

(No Model.)

J. M. FINCH.
CONVEYER.

No. 460,914.

Patented Oct. 6, 1891.

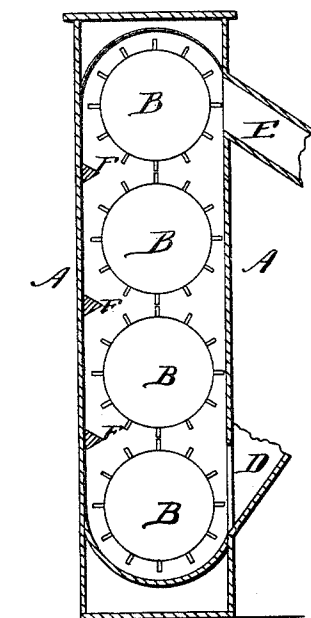


Fig. 1.

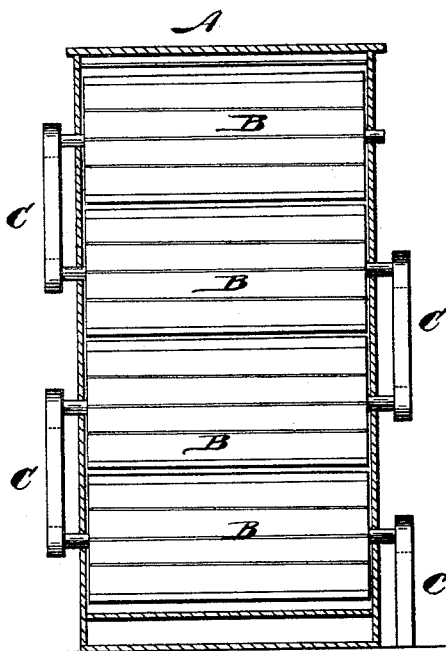


Fig. 2.

WITNESSES

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CONVEYER.

SPECIFICATION forming part of Letters Patent No. 460,914, dated October 6, 1891.

Application filed April 11, 1891. Serial No. 388,558. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FINCH, of Crockett, in the county of Contra Costa and State of California, have invented a new and useful Elevator or Conveyer, of which the following is a specification.

In the annexed drawings, making part of this specification, Figure 1 is a vertical transverse section. Fig. 2 is a vertical longitudinal section.

The same letters in both figures indicate the same parts.

A is a trunk in which are placed a series of cylinders B, having imparted to them a rapid rotation all in the same direction, preferably by belts C on the shafts of the cylinders. As these are all open belts, they will transmit motion in the same direction to all the cylinders of the series; but they may be driven by gearing, if preferred for any reason.

The cylinders B, while they come within the ordinary sense of that word, need not be true cylinders, for they may be solid or hollow, or they may be polygonal, corrugated, bladed, or otherwise roughened.

The cylinders are shown as provided with narrow blades projecting radially. These are preferably about a half-inch wide and have their outer edges running within, say, one-quarter to three-quarters of an inch of the face of the trunk along which the material it intended to travel and about the same distance apart. I have found cylinders of six to eight inches in diameter, running at a speed, say, three or four hundred revolutions a minute, sufficient for moving specifically light particles. Of course the speed must be increased for those of greater specific gravity, as the force of the revolving air-belts will increase with the increase of speed at the periphery of the cylinders. These blades, when used, do not act as fans to draw in air at the center and deliver it tangentially at the periphery. They are too narrow and too close together upon the solid surface of the cylinder to so act. They rather act to roughen the face of the cylinder, and I have caused particles to be lifted with smooth cylinders, it being a well-known fact that circular belts of air are

generated by the rapid rotation of pulleys and drums, though so far as I am aware no mechanical use of said air-currents has heretofore been made by any one. These blades do not act mechanically to toss the material by their centrifugal action. Indeed I have not been able to perceive that the particles penetrate the air-belts so as to come in contact with the blades, except in the bottom of the chest, when they may be brought close to the surface, so as to lift the material as fed in and impel it forward or upward into the influence of the air-belt generated by the next cylinder of the series, from which it is delivered to the next, and so on to the end of the series.

D is the feed-opening at one end of the trunk, and E the discharge-opening at the other end of the trunk. The material is delivered into a space left between the first cylinder of the series and a semicircular end piece, and a similar one may be placed at the delivery end. This construction is not, however, essential, as any openings for feed and for discharge will answer, if arranged to bring the material to the first and take it away at the last of the series. These openings are of the entire length of the cylinders, so that the material may be supplied in a thin sheet.

Baffle-strips F may be placed across the surface of the face of the trunk along which the particles are intended to travel about the middle of the space between the horizontal radii of the cylinders for the purpose of directing the material toward the succeeding cylinder of the series.

The operation of the machine is as follows: When the cylinders are put into rapid rotation, they have the effect of entraining—that is to say, drawing with themselves belts of the surrounding air rotating in the same direction and with force enough to lift the material and carry it along until it is brought within the influence of the next cylinder of the series, from which it receives a fresh impulse and is carried on from one cylinder to another until it has passed the last of the series, when it is discharged through the delivery-opening. The baffle-strips serve to give an inward di-

rection to the passing particles, so as to bring them more effectively into the sphere of action of the next cylinder.

The material, if fed constantly, will be delivered in a stream at the outlet-opening, and this is advantageous under conditions when the use of elevators of the usual form would be objectionable, as the buckets of the latter deliver the material intermittently and in masses. The machine may be placed in any position—vertical, inclined, or horizontal—and used to elevate or convey the material.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a trunk provided with a feed-opening at one end and a discharge-opening at the other, a series of cylin-

ders having rotation in the same direction and arranged in proximity to one of the sides of the trunk, substantially as set forth. 20

2. In combination with a trunk having a feed-opening at one end and a discharge-opening at the other, a series of bladed cylinders having rotation in the same direction and arranged in proximity to one of the sides of the trunk, substantially as set forth. 25

In testimony whereof I have hereunto subscribed my name in the presence of two attesting witnesses.

JOHN M. FINCH.

Witnesses:

ALEX. L. BADT,
JOHN P. POOLE.