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C. T. BERG

AIR CLEANER FOR CARBURETOR INTAKES

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Fig. 1.

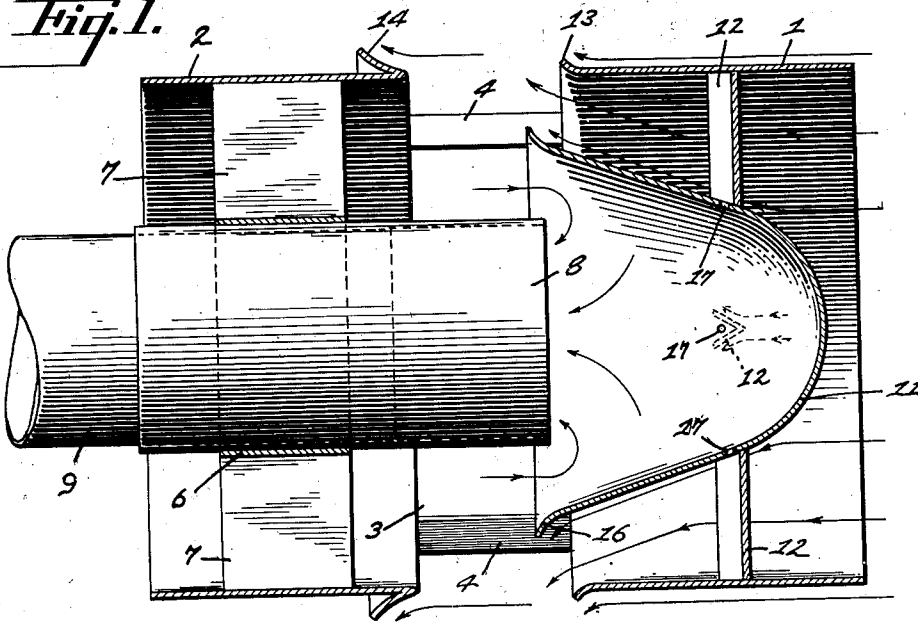
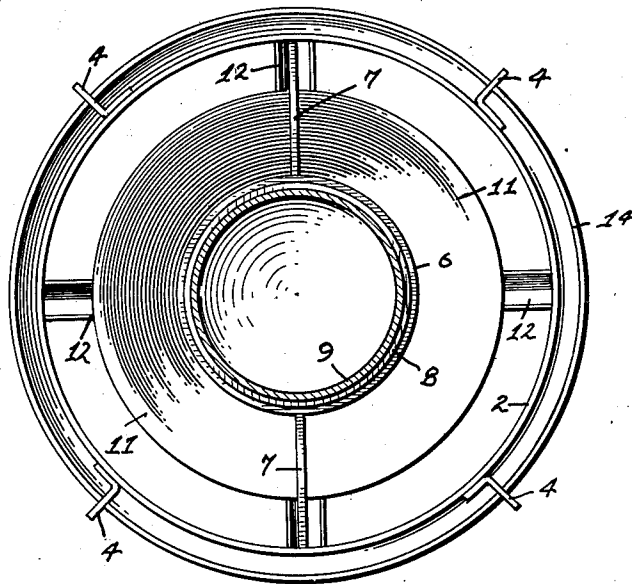


Fig. 2.



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AIR CLEANER FOR CARBURETOR INTAKES.

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To all whom it may concern:

Be it known that I, CHARLES T. BERG, a citizen of the United States, residing in San Jose, Santa Clara County, and State of California, have invented a new and useful Improvement in an Air Cleaner for Carburetor Intakes, of which the following is a specification.

My invention relates to improvements in air cleaners for the carburetor air intakes of automobile engines and the like whereby particles of dust or other solid matter may be effectually separated from the air drawn into the carburetor.

The primary object of my invention is to provide an improved device for preventing the drawing of particles of solid substance into the air intake of a carburetor, thereby preventing injury to the engine due to the introduction of such matter with the gas and air charge.

Another object is to provide an improved device which will effectually divert all solid particles entirely out of the path of air drawn into the intake.

A further object is to provide an improved device wherein the point at which the air enters the intake may be adjusted to meet prevailing conditions.

Another object is to provide an improved device of the character described provided with means for preventing the forming of a partial vacuum within the air and dust deflecting means thereby avoiding any impairment to the efficiency of the intake.

A still further object is to provide a device of simple construction which may be manufactured economically and which may be readily installed in connection with the carburetor of any automobile engine.

I accomplish these and other objects by means of the device disclosed in the drawings forming a part of the present specification wherein like characters of reference are used to designate similar parts throughout said specification and drawings and in which,

Fig. 1 is a longitudinal section of my improved air cleaner, and

Fig. 2 is a rear elevation of the cleaner, the intake to the carburetor being shown in section.

Referring to the drawings, my invention will be seen to consist of a shell formed from a pair of annular rings 1 and 2 secured together in slightly spaced axial

alignment to form an annular opening 3 substantially midway between the ends of the shell. The rings 1 and 2 are connected by a plurality of ribs 4 secured in any suitable manner upon the outer surface of the shell and spanning the annular opening 3.

A ring 6 is supported in central position within the rearward ring portion 2 of the shell by means of webs 7. A sleeve 8 is slidably mounted within the ring 6, the outer end of the sleeve being adapted to receive a tubular member 9 connected to the carburetor of an automobile engine, not shown. The inner end of the sleeve opens within the shell immediately in back of a deflector 11 supported by V shaped members 12 in central position within the forward shell ring 1, said deflector being closed at the forward end and flaring gradually to a point just beyond the rearward edge of the forward ring portion 1.

The edges of the ring portions 1 and 2 are provided with outwardly turned annular lips 13 and 14 respectively, said lips being inclined toward the rearward end of the shell as shown in Fig. 1 of the drawings for a purpose hereinafter more fully explained. The rearward edge of the deflector 11 is outwardly turned to form a lip 16.

The supporting members 12 for the deflector 11 are placed with the points toward the front. Breather apertures 17 are formed in the deflector between the angularly disposed sides of the members 12 for a purpose hereinafter more fully explained.

In operation, the cleaner is mounted just back of the fan of an automobile engine or other internal combustion motor, not shown, so as to be within the path of the current of air set up by said fan when the motor is in operation. The air entering the front of the shell is deflected by the deflector 11 and lip 16 thereof through the opening 3 in the shell, and at the same time, air passing just outside of the shell is deflected away from the shell and the opening 3 by means of the lips 13 and 14 as shown by the arrows in Fig. 1 of the drawings. Air is taken into the open end of the sleeve 8 and thence to the intake of the carburetor from a point, preferably just inside the edge of the deflector, the air being drawn from within the deflector and from along the edge of the sleeve as indicated by the arrows in Fig. 1.

Any particles of dust or other solid matter carried by the air entering the front of

the shell will of course be diverted by the deflector 11, the momentum of such particles causing the same to be swept outwardly through the opening 3 in the shell. As the particles pass out through the opening 3 they are picked up and carried further outwardly away from the shell by the action of the lip 14 and the air current deflected thereby. The deflecting of the outer air current by the lip 13 causes a slight suction adjacent the rearward edge of the ring portion 1 which also assists in carrying the particles outwardly from the shell and away from the intake.

The air drawn into the intake will be admitted into the open end of the sleeve 8 from within the deflector, the air being drawn into said deflector principally from between the edge of said deflector and the end of the sleeve 8, said air being drawn in free from dust or other solid particles due to the fact that the suction is not sufficient to overcome the momentum of the solid matter, the result being that only dust free air will be taken into the intake, while the particles of solid matter are carried outwardly and away from the intake by the air currents prevailing in and about the shell. The sleeve 8 is adapted for sliding adjustment relative to the deflector 11 in order that the point at which the air enters the sleeve may be varied to meet various conditions. Thus for ordinary purposes, a position such as shown in the drawings will effect a thorough cleaning of the air. When however, exceptionally great quantities of solid matter is carried by the air, as when traveling along dusty roads, the sleeve may be advanced further into the deflector to prevent dust particles from being drawn into the intake. If desired the sleeve may be moved farther away from the deflector to air to be drawn more readily and more directly into the intake when the air is substantially free from dust.

The breather openings 17 are provided in order to prevent the forming of a partial vacuum within the back of the deflector 11. Dust or solid particles of any kind are prevented from entering the apertures 17 by the V-shaped supports 12, the sides of which extend past the apertures and divert the air current away from said apertures. Sufficient air may now be drawn through the aperture 17 to relieve any tendency to form a vacuum within the back of the deflector without admitting any solid particles, such particles being carried past the apertures 17 by action of the air current and the momentum of said particles, thereby permitting dust free air only to be drawn into the deflector.

The several parts above described are readily formed from light sheet metal and soldered or otherwise secured in assembled

relation, thereby affording a structure which may be manufactured economically and which will give a high efficient result. The specific details of construction may of course be modified in numerous ways without departing from the spirit of my invention. I therefore do not wish to restrict myself closely to the precise disclosure herein contained but wish to avail myself of such modification as may fall within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,

1. A cleaning device for carburetor air intakes comprising a shell mounted in connection with the air intake and adapted to be mounted within the path of an air current set up by the fan of an internal combustion motor, said shell consisting of a pair of annular rings secured in axial alignment in slightly spaced relation; and a deflector mounted within the shell to divert the air current away from the carburetor intake through the space between the rings whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake.

2. A cleaning device for carburetor air intakes comprising a shell mounted in connection with the air intake and adapted to be mounted within the path of an air current set up by the fan of an internal combustion motor, said shell consisting of a pair of axially aligned annular rings mounted in slightly spaced relation, the adjacent edges of the rings being outwardly turned to deflect air away from the shell; and a deflector mounted within the shell to divert the air current away from the carburetor intake and through the space between the rings whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake.

3. A cleaning device for carburetor intakes comprising a shell mounted in connection with the air intake of an internal combustion engine and adapted to be mounted within the path of an air current set up by the fan of said motor, said shell consisting of a pair of axially aligned and slightly spaced annular rings; outwardly turned annular lips formed upon the adjacent edges of the rings to deflect air away from the shell; and a deflector mounted within the forward portion of the shell to divert the air current away from the carburetor intake, said deflector being provided with an annular lip adapted to direct the air outwardly between the ring portions of the shell whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake.

4. A cleaning device for carburetor intakes comprising a pair of annular rings

secured together in slightly spaced axial alignment to form a shell adapted to be mounted within the path of an air current set up by the fan of an internal combustion motor; means mounted within one of the rings for engaging the carburetor air intake of said motor; and a deflector mounted within the other ring for deflecting the air current away from the intake whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake.

5. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in slightly spaced axial alignment to form a shell adapted to be mounted within the path of an air current set up by the fan of an internal combustion motor; means mounted within one of the rings for engaging the carburetor air intake of said motor; and a deflector within the other ring for deflecting the air current away from the intake whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake; and means for preventing a partial vacuum from being caused within the deflector by the action of the intake.

6. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in spaced axial alignment to form a shell surrounding the end of the air intake of an internal combustion motor and adapted to be mounted within the path of an air current set up by the fan of said motor; means mounted within one of the rings for engaging said intake; and a deflector mounted within the other ring opposite said intake to deflect air and particles of solid matter carried thereby away from the intake, said deflector having breather openings formed in the back thereof to prevent the forming of a partial vacuum within the deflector.

7. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in spaced axial alignment to form a shell surrounding the end of the air intake of an internal combustion motor and adapted to be mounted within the path of an air current set up by the fan of said motor; means mounted within one of the rings for engaging said intake; and a deflector mounted within the other ring opposite said intake to deflect air and particles of solid matter carried thereby away from the intake, said deflector having breather openings formed in the back thereof to prevent the forming of a partial vacuum within the deflector; and means for preventing the entrance of solid particles into the deflector through the breather openings.

8. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in spaced axial alignment to form

a shell surrounding the end of the air intake of an internal combustion motor and adapted to be mounted within the path of an air current set up by the fan of said motor; means mounted within one of the rings for engaging said intake; and a deflector mounted within the other ring opposite said intake to deflect air and particles of solid matter carried thereby away from the intake, said deflector having breather openings formed in the back thereof to prevent the forming of a partial vacuum within the deflector; and V shaped shields mounted adjacent the breather openings to divert solid particles carried by the air current away from said openings.

9. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in spaced axial alignment to form a shell surrounding the end of the air intake of an internal combustion motor and adapted to be mounted within the path of an air current set up by the fan of said motor; means mounted within one of the rings for engaging said intake; a deflector mounted within the other ring opposite said intake to deflect air and particles of solid matter carried thereby away from the intake, said deflector having breather openings formed in the back thereof to prevent the forming of a partial vacuum within the deflector; means for preventing the entrance of solid particles through the breather openings; annular lips formed upon the adjacent edges of the rings to deflect air away from the shell; and an annular lip formed upon the edge of the deflector to direct air outwardly between the ring portions of the shell whereby solid particles carried by the air will be swept outwardly from the shell and away from the intake.

10. A cleaning device for carburetor intakes comprising a pair of annular rings secured together in spaced axial alignment to form a shell adapted for mounting within the path of an air current set up by the fan of an internal combustion motor; a ring mounted in central position within the rearward ring; a sleeve slidably mounted within said centrally disposed ring, said sleeve being adapted for connection with the carburetor intake of the motor; and a deflector mounted within the other annular ring opposite the sleeve to deflect air and particles of solid matter away from the intake.

11. A cleaning device for carburetor intakes comprising an annular shell adapted to be mounted within the path of a current of air set up by the fan of an internal combustion motor, said shell being open at both ends and having an annular opening substantially midway between the ends; a deflector mounted within the forward end of the shell to deflect air and particles of solid matter carried thereby outwardly through

- the annular opening in the shell; and a sleeve slidably mounted within the other end of the shell and adapted for connection with the carburetor intake of the motor, said sleeve opening immediately in back of the deflector and being adjustable to vary the space between said deflector and the open end of the sleeve whereby the point at which air is taken into the intake may be varied to suit prevailing conditions.
12. A cleaning device for carburetor intakes comprising an annular shell adapted to be mounted within the path of a current of air set up by the fan of an internal combustion motor, said shell being open at both ends and having an annular opening substantially midway between the ends; outwardly disposed annular lips formed upon the edges of the shell adjacent the annular opening to deflect air away from the shell; a deflector mounted within the forward end of the shell, said deflector being provided with an annular lip formed upon the edge thereof to deflect air and particles of solid matter carried thereby outwardly through the opening, and having breather openings formed in the back thereof to prevent the forming of a partial vacuum within the deflector; means for preventing the entrance of solid particles through said breather openings; and a sleeve slidably mounted within the opposite end of the shell in axial alignment with the deflector, said sleeve being adapted to be connected to the carburetor air intake and being slidably adjustable to vary the point of intake with respect to the deflector and the deflected air current.
- In witness whereof I hereunto set my signature.
- CHARLES T. BERG.