No. 821,013. PATENTED MAY 22, 1906.

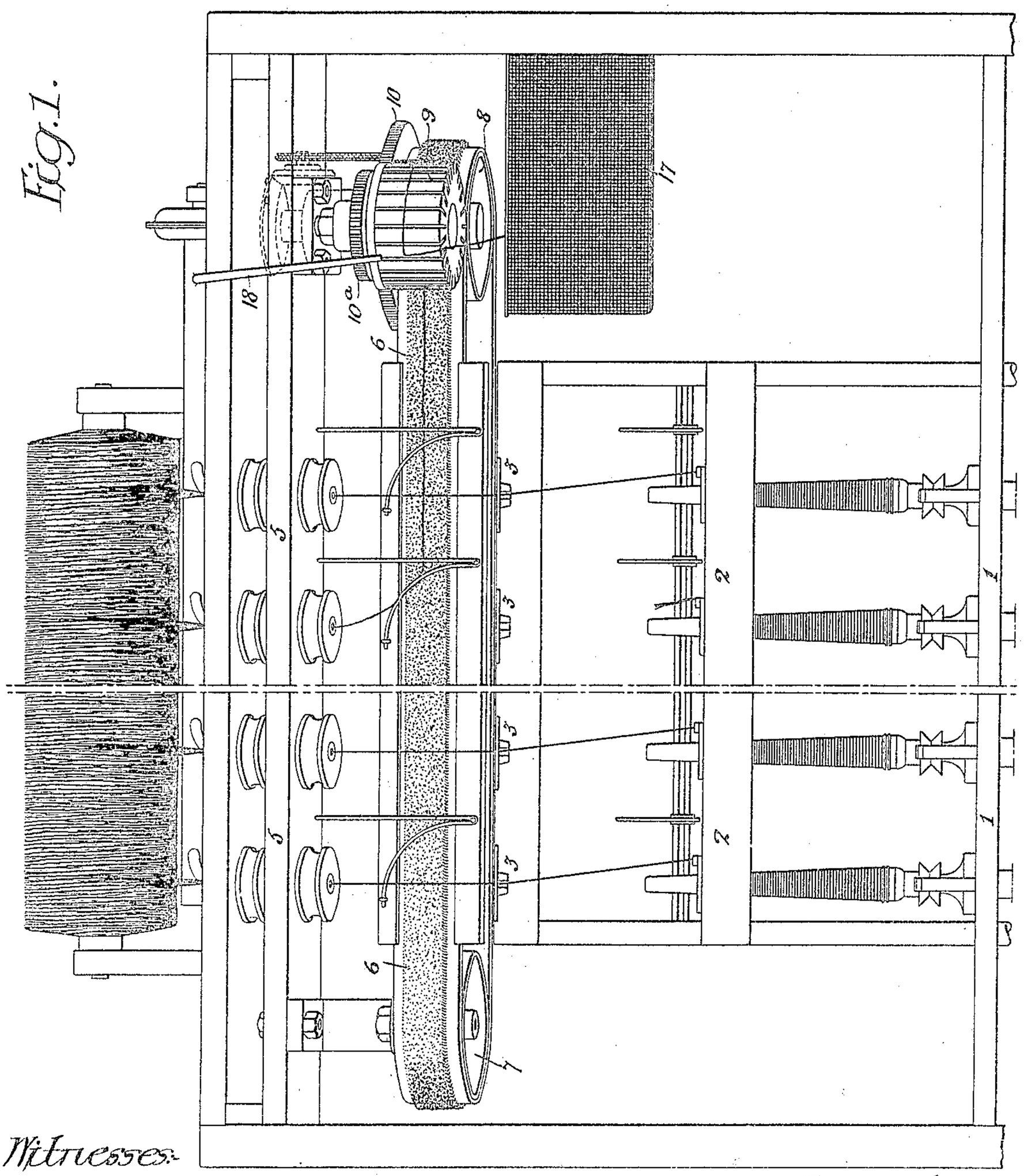
F. A. BREEZE.

SPINNING AND LIKE MACHINE.

APPLICATION FILED OCT. 10, 1904. RENEWED OCT. 16, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

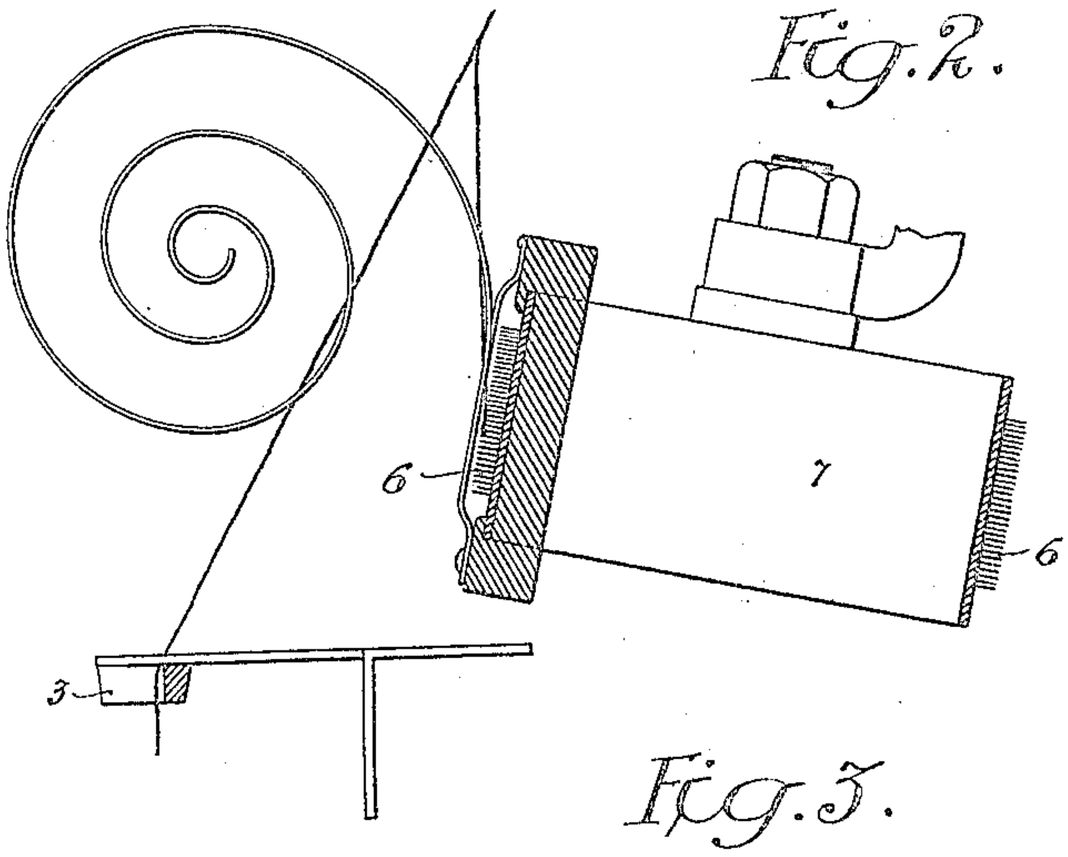


Fig. 3.

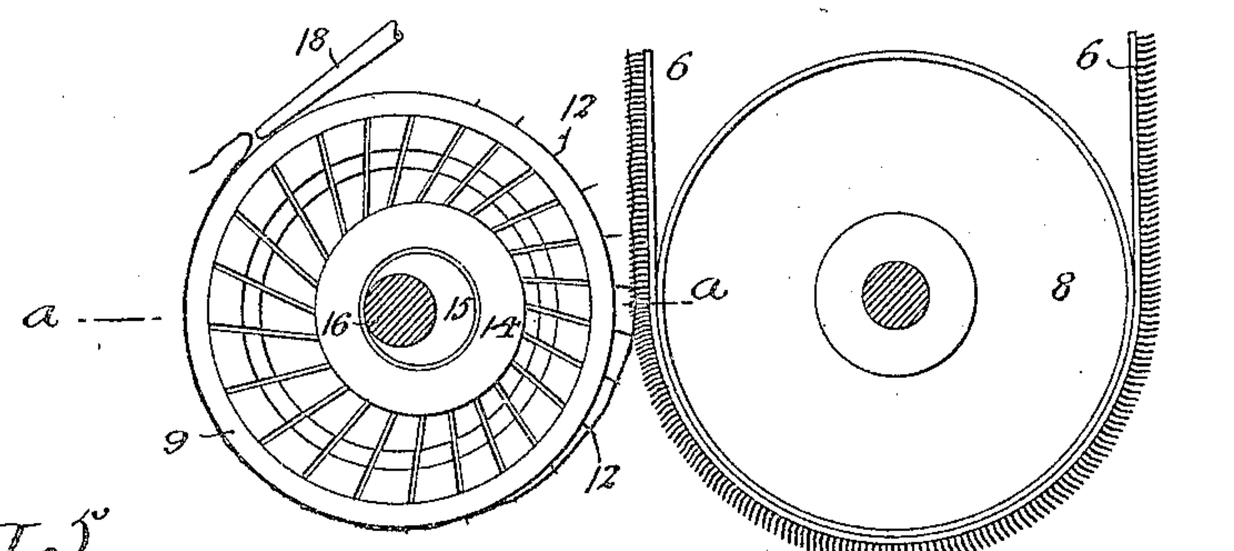


Fig. 5.

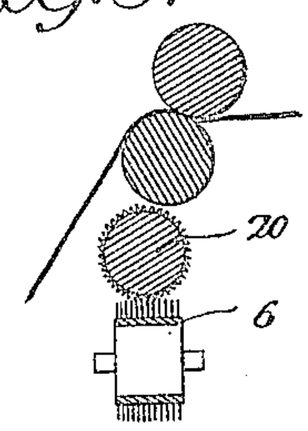


Fig. 4.

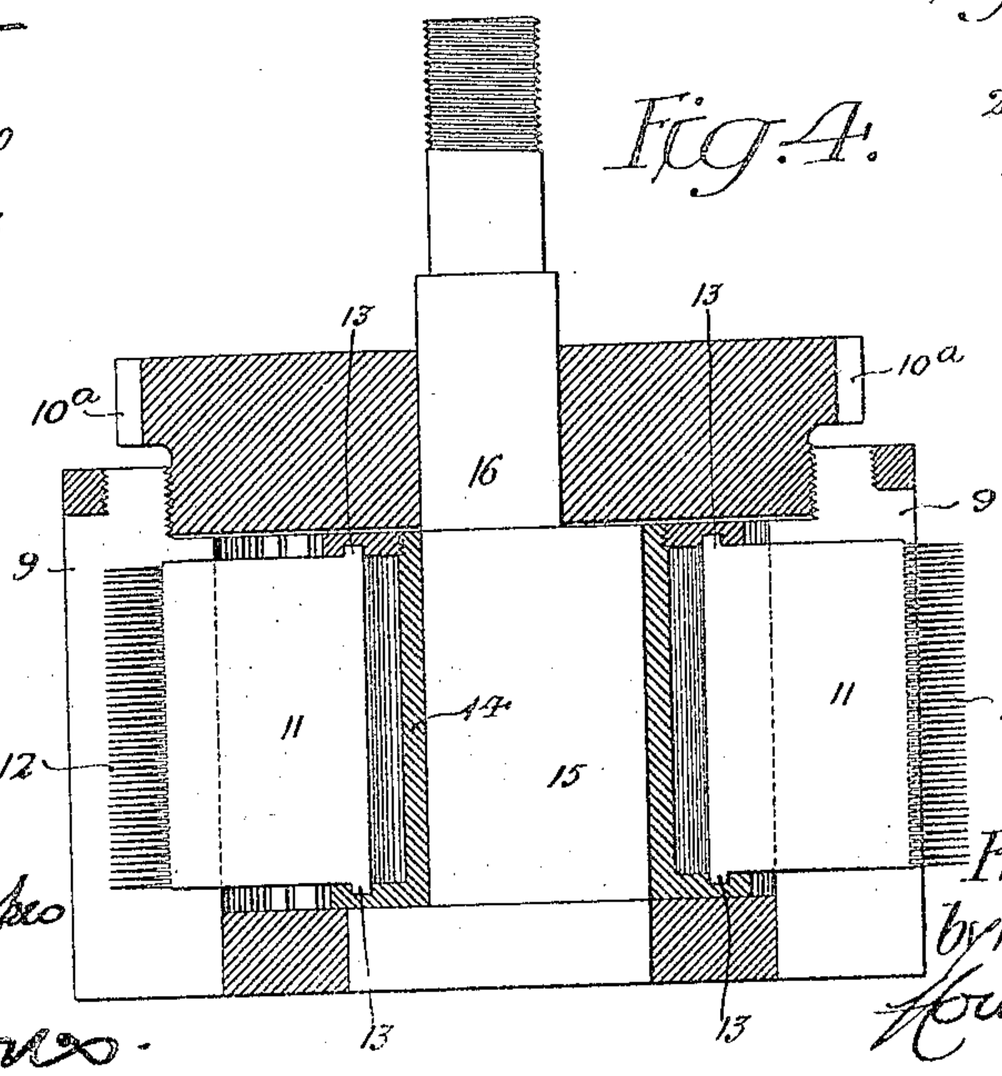
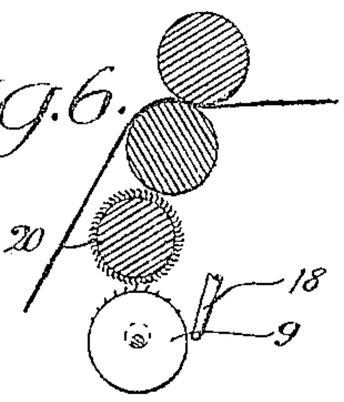


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SPINNING AND LIKE MACHINE.

No. 821,013. Specification of Letters Patent. Patented May 22, 1906.

Application filed October 10, 1904. Renewed October 16, 1905. Serial No. 283,043.

To all whom it may concern:

Be it known that I, FRANK A. BREEZE, a subject of the King of Great Britain and Ireland, and a resident of Forest Mills, Ontario, Canada, have invented certain Improvements in Spinning and Like Machines, of which the following is a specification.

The object of my invention is to so construct a scavenging device for yarn spinning, winding, twisting, doubling, carding, or like machines as to so dispose of the broken ends of sliver or yarn that no trouble will be subsequently experienced in removing the same in perfect condition for reuse. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of sufficient of a spinning-machine to illustrate my present invention. Fig. 2 is an enlarged transverse section of part of the same. Fig. 3 is a sectional plan view, also on an enlarged scale, of another part of the machine. Fig. 4 is a transverse section on the line *a a*, Fig. 3, and on a still larger scale; and Figs. 5 and 6 are views illustrating modifications of my invention.

In Fig. 1 of the drawings I have illustrated my invention as applied to a "ring-and-traveler" spinning-machine, although it should be understood that it is applicable to spinning, twisting, winding, or doubling machines, to carding-machines, or to machines generally in which there is a tendency of a broken yarn or sliver to become wrapped around a roller or to interfere with the proper operation of adjoining elements of the machine.

It will not be necessary to describe the construction of the spinning-machine further than to say that 1 represents the spindle-rail, 2 the ring-rail, 3 the guides for the yarns in their passage to the traveler, and 5 a rail containing draft-capstans whereby the untwisted sliver is fed downwardly to the spinning devices. Between this rail 5 and the rail which carries the guides 3 is interposed a transversely-traveling toothed belt or apron 6, which is adapted to suitable guides extending behind the entire series of slivers or rovings in their passage from the draft mechanism to the guides, this endless belt or apron being mounted on drums 7 and 8, the latter of which may have rotative movement imparted to it in any appropriate manner.

The toothed belt or apron 6 bears such relation to the slivers that if one of the latter should break at any point between the draft devices and the lower guides the broken end will fall upon the toothed surface of the belt and will be carried transversely to the end of the machine, the entanglement of the broken end with an adjoining yarn or sliver being thereby prevented and all interference with the proper operation of the machine which would arise from such entanglement being effectually obviated.

In order to insure the removal of the broken end of the sliver from the toothed apron 6, I combine with the same a rotating hollow drum 9, which may be driven from the drum 8 by means of intermeshing spur-wheels 10 and 10^a or in any other suitable manner, this drum 9 having in its shell slots for the guidance of a series of comb-bars 11, which have toothed outer ends 12, as shown in Fig. 4. Each of these comb-bars 11 has upper and lower lugs 13, which are engaged by the top and bottom flanges of an inner drum 14, the latter being mounted upon an eccentric portion 15 of the shaft 16, upon which the drum 9 rotates. Hence as such rotation of the drum 9 is effected the comb-bars are projected and retracted, the projection of the combs being at that portion of the periphery of the drum which is adjacent to the toothed apron 6, as shown in Fig. 3, and the retraction of the combs being at the opposite portion of the periphery of the drum. By reason of this construction the combs 12 will engage the yarn or sliver carried by the toothed apron 6 and will comb or clear the same from the teeth and carry the same forward to the front of the drum, at which point the yarn or sliver will be released by the retraction of the combs so as to drop into a basket or other receptacle 17 conveniently placed.

In order to insure the discharge of the yarn from the surface of the slotted drum 9, I prefer to employ an air-blast nozzle 18, which may communicate any convenient supply of air under pressure, the blast from this nozzle freeing the yarn from contact with the surface of the drum 9 and properly depositing said yarn in the receptacle 17.

My invention is distinct from that class of machines in which a toothed scavenger-roll located behind the series of yarns or slivers extends from end to end of the machine, so as to receive a broken end of yarn or sliver and wind it upon the roll, as the removal of such accumulated wrappings from the roll is a te-

dious operation and cannot be conveniently effected without breaking, entangling, or otherwise damaging the sliver or yarn, which very much reduces its value, whereas a scavenging device such as that which I have devised automatically takes care of a broken yarn or sliver and deposits the same in the receptacle provided for it in such condition that it can be at once recarded or recombed, and hence retains its full value.

My invention can be applied to a machine already equipped with a scavenging-roll 20 by so locating the toothed belt in respect to said roll that it will clear the sliver or yarn from the roll before it has had an opportunity to wind itself around the same, as shown, for instance, in Fig. 5, or a clearing-drum and blast-nozzle may be applied to the scavenging-roll, if desired, such combination being shown in Fig. 6. Hence in some of the claims I have used the term "receiver" to indicate either the toothed belt or the toothed roll.

The invention is not limited in its application to spinning or winding machines, but can be adapted to other machines in which the same conditions are present. For instance, the toothed conveyer might bear the same relation to the lowermost of a pair of rub-rolls of a finisher-carding machine as it does to the scavenger-roll shown in Fig. 5 and for the same purpose.

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

1. A spinning or like machine having a toothed belt or apron traveling in a direction transversely to the series of slivers or yarns and adapted to receive and convey broken ends of the same, said belt presenting a continuous toothed surface for receiving the broken ends of the yarn, substantially as specified.

2. A spinning or like machine having a toothed belt or apron for receiving and conveying the broken ends of yarns or slivers and means for clearing the latter from said apron, said apron presenting a continuous toothed surface for receiving the broken ends of the yarn, substantially as specified.

3. The combination, in a spinning or like machine, of a toothed apron traveling in a direction transverse to the series of yarns or slivers and adapted to receive and convey the broken ends of the same, with a toothed drum for removing the yarns or slivers from said apron, substantially as specified.

4. The combination, in a spinning or like machine, of a toothed receiver for conveying the broken ends of yarns or slivers, with a drum having advancing and retracting combs for removing the yarns or slivers from said receiver, substantially as specified.

5. The combination, in a spinning or like machine, of a toothed apron traveling in a direction transverse to the series of yarns or slivers, and adapted to receive and convey the broken ends of the same, with a drum having advancing and retracting combs for clearing the yarns or slivers from the apron, substantially as specified.

6. The combination, in a spinning or like machine, of a toothed receiver for conveying the broken ends of yarns or slivers, with a toothed drum for clearing the yarns or slivers from the receiver, and a blast-nozzle for removing said yarns or slivers from the drum, substantially as specified.

7. The combination, in a spinning or like machine, of a toothed apron, traveling in a direction transverse to the series of yarns or slivers and adapted to receive and convey the broken ends of the same, with a toothed drum for clearing the yarns or slivers from the apron and a blast-nozzle for removing said yarns or slivers from the drum, substantially as specified.

8. The combination in a spinning or like machine, of a toothed receiver for conveying the broken ends of yarns or slivers, with a drum having advancing and retracting combs for removing the yarn or slivers from said receiver, and a blast-nozzle for discharging the yarns or slivers from said drum at a point where the combs are retracted, substantially as specified.

9. The combination, in a spinning or like machine, of a toothed apron, traveling in a direction transverse to the series of yarns or slivers and adapted to receive and convey the broken ends of the same, with a drum having advancing and retracting combs for removing the yarns or slivers from said apron, and a blast-nozzle for discharging the yarns or slivers from said drum at a point where the combs are retracted, substantially as specified.

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

FRANK A. BREEZE.

Witnesses:
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