(No Model.)

J. S. ASH.

DUST COLLECTOR.

No. 435,165. Patented Aug. 26, 1890.

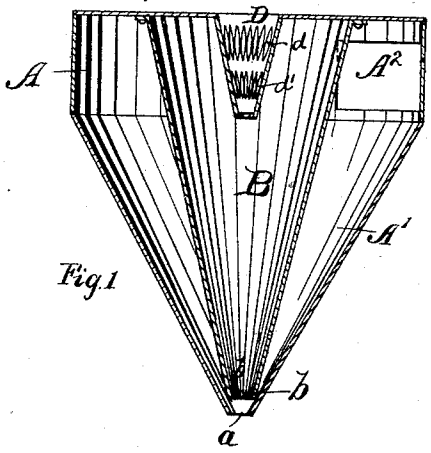


Fig. 1

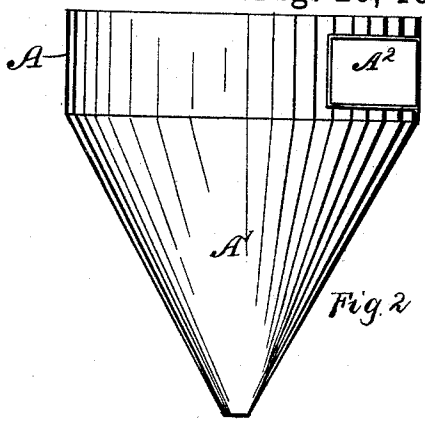


Fig. 2

Fig. 3

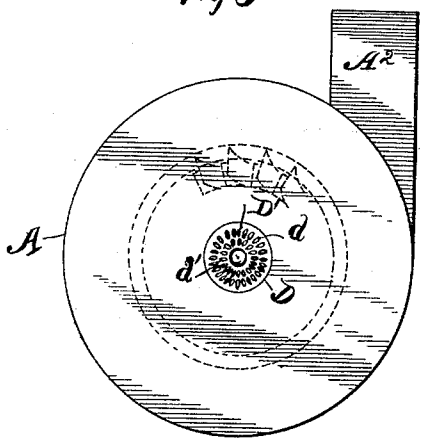


Fig. 4

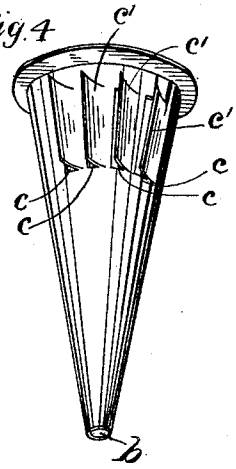
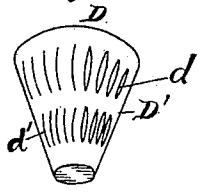


Fig. 5



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH S. ASH, OF CANAL WINCHESTER, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES B. COWAN, OF SAME PLACE.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 435,165, dated August 26, 1890.

Application filed January 2, 1890. Serial No. 335,630. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. ASH, a citizen of the United States, residing at Canal Winchester, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Dust-Collectors, of which the following is a specification.

The object of my invention is to provide a dust-collector of novel construction by which a current of dust-laden air is caused automatically to part with the dust particles therein and discharge the same through one outlet of the dust-collector, while the cleaned air is permitted to escape in another direction, or through another outlet in the device.

My invention consists in the various constructions and combinations of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a dust-collector embodying my invention. Figs. 2 and 3 are respectively a side elevation and a plan view of the same. Figs. 4 and 5 are detail views, in perspective, of some of the inner parts of the collector, hereinafter more fully described and referred to.

In said drawings, A is an outer cylindrical casing, the lower part A′ of which is constructed in the nature of an inverted cone, having at the bottom or apex of said cone a discharge-opening *a*. Extending into this casing A, preferably in the straight cylindrical portion thereof, which is arranged above the inverted cone A′, is a conduit A^2, which enters said casing tangentially, and through which the dust-laden air to be acted upon is caused to pass.

Depending from the top of the casing A is an internal inverted cone B, also provided at the apex or bottom with an opening *b*, the lower end of the inner cone B being arranged slightly above the opening *a* to form a passage between the inner walls of the outer casing and the lower end of the inner cone, the openings *a* and *b* being in the same vertical line or plane. The inner cone B is provided at one side with a series of openings *c*, each of which is constructed with a flange or wing *c′*, which extends partly over said opening in the nature of a shield or deflector, these flanges or wings being preferably formed by punching or shearing the metal at the ends and one side only of the openings and bending the same outward sufficiently to form the wings and openings, as shown more clearly in Fig. 4, the wings or flanges being all extended in one direction and substantially tangent to the inner periphery of said cone.

In the top of the outer casing and at or near the center thereof I provide an outlet-opening D, about which is arranged a depending inverted truncated cone-shaped cage or chamber D′, closed at the bottom and provided with a series of slotted openings *d* in the side thereof, these openings being preferably arranged, as shown in Fig. 5, in two series *d* and *d′*.

The operation of the device is as follows: The dust-laden air enters through the conduit A^2 and passes tangentially into the outer casing A, in which it circulates. As the speed of the air becomes retarded, the heavier particles of dust pass spirally down along the inside of the outer casing and pass through the small opening *a*. The air having thus parted with the heavier particles of dust and being partly cleaned, is by contact with the flanges *c′*, which project toward the incoming column of dust-laden air, directed tangentially through the openings *c* into the inner cone-shaped compartment B. In this compartment the air is caused to circulate about the inner side of the cone B, the remaining and finer particles of dust being separated therefrom and passing spirally down the sides of said cone are discharged through the opening *b*, thence through the opening *a*. The air having thus parted with the dust particles, passes through the series of openings *d* and *d′* into the cage D′ and escapes through the outlet D.

By providing the inner cone B, having the flanged openings *c* therein, two distinct separations are secured. By having the cone-shaped cage D′ closed at the bottom and provided with peripheral openings therein the cleansed air is permitted to escape uniformly through its outlet-opening, and thus obviate any tendency toward the creation of a downward and inward suction through the center of the outgoing current, which may occur

when the air is permitted to escape through the apex of the cone and pass outward along the inner surface of the same. The herein-described construction also obviates the escape of the dust through the outlet-opening and produces in a comparatively-simple manner a thorough separation of the air and the dust.

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

1. In a dust-collector having the outer and inner cone-shaped chambers open at the bottom and provided with tangential openings, as described, an escape-orifice surrounded by an inverted-cone-shaped cage closed at the bottom and provided with a series of peripheral openings, substantially as described.

2. The combination, with the outer and inner cone-shaped chambers having the apex openings arranged in the same vertical line one above the other and each provided with tangential openings through which the dust-laden air passes, of an escape-orifice located in the top of said outer casing and surrounded with an inverted-truncated-cone-shaped cage closed at the bottom and provided with perforted sides, substantially as specified.

3. The combination, with the outer casing having straight cylindrical upper parts and a truncated-cone-shaped lower part with a discharge-opening therein, of an inner cone-shaped compartment depending from the top of said outer casing and provided with a discharge-opening at the bottom arranged above and in line with the discharge-opening of said outer casing, and a discharge-orifice in the top of said outer casing and within said inner compartment, said discharge-orifice being surrounded by a truncated-cone-shaped cage having a closed bottom and perforated sides, substantially as specified.

JOSEPH S. ASH.

In presence of—
CHAS. M. KING,
NATHAN BARCALOU.