A valved dispenser cartridge is supported within a housing which is adapted to be mounted to a door or other support. A portion of the valve stem extends above the cartridge and is connected to and is operated by a spray button. The spray button is a captive component of the housing and is retainably mounted thereto for only sliding, non-tilt motion in response to forces applied by either an actuator means or the valve stem. The actuator means responds to relative motion between the support and adjacent external structures, which motion is thereby converted into an axial movement of the spray button to dispense product followed by the immediate release of the spray button permitting it and the valve stem, which is spring loaded, to return upwardly to their normal non-dispensing position. The actuating means is preferably single-acting, utilizing a carriage to move a pivotable pawl which in the cocked position cams on and depresses the spray button when the carriage moves in one direction under the action of the external forces and which in the trail position passes over and avoids depressing the spray button when the carriage moves in the return direction under the action of a spring. A mechanism positively cocks the pawl prior to the next actuating stroke. A cover to close the housing is also provided. When the dispenser cartridge is emptied, it alone is removed, discarded and replaced.
ACTUATOR ASSEMBLY FOR AN ENCASED DISPENSER AND METHOD

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an aerosol or pump-type dispenser housed in a casing which is adapted to be mounted on a support such as a door or door jamb and wherein the dispenser valve is actuated by the spray nozzle and wherein there is also provided on the casing an actuating means to convert relative motion between the support and adjacent structures into desired movement of the dispenser valve.

The invention is useful particularly in automatically dispensing deodorants into rooms such as kitchens, bathrooms, nurseries, closets and the like to eliminate odors.

2. Description of the Prior Art

Door mounted spraying devices which activate upon the closing of the door are old. Such a device is described in Faso U.S. Pat. No. 3,344,959 which discloses a plastic box-like housing and cover mounted on a door and containing an aerosol dispenser operated by a pivotable lever having a portion extending beyond the housing for contacting the door jamb only when the door is closed to thereby dispense product through the spray head. Bifurcated fingers maintain the directional orientation of the spray nozzle. A similar device is shown in English Pat. No. 935,555 (FIGS. 1 and 2) except that the English device dispenses only when the door is opened.

A significant deficiency in both the aforesaid Faso and English patents is that, particularly when the spray device is mounted to an ordinary swinging door, substantial side loads (as distinct from axial loads) are applied to the valve stem of the aerosol dispenser during the actuation stroke. These side loads act to score and scratch the actuator stem and wear out related seals and result in leakage and seepage around the stem. Applicant overcomes this problem by a structure which incorporates the spray button as a captive component of the housing, the spray button being mounted therein for only sliding, non-tilt motion and thereby transmitting only vertical loads to the actuator stem. Additionally, as a result of applicant's unique captive spray button, applicant is able to use to its utmost the simple, efficient principle of cammed cooperation directly between the spray button and actuator without the necessity of costly intermediate pieces in order to convert the horizontal motion of a door into a solely vertical actuation of the dispenser valve stem.

The aforesaid Faso and English patents have another serious deficiency not present in applicant's device which is that when the door is closed (FASO) or opened (English) to dispense product, the sprayhead of the aerosol dispenser is held in the depressed position for as long as the door is closed (FASO) or opened (English), which could be for weeks or months. As is well known in the art, although a metered aerosol valve is sealed when its stem is depressed, the seals that operate in this position are designed for momentary or short duration sealing, and, indeed, difficulties have been encountered in trying to construct them otherwise. Thus, when held depressed for long periods, such valves begin to leak. This is particularly true with plastic seals in aerosol packages as distinct from rubber seals. Applicant overcomes this problem through a unique, trig-

ger-type, quick-release mechanism which releases the spray button of the aerosol dispenser immediately after actuation even though the door remains closed (or open, as the case may be) permitting the valve stem of the aerosol dispenser to pop up and seal in its normal non-dispensing position. This advantage is achieved without sacrificing the unique advantage of having a captive, non-tilt spray button.

Although quick-release, door-mounted dispensers are disclosed in Marini U.S. Pat. No. 2,534,464; Marini U.S. Pat. No. 2,534,465; Marini U.S. Pat. No. 2,728,608; Davis U.S. Pat. No. 3,224,644 and English Pat. No. 933,555 (FIGS. 5 and 6), none show applicant's structure. Moreover, each of these disclosures teaches the use of inefficient double-action actuating mechanisms with numerous parts which dispense product each and every time the door opens and closes, thus wasting product. Without giving up any of the previously mentioned advantages, applicant's quick-release actuating mechanism also overcomes these problems of costliness and inefficiency by providing in combination therewith a single-acting mechanism with minimum parts to dispense product on one stroke (say as the door is closed) and to recycle on another stroke (say as the door is opened) without again dispensing product. An alternative embodiment of applicant's device is adaptable to operate as a double-acting dispenser when such types are desired.

It is also known, as disclosed in Levy U.S. Pat. No. 3,273,756, to provide a jamb-mounted dispenser which is tripped only as the door is closed and which immediately releases the spray button. Levy, of course, does not disclose the capability of operating from a moving support, such as a door, which is applicant's preferred embodiment. Moreover, Levy's structure and method of operation are quite different from applicant's in that Levy does not disclose applicant's unique captive, non-tilt spray button nor provide a quick-release mechanism which is adapted to use an efficient cammed cooperation between the actuator means and spray button as does applicant. Further, Levy is only capable of operating as the door is closed since the actuating mechanism recycles immediately even though the door remains closed. It is not adapted to operate as the door opens. Applicant's combination affords the capabilities which Levy lacks and applicant's compact efficient structure makes it a versatile and substantial improvement over Levy's device.

SUMMARY OF THE INVENTION

The present invention is an actuator assembly for a dispenser package which includes a housing mounted on a support adapted to receive the valved dispenser cartridge, a captive spray button operatively connected to the valve and mounted to the housing for sliding motion only and against tilting, and an actuator means mounted on the housing for actuating the spray button to dispense product from the dispenser cartridge and out through the spray button.

In the preferred embodiment the actuator means is single-acting, in that it dispenses product only when moving in one direction, such as when the door closes, is quick-release in that the spray button and connected dispenser valve are released immediately after dispensing a dose of product and return automatically to their normal non-dispensing position, and has a cammed cooperation with the surface of the spray button to pro-
provide a smooth, efficient conversion of relative motion between the actuator means and the housing into an axial actuation of the spray button.

The single-action feature is achieved through a two-position carriage, pawl and spring means wherein during an actuation stroke in one direction the pawl strikes and depresses the spray button to dispense product while simultaneously the spray button is held for sliding motion only and against tilting and wherein during a return stroke in the other direction the pawl pivots to a trail position to pass over the spray button without depressing it.

A cocking mechanism is provided to insure that the pawl is positively recycled out of the trail position and into a cocked position for the next actuation stroke.

The objects of the present invention are to provide:

a. an actuator assembly for a mounted dispenser package in which the spray button is a captive component of the assembly, is positively held against tilting and transmits only axial loads to the dispenser valve stem;

b. a quick-release actuator assembly for a mounted dispenser package which permits the valve of the dispenser to return automatically to its normal non-dispensing position (up) immediately after dispensing an amount (whether metered or non-metered) of product;

c. a single-acting actuator assembly for a mounted dispenser which causes the dispensing of product only during an actuation stroke in one direction, but which is easily adaptable to have said stroke occur either as the support, such as a door, is opening or closing, or which can even be used in a double-acting mechanism so that product is dispensed both as the door both opens and closes;

d. a complete self-contained dispenser package having an integral housing which can be mounted on a door or other movable or stationary support and which utilizes a disposable, headless dispenser cartridge;

e. a direct and efficient camming cooperation between the actuator touched by external forces and the spray button which cooperation reduces or totally eliminates the necessity of having additional intermediate parts and thereby further reduces costs of construction.

Further objects will be apparent from the following description.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation of the overall combination dispenser of the present invention without a front cover and showing details of the captive mounting of the spray button.

FIG. 2 is a side view of the entire combination in partial section showing the dispenser mounted on a movable support and to be contacted by an adjacent stationary structure. The dispenser is shown in the normal non-dispensing mode.

FIG. 3 is a view similar to FIG. 2 showing the actuation stroke and the spray button depressed dispensing product from the nozzle.

FIG. 4 is a view similar to FIG. 2 showing the first portion of the return stroke with the pawl striking the spray button and being pivoted toward the trail position without depressing the spray button out of the normal non-dispensing mode.

FIG. 5 is a view similar to FIG. 2 showing the completion of the return stroke without dispensing product and with the pawl first in the full trail position (dotted lines) and then in the full cocked position (solid lines).

FIG. 6 is a top plan view taken along the line 6–6 of FIG. 2 further showing the captive, non-tilt mounting of the spray button in the housing.

FIG. 7 is an exploded perspective view of the overall combination in partial section and showing alternate embodiments in dotted lines.

FIG. 8 is an end elevation view of an alternative embodiment of the mounting means and carriage as viewed from the right hand direction of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As best shown in FIGS. 1 and 2, the housing 10 is a box-like container or casing adapted to be fixedly secured to a support 11 and to receive the dispenser cartridge designated generally as 12 in FIG. 1. The mounting means is preferably a lateral member 13 integral with the housing 10 and which rests on top ledge of swinging door 11. Screws 14 inserted through holes 15 (FIG. 7) are used to firmly secure the housing to the door. Also shown in FIG. 7 in dotted lines is a variation for mounting to a sliding door wherein lateral member 13′ with screw holes 15′ projects from the side of the housing 10. The front opening of housing 10 is closed by cover 16 (FIG. 2) which telescopes over and is frictionally secured to the housing 10 such as by cooperating bead and groove means 17 shown in FIG. 6. Cover 16 has an aperture 18 in line with the discharge nozzle of the spray button through which product is dispensed as more fully described below. The dispenser cartridge 12 is securely held and positioned within the housing by ribs 19. The housing and cover are preferably molded from plastic or the like but may also be stamped from metal.

In an alternative embodiment, shown in dotted lines in FIG. 1, laterally extending resilient ribs 19a integrally molded with the housing 10 may be substituted for the pair of ribs 19 which extend vertically from the bottom wall of housing 10. Ribs 19a provide a resilient mounting which can accommodate variations in the overall size of the cartridge 12 due to manufacturing tolerances.

The dispenser cartridge 12 is standard in the art. It includes a container 20 sealed closed by a closure assembly which also includes a cap 21 and a valve (not shown). The container is loaded with product to be dispensed and may be pressurized or not depending on the type of dispenser. The stem 22 of the valve extends above and through the cap 21 for operative connection to and movement with the spray button. The dispenser cartridge may be a metered aerosol dispenser or a pump-type dispenser. As is well known in the art, the valve of the dispenser cartridge is spring loaded (valve spring not shown) to the up position which is the normal sealed or non-dispensing position. Product is discharged through valve stem 22 by depressing the valve stem 22. Upon release of the valve stem 22 the spring loaded valve returns automatically to the up position.

The spray button, generally designated 30 in FIG. 7, is operatively connected to the valve of the dispenser cartridge 12, for dispensing product from the dispenser cartridge and discharging it through the spray button. As best shown in FIG. 3 this is accomplished by means of a frictional engagement between the valve stem and the discharge passage 31. Also, the discharge passage
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31 has a shoulder means 32 cooperating with valve stem 22 so that a downward or axial force applied to the spray button causes shoulder means 32 to depress valve stem 22 and dispense product from the cartridge 12, through discharge passage 31 and nozzle 33 of spray button 30 and out aperture 18 of cover 16.

Spray button 16 is molded from plastic or the like and is retainedly mounted to housing 10 for sliding motion only and against tilting as best seen in FIG. 6. Elongated ears 34, 35 of the spray button slide in recessed or grooved tracks 36, 37 of lugs 38, 39 molded integrally to the rear wall of housing 10. Lugs 40, 41 are also molded integrally to the rear wall of housing 10 and are so dimensioned to take up the slack space and create a snug fit between the leading edges 42, 43 of ears 34, 35 and the cooperating flanges of lugs 38, 39 and between the rear surface 44 of the spray button and the leading edges of lugs 40, 41. Spray button 30 is inserted into tracks 36, 37 from below where, with slight pressure, bars 45, 46 (FIG. 7) are first forced apart by ears 34, 35 and then snap back in to act as a means to limit movement of the spray button, such as acting as retaining shoulders preventing removal of the spray button 30 (FIG. 1). Thus, the spray button is truly a captive member of the housing 10 mounted for sliding motion only and against tilting and transmits only vertical forces to the valve stem 22. This is a very important feature of the present invention because side loads on the valve stem 22 which cause undue wear and tear on the valve stem and related seals, which loads are the prime cause of valve stem leakage, are totally eliminated in the present invention regardless of the manner in which the actuating force is applied to the spray button. This important feature permits applicant to apply actuating forces to the spray button through a camming action without having the disadvantage of coping with side loads on the valve stem normally associated with such actuating mechanisms. Also applicant's structure provides directional control for the spray nozzle so that product is always dispensed from the spray nozzle 33 through aperture 18 of the cover without hitting the inside of the cover and dripping as was common in the prior art.

The top surface of spray button 30 is a predetermined cammed surface 47 designed for cooperation with the actuating means to transmit actuating and release movements to the valve stem 22 as more fully described below.

One of the key features of the present invention is the trigger-type, single-acting, quick-release actuator means, generally designated 50 in FIG. 7, which is mounted on the housing 10 for cammed cooperation with the spray button 30 so that relative motion between the housing and the actuator means is converted into actuating movement of the spray button to dispense product from the dispenser cartridge 12 and discharge it through the spray button 30.

The actuator means 50 includes an urging means or spring 51, a carriage 60, and a pawl 70.

The actuator means is assembled as follows. First the spring 51 is inserted into housing 10 over guidepin 52 and so that one end abuts the interior of the front wall of the housing 10 as at 53 of FIG. 2. Then carriage 60 is inserted into housing 10 for sliding movement, by inserting carriage flanges 61, 62 into housing tracks 23, 24 (FIG. 1), the free end of spring 51 abutting the interior wall 65 (FIG. 2) of the carriage. Finally, pivot pin 71 of pawl 70 is snapped into the journal mountings 66 (FIG. 7) on the bottom of the carriage. Pawl 70 is thus mounted to and carried by carriage 60 and also keeps carriage 60 from being thrown out of the housing by spring 51 since eccentric lugs 72, 73 of pawl 70 abut against housing stop shoulders 25, 26 best seen in FIGS. 1 and 7. The eccentric lugs 72, 73 and stop shoulders 25, 26 further serve as the cocking mechanism for the pawl, as more fully described below.

Carriage 60 is made of molded plastic or the like and under the action of an externally applied force is slidable from a first position (start position) (FIG. 2) with eccentric lugs 72, 73 against stop shoulders 25, 26 to a second position (rest position (not shown)) with the forward edge 68 of the carriage bottomed out against the interior of the front wall of housing 10. With the carriage in the rest position, spring 51 is compressed between the housing and the carriage and, upon removal of the external actuating force, will return the carriage (and pawl) from the rest to the start position automatically.

Pawl 70 is made of molded plastic or the like and is pivotable between a cocked position and a trail position. In the cocked position of the pawl eccentric lugs 72, 73 are abutting stop shoulders 25, 26 forcing rear edges 74 of the pawl against abutting shoulders 67 of the carriage (see FIGS. 2 and 7) and the pawl is thus in line to strike the cammed surface of the spray button 30 and depress the latter for dispensing product as shown in FIG. 3. In the trail position the pawl is in line to clear the spray button without actuating the latter. Therefore, when the carriage is moved from the start to the rest position against the action of the urging means 51, the spray button is depressed through cammed cooperation with the pawl for dispensing product and, upon release of the carriage the spring 51 returns the carriage from the rest position to the start position, and as the pawl strikes the spray button (FIG. 4), the pawl is permitted to rotate to the trail position (dotted lines of FIG. 5) to thereby clear the spray button without actuating the latter. The cocking mechanism described above forcibly moves the pawl from the trail position to the cocked position (solid lines FIG. 5) after the pawl has cleared the spray button and as the carriage approaches the start position.

It is apparent from the drawings and the above description that the quick-release of the spray button is accomplished through the cammed configuration of the top surface of spray button 30 in cooperation with the pawl 70. During the actuation stroke the pawl first engages the cammed surface 47 and depresses the button causing product to be dispensed and is followed immediately by the disengagement of the pawl and cammed surface 47 causing the spray button to be released as the carriage approaches the rest position. As soon as the spray button is released, it returns to its original up position under the action of the valve spring in which position the dispenser cartridge is sealed in a normal, non-dispensing mode.

The method of operation of the preferred embodiment of the dispenser is as follows: With the dispenser mounted to an open door, the carriage is in its start position with eccentric lugs 72, 73 abutting stop shoulders 25, 26 forcing the pawl into its cocked position with edges 74 against stop shoulders 67, and the spray head and valve stem of the dispenser cartridge are in the up or non-dispensing position. When the door 11 is closed,
the carriage 60 strikes the stationary door sill 80 which initiates the actuation stroke moving the carriage and pawl from the starting position toward the rest position (FIG. 2). During the actuation stroke, the pawl strikes and is cammed over the forwardly inclined portion of the cammed surface 47 of the spray button and simultaneously the spray button is depressed out of the up position to dispense product from the cartridge 12 and through the spray button nozzle 33 (FIG. 3). Simultaneously, the spray button is being held for sliding motion only and against tilting motion due to the snug fit of the spray button in the longitudinal tracks 36, 37 of the housing. (In the preferred embodiment a metered aerosol valve is used and dispensing terminates automatically after the metered dose is dispensed.) As the actuation stroke continues the carriage and pawl approach the rest position and the pawl passes over and off of the cammed surface 47 and the spray button is immediately released, permitting the spring in the dispenser cartridge valve to return the valve stem and spray button to their original position, the up or normal non-dispensing mode. When the door reaches its final closed position, the carriage reaches its rest position against the front interior wall of the housing. Nothing changes until the door is opened whereupon the return stroke is begun by spring 51 moving the carriage from the rest position toward the start position and in doing so causes the pawl to strike the rearwardly inclined portion of the cammed surface 47 of the spray button (but without depressing it) (FIG. 4) and be rotated to the trail position, i.e., trailing the pawl as it passes over the spray head during the return stroke to avoid actuating the spray head (dotted lines FIG. 5). After the pawl has cleared the spray button and as the carriage approaches the start position, the pawl (if it has not already begun to move to the cocked position by force of gravity) is cocked by positively moving the pawl out of the trail position through the action of eccentric lugs 72, 73 hitting stop shoulders 25, 26 (solid lines FIG. 5). The pawl is fully cocked as the carriage again reaches the start position and edges 74 of the pawl abut shoulders 64 of the carriage.

The primary functions of the actuator means are to cause the dispensing of a dose of product during each actuation stroke, to automatically immediately release the dispenser head after each actuation stroke so that the internal parts of the dispenser's valve can return to their normal, non-dispensing, sealed position and, during a return stroke to automatically recycle and cock without dispensing product in preparation for the next dispensing shot. Thus, the mechanism to accomplish these functions is appropriately termed a trigger-type, single-action, quick-release, actuator means.

By "single-action" or "single acting" is meant that the actuating means is such as to actuate the spray button to dispense product only on one stroke in one direction and to recycle by returning to its original position without again actuating the spray button. The actuation stroke occurs preferably as the door closes, (but, as mentioned below, could be as the door opens). The return stroke occurs preferably as the door opens (but could be as the door closes).

By "double-action" or "double acting" is meant that product is dispensed as the door is both opened and closed.

It is to be understood that the actuating force which causes the relative motion between the housing and the actuating means is applied as a result of the carriage striking the adjacent structure surrounding the support 11. Support 11 is normally an inward opening swinging door and structure 80 is normally a stationary door jamb. Thus, during operation, the relative motion between the carriage portion of the actuating means and the housing is essentially the same as the relative motion between the external structure and the housing. However, one skilled in the art could easily rearrange the mounting structure so that the dispenser can be mounted instead, for example, in the corner of a stationary door jamb formed by the junction of the vertical and horizontal walls surrounding the door, the dispenser being positioned so that the carriage is operated by the door upon the closing thereof. Such an alternative embodiment is useful for rooms having only an outward opening door. This alternative embodiment is shown in dotted lines in FIGS. 6 and 7 by eliminating lateral member 13 and putting screw holes 91 in the side wall (and top wall, if further support is needed) of the housing. Holes 91 in the side wall of the housing 10 can also be used to give further support to the embodiment for use on sliding doors discussed earlier above.

Although it is not shown in the drawings, it is understood that one skilled in the art could reverse the parts of the actuating mechanism and the related camming surfaces so that the preferred embodiment shown in FIGS. 1–7 dispenses product when the door opens and does not dispense (i.e., pawl trails) when the door closes. In such an embodiment (not shown) spring 51 initiates the actuation stroke and becomes the actuating force to depress the spray button against the force of the spring in the dispenser cartridge valve. Thus the relative strengths of the two springs together with the frictional resistance in the mechanisms must be such as to insure sufficient strength in spring 51 to cause the spray button to be depressed.

Similarly, to convert the single-action actuating means into a double-action actuating means (not shown) so that product is dispensed as the door is both opened and closed, it is only necessary to lock the pawl in the cocked position (i.e., eliminate the pivot feature and trail position of the pawl) and adjust the cammed surface 47 so that it is symmetrical for operation from either direction, as would be obvious to one skilled in the art, having seen the embodiment disclosed in FIGS. 1–7.

It is to be noted that although the preferred embodiment definitely accomplishes quick-release of the spray button as the door closes it does not completely recycle until the door is opened. The carriage and pawl thus can remain in the rest position for a very long time, even weeks and months, without any disadvantage because while the carriage is in the rest position, the spray button is not held in the down position as was done in prior art devices. Rather the spray button is permitted to rise to its up position where the dispenser cartridge seals in a normal non-dispensing mode.

There is an important advantage to the quick release feature. As one skilled in the art will appreciate, aerosol metered valves are provided with two sets of seals. One set is designed for short duration sealing and operates with the stem in the depressed position. This set of seals merely cuts off any flow of additional product beyond the metered amount. When the valve is released, it returns to its normal up position where another metered dose is prepared for dispensing and where the
second set of seals operates to seal the valve. This second set of seals is designed for effective long duration sealing during all periods of non-use.

Prior art mounted aerosol devices which dispensed metered doses when the door was closed, suffered from the inherent disadvantage of keeping the valve stem depressed during all the time that the door was closed. Thus, what were designed as short duration seals had to function as long duration seals, and failed, causing such prior devices to leak severely.

Applicant's structure overcomes the aforesaid leakage problem through the use of a quick-release actuator in a new combination which is specially designed to immediately release the valve stem after actuation so that at all times except during actual actuation the valve stem is sealed in its normal up position, as such valves were designed to operate.

The captive, non-tilt, spray button gives applicant several advantages. Most importantly it transmits only axial loads to the valve stem and eliminates side loads which were heretofore also a prime cause of valve stem leaks. Secondly it permits applicant to use headless dispenser cartridges as replacements when the original dispenser cartridge is empty. The substantial monetary savings is obvious. Third, it permits the utilization of an efficient camming surface on the top of the spray button which can be directly contacted by the actuating member moved by the door jamb thereby eliminating the need for intermediate parts (such as pivotable levers) as were necessary in prior art devices and cutting down frictional resistance. Lastly, it automatically provides the directional orientation required to spray through the aperture in the cover.

It can be seen that the portion of the paw which strikes the cammed surface 47 of the spray button is also shaped to cooperate therewith and reduce frictional resistance.

It was mentioned above that in the preferred embodiment, dispenser cartridge 12 is an aerosol and the valve is a metered valve. In this embodiment, the metered dose is dispensed when the valve stem is depressed and dispensing terminates automatically due to the internal working of the dispenser valve even though the valve stem has not yet risen. If, instead of an aerosol, the dispenser is a pump-type dispenser, then each down actuation of the valve stem will pump out and dispense one charge of product from the pump chamber, the up stroke of the valve stem being used to recharge the pump chamber.

A further alternative embodiment for the molded plastic mounting means is shown in FIG. 8. Here a slot has been provided in the lateral mounting member 113 which attaches to the top ledge of door 111 by screws 114, as for a swinging door mounting previously described. In this embodiment carriage 160 extends partially down into the slot such that there is provided small side clearance 161 between the vertical sides of the carriage and slot and bottom clearance 162 between the bottom of the carriage and the top of the door ledge. The side and bottom clearances provide a reduction in frictional drag between the sliding parts and the slot acts as a track for guiding the carriage during operation reducing the chances for misalignment or canting of the carriage with resultant jamming or damage.

The aforesaid description demonstrates the versatility of the present invention. Versatility is further enhanced by providing various types and shapes of inexpensive metal brackets which can be mounted directly to the housing by screws. Holes molded in various places on the housing are easily provided to accommodate the various type brackets and for variable positioning of the dispenser to a support. For example, one leg of an L-shaped bracket can be secured to the back vertical wall of the housing and the other leg to the inside of a drawer such that product is dispensed when the drawer is closed. Through the use of such brackets, the present dispenser package can be used in a multitude of applications inside or outside of drawers, cabinets and the like.

I claim:

1. In combination with an actuator assembly for a valve dispenser cartridge having a valve stem portion protruding therefrom including a housing adapted to be fixedly secured to a support and to receive the dispenser cartridge, a spray button mounted for operative connection with the protruding valve stem portion of the dispenser cartridge, and actuator means mounted on the housing for cooperation with the button, the improvement comprising: cooperative means comprising elongated ears slidably disposed within grooved tracks, said means being mounted between the spray button and the housing for snugly supporting and slidably holding the spray button for non-tilt reciprocation within the housing, and shoulder means fixedly mounted to the housing to limit inward movement of the spray button in the said cooperative means and to retain the spray button as a captive component of the housing, the spray button being shaped for cammed cooperation with the actuator means whereby relative motion between the housing and the actuator means is converted into solely axial actuating movement of the button relative to the dispenser cartridge valve for dispensing product from the dispenser cartridge, through the valve stem portion and discharging it through the spray button.

2. The actuator assembly of claim 1 wherein the actuator means is a single-acting means comprising:

A. A carriage mounted on the housing for slidable movement between a first position and a second position,

B. A paw mounted to and carried by the carriage and extending sufficiently below the carriage for directly contacting and depressing the spray button, and

C. urging means between the housing and the carriage for moving the carriage from the second to the first position whereby when the carriage is moved from the first to the second position against the action of the urging means, the spray button is contacted and depressed through cammed cooperation with the paw for dispensing product and, upon release of the carriage, the urging means returns the carriage to the first position without actuating the spray button.

3. The actuator assembly of claim 2 wherein the single-action actuator means further comprises:
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11. the pawl being pivotable between a cocked position in line to directly strike the spray button and a trail position in line to clear the spray button whereby when the carriage is moved from the first to the second position the pawl is in the cocked position and strikes and depresses the spray button for dispensing product and when the carriage is moved from the second toward the first position the pawl is permitted to pivot to the trail position without actuating the spray button.

4. The actuator assembly of claim 3 further comprising:
   a cocking mechanism for moving the pawl from the trail position to the cocked position after the pawl has cleared the spray button as the carriage approaches the first position.

5. A dispenser comprising:
   a housing having means for mounting to a support, b. a dispenser cartridge held by the housing and having a spring loaded valve a portion of which extends through and above the cartridge, c. a spray button operatively connected to the said valve portion of the dispenser cartridge, d. cooperable means comprising elongated ears slidably disposed within grooved tracks, said means being mounted between the spray button and the housing for snugly supporting and slidably holding the spray button for non-tilt reciprocation within the housing and shoulder means fixedly mounted to the housing to limit inward movement of the spray head in the said cooperable means and to retain the spray button as a captive component of the housing, and
   e. single-acting, quick-release actuator means mounted on the housing for cammed cooperation with the button whereby operating the actuator means in response to relative motion with respect to the support first depresses the spray button and dispenses product therethrough from the dispenser cartridge and then immediately releases the spray button permitting the dispenser cartridge to seal in a normal non-dispensing mode.

6. The dispenser of claim 5 wherein the single-acting, quick-release actuator means includes:
   a. a carriage mounted on the housing for slidable movement between a first and second position, b. a pawl pivotally mounted to and carried by the carriage and pivotable between a cocked position in line to strike the spray button and a trail position in line to clear the spray button, and
   c. urging means between the housing and carriage for moving the carriage from the second to the first position whereby when the carriage is moved from the first position toward the second position against the action of the urging means, the pawl is in the cocked position and strikes and depresses the button dispensing therethrough product from the dispenser cartridge and is followed by, upon the release of the carriage, the urging means returning the carriage to the first position while permitting the pawl to move to the trail position so as not to actuate the spray button.

7. An actuator assembly for a valve dispenser cartridge having a valve stem portion comprising

12. A. a housing adapted to be fixedly secured to a support and to receive the dispenser cartridge, B. grooved tracks mounted integrally within the housing, C. a spray button operatively connected with the valve stem portion of the dispenser cartridge and having elongated ears snugly supported within the grooved tracks for reciprocation therein, and D. quick-release actuator means mounted on the housing for cammed cooperation with the button whereby relative motion between the housing and the actuator means is converted into solely axial actuating movement of the button relative to the dispenser cartridge valve for dispensing product from the dispenser cartridge, through the valve stem portion and discharging it through the spray button.

8. The actuator assembly of claim 7 wherein the ears are located on opposite side surfaces of the spray button and ride in the grooved tracks.

9. The actuator assembly of claim 7 further comprising means on the housing to limit movement of the spray button and to retain the spray button as a captive component of the housing.

10. The actuator assembly of claim 9 wherein the limiting means are shoulders at one end of the tracks which contact a portion of the spray button to prevent the ears of the spray button from leaving the grooved tracks.

11. An actuator assembly for a valve dispenser cartridge having a valve stem portion comprising
   a. a housing adapted to be fixedly secured to a support and to receive the dispenser cartridge, b. a spray button mounted for operative connection with the valve stem portion of the dispenser cartridge, c. single-acting, quick-release actuator means mounted on the housing for cammed cooperation with the spray button comprising
      i. a carriage mounted on the housing for slidable movement between a first position and a second position, ii. a pawl mounted to and carried by the carriage for contacting and depressing the spray button, and
      iii. urging means between the housing and the carriage for moving the carriage from the second to the first position,
   d. the housing having a laterally extending member adapted to rest upon and be affixed to the support and formed with a slot for receiving the carriage and for guiding the carriage during operation, the carriage extending only partially into the slot to provide a clearance between the bottom of the carriage and the top of the support whereby when the carriage is moved from the first to the second position against the action of the urging means, the spray button is contacted and depressed through cammed cooperation with the pawl converting relative motion between the housing and the actuator means into axial actuating movement of the button relative to the dispenser cartridge valve for dispensing product through the valve stem portion and discharging it through the spray button and, upon releasing of the carriage, the urging means returns the car-
riage to the first position without actuating the spray button.

12. In combination with an actuator assembly for a valved dispenser cartridge having a valve stem portion protruding therefrom including a housing adapted to be fixedly secured to a support and to receive the dispenser cartridge, a spray button mounted for operative connection with the protruding valve stem portion of the dispenser cartridge, and actuator means mounted on the housing for cooperation with the button, wherein the improvement comprises: means fixedly mounted to the housing for slidably retaining said spray button therein and for slidably holding the spray button against tilting, the spray button being shaped for cammed cooperation with the actuator means, the actuator means comprising a carriage mounted on the housing for slidable movement between a first position and a second position, a pawl mounted to and carried by the carriage and extending sufficiently below the carriage for directly contacting and depressing the spray button, and urging means between the housing and the carriage for moving the carriage from the second to the first position wherein the urging means includes a fixed support mounted to the housing and having a longitudinal axis disposed parallel to the path of movement of the carriage and wherein the urging means is coaxial with the support member and the carriage, the pawl being pivotable between a cocked position in line to strike the spray button and a trail position in line to clear the spray button, a cocking mechanism for moving the pawl from the trail position to the cocked position after the pawl has cleared the spray button as the carriage approaches the first position, and wherein the cocking mechanism includes at least one stop shoulder on the housing and at least one eccentric lug on the pivotal pawl whereby when the carriage is moved from the first to the second position the pawl is in the cocked position and strikes and depresses the spray button for dispensing product and when the carriage is moved from the second toward the first position the pawl is permitted to pivot to the trail position without actuating the spray button, and, as the carriage approaches the first position the eccentric lug contacts the stop shoulder which positively moves the pawl out of the trail position into the cocked position.

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