No. 801,806. PATENTED OCT. 10, 1905.

P. C. MILLER.

DUST COLLECTOR.

APPLICATION FILED APR. 15, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

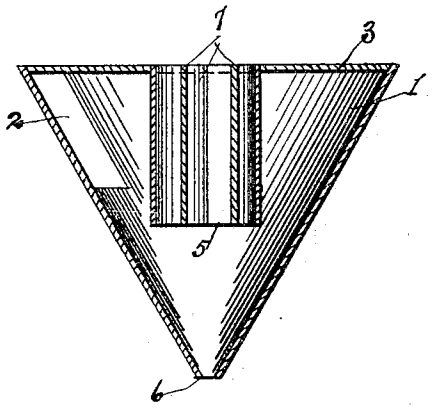


Fig. 3.

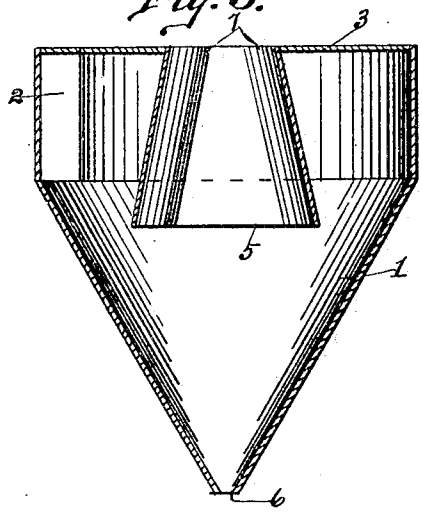


Fig. 2.

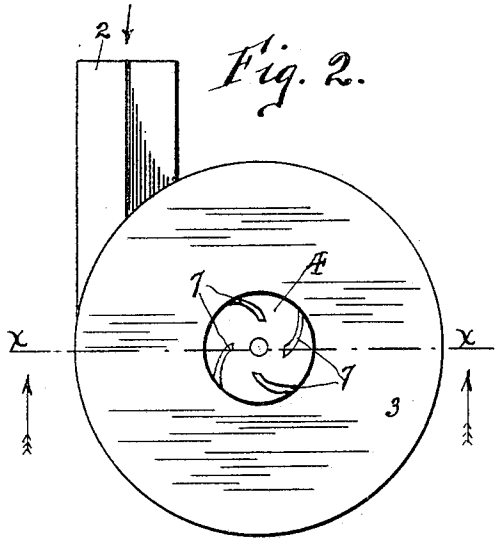
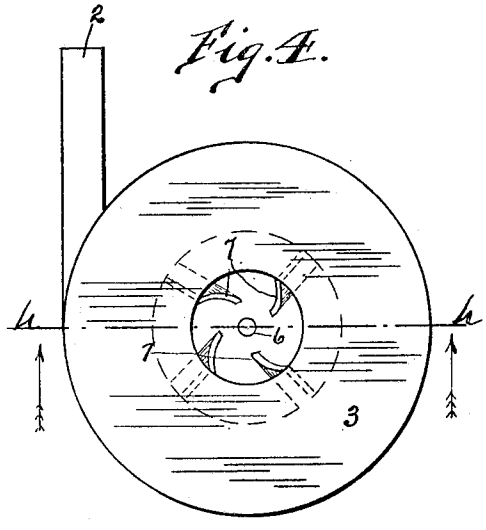


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

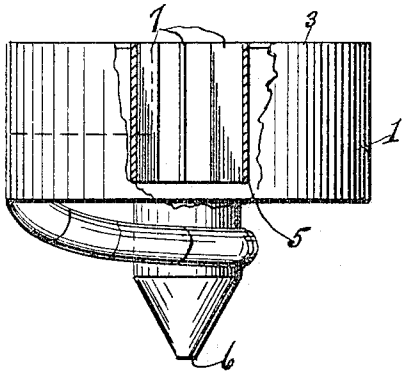


Fig. 7.

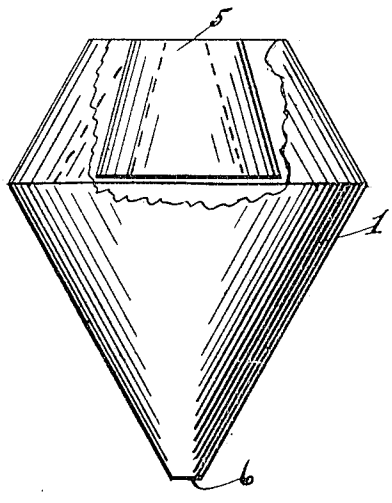


Fig. 6.

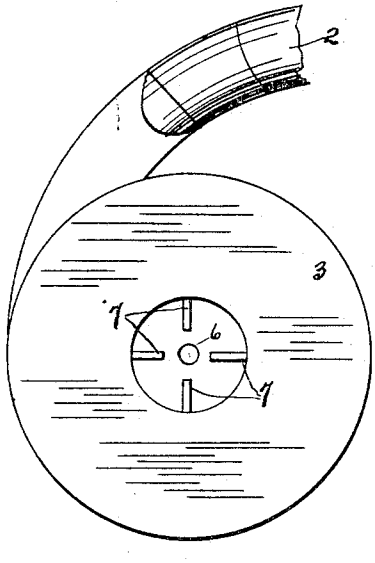
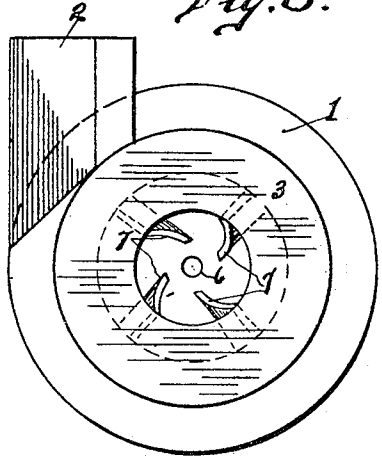


Fig. 8.



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PHILIP C. MILLER, OF CHICAGO, ILLINOIS.

DUST-COLLECTOR.

No. 801,806. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed April 15, 1905. Serial No. 255,715.

To all whom it may concern:

Be it known that I, PHILIP C. MILLER, 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 that class of dust-collectors in which the dust is separated from the air by means of a whirling or centrifugal motion of the dust-laden air within a separating-chamber. It is a well-known fact that dust-collectors of this type are subject to a considerable loss in the efficiency occasioned by the fact that the purified air escapes only in a thin stratum next to the inner wall of the tubular guard and that there is a strong ingoing current through the center of the tubular guard, which results in producing a back pressure upon the fan, with a resultant loss in efficiency.

My invention has for its object, first, to provide a new and novel arrangement whereby the entire area of the tubular guard will be used by the escape of the purified air; secondly, increase the efficiency of the machine by thus removing or destroying the ingoing air-current with its accompanying back pressure upon the fan, which produces the air-current; thirdly, to enable the construction of a smaller dust-collector with the same capacity as the present larger types and which will result in a reduction of the area of the tubular guard, with a consequent lessening of expense, due to the fact that it will not be necessary to hood this opening.

My method of accomplishing the foregoing objects may be more readily understood by having reference to the accompanying drawings, which are hereunto annexed and are a part of this specification, in which—

Figure 1 is a cross-section taken on the line X X in Fig. 2 of a dust-collector in which the tubular guard is provided with my improved device. Fig. 2 is a top or plan view of the same. Fig. 3 is a cross-section taken on the line H H of Fig. 4 and shows my improvement applied to a different type of collector in which the tubular guard is tapered. Fig. 4 is a top or plan view of the same. Fig. 5 shows my device applied to the flat-bottomed type of dust-collector, a part of the side wall being broken away in order to show the interior of the tubular guard. Fig. 6 is a top or plan view of the same. Fig. 7 shows my device applied to another type of dust-collector. Fig. 8 is a top or plan view of the same.

Similar figures refer to similar parts throughout the entire description.

In Fig. 1, 1 is a conical separating-chamber having a dust-discharge 6 and a tangential inlet 2, through which the dust-laden air enters, the separating-chamber being provided with a head 3, having a central opening 4. A tubular guard 5 depends downwardly from this opening to a point slightly below the lower part of the inlet and is provided for the escape of the purified air. This guard, although shown straight, may be formed with a taper, as shown in the other views, it being obvious that my invention will be applicable to any of these types of dust-collectors in which a tubular guard is used. In these types of dust-collectors the ingoing dust-laden air entering through a tangential inlet is whirled within the separating-chamber, which causes the dust to be thrown outwardly to the periphery of said body of air, whence it passes down and out through the discharge-opening 6. The purified air, retaining its gyrating movement, passes upwardly and outwardly through the tubular guard, utilizing, however, only that part of the area of the tubular guard which is next to the walls of the guard, the center being occupied by a strong ingoing current of air. To prevent this incoming current and to cause the escaping purified air to utilize the entire area of the opening, I provide deflectors 7. These are attached to the inner wall of the tubular guard by means of rivets or any other form of fastener employed for work of this character and extend inwardly, stopping some distance short of the center. These deflectors are preferably curved or bent, although it may be found in some instances desirable to construct them straight, as shown in Figs. 5 and 6. The result of this arrangement is that the outgoing current of air striking these deflectors is without the lessening of its velocity forced or diverted from its path to the central portion of the tubular guard, with the result that the incoming current of air is entirely destroyed and every portion of the area of the tubular guard is utilized by the outgoing purified air, with the result in practice that the machine shows an enormous gain in efficiency over any dust-collector not equipped with my improvement.

Having described my invention, what I

regard as new, and desire to secure by Letters Patent, is—

The combination in a dust-collector, having a tangential inlet and a conical dust-discharge, of a tapering tubular guard for the escape of the purified air, said guard tapering downwardly and outwardly, deflectors arranged within said tapering tubular guard, said deflectors being rigidly attached to the inner walls of said guard and arranged to deflect the escaping purified air from the side walls of the tubular guard to the central portion of said guard, for the purpose set forth substantially as described.

PHILIP C. MILLER.

Witnesses:
J. H. CARROLL,
C. M. BURNAM.