July 10, 1962 N. H. HOGSTROM 3,043,523

DOOR OPERATED SPRAY DEVICE

Filed June 30, 1960

Fig. 1.

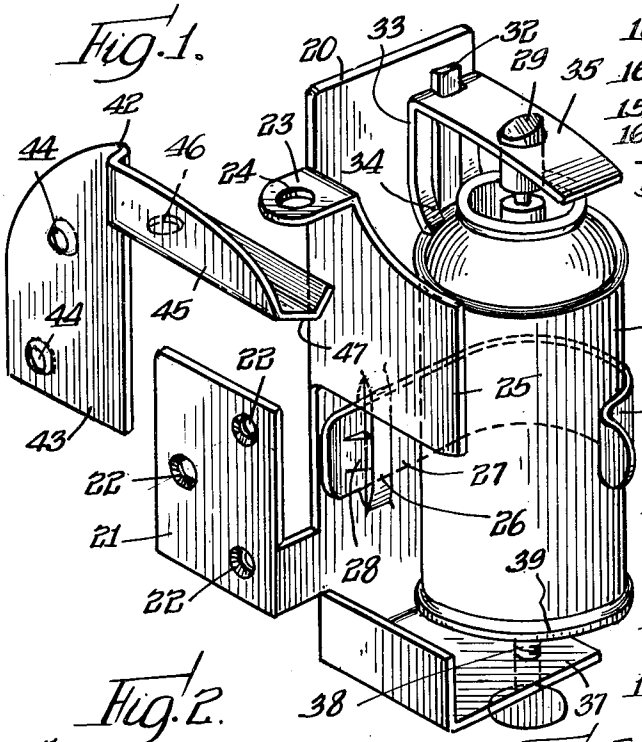


Fig. 3.

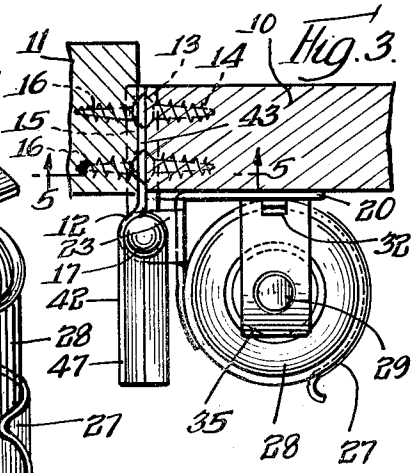


Fig. 4.

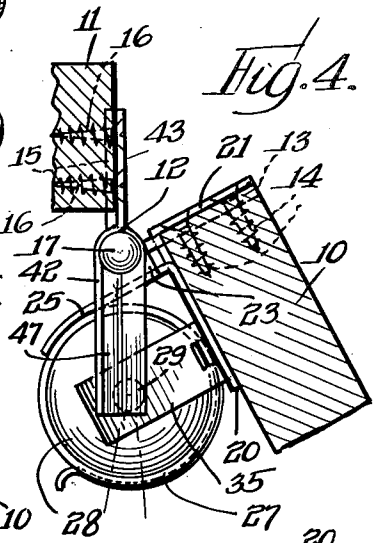


Fig. 2.

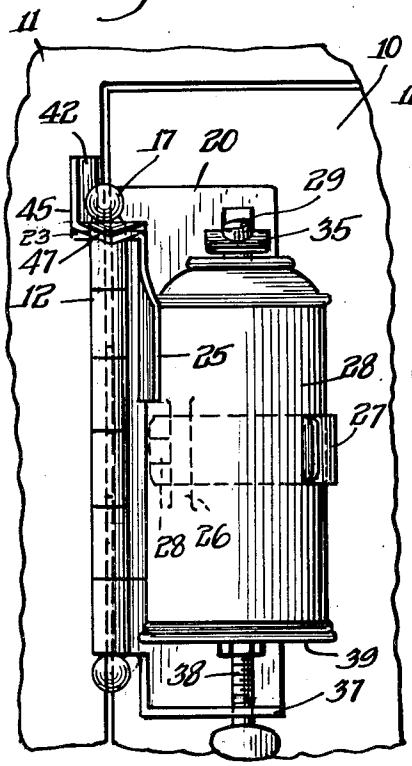


Fig. 5.

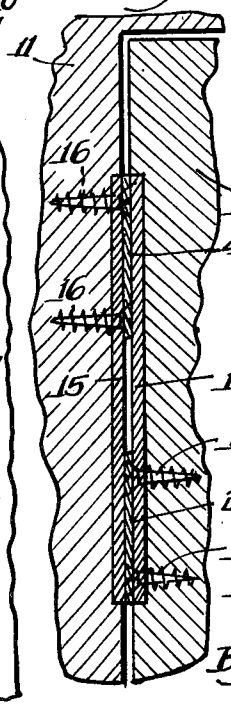
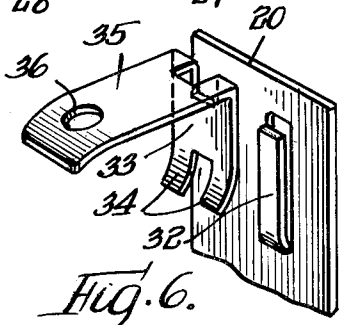


Fig. 6.



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United States Patent Office 3,043,523 Patented July 10, 1962

3,043,523

DOOR OPERATED SPRAY DEVICE

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Filed June 30, 1960, Ser. No. 39,921
4 Claims. (Cl. 239—274)

The principal object of this invention is to provide an improved spray device which is operated by the swinging of a door for producing, for example, a deodorizing spray each time that the door is opened and closed, such a spray device being particularly useful in deodorizing toilet rooms and the like.

A further object of this invention is to provide such a spray device which may be readily installed without the need for extraneous securing devices, which may be readily installed on an existing hinge for the door, which may be readily adjusted for installation purposes and for regulating the amount of the spray, which, in addition to being readily installed, is also inexpensive to manufacture, and which is rugged in construction and foolproof in operation.

Other objects of this invention reside in the details of construction of the door operated spray device and in the cooperative relationships between the component parts thereof.

Further objects of this invention will become apparent to those skilled in the art upon reference to the accompanying specification, claims and drawings in which:

FIG. 1 is an exploded perspective view of the door operated spray device of this invention;

FIG. 2 is a front elevational view of the door operated spray device shown as applied to the hinge between the door and the door frame;

FIG. 3 is a top plan view of the spray device, hinge, door and door frame as seen from the top of FIG. 2;

FIG. 4 is a view similar to FIG. 3 but showing the door being moved from the closed position as illustrated in FIG. 3 to the open position;

FIG. 5 is a vertical sectional view taken substantially along the line 5—5 of FIG. 3;

FIG. 6 is an exploded perspective view of a portion of the spray device illustrated in FIG. 1.

Referring first to FIGURES 3 to 5 there is shown a conventional door 10 and door frame 11 with the door being swingably mounted on the door frame by a hinge 12. The hinge 12 includes a first hinge plate 13 which is secured to the door 10 by screws 14 and a second hinge plate 15 which is secured to the door frame 11 by screws 16. The two hinge plates 13 and 15 are pivotally secured together by the usual hinge pin 17.

The door operated spray device of this invention is shown more particularly in FIG. 1 and it includes a first bracket 20 which rests against the face of the door 10 and which is provided with a portion 21 which is arranged between the hinge plates 13 and 15. The portion 21 is provided with a plurality of apertures 22 which align with the usual holes in the hinge plate 13 so that the same securing screws 14 which hold the hinge plate 13 in position on the door 10 also secure the portion 21 of the bracket 20 to the hinge plate 13. The bracket 20 is also provided with a portion 23 which is provided with an aperture 24 which in turn receives the hinge pin 17. Thus, in order to apply the bracket 20 to the door 10, all that is necessary is to insert the usual screws 14 through the apertures 22 in the portion 21 and to extend the hinge pin 17 through the aperture 24 in the portion 23. In this way the bracket 20 is readily and securely and accurately mounted on the hinge plate 13 and hence the door 10.

The bracket 20 is provided with an extension 25 and with a slitted portion 26 which receives a spring finger 27 which in turn is held in place by a detent 28 engaging the slitted portion 26. The extension 25 and the spring finger 27 operate to removably and resiliently clamp in place on the bracket 20 a spray container 28 of usual construction which contains a spray material under pressure, such as a deodorant spray material or the like. As shown more clearly in FIGURES 1 and 5 the bracket 20 is provided with a tongue 32 which slidably and frictionally receives a member 33 which in turn is provided with a pair of fingers 34 resting against the top of the container 28 for holding the same in place. The member 33 is provided with an extension 35 overlying the top of the container 28 and provided with a hole 36 through which the spray control button 29 extends. The bracket 20 is also provided with an extension 37 which screw threadedly receives a thumb screw 38 which in turn carries a platform 39 upon which rests the container 28. By adjusting the thumb screw 38 the vertical position of the container 28 may be adjusted with respect to the bracket 20.

The door operated spray device also includes a second bracket 42 which has a portion 43 which extends between the hinge plates 13 and 15, the portion 43 having apertures 44 for receiving the securing screws 16 which secure the hinge plate 15 to the door frame 11. The second bracket 42 also includes an aperture 46 for receiving the hinge pin 17 of the hinge 12. Thus, by inserting the securing screws 16 through the apertures 44 and passing the hinge pin 17 through the aperture 46, the second bracket 42 is readily and firmly affixed to the hinge plate 15 and hence to the door frame 11. The portion 45 of the second bracket 42 is provided with a camming surface 47 which provides an actuating member for the spray control button 29.

When the spray device is thus secured to the door 10 and door frame 11 as aforesaid, and when the door 10 is swung from the closed position as illustrated in FIG. 3 to the open position, the spray control button 29 passes under the actuating member 47 as illustrated in FIG. 4. The actuating member 47 operates to depress the spray control button 29 and hence produces a deodorizing spray. Each time that the spray control button 29 passes under the actuating member 47, a spray is thus produced. The adjusting screw 38 is manipulated to position the spray container 28 on the bracket 20 and to position the spray control button 29 with respect to the operating member 47 in order to appropriately line up the various elements of the spray device during initial installation. By further adjusting the adjusting screw 38 the position of the spray control button 29 may be adjusted with respect to the actuating member 47 to cause more or less depression of the spray control button 29 by the actuating member 47. In this way the amount of spray dispensed during each operation of the spray device may be accurately regulated. The extension 35 on the member 33 operates to assure good camming action between the spray control button 29 and the cam or actuating member 47. The extension 25 and the spring finger 27 provide a means for readily receiving spray containers of different diameters, and differences in length of the spray container 28 are readily accommodated by the adjusting screw 38 and adjustable member 33.

The door operated spray device shown in FIGURES 1 to 6 is applicable for a door which opens from right to left as shown in FIGURES 3 and 4. For a door which opens from left to right it is necessary to reverse the various elements of the brackets 20 and 42 to accomplish such operation. Thus, the spray device of this invention must be made in left hand or right hand sets for accommodating doors which open from right to left and from left to right, respectively. While the spray device of this invention is shown to be applied to the top hinge of

the door, it could equally as well be applied to any other hinge for the door.

While for purposes of illustration, one form of this invention has been disclosed, other forms thereof may become apparent to those skilled in the art upon references to this disclosure and therefore, this invention is to be limited only by the scope of the appended claims.

I claim as my invention:

1. A spray device operated by the swinging of a door which has a hinge including a hinge plate secured by screws to the door, a hinge plate secured by screws to the door frame and a hinge pin pivotally securing the hinge plates together, and comprising, a first bracket having a first apertured portion receiving the hinge pin and a second apertured portion extending between the hinge plates and secured to one of the hinge plates by the securing screws therefor, a second bracket having a first apertured portion receiving the hinge pin and a second apertured portion extending between the hinge plates and secured to the other hinge plate by the securing screws therefor, a spray means and a spray controlling member therefor carried by the first bracket, and an actuator member carried by the second bracket and engaging and disengaging the spray controlling member during a portion of the swinging movement of the door between closed and opened positions for causing the spray means to produce a spray.

2. A spray device operated by the swinging of a door which has a hinge including a hinge plate secured by screws to the door, a hinge plate secured by screws to the door frame and a hinge pin pivotally securing the hinge plates together, and comprising, a first bracket having an apertured portion extending between the hinge plates and secured to one of the hinge plates by the securing screws therefor, a second bracket having an apertured portion extending between the hinge plates and secured to the other hinge plate by the securing screws therefor, a spray means and a spray controlling member therefor carried by the first bracket, and an actuator member carried by the second bracket and engaging and disengaging the spray controlling member during a portion of the swinging movement of the door between closed and opened positions for causing the spray means to produce a spray.

3. A spray device operated by the swinging of a door which has a hinge including a hinge plate secured by screws to the door, a hinge plate secured by screws to the door frame and a hinge pin pivotally securing the hinge plates together, and comprising, a first bracket secured to one of the hinge plates and having an apertured portion receiving the hinge pin, a second bracket secured to the other hinge plate and having an apertured portion receiving the hinge pin, a spray means and a spray controlling member therefor carried by the first bracket, and an actuator member carried by the second bracket and engaging and disengaging the spray controlling member during a portion of the swinging movement of the door between closed and opened positions for causing the spray means to produce a spray.

4. A spray device operated by the swinging of a door which has a hinge including a hinge plate secured by screws to the door, a hinge plate secured by screws to the door frame and a hinge pin pivotally securing the hinge plates together, and comprising, a first bracket secured to one of the hinge plates, a second bracket secured to the other hinge plate, a spray means and a spray controlling member therefor carried by the first bracket, and an actuator member carried by the second bracket and engaging and disengaging the spray controlling member during a portion of the swinging movement of the door between closed and opened positions for causing the spray means to produce a spray.

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