(No Model.)

E. W. SARGENT.

SCAVENGER MECHANISM FOR SPINNING, DRAWING, AND TWISTING MACHINERY.

No. 299,855. Patented June 3, 1884.

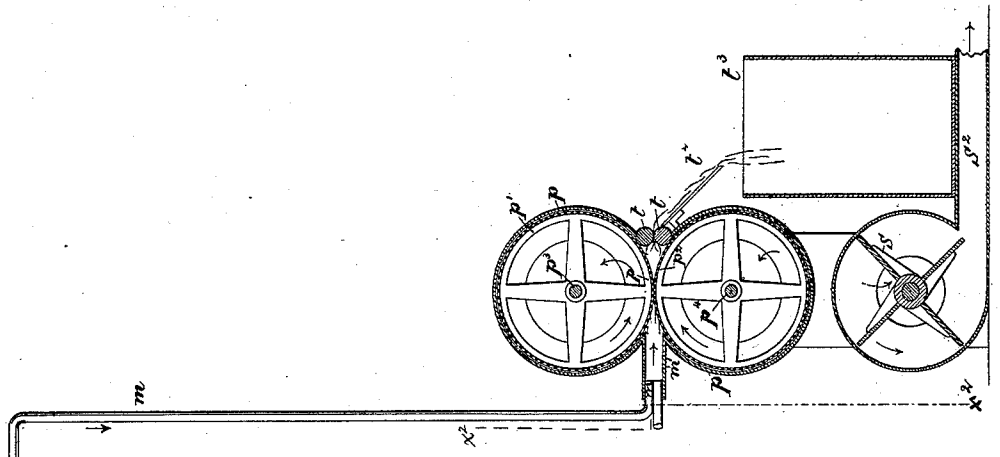


Fig: 1.

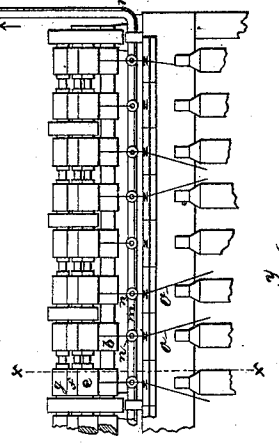


Fig: 2.

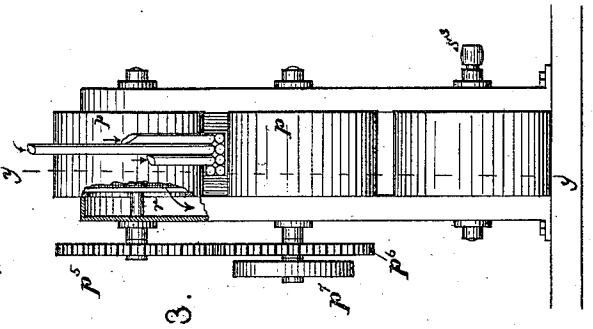


Fig: 3.

Witnesses.
Arthur Lipperheim
John F. C. Freundorf

Inventor.
Ethanan W. Sargent.
by Crosby & Gregory Attys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ELHANAN W. SARGENT, OF LOWELL, MASSACHUSETTS.

SCAVENGER MECHANISM FOR SPINNING, DRAWING, AND TWISTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 299,855, dated June 3, 1884.

Application filed September 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, ELHANAN W. SARGENT, of Lowell, county of Essex, State of Massachusetts, have invented an Improvement in Scavenger Mechanism for Spinning, Drawing, and Twisting Machinery, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The object of this invention is to provide means for collecting the broken ends of slivers or yarns in spinning, drawing, twisting, and doubling machinery—ends which are produced by breakage between usual drawing or front rolls, and guides or eyes where the material is held for spinning, twisting, or doubling—and herein I have called the apparatus produced by me "scavenger mechanism." In factories wherein fibrous material is spun into yarn, the material, in the form of rovings, slivers, and of yarn, is passed from rollers to guides or eyes, from which it passes to spindles or into cans. In spinning or twisting machines, if a roving or yarn breaks and the machine is not stopped at once, the broken roving or yarn gets wound about the front roller and has to be cut or torn off, or is carried to one side and becomes entangled with an adjacent roving or yarn, making a bunch and producing what is known as "gouty yarn," or else breaking the yarn. If gouty yarn is produced, its evil effects are apparent in all the processes through which the said yarn passes while being made into cloth. In accordance with my invention, I have arranged an exhaust-pipe immediately below and near the front roll or rolls, or between the front rolls and roller-beam, so that the draft of air created in the said exhaust-pipe will draw the broken ends of the rovings or yarns into suitable mouth-pieces or openings into the exhaust-pipe, from which the material so taken into the exhaust-pipe will be delivered into a suitable receptacle. Not only the broken rovings, slivers, and yarns, but flying or waste in the air near the rollers or on the roller-beam will be drawn into the said exhaust pipe or conduit. The exhaust-pipes from two or more machines may be led to a common receiver, where the material collected from several machines may be delivered. The exhaust in the pipes will preferably be produced by an exhaust-fan, and the strength of the indraft may be regulated by the rapidity of its rotation.

Figure 1 represents the upper portion of a spinning-frame of usual construction, with which I have embodied my improvements, the said figure showing drawing-rollers, guide-eyes, guide-boards, a part of the roller-beam, and the upper ends of several bobbins, my improved scavenger mechanism being added, the exhaust mechanism, condensing-drums, and receiving-cans being shown in section on the line $y\ y$, Fig. 3. Fig. 2 is a section of Fig. 1 on the dotted line $x\ x$, looking toward the left; and Fig. 3, an elevation on the line $x^2\ x^2$, Fig. 1, looking toward the right, the casing for the condensing-drum being partially broken out.

The roller-beam A, roller-stand *a*, front, middle, and back rollers, *b c d*, and covered rollers *e f g*, guide-board *h*, guide-eyes *i*, and bobbins *j* are all as common to spinning-frames of the ring class.

Upon the roller-beam, just below the front roller, *b*, and between it and the roller-beam, I have arranged the exhaust-pipe *m*, having a series of mouth-pieces or openings, *n*, one opposite each roving, sliver, or yarn *o*, so that in case the same is broken between the front roller and guide-eye, *i*, or it might be a trumpet in a drawing-machine, the indraft of air will draw the free end of the roving, sliver, or yarn into the mouth-piece opposite or next to it, and the said end will travel along in the said pipe until the operator breaks off the roving, sliver, or yarn, and properly "pieces up," as it is called, the broken end. The exhaust-pipe *m* will be conducted into the inlet *m'* of a case or shell, *p*, within which I have shown two pervious sheet-metal condensing-drums, $p'\ p^2$, on shafts $p^3\ p^4$, which, in suitable bearings, are provided, respectively, with gears $p^5\ p^6$, which are meshed together, the shaft p^4 being driven by a belt (not shown) on a pulley, p^7. The condensing-drums are open at their ends opposite a channel, *r*, in communication with the case or shell in which the exhaust-fan *s* is made to revolve, so that the air drawn through the pipe *m* (or it may be several of them, as shown in Fig. 3, each one being part of an exhaust-pipe of a separate machine) will pass through the perforated surfaces of the condensing-drums and be blown out through the dis-

charge-pipe s^2. The broken pieces of roving, sliver, or yarn, and the flyings or waste on or about the roller-beam will be collected on the surfaces of the condensing-drums, and will be consolidated and discharged by them in a sheet or layer, t^2, and by suitable taking-off rollers, $t\,t$, will be delivered into a receptacle, t^3.

All the machines in a room or factory may be supplied with exhaust-pipes upon their roller-beams, and one fan may act for all to take up the broken rovings, slivers, &c., thus avoiding the loss of the same, now common when cleaning or stripping the front rollers, as is now done by the operatives, they having a hook for such purpose, and also saving the time usually taken to wipe the front roller. Besides collecting and saving the cotton or fibrous material, the exhaust-pipes act to keep up a good circulation of air in the room, and remove from the room flying fibers, the presence of which is frequently the cause of fire.

I do not desire to limit my invention to the exact apparatus shown and described by which to exhaust the air from the pipe *m*, or by which to condense the material drawn into and through the said pipe or pipes by the exhaust.

In Fig. 1 the pipe *m* is broken out, as the fan and condensing-drums or apparatus may be more or less remote from the particular machine in connection with which it operates.

The exhaust-fan may be rotated in any usual manner, or by a belt on the pulley s^3, and I desire it to be understood that my invention may be employed to advantage upon any machine wherein rovings, slivers, or yarns are passed between rollers, and wherein it is an object to avoid the winding of the same when broken about the said rollers, or about adjacent roving, slivers, or yarns.

I claim—

1. The combination, with rollers between which pass rovings, slivers, or yarns, of an exhaust pipe or passage to receive the broken ends of the same, and means to create an exhaust-current or indraft of air through the said pipe, to operate substantially as and for the purposes set forth.

2. The front roller and exhaust-pipe and means to exhaust the air from or through the same, combined with condensing apparatus to condense the fibrous material drawn into and through the said pipe, substantially as described.

3. The front roller, *b*, and the exhaust-pipe provided with an open mouth opposite each roving, sliver, or yarn passing over the said roller, combined with means for producing an exhaust-current into and through the said pipe, and with a receptacle for the fibrous material drawn into and through the said pipe, substantially as described.

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

ELHANAN W. SARGENT.

Witnesses:

WM. F. HILLS,

CHAS. C. HUTCHINSON.