ASH TRAY ASSEMBLY

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ABSTRACT

An ash tray assembly of the type utilized in automotive vehicles including an integral one-piece plastic receptacle and a metal support adapted for attachment to the vehicle structure. The receptacle has opposite sides and the support has sides disposed adjacent the sides of the receptacle. A pair of projections extend from the opposite sides of the receptacle and are guided along grooves in the sides of the support. The lower groove on each side has a pocket and the upper groove an arcuate portion struck about the pocket for facilitating rotary movement of the receptacle between open and closed positions. The upper groove on each side has a transversely extending portion extending upwardly from the arcuate portion and the lower groove on each side has a parallel portion extending generally parallel to the transverse portion from the pocket. Additionally, the grooves include removal portions extending parallel to one another and laterally away from the parallel and transverse portions respectively to the extremity or edge of the sides of the support plate for facilitating removal of the receptacle.

13 Claims, 4 Drawing Figures
ASH TRAY ASSEMBLY

The instant invention relates to an ash tray assembly of the type utilized in automotive vehicles. Typically, such ash tray assemblies are disposed in the dashboard of an automobile and may be moved between open and closed positions. Besides having the ability of being moved between open and closed positions, it is also necessary to provide such assemblies with the capability of removing the receptacle for emptying the receptacle.

Ash tray assemblies are typically fabricated so that the receptacle may be slid linearly out of the dashboard, or pivoted or rotated out of the dashboard to the open position. Typically, ash tray assemblies may be moved to the fully opened position and are prevented from being removed from their bracket by a tab in the center of the ash tray which latches with the bracket and which tab must be depressed for removing the receptacle. Examples of such ash trays are shown in U.S. Pat. Nos. 2,048,363 and 2,159,062. The problem with such assemblies is that the latch is a movable part and one-piece construction is not facilitated.

Also, prior art ash tray assemblies have utilized guides or grooves for guiding projections, however, such assemblies have required additional parts such as springs to control the positioning of the receptacle. An example of such an assembly is shown in U.S. Pat. No. 3,572,871. The difficulty with such an assembly is of course the additional components required.

Accordingly, it is an object and feature of this invention to provide an ash tray assembly including a receptacle means for receiving refuse and a support means for supporting the receptacle means and connection means interconnecting the receptacle means and the support means for allowing the receptacle means to move between open and closed positions and for allowing the receptacle means to be removed from the support means and wherein the connection means includes a pair of first and second guides and a pair of first and second followers with the first follower being guided by the first guide and the second follower being guided by the second guide but without requiring additional components or moving parts.

In correlation with the foregoing object and feature, it is another object and feature of this invention to provide such an assembly wherein the first guide includes a pocket for the first follower and the second guide includes an arcuate portion struck in an arc about the pocket so that the second follower is guided therealong as the receptacle means is moved between the open and closed positions.

In correlation with the foregoing objects and features, it is another object and feature of this invention to provide such an assembly wherein the first and second guides include portions extending from the pocket and arcuate portions, respectively for guiding movement of the projections therealong for facilitating removal of the receptacle from the support means.

Other objects and attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is a side elevational view of a preferred embodiment of the instant invention;
FIG. 2 is a view taken substantially along line 2—2 of FIG. 1;
FIG. 3 is a view taken substantially along line 3—3 of FIG. 1 with the assembly partially broken away and shown in cross section; and
FIG. 4 is a side elevational view partially broken away and in cross section, similar to FIG. 1, but showing the assembly in the open position.

An ash tray assembly of the type utilized in automotive vehicles and constructed in accordance with the instant invention is generally shown at 10.

The assembly 10 includes a receptacle means 12 for receiving refuse. In the preferred embodiment, the receptacle means 12 is a one-piece integral plastic member. The receptacle means 12 includes opposite and generally parallel sides 13. The plastic may be of the thermo-setting type having a very high heat resistance. An example of one such material which may be utilized is that which is sold under the trademark "GENAL" by General Electric.

The assembly 10 also includes a support means 14 for supporting the receptacle means 12. The support means 14 preferably takes the form of a metal casing having a top and a pair of spaced downwardly extending side walls disposed adjacent to the sides of the receptacle means 12.

The support means 14 also includes means for attachment to a vehicle structure, such means includes the upwardly extending portion 15 and the cantilevered portion 16 and the downwardly extending legs 18. The cantilevered portion 16 has holes 20 therein and the legs 18 have holes 22 therein for receiving fasteners for attaching the assembly to a vehicle structure.

The assembly also includes connection means generally indicated at 24 for interconnecting the receptacle means 12 and the support means 14 for allowing the receptacle means 12 to move between an open position illustrated in FIG. 4 and the closed position illustrated in FIG. 1.

The connection means 24 also allows the receptacle means 12 to be removed from the support means 14. The connection means 24 includes a pair of first and second guides and a pair of first and second followers with the first follower being guided by the first guide and the second follower being guided by the second guide. The first guide comprises a groove generally indicated at 26 and the second guide comprises a groove generally indicated at 28. The grooves are disposed in the side walls of the metal support means 14. These grooves also may be described as arcuate recesses, troughs, etc., extending outwardly in opposite directions from the opposite sides of the receptacle means 12. The first follower comprises a semi-spherical projection 30 extending from and integral with a side 13 of the receptacle means 12. The second follower comprises a semi-spherical projection 32 integral with and extending from a side 13 of the receptacle means 12. As is clear from the drawings, there are a pair of first and second guides or grooves 26 and 28 and a pair of first and second followers or projections 30 and 32 on each of the sides of the receptacle means 12 and support means 14.

The first guide or groove 26 includes a pocket 34 for the first follower or projection 30. Actually, the pocket 34 is the bottom or terminal end of the guide or groove 26 and rotatably supports the follower or projection 30.

The second guide or groove 28 includes an arcuate portion 36 which is struck in an arc about the pocket 34 so that the second follower or projection 32 is
guided along the arcuate portion 36 as the receptacle means 12 is moved between the open position shown in FIG. 4 and the closed position shown in FIG. 1. It will be understood that the arcuate portion 36 extends in a circular arc having a center at the center of the projection 30 or at the center of the pocket 34.

The first and second guides or grooves 26 and 28 include portions which extend from the pocket 34 and the arcuate portion 36, respectively, to an extremity or edge 38 of the support means for facilitating removal of the receptacle means 12 from the support means 14. More specifically, the second guide or groove 28 includes a transverse portion 40 which extends upwardly and generally transverse to the arcuate portion 28 and the first guide or groove 26 includes a parallel portion 42 which extends from the pocket 34 upwardly in a direction generally parallel to the transverse portion 40. Additionally, the first and second guides or grooves 26 and 28 include removal portions 44 and 46, respectively, which are generally parallel to one another and extend from the parallel and transverse portions 42 and 40, respectively, to the extremity or edge 38 of the support means for facilitating or allowing the removal of the receptacle means 12 from the support means 14. The removal portions 44 and 46 terminate in fanned portions 48 which facilitate the insertion of the projections 30 and 32 into the guides or grooves 26 and 28. It will be appreciated that in some configurations all that would be necessary would be for the portions 40 and 42 extending from the arcuate and pocket portions, respectively, to an extremity of the support means without requiring the additional parallel removal sections 44 and 46. As will be appreciated from the drawings, the portions 42 and 44 together form an L-shaped portion extending from the pocket 34 and the portions 40 and 46 form a generally L-shaped portion extending from the arcuate portion 36.

In operating the assembly the receptacle means is normally in the closed position shown in FIG. 1 wherein the follower or projection 32 abuts the rear terminal end of the second guide or groove 28. To utilize the ash tray assembly, the receptacle means 12 is manually grasped and rotated to the open position shown in FIG. 4. As the receptacle means 12 moves to the open position, the follower or projection 30 rotates in the pocket 34 and the follower or projection 32 moves along the guide or groove 28. The opening of the receptacle means 12 is limited as the follower or projection 32 engages the opposite or forward extremity of the guide or groove 28.

It is desired to remove the receptacle means 12 for the purpose of emptying, the receptacle means 12 is manually grasped and moved upwardly so that the follower or projection 30 moves upwardly along the parallel portion 42 and the follower or projection 32 moves upwardly along the transverse portion 40. When the followers or projections 30 and 32 are aligned with the removal sections 44 and 46, the receptacle means 12 is pulled outwardly to move the follower or projection 30 along the removal portion 44 and to move the follower or projection 32 along the removal portion 46. Of course, to replace the receptacle means 12 in the support means 14, the operation is reversed.

The invention has been described in an illustrated manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An ash tray assembly of the type utilized in automotive vehicles comprising: receptacle means for receiving refuse, support means for supporting said receptacle means, connection means interconnecting said receptacle means and said support means for allowing said receptacle means to move between open and closed positions and for allowing said receptacle means to be removed therefrom, said connection means including a pair of first and second guides and a pair of first and second followers, said first follower being guided by said first guide and said second follower being guided by said second guide, said first guide including a pocket for said first follower and said second guide including an arcuate portion struck in an arc about said pocket so that said second follower is guided therealong as said receptacle means is moved between said open and closed positions.

2. An assembly as set forth in claim 1 wherein said first guide includes a pocket for said first follower and said second guide includes an arcuate portion struck in an arc about said pocket so that said second follower is guided therealong as said receptacle means is moved between said open and closed positions.

3. An assembly as set forth in claim 1 wherein said first and second guides include portions extending from said pocket and arcuate portions respectively to an extremity of said support means for facilitating removal of said receptacle means from said support means.

4. An assembly as set forth in claim 1 wherein said second guide includes a transverse portion extending transversely to said arcuate portion and said first guide includes a parallel portion extending from said pocket in a direction generally parallel to said transverse portion of said second guide.

5. An assembly as set forth in claim 4 wherein said first and second guides also include removal portions generally parallel to one another and extending from said transverse and parallel portions respectively to an extremity of said support means for allowing the removal of said receptacle means.

6. An assembly as set forth in claim 5 wherein said receptacle means includes opposite and generally parallel sides and said connection means includes a pair of said first and second guides and a pair of said first and second followers on each of said sides.

7. An assembly as set forth in claim 5 wherein said guides comprise grooves and said followers comprise projections.

8. An assembly as set forth in claim 7 wherein said grooves are in said support means and said projections extend from said receptacle means.

9. An assembly as set forth in claim 8 wherein said receptacle means includes opposite and generally parallel sides and said connection means includes a pair of said first and second guides and a pair of said first and second followers on each of said sides.

10. An assembly as set forth in claim 9 wherein said receptacle means is made of plastic.
11. An assembly as set forth in claim 10 wherein said support means is made of metal.
12. An assembly as set forth in claim 11 wherein said support means includes a pair of spaced side walls disposed adjacent to said sides of said receptacle means.

13. An assembly as set forth in claim 12 wherein said support means includes means for attachment to a vehicle structure.