(No Model.)

J. S. ASH.

DUST COLLECTOR.

No. 408,787. Patented Aug. 13, 1889.

FIG. 1

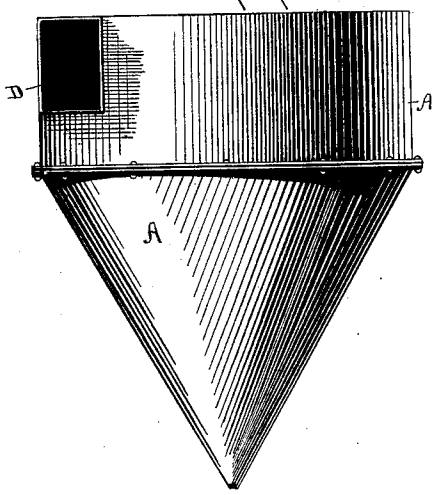


FIG. 2

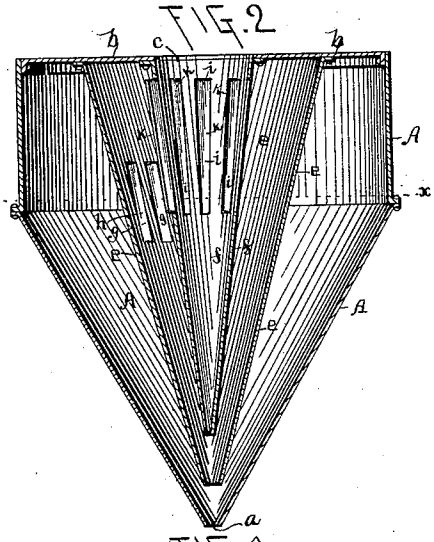


FIG. 3

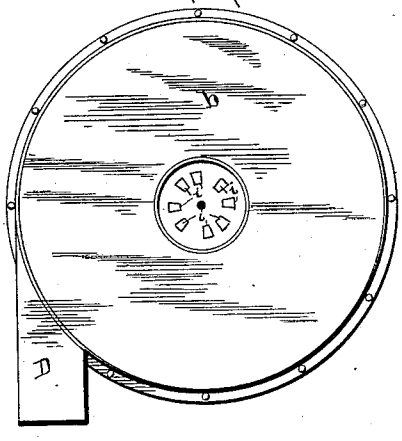
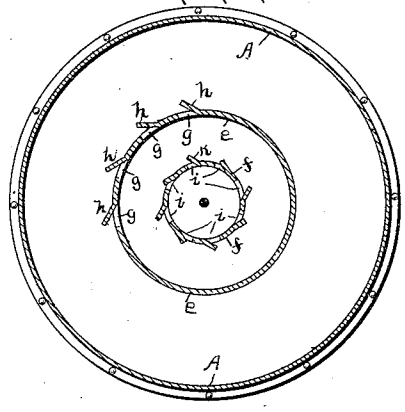


FIG. 4



WITNESSES:

Geo. B. Fravel

Ira C. Kochne.

INVENTOR

Joseph S. Ash

BY

C. C. Shepherd.

ATTORNEY

N. PETERS. Photo-Lithographer, 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. 408,787, dated August 13, 1889.

Application filed November 14, 1888. Serial No. 290,852. (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.

My invention relates to the improvement of that class of dust-collectors adapted to be used for separating the dust particles from the air.

The objects of my invention are to provide a dust-collector of this class which shall be inexpensive and simple in construction, to so construct the same as to greatly facilitate the thorough removal and collection of the dust from a current of dust-laden air, and to prevent the outgoing current of purified or partially-purified air from again mingling with or obstructing the incoming current of dust-laden air or the outgoing dust-discharge current. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved dust-collector. Fig. 2 is a central vertical longitudinal section of the same. Fig. 3 is a plan view, and Fig. 4 is a transverse section, taken in line *x x* of Fig. 2.

Similar letters refer to similar parts throughout the several views.

A represents the outer case of my improved collector, which, as shown, has a cylindrical upper portion and a conical lower portion, the latter having a dust-escape opening *a* in its lower end.

The upper end of the case A is provided with a top plate *b*, having a small central air-escape opening *c* therein.

D represents a spout leading into the upper cylindrical portion of the case A tangentially, as shown.

e represents an inner funnel-shaped or inverted-cone-shaped case having its upper and larger end secured to the under side of the top plate *b*, about the opening *c* and about midway between the latter and the wall of the case A. This internal case *e* is made to extend downwardly to a point in the lower portion of the case A, and has an opening in its lower end which is vertically opposite the dust-escape opening *a* of the outer case.

f represents a third inner case, which, although smaller, has the general form of the case *e*. This case *f* has its upper end secured to the under side of the top plate *b*, adjacent to and about the opening *c* therein, and, extending downward, has its lower open end vertically opposite and above the bottom openings of the cases A and *e*.

Formed in the wall of the case *e* at desired intervals are a number of slotted openings *g*, which are formed by cutting upright slits in said wall and bending outward the metal on those sides thereof opposite the direction from which the dust-laden air-current comes, as hereinafter described, thus forming outwardly-projecting lips *h*. This row of slotted openings may extend partially or entirely about the case, according to the strength of the air-current used, as may be desired, and is preferably arranged below the level of the spout D. The internal case *f* is also provided in its upper portion, as shown, with one or more rows of slotted openings *i*, having outwardly-projecting lips *k*, as described for the openings *g*. A current of dust-laden air is blown into the outer case A through the spout D in the usual manner. Said current, being thus made to enter the outer case tangentially, will, by reason of the circular and conical form of the case, be driven centrifugally around the inner case *e*, the dust or heavier particles in the current being thereby driven outwardly against the inner surface of the outer case and allowed to follow the same spirally downward and out through the bottom opening *a*. The air thus cleansed will be directed into the openings *g* of the case *e* by contact with the lips *h*, where it will again, by reason of the conical form of the case, be driven centrifugally, the tendency of the particles of dust which may have been forced through the openings *g* being to follow the inner wall of the case *e* spirally downwardly and out through the bottom opening therein and the opening *a* of the outer case. From the case *e* the lightened purified air will be directed by the lips *k* through the slotted openings *i* of the inner case *f*, and thence allowed to escape

upward and outward through the opening *c* of the top plate *b*.

As hereinbefore stated, the openings *g* of the case *e* are preferably located below the level of the spout D, thus preventing a direct draft between the openings *g* and *i* (the latter being located in the upper portion of the inner case *f*) and allowing time for the separation of the dust from the partially-purified air within the case *e* before its escape through the opening *i*.

In case any of the dust particles should be carried into the central case *f*, they will be allowed to pass downward and outward through the lower ends of the cases.

Although the invention shown in my former patent, No. 387,617, of August 14, 1888, dust-collectors, shows two internal cases, it will be observed that the internal cases of my present invention differ in form and construction. The conical form of cases herein shown has been found of great value in practice, while the simplicity of construction greatly decreases the cost of manufacture.

Practice has demonstrated that a current of dust-laden air driven through the above-described collector thoroughly cleanses the same.

I am aware that a conical perforated cylinder has been inclosed within a similarly-shaped imperforate cylinder, and that the same are provided with an inlet-spout, bottom dust-escape openings, and top air-escape openings, and therefore do not claim, broadly, such construction.

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

In a dust-collector, the combination of an outer cylindrical and conical case having a tangential inlet-spout, a dust-outlet, and a top plate having a central opening therein, an open-bottomed conical funnel *f*, fitted to said opening and provided with vertical slots having outwardly-projecting lips, and an open-bottomed conical funnel *e* between the outer case and the inner funnel *f*, said funnel *e* having a closed top and outwardly-lipped vertical slots, substantially as and for the purpose described.

JOSEPH S. ASH.

In presence of—
J. A. TAFT,
H. J. FULTON.