

Feb. 3, 1959

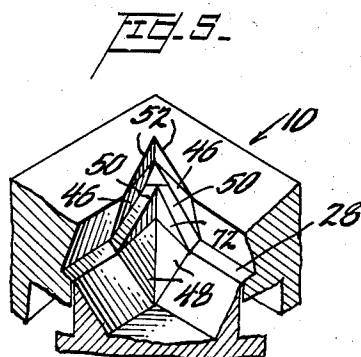
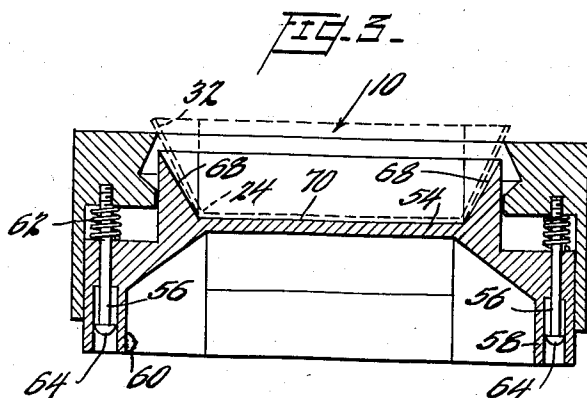
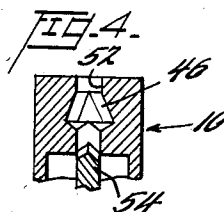
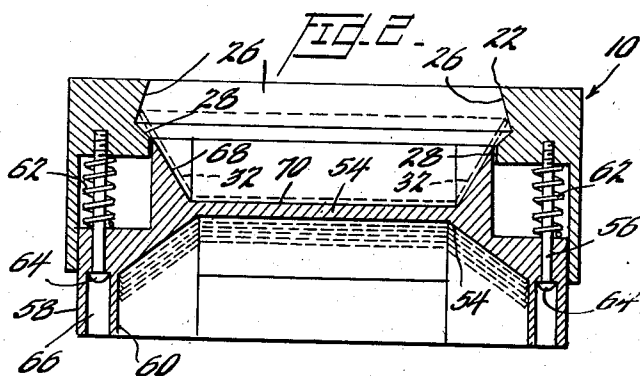
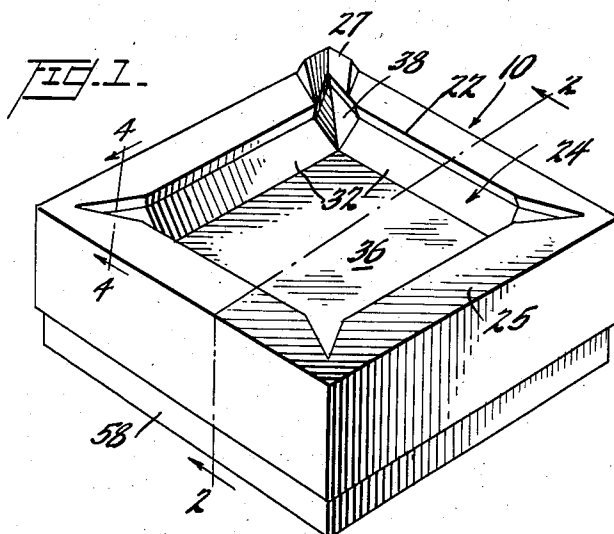
W. J. C. GESSNER ET AL

2,872,067

AUTOMATIC EJECTION ASH TRAY

Filed May 14, 1956

2 Sheets-Sheet 1



INVENTOR

Edward H. Gessner

William J. C. Gessner

BY Watson, Cole, Krindle & Watson

ATTORNEY

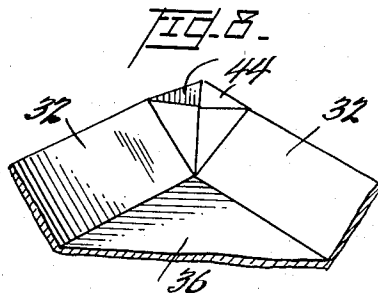
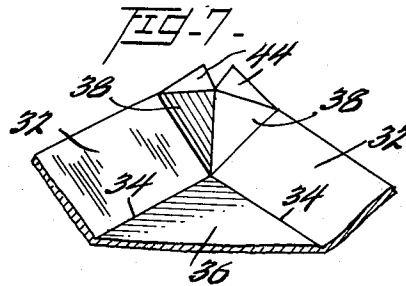
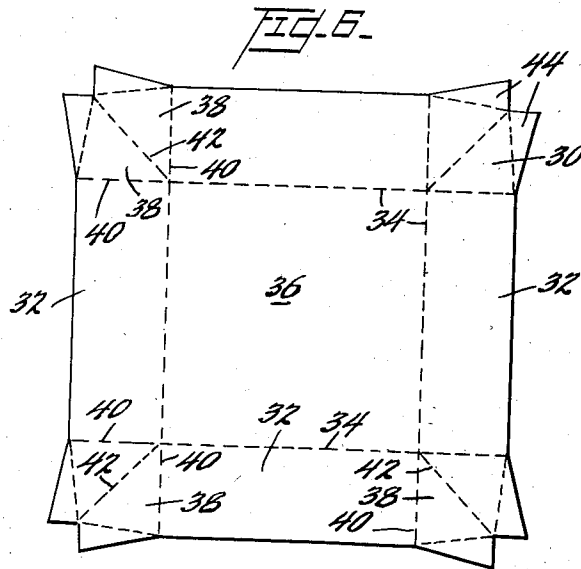
Feb. 3, 1959

W. J. C. GESSNER ET AL
AUTOMATIC EJECTION ASH TRAY

2,872,067

Filed May 14, 1956

2 Sheets-Sheet 2



INVENTOR

Edward H. Gessner

William J. C. Gessner

BY Watson, Cole, Grindle & Watson

ATTORNEY

1

2,872,067

AUTOMATIC EJECTION ASH TRAY

William J. C. Gessner, Philadelphia, and Edward H. Gessner, Norristown, Pa.

Application May 14, 1956, Serial No. 584,804

14 Claims. (Cl. 220—65)

This invention relates to an ash tray structure utilizing disposable ash trays of flexible material, removably supported in a rigid holder in such manner as to facilitate their rapid and efficient ejection and replacement. The invention includes novel features of the construction of the holder and associated ash tray ejector, as well as of the disposable trays, both in combination with the holder structure and as a separate article of manufacture.

Important aspects of the invention consist in: utilization of the holder to erect and maintain the shape of the flexible sheet material trays; utilization of the inherent resiliency of the trays to retain them against inadvertent ejection from the holder; disposition of the holder to resiliently deflect inwardly the sides of the tray incident to and in order to permit ejection thereof; whereby the ensuing lateral expansion of said sides following ejection, will support the tray in ejected position pending its complete removal from the holder.

An additional feature of the invention consists in the provision of inwardly deflectable marginal sides forming a continuous enclosure around the tray, in combination with an aperture within the holder adapted to receive said tray and to support its deflectable sides, while contiguously engaging same at all points to prevent the passage of ashes between the sides of the tray and said aperture. Preferably the arrangement is such that the said contiguous engagement will be maintained during ejection of the tray.

Still further features consist in the combination of the holder with an ejector actuated merely by downward pressure on the holder; the formation of a supply compartment for trays in the ejector; and in the use of the ejector for operatively supporting the trays in proper position in the holder.

The foregoing features and advantages are all attained by the preferred embodiment of the invention, illustrated by way of exemplification in the accompanying drawings, in which:

Figure 1 is a perspective view of the holder and ejector structure of the invention with a disposable tray operatively positioned therein;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2, but with the parts in a different operative position;

Figure 4 is a section on the line 4—4 of Figure 1;

Figure 5 is a fragmentary enlarged perspective view of the internal corner construction of the holder and ejector;

Figure 6 is a plan view of the blank from which the trays of the preferred embodiment are formed;

Figures 7 and 8 are similar fragmentary perspective views showing a corner of the tray in partially erected and fully erected positions, respectively.

In addition to various specific features hereinafter described, the invention includes the basic concept of a substantially rigid holder or frame 10 which, as shown in Figures 1 to 3 functions to define an aperture 22 within which is received and supported a disposable

2

tray or container 24. The tray 24 includes relatively outwardly and upwardly diverging sides 32, which are resiliently inwardly deflectible for reasons apparent hereinafter. It will be seen that the frame 10 provides a substantially rigid marginal rim 25 around the tray 24, and such rim may be provided with one or more conventional cigar or cigarette supports, as generally indicated at 27.

The aperture 22 is defined by relatively upwardly converging marginal walls, including the walls 26, the upper edges of which define the mouth of aperture 22. Inwardly projecting means, such as ledge 28 below the mouth of the aperture may serve to support the tray or container 24 within the aperture at a predetermined level below its mouth.

As may be readily seen in the drawings, each container 24 in the preferred embodiment comprises relatively outwardly and upwardly diverging inwardly yieldable marginal sides 32 which may constitute integral portions folded up along score lines 34 from the horizontal bottom 36 of a blank of fire-resistant cardboard, or other fire resistant flexible sheet material, as illustrated in Figure 6.

In the embodiment shown, the trays 24 and their cooperating aperture 22 in the holder 10, are of generally rectangular configuration. However, from a broad standpoint it will be apparent that the specific shape of the aperture 22 and trays 24, is not essential to the invention, it being essential only that the upper peripheral edges of the container sides 32 be resiliently laterally inwardly deflectible for cooperation with the holder 10.

The overhanging walls 26 of the holder normally retain the tray 24 against upward displacement and, due to their snug overhanging engagement with the tray sides 32, insure that substantially all ashes or other material received in the mouth of the aperture 22, will fall into the tray.

Exploring the present inventive concept somewhat further, it will be apparent that the holder 10 and its associated tray or container may constitute a complete operative combination, without the necessity for other parts. In such event, the tray 24, when filled, may be manually upwardly displaced and ejected through the mouth of recess 22. Responsive to upward movement of the tray, the upwardly converging walls 26 of the holder will cam or deflect inwardly the sides 32 of the tray until they pass upwardly through the mouth of aperture 22, following which their resilient outward expansion will cause them to overlie the rim 25 of the holder, as in Figure 3, to thereafter support the tray in a position such that it may be readily grasped and removed from the holder.

In order to prevent spillage of ashes through the corners of the container, between the adjoining ends of its rectangular sides 32, it is desirable to form the blank of Figure 6 with corner extensions or webs 38 interconnecting such adjoining sides and foldable upwardly therewith to provide a continuous marginal wall around the flat bottom 36 of the container. Each such extension comprises triangular portions or sections 38, respectively interconnected along fold lines 40 to the adjacent end edges of each adjoining pair of sides. These sections are foldably interconnected to each other along a diagonal fold line 42 bisecting the angle between the fold lines 40.

As shown in the drawings, these trays or containers, when erected from the blank of Figure 6, have their sides 32 folded upwardly in outwardly diverging relation, and the said extensions 38 project outwardly from the respective corners of the container. If desired, the triangular extension sections 38 may have triangular wings or supplements 44 foldably connected thereto along their respective upper edges, the wings 44 being so shaped that, in the erected condition of the container, their upper

edges lie in a common horizontal plane with the upper edges of sides 32.

In order to adapt the holder 10 for cooperation with a container including such extensions 38, the aperture 22 therein includes outwardly extending corner portions, each defined by outwardly converging walls 46 (Fig. 5) which preferably will also converge upwardly to maintain a snug engagement with the extensions 38 during ejection movement of the trays or containers, and thus avoid spillage of ashes into corner portions 48. The supporting ledge 28 aforementioned preferably has projections 50 extending into these corner portions. It will be noted that the corner wall sections 52 are disposed vertically to avoid interference with the upwardly moving extensions 38 during ejection of the container.

While, as above mentioned, the holder 10 may function by itself to support the container and maintain it in erected condition, it is desirable to provide an automatic ejector and support 54 for use in combination with the holder.

Thus, the ejector 54 is guided for ejection movement upwardly through the aperture 22 in holder 10, preferably by means of guide bolts 56 threaded into said holder and slidable through the base portion 58 of the ejector. The base 58 is adapted to rest on a flat surface and may conveniently be provided with a downwardly opening compartment 60 adapted to receive and frictionally retain a supply of the inverted containers 24 in nested condition, ready for use whenever needed.

Normally, the holder 10 is resiliently supported above the base by springs 62 disposed about the bolts 56 under compression between the base 60 and said holder. Upward movement of the holder is limited by engagement between the heads 64 of the bolts and the upper ends of the enlarged counterbores 66 within the base 58. The bolt heads 64 thus may function to maintain ejector 54 at the proper level for normally supporting the container within holder 10, in which event the ledge portions 28 and 50 may be omitted. Obviously, by merely pressing downwardly on the holder, the ejector 54 will be caused to eject the container 24 upwardly through the mouth of aperture 22, as shown in Figure 3.

Preferably, the ejector 54 is shaped in conformity with the mouth of the aperture 22, and is provided on its upper face with a recess shaped to conform to and snugly receive the lower portion of the container. Thus, the recess includes sloping sides 68 for receiving and supporting the sides 32 of the container, a flat bottom 70 conforming in size and shape to tray bottom 36, and outwardly projecting corner supports 48 shaped to receive and support the corner extensions 38 of the tray, and in particular to prevent downward deflection and binding of these extensions such as might otherwise result incident to their ejection through the corner wall portions 46 of the holder.

Thus, in the use of the invention, one of the blanks such as shown in Figure 6, either in flat condition as shown in Figure 6, or in partly erected condition corresponding to the supply of blanks in the compartment 60 (and as shown fragmentarily in Figure 7), is placed with its bottom in registry with the aperture 22. Downward pressure on its bottom 36 will move it downwardly into the aperture 22 until it seats against the bottom 70 of the recess. Meanwhile, the constricting action of the mouth of aperture 22 on the tray sides 32 will have folded them upwardly and they will be retained in properly erected condition by the sloping sides 68 of the recessed ejector 54, as well as by engagement of their upper edges with the wall 26. At the same time, the corner extensions 38 of the tray will be received in and conform to the sloping corner portions 48 of the recess. The overhanging walls or wall portions 26 and 46 within the aperture 22 will then serve to retain the tray seated in the upper end of ejector 54.

Where the wings 44 are provided on the tray corners, these will be positioned in vertical planes with their ad-

joining edges in abutment by vertically disposed corner wall segments 72 in the ejector recess, the erected vertical positions of these wings being shown in Figure 8.

When the tray 36 with its contents is subsequently ejected for disposal by downward pressure on the holder rim 25, and the consequent action of the ejector 54, the sides 32 of the tray will be deflected inwardly by the walls 26, as aforementioned. The corner extensions 38 will similarly be deflected toward each other, incident to such inward deflection of the sides 32 and also by the upwardly converging corner wall portions 46 of the aperture in holder 10.

Removal of the downward pressure on rim 25 will permit upward return movement of the holder 10, carrying with it the ejected tray which will be supported in the mouth of aperture 22 for subsequent removal.

It will thus be apparent that there is provided a novel and highly useful holder for disposable ash trays or other containers, as well as a novel combination and mode of cooperation between such holder and the trays, and in addition a specifically new and useful form of disposable tray.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An ash tray structure comprising a rigid holder having an upwardly opening mouth therein defined by inwardly presented relatively upwardly converging walls, an ejector disposed in said holder for movement upwardly through said recess, means normally positioning the said ejector a predetermined distance below said mouth, a container of flexible sheet material resting on said ejector and having upwardly diverging resiliently inwardly deflectible sides, the upper edges of which are normally in snug conforming engagement with and confined by said upwardly converging walls at locations spaced below said mouth, whereby said walls overhang and project inwardly above the sides of said container to prevent inadvertent displacement of the container and to direct material therinto, and means for moving the ejector toward the mouth of said container to eject said container upwardly through said mouth, said upwardly converging walls serving to cam said sides of the container inwardly for passage through said mouth, and the ensuing resilient outward expansion of said sides causing them to overlie said mouth and be vertically supported in ejected position following retraction of the ejector.

2. The combination of claim 1 wherein said container comprises a polygonal bottom having upwardly folded rectangular sides, and corner extensions interconnecting and closing the space between adjacent sides, each said extension being of rectangular configuration foldably connected along adjoining marginal edges to adjacent end edges of a pair of adjoining sides, said extension being folded diagonally along a line intersecting the adjoining corner of said bottom, to permit upward folding of said sides to provide a continuous peripheral wall for said container.

3. The combination of claim 1 wherein said container comprises a polygonal bottom having upwardly folded rectangular sides, and corner extensions interconnecting and closing the space between adjacent sides, each said extension being of rectangular configuration foldably connected along adjoining marginal edges to adjacent end edges of a pair of adjoining sides, said extension being folded diagonally along a line intersecting the adjoining corner of said bottom, to permit upward folding of said sides to provide a continuous peripheral wall for said container, and triangular wings foldably connected along the upper edges of said extensions and having upper edges in a common horizontal plane with the upper edges of said sides, in the upwardly folded condition of the latter.

4. The combination of claim 2 wherein the recess within said holder conforms in horizontal cross-section to the said container, and said walls are in snug engagement

5

with the upper edges of said sides and said extensions around the entire perimeter of said container.

5. A receptacle comprising a holder formed with an upwardly opening recess therein, said holder having relatively upwardly converging marginal walls terminating upwardly in a common horizontal plane to define the mouth of said recess, and a bottom lying within the plan outline of said mouth, a sheet material tray resting on said bottom and having a bottom of smaller area than said mouth and relatively upwardly diverging inwardly deflectible sides, the upper edges of which are normally in snug conforming engagement with said walls at locations below the mouth of said holder, whereby said walls may overhang said sides to resist vertical displacement of the tray, and upon upward displacement of the tray will cam said sides inwardly to permit passage of the tray through said mouth.

6. A receptacle comprising a holder formed with an upwardly opening recess therein, said holder having relatively upwardly converging marginal walls the upper edges of which jointly define a mouth from said recess, a flexible sheet material container in said recess having relatively upwardly diverging sides, the upper peripheral edges of which define the maximum horizontal cross sectional area of said container and are inwardly deflectible, means supporting said container in said recess at a level wherein its said upper peripheral edges are spaced below the mouth of said recess, the outline of said edges being similar in plan to the horizontal cross sectional shape of said recess, and proportioned to snugly conformingly engage said marginal walls when so positioned.

7. The combination of claim 6 including ejector means for urging said container upwardly through the mouth of said recess.

8. The combination of claim 6 wherein said bottom is defined by an ejector element, mounted in said holder for movement upwardly toward the mouth of said recess to eject the container therethrough.

9. The combination of claim 8, including resiliently yieldable means for positioning said ejector element at a level for normally supporting the container with its upper peripheral edges below the mouth of said recess.

10. The combination of claim 9, including a supporting base for the holder, rigidly connected to said ejector element, whereby downward pressure on the holder will cause ejection of said container.

6

11. A support for collapsible containers comprising a tray holder formed with an upwardly opening recess thereon, said holder having relatively upwardly converging walls the upper edges of which define a mouth for said recess, means for supporting a container in said recess at a level below the said mouth, and an ejector movable upwardly in the recess towards its mouth to eject the container therethrough.

12. The combination comprising a holder having an aperture extending vertically therethrough, said holder having relatively upwardly converging walls the upper edges of which define a mouth for said aperture, an ejector normally positioned in said recess for supporting a container below said mouth, means resiliently urging said ejector downwardly toward its normal position in said recess, said ejector including a base portion extending downwardly through said recess to support said holder in spaced relation above a flat surface whereby downward pressure on the holder will cause relative upward movement of the ejector therein.

13. The combination of claim 12 wherein said base portion is formed with a downwardly opening compartment for the reception of a supply of containers.

14. An ash tray comprising a frame-like holder formed with an aperture extending vertically therethrough, and having relatively upwardly converging marginal walls the upper edges of which define the mouth of said aperture, an inwardly projecting ledge within the aperture below said mouth, a flexible sheet material container in said aperture having relatively upwardly diverging resiliently inwardly yieldable sides resting on said ledge and thereby positioned with the upper edges of said sides below and extending laterally outwardly beyond the plan outlines of said mouth, whereby said sides will be inwardly deflected by upward movement of the container to permit ejection of the container through said mouth.

References Cited in the file of this patent

UNITED STATES PATENTS

536,064	Birley	Mar. 19, 1895
1,140,714	Grunow	May 25, 1915
1,718,872	Ortiz	June 25, 1929
1,959,613	Carson	May 22, 1934
2,312,644	Horr	Mar. 2, 1943
2,612,646	Sussman	Oct. 7, 1952