S. B. SHIPP.

SCAVENGER MECHANISM.

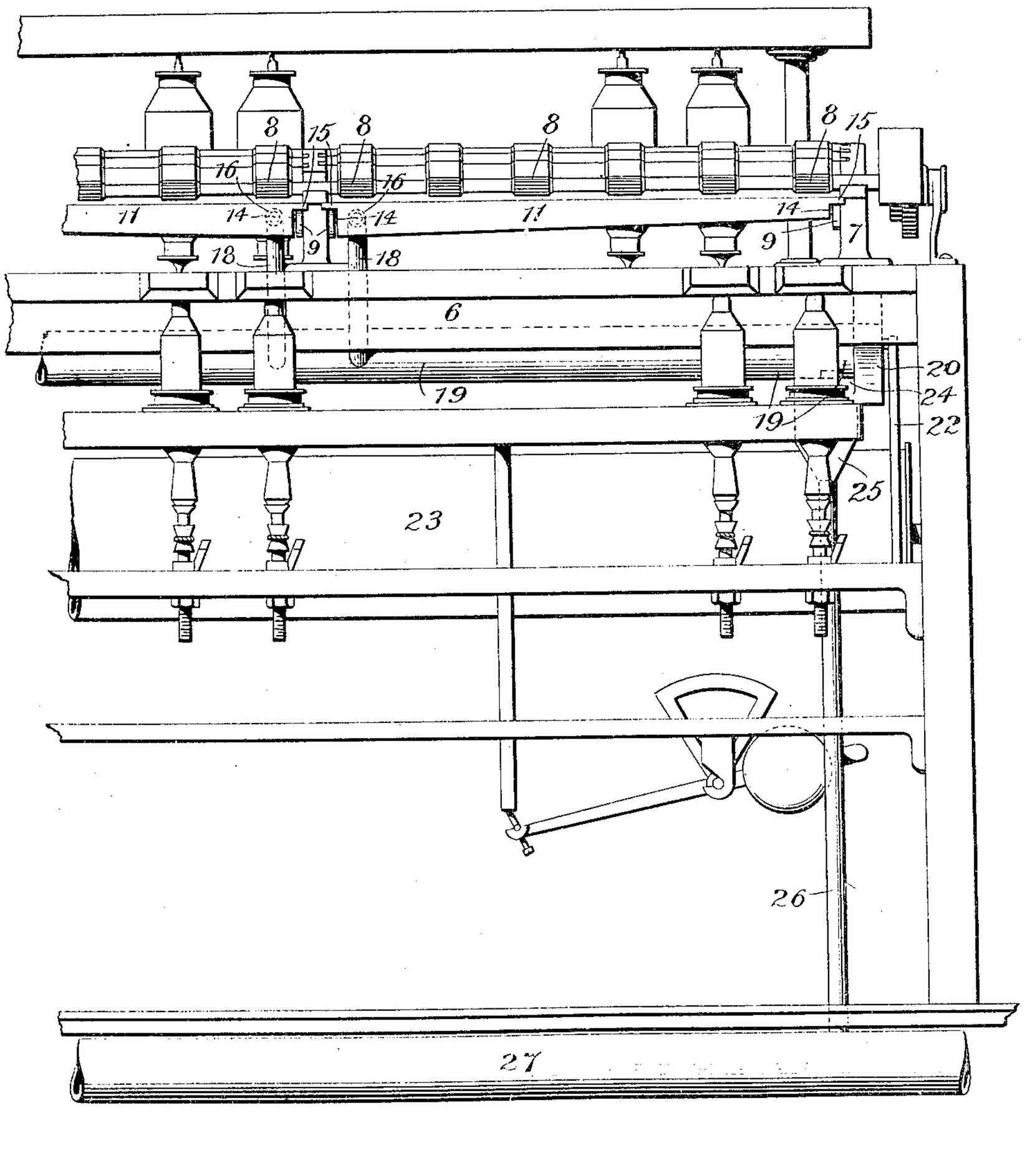
APPLICATION FILED NOV. 20, 1907.

908,341.

Patented Dec. 29, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



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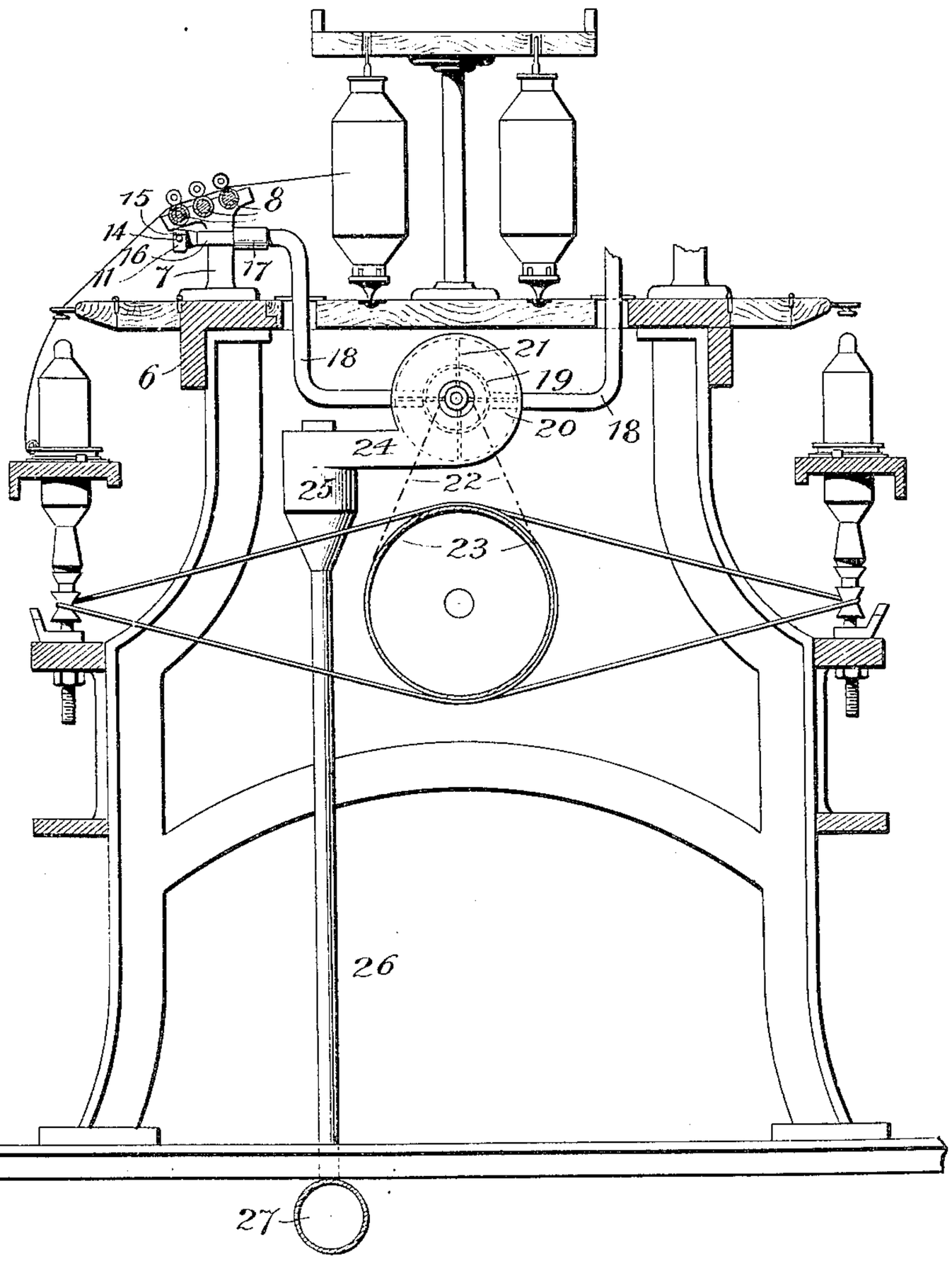
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

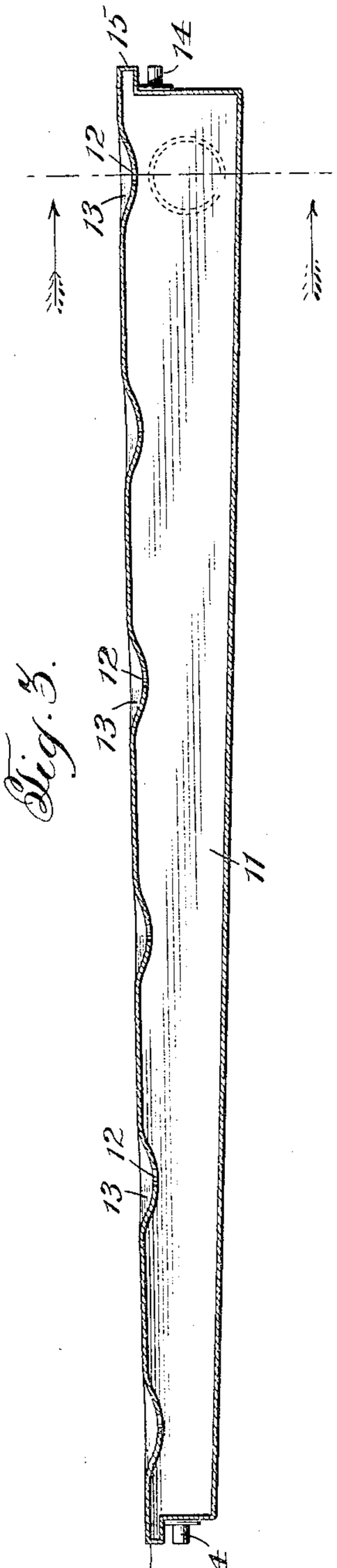

Fig. 5.

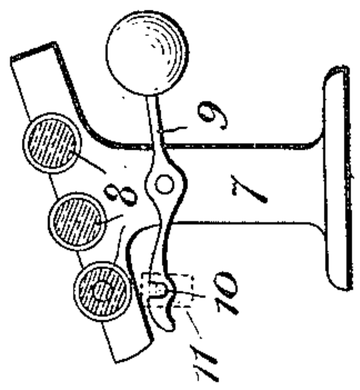

Fig. 3.

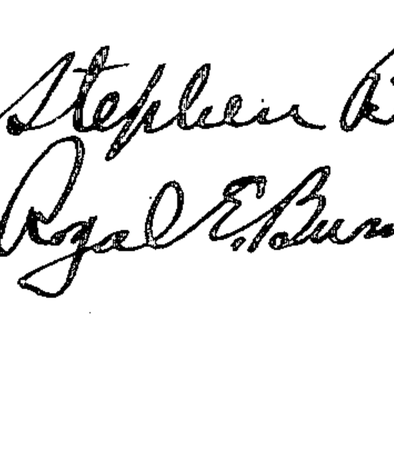

Fig. 4.

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UNITED STATES PATENT OFFICE.

STEPHEN B. SHIPP, OF NEW BROOKLAND, SOUTH CAROLINA.

SCAVENGER MECHANISM.

No. 908,341. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed November 20, 1907. Serial No. 403,044.

To all whom it may concern:

Be it known that I, STEPHEN B. SHIPP, a citizen of the United States, residing at New Brookland, in the county of Lexington and State of South Carolina, have invented certain new and useful Improvements in Scavenger Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention provides means whereby waste, broken ends, or sliver, formed on thread and the like in spinning, twisting, doubling, and similar machinery, is removed from the material and carried away by an induced current of air, the necessity of using scavenger-rollers being thereby obviated.

In machines for the production of thread and the like a thin narrow layer of fiber forms on the product when it is twisted. Frequently the thread or the like fails or breaks down, and the fiber continues to feed through the drawing-rollers and is taken up by the scavenger-rollers by being wrapped around them. If prompt attention is not given to the scavenger-rollers when this occurs, the material on the scavenger-rollers continues to enlarge until so much material accumulates on them that it attracts other threads or ends and causes them to break down, thus multiplying the first trouble. Uneven product and what is called "gouts" often result, which will cause the material to break down in some subsequent process in which it is used and eventually make a defective output.

The scavenger-rollers have to be cleaned from time to time by the operative by removing the rollers from the frames and stripping the accumulations off by hand. This often breaks down more ends, making more imperfect work and consuming a large amount of time.

This invention is designed to avoid these difficulties and the necessity of frequent attention to these parts of the machine by the operative. For this purpose a scavenger-conduit of novel construction is located adjacent to the drawing-rollers in much the same position as usually occupied by the scavenger-roller commonly employed, the location of this conduit being such as to in no way interfere with the folding back of the thread-guides in the doffing operation. Means are provided whereby an induced current of air or suction is produced in this conduit, whereby waste, slivers, and the like are drawn off the material into the conduit through openings therein after passing through the drawing-rollers and thence through other conduits to any suitable place of accumulation. The waste is thus kept off the floor and prevented from choking the drawing-rollers and other parts of the machinery, and the expense of renewing roll-covering is very materially reduced. Further, the expense of the manual removal of the waste from the room is avoided.

The scavenger-conduit is positioned in the same seats as were formerly occupied by the scavenger-rollers, thus avoiding the necessity of in any way changing existing machines to accommodate it.

When read in connection with the further description hereinafter, the details of construction and arrangement of parts contemplated by this invention will be apparent from the accompanying drawings, forming part hereof, wherein a preferable embodiment of the invention, as applied to a spinning-machine, is disclosed, for purposes of illustration.

Like reference-characters refer to corresponding parts in the several views of the drawings, of which—

Figure 1 is a fragmentary side view of a spinning-machine having my invention applied thereto; Fig. 2 is a transverse sectional view thereof; Fig. 3 is a view of the scavenger-conduit; Fig. 4 is a transverse sectional view thereof; and Fig. 5 is a view of a supporting-arm for a scavenger-conduit.

Having more particular reference to the drawings, 6 designates the roller-beam, 7 the roller-stands, 8 the drawing-rollers, and 9 weighted arms, pivoted to the roller-stands, of the character usually employed to maintain the scavenger-rollers in contact with one of the lower sets of drawing-rollers, the arms having seats 10 thereon.

In place of the scavenger-rollers, this invention provides for each set of drawing-rollers a scavenger or exhaust conduit 11. This conduit has orifices 12 therein, one of which is positioned under each lower outside drawing-roller. The exterior top side of the conduit is formed with a depression around each orifice, as shown at 13, in order to afford better facilities for waste to be drawn through the orifices. This depression is rounded in cross-section to conform, more or less, to the periphery of the drawing-roller.

On each end of the scavenger-conduit is a

pin or projection 14, which is arranged to rest in a seat 10 in a pivoted arm 9, the conduit being thereby supported in place. In order to prevent the conduit from being brought into contact with the drawing-rollers, as is the case with the scavenger-rollers, a flange 15 projects from each end of the scavenger-conduit and is positioned above pin 14, this flange being arranged to engage the bottom of the roller-stand. The flange is preferably so located as to permit the conduit to assume a position about one-eighth inch from the drawing-rollers. The scavenger-conduit increases in size of cross-section from one end toward the other, to accommodate the increasing amount of air and waste drawn toward one end.

To the larger portion of each scavenger-conduit, at or near the end, is attached an outlet-pipe 16, which is connected by a flexible sleeve or any other readily-removable means 17 to a branch-pipe 18. This flexible connection will allow for any necessary movement of the scavenger-conduit on the pivoted arms, the conduit thus being permitted to ease off in case of any "lap up" on the rollers, and it also makes easy the disconnection of the conduit, so that it may be lifted off in much the same manner as were the scavenger-rollers.

Each branch-pipe 18 of a machine leads to a main conduit 19 extending longitudinally of the machine, preferably under the creel-boards. At the end of conduit 19 is a fan-casing 20, containing a fan 21, driven by a belt 22 from the driving-drum 23. This fan induces a current of air toward it in the before-mentioned conduit and pipes and draws the waste from the thread therethrough, forcing it through a pipe 24 to a condenser 25, whence it is drawn through a pipe 26 to a trunk-conduit 27. Conduit 27 is located beneath a series of machines, preferably under the floor, and leads to the picker-room or any other suitable place in the mill, where a fan is located to produce suction in the conduit and where waste is separated from the air.

It will be noted that the placing of the scavenger-conduit directly beneath and close to the drawing-rollers obviates any interference by the conduit with the folding back of the thread-guides and thread-boards in the doffing operation, which interference would occur if the conduit were located in proximity to the thread at any other point between the drawing-rollers and the eyes of the thread-guides.

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

1. In a scavenger mechanism for textile machinery, and in combination with a series of drawing-rollers, a scavenger-conduit positioned adjacent to said rollers, said conduit having an orifice therein for each roller and being formed with depressions surrounding the orifices conforming to a certain degree to the periphery of the rollers, and means whereby suction is produced in said conduit.

2. In a scavenger mechanism for textile machinery, the combination with an element over which material passes, of a scavenger-conduit, means for movably supporting said conduit adjacent to said element, and means for limiting the proximity of said element and conduit.

3. In a scavenger mechanism for textile machinery, the combination with a support and an element thereon over which material passes, of a scavenger-conduit, means for movably supporting said conduit adjacent to said element, and a flange on said conduit and engageable with said support whereby the proximity of said element and conduit is limited.

4. In a textile machine, a scavenger mechanism comprising a scavenger-conduit located adjacent to each series of elements over which material passes, a branch-pipe connected with each scavenger-conduit, a main conduit extending longitudinally of the machine and connected with said branch-pipes, means on said machine and connected with said main conduit whereby suction is produced therein, a condenser with which said suction means communicates, a trunk-conduit, and a conduit connecting said condenser and trunk-conduit.

In testimony whereof I affix my signature in presence of two witnesses.

STEPHEN B. SHIPP.

Witnesses:
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J. D. SMITHDRAL.