Nov. 5, 1957 G. D. LEGGE 2,812,097

ASH TRAY

Filed Nov. 17, 1952 2 Sheets-Sheet 1

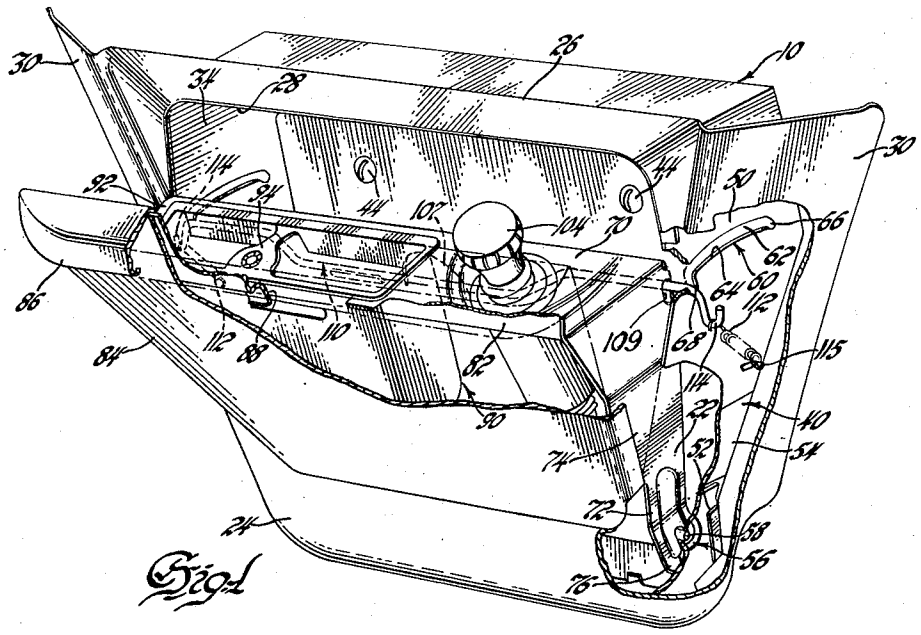


Fig. 1

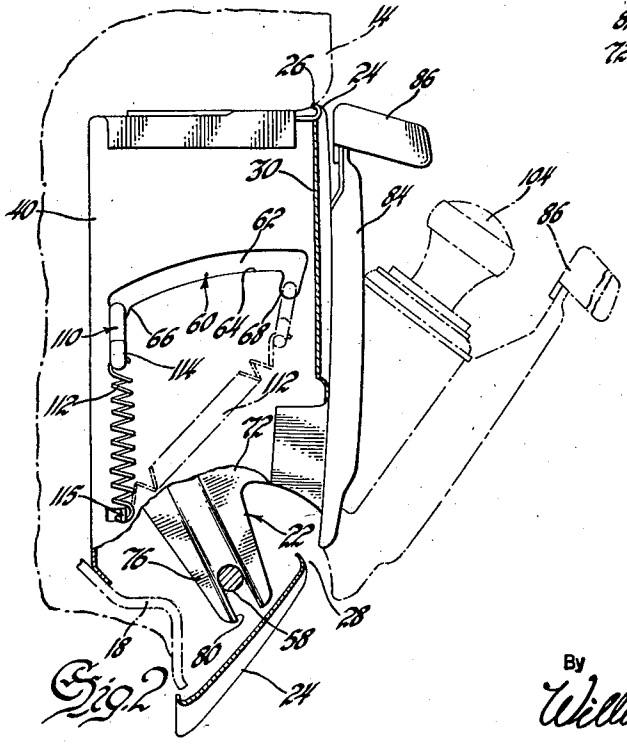


Fig. 2

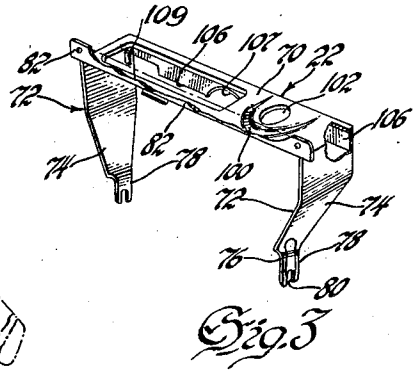


Fig. 3



Fig. 4

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ASH TRAY

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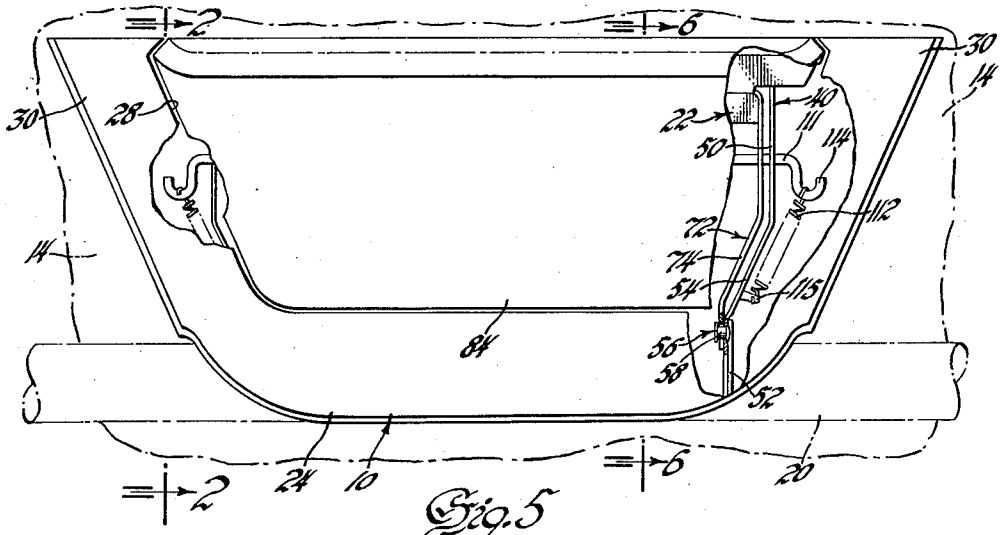


Fig. 5

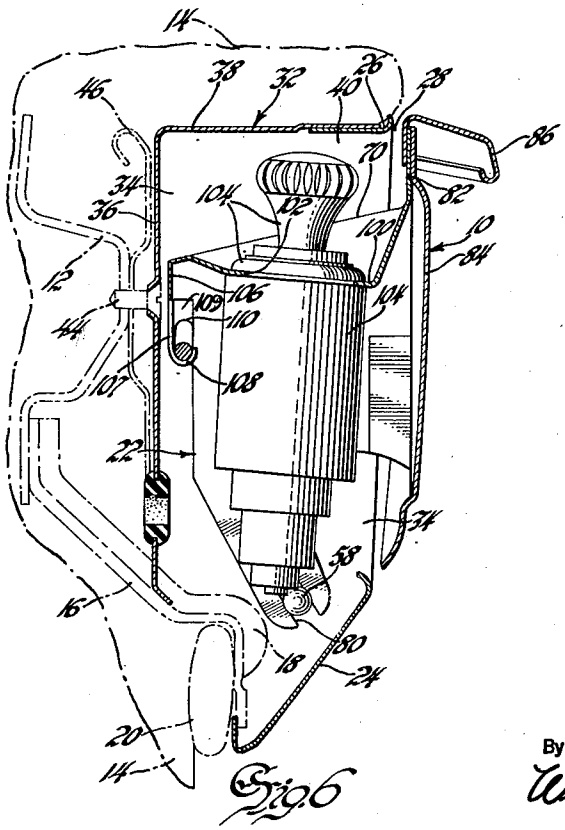


Fig. 6

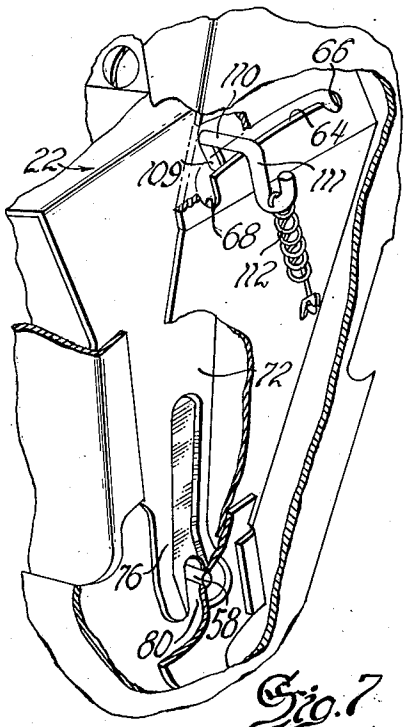


Fig. 7

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ASH TRAY

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6 Claims. (Cl. 220—18)

The present invention relates to cigarette ash trays and more particularly to ash trays in which the waste receptacle moves into and out of a chamber formed in a housing member.

In order to dispose of cigarette ashes and butts, etc. which may accumulate in an automotive vehicle, it is very desirable to provide a tray or receptacle for collecting such waste material. The ash trays presently installed on automotive vehicles frequently have a waste receptacle which is mounted for movement into and out of a chamber formed in a stationary housing member. This permits the waste receptacle, when not in use, to be retracted to a concealed position. This also will prevent the contents of the receptacle being blown about the interior of the automobile by drafts. In addition to having the waste receptacle tiltably mounted, it is desirable that the receptacle be removable for cleaning. However, as a result of the vibrations inherently present in a moving vehicle, an ash tray having an easily removable receptacle generally develops rattles and other objectionable noises. Not infrequently as such ash trays become worn they develop a tendency to shake and rattle from one position to another. Moreover, if the receptacle is entirely removable, the vibrations may even cause the receptacle to shake loose from its mounting and spill the contents therefrom. Numerous attempts have been made to overcome this difficulty by employing tightly fitting parts and elaborate springing arrangements. Such attempts have not proved to be entirely satisfactory as the ash trays frequently bind and become very difficult to operate.

Accordingly, it is proposed to provide an ash tray in which the waste receptacle is detachably positioned on a movably mounted frame. Since this substantially eliminates the necessity for removing the frame, a more permanent mounting means may be provided. Also since the ash tray is normally in the fully open or closed position, one set of mounting means may be provided for supporting the waste receptacle during movement thereof and another set of substantially rattle free mounting means may be provided for retaining the drawer in the open or closed position.

In the drawings:

Figure 1 is a perspective view of an ash tray embodying the present invention, a portion thereof being broken away to more clearly show the parts thereof.

Figure 2 is an end elevational view of the ash tray of Figure 1 secured to a vehicle seat which is shown by dot-and-dash lines.

Figure 3 is a perspective view of the movably mounted frame member which supports the waste receptacle.

Figure 4 is a perspective view of the wire follower that is releasably seated on the tiltable frame and slides on the cam surface.

Figure 5 is a front elevational view of the ash tray of Figure 1, a portion thereof being broken away to more clearly show the parts thereof.

Figure 6 is a cross-sectional view taken substantially along the plane of line 6—6 of Figure 5.

Figure 7 is a fragmentary perspective view on an enlarged scale showing the frame member in an intermediate position.

Referring to the drawings in more detail an ash tray 10 embodying the present invention may be mounted on any suitable structure, such as a bracket 12. The bracket 12 forms a part of the frame for an automobile seat 14 and extends across the back of the seat 14. A clamp 16 is secured to the bracket 12 so as to extend downwardly and outwardly to provide a support for the bottom of the ash tray 10. The clamp 16 may also have a hook 18 on the lower end thereof to compress a robe cord 20 against the back of the seat 14.

The ash tray includes a frame 22 which is pivotally mounted on a housing member 24. The housing member 24 has a front wall 26 with an aperture 28 intermediate the ends thereof. Front wall 26 may have extensions at each end thereof that form decorative wings 30 which are disposed along the back of the seat 14. The housing member 24 forms a chamber 34 that is accessible through the aperture 28, and includes a back wall 36, a top 38, and vertical end walls 40. The back wall 36 may be provided with one or more holes that permit the screws 44 to engage the bracket 12 and thus secure the ash tray 10 in position. It has been found advantageous to place a spring 46 between the back wall 36 and the bracket 12 to resiliently retain the ash tray 10 in position and thus reduce the tendency to rattle.

Although the end walls 40 are substantially vertical they may be bent to conform generally to the shape of the ends of the aperture 28. Thus, the upper and lower ends 50 and 52, respectively, of the walls 40 are substantially vertical while the middle portions 54 are slightly inclined. The lower ends 52 of each panel are provided with bearing means 56 for the frame 22 such as the aligned pins 58 that project into the chamber 34. The upper ends 50 of the end walls 40 have cam surfaces 60 which are formed by the lower edges of each of the slots 62. The cam surfaces 60 include arcuate portions 64 with recessed detents or stops 66 and 68 at each end thereof. The arcuate portions 64 of the surfaces 60 may be concentric with the pins 58 so as to guide and support the frame 22 during movement thereof while the stops 66 and 68 at each end thereof are positioned to retain the frame 22 in the opened or closed position.

The frame has a horizontal shelf 70 with downwardly projecting legs 72 at each end thereof. The legs 72 may have an inclined central portion 74 to provide a shape similar to the ends of the aperture 28 and the panels 40. The lower ends 76 of the legs are provided with bearing means 78 to cooperate with the bearing means 56 on the end panels 40 to permit the frame 22 to rotate and move radially. The ends 76 of the legs 72 are bifurcated to form open ended slots 80 that engage the pins 58. Thus, a pivot point will be provided for the lower end of the frame 22 that will allow the frame 22 to rise and fall as guided by the cam surfaces 60.

The forward edge of the shelf 70 may be struck upwardly to form a vertical lip 82. A decorative front 84 and a handle 86 for opening and closing the ash tray 10 are secured to this lip 82 by any suitable means. The front 84 is preferably of the same shape as the aperture 28 and is adapted to act as a closure member for the aperture 28 such that the exterior thereof will be substantially flush with the exterior of the support member 24. The shelf 70 has a substantially rectangular opening 88 that receives the ash receptacle 90. The receptacle 90 is preferably of such size and shape that it will be a friction fit in the opening 88. A flange 92 extending around the edge of the receptacle 90 will prevent it passing through the rectangular opening 88. A snuffer 94 may be positioned across the center of the receptacle 90 to provide a convenient means

for removing the receptacle **90** as well as a means for extinguishing cigarettes. If so desired a slightly depressed portion **100** having an opening **102** therethrough may be provided for an electric cigarette lighter **104** or other accessory.

The rear edge of the shelf **70** may be struck downwardly to form a flange **106**. The lower edge of the flange **106** is rolled forward to form a seat **108** for a follower **110**. The follower **110** is positioned on the frame **22** with the ends **111** projecting through the apertures **109** to ride on the cam surface **64** or to engage the stops **66** and **68** when in the open or closed positions. Although the follower **110** may be of any suitable construction, a wire member, as shown in Figure 4, has been found to be satisfactory. When the follower **110** is positioned in the seat **108** the ends **111** of the follower **110** will extend through the slots **62** in the end walls **40** and slidably engage the cam surfaces **60**. A notch **107** in the center of the flange **106** will provide convenient means of access for adjustment of the follower **110**. It has been found advantageous to secure a spring **112** between the hooks **114** at each end of the follower **110** and a bracket **115** on the end walls **40**. Such a springing arrangement will insure that the follower **110** engages the cam surfaces **60** at all times, thus reducing the possibility of rattling. If the spring **112** is mounted as shown in Figure 2 there will be a tendency for the spring to draw the follower **110** and frame **22** towards the closed position. Thus, once the follower is clear of the front detents **68** it will tend to be self closing.

When the frame **22** is in the closed position, the follower **110** will rest in the detents **66** at the rear of the cam surface **60** and thereby hold the ash tray **10** shut. If the ends **111** of follower **110** are in the detent **66** or **68**, the ends **111** will be lowered enough to disengage the upper ends of apertures **109** so that the pins **58** will engage the ends of slots **80** and thereby support the frame. Assuming it is desired to open the ash tray **10** the operator grips the handle **86** and simultaneously exerts a lifting and pulling force. The lifting force will overcome the tension of the springs **112** and raise the frame **22**. As the frame **22** rises the slots **80** will slide radially on the pins **58** and the follower **110** will be lifted clear of the stops **66**. As soon as the operator has raised the follower **110** clear of the stops **66**, the lifting force is relaxed into pulling force. Thus the follower **110** will engage the upper ends of the apertures **109** and support the frame **22** free and clear of the pins **58**. The frame **22** will be free to move forward, and the pulling force will cause the frame **22** to swing to the open position. If the rear stops **66** are inclined sufficiently, pulling on the handle **86** will cause the follower to slide on the incline and rise out of the stop **66**. When the follower **110** is in engagement with the arcuate portion **64** of the cam surface **60**, the frame **22** will be elevated above its opened or closed position. Thus, the pins **58** will not support the frame **22** but instead the follower **110** which engages the upper end of aperture **109** will carry the frame **22** from one position to the other. Thus, an easily actuated bearing means supports the frame **22** during movement thereof, while a substantially rattle free bearing means supports the frame when in its normal positions. When the frame **22** is fully open and the operator releases the handle **86**, the spring **112** will pull the follower **110** down into the stop **68** and lock the ash tray **10** in the open position ready for use.

To close the ash tray **10** when it is in the open position the operator lifts on the handle **86** until the follower **110** is clear of the forward stop **68**. As soon as the follower **110** is free of the stops the operator may push on the handle until the ash tray **10** is closed. When the frame **22** reaches the closed position the follower **110** will drop into the rear stops **66** and hold the frame **22** in the closed position. It should be noted that whenever the ash tray **10** is in the open or closed position, the follower **110** will be seated in one of the stops **66** or **68**. The spring **112** will normally urge the frame **22** downwardly until the pins **58** engage the bottom of the slots **80** thus supporting the frame **22**. This will not only hold the frame **22** in the desired position but it will reduce or entirely eliminate any tendency to rattle.

If it is desired to remove the ash receptacle **90** to empty it, the ash tray **10** is opened as previously described. The operator will then have access to the receptacle **90**. Since the receptacle **90** is only held in place by a friction fit, the operator manually pulls on the snuffer **94**. This will cause the receptacle **90** to be lifted free of the aperture **88** through the shelf **70**. To replace the receptacle **90** after it is emptied, it is again inserted into the aperture **88** and pressed into place.

To remove the entire frame structure **22** from the housing member **24**, the frame **22** is first moved to the open position. The operator then inserts his finger through the notch **107** in the flange **106** on the rear portion of the frame **22** and lifts on the wire follower **110**. When the follower **110** has been raised from the seat **108** formed by the rolled edge on the flange **106** at the back of the shelf **70** it is moved forward. As soon as the wire **110** is clear of the seat **108**, the frame **22** can easily be lifted clear of the pins **58** and removed from the chamber **34** formed by the housing member **24**. To replace the frame **22**, the slot **80** in the bifurcated legs **74** are placed over the pins **58** and the frame **22** swung inwardly until the flange **106** is adjacent the follower **110**. The operator then extends his finger through the notch **107** and moves the wire follower **110** until it is properly seated on the rolled edge **108**, thus making the ash tray again ready for use.

While but one embodiment has been shown it will be apparent to those skilled in the art that numerous modifications may be made without departing from the invention. It is therefore to be understood that the scope of the invention is to be limited only by the appended claims.

What is claimed is:

1. An ash tray comprising a support member having an aperture therethrough, means secured to said support member and forming a chamber opening through said aperture, said means including a pair of rearwardly projecting vertical panels secured to said member adjacent the horizontally opposite ends of said aperture, each of said panels having pivot means and an arcuate cam surface thereon disposed above and substantially concentric with said pivot means, a frame positioned on said pivot means for swinging movement into and out of said chamber, a cam follower on said frame projecting over said cam surface for slidably engaging said cam surface and carrying said frame when in such engagement, sets of recessed stops positioned at the opposite ends of said cam surfaces for receiving said follower when said frame is disposed either in or out of said chamber, pivot means on said frame positioned to cooperate with said pivot means on said panels to support said frame when said follower is disposed in one of said sets of stops, and a spring having one end thereof secured to said panel and the other end thereof engaging said follower and acting downwardly thereon for biasing said follower onto said cam surface and said pivot means together.

2. An ash tray comprising a support member having an aperture therethrough, means secured to said support member and forming a chamber opening through said aperture, said means including a pair of rearwardly projecting vertical panels secured to said member adjacent the horizontally opposite ends of said aperture, each of said panels having pivot means and an arcuate cam surface thereon disposed above and substantially concentric with said pivot means, a frame positioned on said pivot means for swinging movement into and out of said chamber, an ash receiving receptacle releasably secured to said frame by friction means, a cam follower on said frame projecting over said cam surface for slidably engaging said cam surfaces and carrying said frame when in such engagement, recessed stops positioned at opposite ends of said cam surfaces for receiving said follower when said frame is disposed either in or out of said chamber, pivot

means on said frame adjacent the bottom thereof for cooperating with the pivot means on said panels and being positioned to support said frame when said follower is disposed in one of said sets of stops, and a spring having one end thereof secured to said panel and the other end thereof engaging said follower and acting downwardly thereon for biasing said follower against said cam surface or into said stops.

3. An ash tray comprising a support member having an aperture therethrough, means secured to said support member and forming a chamber accessible through said aperture, said means including a pair of rearwardly projecting substantially vertical panels secured to said member adjacent the horizontally opposite ends of said aperture, a pin projecting horizontally from each of said rearwardly projecting panels, each of said panels having arcuate cam surfaces thereon disposed above and substantially concentrically of said pins, a frame having slots on the lower end thereof slidably engaging said pins to permit said frame to rotate about said pin and move normal thereto during movement of said frame into and out of said chamber, an ash receiving receptacle releasably secured to said frame by friction means, a cam follower on said frame projecting over and slidably engaging said cam surfaces and carrying said frame when in said engagement, recessed stops positioned at the opposite ends of said cam surfaces, the bottoms of said stops being disposed closer to said pins than said cam surfaces for receiving said follower when said frame is either in or out of said chamber, and spring means having one end thereof secured to said panels and urging said follower downwardly into engagement with said cam surfaces and said stops.

4. An ash tray comprising a support member having an aperture therethrough, means secured to said support member and forming a chamber opening through said aperture, said means including a pair of substantially vertical rearwardly projecting panels secured to said member adjacent the horizontally opposite ends of said aperture, each of said panels having an arcuate cam surface adjacent the tops thereof, a frame positioned for swinging movement into and out of said chamber, a seat extending longitudinally of said frame and being accessible through a normally concealed opening in said frame, an elongated wire cam follower releasably disposed on said seat so as to be accessible through said normally concealed opening for release therefor, the opposite ends of said follower projecting from said frame and over said cam surfaces for sliding engagement with said cam surfaces for carrying said frame when in engagement therewith, recessed stops positioned at each end of said cam surfaces for receiving said follower when said frame is disposed either in or out of said chamber, and a pin positioned on each of said rearwardly projecting panels adjacent the lower ends thereof and disposed substantially axially of said cam surfaces, and slots on said frame slidably engaging said pins to permit said frame to rotate about said pins and to move in a radial direction about said pin, said pins being positioned substantially concentric of said cam surfaces and adapted to support said frame when said follower engages said stops, and a spring having one end thereof secured to said panel and having the other end thereof engaging said follower.

5. An ash tray comprising a support member having an aperture therethrough, a pair of substantially vertical panels secured to said support adjacent the horizontally opposite ends of said aperture and projecting rearwardly from said support member, a pin projecting horizontally from each of said panels adjacent the lower edge of said aperture, a cam surface on each of said panels comprising an arcuate portion which is disposed above and substantially concentric with said pin, and detent notches at each end of said arcuate portion, a frame positioned in said aperture and including slots fitting over said pin to allow swinging movement of said frame through said aperture and sliding movement radially about said pin, an ash receptacle on said frame, an elongated wire follower releasably seated on said frame and extending longitudinally thereof with the opposite ends thereof projecting from the ends of said frame and over said cam surfaces, said ends of said wire follower slidably engaging said cam surfaces and carrying said frame when in engagement with said arcuate portions of said cam surfaces and forming hooks adjacent said panels, said pins being positioned for supporting said frame when said follower is disposed in said notches, and a spring having one end thereof secured to said panel and having the other end thereof secured to said hooks for biasing said follower against said cam surfaces and said frame onto said pins.

6. An ash tray comprising a support member having an aperture therethrough, a pair of substantially vertical rearwardly projecting panels secured to said support adjacent the horizontally opposite ends of said aperture, a pin projecting horizontally from each of said panels adjacent the lower edge of said aperture, a cam surface on each of said panels comprising an arcuate portion which is disposed above and substantially concentric with said pin, notches at each end of said arcuate portion disposed closer to said pins than said arcuate portion to form stops, a frame positioned for swinging movement through said aperture, an ash receptacle releasably secured to said frame by friction means, an elongated wire follower detachably secured to said frame and slidably engaging said cam surface and carrying said frame when in engagement with the arcuate portion of said cam surface, said frame being slotted adjacent its bottom, said frame slots slidably engaging said pins and rotatably supporting said frame when said follower is disposed in said notches, and a spring having one end thereof secured to said panel and the other end thereof secured to said follower, said spring urging said follower downwardly toward said cam surfaces and said notches.

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