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ACTUATOR-ADAPTER FOR SPRAY CAN

Filed July 30, 1962

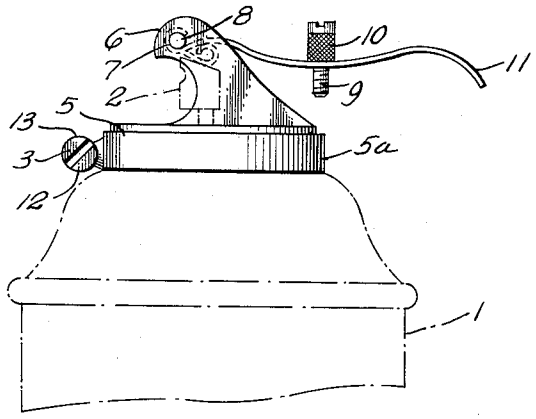


Fig. 1

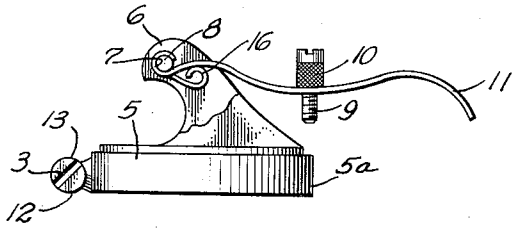


Fig. 2

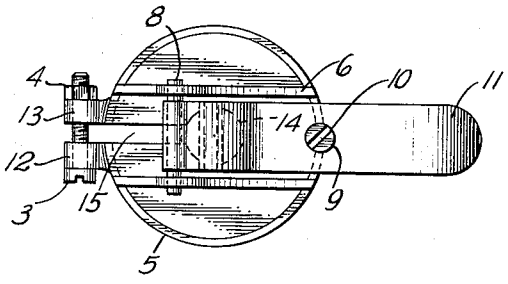


Fig. 3

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ACTUATOR-ADAPTER FOR SPRAY CAN

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1 Claim. (Cl. 222—394)

This invention relates to the pressurized container as and wherein heavy material products such as paint and lacquers and the like, are sealed within the container in a fluid pressure atmosphere and released therefrom upon depressing valve element, and more particularly to an improved cam lever control member and removable adapter base member for the container serving as a carrier for the lever member.

It is an object of this invention to provide a device which can be clamped to the rim of a spray can and which has a cam lever for reciprocating the push button of the can and a cam member disposed between the cam lever and the push button to provide a line-cam-tangential contact between the lever and the intervening member, and to maintain an efficient cam contact between the intervening member and the push button, for all positions of the push button.

Another object of the invention is the provision of an adjustment stop screw on the lever, with a lock sleeve surrounding the screw whereby the amount of downward movement of the lever (and, consequently, the amount of swing of the intermediate cam member and the extent of reciprocation of the push button) can be adjusted, whereby the flow of discharge from the spray can can be regulated and controlled.

With these and other objects in view, this invention involves certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a more complete understanding of my invention reference is to be had to the following description and accompanying drawings, in which:

FIGURE 1 is a side elevation of the device attached to the related container with a push button spray valve, the container and push button being shown in phantom;

FIGURE 2 shows a side elevation, with a portion cut away to show the lever and intermediate cam member journaled on the pivot shaft; and

FIGURE 3 shows a top plan view of the device.

The drawings show a device adapted to be attached to the outer rim of an aerosol can and includes an actuator for the push button on the stem of the conventional reciprocable valve of the can. The device consists of a cup-shaped base member **5**, including a base wall, centrally apertured at **14**, to accommodate the can valve stem and a downwardly extending cylindrical flange **5***a* to surroundingly embrace the rim of the can. The cup-shaped member is interrupted at one side, both in the base wall and in the flange, by a slot extending continuously from the bottom of the flange to the base wall and, in the base wall, from the outer periphery to the aperture **14**, as indicated at **15**, FIG. 3. Two lugs, **12** and **13**, extend radially outward from the extremity in the base wall and are separated by an extension of the slot in the base wall, formed by the space between the lugs. The lugs are transversely bored and threaded to accommodate bolt **3**. The bolt, when threaded into said apertures in said lug, and when the flange surrounds the rim of the can, as shown in FIG. 1, receives a nut **4**, by means of which the flange is tightened, and thus secured on the container rim.

Two brackets **6** extend upward from the base member in a direction parallel to the axis of the can. They are spaced symmetrically equal distances from said axis, the distance between them being greater than the outer diameter of the button on the aerosol valve stem. The brackets are arcuately contoured and terminate in reduced ends forwardly of the base wall aperture and the push button, as shown in FIGS. 1 and 2 of the drawings. Said upper ends are apertured to receive bearing shaft **8** which provides the fulcrum or pivot for the pivoted end of the button contacting cam member **16**, as well as for the pivoted end of the actuating lever **11**. The pivoted end of the cam member **16** is centrally journaled on the shaft **8**, while the pivoted end of the actuator lever is forked into two branches, which flank the sides of the pivoted end of the cam member **16** so that, with both the elements **11** and **16** thus pivoted on the same shaft **8**, the under surface of the lever **11** contacts the upper surface of the free end of the cam member **16** which is looped, at both its ends, to provide the pivot on the shaft **8** at the front end, and at its rear end, to provide a line cam contact between the member **16** and the under surface of the lever **11**. The intermediate portion of the element **16** is sloped to contact the upper surface of the button. Both elements are contoured as shown in FIGS. 1 and 2 and are dimensioned to be located within the space between the brackets **6**, as shown in FIG. 3. The lever **11** is apertured, at a point opposite the outer edge of the base member, to receive the adjustable stop member **9**, which is threadedly engaged in said aperture, and adjusted by turning the screw head. The knurled sleeve **10**, which surrounds the screw, limits the inward travel of the screw.

It is believed that the operation of the device is clear from the foregoing description. The device is clamped on the rim of an aerosol can by disposing the flange **5***a* around the rim and tightening the nut **4** on the bolt **3**. The amount of reciprocation of the lever **11**, and hence of the reciprocation of the valve button, is adjusted by means of the screw **9**, as aforesaid, to produce the desired discharge of spray.

It will be further appreciated that the cam lever member provides for a force multiplication which enables the cam valve to be opened with a manual pressure which is only a fraction of that which would be required were the valve being opened by manual force applied directly downwardly to the same.

Economy of operation is significant, as the usable material in a spray container is exceptionally low, considering the fact that the contents of container contains approximately forty percent propellant agent. The natural tendency of operating a spray container is depressing the valve element fullly downwardly due to the resistance of spring in the valve element, resulting in an over-spray condition and producing a heavy wide spray density pattern, in which it is considered unnecessary and wasteful. To operate the valve element in any other position that would correct the difficulty and obtain a narrow light spray density pattern is extremely difficult to accomplish. The device overcomes this condition in its regulation of flow quantity by the cam lever member travel speed, in which any intermediary position of the cam lever member becomes available in a non-critical movement, and once obtained it can be maintained by adjustment of stop screw provided on the cam lever member.

I claim:

A combined adapter for a spray can and actuator for the push button on the stem of reciprocating valve in the top wall of the spray can, said top wall having a surrounding rim, said combined adapter-actuator comprising:

(*a*) a downwardly facing cup-shaped member, including a base wall, centrally apertured to accomodate said stem and a downwardly extending cylindrical flange, dimensioned to surroundingly engage said rim, a radial slot extending from the central aperture in the base wall to its outer extremity on one side of said aperture, and continuing downward to the lower edge of the flange,

(*b*) a pair of lugs extending radially outward from the

outer end of the slot, spaced apart so as to provide between them a continuation of the slot in the base wall, the lugs being transversely apertured and threaded to receive a clamping bolt, by which the flange is adapted to be clamped on said rim,

(*c*) two brackets, extending upwardly from said based walls, spaced symmetrically on both sides of the slot, a distance sufficient to accommodate, with clearance, the diameter of the button, said brackets terminating, at their upper ends, in apertured portions located forwardly of the forward wall of the button,

(*d*) a shaft fixed in said apertured portions and extending between said brackets,

(*e*) a button engaging, C-shaped cam member, upwardly curved and inwardly curved at the forward end to embrace said shaft and at its rear end to provide a cam surface, the intermediate portion being slanted to contact the top of the button,

(*f*) an actuating lever, forked at its forward end to form two branches flanking the sides of the pivoted end of the cam member, said branches being also

pivoted on said shaft, the under surface of said lever being downwardly concaved to provide a cam surface complementary to, but of lesser curvature than, the curvature of said cam surface on the upper face of said C-shaped member, and an adjustable stop, located on said lever so as to engage the end of the base wall opposite to the end with the radial slot, when the lever arm is pivoted downward to reciprocate the valve, so as to limit the extent of said reciprocation.

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