enter between the rods $a a'$, the latter then resting on the shoulder b^3 below the lower end of the slot b^x .

The plate b^2 is upturned at b^4 at the front of the slot b^x sufficiently to bear against the uppermost rod, as a , when the blades are in operative position, and thus limit the rotative movement of the carrier.

The rod $a a'$ and the slide-rods b' constitute a carrier for the separators.

In this invention the separators begin to rise after the ring-rail begins its ascent, and they descend and return to their normal po-

sition before the ring-rail completes its descending movement.

I have herein shown the slide-rods b' as guided by clips C' , one of which is shown in Fig. 4, each of said clips having one end to take a sliding fit on one or the other of the rods R' or b' , while its opposite end is adapted to be clamped firmly to and remain in fixed position on one of the said rods.

The clamp C' is made to grip and hold the rod b' and slide on the rod R' , while the clamp C , reversed from the position shown in Fig. 4, is made to grip the rod R' and slide on b' , a suitable bolt, as c^4 , acting to force the two parts of such clamp together.

A spring s^{10} is shown as secured at one end to the lower clip C' by, as herein shown, the bolt c^4 , the opposite end of said spring being attached to a chain or other flexible connection c^{10} , secured to the ring-rail R^x , or some other part moving with or moved in unison with said ring-rail, said flexible connection preferably passing through the opening c^x of the upper guide-clip C , but having no permanent connection therewith.

Supposing that the ring-rail is at the bottom of the traverse, Figs. 1 and 2, the clips C and C' will rest upon the spindle-rail R^x and cross-girt A , respectively, the separator-blades S^x lying between the middle portion of adjacent bobbins, the lower edges of the separators standing a short distance above the top of the ring-rail. As the ring-rail rises, the connection c^{10} , acting on the spring s^{10} , acts gradually to lift the carrier and its attached separators, the strain exerted to lift the said parts being so gradually applied that there is no perceptible shock to the ring-rail or such obstruction as to at all retard its upward motion. After the separators have been started they continue to move upward substantially in unison with the ring-rail, protecting the yarns at the points where the bowing is greatest. When the ring-rail descends, the separator-carrier and separators, due to gravity, descend in unison therewith until the clips C meet a fixed part of the frame, as the spindle-rail, and when the ring-rail completes its movement to the bottom of the traverse the spring has contracted itself into its normal condition, the strain upon the ring-rail being gradually decreased after each

stoppage of the blades as the ring-rail continues its descent. The blades thus act upon the yarns at a higher point than they would were their movement continuous with the ring-rail throughout its traverse, and small or narrow blades can be used with proper effect, and the clip C may be adjusted on the lifting-rod.

This invention is not restricted to the exact construction shown of the carrier for the separator-blades, nor to the exact arrangement of the parts, as the same may be modified without departing from the spirit and scope of the invention.

The carrier and its attached blades, lifted through the rising of the ring-rail and the spring, start slowly, and as they rise their speed is gradually accelerated until they move at the same speed as the ring-rail.

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

1. In a ring-spinning frame, a ring-rail, an independently-supported carrier, a series of separator-blades mounted thereon, and a yielding connection moving in unison with the ring-rail and connected operatively with said carrier, whereby the carrier and the said separator-blades are started with a strain which is gradually exerted by or through the ring-rail as the latter rises, substantially as described.

2. In a ring-spinning frame, a ring-rail, means to traverse it, a blade-carrier, a series of separator-blades secured thereto, means controlled by the ring-rail to raise the blades with a gradually-accelerated speed until they move in unison with the ring-rail, the blades moving downwardly uniformly to a predetermined point, and a fixed stop to arrest the movement of the blades at such point, the strain upon the ring-rail being gradually decreased after stoppage of the blades as the ring-rail continues its descent, substantially as described.

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

HOWARD W. BRACKEN.

Witnesses:

FRED W. ABELE,
GEO. OTIS DRAPER.