Sept. 9, 1958 E. C. THOMPSON 2,851,156

SUCTION ASH TRAY

Filed April 26, 1955

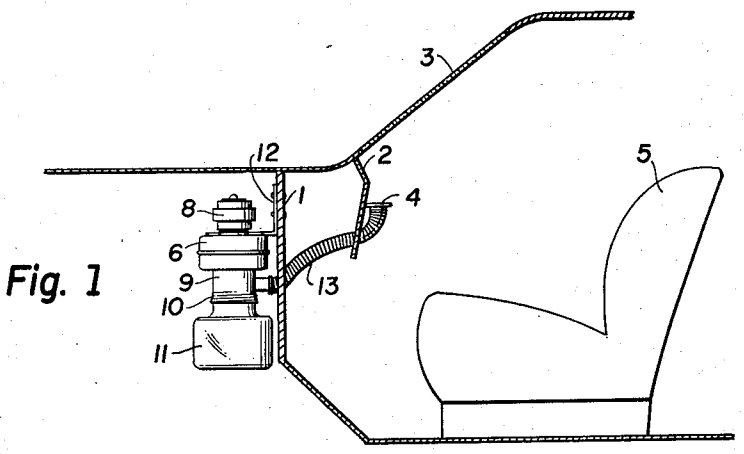


Fig. 1

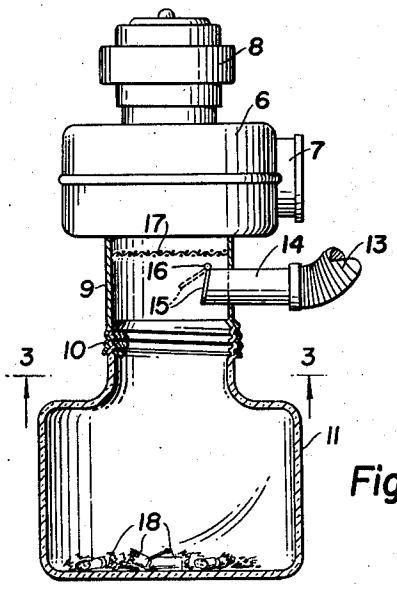


Fig. 2

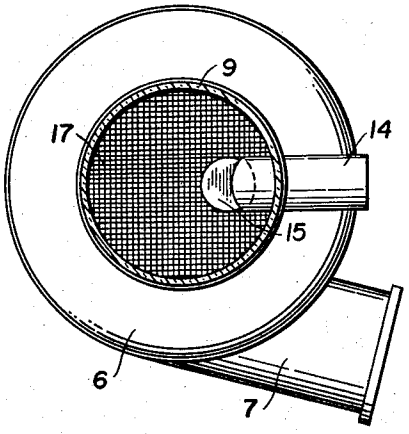


Fig. 3

INVENTOR.
EMMETT C. THOMPSON
BY Oberlin & Limbach
ATTORNEYS

United States Patent Office

2,851,156

Patented Sept. 9, 1958

2,851,156

SUCTION ASH TRAY

Emmett C. Thompson, Wakeman, Ohio

Application April 26, 1955, Serial No. 503,895

1 Claim. (Cl. 206—19.5)

This invention relates as indicated to a suction ash tray, and more particularly to cigarette and ash disposal means especially adapted for installation in an automobile or the like.

The modern automobile is well equipped with ash trays which in use, however, are often unpleasant and annoying. Most of them are rather difficult to empty, and as a consequence there is often an accumulation of cigarette stubs, ashes, match sticks and the like which frequently catch fire or smoulder, giving off disagreeable smoke and fumes and which at best are normally odoriferous and unpleasant. When the automobile windows are open, the draft may cause ashes to be blown from the receptacles and about the interior of the car. Because the ash trays are frequently filled to overflowing, it is still a common practice for passengers to throw lighted cigarette stubs, matches and the like from moving cars and this produces a serious fire hazard, particularly in forested areas.

It is accordingly a principal object of my invention to provide a suction ash tray for automobiles and the like which will be adapted to receive and immediately carry away any ashes, cigarette stubs and the like deposited therein.

A further object is to provide such device which will be fully operative regardless of whether the automobile is traveling or stationary and regardless of whether the windows are opened or closed.

Still another object is to provide such device which will quench any flame or tendency to smoulder and will not strew the contents along the roadside.

Yet another object is to provide such device which will be inexpensive, easily installed and maintained, and operative to air condition the interior of the vehicle when the windows are closed.

Other objects of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention then comprises the features hereinafter fully described and particularly pointed out in the claim, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

Fig. 1 is a fragmentary semi-diagrammatic showing of the fire wall and adjacent compartments of a modern automobile illustrating the manner in which my new device may be installed therein;

Fig. 2 is a side elevation on an enlarged scale of the disposal unit of such device showing the lower portion thereof in section better to illustrate the internal arrangement of the same; and

Fig. 3 is a bottom view of the upper portion of such unit taken on the line 3—3 on Fig. 2.

Referring now more particularly to such drawing, the embodiment of my invention there illustrated is adapted

to be secured to the fire wall 1 and dash 2 of an automobile 3 with the ash receptacle portion 4 being readily accessible to a person on the front seat 5. The unit itself comprises a conventional drum type fan 6 having an outlet 7 and powered by an electric motor 8. Such fan may desirably be of the quiet inexpensive type commonly installed in automobiles for operation of conventional windshield defroster systems. The inlet to such fan is at its underside and communicates with a vertically disposed cylindrical sheet metal portion 9 threaded at its lower end 10 to receive a container 11 detachably secured thereto. Such container may be of metal or may desirably be of heat resistant glass such as Pyrex glass. The entire device is rigidly secured to the engine compartment side of fire wall 1 by means of bracket 12.

A length of metal tubing 13 which may, for example, be 1½" diameter flexible metal tubing having a relatively smooth interior surface, leads from ash receptacle 4 downwardly through fire wall 1 and connects with inlet tube 14 passing through the wall of vertical cylindrical extension 9. The inner end of such tube 14 desirably protrudes within cylindrical extension 9 a distance approximately equal to one-fourth the diameter thereof, and such inner end is upwardly beveled or inclined as best shown in Fig. 2. A lightweight sheet metal flap 15 is hinged at 16 to the upper side edge of such tube end and will normally rest against such beveled end under the influence of gravity, closing the same. When, however, motor 8 is energized to drive fan 6, the suction and air flow created thereby is sufficient to cause such flap to swing to open position as illustrated in dotted line in Fig. 2 to permit air flow through tubes 13 and 14 into cylindrical extension 9 and upwardly through wire mesh screen 17 to fan 6 and outlet 7. The fan or blower may desirably be positioned within the engine compartment of the automobile to direct the outlet 7 toward a rear corner of the engine compartment to obtain the benefit of the normal draft or air current created within such compartment by forward motion of the automobile. If desired, another flap similar to flap 15 may be pivotally mounted on the outer end of outlet 7.

In operation, the motor 8 is energized to drive blower 6 and a continuous flow of air is drawn through receptacle 4 and tube 13. Such air flow is sufficient to withdraw cigarette smoke from the interior of the vehicle and any sashes or cigarette stubs 18 deposited in receptacle 4 are quickly drawn through tube 13 and deposited in container 11. In this connection, flap 15 serves, in open position, as a baffle or deflector, causing solid materials to be deflected out of the air stream and downwardly into can or jar 11. The air flow, of course, turns upwardly about such flap or deflector and passes through screen 17 to blower 6, carrying with it any smoke. I have found that the ashes, matches, stubs and the like 18 which collect in the bottom of jar 11 are quickly extinguished due to the fact that they are not disturbed by the air entering through tube 14 and withdrawn upwardly through screen 17. Also, carbon dioxide produced by combustion, being heavier than air, tends to collect in the bottom of the container and smother any fire.

Of course, when motor 8 is stopped, the flow of air through tube 13 likewise ceases and flap 15 drops to closed position, preventing any smoke or fumes escaping into the passenger compartment. Even when the occupants of the car are not smoking, my new device tends to produce an air conditioning effect by drawing a small but appreciable flow of fresh air into the closed passenger compartment. Obviously, additional tubes 13 may be conducted to other portions of the vehicle, such as adjacent the rear seat thereof, as may be desired.

Not only is my new suction ash tray a great conven-

ience to the occupants of the vehicle, but also it collects matches, cigarette stubs and the like which would otherwise frequently be thrown out of the vehicle along the roadside, this being a chief source of destructive forest fires. While a great deal of money has been expended in attempting to educate the public to be more careful in this respect, a more effective approach in practice is to provide means for disposing of cigarette stubs and the like which will be sufficiently convenient and unobjectionable to secure regular use. The container **11** is readily accessible and may be inspected and dumped at intervals. It has been found that under conditions of normal use this need be done only at intervals of several months.

It will be seen that flap **15** serves as a form of check valve and it may of course be lightly spring biased instead of merely gravity biased to closed position. The projecting inner end of inlet tube **14** serves generally to center such flap as a deflector (Fig. 3) in use with the air flow passing upwardly fairly uniformly thereabout.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in the following claim or the equivalent of such be employed.

I therefore particularly point out and distinctly claim as my invention:

In a suction ash tray and disposal means for automotive vehicles including a receptacle attached to the dash of the vehicle and readily accessible to the occupants

thereof; a blower mounted on the engine compartment side of the fire wall of the vehicle with its outlet directed generally rearwardly, said blower having its inlet at the lower side thereof, a cylindrical downward extension on said blower from said inlet, a horizontal wire mesh screen in the upper portion of said extension and across such inlet, a heat resistant transparent glass container releasably secured with an air-tight connection to the lower end of said extension, a tubular generally horizontal lateral inlet to said extension projecting therewithin approximately one-fourth the diameter of the latter beneath said screen, the inner end of said tubular inlet being beveled upwardly, a sheet metal flap hinged to the upper edge of the beveled tubular inlet orifice and adapted normally to close the latter under the influence of gravity, and a metal tube leading downwardly from said receptacle through said fire wall to said tubular inlet, and an electric motor for driving said blower.

References Cited in the file of this patent

UNITED STATES PATENTS

1,221,221	Rothfield	Apr. 3, 1917
2,299,668	Webster	Oct. 20, 1942
2,461,815	Gill	Feb. 15, 1949
2,569,722	Knox	Oct. 21, 1951
2,616,557	Gill et al.	Nov. 4, 1952
2,680,569	Nicholas	June 8, 1954
2,716,464	Weisbecker	Aug. 30, 1955