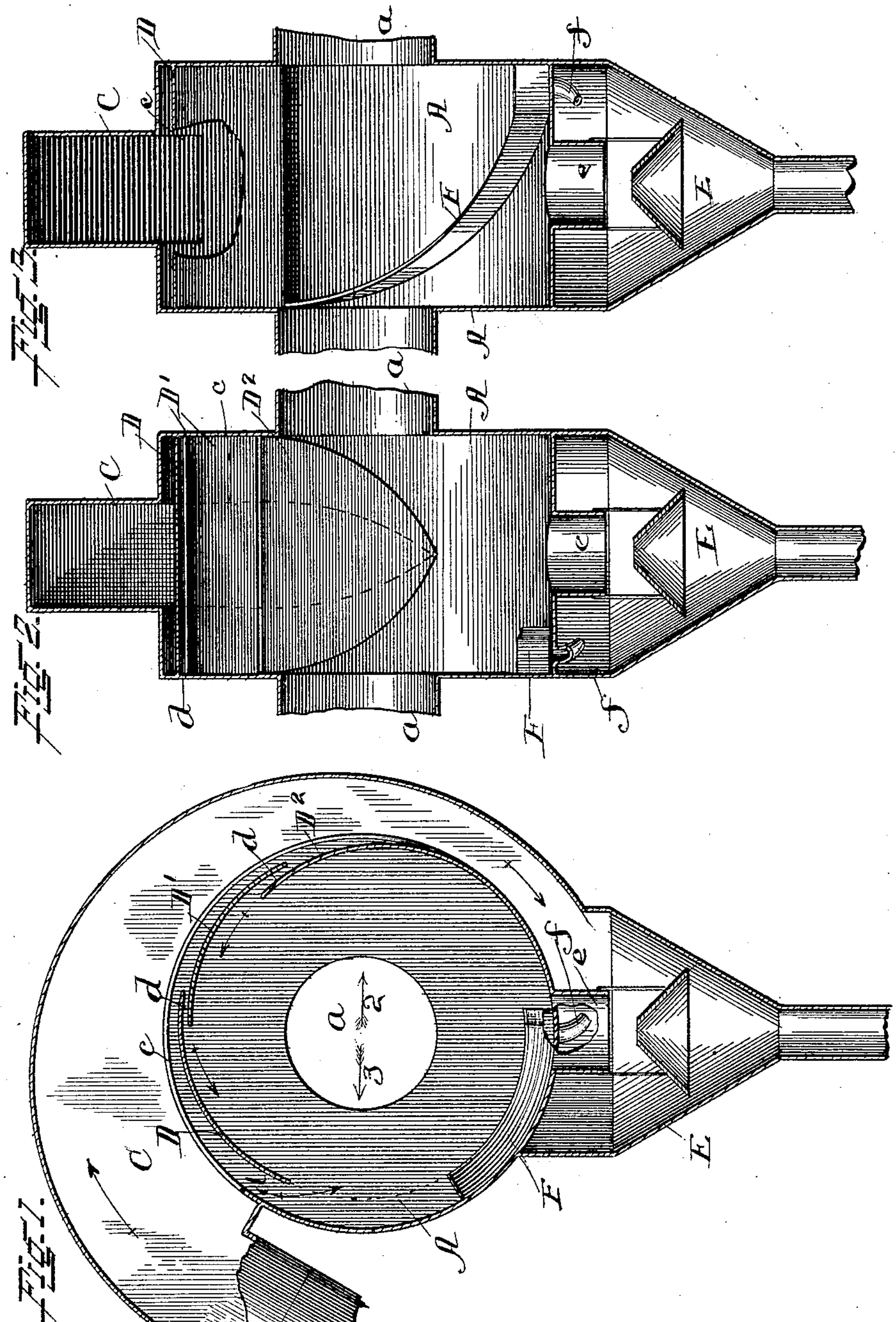
(No Model.)

E. W. HOOVER.
DUST COLLECTOR.

No. 493,504. Patented Mar. 14, 1893.



Witnesses:-
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UNITED STATES PATENT OFFICE.

ELIAS W. HOOVER, OF CHICAGO, ILLINOIS.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 493,504, dated March 14, 1893.

Application filed March 2, 1892. Serial No. 423,518. (No model.)

To all whom it may concern:

Be it known that I, ELIAS W. HOOVER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dust-Collectors, of which the following is a specification.

My invention relates to certain improvements in a dust collector of a class which have lately come into extensive use, and in which the separation of the dust from the air by means of which it is conveyed, is accomplished by utilizing the difference in weight between the dust particles and the particles of air. The general principles involved in this dust collector have been utilized before for the same purpose, but my invention has for its object the more perfect combination and arrangement of parts, in order that compactness, cheapness and lightness may be obtained, and, at the same time, the most perfect separation possible of the air from the dust.

To such end said invention consists in certain essential features of the construction set forth below. Said construction will be described specifically, in its preferred form, without, of course, intending to limit the invention thereto. The essential features will then be clearly pointed out in the claim appended to this specification.

In the drawings, Figure 1 is a central vertical section taken flatwise of the collector, and Figs. 2 and 3, central vertical sections at right angles to the first, said sections being views taken in the directions of the arrows, 2 and 3, respectively, in Fig. 1.

The main body of the collector consists of a drum, A, having side openings, *a*, leading into the open air. The pipe which brings the dust and air to the collector is shown at B, and empties into an encircling duct or passage, C, passing part way around the drum, A, and opening into said drum by means of a slot, *c*, cut in the convex surface thereof, preferably of a width equal to the duct, C. Within the drum, A, a series of diaphragms, D, D′, D², is arranged just within the slot, *c*, and overlapping each other, as shown, so as to leave passages, *d*, from the duct, C, into the interior of the drum, A. Beneath said drum is a conical dust receiver, E, into which the duct, C, empties, and an opening, *e*, connects the interior of the dust cone with that of the drum, A. A flange, F, is arranged in the interior of the drum, A, as seen in the figures, commencing a little more than half way up on the left hand side in Fig. 1 by the dotted line, and passing diagonally across the concave interior of the drum, terminates near the bottom thereof and there communicates, by means of a spout, *f*, with the dust cone, while I prefer to locate the spout, *f*, at one side, as shown, yet it may be placed in the central opening, *e*, if preferred.

In operation, the dust enters through the pipe, B, under the impulse of a fan or other suitable pressure blower, and, passing around through the duct, C, is discharged into the cone, E. As the duct, C, contracts toward its discharge end a back pressure is created which forces a certain amount of air backward through the openings, *d*, between the diaphragms, D, D′, D², into the drum, A. Also, after the dust reaches the cone, E, a portion of the air which it still carries with it there escapes upward through the opening, *e*, into the drum, A. The passage of the air from the duct through the openings, *d*, creates a circular motion in the drum, opposite to that in the duct, and a portion of the dust which still remains in the air is deposited in the drum, from which it is gradually worked, by means of the internal flange or rib, F, and the spout, *f*, down into the dust cone.

I claim as new and desire to secure by Letters Patent—

The combination with a drum, A, having side openings, *a*, and an encircling duct, C, opening into the interior of the drum through passages, *d*, in a direction opposite to the current of air in the duct, C, of a dust cone, E, arranged beneath the drum, A, and at the discharge end of the duct, C, having a central opening from it into the drum, A, an opening, *f*, from the interior of the drum into the dust cone, and an internal flange or rib, F, adapted to guide the dust in the drum to the opening, *f*, substantially as described.

ELIAS W. HOOVER.

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