

[54] ASH TRAY SMOKE REMOVER

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 179,692, Sept. 13,
1971, abandoned, which is a continuation-in-part of
Ser. No. 24,649, April 1, 1970, abandoned.

[52] U.S. Cl. 55/385, 98/43, 98/66 R,
131/238

[51] Int. Cl. B01d 50/00

[58] Field of Search..... 55/385, 419, DIG. 8;
131/238, 240, 256; 98/43, 66 R, 115 K, 115
VM, DIG. 7, 43 R, 43 A, 43 PS, 66 A

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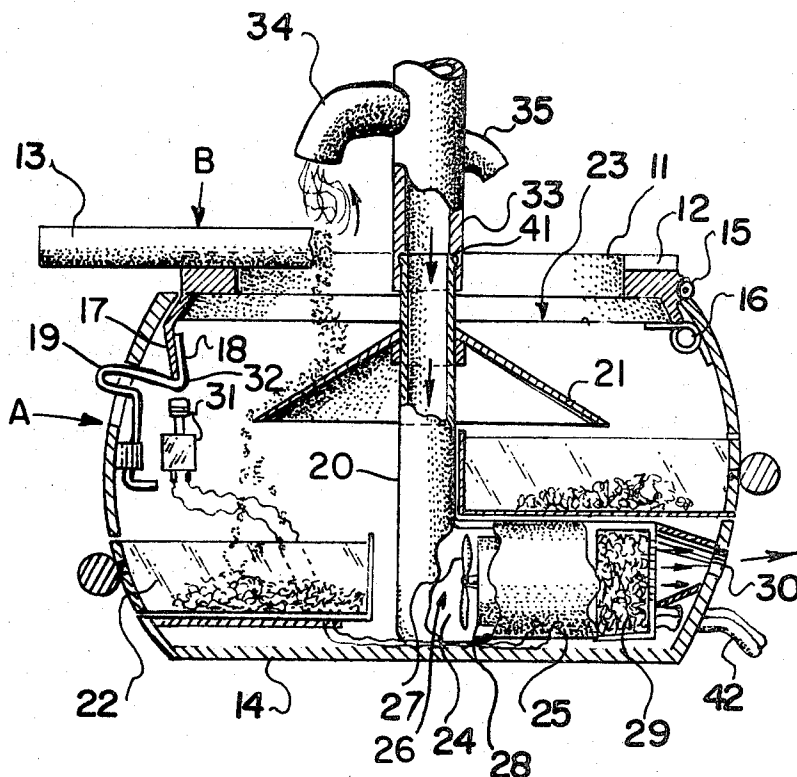
Attorney, Agent, or Firm—Auslander & Thomas

[57]

ABSTRACT

An ash tray is combined with an optionally actuable smoking air filter system and ducts adjustable to be moved to the smoke source for sucking in the smoking air.

8 Claims, 7 Drawing Figures



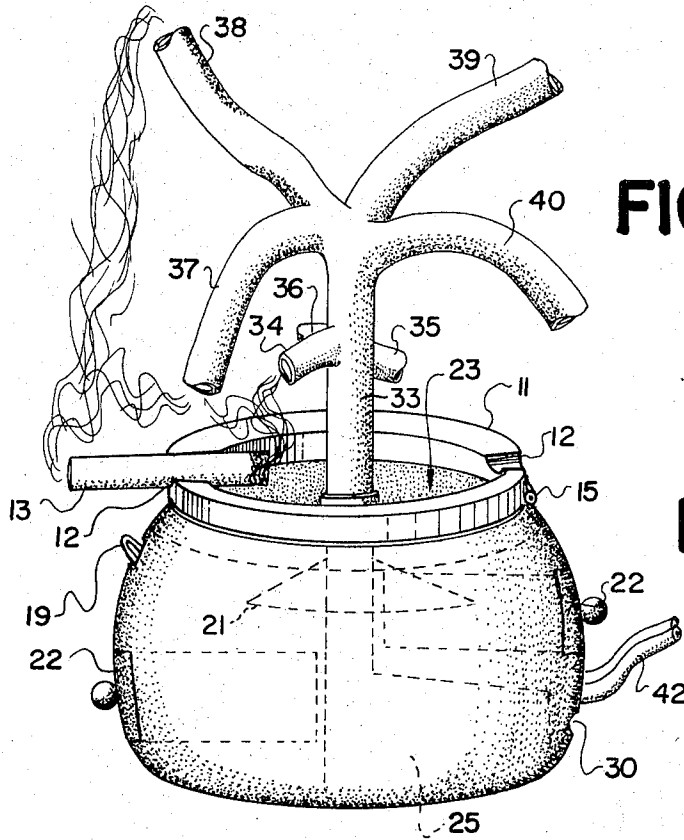


FIG. 1

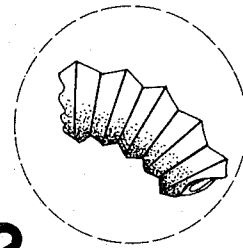


FIG. 2

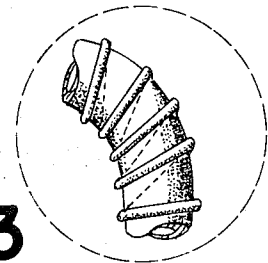


FIG. 3

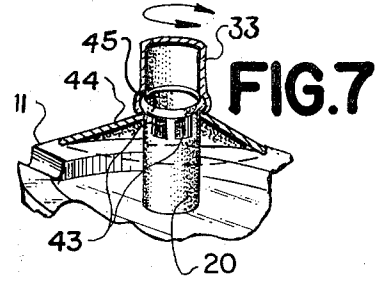


FIG. 7

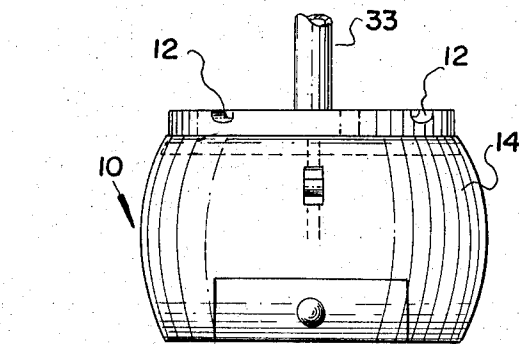


FIG. 5

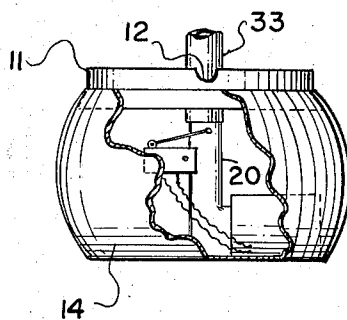


FIG. 6

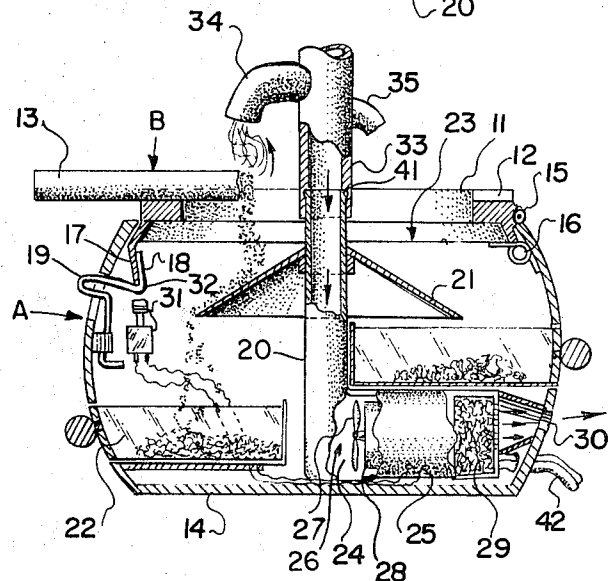


FIG. 4

ASH TRAY SMOKE REMOVER

This is a continuation-in-part of U. S. Ser. No. 179,692 filed Sept. 13, 1971 now abandoned which is a continuation-in-part of U. S. Ser. No. 24,649 filed Apr. 1, 1970 now abandoned.

The present invention relates to an ash tray smoke remover.

The art is well proliferated with various air purifier, filter and room deodorizers. These devices of the past, chemically, or mechanically, or both, circulate, regulate or otherwise control a volume of air to remove or convert pollutants.

Such air treating devices have controlled the inlet of air to a particular area or its outlet, or have mechanically circulated and treated a volume of air.

According to the present invention, an ash tray smoke remover which can get close to the source of immediate air contamination such as is emitted by smokers from smoking devices and catch the smoke filled air in small volume, then clean it and reintroduce it into the environment substantially free of contamination is provided.

By providing a unit adapted to be close to the source of contamination, a phenomenal decrease in the volume of air to be purged is achieved.

An ordinary small room 10 by 15 might contain 1,500 cubic feet of air. To purge this air, the entire volume must be circulated or reached. By providing an ash tray smoke remover close to the source of the smoking area, smoke in an area of a cubic yard or about 27 cubic feet may be caught at the source and purged inexpensively, easily and efficiently, acting on only about 2 percent of the volume of the air in a room of approximately 1,500 cubic feet.

The ash tray smoke remover of the present invention is preferably integral with ash trays or lit smoking device supporting means.

Although such novel feature or features believed to be characteristic of the invention are pointed out in the claims, the invention and the manner in which it may be carried out may be further understood by reference to the description following and the accompanying drawings.

FIG. 1 is a front elevation of an ash tray smoke remover of the present invention.

FIG. 2 is a detail of an alternate flexible arm of the smoke remover of the present invention.

FIG. 3 is a detail of another flexible arm of the smoke remover of the present invention.

FIG. 4 is a section of the ash tray smoke remover of the present invention.

FIG. 5 is a partial front elevation of the ash tray smoke remover of the present invention.

FIG. 6 is a cut-away elevation of FIG. 5 showing a switch.

FIG. 7 is a detail of another embodiment of an opening for smoke intake.

Referring now to the figures in greater detail, where like reference numbers denote like parts in the various figures.

The ash tray smoke remover 10, as shown in the figures, comprises an open rim portion 11, preferably including recesses 12 for a cigarette 13 as shown (or cigar or even a pipe or other smoking device, as optionally provided for but not shown).

The rim 11 is mounted on a base 14 by a hinge 15, swingable either inward or outward.

The rim 11 is normally held in position in the base 14 by compressed spring 16 pushing against the rim 11. The rim 11 is held from opening by a lip 17 slightly bent inward and engaged with an overlapping flange 18 of a release mechanism 19.

The rim 11 may be released to open by pressing the release mechanism 19 in the direction of the arrow A, thus releasing the hold of the flange 18 on the lip 17 and allowing the spring 16 to expand.

Preferably in the center of the base 14 is mounted an air conduit tube 20 about which is mounted a conical shield 21. The base is provided with receptacles 22 which may be removed from the base 14, thus ashes are guided through the opening 23 in the rim 11 down the slope of the conical shield 21 to a receptacle 22.

The air conduit 20 includes an air tight opening 24 into a housing 25, all in train with suction means 26, such as the fan 27 driven by the motor 28. The suction means 26 is able to draw air through the air conduit 20 and its accoutrements as will be hereinafter described, and force it through a filter 29 and pass filtered air out of the base 14, through the opening 30 in the direction of the arrows shown in the air conduit 20 and through the filter 29.

The type of filter 29 or filtering material is optional dependent upon expenses and the degree of purity of recycled air desired. Preferably, an inexpensive filter 29 would be used to eliminate smoke and odor.

The motor 28 is actuated by the switch 31. The switch 31 is actuated in this instance by the arm 32 being depressed by a force being applied to the rim 11 as shown in FIG. 4 in the direction of arrow B.

Affixed to the air conduit 20 is an intake trunk 33 having a selected number of branches 34 - 40. The small branches 34, 35, 36 are adjustable but short, and designed so that they override any smoking article on the rim 11, or they may be moved or twisted to catch the smoke of any smoking article on the rim 11.

The large branches 37 - 40 are also flexible and may be bent. Typically, the branches 34 - 40 may be of a stiff, flexible flame resistant plastic or other substance that can be bent and hold its position for use.

In FIG. 2, a detail of a possible plastic branch configuration is shown. In FIG. 3 another plastic configuration is shown, held by pliable spiral wire.

As can be seen in FIG. 4, the trunk 33 fits over a lip 41 on the end of the conduit 20. It is preferable that the trunk 33 does not freely rotate since rotation may move other branches 34 - 40 away from their functioning portions. Optionally, in some applications, rotation may be provided for.

Power for the motor 28 may be supplied by plugging the line wire 42 to an ordinary outlet (not shown) or other optional power means may be used, such as batteries.

In operation, the ash tray smoke remover 10 is placed near a smoker. Before smoking is commenced, it is preferable to adjust one of the large branches 37 - 40 to be near the smoker, then before or after starting to smoke, the rim 11 is depressed to start the motor 28 to suck in the smoke and recycle it.

The ashes may be removed by removing the receptacles 22. To obtain access to the inside of the base 14, it may be necessary to remove the trunk 33 so that the rim 11 may have a full open swing.

In FIG. 7 the intake trunk 33 has circumferential screens 43 and a conical shield 44 to substitute for the branches 34, 35, 36 and collect smoke in all directions in the vicinity of the rim 11.

The trunk 33 with branches 34, 40 may be rotatably engaged on the lip 45.

The terms and expressions which are employed are used as terms of description; it is recognized, though, that various modifications are possible.

Having thus described certain forms of the invention in some detail, what is claimed is:

1. An ash tray smoke remover comprising a base, an ash receiving means in said base; a rim above said base; hinge means attaching said rim to said base; spring means attached to said base below said hinge and biased to open said rim away from said base; spring release means for holding said rim to said base, said release means being vertically movable along with said rim; air filter means in said base; a conduit in said base in fluid communication at one end with said air filter means, said conduit including an intake trunk at its other end with at least one adjustable branch, said at least one branch having an opening in communication with the region above said rim; suction means in said base and in fluid communication with said filter and said conduit for withdrawing smoke from the area of

said branch opening; switch means operably connected to said suction means, said switch means being positioned below said spring release means and being operable to actuate said suction means when said rim is depressed along with said spring release means; and an outlet means to conduct filtered air from said suction means.

2. The invention of claim 1 wherein at least one said branch is of a length to be set near said rim and at least one branch is of greater length and adjustable away from said ash tray toward a smoker.

3. The invention of claim 1 wherein said conduit includes means to deflect ashes.

4. The invention of claim 3 wherein said deflection means is adapted to deflect said ashes toward said ash receiving means.

5. The invention of claim 4 wherein said ash receiving means is removable from said base.

6. The invention of claim 4 wherein said deflection means is conical.

7. The invention of claim 1 wherein said conduit includes a lip for attaching said trunk to said conduit.

8. The invention of claim 1 wherein said trunk is rotatable.

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