United States Patent

Faso

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[45] **Nov. 3, 1971**

[54] DOOR MOUNTED SPRAYING DEVICES

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[52] **U.S. Cl.** **239/274,** 222/180

[51] **Int. Cl.** **B30b 15/30**

[58] **Field of Search** 239/274; 222/180, 181, 183, 222/394, 509

[56] **References Cited**

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3,033,471	5/1962	Horn	239/274
3,344,959	10/1967	Faso	222/183
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Attorney—Erwin A. Yaeger

[57] **ABSTRACT**

A spraying device comprising a housing carried by the movable door of a room and containing a pressurized spray container for a deodorant or other liquid, the housing carrying a movable projecting part in a position to be contacted by a part of the door frame each time that the door is closed to thereby depress the plunger of the spray container and spray the contents of the same. The invention contemplates the provision of an improved mounting means for the housing and by which the housing is assured of being in the required position on the door relatively to the door frame for the effective depression of the spray-operating lever when the door is moved to a closed position.

8 Claims, 10 Drawing Figures

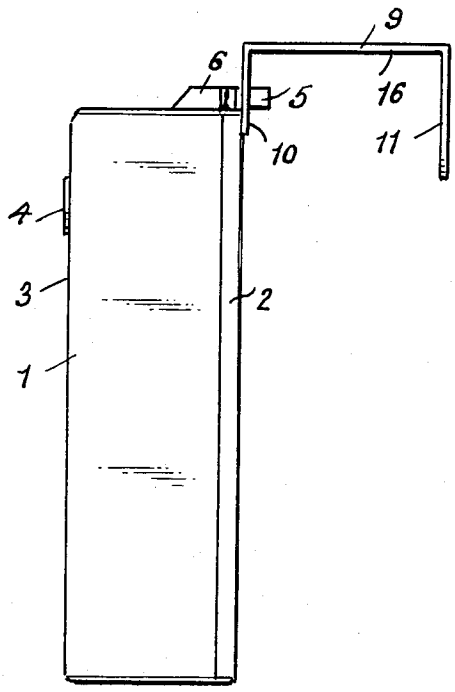


FIG. 1.

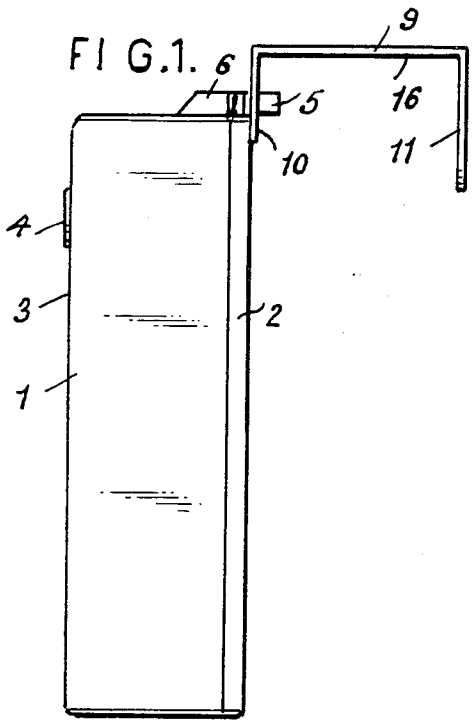


FIG. 2.

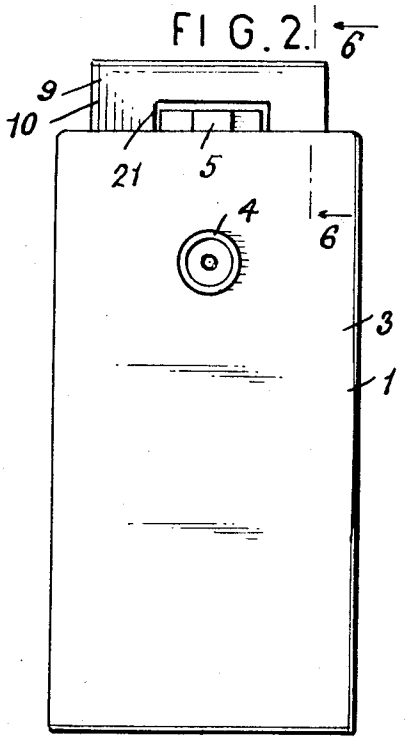


FIG. 3.

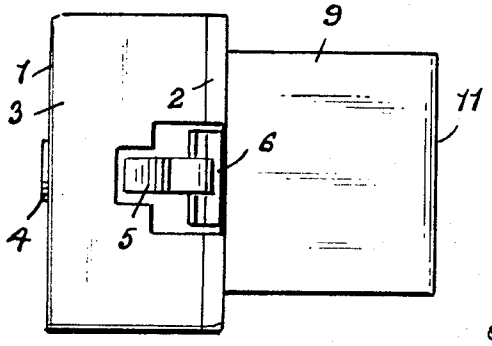


FIG. 4.

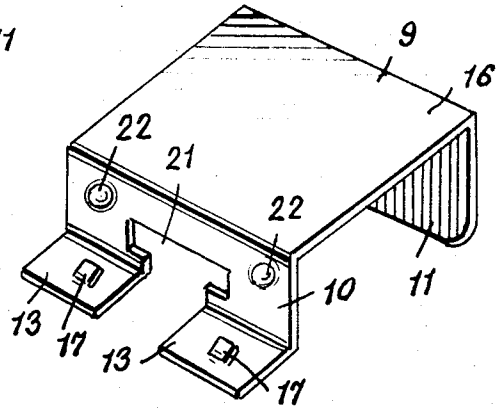


FIG. 5.

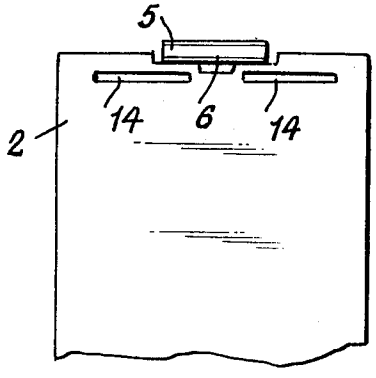


FIG. 6.

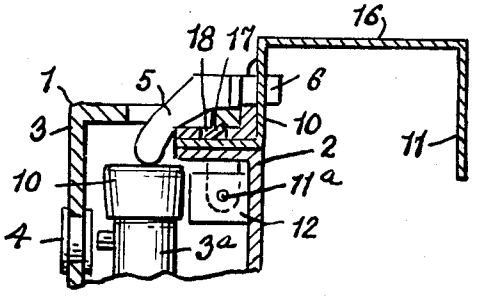


FIG. 7.

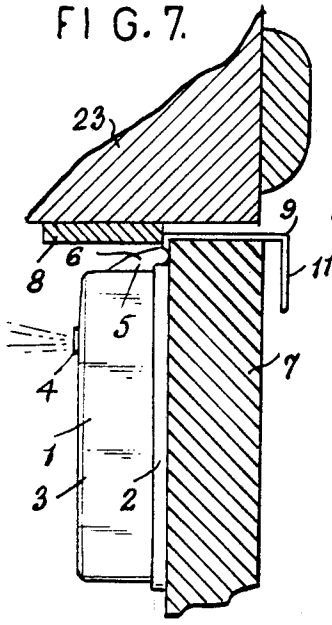


FIG. 8.

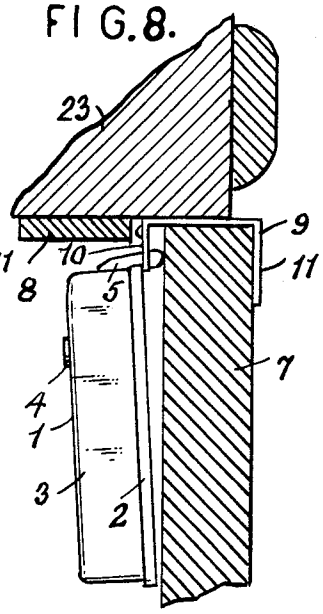


FIG. 10.

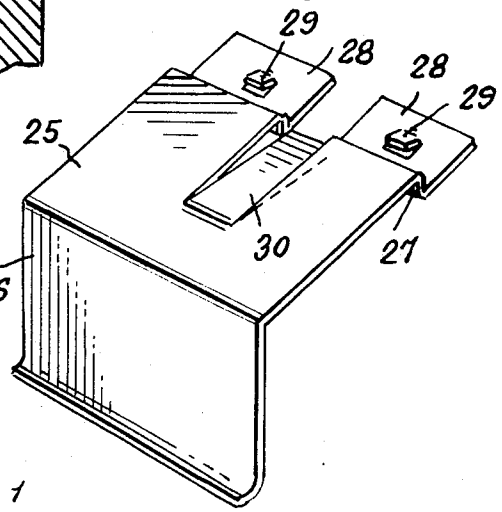
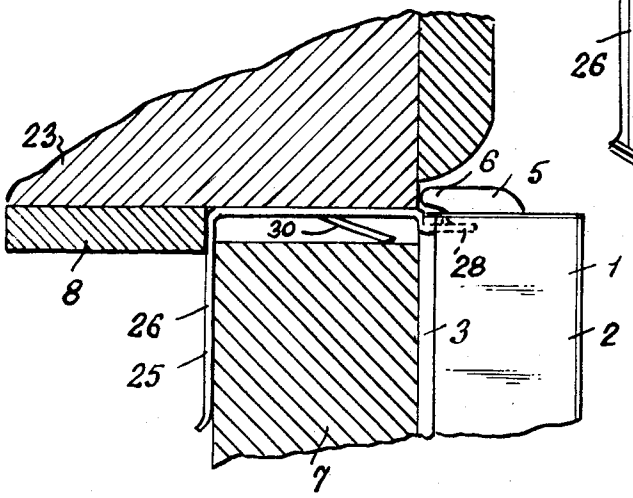


FIG. 9.



DOOR MOUNTED SPRAYING DEVICES

BACKGROUND OF THE INVENTION

The present invention relates to a door-supported spraying device of the type that is attached to and is carried by a movable door and is adapted to spray a deodorant or other desired fluid into the room that is closed by the door, this operation being performed each time that the door is closed. A spraying device of this general character is shown in my U.S. Pat. No. 3,344,959 and the present invention relates primarily to an improved means for mounting a unit of this kind on a door.

The improved construction includes a supporting clip for hanging the spraying unit from a top edge of a door and to secure the assurance of operation as well as to improve the ease of installation of the unit. It is well known that the gap between the top edge of a door and the door frame or jamb is not always uniform. This is due to installation, shrinkage or for many other reasons and may vary up to one-quarter of an inch, or even more. As a result, in order to have a door-spray unit operate properly, shims were often required and this made it difficult for the user to install it properly and this affected consumer acceptance.

The present invention eliminates the use of any screws or other fasteners to the door or the door frame for installation of the spraying device. Installation can be made quickly by anyone without the use of tools. No adjustments or additional brackets are required for the proper operation of the device, whether the door swings in or out.

The invention involves the employment of a metal clip which has a part fitting over the top of the door, such clip supporting the housing of the spray device and automatically tending to adjust the unit to the proper position, thereby improving its performance. The metal clip, used as above stated, has flexibility and acts as a spring and will adjust itself to the size of the door gap.

More particularly, the invention contemplates the provision of a substantially U-shaped springy metal clip which embraces the top of a door and is provided with lug portions fitting into slots in the housing to thereby attach the clip to the housing. The clip has spring means which enable it to adjust itself on the door so that the position of the operating lever of the sprayer with respect to a part of the door frame to secure the required spraying effect each time that the door is closed, will be assured.

DESCRIPTION OF THE INVENTION

Reference is to be had to the accompanying drawings, wherein an illustrative embodiment of the invention is shown and in which:

FIG. 1 is a side elevational view of a spray device made in accordance with the invention;

FIG. 2 is a front elevation of the same;

FIG. 3 is a top plan view of the same;

FIG. 4 is a perspective view of the clip for fitting the unit at the top of a door;

FIG. 5 is a rear view of the housing, with the clip removed in order to show the slots provided for the reception of parts of the clip;

FIG. 6 is a sectional view, taken substantially on the line 6—6 of FIG. 2, looking in the direction of the arrows;

FIG. 7 shows the device in place on a door and the door being in a closed position to actuate the sprayer;

FIG. 8 shows the device with the door slightly open and just beginning to be moved to a closed position;

FIG. 9 shows the device fitted with a modified form of mounting clip, and

FIG. 10 is a perspective view of the clip shown in FIG. 9.

Referring to the drawings, there is shown therein a housing or casing generally indicated at 1 and which can be composed of plastic, metal or other suitable material. It includes a base portion 2 and a cover or closure member 3 that is telescopically fitted over the base. The container thus produced contains a spray holder or bottle, such as is disclosed in my U.S. Pat. No. 3,344,959 and a part of such container is shown at 3*a* in FIG. 6. Such a spray container includes a plunger 6 which when depressed will spray out some of its contents through a hole 4 provided in the front wall of the portion 3 of the housing.

Pivotally mounted at 11*a* is lugs 12 on the base 2 near the top of the base is an operating lever 5 which has a part 6 projecting above the base portion and in such a position that when the unit is mounted at the top of a door 7 and the door is brought to a close, the door jamb or frame 8 will contact with the projecting part of the lever and will pivot the lever in such a manner as to cause it to depress the plunger of the spray container thus causing the ejection of some of the contents of the container into the room for which the door is a closure.

The housing 1 is mounted on a door by means of a springy, metallic clip generally indicated at 9. The clip is roughly of inverted U-shape and it thus includes substantially parallel leg portions indicated respectively at 10 and 11. Said leg portions are integrally connected by a web 16. When the clip is fitted on the housing, the web 16 will extend over the top of the door as seen in FIGS. 7 and 8.

The leg 10 of the clip is bifurcated to divide it into a pair of laterally-projecting lugs 13, these lugs being received in slots 14 (FIG. 5) provided in the base 2 of the housing adjacent to the top of the same. The lugs 13, projecting laterally from the leg 10, are provided with struck-out tabs 17 that engage in openings 18 (FIG. 6) formed in the top wall of the base 2. This arrangement firmly attaches the clip to the housing. The clip has an aperture 21 in the leg 10 between the lugs 13 and such aperture provides clearance for the part 6 of the operating lever 5 and permits it to be pivotally moved by contact with a part of the door frame.

Near the top, the leg 10 of the clip is formed with a pair of rounded nodes 22 which come into initial contact with the door frame stop, or molding thereon when the door is brought to a close. This insures the proper contact with the door frame stop, or molding on the closure of the door to thereby cause the positive movement of the spray lever.

The operation of the spraying device will be clear from FIGS. 7 and 8. FIG. 8 shows the door just about to assume a closed position and the operating lever 5 not yet depressed. FIG. 7 shows the door in closed position and in contact with the door frame 23. The flexibility of the legs 10 and 11 of the clip 9 permits movement of the door when the nodes 22 contact with the stop 8, for a distance sufficient for the door to contact with the part 6 of the lever 5 and swing the lever on its pivot 11*a*

to cause it to depress the plunger of the spray container and result in the ejection of a mist of the deodorant into the room for which the door is a closure. The housing **1** is always fitted on a door in such a way that it faces into the room and this is so whether the door swings inwardly or outwardly.

The clip shown at **25** in FIGS. **9** and **10** is a slightly modified arrangement. It has a leg **26** and a second shorter leg or offset **27** provided with the projecting lugs **28** which enter into the slots **14** to attach this clip to the base of the housing **1**. The legs **28** have struck-out tabs **29** similar to those shown at **17** and they are used for the same purpose.

Located centrally of the top of the clip **25** is a struck-out and downwardly projected tongue **30** constituting a leaf spring. In FIG. **9** the manner in which the clip **25** operates is shown. The springy tongue **30** on the clip contacts with the top edge of the door **7** and this assures that the projecting part **6** of the operating lever **5** will be in position to contact with the edge of the door stop **8** on the door frame **23** and result in the desired spraying. This is of importance since in many cases the unit, when fitted on a door, might not be positioned high enough to enable the part **6** of the lever **5** to contact with the door frame **23**. The resiliency of the tongue, causing it to act as a leaf spring, compensates for any difference in spacing between the top of the door and its frame.

What I claim is:

1. A mounting for a door-borne spraying device comprising, a housing containing a receptacle from which a fluid is ejected upon the closure of a door upon which the housing is carried, a movable operating lever having a part projecting out of the housing, said lever being adapted when pressed to cause ejection of the fluid, a support for the housing consisting of a clip fitting over the top of the door, said clip having a flexible part adapted to automatically adjust the housing at the proper height to secure contact between the operating lever and the door frame when the door is closed.

2. A mounting for a door-borne spraying device according to claim **1**, wherein the clip is of substantially U-shape, one of the legs of the clip having laterally projecting lugs, and the housing having slots into which the lugs project to thereby attach the clip to the housing.

3. A mounting according to claim **2**, wherein the clip is apertured at a point between the lugs to thereby provide clearance for the projecting part of the operating lever.

4. A mounting according to claim **2**, wherein the lugs have struck-out tabs and the housing has openings leading from the slots for engagement by said tabs.

5. In a spraying device of the character described, a housing containing a spray receptacle, an operating lever having a part projecting out of the housing for movement by contact with a part of the door frame when the door on which the device is mounted is moved to a closed position, a clip having a leg provided with parts which enter the housing to thereby attach the clip to the housing, said leg extending along one face of the door, the clip including a second leg extending along an opposite face of the door, the clip including a springy portion located between the two legs, said portion being positioned above the top of the door and being in resilient contact therewith.

6. A spraying device according to claim **5**, wherein the clip is of substantially U-shape, one of the legs thereof having spaced-apart laterally extended lugs, the housing being provided at the rear with spaced slots into which the lugs extend to thereby attach the clip to the housing, and the projecting part of the operating lever being movable between the lugs.

7. A spraying device for mounting on a movable door and operative to spray a fluid into a room for which the door forms a closure, the device including a housing containing a spray receptacle, the housing carrying a movable operating lever effective when contacting with a part of a door frame to cause spraying of the contents of the receptacle out of the housing, a mounting for the housing consisting of a metal, springy clip fitting over the top of the door at the rear of the housing, the housing having slots at its rear, the clip including lugs entering the slots at its rear, the clip including lugs entering the slots to attach the clip to the housing, the clip having an aperture between the lugs through which a projecting part of the operating lever is movable, the clip including a central resilient part located between the legs on the clip, said central part being flexible to close the space between the door and its frame.

8. A spraying device for mounting on a door to direct a mist into a room upon closure of the door, a clip attached to the device for supporting it on the door, the clip having parts embracing the door between them, a web extending between such parts and overlying the top edge of the door, said web having a struck-out, downwardly directed spring tongue engaging against the top edge of the door and being effective to cause a part of the clip to close varying distances between the top of the door and a part of the door frame.

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