

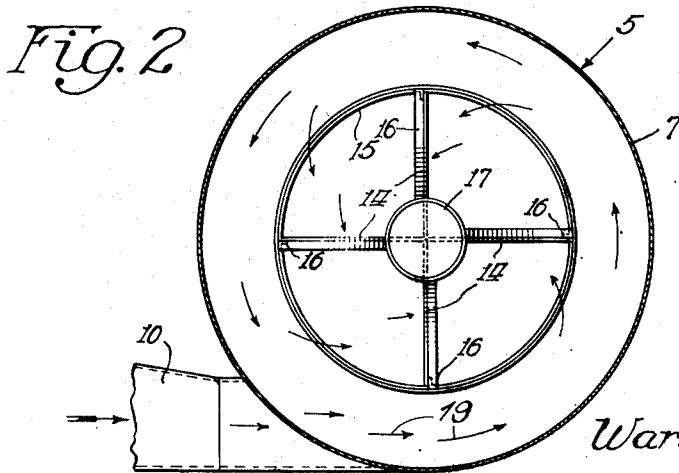
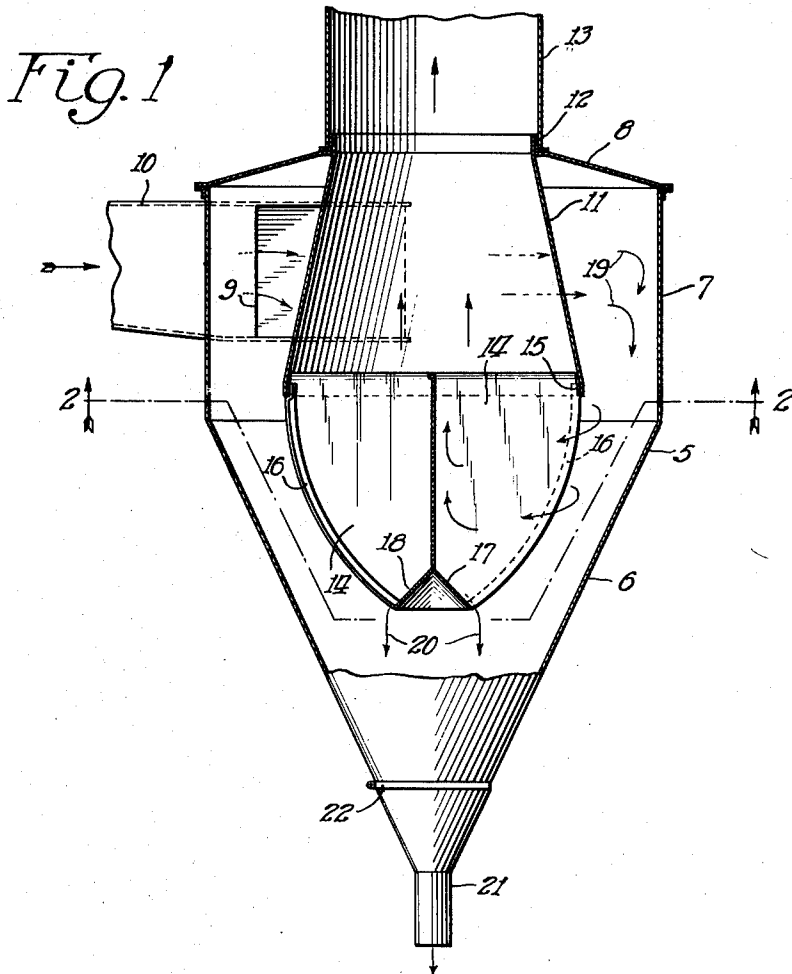
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DUST COLLECTOR

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DUST COLLECTOR

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This invention relates to an improvement in dust collectors of the so-called cyclone type and has for its object to provide a dust collector of greater efficiency, i. e., greater
5 dust-separating or collecting effect, than heretofore known; to provide an improvement in the construction of cyclone dust collectors which may be applied to most dust collectors of the said type now in use, there-
10 by to increase the operating efficiency of the same, and, in general, it is the object of the invention to provide an improved and more efficient dust collector of the type referred to.

Other objects and advantages of the in-
15 vention will be understood by reference to the following specification and accompanying drawing in which I have illustrated a dust collector of the so-called cyclone type in which my invention is embodied in a
20 preferred form.

In the drawing:

Fig. 1 is a section taken through the axis of the improved dust collector, the lower end portion thereof being shown in eleva-
25 tion, and

Fig. 2 is a section on the line 2-2 of Figure 1.

Referring now to the drawing, my improved dust collector includes a receptacle
30 5 which comprises an inverted, conical lower body part 6 and a substantially cylindrical upper body part 7, these parts being made integral, or of separate parts and united together in any approved manner. The up-
35 per end of the receptacle 5 is provided with a closure 8 which is preferably inclined upwardly towards the axis of the receptacle, the closure 8 being, however, provided with a centrally disposed discharge opening, as
40 illustrated.

The cylindrical body part 7 is provided with an inlet opening 9 through which a conduit 10 communicates with the interior of the receptacle to deliver dust-laden air
45 therinto. As clearly shown in Fig. 2, the conduit 10 is preferably arranged so that it enters the receptacle in a substantially tangential relation thereto.

Inside of the receptacle, I provide a mouth
50 part 11 which is preferably of truncated

conical formation, the smaller or upper end thereof being mounted in the outlet opening of the closure 8 by means of an annular flange element 12, the lower end of the mouth part 11 being open and terminating
55 below the inlet opening 9 in the upper body part. A conduit 13 connected with the upper end of the outlet mouth part 11 may serve to convey away the air from the receptacle after the dust has been removed
60 therefrom.

The lower end of the outlet mouth part 11 is provided with a plurality of baffle plates 14, in this instance, four baffle plates, which are disposed radially of the outlet mouth
65 part 11 so that in plan view, as in Fig. 2, they appear to extend diametrically across the mouth part at right angles to each other. The baffle plates 14 occupy planes disposed at an angle to the plane of the lower open
70 end of the mouth part, preferably extending longitudinally of the latter, as shown. The baffle plates may be connected to each other at their upper ends by welding them together
75 at their intersection and also by means of a band 15 which encircles the plates. The plates may be secured directly to the band 15 in any suitable manner, and they may further be secured to angle iron frame mem-
80 bers 16 which are secured at their upper ends to the band 15 and which extend downwardly in a convex curve towards the axis of the baffle plate structure.

At the intersection of the lower ends of the baffle plates 14, I prefer to provide a
85 cone-shaped end member 17, to the lower or base edge of which the lower ends of the angle iron frame element 16 may be secured in any approved manner. The apex of the cone-shaped end member 17 is preferably
90 aligned with the axis or intersection of the baffle plates as shown, and the baffle plate edges, such as indicated at 18, which are disposed adjacent the surface of the end mem-
95 ber, may be suitably secured to the latter so as to rigidly hold the plates in assembled relation.

Dust-laden air enters the receptacle through the conduit 10 and inlet opening 9 and circulates around the mouth part 11 as
100

indicated by the arrows 19, eventually finding its way below the lower end of the mouth part 11 where the flow or current of the dust-laden air is obstructed by the radially disposed baffle plates 14. The obstruction to the flow of air thus effected serves to precipitate most of the dust remaining in the air therefrom, and the air is guided upwardly into the outlet conduit 13 and thence conveyed away in any desired manner. It will, of course, be understood that some of the dust is separated from the air by reason of the circular path of the air around the mouth part 11, which causes some of the dust to impinge on the sides of the receptacle 5, and that the baffle plates 16 serve to further extract or separate dust remaining in the air therefrom. The dust which impinges on the sides of the receptacle of course slides down the same to the bottom thereof, and the dust which impinges on the baffle plates 14 drops therefrom towards the bottom of the receptacle, some of it sliding downwardly over the conical end plate 17 as indicated by the arrows 20. It will be noted that the conical arrangement of the end plate 17 avoids the formation of any dust-retaining pockets while serving to effectively brace the intersecting baffle plate structure. The lower end of the receptacle 5 is provided with any conventional means for retaining dust therein, this means being indicated as including a canvas spout member 21 which may be attached to the lower end of the receptacle by means of a clamp ring 22 or otherwise.

I have found that the efficiency of a cyclone dust separator is materially increased by the above described construction. Obviously, the structure is simple and may easily be applied to practically all dust separators of the so-called cyclone type without much difficulty.

I am aware that changes may be made in the described structure without departing from the spirit of my invention, the scope of which should be determined by reference to the following claim, the same being construed as broadly as possible consistent with the state of the art.

I claim as my invention:

In a dust collector of the class described, the combination of a receptacle including an inverted conical lower body part, a substantially cylindrical upper body part, said upper body part having an inlet opening, a closure for the top of said receptacle, said closure having an outlet opening, an outlet mouth part depending from said outlet opening into said receptacle substantially co-axially therewith and terminating with an open lower end within the receptacle, a plurality of baffle plates disposed in planes depending substantially perpendicularly from the plane of said open lower mouth

end an extending transversely thereof for guiding the air into said mouth part and for causing dust to be precipitated from said air, said plates extending across substantially the entire width of said mouth part, and said mouth part being substantially hollow, said plates lying substantially within an imaginary surface formed by downwardly producing said mouth part, said plates being wider at their upper ends than at their lower ends and their outer edges being spaced from the inner wall of said cone.

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