This invention relates to a combined ash receiver and power operated cigar and cigarette butt pulverizer and extinguisher for use in a passenger compartment of a motor vehicle.

The butts or stubs of cigars and cigarettes, when left in the ash trays of automobiles or similar closed passenger compartments of motor vehicles, are particularly objectionable due to their strong and unpleasant odor. Also these butts are liable to be placed in the ash trays in a burning condition so that they continue to smoke and smolder and constitute a fire hazard.

An object of this invention is to provide means for finely pulverizing and completely extinguishing all of the fire in these cigar and cigarette butts and disposing of the same at the time they are discarded thus eliminating danger of fire and removing the source of the objectionable odor which arises if they are allowed to smolder or burn.

A further object is to minimize fire danger due to the presence of lighted cigar and cigarette butts in the ash trays of motor vehicles by making it possible to finely pulverize and disintegrate and dispose of these cigar and cigarette butts as soon as they are placed in the ash receptacles.

Another object is to provide a cigar and cigarette butt pulverizer device which will pulverize the said butts or stubs finely and which will push and drag and pummel the pulverized or partly pulverized matter sufficiently to insure that all live fire and sparks have been completely extinguished and that the discharging pulverized matter is incapable of starting fires.

Another object is to provide a cigar and cigarette butt pulverizing device which will create a suction tending to draw air and smoke and odors out of the motor vehicle passenger compartment in which it is used.

Other objects of this invention are to provide a device of this nature which is simple in construction, reliable and efficient in operation and not expensive to manufacture.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a view in vertical section taken substantially on broken line 1—1 of Fig. 2 and showing a cigar and cigarette butt pulverizing and extinguishing device constructed in accordance with this invention, parts being shown in elevation and parts being broken away.

Fig. 2 is a view in cross section of the same taken substantially on broken line 2—2 of Fig. 1, parts being shown in plan and parts being shown in a different position than they are in Fig. 1.

Fig. 3 is a somewhat diagrammatic exploded perspective view, on a smaller scale than Figs. 1 and 2, showing a series of non-rotatable pulverizer plates embodied in this device.

Fig. 4 is a fragmentary sectional view taken substantially on broken line 4—4 of Fig. 1 showing pulverizer plates and pulverizer bars.

Fig. 5 is a detached perspective view of a rotary suction creating pulverizer bar.

Fig. 6 is a detached fragmentary sectional view showing means for attaching a pulverizer bar to a shaft.

Fig. 7 is an exploded sectional view showing fragments of a housing and pulverizer plate.

Fig. 8 is a fragmentary sectional view showing the outlet end portion of a discharge conduit for pulverized matter.

Like reference numerals designate like parts throughout the several views.

This device comprises a cylindrical housing having therein a plurality of spaced apart fixed transverse pulverizer plates and an extinguishing mechanism. Fig. 4 is a detached fragmentary sectional view showing a series of non-rotatable pulverizer plates embodied in this device. Fig. 5 is a detached perspective view of a rotary suction creating pulverizer bar. Fig. 6 is a detached fragmentary sectional view showing means for attaching a pulverizer bar to a shaft. Fig. 7 is an exploded sectional view showing fragments of a housing and pulverizer plate. Fig. 8 is a fragmentary sectional view showing the outlet end portion of a discharge conduit for pulverized matter.
shaf2 24. Preferably the uppermost plate 11 is semi-
circular in shape. Each plate 12 to 16 inclusive is pro-
vided with a V-shaped notch 41 extending from the periphery of the plate toward the center thereof and
formed by removing a section of the plate about twenty
degrees in extent. The lowermost plate 17, being the plate
over which the pulverized material discharges pref-
erably has a section more than sixty degrees in extent
removed therefrom to provide a notch 41 which allows a 
free discharge of pulverized material. The removal of
sectors of metal from the plates 11 to 17 inclusive and
these plates with radially extending edges which co-
operate with the rotating bars in cutting up and pulver-
izing downwardly moving material.

An inlet tube 42 for ashes, cigar and cigarette stubs
or butts, burned matches and the like is connected with
the top end member 21 and communicates with the in-
terior of the housing 10. This inlet tube 42, which is
shown partly broken away in Fig. 1, may be of any de-
sired shape and may have its top end portion positioned
at any suitable location where it is convenient to place
downwardly through said cigarette butts, burned matches,
as and the like in it.

The bottom end member 22 has a suitable outlet con-
duct 43 which communicates with a discharge pipe 44.
Preferably the discharge pipe 44, see Fig. 8, extends
down through the floor 45 of the storage compartment of a motor vehicle in which this device is installed and
curves toward the rear of the vehicle. When the vehicle
is moving forwardly air which is moving past the end
of the discharge pipe 43 in the direction indicated by
arrows will tend to create a suction through the pipe
43 and conduit 42 and housing 10. This suction will
tend to remove ashes and pulverized material from the
device and will further tend to withdraw smoke and foul
air from the passenger compartment in which the device
is located.

The shaft 24 is connected by speed reduction gears
46 and 47 with an electric motor 48. Electric current
for operating the motor 48 is supplied through con-
ductors 49. A time delay relay 50 is provided in the cir-
cuit which includes conductors 49. The time delay re-
elay 50 is a well known and readily obtainable device
which, after the motor circuit has been momentarily
energized, as by the closing of a self opening switch, will
maintain said motor circuit closed for a predetermined
period of time and will then break said motor circuit
and stop the motor. This insures operation of the motor
for at least a predetermined period of time after each
energization.

The inlet tube 42 communicates with the housing 10
at a location as indicated by dot and dash lines 42' in
Fig. 2 so that the incoming material is dropped on the
second pulverizer plate 12 adjacent an edge of the semi-
circular top pulverizer plate 11. The two top pulverizer
bars 25 and 29, moving clockwise as respects the show-
ing in Fig. 2, force the incoming material against the
edge of the plate 11 and cut it into pieces. This cut
up material is pushed around on the plate 12 by the bar
29 until it reaches the notch 41 in said plate 12 and then
drops down onto the plate 13 at the center of the plate
10 where it is contacted by the bar 30 and is pushed and dragged around on the plate
13 until it drops through the notch in said plate 13 onto
the plate 14. The notches 41 are preferably relatively
positioned and offset so that the material is pushed and
dragged around for a distance of approximately three
hundred degrees on each pulverizer plate except the top
plate 11 and bottom plate 17 before it drops onto the
next plate. This thoroughly comminutes and breaks up
and pulverizes the material and extinguishes all of the
fire and sparks in the same before the material finally
drops off the lowermost plate 17 into the discharge
conduit 43. The pulverizer bars continuously shear
past the edges of the pulverizer plates and thus insure
the cutting and breaking up of all solid matter before
it reaches the conduit 43.

The foregoing description and accompanying draw-
ings clearly disclosed a preferred embodiment of my
invention but it will be understood that this disclosure is
merely illustrative and that changes may be made with-
in the scope and spirit of the following claims.

I claim:

1. A combined ash receiver and power operated cigar
and cigarette butt extinguisher and pulverizer comprising
an upright cylindrical housing; a plurality of horizon-
tal spaced apart parallel pulverizer plates fixedly mounted
in said housing at least some of said plates having V-
shaped notches extending from the periphery to the
center thereof with the notches in successive plates pro-
gressively offset, whereby material will drop on the plates
and may be moved over substantially the entire surface
of each plate before reaching the notches therein; an axial
shaft rotatively mounted in said housing; power operated
shaft driving means connected with said shaft; a plu-
rality of pulverizer bars positioned between said plates
and secured to said shaft in spaced apart relation cross-
wise of the shaft; whereby rotation of said shaft will
rotationally move said bars between said plates; an inlet
conduit for cigar and cigarette butts connected with
the upper end portion of said housing; and an outlet
conduit for pulverized material connected with the lower
end portion of said housing.

2. The apparatus as claimed in claim 1 in which at least
one of said pulverizer bars is provided with pitched
suction creating blade surfaces providing a suction down-
wardly through said housing and withdrawing smoke
and foul air from the passenger compartment when the bars
are rotated.

3. A combined ash receiver and power operated cigar
and cigarette butt extinguisher and pulverizer, compris-
ing an upright cylindrical housing; a plurality of hori-
zontal spaced apart parallel pulverizer plates fixedly
mounted in said housing, the uppermost plate being sub-
stantially semi-circular in shape and the plates below said
uppermost plate having V-shaped notches extending from
the periphery toward the center of the plates, the V-shaped
notch of each succeeding plate being angularly offset
relative to the V-shaped notch of the plate above it,
whereby material dropping from one plate will fall on
the next plate below at a point removed from the notch
in said next plate below; an upright shaft rotationally sup-
ported axially of said housing; power operated shaft
driving means connected with said shaft; a plurality of
pulverizer bars positioned between said pulverizer plates
and secured to said shaft in spaced apart relation cross-
wise of the shaft, whereby rotation of said shaft will
rotationally move said pulverizer bars between said plates
and will move material over said plates to the notches in
said plates; an inlet conduit connected with the upper
end portion of said housing; and an outlet conduit con-
cnected with the lower end portion of said housing.

4. The apparatus as claimed in claim 4 in which the
plates are positioned at successively decreasing distances
apart from top to bottom of the housing.

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