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EXTINGUISHING ASH TRAY

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FIG. 1.

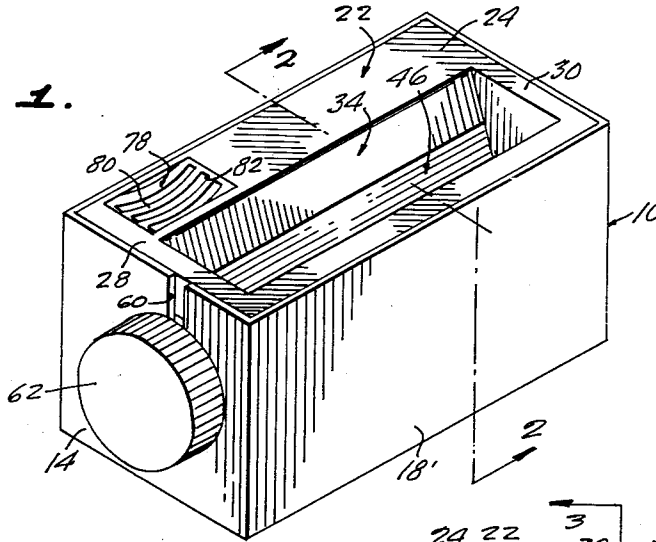


FIG. 2.

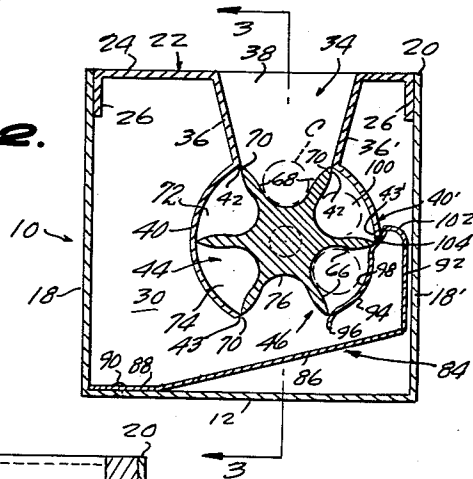
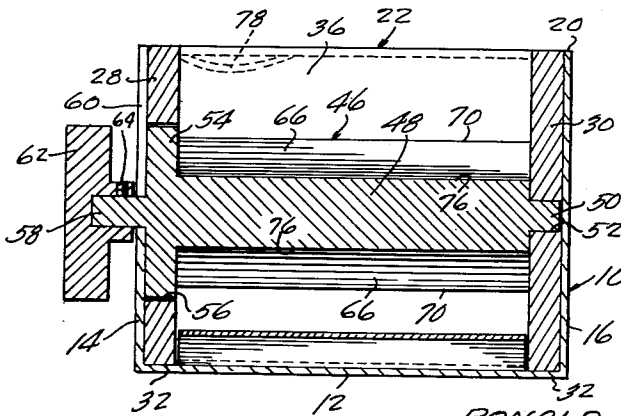


FIG. 3.



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EXTINGUISHING ASH TRAY

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This invention relates to an improved cigarette extinguishing ash tray of the type having a rotary cigarette receiver.

The primary object of the invention is to provide a more efficient and useful device of this kind which, while eliminating wedging of cigarettes and debris by the receiver and binding of the receiver thereby, as the receiver is manually rotated, to deposit cigarettes in the device, provides positive smoke sealing action by the receiver which prevents smoke and odors from escaping from the interior of the device, from cigarettes and ashes deposited therein by the receiver.

Another object of the invention is to provide a device of the character indicated above whose receiver has blades, the edges of which are wiped with a vibratable spring guide which is vibrated by contact with the edges of the blades therewith, as the receiver is rotated, so that cigarettes are shaken loose from the receiver and are guided to the bottom of the tray.

A further object of the invention is to provide a device of the character indicated above in which the receiver is rotatable in opposite directions, so as to eliminate the need for concentration by the operator upon proper direction of rotation, and delay in operation of the receiver, which, in the cases of drivers of automobiles, would constitute a driving hazard.

A still further object of the invention is to provide in a device of the character indicated above, a bladed rotor acting in conjunction with an extinguishing chamber, which has a capacity for more than one cigarette, so that successive cigarettes can be deposited in the device, without having to wait for extinguishing a previously deposited cigarette, and without having to operate the receiver to drop a cigarette, still burning, into the container of the device, in order to accommodate a following cigarette.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a perspective view of a device of the invention;

FIGURE 2 is a vertical transverse section taken on the line 2-2 of FIGURE 1; and

FIGURE 3 is a vertical longitudinal section taken on the line 3-3 of FIGURE 2.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated device comprises a preferably longitudinally elongated, and preferably rectangular container 10, of suitable fire-proof and heat-insulative material, having a flat bottom wall 12, having upstanding end walls 14 and 16, and side walls 18 and 18' thereon. The top of the container 10 is open and the walls have a common horizontal upper edge 20.

The top of the container 10 is closed by a removable cover assembly 22, which is preferably friction-fitted within the top of the container. The cover assembly 22 comprises a flat horizontal top wall 24, fitting the open top of the container and having depending shallow side flanges 26 which have some resilience in order to make good friction bearings against the inward sides of the container side walls 18 and 18', as shown in FIGURE 2. Depending from the top wall 24, at its ends, are thickened

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first and second end walls 28 and 30, which are of the full height and width of the interior of the container 10, and have free lower ends 32 which rest upon the container bottom wall 12 when the cover assembly is in place, as shown in FIGURE 3.

The cover assembly 22 further comprises a depending longitudinal trough or chute 34, formed by laterally spaced, downwardly converging walls 36 and 36', which extend downwardly from the sides of a longitudinal opening 38, provided in the top wall 24, at an offset location, nearer to the side wall 18' than to the side wall 18. The chute walls extend between and are suitably secured to the thickened end walls 28 and 30, and these end walls form the ends of the trough or chute 34.

Extending between and secured to the cover assembly end walls 28 and 30 and formed on the lower edges of the chute walls 36 and 36' are concentric arcuate concave-convex depending walls 40 and 40', which have free, laterally spaced lower edges 43 and 43', which are spaced upwardly from the container bottom wall 12. The arcuate wall 40' is shorter than the arcuate wall 40, and its lower edge 43' is spaced upwardly from the lower edge 43 of the arcuate wall 40. The arcuate walls 40 and 40' form a horizontal cylindrical cigarette extinguishing chamber 44.

The device further comprises a bladed rotor 46, which turns in the chamber 44 and is journaled, at its ends, in the thickened assembly end walls. As seen in FIGURE 3, the rotor 46 comprises a preferably solid core 48 which has a reduced diameter pintle 50 on one end thereof, which is journaled in a bearing hole 52 provided in the end wall 30, and an enlarged diameter disc 54 on its other end which is journaled in a circular opening 56 provided in the end wall 28. In addition, the core 48 has, extending axially outwardly beyond the disc 54, an axial reduced diameter extension 58. The extension 58 extends through a vertical slot 60 which is provided in the container end wall 14 and opens through its upper edge 20. A suitable operating knob 62 is suitably secured on the extension 58, as by means of a set screw 64.

The rotor 46 further comprises equally circumferentially spaced blades 66, formed on and projecting radially from the core 48, which are spaced from each other at distances equal to the distance between the upper edges of the trough walls 40 and 40', as seen in FIGURE 2. Instead of being flat-sided, the blades 66 have convexly rounded and radially outwardly tapered sides 68, which converge at their outward ends in relatively sharp edges 70. The edges 70, as seen in FIGURE 2, are in wiping contact with the concave inner surfaces of the arcuate extinguishing chamber walls 40 and 40'. In a preferred arrangement, the rotor 46 has six of the blades 66, and the chamber wall 40 is wide enough that, with the rotor 46 in a receiving position, which three adjacent blades 66 meeting the chamber wall 40, as in FIGURE 2, two cigarette holding and extinguishing cells 72 and 74 are defined, while, with respect to the arcuate wall 40' only one such chamber is defined. As a result, the instant device can hold at one time, in process of being extinguished, three cigarettes. Further, the rotor 46 can be rotated, by means of the knob 62, from a median or receiving position, shown in FIGURE 2, to a next receiving position, in either direction, so that an extinguished cigarette, in a lower cell 74, or 98, is dropped into the interior of the container 10, while a cigarette in an upper cell 72 or 100, in the process of becoming extinguished, is still confined by the chamber wall 40 or chamber wall extension and guide arm 94, and will not drop into the container in a still burning condition.

The outer edges of blades 66, being thin, instead of broad or thick edges, eliminate accumulation of cigarette debris thereon, and the jamming of the rotor 46 in the

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chamber 44 by reason of such accumulation. In addition, the thin outer edges of the blades 66 serve to scrape or wipe from the facing curved sides of the chamber walls, any matter which would otherwise accumulate thereon and interfere with free rotation of the rotor and cause offensive fumes to rise from the trough. Further, the close wiping contact of the blades 55 with the chamber walls 40 and 40', provides an efficient seal therewith, which prevents smoke and odors from the matter in the container, from escaping through the chamber 44, into the trough 34.

As seen in FIGURE 2, the spacing of the outer edges or ends of the rotor blades 66 is greater than the diameter of a cigarette C, but, at the inward ends of the blades, they and the rotor core are formed to provide arcuate seats or recesses 76, which are only slightly wider than a cigarette, and into which a cigarette dropped in the trough 34 is guided by the trough walls and the facing sides of the blades, so that unwanted circumferential shifting of cigarettes in the spaces between adjacent rotor blades is eliminated, in the interest of positively confined transits of cigarettes around the chamber 44, upon rotation of the rotor 46.

It is also to be noted that the close wiping contacts of adjacent rotor blades with trough walls 40, 40' effectively seals the extinguishing cells 72, 74 so that air, essential to continued burning of cigarettes in the cells, is effectively excluded, and desirably quick extinguishing of cigarettes in the cells is assured.

If desired, a cigarette ash receiving grill 78, composed of curvately depressed spaced bars 80 extending across an opening 82 leading into the container 18, may be provided in the cover assembly top wall 24 at one side of the trough, for the convenience of smokers' cigarette ashes.

Whenever it is desired to empty the container 10, the cover assembly 22 is lifted out of the container 10, utilizing the knob 62 to start this operation, the contents of the container dumped, and the cover assembly re-engaged in the container.

For shaking cigarettes out from between adjacent blades 66 of the rotor 46, when the rotor is rotated in a clockwise direction, as seen in FIGURE 2, a vibratory spring guide, generally designated 84, is provided. The guide 84 is formed of suitable flat metal sheet of adequate resilience and rigidity, extends from end to end of the interior of the container 10, and comprises a flat straight lower arm 86 which declines at an obtuse angle above the container bottom wall 12, from the container sidewall 18' to the other sidewall 18, whereat an end portion 88 is suitably anchored to the bottom wall 12, as indicated at 90. Formed on the elevated end of the lower arm 86 is an upstanding substantially perpendicular upper vertical arm 92, which is located close to and can bear upon the container sidewall 18'. The vertical arm 92 terminates at its upper end in a laterally inwardly and downwardly angled arcuate, concavo-convex arm 94, which has a convexly curved lower edge portion 96 which is located on a level with the underside of the rotor 46 and is in wiping contact with the edges of blades 66 when the rotor is rotated and when the rotor is stationary and in a cigarette-receiving position, as shown in FIGURE 2, so that a cigarette isolating chamber 98 is defined between two adjacent blades 66, below the isolating chamber 100 which blades define with the arcuate wall 40'.

The arcuate guide arm 94 has a curvature slightly less than that of the surface of the rotor 46 and is biased toward the rotor, so as to assure a wiping contact of the blades with the arcuate arm 94 and slight displacement by such contact. A bend 102 connects the upper end of the arm 94 with the upper end of the vertical arm 92 and is located between the chute wall 40' and the container sidewall 18', and engages behind the lower edge 43' of the wall 40', so that the arcuate arm 94 is prevented from being pressed too hard against the rotor 46 and to properly position the arcuate arm 94 with respect to the rotor.

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Between the bend 102 and the arcuate arm 94 is a convex cam projection 104 which reaches beneath the lower edge 43' of the chute wall 40' to be engaged by the edge 70 of a rotor blade 66, as the rotor 46 is rotated in a clockwise direction, as seen in FIGURE 2, so that the arm 94 is displaced away from the rotor 46 to the degree necessary to allow full rotation of the rotor while retaining wiping contact of the blades with the arm 94. Further, the cam projection 104 serves as a stop, when a blade 66 rests thereon, as shown in FIGURE 2, which holds the rotor against vrant rotation out of a cigarette-securing position. The vibration of the guide 84, which serves to vibrate the rotor, and thereby shake cigarettes from between adjacent blades, is produced by the above described displacement followed by the rebound of the arm 94 against blade edges, which occurs as a blade edge passes the cam projection 104, as the rotor is rotated. The slant of the lower arm 86 of the guide 84 serves as a ramp for conveying cigarettes toward the sidewall 18 and prevents accumulations thereof beneath the rotor 46, which might otherwise clog the rotor.

Although there has been shown and described herein a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A cigarette extinguishing ash tray comprising a closed container having a bottom wall, first and second end walls, and opposed side walls, said container having an open top, and a removable cover assembly engaged in the container through and closing said open top and carrying a cigarette receiving trough and cigarette extinguishing means beneath said trough, said extinguishing means comprising a cylindrical rotor chamber beneath and communicating with said trough and with the interior of the container, and a bladed rotor mounted on the assembly in said chamber, said chamber having arcuate side walls, said cover assembly comprising a top wall having an opening registered with said trough, end walls depending from said top wall at its ends and engageable with the inward sides of the container end walls, and means journaling said rotor at its ends in the cover assembly end walls, comprising an axial extension on an end of the rotor, a container end wall having a vertical slot having an open upper end opening to the upper edge of the end wall, said extension extending through the slot, and a knob fixed on said extension outside of the container.

2. A cigarette extinguishing ash tray comprising a closed container having a bottom wall, first and second end walls, and opposed side walls, said container having an open top, and a removable cover assembly engaged in the container through and closing said open top and carrying a cigarette receiving trough and cigarette extinguishing means beneath said trough, said extinguishing means comprising a substantially cylindrical rotor chamber communicating with said trough and with the interior of the container below the chamber, and a bladed rotor mounted in said chamber, said chamber having opposed arcuate side walls, said arcuate trough walls consisting of a first arcuate wall having a lower edge spaced above the container bottom wall, and a second arcuate wall having a lower edge spaced above the lower edge of the first arcuate wall, the blades of the rotor being spaced from each other around the rotor and having radial outward edges which extend close to the surfaces of the arcuate walls, and a vibratory spring guide mounted within the container beneath the trough, said guide having an arcuate arm disposed at one side of and biased toward the rotor at a location beneath the lower edge of the first chamber side wall, said arcuate

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arm having a concave side against which blade edges bear, said arcuate arm having a cam projection disposed beneath the lower edge of the second arcuate wall, serving as a stop for rotor blades and with which blade edges can engage to displace the arcuate arm away from the rotor as the rotor is rotated, passage of a blade edge across and beyond the cam projection serving to free the arcuate arm from displaced position to flex toward and strike the rotor, said guide further comprising a lower ramp arm extending across the interior of the container and having a free end portion anchored to the bottom wall, said lower arm having an elevated end, a vertical

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arm on and rising from said elevated end, and a bend on the upper end of the vertical arm connecting the upper end of the arcuate arm to the vertical arm.

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