June 5, 1951 W. J. TODHUNTER 2,555,716

AUTOMATICALLY LIGHTED ASH RECEPTACLE

Filed Aug. 17, 1948

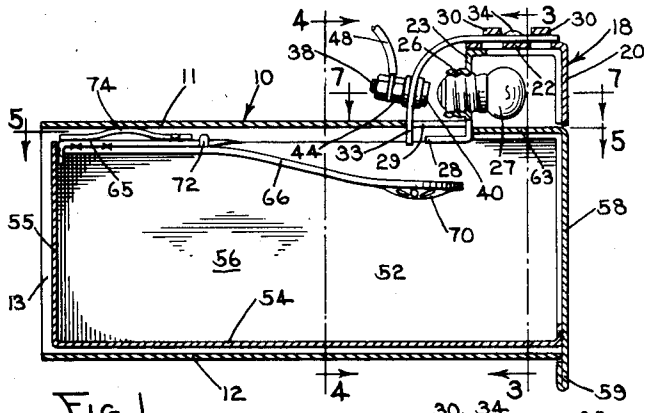


FIG. 1.

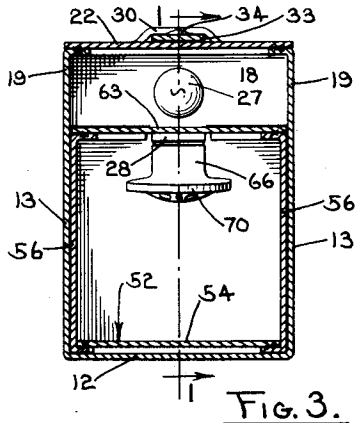


FIG. 3.

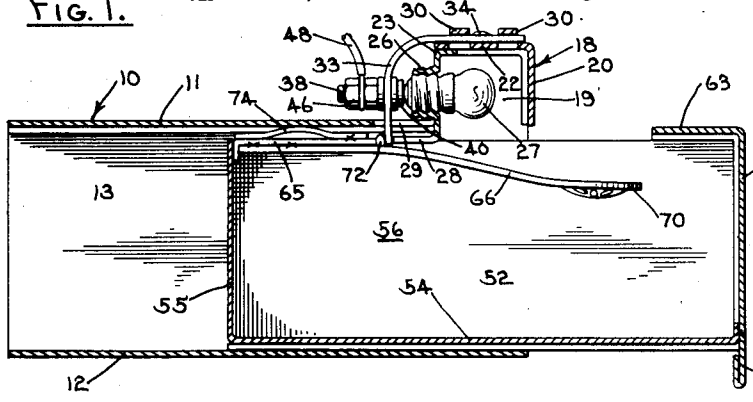


FIG. 2.

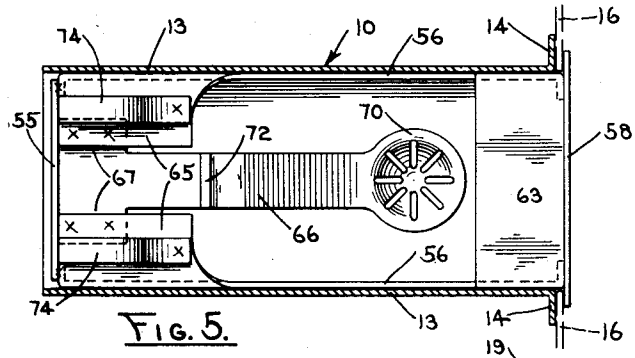


FIG. 5.

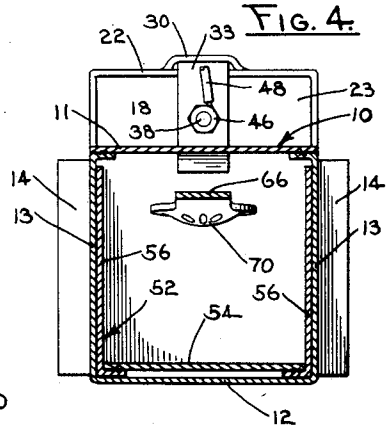


FIG. 4.

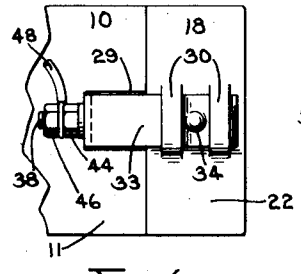


FIG. 6.

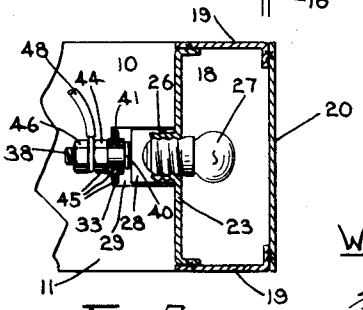


FIG. 7.

INVENTOR.
WALTER J. TODHUNTER
BY
Hubner, Beebe, Worel, Hesig & Caldwell
ATTORNEYS

Patented June 5, 1951

2,555,716

UNITED STATES PATENT OFFICE

2,555,716

AUTOMATICALLY LIGHTED ASH RECEPTACLE

Walter J. Todhunter, Fresno, Calif.

Application August 17, 1948, Serial No. 44,693

5 Claims. (Cl. 240—2)

1

This invention relates to ash receptacles and more specifically to means for automatically lighting movable ash receptacles when in open position for use.

Automobiles are normally equipped with an ash receptacle or ash receptacles which are movable to open and closed positions and which are adapted, in open position, to receive cigar and cigarette ashes and butts and other disposable incidents of smoking. It has been found that during night driving of an automobile that it is difficult to locate an ash receptacle properly to deposit such material therein. It has been found that quite often the material desired to be deposited in the ash receptacle is not properly located therein but instead falls to the floor of the automobile, is deposited on the occupants of the automobile, or is free to be wafted about by air circulating through the car constituting not only a nuisance but a fire hazard as well.

It is an object of the present invention to provide means for automatically illuminating the interior of an ash receptacle when it is moved to open position for the deposit of tobacco ashes, cigar and cigarette butts therein whereby the ash receptacle may be easily seen and easily located during darkness.

It is another purpose of the present invention to provide means for lighting the full interior of an ash receptacle when it is moved to open position combined with stop means for limiting the outward motion of the ash receptacle.

Another object is to provide in an automatic ash receptacle a combined switch and receptacle stop which are readily releasable to terminate illumination of the receptacle and to permit the removal of the receptacle from its mounting, as for the emptying of its contents.

Another object of the present invention is to provide a lighting means and releasable stop means combined with the conventional snuffer of an ash receptacle.

A still further object of the invention is to provide for an easily operable illuminated ash receptacle which is economical to manufacture and easy to operate.

Other objects and advantages of the present invention will become apparent from the following description taken in connection with the accompanying drawing in which,

Fig. 1 is a vertical longitudinal sectional view through an ash receptacle and supporting construction employing the principles of the present invention.

Fig. 2 is a view similar to Fig. 1 but with the ash receptacle moved to open position for the reception of tobacco ashes, cigar and cigarette butts and the like, therein.

2

Fig. 3 is a transverse vertical sectional view through the ash receptacle taken along line 3—3 in Fig. 1 with the line 1—1 therein indicating the plane through which the sectional views of Fig. 1 and Fig. 2 are taken.

Fig. 4 is a vertical transverse sectional view through the ash receptacle taken along line 4—4 in Fig. 1.

Fig. 5 is a horizontal longitudinal sectional view through the supporting shell of the ash receptacle taken along line 5—5 in Fig. 1 with the ash receptacle proper shown in plan view.

Fig. 6 is a fragmentary top plan view of the forward end of the ash receptacle supporting structure.

Fig. 7 is a fragmentary horizontal sectional view of the forward portion of the ash receptacle supporting structure taken along lines 7—7 in Fig. 1.

Referring to the details of construction of the ash receptacle and supporting construction therefor, as shown in the drawing, the supporting structure comprises a sheet metal rectangular, tubular shell 10 having a horizontal top portion 11, and a horizontal bottom portion 12 held in spaced parallel relationship by a pair of vertical parallel side portions 13. The supporting structure is open at the forward end. The forward edge of each of the side portions 13 is flanged outwardly at 14 whereby the shell may be attached, as by spot welding, to an instrument panel 16, indicated in dash lines in Fig. 5. Each of the flanged portions 14 may also be provided with a plurality of openings therethrough whereby the shell may be attached to the instrument panel by means of screws or any other suitable mounting means. The instrument panel 16 has an opening formed therethrough approximately the size of the inside of the tubular shell 10.

The shell 10 is provided at the forward end of its top portion with an upwardly extending bulb housing 18. This bulb housing comprises a pair of vertical, spaced, parallel end portions 19 conveniently formed integral with the sheet metal side portions 13 of the shell 10. The bulb housing 18 is also provided with a vertical front portion 20, a top portion 22 and a rear side portion 23 which is formed integral with the sheet metal top portion of the shell 10, thus the housing 18 is provided with an open lower side. The rear side portion 23 of the housing is stamped rearwardly forming an integral threaded sleeve

26 thereon for the reception of a conventional electric light bulb 27. The bulb 27 is threadedly received in the sleeve 26 with the contact end thereof extending rearwardly and exteriorly of the housing 18. A rectangular lip 28 is pierced from the sheet metal top portion 11 of the shell 10, extends downwardly from the rear portion 23 of the housing and is bent horizontally rearwardly therefrom a short distance below the top portion 11 of the shell. The metal removed from the top portion 11 forming the lip 28 provides a rectangular opening 29 therethrough for the reception of a spring member hereinafter described.

The sheet metal top portion 22 of the housing 18 is pierced longitudinally in a plurality of spaced locations and the strips thus formed bent upwardly forming a pair of arched sheet metal straps 30. These sheet metal straps are adapted removably to embrace the forward and upper end of a steel leaf spring 33. The spring is provided with a raised projection 34 intermediate the straps and abutting both thereof whereby the spring is retained against inadvertent removal or displacement thereof from the upper side of the top portion 22 of the housing and its rearwardly extended attitude. The spring 33 before insertion between the straps 30 and the top portion 22 of the housing, is arcuately flexed with the ends thereof in substantially right angular relation with the lower end of the spring inserted into the rectangular opening 29 in the top portion 11 of the shell 10 and extending a short distance therebelow. The spring is thereafter located with the upper end thereof anchored between the straps 30 and the top portion 22 of the housing with the spring 33 held in arcuate relation by engagement of the lower end thereof with the rear side of the rectangular opening 29.

A contact screw 38, provided with an enlarged head 40, is located through an opening 41 in the spring 33 at a position exteriorly of the shell 10 and held therein by means of a jam nut 44 with a plurality of insulating washers 45 located between the shank of the screw 38 and the spring 33, insulating the screw from the spring. A wire 48 connected to a source of electrical energy is electrically connected with the contact screw by means of another nut 46 threadably received on the shank of the contact screw 38 with the end of said wire securely clamped between the two nuts 44 and 46.

The head 40 of the contact screw is normally and yieldably held out of engagement with the contact end of the light bulb 27 by the tendency of the spring to return to as near a straight condition as the rear edge of the opening 29 permits. In automobile circuits one connection of the battery terminal is grounded and in providing electrical energy to the ash receptacle the other connection is electrically circuited to the wire 48 whereby when the head 40 of the contact screw is moved into engagement with the contact end of the light bulb the light bulb is energized for lighting the interior of the ash receptacle.

An ash receptacle, as indicated generally by reference numeral 52, is slidably mounted in the shell. Said receptacle comprises a bottom 54, a vertical rear end portion 55, a pair of vertical parallel side portions 56 and a vertical front portion 58 all formed of sheet metal and welded into an integral unit. The front portion 58 of the receptacle extends downwardly at 59 a short distance below the bottom portion 12 of the

shell 10 whereby the receptacle may be manually moved outwardly to open or to removed position. The upper edge portion of the vertical front portion 58 is bent horizontally rearwardly at 63 against the upper edge of the side portions 56 of the receptacle and is welded thereto. This rearwardly extending portion 63 provides means for segregating the housing 18 from the interior of the ash receptacle whereby ashes, smoke, tar and the like emanating from the receptacle will not accumulate on the electric light bulb and dim its illumination and whereby the interior of the ash receptacle is sealed when said receptacle is closed tending to smother burning material contained therein.

The upper edges of each of the vertical parallel side portions 56 of the ash receptacle are extended inwardly near their rear ends providing a pair of substantially horizontal wing portions 65 with a longitudinal space therebetween. A snuffer 66 formed of a strip of spring steel is provided at its rear end with a T shaped portion, the opposite sides of which are welded or otherwise suitably secured to the underside of each of the wings 65, with the snuffer extending substantially horizontally forwardly therefrom. A concave snuffer cup 70 of any suitable shape and design, is formed at the forward end of the snuffer 66 whereby a person may remove ashes from the end of a cigar, cigarette, or the like, or may extinguish the burning end thereof. A catch projection 72 is secured transversely to the upper side of the snuffer spring 66 and upwardly extended therefrom. The projection is extended upwardly a distance sufficient to engage the lower end portion of the spring 33 where it depends into the shell 10. As shown in Fig. 2, upon movement of the ash receptacle 52 to open position, the projection contacts the spring and upon continued movement of the receptacle the head 40 of the contact screw is moved into electrical engagement with the light bulb 27 energizing the same. The lip 28, being bent downwardly and rearwardly from the top portion 11 of the shell, is in a position to abut the spring as the bending thereof is increased by opening of the ash receptacle. Obviously the rear end portion of the lip is arranged with respect to the contact portion of the light globe so that further bending of the spring, and possible damaging thereof, is precluded upon flexing of the spring sufficiently to bring the head into electrical contact with the bulb. This arrangement is shown in Fig. 2. Obviously this further serves to limit outward movement of the receptacle and retains the same in slidable engagement with the shell.

Means are provided for preventing rattling of the ash receptacle within the shell 10 by providing a pair of leaf springs 74, each of which is bent to arcuate shape with flattened ends, one end of each being secured to the upper side of each of the wings 65. When the ash receptacle is inserted within the shell 10 each of the leaf springs is compressed and held in deflected position while the ash receptacle is located within the shell whereby the receptacle cannot rattle or vibrate within the shell.

Operation

In mounting the ash receptacle and supporting structure therefor the flanged portions 14 of the shell 10 are welded or screwed to the rear side of the instrument panel 16 having an opening therethrough into which the ash receptacle may extend. The ash receptacle is slidably received

within the shell **10** with the leaf springs **74** in deflected condition to prevent the rattling of the receptacle within the shell.

During the insertion of the ash receptacle into the shell, the snuffer is moved downwardly causing the catch projection **72** to move under and out of engagement with the lip **28** and the lower end of the contact supporting spring **32**. The normal position of the ash receptacle is in rearwardly closed position, as shown in Fig. 1. In this position the head **40** of the contact screw is held out of engagement with the contact end of the light bulb **27** by the resilient action of the contact supporting spring **33**. In this position the housing **18** is segregated from the interior of the ash receptacle **52** by means of the sheet metal portion **63** which extends rearwardly from the upper edge of the front portion **58** of the receptacle whereby the bulb does not become covered with smoke and ashes, and the like. In this closed position the ash receptacle is substantially air tight whereby ignited cigars, cigarettes, or smoking pipe ashes enclosed therein will become extinguished and whereby smoke therefrom will be contained within the receptacle.

When it is desired to insert the ashes from a cigar, cigarette, or smoking pipe into the ash receptacle or to deposit a cigar or cigarette butt therein the ash receptacle is slid outwardly by manual manipulation of the downwardly extending portion **59** on the ash receptacle. During such motion the catch projection **72** engages the lower terminal end of the contact supporting spring **33** moving it forwardly therewith and causing the head **40** of the contact screw **38** to come in contact with the rear contact end of the light bulb thus closing the electrical circuit thereto and illuminating the interior of the ash receptacle while in its open position. With the interior of the ash receptacle thus illuminated one desiring to deposit ashes or butts therein may easily see the receptacle and the snuffer mounted therein.

After the ashes or butts are inserted within the ash receptacle, the receptacle may be moved rearwardly to closed position and in so doing, the catch projection **72** permits the contact supporting spring **33** to flex rearwardly into engagement with the rear edge of the rectangular opening **25**. In this position the head of a contact screw **38** is out of engagement with the contact end of the light bulb, and the electrical circuit thereto is interrupted. While the ash receptacle is in its closed position the electric light bulb is automatically de-energized.

When a quantity of ashes and butts has accumulated within the ash receptacle it is desirable conveniently to empty the contents therefrom. This is conveniently done by removing the ash receptacle entirely from the shell **10** whereby the contents may be emptied exteriorly of the automobile. In removing the ash receptacle entirely from the shell **10**, the ash receptacle is slid outwardly until the forward end of the snuffer is exposed. The snuffer is then forced downwardly during continued forward motion of the ash receptacle whereby the catch receptacle moves under and out of engagement with the lower end of the spring **33** and the lip **28**. The ash receptacle is thus removed without closing the circuit to the electric light bulb and without the catch projection stopping the forward motion thereof by engagement with the lower end of the spring **33**. The ash receptacle may be reinserted as previously described.

Although the device of the present invention has been described as fabricated from sheet metal weldably secured in the desired configuration, it will readily be apparent that the invention is not limited to such structure but only to any suitable structure for accomplishing the purposes set forth. Still further, although the present invention has been demonstrated by reference to an ash receptacle slidably mounted in a shell **10**, it is to be understood that the receptacle may be pivotally mounted and the bulb energized in response to any relative movement of the ash tray to the housing or shell in which it is mounted.

From the foregoing description it will be seen that the present invention provides an ash receptacle which is automatically lighted when moved to open position for the insertion of ashes or butts therein and which is automatically extinguished when the ash receptacle is moved to its normal closed position. It will also be seen that the provision is made for the combination of a snuffer, circuit closer, and stop mechanism in a simple and economical construction that is characterized by dependable operation.

Although I have herein shown and described my invention in what I have conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of my invention, which is not to be limited to the details disclosed herein, but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and structure.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A construction of the character described comprising a stationary shell provided with an upwardly extending hollow housing at the forward upper side thereof open at its lower side to said shell, an electric light bulb removably supported on a rear portion of the housing, electrically energized contact means supported on the housing and held yieldably in spaced relation to the bulb, an ash receptacle mounted within the stationary shell and movable therein to an inward closed position and to an outward open position and having an open upper side, stop means on the receptacle adapted to engage the contact means and to move the contact means into electrical engagement with the bulb on outward movement of the receptacle and adapted to limit the outward movement of the receptacle by such engagement, and means for moving the stop means to released position from engagement with the contact means whereby complete withdrawal of the receptacle from the stationary shell may be accomplished.

2. A construction of the character described comprising a stationary shell provided with an upwardly extending hollow housing at the forward and upper side thereof being open at its lower side, an electric light bulb removably supported on a rear portion of the housing with the contact end thereof extending rearwardly therefrom, a contact supporting spring having an electrically energized contact member supported thereon and insulated therefrom, supported on the housing with the contact member yieldably held in spaced relationship to the contact end of the bulb, an ash receptacle having an open upper side supported within the stationary shell and movable to a closed position and to an outwardly, open position, a snuffer secured at its rear end to the rear end of the receptacle and extending sub-

stantially horizontally forwardly therefrom, a catch projection secured to the upper side of the snuffer adapted to engage the lower end of the contact supporting spring on movement of the ash receptacle to open position and to move the contact member into engagement with the contact end of the bulb and to limit the outward movement of the receptacle.

3. The combination of an ash receptacle housing having forward and rearward end portions, an ash receptacle mounted in the housing for movement relative thereto between forward-open and closed-rearward positions, a light source mounted by the housing in a position to illuminate the receptacle when in open position, a flexible member borne by the housing in spaced relation to the light source, an electrically energized contact borne by the flexible member in a position engageable with the light source upon bending of the flexible member, said flexible member being mounted on the housing and extended downwardly to a position adjacent the ash receptacle, a flexible snuffer mounted within the ash receptacle and forwardly extending from its mounting, a projection upwardly extended from the snuffer and engageable with the flexible member upon forward movement of the receptacle, and a stop means borne by the housing and releasably limiting forward bending of the flexible member and forward movement of the receptacle to a position bringing the contact of the flexible member into light source engagement.

4. A construction of the character described comprising a tubular shell open at its forward end and having a hollow housing extending upwardly from the forward end thereof open interiorly to the shell, an electric light bulb removably mounted through a rear portion of the housing with the contact end thereof extending rearwardly, a contact supporting spring having one end thereof anchored horizontally on the housing and flexed rearwardly and downwardly with the lower end thereof extending downwardly into the shell, means for limiting the rearward flexing motion of the free end of the spring, an electrically energized contact member supported on the spring and insulated therefrom adjacent the contact end of the bulb and normally out of engagement therewith, a hollow ash receptacle

open at its upper side slidably received in the shell through its forward open end slidable to inwardly closed position and to an outwardly open position, a snuffer attached to the rear end of the ash receptacle and extending substantially horizontally forwardly therefrom, a catch projection secured to and extending upwardly from a mid position of the snuffer spring adapted to engage the free end of the contact supporting spring on outward motion of the ash receptacle to its open position moving the contact member into engagement with the contact end of the bulb and the catch projection movable downwardly to released position therefrom on downward motion of the snuffer.

5. An ash tray comprising an elongated shell having an open forward end portion, an ash receptacle having an open upper side mounted for slidable movement longitudinally of the shell between a closed position within the shell and an open position extended outwardly of the forward end of the shell, a light bulb having a contact rearwardly disposed to the shell mounted in a position to illuminate the receptacle in open position, a contact supporting spring having an electrically energized contact mounted thereon and insulated therefrom supported on the shell rearward of the bulb with the contact yieldably held from bulb engagement, and a projection borne by the receptacle for spring engagement upon movement of the receptacle to open position to bring the spring borne contact into engagement with the bulb contact and to limit further forward movement of the receptacle by such engagement.

WALTER J. TODHUNTER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,532,935	Patton	Apr. 7, 1925
2,119,267	Coleman	May 31, 1938
2,144,376	Johnson	Jan. 17, 1939
2,261,698	Prance	Nov. 4, 1941
2,352,493	Palmer	June 27, 1944