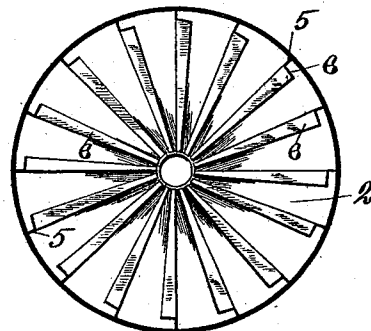
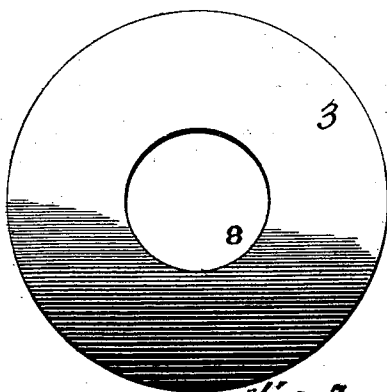
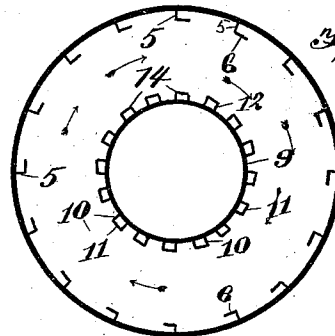
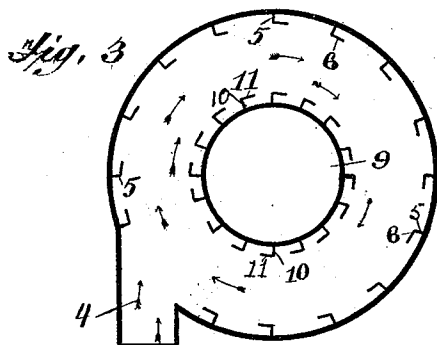
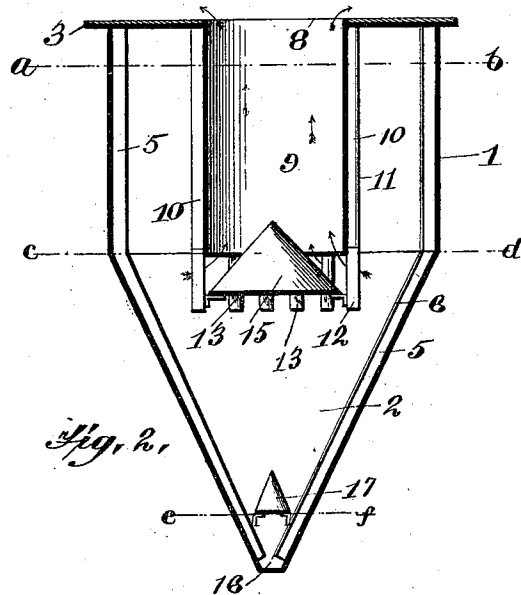
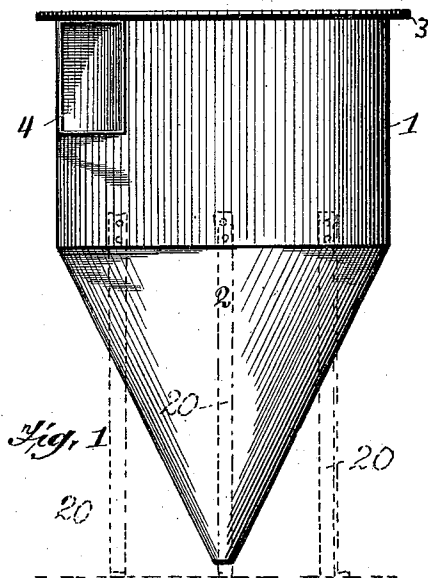


(No Model.)

L. S. FLETCHER.
DUST COLLECTOR.

No. 505,977.

Patented Oct. 3, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS S. FLETCHER, OF BEATRICE, NEBRASKA.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 505,977, dated October 3, 1893.

Application filed May 6, 1893. Serial No. 473,246. (No model.)

To all whom it may concern:

Be it known that I, LOUIS S. FLETCHER, residing at Beatrice, in the county of Gage and State of Nebraska, have invented certain new and useful Improvements in Dust-Collectors for Mills, Elevators, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to dust collectors for mills, &c.

The object of the invention is to produce a dust collector by which the dust from a middlings purifier, fanning mill or screen, or other place, may be collected and withdrawn from the air.

Figure 1 is a side elevation of the device; Fig. 2 a vertical central longitudinal section. Fig. 3 is a cross section on line *a, b*, Fig. 2. Fig. 4 is a horizontal section on line *c, d*, Fig. 2. Fig. 5 is a horizontal section on line *e, f*, Fig. 2. Fig. 6 is a plan of the shell of the collector, below the line *c, d*. Fig. 7 is a top plan of the cover.

The dust collector has a cylindrical casing 1, and a conical or frusto conical casing 2 below the same and joined tightly thereto, and forming the side covering for the operative parts of the machine. The casing is preferably of sheet metal, and is closely connected to an annular top or cover 3, preferably of wood or metal. The cylindrical part of the casing has a tangential inlet spout 4, into which the dust laden air is conveyed from the purifier or other place by suitable spout. Inside the casing 1, 2, there are a number of ribs 5 attached to the side of the casing, and projecting inward a short distance, and having wings 6 projecting in a direction about parallel with the casing. All these wings project circumferentially in the direction the air current takes when blown into the tangential spout 4, as indicated by arrows, Fig. 3.

The cover 3 has a central opening 8, and a cylindrical casing 9 extends down inside this casing, so that the annular chamber between the cylinders 1 and 9 is tightly closed at top by the annular cover 3. The convex side of casing 9 has ribs 10, extending radially, and these ribs have wings 11 projecting in direction about parallel with the casing. The ribs and wings thus form troughs, closed at the

side from which the wind pressure comes, and open at the reverse side.

The cylinder 9 is left open at bottom. The ribs 10 are extended down below said cylinder, and below said cylinder the ribs 10 and wings 11 are extended by sides 13 and 14 to form closed rectangular troughs or spouts. A conical shield 15 is attached to these projecting spouts, the top of the cone extending up a little way inside the casing 9. This leaves an open passage between the sides of the troughs or tubes extending down from the cylinder.

Now when dust laden air is blown in at the spout 4 it is conducted round the annular chamber by the casing, and the dust, acted on by centrifugal force, and by the eddies formed by the moving air current, will drop behind the ribs 5 and 10, and will then be conveyed by gravity down along the passages or troughs formed by said ribs and their wings. The air, after passing round the annular chamber a greater or lesser number of times, will pass through the openings between the closed troughs 12, and the cone 15, and thence up and out at the opening A, being by its passage through the machine practically freed from dust.

The wings 6 near the bottom of the conical casing 2 approach each other until they form a practically complete annulus, divided by ribs, and inside of these passages the dust passes down and out an opening 16 at the bottom of the casing. A conical shield 17 covers this bottom opening of the casing, and prevents any considerable escape of the air at the bottom of the casing.

The casing may be supported by legs, indicated in dotted lines, or may be held by stays or stanchions from the wall or ceiling of the mill, or otherwise supported as may be desirable.

The side ribs 5 and wings 6 extend about vertically in the cylindrical casing, and are continued down the conical part of the casing in the same general direction, as nearly as the casing will permit. These wings form passages in which the air is practically still, and the dust settles therein and slides down to the bottom of the collector.

The closed spouts or tubes below the cas-

ing 9 guide the dust down from the ribs 10 and prevent the air which passes under the casing 9 from drawing the dust up with it.

From the above description it is believed the construction and operation of my device will be understood. Changes within the limits of the scope of the claims are held to be within the spirit of the invention.

What I claim is—

1. In a dust collector, the annular chamber having upright outer and inner walls, and provided with ribs extending from both outer and inner walls into said chamber, the circular inner wall having a bottom opening which forms the air escape passage, the outer wall having a tangential inlet spout, and the chamber having passages leading downward from all the ribs, substantially as described.

2. The outer casing described having a cylindrical portion above and a conical portion below, the annular cover, and the interior cylindrical casing having a conical deflecting shield at its lower end, and having passages between said shield and the lower end of said inner casing, in combination substantially as described.

3. In a dust collector, the upright generally

circular casing having a tangential inlet spout, ribs projecting from said casing in a substantially radial direction, and wings extending from the ribs, said wings and casing being extended to form closed spouts near the bottom of the ribs, substantially as described.

4. The outer cylindrical casing, the annular cover, and the central cylindrical casing provided with vertical ribs, said ribs being continued below said casing in the form of tubes closed at the sides but open at top and bottom, and the conical deflector supported by said tubes, all combined substantially as described.

5. The combination with the cylindrical outer casing and its conical downward extension open at the top, of the ribs and wings projecting from said casing and extending in the direction of the height of the casing, and the conical deflector near the bottom of the casing inside said ribs, all substantially as described.

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

LOUIS S. FLETCHER.

Witnesses:

F. C. ALLEN,
S. D. KILLEN.