Jan. 27, 1953 L. R. BUROKER 2,626,616

ASH TRAY

Filed May 25, 1950 2 SHEETS--SHEET 1

FIG. 3

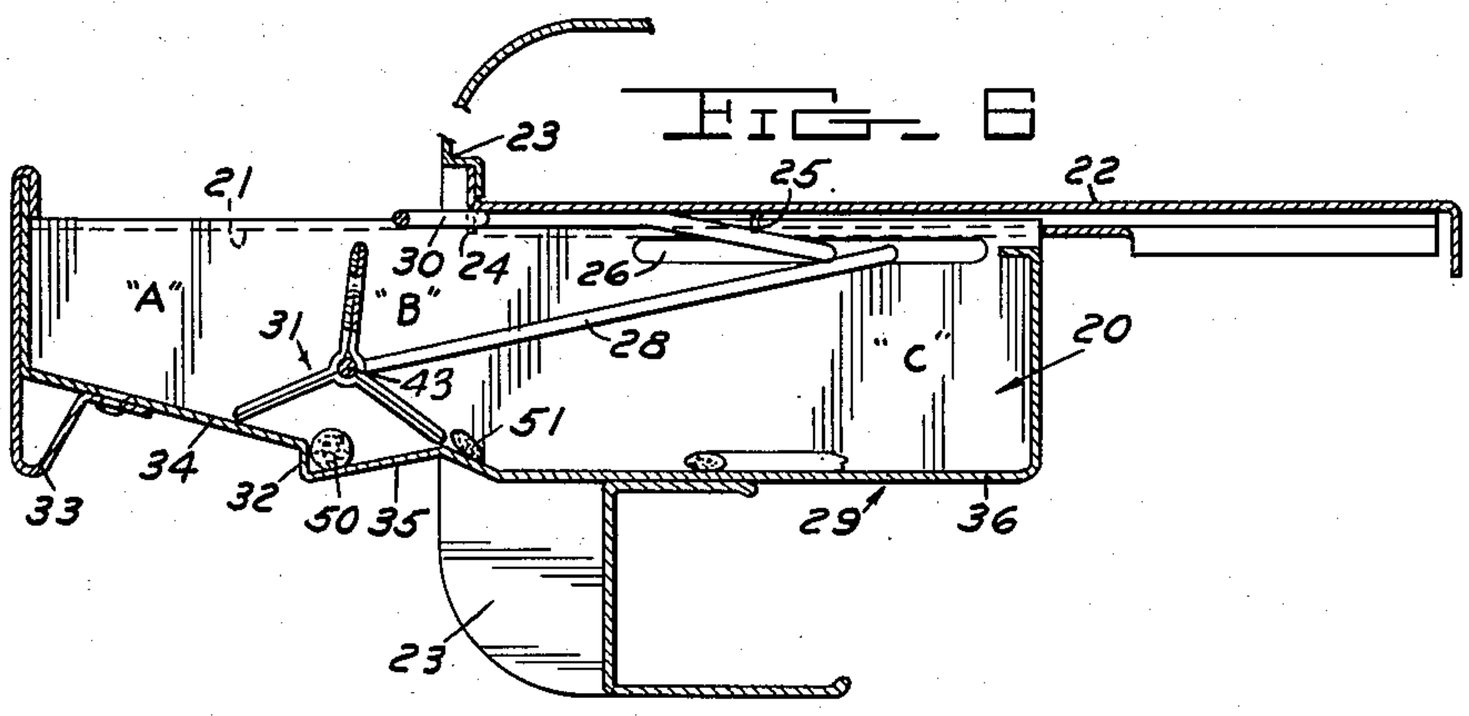


FIG. 2

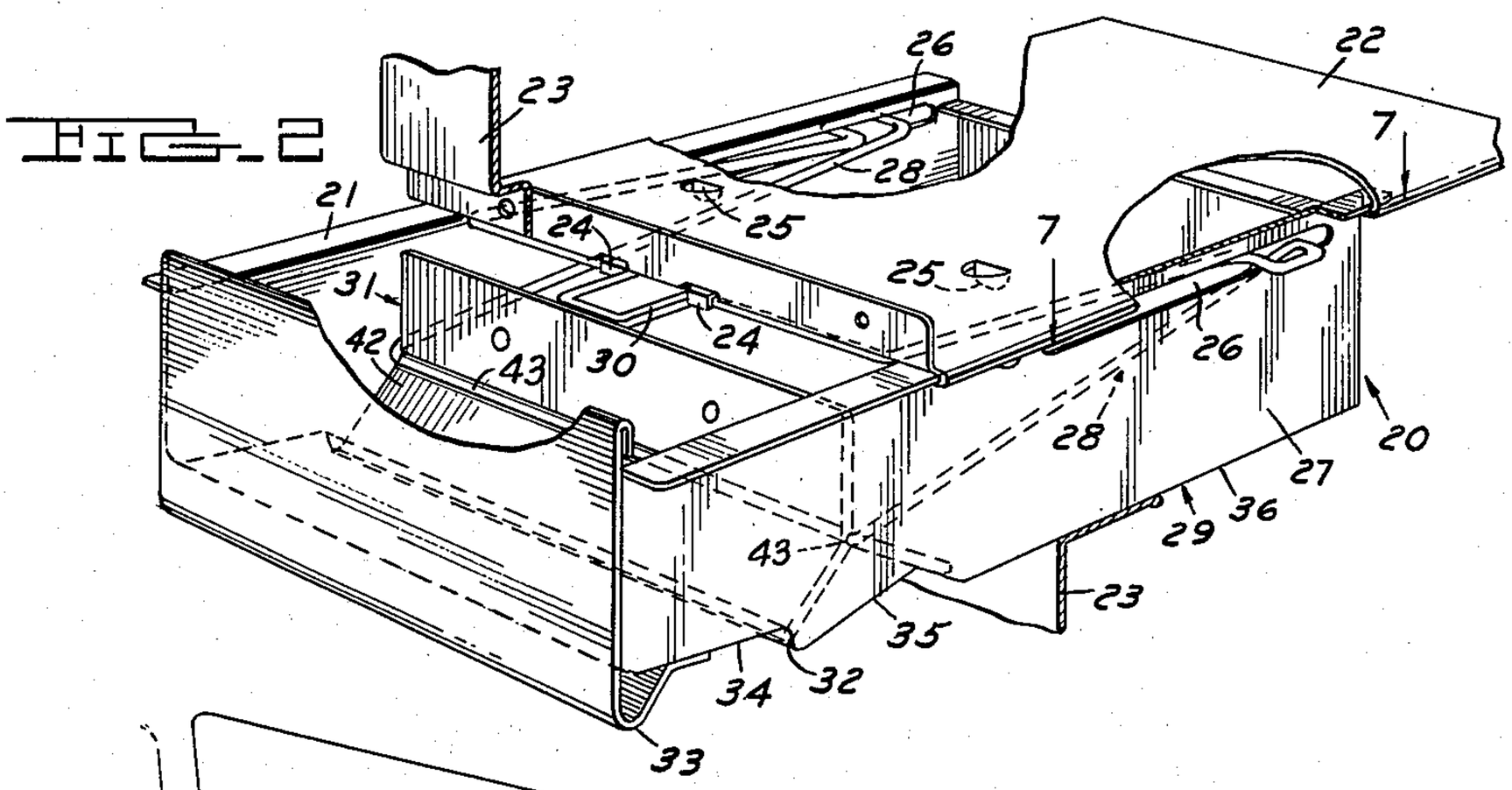
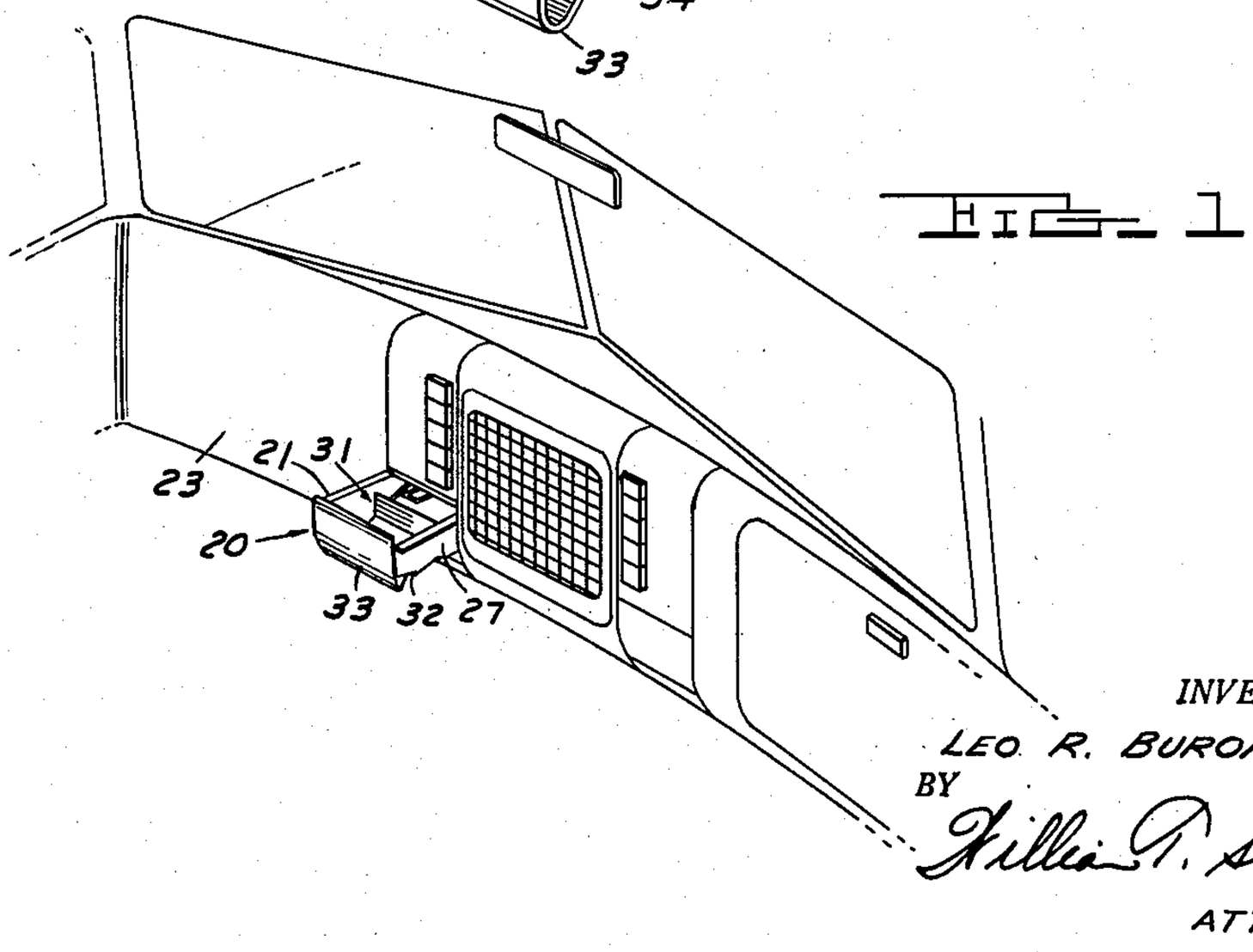


FIG. 1



INVENTOR.
LEO R. BUROKER
BY
Willis P. Sewald
ATTORNEY

Jan. 27, 1953 L. R. BUROKER 2,626,616

ASH TRAY

Filed May 25, 1950 2 SHEETS—SHEET 2

FIG. 1

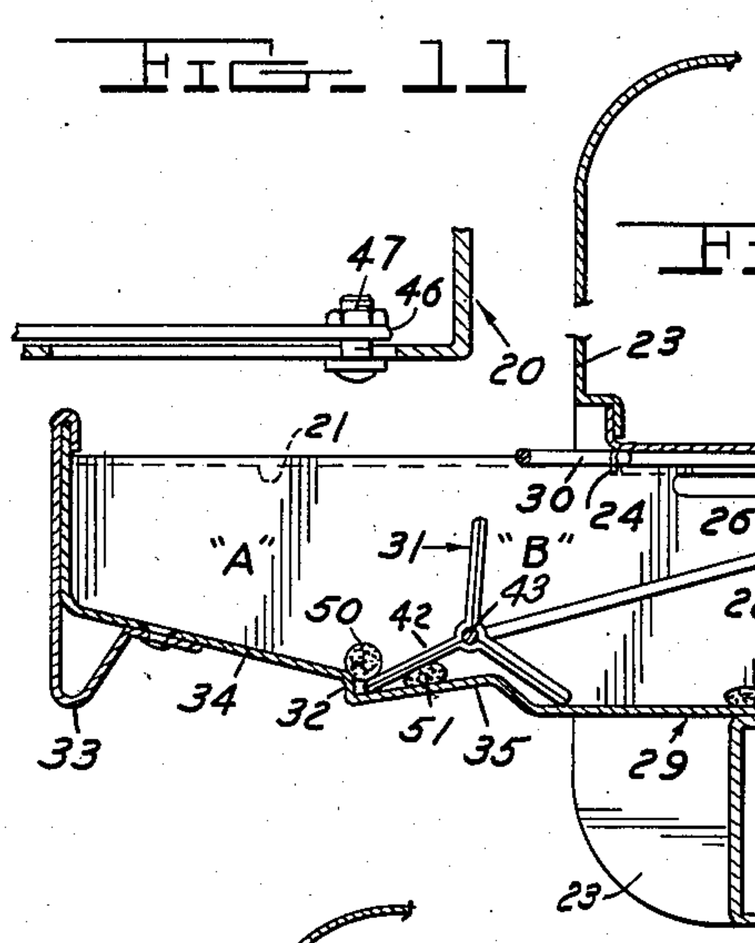


FIG. 3

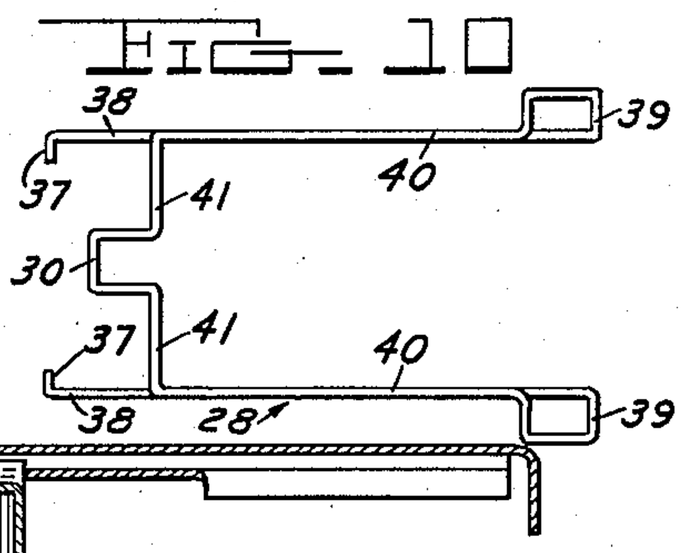


FIG. 4

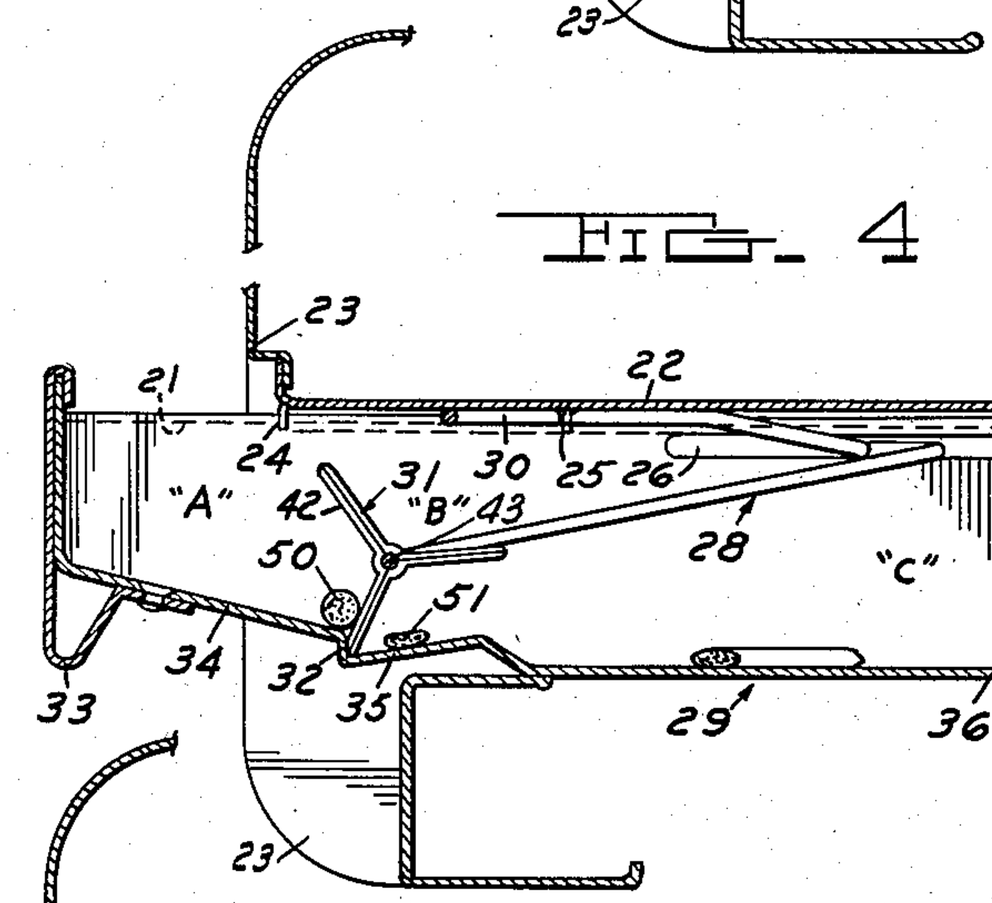


FIG. 5

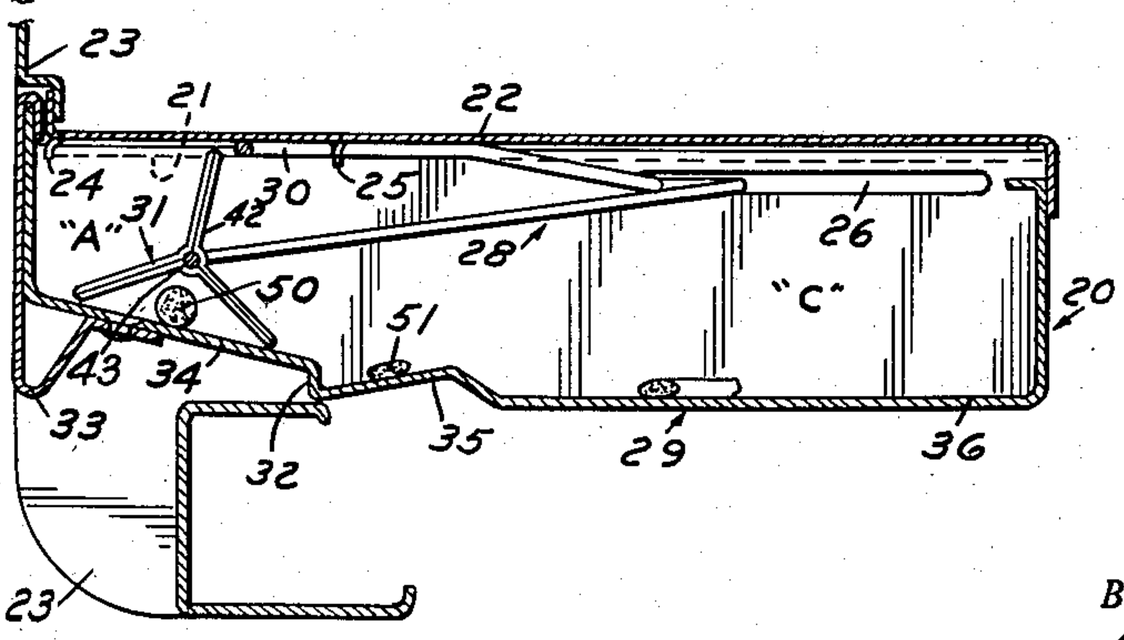


FIG. 7

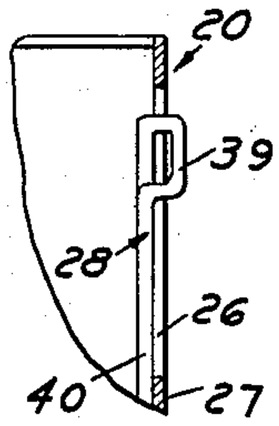


FIG. 8

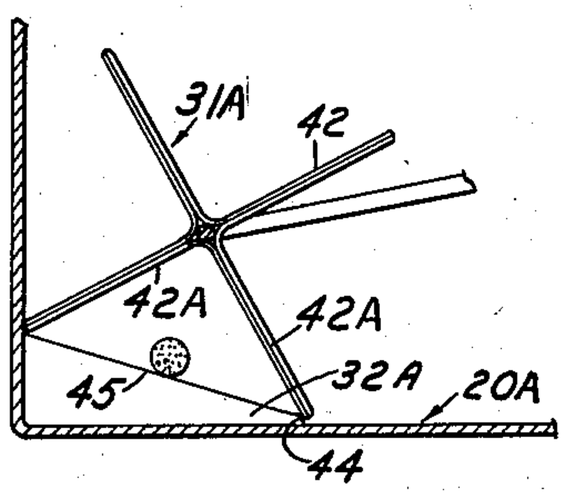
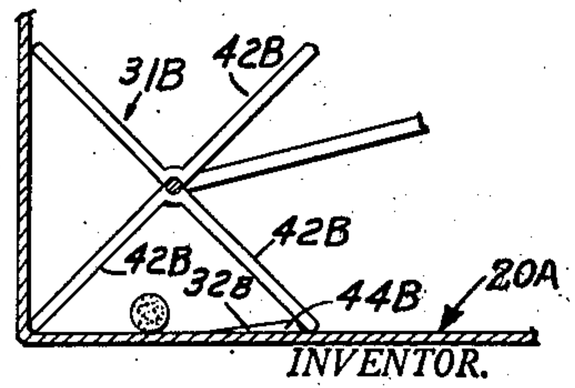


FIG. 9



INVENTOR.
LEO R. BUROKER
BY
Lillian P. Seward
ATTORNEY

Patented Jan. 27, 1953 2,626,616

UNITED STATES PATENT OFFICE

2,626,616

ASH TRAY

Leo R. Buroker, Dallas, Tex.

Application May 25, 1950, Serial No. 164,060

14 Claims. (Cl. 131—237)

1

This invention relates to tobacco ash receptacles and in particular to ash receptacles having automatically operated means in conjunction with the opening and closing of the receptacle for extinguishing burning cigars and cigarettes, and this application relates to the same subject matter as that contained in my co-pending application, Serial Number 119,950, filed on the 6th day of October, 1949.

The invention is particularly adapted to vehicles such as automobiles, trains, busses and airplanes, and is also suitable for use in homes, offices, hotels and other places. Discarded smoldering cigars or cigarettes are not only objectionable from the standpoint of their fumes and smoke but also from the standpoint of constituting a fire hazard. Manual cigar and cigarette extinguishers are objectionable from the standpoint that in grinding out the embers, the smoker's fingers usually become soiled and the burning shreds of tobacco constitute loose embers which may be blown about by currents of air thereby aggravating the fire hazard.

With the foregoing and other well known facts in view, it is the primary object of the invention to provide an automatic extinguisher for tobacco ash receptacles which is operated upon opening and closing the receptacle to receive and contain a burning cigarette or cigar in a separate, small, closed chamber thereby excluding the burning cigar or cigarette from a supply of oxygen and thereby extinguishing it.

An object of the invention is to provide an extinguisher for a tobacco ash receptacle which is automatically operated to extinguish a cigarette by closing the receptacle.

An object of the invention is to provide an extinguisher for tobacco ash receptacles which partially grinds the enclosed cigarette.

An object of the invention is to provide an extinguisher for a tobacco ash receptacle which is automatically operated to eject a previously extinguished cigarette from the extinguisher chamber into a storage portion of the receptacle when the receptacle is opened thereby conditioning the extinguisher for receiving another burning cigarette.

Another object of the invention is to provide a scraping action between a rotatable extinguisher member and the tray to clear the extinguisher area of a previously extinguished cigarette.

A further object of the invention is to provide an automatic extinguisher which is adaptable to conventional vehicular ash trays and ash tray receptacles.

2

A further object of the invention is to provide a simple and inexpensive extinguisher.

A further object of the invention is to provide an extinguisher having a minimum number of parts.

A further object of the invention is to provide an extinguisher which will not rattle due to the vibration of a vehicle.

These and other objects of the invention will become apparent by reference to the following detailed description taken in connection with the accompanying drawings wherein the invention is shown in conjunction with a vehicular tobacco ash receptacle for purposes of illustration in which:

Fig. 1 is a perspective view of an automobile dash board showing the inventive ash receptacle and extinguisher installed therein in the open position.

Fig. 2 is a perspective view of the inventive ash tray and extinguisher in the open position in conjunction with a supporting plate.

Fig. 3 is a longitudinal cross-sectional view of the inventive ash tray and extinguisher showing the device in open condition with a previously extinguished cigarette in the closed chamber and a burning cigarette in position to be extinguished.

Fig. 4 is a view similar to Fig. 3 showing the tray being closed with the extinguisher rotor walking over the burning cigarette.

Fig. 5 is a view similar to Figs. 3 and 4 showing the tray closed and the burning cigarette trapped in the small closed chamber.

Fig. 6 is a view similar to Figs. 3, 4 and 5 showing the tray or receptacle being opened with the last extinguished cigarette beneath the rotor extinguisher and the previously extinguished cigarette behind the rotor extinguisher in the storage compartment.

Fig. 7 is a cross-sectional view of Fig. 2 taken on the line 7—7 thereof showing the disposition of the spring loop in sliding relation to the tray.

Fig. 8 is a partial cross-sectional view of the device similar to Fig. 5 illustrating a variation in construction.

Fig. 9 is a view similar to Fig. 8 illustrating a further variation in construction.

Fig. 10 is a slightly reduced top plan view of the spring member; and

Fig. 11 is a view similar to Fig. 7 illustrating a variation in spring loop construction in conjunction with the tray slide.

The inventive device comprises a plate or housing mounted on a stationary member, a tray slidably mounted on the plate, a spring slidably mounted relative to the tray and the plate, stops

on the plate limiting the sliding movement of the spring relative to the plate, an extinguisher rotor rotatably mounted on the end of the spring adjacent the tray, and a dog or cam positioned on or in the bottom of the tray adapted to contact the rotor when the tray is closed to cause the rotor to walk over the dog and a burning cigarette positioned adjacent the front of the tray so that the rotor traps the burning cigarette between its blades and the bottom of the tray.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, the preferred embodiment of the tobacco ash receiver automatic extinguisher disclosed therein shows the invention in the optional environment of a vehicle dash board and comprises an ash tray **20**, flanges **21** on the ash tray **20**, a stationary member **22** slidably supporting the tray **20** via the flanges **21**, a vehicle dash board **23** supporting the plate **22**, front stops **24** on the plate **22**, rear stops **25** on the plate **22**, slots **26** in the sidewalls **27** of the tray **20**, a spring **28** slidably disposed in the slots **26** between the plate 22 and the bottom **29** of the tray **20** in sliding relation relative to the plate **22** and the tray **20** and limited in sliding relation relative to the plate **22** and the tray **20** by the front stops **24** and the rear stops **25**, a manual disengaging extension **30** on the spring **28**, a bladed extinguisher rotor **31** rotatably disposed on the spring **28** adjacent the bottom **29** of the tray **20** and resiliently positioned against the bottom **29** of the tray **20** by the spring **28**, a step, dog, or cam **32** disposed on the bottom **29** of the tray **20** and a finger pull grip **33** mounted adjacent the front of the tray **20**. It is to be noted that the outer edges of the blades on the rotor **31** form high points thereof and that the spaces between the blades form low points thereof; the high points contact the dog **32** and the bottom of the tray whereas pairs of mutually adjacent blade faces each having a low point therebetween house the cigarette.

The stationary member **22** may be formed as illustrated in the drawings or may be constructed in the fashion of a rectangular housing completely surrounding the tray **20**. The bottom **29** of the tray **20** is preferably fashioned with a sloping chute **34** leading to the cam **32**, and a rising intermediate portion **35** rearwardly of the cam **32**, and a flat rear portion **36**; the spring **28** comprises rotor engaging tips **37**, rearwardly extending arms **38**, reversely bent and sidewise extending loops **39**, forwardly extending arms **40**, inwardly extending stop engaging elbows **41**, and a manual disengaging extension **30**. The bladed extinguisher rotor **31** comprises blades **42** adapted to contact the bottom **29** of the tray **20** and journals **43** adapted to receive the tips **37** of the spring **28**; the rotor **31** may be formed with 3, 4 or any suitable number of blades as illustrated in Figs. 8, 9, and the remaining figures. The cam **32** A and B on the bottom of the tray **20** may be optionally formed as illustrated in Figs. 8 and 9, wherein the step **32A** has a rotor contacting dog portion **44**, and a rearwardly sloping top portion **45**; while Fig. 9 shows a dog **32B** having a rotor contacting portion **44**.

In assembling the device the spring lugs **37** are inserted in the rotor journals **43**; the rotor **31** and spring **28** are then positioned in the tray **20** with the spring loops **39** positioned in the tray side slots **26**; the tray **20**, rotor **31** and spring **28** are then inserted in the housing or on to the plate **22** with the spring manual stop disengaging extension **30** being manually depressed to pass the housing front stops **24** whereupon the extension **30** is released disposing the stop engaging elbows **41** of the spring **28** between the housing stops **24** and **25**. In this condition the tray **20** is adapted to be slid relative to the housing **22** so that the rotor **31** is spaced from the front of the tray **20** in the open position, Fig. 3, and adjacent the front of the tray in the closed position, Fig. 5.

The spring **28** may be slidably arranged in the tray **20** by the formation of a loop **39** in the spring **28** as seen in Fig. 10 or by the use of a stud retaining loop **46** as seen in Fig. 11, through which a bolt **47** may be inserted and the loop **46** and tray side **27** abutted by suitable washers and secured by a nut **48** so that the spring **28** is slidably disposed relative to the tray **20**. Obviously any operable sliding arrangement between the tray and the spring will be satisfactory and within the scope of the invention.

The tray **20** is divided by the rotor **31** as seen in the figures, especially Fig. 3, into a cigarette receiving chamber A, a cigarette extinguishing chamber B, and a cigarette storage chamber C. A cigarette deposited in the chamber A is automatically positioned in the chamber B when the tray **20** is closed, and automatically positioned in the chamber C when the tray is subsequently opened as hereinafter more fully explained. It will be noted, in this connection that the extinguishing chamber B is defined by the rotor blades **42** and the tray bottom **29**; that the receiving chamber is located between the rotor **31** and the front of the tray **20**; and that the storage chamber is located between the rotor **31** and the back of the tray **20**.

The operation of the device in conjunction with extinguishing a cigarette is as follows:

When the drawer is closed as in Fig. 5, and the opening operation commences, the drawer and its contents will move as an entity until the element **41** contacts the stop **24**. Once this contact has been made, the spring **28** and the rotor **31** no longer can be moved outwardly with respect to the drawer mounting means **22**. Further outward movement of the drawer will cause sliding contact between the rotor and the bottom portion or portions of the drawer until a position similar to that shown in Fig. 3 will have been reached.

Upon closing, the drawer, the spring and the rotor will move as an entity until the stop **25** is contacted by the element **41**, after which one edge of one of the blades of the rotor will contact the cam portion **32** of the bottom of the drawer causing counter-clockwise rotation of the rotor as seen in Fig. 4, followed by sliding contact until the position shown in Fig. 5 is reached.

As the tray **20** is opened, the rotor **31** grinds the previously extinguished cigarette **51** between one of its blades **42** and the bottom of the tray. When the drawer is open, the cigarette **50** to be extinguished is placed in the front of the tray. While the drawer is closed, the rotor **31** contacts the dog **32** and steps over the cigarette **50** to enclose same and walks past the cigarette **51** and then slides the same into the chamber C area of the tray. The device, as illustrated in Figs. 8 and 9, works similarly to the structure explained with the exception that in the embodiment illustrated in Fig. 9, the cigarette will be scraped over the step **32B** when the tray **20B** is opened, while in the device of Fig. 8, the rotor **31** grinds the cigarette against the bottom of the tray **20A**.

The operation of the device includes receiving

a burning cigarette in the chamber A, automatically enclosing the burning cigarette in the extinguishing chamber B, and storing extinguished cigarettes in the chamber C. The tray 20 may easily be removed from the housing 22 by depressing the spring thumb extension 30 so that the spring elbows 41 can pass the front stops 24 to empty extinguished cigarettes from the storage compartment C.

Obviously a weighted rotor can be utilized instead of the spring pressed rotor and a separate travel limiting and latching mechanism employed within the scope of the invention.

While the invention has been disclosed and described in relation to preferred embodiments thereof, it is obvious that many changes may be made in the size, shape, arrangement, and detail of the various elements without departing from the spirit or scope thereof as defined by the appended claims.

I claim:

1. A tobacco ash receiver comprising a housing, a tray slidably arranged relative to said housing, a spring pressed bladed rotor contacting the bottom of said tray, and said tray having a dog adapted to contact said rotor when said tray is slid into said housing to rotate said rotor.

2. An ash receptacle comprising a housing, a tray slidably mounted in said housing, a bladed rotor adapted to rest on the bottom of said tray, and said tray having a dog adapted to rotate said rotor when said tray is slid into said housing to walk over, trap, and extinguish a burning cigarette deposited in the front portion of said tray.

3. In a sliding tobacco ash receiver, an automatic burning cigarette extinguisher comprising a bladed rotor bearing against the bottom of the receiver, and said receiver having a dog adapted to contact and rotate said rotor when said receiver is slid closed so that said rotor walks over said dog and traps the burning cigarette between two adjacent blades and the bottom of the receiver to extinguish same.

4. An ash receptacle comprising a stationary member, a tray slidably mounted on said member, a dog disposed in the bottom of said tray, a bladed rotor adapted to rest on the bottom of said tray and to ride over said dog when said tray is opened and to engage said dog when said tray is closed to rotate said rotor so that said rotor walks over and traps between two adjacent blades of said rotor and the bottom of said tray, a burning cigarette deposited adjacent the front of said tray to extinguish the cigarette.

5. An ash receptacle comprising a stationary member, a tray slidably mounted on said member, a dog disposed in the bottom of said tray, a bladed rotor adapted to rest on the bottom of said tray and to ride over said dog when said tray is opened and to engage said dog when said tray is closed to rotate said rotor so that said rotor walks over and traps between the blades of said rotor and the bottom of said tray a burning cigarette deposited adjacent the front of said tray to extinguish the cigarette; said rotor being adapted to slide relative to the bottom of said tray except when in contact with said dog so as to crush a trapped cigarette and across said dog in one direction only.

6. An ash receptacle comprising a stationary member, a tray slidably mounted on said member, a dog disposed in the bottom of said tray, a bladed rotor adapted to rest on the bottom of said tray and to ride over said dog when said tray is

opened and to engage said dog when said tray is closed to rotate said rotor so that said rotor walks over and traps between the blades of said rotor and the bottom of said tray a burning cigarette deposited adjacent the front of said tray to extinguish the cigarette, said rotor being adapted to slide relative to the bottom of said tray except when in contact with said dog so as to crush a trapped cigarette and across said dog in one direction only, said rotor being adapted to liberate a previously trapped cigarette while in the act of walking over a burning cigarette adjacent the front of said tray and to scrape the extinguished cigarette into the back portion of said tray when said tray is subsequently opened.

7. A tobacco ash receiver comprising a housing, a tray slidably mounted relative to said housing, a spring slidably mounted relative to said tray, a stop limiting outward sliding movement of said spring, a stop limiting inward sliding movement of said spring, a bladed rotor disposed within said tray rotatably disposed on said spring; said spring being adapted to press said rotor against the bottom of said tray; and said tray having a dog adapted to contact said rotor to rotate said rotor when said tray is slid into said housing.

8. A tobacco ash receiver comprising a plate, a tray slidably mounted on said plate, a bladed rotor disposed in said tray dividing said tray into a cigarette receiving compartment, a cigarette extinguishing compartment, and an extinguished cigarette storage compartment, a spring rotatably and slidably supporting said rotor and pressing said rotor against the bottom of said tray so that said tray slides relative to said rotor, said tray having a dog adapted to contact and rotate said rotor when said tray is slid into said housing to step over a burning cigarette in said receiving compartment, to trap the same in said extinguishing compartment, and then slides a previously extinguished cigarette into said storage compartment.

9. An ash receptacle comprising a mounting, a tray slidably disposed in said mounting having means forming spring slides on either side thereof, a spring slidably disposed in the means forming spring slides of said tray adapted to bear against said mounting and against said tray bottom, a bladed rotor rotatably disposed on said spring adjacent said tray bottom so that said spring presses said rotor against said tray bottom, and said tray bottom having a dog adapted to contact said rotor to rotate said rotor when said tray is slid into said housing so that said rotor walks over a burning cigarette adjacent the front of said tray and traps said burning cigarette between its blades and the bottom of said tray to extinguish said cigarette.

10. A tobacco ash receiver comprising a stationary member, a front stop on said member; a rear stop on said member, a tray slidably mounted relative to said member having means forming spring slides therein, a spring slidably mounted in the slides of said tray pressing toward the bottom of said tray and slidably pressing against said member in the area of said member between said stops so that the sliding relation between said spring and said member is limited by said stops, a bladed rotor rotatably disposed on said spring at said tray end of said spring so that said spring urges said rotor against said tray bottom, said tray having a dog adapted to rotate said rotor when said tray is slid into said member and to by-pass said rotor when said tray is slid out of

said member so that said rotor walks over said dog on one of its high points when said tray is closing to trap a burning cigarette between two of the blades and the bottom of said tray to extinguish the burning cigarette and grind the extinguished cigarette between a high point on said rotor and said tray bottom when said tray is subsequently opened.

11. A tobacco ash receiver having an automatic extinguisher for cigars and cigarettes comprising a housing constituting a tray slide and a tray closure, a tray mounted relative to said housing and adapted to slide into and out of said housing having means forming a slide therein to receive a rotor supporting member in sliding relation therewith, a rotor supporting member slidably mounted in said tray, a rotor supporting member front stop on said housing, a rotor supporting member rear stop on said housing; said stops being adapted to permit limited linear travel of said member relative to said housing less than the full length of said tray relative to said housing, a bladed rotor rotatably mounted on said member in contact with the bottom of said tray adapted to rest thereon on any two of its blades so as to define an extinguishing chamber between its blades and the bottom of the tray, and a step in the bottom of said tray adapted to by-pass said rotor when said tray is opened and to actively contact a blade on said rotor when said tray is closed when said rotor supporting member contacts said rear stop to prevent further travel thereof relative to said housing so that further inward travel of said tray relative to said member and housing effects said rotor to walk over said step and a burning cigarette deposited adjacent thereto to trap the burning cigarette between the blades of said rotor and the bottom of said tray.

12. A tobacco ash receiver having an automatic extinguisher for burning cigarettes and cigars comprising a housing constituting a tray slide, a tray slidably positioned in said housing, means forming a spring slide in said tray, a spring slidably disposed in said spring slide means, a front stop on said housing, a rear stop on said housing, a spring slidably positioned relative to said housing between said stops and slidably positioned relative to said tray in said spring slide means, a bladed rotor rotatably disposed on said spring bearing against the bottom of said tray under the pressure of said spring so that due to the spacing of the rotor blades and the pressure of said spring said tray can be slid on the bottom of said rotor; said spring stops on said housing being so arranged as to permit limited linear travel of said spring and rotor relative to said tray and housing; and said tray having a dog adapted to contact a blade on said rotor when said tray is being slid into said housing when said rear stop prevents further travel of said spring and said rotor relative to said housing so that further inward travel of said tray relative to said housing and said rotor with said rotor abutting said dog prevents normal sliding between said tray and said rotor causing said rotor to rotate to walk over said dog and a burning cigarette adjacent said dog to trap the cigarette between the blades of said rotor and said tray bottom to extinguish said cigarette.

13. In a device as set forth in claim 12, said rotor and said dog being so arranged to slidingly pass one another when said tray is slid out of said housing to grind and crush a previously extinguished trapped cigarette between a rotor blade and the bottom of said tray.

14. In a device as set forth in claim 12, a sloping chute portion in the front of the tray adapted to deliver a deposited burning cigarette to a point in said tray adjacent said dog.

LEO R. BUROKER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,573,678	Crawford	Feb. 16, 1926
1,912,598	Snadden	June 6, 1933

FOREIGN PATENTS

Number	Country	Date
517,211	Great Britain	Jan. 23, 1940