

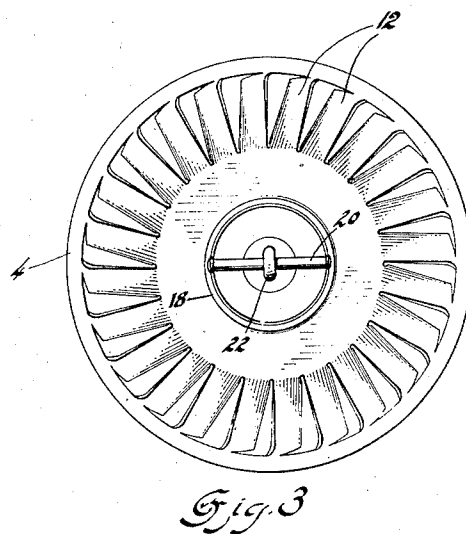
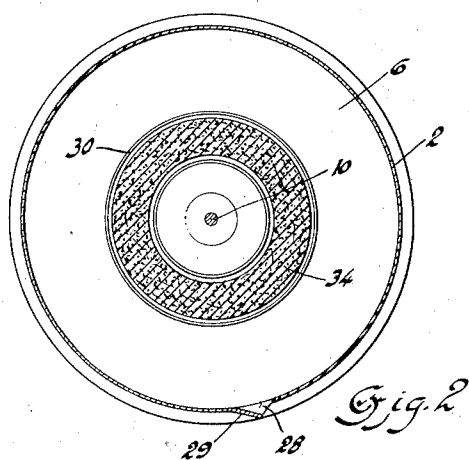
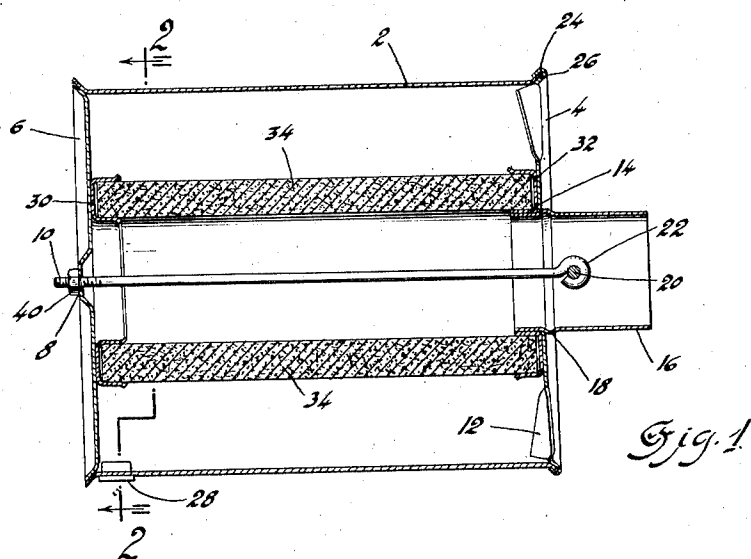
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AIR CLEANER

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AIR CLEANER.

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This invention relates to air cleaners of the type in which the separation of dust particles is effected first by the operation of inertia and the air thus partially relieved of its dust content is drawn through a filter member, for final cleansing. This type of filter possesses the advantage that owing to the preliminary cleaning the filter does not so soon become clogged, and consequently does not require such frequent renewal. In designing my cleaner I have preferred to employ the centrifugal principle for the first stage cleaning and as one convenient embodiment of this principle, have employed substantially the same construction used in the well-known A. C. cleaner. Thus my cleaner comprises a cylindrical casing having an air inlet at or adjacent one end so arranged as to impart a whirling motion to the entering air stream, a dust outlet adjacent the other end, and a central outlet for the discharge of purified air. While in some cases I may find it desirable to use a tangentially arranged inlet, in the embodiment disclosed, I have preferred to employ for the inlet an annular series of air directing blades preferably formed in an end plate closing one end of the casing. The dust outlet may either be arranged for the discharge of dust into a dust box or into the atmosphere, and of these two arrangements for simplicity I prefer the latter. The air outlet is centrally arranged so as to take clean air from the center of the vortex and may lead through either end of the casing as desired, although I have found it preferable to locate it in the same end of the casing in which the air inlet is formed.

My cleaner is likewise designed for the ready removal and replacement of the filter member. To accomplish this, I have preferably made one or both ends of the casing removable and have arranged the filter member so that it is clamped between the ends of the casing, the clamping means being readily separable to permit removal of either or both ends of the casing whereupon the filter member can be readily removed and replaced.

In the drawing:

Fig. 1 is a longitudinal sectional view through my improved cleaner.

Fig. 2 is a section taken on line 2—2 of Fig. 1 and

Fig. 3 is a view looking at the open end of the cleaner.

The cleaner comprises a casing consisting of a body member 2 in the form of a cylinder, and end member 4 and 6. End member 6 is in the form of a disc centrally apertured as at 8 for the passage of tie rod 10 which secures the parts together in a manner to be later described. End member 4 is in the form of an annulus having integral stamped out blades 12 for imparting a whirling motion to the entering air stream. Member 4 is provided with a central opening 14 in which is fitted air outlet tube 16 which is adapted to be fitted to the usual carburetor air intake. The tube 16 is provided with a pressed-out bead 18 and is apertured to receive pin 20 which passes through eye 22 formed in the end of tie rod 10. In the embodiment illustrated in the drawing, the member 4 is secured to the body member 2 by means of bead 24 turned over outwardly projecting flange 26 formed on the body member 2. If preferred, the connection between the end member 4 and the body member may be separable instead of permanent and in such event, if desired, end member 6 may be formed integral with member 2 or may be permanently secured thereto.

The body member 2 is provided with a dust outlet 28 formed by pressing lip 29 out from the metal of the casing adjacent the end member 6. This outlet is of tangential form so as to most effectively permit discharge of dust particles.

To the end member 6 is secured an annular socket 30 as by welding or the like and a similar socket 32 is secured to the end member 4, the member 32 closely fitting the tube 16 and being secured to the latter and to the member 4 by any suitable means. Filter member 34 in the form of a cylinder has its ends seated within the sockets 30 and 32. This filter may be of any desired material such as screen-cloth or moss.

In the operation of the device, air entering the cleaner is given a spiral motion by blades 12, with the result that dust particles are thrown against the wall of the casing and upon reaching the dust outlet 28 the heavier particles are projected out of the casing. If desired, a dust box may be provided at the opening 28 to receive the dust, although for simplicity I prefer the construction shown. The air thus subject to a preliminary cleaning operation now passes through the filter 34 and through the outlet 16 to the carburetor

or other device to which the air is to be supplied. In the passage of the air through the filter, the finer dust particles are removed.

While with this arrangement the filter will
5 need replacement at long intervals only, the greater proportion of the dust carried by the air being removed by centrifugal action before reaching the filter, I have, nevertheless, provided for convenient removal and replacement of this member. This may be done by
10 removing nut 40 from tie rod 10, whereupon end member 6 may be removed permitting access to the filter 34.

I claim—

15 1. An air cleaner comprising a casing, means at one end of the casing for introducing air therein so as to cause the air to perform a whirling motion, said casing being provided with a tangentially arranged orifice
20 for the discharge of dust into the atmosphere, a centrally arranged outlet for the discharge of purified air, and a filter in said casing associated with said outlet.

25 2. An air cleaner comprising a casing, air directing blades at one end of the casing, to cause the entering air to perform a whirling

motion, a tangential dust discharge outlet at the other end of the casing, a centrally arranged outlet for the discharge of purified air, and a filter in said casing associated with
30 said air outlet.

3. The combination as defined in claim 2, said dust outlet discharging directly into the atmosphere and said filter comprising a cylindrical member extending from end to end
35 of the casing.

4. An air cleaner comprising a body member and end members, one of said end members being readily removable, said cleaner being provided with an air inlet, a dust outlet, and an air outlet, a cylindrical filter member supported by said end members and shielding said air outlet, and clamping means
40 engaging said end members for holding said removable member and filter in position, said clamping means comprising a tie-rod anchored at one end in one of the said end members and passing through the other end, and a
45 nut engaging the free end of said rod.

In testimony whereof I affix my signature.

MARK L. BLAIR.