Nov. 12, 1935. J. M. NICKELSEN 2,020,903

ATTACHMENT FOR CARBURETORS

Filed July 18, 1932

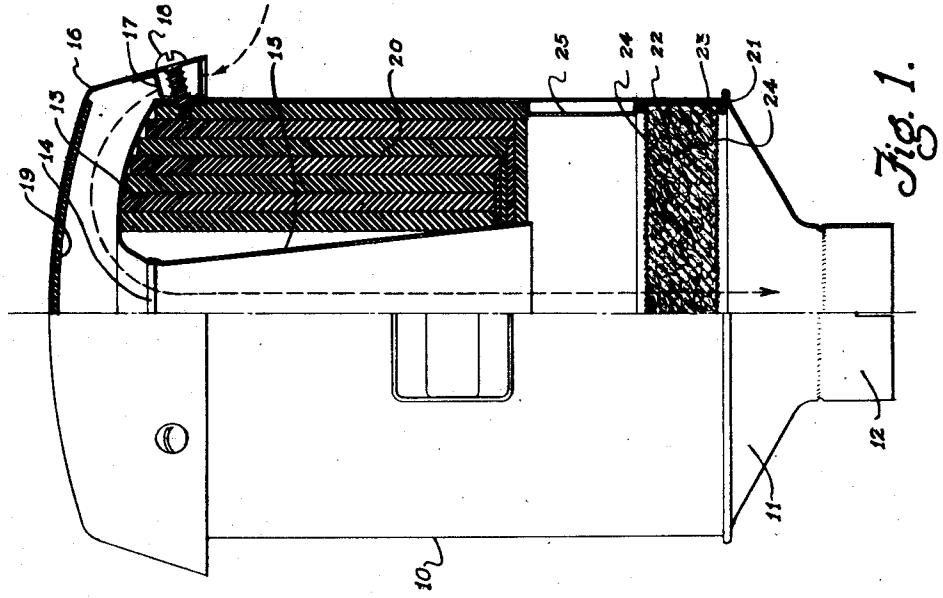


Fig. 1.

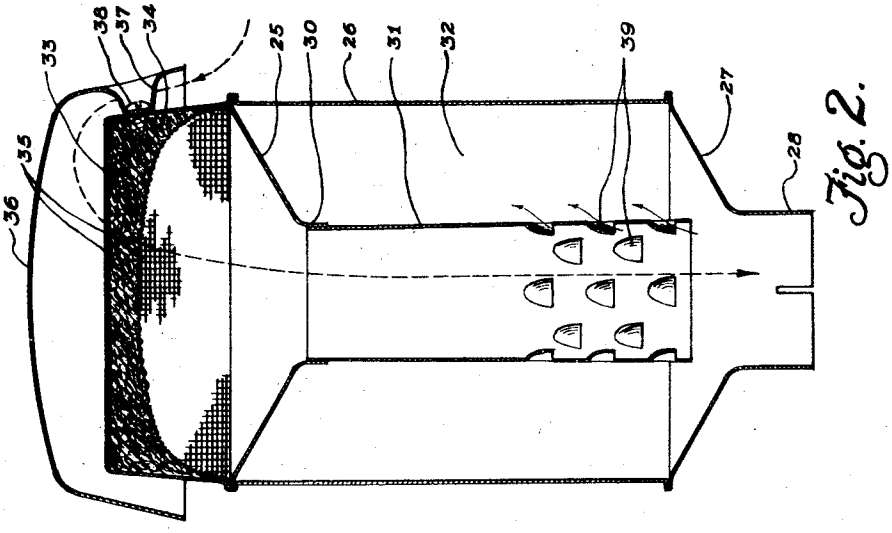


Fig. 2.

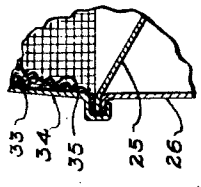


Fig. 3.

Inventor

John M. Nickelsen

By Whittemore Hulbert & Whittemore & Belknap

Attorneys

Patented Nov. 12, 1935 2,020,903

UNITED STATES PATENT OFFICE

2,020,903

ATTACHMENT FOR CARBURETORS

John M. Nickelsen, Monroe, Mich., assignor to Monroe Auto Equipment Company, Monroe, Mich., a corporation of Michigan

Application July 18, 1932, Serial No. 623,269

2 Claims. (Cl. 137—160)

This invention relates to air cleaners and more especially to improvements in air cleaners designed particularly for use with the carburetors of internal combustion engines.

One of the objects of this invention is to provide a device of this character designed to act as an air filter, silencer and flame arrester.

Another object of the invention is to provide a device of this nature which is simple in construction, may be economically produced in large quantities, and assembled with facility.

The several objects, advantages and novel details of construction of the invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein

Fig. 1 is a view partly in vertical section and partly in elevation of an air filter constructed in accordance with this invention;

Fig. 2 is a vertical sectional view through a modified form of construction, and

Fig. 3 is an enlarged fragmentary detail sectional view.

Referring now more particularly to Fig. 1, it will be noted that there is an outer housing 10 of tubular construction formed preferably of sheet metal to the lower end of which a funnel shaped member 11 is attached, the latter being provided with a flanged opening 12 by means of which the device is attached to the air intake of the carburetor, in any preferred or desired manner.

The upper end of the housing 10 is provided with a cover 13 provided with a flanged opening 14 to which an air conduit, of substantially the form of a Venturi tube 15, is attached. The Venturi or air tube 15 extends downwardly within the housing 10 to a point spaced above the bottom thereof, as clearly illustrated in the drawing.

Secured to the housing 10 adjacent the top thereof is a dome-shaped cover 16, this cover being spaced above the top of the housing and circumferentially thereof by means of a plurality of spacers 17 secured to the under side of the cover and through which attaching screws 18 are pressed into the housing for securing the cover in place. The top of the cover at the under side thereof may be provided with a layer of sound deadening material 19 which acts to dampen vibrations.

Surrounding the air conduit 15 and in the space between this air conduit and the wall of the housing 10 there is preferably provided a relatively thick layer of noise absorbing or deadening material 20 preferably sufficient to substantially fill this space.

The shape of the lower end member 11 is preferably such as to provide an annular shoulder 21 upon which a filter unit 22 may rest. This filter unit preferably consists of an outer shell 23 and top and bottom walls 24 of wire mesh or screen material. The filter material contained within the walls is preferably copper wool or glass wool or some other generally similar type of material. A spacer ring 25 is preferably inserted in the housing 10 between the noise absorbing material 20 and the top of the filter unit 22.

As shown by arrows, the air in this form of construction flows through the space between the housing and the periphery of the cover and centrally through the Venturi tube 15, through the filter unit 22 and out through the discharge opening 12. The dome-shaped cover 16 acts to prevent coarse sand or dirt from entering the filter unit, the finer particles of foreign matter which are carried along with the air being arrested by the filter unit. The layer of sound deadening material 19 acts to dampen vibrations and the layer of sound absorbing material 20 acts to absorb or subdue the engine noises which normally tend to escape through the air filter. The filter unit, in addition to cleaning the air, will act to prevent backfire from the carburetor passing outwardly through the unit to the atmosphere. By forming the air conduit or tube 15 in substantially the shape of the Venturi tube the air restriction through the device is reduced and the air is directed through the device in the desired path.

This filter unit may be removed for replacement purposes by removing the cover 16, insulation 20, and spacer 25.

In Figure 2, I have illustrated a slightly modified form of construction in which the outer housing is indicated by the reference character 26 to the lower end of which is connected a member 27 provided with a flanged discharge opening 28 adapted to be connected to the air intake of the carburetor. The other end of the housing 26 is provided with an end plate 25 substantially funnel-shaped in cross-section provided with a flanged opening 30 to which a substantially Venturi-shaped air conduit 31 is connected, this venturi extending down within the boundaries of the funnel-shaped lower wall 27 as clearly illustrated. The space 32 between the Venturi shaped air conduit 31 and the outer housing 26 is preferably left vacant to provide a dead air space which

will also act to absorb or deaden noise. This space may be filled with some sound absorbing or deadening material if desired.

The reference character 33 indicates a filter unit which in this form of construction is secured to the top of the housing 26, this unit comprising an outer wall 34 of imperforate material and top and bottom walls 35 of wire mesh, the filter unit being filled with copper wool, glass wool, or some other generally similar material. Surrounding the top of the structure is a dome-shaped cover 36 which is secured in spaced relation thereto by means of spaces 37 through which the screws 38 pass to secure the cover to the top of the device.

In this form of construction, the filter unit is located adjacent the top of the device and the air flows therethrough before passing through the Venturi-shaped air conduit 31.

If desired, the air conduit 31 may be provided with downwardly opening louvres 39 projecting into the interior of the conduit. By this means backfire noises and the like traveling upwardly through the conduit are directed into the surrounding chamber 32 and muffled or absorbed.

While two forms of construction have herein been illustrated, it will be apparent that various modifications may suggest themselves to those skilled in this art, and to this end reservation is made to make such changes as may come within the purview of the accompanying claims.

What I claim as my invention is:

1. An attachment for carburetors comprising a housing provided at one end with an air discharge opening and having a reentrant air inlet opening at the opposite end, a Venturi-shaped air conduit extending between said inlet and discharge openings and spaced from the side walls of the housing forming a sound absorbing chamber around said conduit.

2. An attachment for carburetors comprising a housing provided at one end with an air discharge opening and having a reentrant air inlet opening at the opposite end, an air conduit extending between said inlet and discharge openings and located within the housing in spaced relation to the side walls thereof forming a sound absorbing chamber around said conduit, and inwardly extending downwardly opening louvres formed in said air conduit, for the purpose set forth.

JOHN M. NICKELSEN.