(No Model.) 2 Sheets—Sheet 1.

A. D. CHANDLER.

YARN SEPARATOR FOR SPINNING MACHINES.

No. 589,932. Patented Sept. 14, 1897.

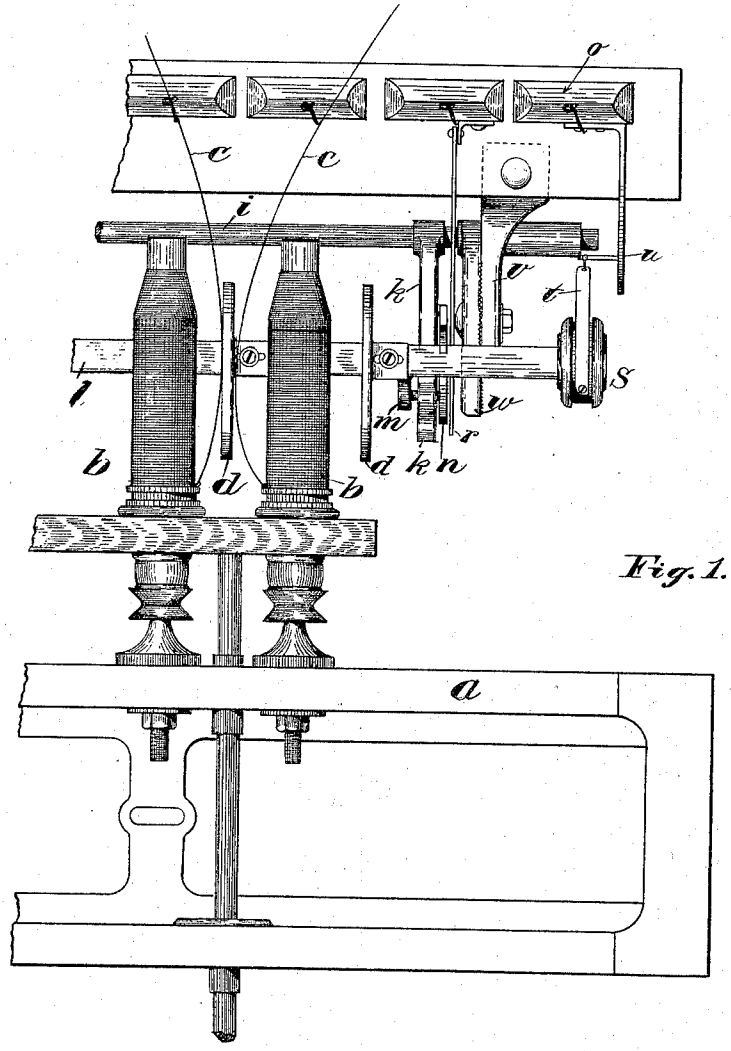


Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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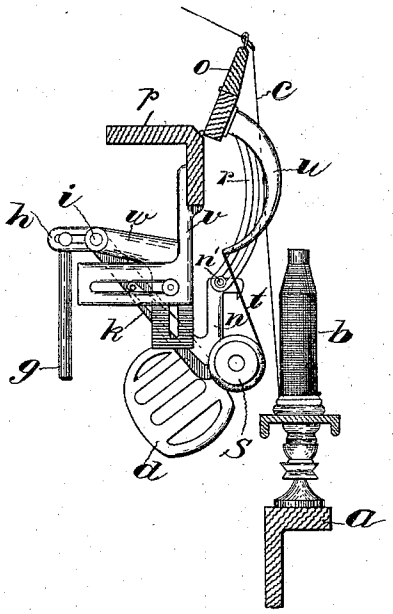


Fig 4.

Fig 2.

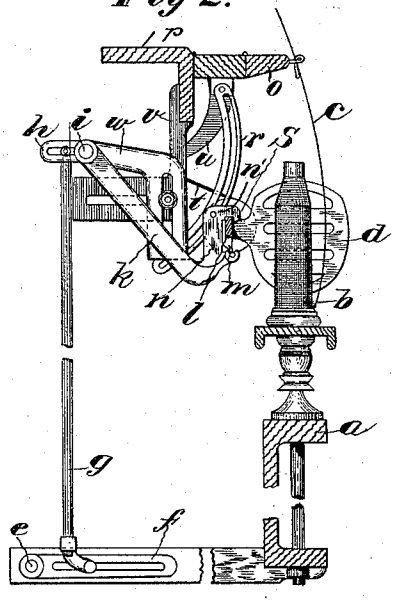
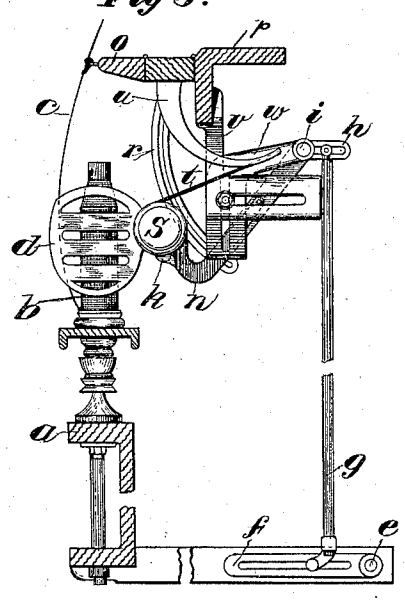


Fig 3.



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UNITED STATES PATENT OFFICE.

ALFRED D. CHANDLER, OF FALL RIVER, MASSACHUSETTS.

YARN-SEPARATOR FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 589,932, dated September 14, 1897.

Application filed March 12, 1896. Serial No. 582,975. (No model.)

To all whom it may concern:

Be it known that I, ALFRED D. CHANDLER, a citizen of the United States of America, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a certain new and useful Improvement in Yarn-Separators for Spinning-Machines, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a front view of a part of a ring-spinning frame showing portions necessary to illustrate said improvement. Fig. 2 is a sectional elevation on the plane denoted by the dotted line *x x* of Fig. 1, looking in the direction indicated by the arrow overlying that line. Fig. 3 is an end elevation view looking in the opposite direction from that of Fig. 2. Fig. 4 is a sectional elevation view showing the parts in adjustment for doffing

My invention relates to yarn-separators for spinning-machines; and it consists in the devices and combinations hereinafter described and claimed, the object of said invention being to provide means to facilitate the removal of the separators from between the spindles and to hold the thread-board up and out of the way at the time of doffing or taking the full bobbins or cops from their spindles; also in means for replacing said separators in their operative position between the spindles after the empty bobbins have been placed upon the spindles, and also means for actuating and varying the limit of the traverse of the separators.

In the accompanying drawings the letter *a* denotes the frame of the spinning-machine, *b b* the bobbins upon two neighboring spindles, and *c c* the threads appurtenant to the cops of the same undergoing a spinning operation.

The letter *d* denotes the separators, whose office it is to keep these threads apart in the spinning operation. They move up and down in practically synchronous correspondence with the laying of the threads on the cop, this motion being accomplished by a suitable connection from the builder-shaft *e*, which has for that purpose a suitable reciprocating rotary motion.

The letter *f* denotes an arm carried by the builder-shaft, and *g* a connecting-rod extending upward therefrom and connected at its upper end to the arm *h*, fast on shaft *i*, and by means of this connection the reciprocating rotary motion of the builder-shaft is communicated to the shaft *i*. The connection of the rod *g* to the arms *f* and *h* is pivotal and adjustable.

The shaft *i* carries the rigid arms *k*.

The letter *l* denotes a separator-bar carrying the separators *d* and rotarily hung to the arms *k* through the medium of pivot-pins borne by brackets *m*. Left to themselves the weight of the separators *d* would avail to partially rotate the separator-bar, so that the separators would drop down and away from their position between the bobbins, and it is this position that it is desired they shall assume when the operator removes the bobbins or the cops from the spindles.

The letters *n* denote pawls in the nature of retainers, pivotally attached to the arms *k*, which normally hold the separator-bar in its "set" position with the separators between the bobbins or spindles.

The letter *o* denotes a thread-board hinged to the roller-beam *p*.

The letter *r* denotes a swinging connection hung to the thread-board and loosely attached to the retainers *n* by means of the projection *n'*, they being of suitable length not to interfere with the reciprocating of the separators.

When the operator is ready to remove the bobbins or cops, he throws the thread-board upward. This action, through the medium of said swinging connection, raises the retainers *n*, loosening their hold on the separator-bar, which then under the weight of the separators drops downward and away, so that the separators pass from their operative position between the spindles, and now the whole field is free to permit the operator to remove the bobbins.

The letter *s* denotes a drum on the separator-bar; *t*, a strap or the like connected to the periphery thereof, and *u* an arm on the thread-board, to which the end of the strap *t* is attached. It is a result of this construction that when the thread-board is thrown down again to its normal position the arm *u*, strap *t*, and roll *s* carry the separator-bar back to the operative position and the retainers *n* automatically retake their hold thereof. The arm *u*, strap *t*, and drum *s* also coöperate when

the thread-board is thrown up and the separator-bar is tripped to hold the thread-board in that adjustment until the operator forces it downward.

The letter *v* denotes hangers extending downward from the roller-beam.

The letter *w* denotes curved or cranked arms adjustably attached to such hangers, and by means thereof the position of the shaft *i* with the parts it carries can be adjusted both vertically and laterally.

I claim as my invention and desire to secure by Letters Patent—

1. As an improvement in yarn-separators, the combination of the rotary separator-bar, carrying the separators, the retainers, coöperating with the separator-bar to prevent rotation, the hinged thread-board, and the trip connection *r* between the thread-board and the retainer, whereby when the thread-board is raised the retainer is released and the separator is allowed to revolve downward and backward by gravity, substantially as and for the purposes specified.

2. The combination of the rotary separator-bar, carrying the separators, the retainers, the thread-board, hinged to the roller-beam, the trip connection between the thread-board and the retainer, the drum on the separator-bar, and the connection between the said drum and the thread-board, whereby when the latter is depressed to normal position the separator-bar is rotated and the separators are raised to their normal horizontal position between the bobbins, substantially as and for the purposes specified.

3. The combination of the rotary separator-bar *l* carrying separators *d*, the retainer *n* having hook or catch engaging the separator-bar, the hinged thread-board *o*, and the trip connection *r* whereby the separator-bar is released when the thread-board is raised, and the separators are permitted to revolve downward and backward by gravity, substantially as and for the purposes specified.

4. The roller-beam having the thread-board hinged thereto, and supporting the shaft *i*, said shaft carrying arms *k*, with retainers *n* pivoted thereto, in combination with rotary separator-bars carried on the arms *k*, separators *d* borne on the separator-bars, and the curved slotted connection between the hinged thread-board and the retainers *n*, all substantially as and for the purpose specified.

5. The roller-beam having the thread-board hinged thereto and supporting the shaft *i* carrying arms *k* with retainers *n* pivoted thereto, in combination with a rotary separator-bar carried on the arms *k*, separators *d* borne on the separator-bar, a curved slotted connection fixed to the hinged thread-board and loosely attached to the retainer *n* by means of projection *n'*, and drum *s*, strap *t* and curved arm *u*, forming an extensible connection between the hinged thread-board and the rotary separator-bar, all substantially as and for the purpose specified.

6. In combination, the rotatory separator-bar *l* carrying separators *d*, pawl *n* hung on rotatory arm *k* and carrying projection *n'*, the slotted connecting-rod *r* and thread-board *o*, all substantially as described and for the purposes set forth.

7. In combination, the rotatory separator-bar *l* carrying separators *d*, the drum *s*, strap *t*, arm *u* and thread-board *o*, all substantially as described and for the purposes set forth.

8. In combination, the builder-shaft *e*, arm *f*, rod *g*, arm *h*, shaft *i*, and arms *k* carrying the separator-bar *l* with its separators, all substantially as described and for the purposes set forth.

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