No. 707,133. Patented Aug. 19, 1902.

J. MARSHALL.

MACHINE FOR CIRCULATING AND SEPARATING WASTE FIBROUS MATERIALS.

(Application filed Feb. 12, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

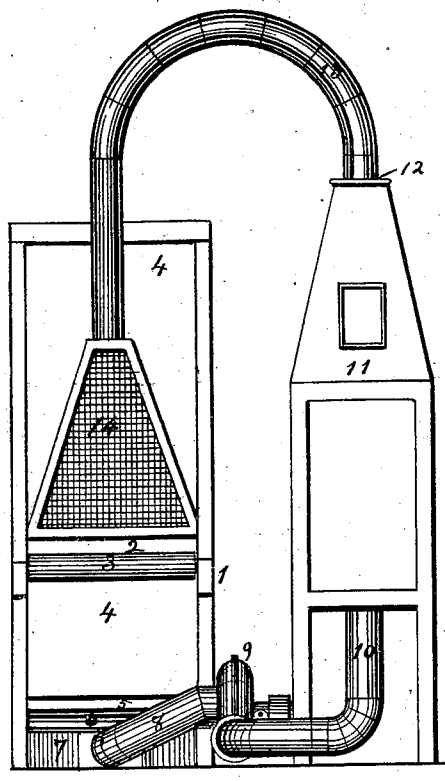
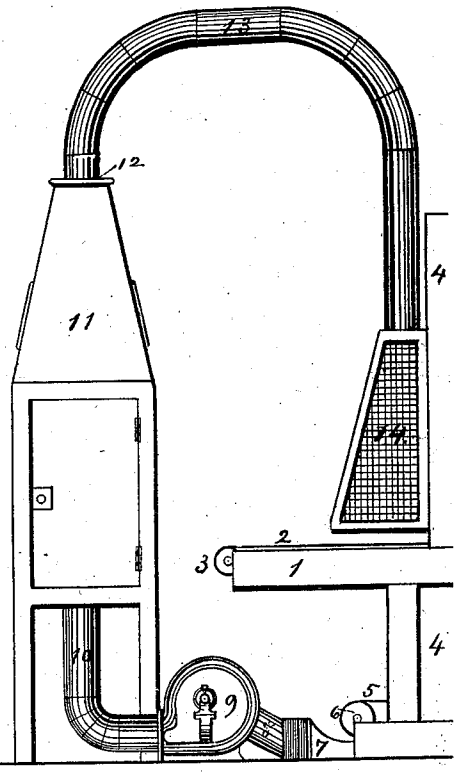


Fig 2



WITNESSES

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Fig 3.

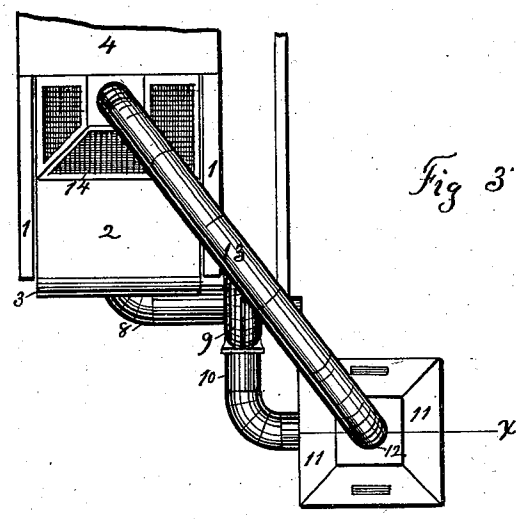
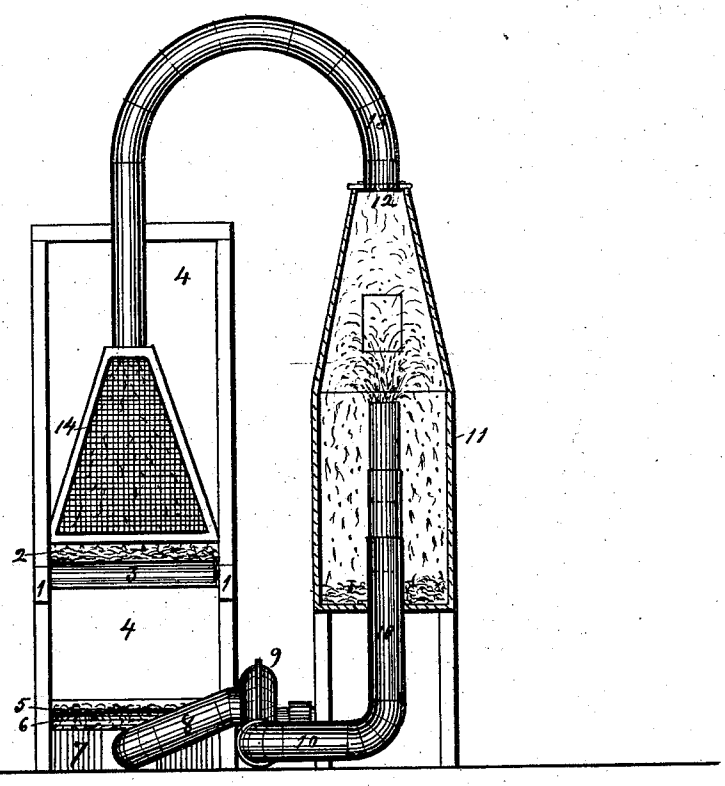


Fig 4



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MACHINE FOR CIRCULATING AND SEPARATING WASTE FIBROUS MATERIALS.

SPECIFICATION forming part of Letters Patent No. 707,133, dated August 19, 1902.

Application filed February 12, 1902. Serial No. 93,770. (No model.)

To all whom it may concern:

Be it known that I, JAMES MARSHALL, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Machines for Circulating and Separating Waste Fibrous Materials, of which the following is a specification.

Heretofore it has been the custom to feed the raw fibrous materials to a purifying-machine either by hand-labor distributing the raw materials upon a feeding-apron or by occasionally filling a feeding apparatus which acts automatically as a distributer of the materials upon the apron; but in all cases the wastes or droppings from the purifying process fall upon a bottom apron which continuously returns them to the front of the machine, where they are gathered by hand-labor and returned to the feeding-apron for reaction by the machine, or they are returned automatically by a continuation of the bottom apron to the feeding device. In the first case the operator has an opportunity to distinguish and separate what portions of the wastes are worthy of reaction. In the latter case though some labor is saved everything is returned to the purifying-machine for reaction, and the process is repeated over and over at a waste of time and power and to the deterioration of the product.

The object of my invention is to supply an auxiliary device for automatically receiving, separating, and returning only the useful portion of the wastes to the original machine by a continuous circulating system so arranged that the impure materials will deposit themselves and the better portion be carried back to the machine, thereby saving time and labor and preventing reaction on worthless materials.

In the accompanying drawings like figures of reference relate to like parts.

Figure 1 is a front view of my device. Fig. 2 is a side view. Fig. 3 is a plan view. Fig. 4 is a front view, the separator being shown in section through the line x of the plan.

As shown in the drawings, 1 is a feeding-table as ordinarily arranged in front of any fiber-purifying machine. 2 is the feeding-apron, passing over roller 3 and entering the machine 4. The lower return-apron is shown at 5, passing over roller 6 and delivering the waste droppings to the front of the machine. All the above is as usually arranged in this class of purifying-machines. At this point I begin to arrange my automatic improvement by supplying a pan 7, arranged upon the floor to receive the waste droppings from the return-apron 5. I connect this pan by means of the pipe 8 with an exhaust-fan 9, which removes its contents and delivers them through a pipe 10 into a separating-chamber 11. This chamber has perpendicular sides for a suitable height and then preferably tapers pyramidally to a top outlet 12 and delivery-pipe 13. The entrance-pipe 10 is continued perpendicularly within the chamber to a suitable height dependent upon the force of the blast used and the nature of the materials to be separated. The office of this pipe is to discharge the waste materials upward and keep them in rebounding circulation by means of the supporting-wind until the heavier impure materials settle out and drop to the bottom of the separator, while the better ingredients, which are always the lightest, pass on through the delivery-pipe 13 to a funnel-shaped cage 14, arranged over the feeding-apron. This cage is constructed chiefly of wire-cloth, so as to permit the quick escape of the accompanying air, while the recovered materials drop upon the feeding-apron for reaction mixed with fresh material.

The action of the machine is as follows: By means of the fan 9, which is driven by a pulley and belt from any convenient source of power, the waste products that are dropped from the apron 5 into the receiving-pan 7 are sucked by the fan 9 through pipe 8 and delivered through pipe 10 into the separating-chamber 11. There the impure parts settle, and the purified part passes on through pipe 13 and cage 14 back to the feeding-apron 1 of the original machine. By this means I keep up automatically a continuous circulating system of the separated waste products.

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

1. In a machine for purifying fibrous materials, the combination therewith of an auxiliary system continuously circulating the

waste or droppings therefrom, consisting of a receiving-pan into which said droppings fall, an exhaust-fan emptying said pan, a separating-chamber into which said pan delivers its exhaust, and a pipe leading the purified products from said separating-chamber back to the original machine, substantially as described and shown.

2. In an auxiliary machine for separating the wastes made from purifying fibrous materials the combination with the outlet through which the waste products of the original machine are discharged, of a receptacle into which they fall, an exhaust-fan connected to said receptacle removing and conveying said wastes forward, a separating-chamber adjoining, into which they are discharged and a return-passage from said chamber to the original machine substantially as described and shown.

3. In a machine for separating the wastes made by purifying fibrous materials, the combination of an auxiliary separator consisting of a chamber into which the wastes are discharged, an inlet-pipe rising through said chamber to a suitable height for separating purposes, an outlet from said chamber, and means for generating an air-current by which said wastes are delivered into said chamber, purified, and removed from said chamber, substantially as described and shown.

4. In a machine for separating fibrous waste materials, the combination with the outlet through which the waste products of the original machine are discharged, of a receptacle into which they fall a transfer-fan connected therewith, a separating-chamber connected to the fan, a top exit from said chamber connected to a passage terminating in a wire cage erected over the feed-inlet of the original machine, through which passage, the recovered wastes are returned by means of the air-current generated by the fan, to the original machine, substantially as described and shown.

JAMES MARSHALL.

Witnesses:
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BRONSON S. BURR.