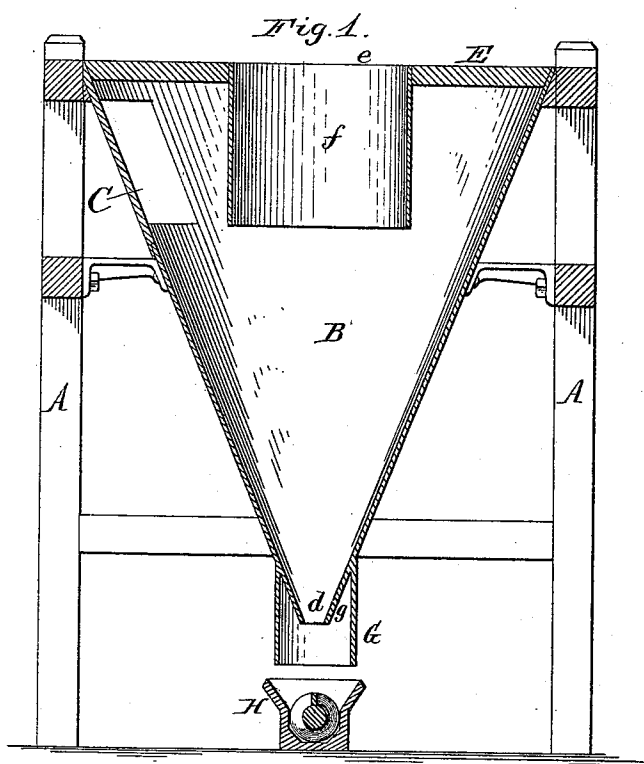
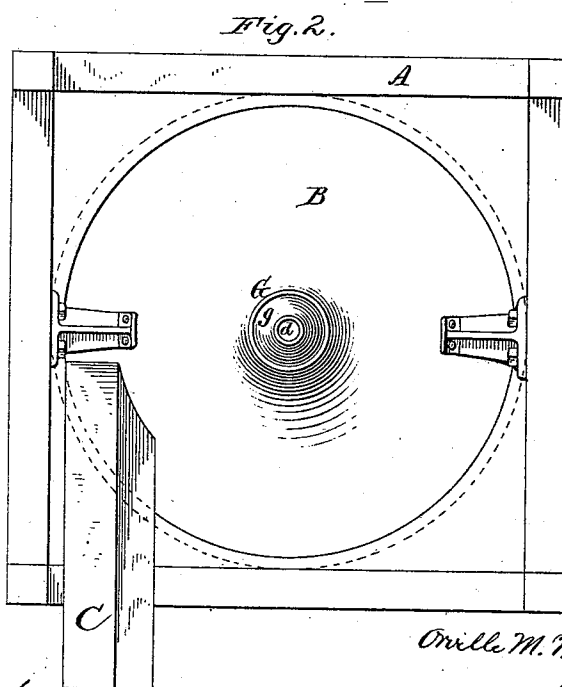


(No Model.)

O. M. MORSE.
DUST COLLECTOR.

No. 450,372.

Patented Apr. 14, 1891.



Witnesses:

Theo. L. Popp.
Geo. Buchheit Jr.

Oville M. Morse, Inventor.

By Wilhelm Donner
Attorneys.

UNITED STATES PATENT OFFICE.

ORVILLE M. MORSE, OF JACKSON, MICHIGAN, ASSIGNOR TO THE KNICKER-
BOCKER COMPANY, OF SAME PLACE.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 450,372, dated April 14, 1891.

Application filed September 2, 1887. Serial No. 248,582. (No model.)

To all whom it may concern:

Be it known that I, ORVILLE M. MORSE, a citizen of the United States, residing at Jackson, in the county of Jackson, in the State of Michigan, have invented new and useful Improvements in Dust-Collectors, of which the following is a specification.

This invention relates to a dust-collector which is provided with a conical or tapering separating-chamber, into which the dust-laden air is delivered from a tangential inlet-spout, whereby the air is caused to assume a whirling or gyrating motion in the separating-chamber. This motion of the air causes the dust to be deposited against the inner surface of the tapering chamber, from which it is discharged through a small opening at the apex of said chamber. A dust-collector of this kind is described and claimed in an application for patent filed by me March 31, 1886, Serial No. 197,307.

The object of my present invention is to prevent dust particles which have been discharged from the separating-chamber from being carried back into the separating-chamber by the induced air-current, which flows into the separating-chamber through the central portion of the dust-discharge opening.

My invention consists of the improvements which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a dust-collector provided with my improvements. Fig. 2 is a bottom plan view of the same.

Like letters of reference refer to like parts in the several figures.

A represents the stationary frame of the dust-collector, and B the conical or tapering separating-chamber supported in the frame A.

C represents the spout through which the dust-laden air enters the large end of the separating-chamber B in a tangential direction.

d represents the discharge-opening for the dust, formed at the apex of the separating-chamber.

E represents the cover which closes the large end of the chamber B, and which is provided with a large central opening e, through which the purified air escapes from the separating-chamber.

f is a tubular guard secured in the opening e and projecting into the separating-chamber.

The dust-laden air enters the tapering chamber B in a tangential direction and assumes a whirling or gyrating motion in the same, forming a vortex in which the dust particles are quickly driven to the periphery of the whirling body of air and against the inner surface of the separating-chamber, thereby freeing the inner portion of the whirling body of air from dust. The dust particles move in helical lines toward the small end of the separating-chamber B and escape finally through the opening d. The air which has been freed from dust escapes through the central opening e, which is protected by the depending tubular guard f.

G represents a dust-receiving chamber or conduit, which surrounds the dust-discharge opening and is fitted against the small end of the separating-chamber. This chamber or conduit is larger in diameter than the dust-discharge opening d, so as to form an annular shoulder g between the opening d and the inner side of the chamber.

The chamber or conduit G is circular in cross-section and somewhat larger in diameter than the central dust-discharge opening, but sufficiently restricted in area to permit the descending dust to impinge upon its inner walls and continue its spiral descent, while it is sufficiently capacious to permit the ingress and central upward movement of the air.

The dust issues from the opening d with a slight whirling motion and is thrown against the inner side of the chamber G, along which it descends and from which it falls into a conveyor H or some other suitable discharge device, by which it is removed. The annular shoulder g constitutes a dam, which causes an annular eddy in the chamber G around the dust-discharge opening and compels the inflowing induced air-current caused by the vortex in the separating-chamber to seek the innermost part of the chamber G and opening d. The dust particles pass directly from the opening d to the wall of the chamber G, and are thus removed from the influence of the current of air which flows toward the opening e in the axis of the chamber G.

I do not wish to claim in this application

any patentable features of the machine herein described and shown, except those which are specifically pointed out in the claims, and reserve the right to claim all other patentable features thereof in other applications for patent heretofore filed by me, particularly said application, Serial No. 197,307, filed March 31, 1886, an application, Serial No. 204,684, filed June 9, 1886, and an application, Serial No. 211,899, filed August 26, 1886. In the machine of said application Serial No. 211,899 the small end of the separating-chamber is closed by a head, which is provided adjacent to the tapering wall with a dust-discharge opening and in the center with a separate air-inlet opening, so that the dust is discharged through one opening and the induced air-current enters through another opening. In the present construction the dust is discharged and the air enters through the same opening, which is located in the apex of the separating-chamber.

I claim as my invention—

1. The combination, with the tapering separating-chamber provided with a tangential

inlet for the dust-laden air, whereby the air and dust are caused to whirl in the chamber, an outlet for the purified air, and a dust-discharge opening at its apex, of an enlarged dust-conduit applied to the small end of the separating - chamber and surrounding the opening in the apex thereof, substantially as set forth.

2. The combination, with the tapering separating-chamber provided with a tangential inlet for the dust-laden air, whereby the air and dust are caused to whirl in the chamber, an outlet for the purified air, and a dust-discharge opening at its apex, of an enlarged dust-conduit surrounding the dust-discharge opening and separated therefrom by an annular shoulder surrounding the dust-discharge opening, substantially as set forth.

Witness my hand this 29th day of August, 1887.

ORVILLE M. MORSE.

Witnesses:

C. H. BENNETT,
SAML. H. CAMP.