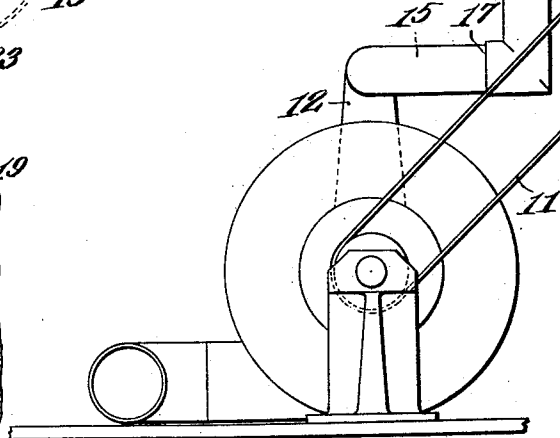
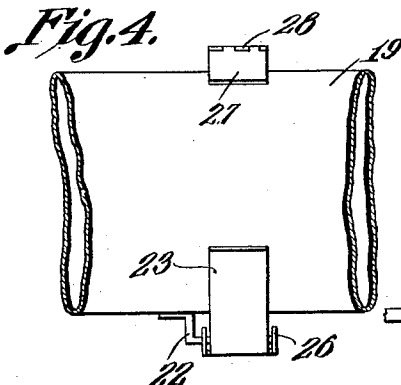
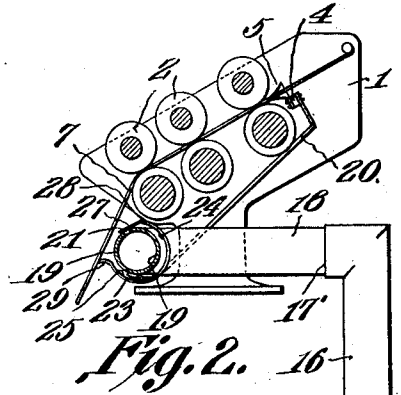
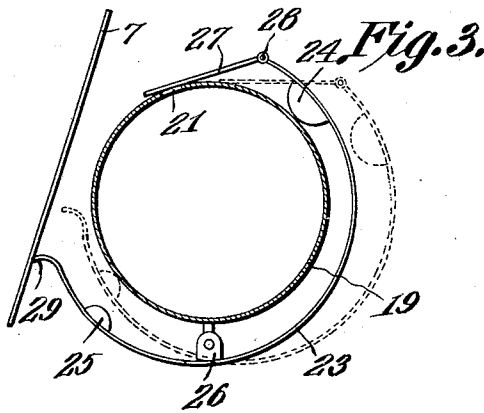
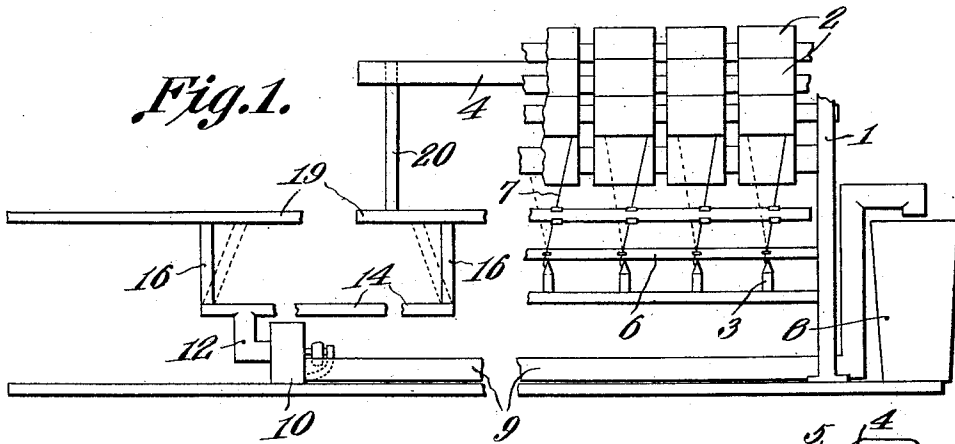


Patented July 28, 1914.



Witnesses

Witnesses
J. P. Tinsley
S. Wilcox.

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UNITED STATES PATENT OFFICE.

JAMES D. EZELL AND JOHN GROOM KING, OF BURLINGTON, NORTH CAROLINA.

DEVICE FOR SPINNING-FRAMES.

1,104,831.

Specification of Letters Patent.

Patented July 28, 1914.

Application filed January 15, 1914. Serial No. 812,286.

To all whom it may concern:

Be it known that we, JAMES D. EZELL and JOHN G. KING, citizens of the United States, residing at Burlington, in the county of Alamance, State of North Carolina, have invented a new and useful Device for Spinning-Frames, of which the following is a specification.

By way of explanation it may be stated that in a common and well known form of spinning machine, the material passes downwardly from a plurality of attenuating rolls to the bobbins. Should the material break between the attenuating rolls and the bobbins, the delivery of the material, such material being in the form of a thin strand of untwisted cotton, continues, to the manifest detriment of the work in hand, and at the expense of trouble to the operator.

It has been proposed hitherto to care for a broken strand through the instrumentality of a scavenging roller, journaled below one of the attenuating rolls. One of the disadvantages attendant upon the use of a scavenging roller as above described is that the loose end of the broken material is wrapped around the scavenging roller, and comes therefrom in the form of a tuft or ball having little commercial value.

The present invention aims to provide pneumatic means for caring for the broken end of a strand in a cotton spinning machine, the construction being such that the strand may be handled in the form of an unbroken length, having a commercial value.

Another object of the invention is to provide novel means for controlling the ports or openings in the suction through which ports the free end of the broken strand passes.

Another object of the invention is to provide a closure of the sort above indicated which will be under the control of the strand, when the strand is not broken, the construction being such that when the strand parts, the closure will be retracted from the opening, thereby to permit the free end of the broken strand to be sucked into the opening.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within

the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawing:—Figure 1 shows in front elevation, a portion of the frame of a cotton spinning machine, to which the present invention has been applied; Fig. 2 is a vertical transverse section; Fig. 3 is a vertical transverse section of the intake pipe, the closure for the opening in the pipe and the actuating mechanism for the closure being shown in elevation; Fig. 4 is an elevation of a portion of the intake pipe.

In the accompanying drawings, there is shown a portion of the frame of a cotton spinning machine, the frame being denoted generally by the numeral 1. Journaled upon the frame 1 are longitudinally extended attenuating rolls 2. Bobbins are shown, the same being located below the attenuating rolls 2 and being denoted by the numeral 3. A roving guide 4 is mounted for longitudinal movement in a direction parallel to the axes of the attenuating rolls 2, the roving guide carrying trumpets 5. The machine may include a guide frame 6. The strands of cotton, indicated at 7, pass through the trumpets 5 on the longitudinally moving roving guide 4 and thence pass between the attenuating rolls 2, the strands cooperating with the guide frame 6, and, ultimately, being wound about the bobbins 3.

The foregoing constitutes a portion of a machine of standard construction, and need not be described in greater detail to those skilled in the art, but at this point it may be stated that the present invention aims to provide a means for caring for the free, upper end of the strand 7, when the same breaks between the attenuating roll 2 and the bobbin 3.

In carrying out the invention, a removable receptacle 8 is located adjacent one end of the machine frame 1, and a discharge pipe 9 is adapted to void its contents into the receptacle 8. The discharge pipe 9 communicates with the discharge side of a combined suction fan and blower 10 which may be of any desired form, the suction fan and blower 10 being operated by a belt 11 or by means of any other suitable element, which may be operatively connected with some moving portion of the spinning machine. The intake pipe for the combined suction fan and blower 10 is indicated at 12 and communicates with a horizontal pipe 14

having arms 15. Elbows 16 are mounted to swing, as indicated at 17, upon the arms 15, in a direction parallel to the axes of the attenuating rolls 2. The upper ends of the elbows 16 are pivoted as indicated at 17' upon tubular extensions 18, projecting from the intake pipes 19. Since the intake pipes 19 and parts associated therewith are duplicates, but one intake pipe and its connections will be dealt with in detail. Each intake pipe 19 is connected by means of a bracket 20 with the roving guide 4 which moves longitudinally of the attenuating rolls 2. Each intake pipe 19 is provided with a plurality of inlet openings 21, there being one inlet for each attenuating roll 2, longitudinally of the machine. Mounted upon the intake pipe 19 are brackets 22, curved levers 23 being fulcrumed as indicated at 26 upon the brackets 22, the levers 23 being disposed transversely of the intake pipe 19. Adjacent its upper end, each lever 23 is provided with a stop 24 and adjacent its lower end, each lever carries a stop 25, the stops 24 and 25 being adapted to engage with a pipe 19, but not to engage therewith at the same time. The upper or rear portion of the lever 23 is longer or heavier than the lower or forward portion thereof, as will be understood from Fig. 3. To each lever 23 is pivoted, as indicated at 28, a closure 27 which rests gravitationally upon the opening 21. When the strand 7 is continuous and unbroken, the same bears against the lower forward end of the lever 23, as shown at 29.

In practical operation, the roving guide 4 moves longitudinally, and leads the strand 7 fairly and evenly between the attenuating rolls 2. As the roving guide 4 thus is reciprocated longitudinally, the brackets 20 and the pipe 19 are carried along with the roving guide. Thus, the openings 21 in the pipe 19 are maintained adjacent the strand 7. The strand 7 engages the lower forward end of the lever 23, as shown at 29 in Fig. 3, and tilts the lever upon its fulcrum 26—22, so that the closure 27 extends across the opening 21, the stop 24 being in engagement with the pipe 19. So soon as the strand 7 breaks, the strand will no longer have a bearing upon the lever 23 at the point 29 and thereupon, the lever will swing rearwardly, under the action of gravity, the closure 27 being retracted from the opening 21 and the stop 25 coming into contact with the pipe 19. Thereupon, if the combined suction fan and blower 10 be in operation, a suction will be created in the pipe 19 and the end of the broken strand 7 will be drawn into the pipe 19 through the opening 21, the strand ultimately passing out of the discharge pipe 9 and into the receptacle 8.

One advantage of the present invention is that the openings 21 are not all uncovered

at once, each opening being uncovered only when the strand 7 breaks. Therefore, a high degree of suction need not at all times be maintained in the pipe 19, because each opening 21 is uncovered only when the strand 7 which is adjacent the said opening is broken.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a movable actuating member; a longitudinally movable conduit connected with the actuating member to move therewith, and having an intake opening; and means for creating a suction in the conduit.

2. In a device of the class described, a movable actuating member; a longitudinally movable conduit connected with the actuating member to move therewith, and having an intake opening; means for creating a suction in the conduit; a closure for the opening; and means for controlling the opening.

3. In a device of the class described, the combination with a roving guide, of a perforated conduit connected with the roving guide to move therewith; and means for creating a suction in the conduit.

4. In a device of the class described, a movably actuating member; a longitudinally movable conduit connected with the actuating member to move therewith, and having an intake opening; means for creating a suction in the conduit; a closure for the opening; and strand-actuated means for controlling the closure.

5. In a device of the class described, the combination with the roving guide of a spinning machine, of a conduit connected with the roving guide to move therewith and having an opening; a closure for the opening; and means for moving the closure.

6. In a device of the class described, the combination with the roving guide of a spinning machine, of a conduit connected with the roving guide to move therewith, and having an opening; a closure for the opening; and strand operated means for controlling the closure.

7. In a spinning machine, loose end suction mechanism comprising a pipe having an opening; a lever fulcrumed on the pipe; and a closure for the opening, pivotally connected with the lever.

8. In a spinning machine, loose end suction mechanism comprising a pipe having an opening; a lever fulcrumed intermediate its ends upon the pipe, one end of the lever being a strand engaging end; and a closure for the opening, pivotally connected with the other end of the lever.

9. In a spinning machine, loose end suction mechanism comprising a pipe; a lever disposed transversely of the pipe and conforming approximately to the curvature of

the pipe, one end of the lever being provided with strand engaging means; means for pivotally supporting the lever intermediate its ends; and a closure for the opening pivotally connected with the other end of the lever.

10 In a spinning machine, loose end suction mechanism comprising a pipe having an opening; a closure for the opening; a curved lever fulcrumed intermediate its ends upon the pipe, one end of the lever being pivotally connected with the closure;

and pipe engaging stops upon the lever, the stops being located upon opposite sides of the fulcrum of the lever.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES D. EZELL.
JOHN GROOM KING.

Witnesses:

H. T. HANNE,
L. L. PATTERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."