

May 8, 1951

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2,551,923

AIR SCOOP FILTER ASSEMBLY

Filed Oct. 14, 1949

2 Sheets-Sheet 1

Fig. 1.

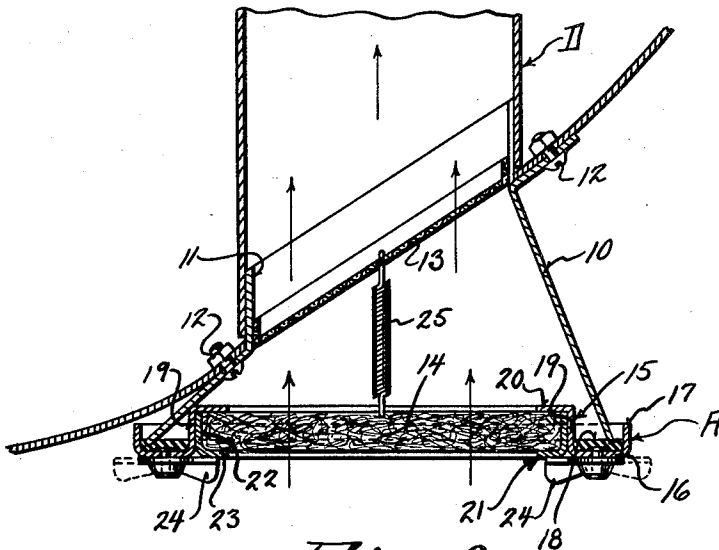
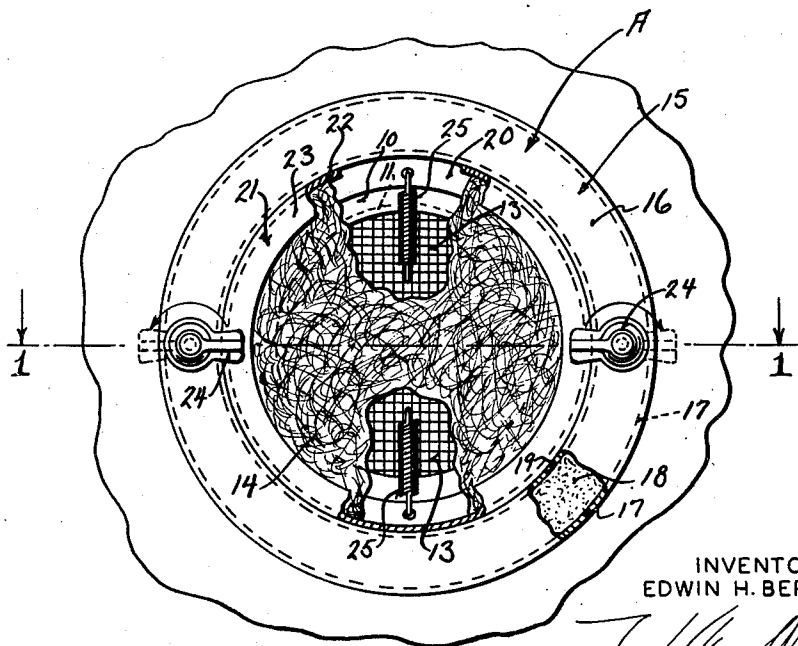


Fig. 2.



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Fig. 3.

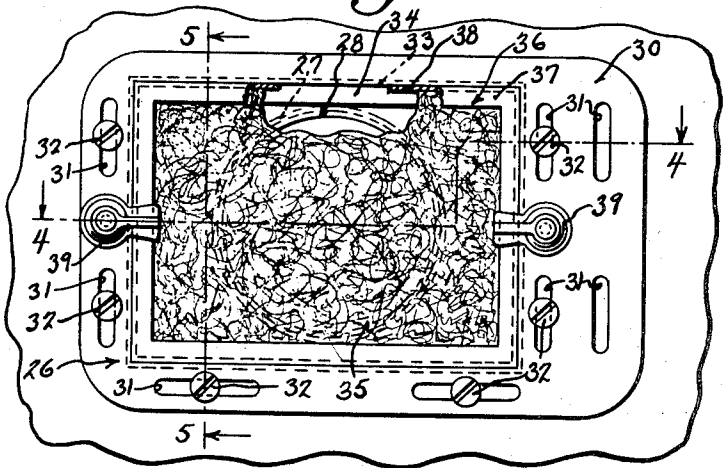


Fig. 4.

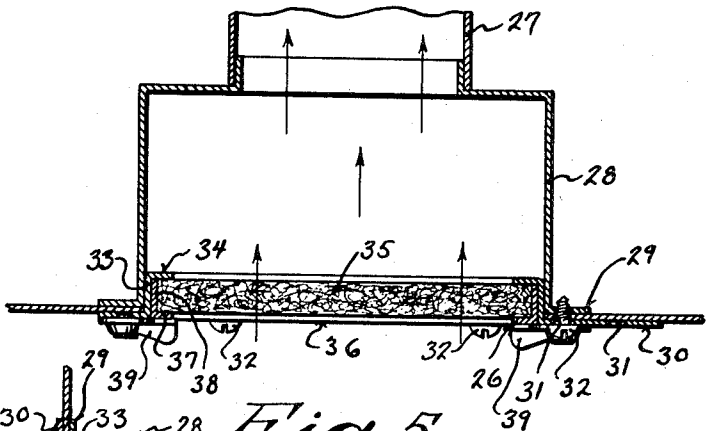
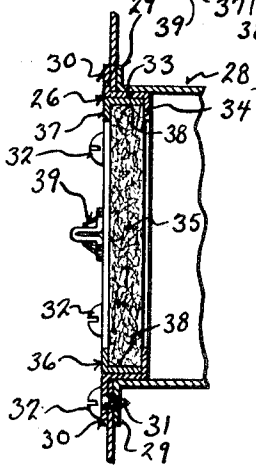


Fig. 5.



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AIR SCOOP FILTER ASSEMBLY

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4 Claims. (Cl. 98-2)

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This invention appertains to motor vehicles, and more particularly to the body ventilating ducts therefor.

In automobiles, it is customary to provide ventilating ducts extending from the front thereof (usually just in back of the radiator or front grill) to the body for the supply of fresh air to the body. These ducts have incorporated therein a wire screen to prevent the entrance of insects into the body of the car, but no provision is made (as far as I am aware) for filtering the incoming air. Consequently, this incoming air is usually laden with dirt, grit, pollen, etc.

It is, therefore, one of the primary objects of my invention to provide novel means for connection with the front of the usual ventilator duct now found on automobiles for detachably supporting a replaceable air filtering medium, whereby incoming air will be effectively cleaned before entering the vehicle body.

Another salient object of my invention is to provide novel means for permitting the quick association of the holder or filter assembly for the filtering medium with standard air ducts now found on existing automobiles.

A further important object of the invention is to provide novel means for forming the holder or assembly, where not only can the same be quickly attached to the duct, but whereby, the filter pad or medium can be conveniently and easily removed from the holder and replaced by a layman.

A still further object of the invention is to provide an air filter assembly for the ventilator ducts of automobiles, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market and associated with a ventilating duct, at a small cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a horizontal sectional view through the front end of an air ventilating duct for an automobile showing my novel filter assembly incorporated therewith, the section being taken on the line 1-1 of Figure 2, looking in the direction of the arrows.

Figure 2 is a front elevational view showing the filter assembly connected with a ventilating duct, parts of the view being shown broken away and in section to illustrate structural detail.

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Figure 3 is a front elevational view illustrating a slightly modified form of the invention for association with a certain type of ventilating duct.

Figure 4 is a horizontal sectional view taken on the line 4-4 of Figure 3, looking in the direction of the arrows.

Figure 5 is a vertical sectional view taken on the line 5-5 Figure 3, looking in the direction of the arrows.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter D generally indicates a ventilating duct for an automobile and the same has associated therewith the ordinary air scoop or box 10. As illustrated, the inner end of the scoop is provided with a collar 11, which frictionally engages the duct and the scoop or box can be securely fastened, such as by bolts 12, to a desired part of the automobile. Rigidly fastened in the scoop 10, is a wire screen 13. The forward end of the scoop is usually left open and the above described parts are now common in automobiles.

In accordance with my invention, I provide a novel filter assembly A for connection with the scoop 10, whereby a filtering pad can be associated with the scoop.

The filtering pad 14 can be of any desired character, but the same is preferably of the type embodying fibrous material, i. e., pig hair impregnated with Neoprene, to form a mat. The filtering pad 14 can be of various shapes to correspond to the particular type of scoop 10, and as shown in Figures 1 and 2, the pad 14 is of circular shape.

The assembly A forms the salient feature of this invention, and includes an open frame 15, of a particular shape. As illustrated, this frame 15 includes a front annular plate 16 having formed on its outer periphery a rearwardly extending flange 17, for receiving the front edge of the scoop. In order to obtain a close fit and to eliminate rattles, an annular rubber gasket 18, or washer, can be placed against the inner face of the front plate 16 for engagement with the front edge of the scoop. Formed on the inner periphery of the front plate 16 is a rearwardly extending annular flange 19 disposed in spaced concentric relation to the outer flange 17. The plate 16 and the flanges 17 and 19 form a channel for the gasket or washer 18. Formed on the flange 19 is an inwardly directed annular stop flange 20, the purpose of which will now appear.

The filtering pad 14 is placed directly within

the inner flange 19 against the stop flange 20, and means is provided for cooperation with the frame 15 for detachably holding the pad in place. This means consists of a removable inner frame 21, which in the present instance is also of an annular shape. The inner frame 21 includes an annular side wall 22 and an inwardly extending annular front flange 23. This frame fits within the inner flange 19 and the front flange 23 holds the pad in place. Any means can be provided for detachably holding the inner frame in position against accidental displacement and as shown, I have provided rotatable buttons 24, carried by the outer frame 15 movable into and out of engagement with the front flange 23, of the inner frame.

One of the important features is to provide means for quickly associating the assembly A with the scoop 10, and as shown, contractile coil springs 25 are carried by the flange 20 of the outer frame and these springs 25 can be hooked over strands of the wire mesh 13.

Obviously, with this simple construction, the assembly can be instantly associated with the scoop 10 by a layman without the use of any tools.

The pad 14 can be instantly removed and replaced with a new pad by merely turning the buttons 24 and pulling out the pad and the inner frame 21.

In some makes of automobiles, the air scoop is of a square or rectangular shape and in Figures 3 to 5, inclusive, I have shown a modified form of air filter assembly 26, for connecting with such a scoop or box.

In these figures, the air duct is indicated by the reference character 27, and the scoop or box, by the reference character 28. As shown, the front edge of the box is provided with an outwardly extending attaching flange 29, whereby the same can be secured to an adjacent part of the automobile.

My filter assembly 26 is shaped to conform to the configuration of the scoop or box 28, and hence includes a front plate 30, suitably apertured at different points, as at 31, for receiving the screws 32 utilized for connecting the flange 29 with the desired part of the automobile. Formed on the inner edge of the front plate or panel 30 is a rearwardly extending wall or flange 33, which intimately engages the inner faces of the walls of the box or scoop 28, at the front thereof. The inner edge of the walls 33 have formed thereon an inwardly directed stop flange 34 for a filter pad 35. The filter pad is shaped to conform to the configuration of the box and for snugly fitting within the wall 33 against the flange 34. The inner frame 36 is detachably fitted within the wall 33, and includes a front open frame plate 37 and a rearwardly directed flange 38 which engages the wall 33. The plate 37 engages the margin of the filter pad and detachably holds the same in place. Rotatable buttons 39 can be utilized for detachably holding the inner frame in position against accidental displacement.

From the foregoing description, it can be seen that I have provided an exceptionally simple assembly for holding replaceable filter pads on the front part of an air ventilating duct for automobiles.

Changes in details may be made without departing from the spirit or the scope of this invention but what I claim as new is:

1. In an air ventilating system for automobiles, an air duct, an air scoop having a front open end associated with the duct, and an air filter assembly for the front of the scoop comprising an outer frame fitted in the scoop having a front wall, an inner side flange and an inwardly directed stop flange on the side flange, securing means connecting the outer frame to the scoop, a filter pad fitted in the outer frame against said stop flange, a removable inner frame engaging the side flange and having an outer flange engaging the filter pad, and means detachably holding the inner frame against accidental displacement.

2. In an air ventilating apparatus for automobiles, an air duct, an air scoop carried by the forward end of the duct having an open front end, and an air filter assembly for the front end of said scoop comprising an outer frame having a front plate and rearwardly directed spaced inner and outer flanges forming a channel for receiving the front edge of the scoop, an inwardly directed stop flange on the inner flange, securing means connecting the outer frame to the scoop, a replaceable filter pad fitted in the outer frame, against said stop flange, a removable inner frame fitted in the inner flange against the said stop flange and having a front flange engaging the filter pad, and means detachably securing the inner frame in place against accidental movement.

3. In a ventilating system for automobiles, an air duct, an air scoop for the front end of said duct, a wire screen rigidly secured in the scoop, and a filter assembly for the front of the air scoop, including an outer open frame having a front wall, a rearwardly directed side wall and an inner stop flange, contractile coil springs carried by the stop flange engaging the screen for holding the front wall against the front edge of the scoop, a replaceable filter pad fitted in the outer frame against the stop flange, and a removable inner frame fitted in the outer frame for holding the filter pad in place.

4. An air filter assembly for detachable connection with the air scoop of an air ventilating system for automobiles comprising an outer frame including a front wall, an inwardly directed side wall and a stop flange on said side wall, securing means connecting the outer frame to the air scoop, a replaceable filter pad fitted in said outer frame against the stop flange, an inner frame for removably holding the pad in place including a side wall engaging the side wall of the outer frame and an inwardly directed pad engaging flange, and means for detachably holding the inner frame in place against accidental movement.

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