

May 23, 1961

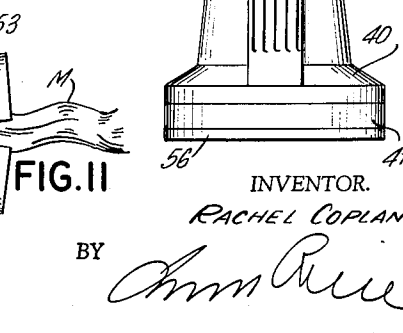
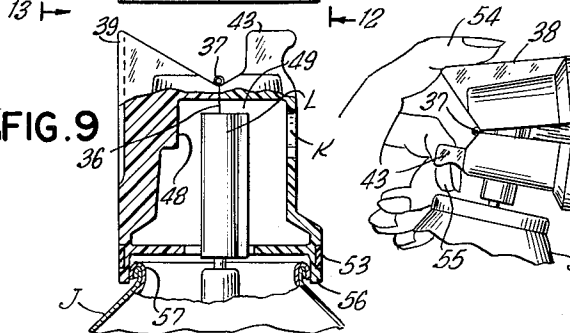
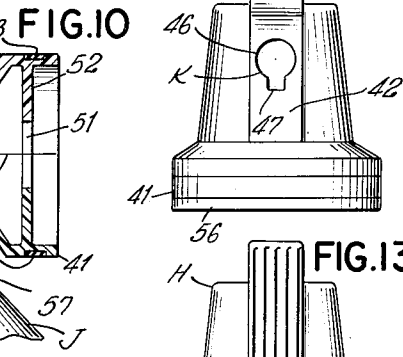
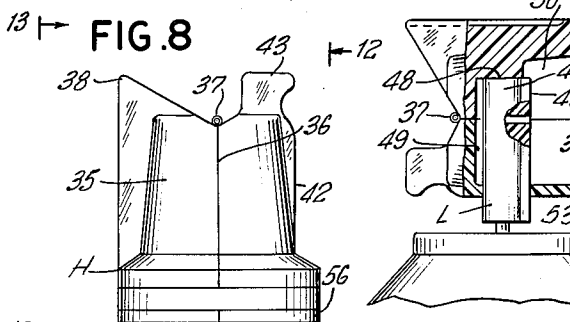
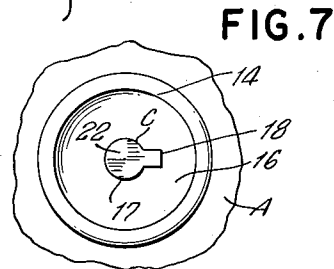
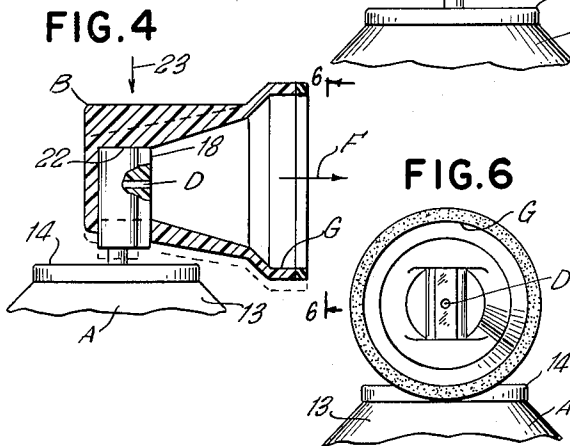
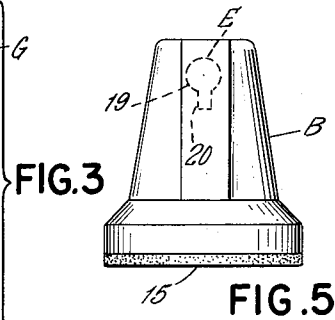
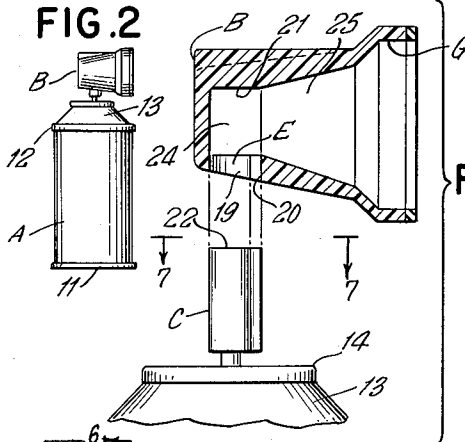
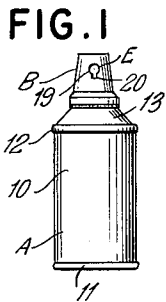
R. COPLAN

2,985,382

DIRECTIONAL CAP FOR SPRAY DISPENSER

Filed March 31, 1958

2 Sheets-Sheet 1



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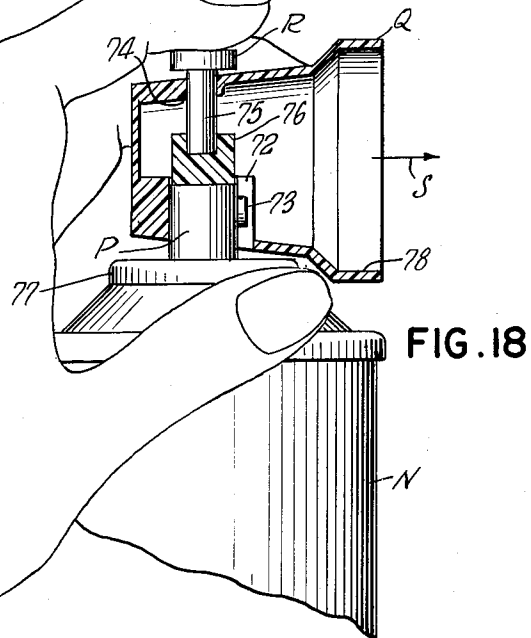
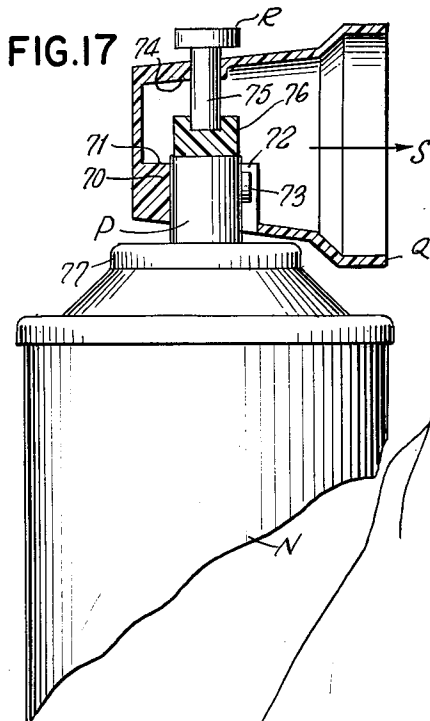
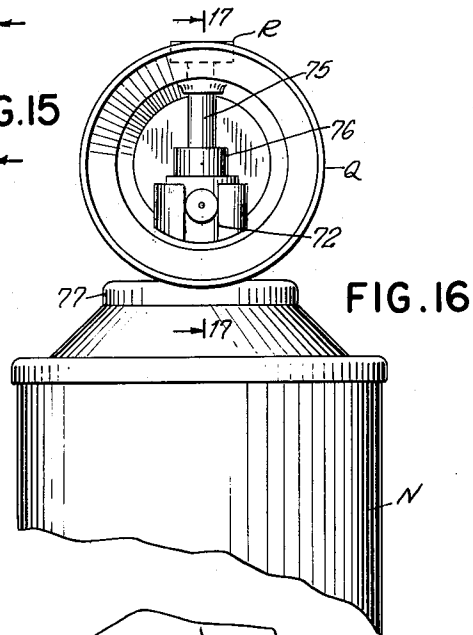
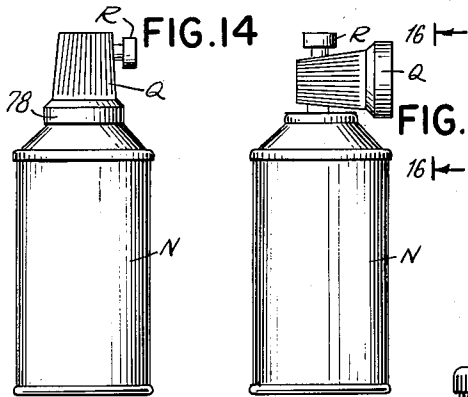
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2,985,382

DIRECTIONAL CAP FOR SPRAY DISPENSER

Filed March 31, 1958

2 Sheets-Sheet 2



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2,985,382

DIRECTIONAL CAP FOR SPRAY DISPENSER

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12 Claims. (Cl. 239—288)

The present invention relates to spray applicators and it particularly relates to directional caps for spray applicators.

Although not limited thereto, the present invention will be described in its application to spray applicators which may be utilized for the application of cosmetic sprays such as to the hair or other parts of the body. However, it is to be understood that the invention has a much broader application to control spray applicators for use in applying sprays to a wide variety of objects and in a wide variety of applications.

In the use of spray applicators, quite frequently the spray not only is applied to the object to be covered or treated but is spread over a greater or less adjacent area and into the air with wastage and undesirable application to parts of the body or to other articles which should not be treated or given a spray coating.

It is therefore among the objects of the present invention to provide a novel spray applicator, particularly designed for readily vaporized solvent sprays or aerosol sprays in which the volatilization of the solvent or gaseous or liquid ingredient may be so controlled as to give a predetermined limited area of deposition.

Particularly in connection with hair sprays it may be desired to apply the spray to one location of hair or to a limited portion of the scalp or hair and it is among the further objects of the present invention to provide a readily utilizable means which may be so manipulated without difficulty by the user thereof as to apply the spray to and against a predetermined portion of the head or hair to achieve the desired results without undue loss of spray into the surrounding air and without it being applied to adjacent areas.

Another object is to provide a special spray dispenser and particularly a directional cap or device therefor which will permit the sprayed material or liquid to be applied only to the actual portion of the body or lock of hair which is to be treated, preventing undue dispersion of the spray or liquid upon adjacent body areas and also protecting the scalp from irritation and eliminating the possibility of liquid running upon the skin.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects it has been found most satisfactory according to one embodiment of the present invention to provide a cap for the spray dispenser which when placed in normal vertical position will protect the spray presser head from contact or operation.

It is a particular feature of the present invention that such spray cap be so arranged in position that when it is turned at an angle of, for example, 90°, it may then be utilized as a control element both to allow ready actuation of the spray head and means to direct the spray so

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as to have it desirably masked from certain places and directed onto other places.

In one form of the invention the spray cap has a transverse opening in one side of the top portion thereof which may be fitted on the spray nozzle and which may act when fitted onto the spray nozzle as a presser member while serving as a director.

In another form the cap head may be split so that it may be opened to control the spray while at the same time utilized to actuate the spray nozzle.

In still a further embodiment of the present invention the rotatable spray cap may be provided with a presser member to be utilized when rotated to press the spray head of the spray dispenser and direct the spray in a predetermined desired direction.

Although this directional cap has particular suitability in controlling the spray and area of spray application for hair treatments it is apparent that it also has a broader application to the controlled application of mothproofing sprays, to predetermine portions of garments, or shoe lacquer or varnishing sprays to shoes, to soap or shaving cream sprays, to the face of the user, of deodorant sprays to underarm or other body areas and even to the application of icings or creams to predetermined portions of foods, cakes, breads or the like.

In industrial uses, it has a desirable application to the application of lubricant to predetermined portions of a machine where lubrication is necessary, of paint to predetermined portions of a wall, object, room or floor which is to be sprayed, of waxes to predetermined floor areas in connection with waxing of floors, of window cleaning compounds or window polishing compounds to predetermined portions of windows of either square, rectangular or irregular shapes, of portions of automotive vehicles where it is desired to apply the spray to certain portions of the body without affecting other portions of the body or the windows, etc.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a side elevational view shown in small scale of a spray container with the cap thereof used as a container closure.

Fig. 2 is a side elevational view of the cap and can with the cap removed from the can and placed in position where it may be used to actuate the spray nozzle as well as to direct the spray.

Fig. 3 is a fragmentary side elevational view with the cap in section showing how the cap is applied to the nozzle head.

Fig. 4 is a side elevational view partly in section similar to Fig. 3, showing the cap after application to the nozzle head.

Fig. 5 is a side elevational view of the cap upon the same scale as Figs. 3 and 4 and upon a greatly enlarged scale as compared to Figs. 1 and 2, showing the cap from the opposite side as shown in Fig. 1.

Fig. 6 is an end elevational view of the cap showing the open end of the cap and taken upon line 6—6 of Fig. 4.

Fig. 7 is a top plan view of the container before the cap is applied taken upon the line 7—7 of Fig. 3.

Fig. 8 is a side elevational view of an alternative form of cap which is split or has hinged half sections.

Fig. 9 is a side elevational view of the cap of Fig. 8

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applied to a can with the cap partly in section, said cap being in closed position on top of the can.

Fig. 10 is a side elevational view partly in section of the cap of Figs. 8 and 9 applied to a can but turned at an angle of 90° so that the cap will act as the actuating member for the spray nozzle and will also direct the spray.

Fig. 11 is a side elevational view upon a reduced scale as compared to Fig. 10 showing the manner of actuating the split hinge cap of Figs. 8 to 10 as applied to a can and as directing the spray.

Fig. 12 is a side elevational view of the cap of Fig. 8 taken from the line 12—12 of Fig. 8.

Fig. 13 is a side elevational view of the cap of Fig. 8 taken from the line 13—13 of Fig. 8.

Fig. 14 is a side elevational view of the can with the cap applied showing an alternative embodiment in which a presser member is carried by the cap.

Fig. 15 is a side elevational view similar to Fig. 14 showing the cap removed from the can and turned at an angle of 90° and applied to the spring nozzle in spray director position.

Fig. 16 is a fragmentary front elevational view showing the outlet end of the cap of Fig. 15 in spray director position.

Fig. 17 is a transverse sectional view upon the line 17—17 of Fig. 16 showing the cap of Fig. 15 in spray director position.

Fig. 18 is a side elevational view with the cap in section showing the means of applying the presser member to actuate the spray with the spray being directed by means of the cap.

Referring to the embodiment of Figs. 1 to 7 there is shown a can A having a cap B which may be used as a closure in Fig. 1 or for a spray director, as shown in Figs. 2, 3, 4 and 6. The can itself has a spray nozzle C spring biased upwardly and pressed downwardly to release the spray through the nozzle opening D. The cap has a side opening E which fits upon the reciprocatory nozzle C.

As shown in Fig. 4, when the cap is in solid line position the spray is not being created but when in dotted line depressed position the spray will be directed outwardly as indicated at F by the open mouth G of the spray cap.

Referring particularly to Figs. 1, 2, 3, 4 and 6, the can A has a cylindrical portion 10 with a lower base bead 11 and an upper bead 12. The bead 12 connects to the frustro-conical head section 13 which terminates in the cylindrical lip 14 against which the lower sealing periphery 15 of the cap B cooperates.

It will be noted that the spray nozzle C in Fig. 7 projects from a well 16 and it has a cylindrical portion 17 and a forwardly directed rib 18 which carries the nozzle portion D.

The key opening E in the side of the cap is similarly shaped and has a circular portion 19 and a key extension 20. The interior of the cap has an abutment portion 21 which is designed to contact and abut the top face 22 of the nozzle member C, as indicated in Fig. 4, so that portion on the side of the cap as indicated by the arrow 23 will depress the cap to dotted line position in Fig. 4 and actuate the spray.

The nozzle C will normally fit into the small reduced dimension top or rear portion 24 of the cap leaving the expanding conical portion 25 and the wide mouth portion G to direct the spray.

The device of Figs. 1 to 7 is most satisfactory in providing a simple closure cap which may be of molded plastic or die cast metal or of other fabricated material which may serve both as a closure cap and as an actuator and spray director. It is shown as the closure cap in Fig. 1 and as a spray director in Figs. 2, 3, 4 and 6.

Referring to the alternative embodiment of Figs. 8 to 13 there is shown a cap H to be applied to the can J which has a key opening K to be applied to the reciprocatory nozzle L and which is designed to actuate the nozzle L

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into producing a spray which is directed as indicated at M.

The cap has an upper conical portion 35 which is split at 36 and has a hinge connection 37. From one side of the cap projects the fin 38 which has a ridged side 39 (see Fig. 13) said ridge extending down to the wide oblique shoulder 40 at the mouth 41 of the cap.

The other side of the cap has a projection 42 which carries the keyhole opening K and the upwardly projecting handle or finger contact member 43.

The spray nozzle L having the cylindrical portion 44 and the forwardly projecting ridge or key portion 45 fits into the circular portion 46 and the key portion 47 of the opening K and the abutment 48 of the interior of the cap will press upon or contact the top of the reciprocatory nozzle L.

The nozzle L will fit into the rear small diameter portion 49 of the interior of the cap permitting the spray to pass first into the wider portion 50 and then through the orifice 51 formed by the web 52 where it passes into the wide mouth portion 41.

The resilient band 53 which may be of synthetic rubber or other plastic material fits in a groove around the mouth 41 and acts to hold the split sections together in contact along the line 36.

When in use as shown in Fig. 11 one finger 54 may press down upon the ridge face 39 of one of the split sections of the cap while the other finger 55 may contact the projecting portion 43 to control the amount of opening and the direction of the spray M as indicated in Fig. 11.

The lower sealing portion 56 at the rim of the mouth of the cap fits alongside of the bead 57 at the top of the can and seals the can when the cap is used in covering or closure position as indicated in Fig. 9.

In the embodiment of Figs. 14 to 18 the can N has a reciprocatory spray nozzle P while the cap Q may be used in either closure position, as shown in Fig. 14, or in spray director position as shown in Figs. 15 to 18. The cap carries the reciprocatory actuator button R which may be used to actuate the spring nozzle P to cause a spray to be directed outwardly in the direction of the arrow S.

Referring to the caps as shown in Figs. 16, 17 and 18 it will be noted that the cap has an opening 70 with the nipple projection 71 which closely fits the periphery of the nozzle P, leaving a slot 72 (see Fig. 16) into which projects the nozzle portion 73 of the nozzle head P.

In the opposite side of the cap in the nipple 74 is positioned the projecting stem 75 of the press button R which carries the abutment member 76 to press down on the spray nozzle C. When this occurs, the spray will be directed outwardly as directed by the arrow S.

The beaded rim 77 of the can N will contact the inside mouth 78 of the cap Q when the cap is used as a closure as indicated in Fig. 14.

It is thus apparent that the applicant has provided a simple, readily formed, readily manipulated combination cap actuator and spray director for sprays, particularly useful for application to a limited area to receive the spray application such as a lock of hair, but also having a much wider application to the limited application of sprays to various selected areas to receive a spray whether on a part of the body, an object, a wall or the like.

While there has been herein described a preferred form of the invention, it should be understood that the same may be altered in details and in relative arrangement of parts within the scope of the appended claims.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed:

What is claimed is:

1. A spray applicator cap for a spray dispenser can having a reciprocatory spray nozzle, said cap being of frustro conical shape with the interior face of one side

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wall serving to contact and actuate said nozzle and the opposite side of the wall having a recess to receive said nozzle and the base of the cap having an enlarged circular mouth to direct the spray and, said nozzle being a reciprocable right vertical cylindrical member having an outstanding projecting flat faced rib on one side thereof with a spray nozzle opening on the rib adjacent the end of the member and said opening being aligned with the longitudinal axis of the cap when the end of the nozzle contacts the interior face of the side wall said cap serving as a closure and spray director and acting in one position as a closure for a spray applicator can and in another position at a 90° angle from the first position and with the cap positioned on its side, to direct the spray from said can, said cap having a wide mouth to engage and close the top of the can and cover the spray nozzle in one position and in the other position having a side opening to engage the spray nozzle and direct the spray through said mouth.

2. A spray applicator cap for a spray dispenser can having a reciprocatory spray nozzle, said cap being of frusto conical shape with the interior face of one side wall serving to contact and actuate said nozzle and the opposite side of the wall having a recess to receive said nozzle and the base of the cap having an enlarged circular mouth to direct the spray and, said nozzle being a reciprocable right vertical cylindrical member having an outstanding projecting flat faced rib on one side thereof with a spray nozzle opening on the rib adjacent the end of the member and said opening being aligned with the longitudinal axis of the cap when the end of the nozzle contacts the interior face of the side wall said cap serving as a closure and spray director and acting in one position as a closure and in another position at a 90° angle from the first position and with the cap positioned on its side, to direct the spray from said can, said cap having a wide mouth to engage and close the top of the can and cover the spray nozzle in one position and in the other position having a side opening to engage the spray nozzle and direct the spray through said mouth, said cap also having an internal abutment contacting and actuating said spray nozzle when said cap is applied to said nozzle in said second position.

3. A spray applicator cap for a spray dispenser can having a reciprocatory spray nozzle, said cap being of frusto conical shape with the interior face of one side wall serving to contact and actuate said nozzle and the opposite side of the wall having a recess to receive said nozzle and the base of the cap having an enlarged circular mouth to direct the spray and, said nozzle being a reciprocable right vertical cylindrical member having an outstanding projection flat faced rib on one side thereof with a spray nozzle opening on the rib adjacent the end of the member and said opening being aligned with the longitudinal axis of the cap when the end of the nozzle contacts the interior face of the side wall said cap serving as a closure and spray director and acting in one position as a closure for a spray applicator can and in another position at a 90° angle from the first position and with the cap positioned on its side, to direct the spray from said can, said cap having a wide mouth to engage and close the top of the can and cover the spray nozzle in one position and in the other position having a side opening to engage the spray nozzle and direct the spray through said mouth, said cap having an internal baffle with an orifice to direct said spray.

4. A spray applicator cap for a spray dispenser can having a reciprocatory spray nozzle, said cap being of frusto conical shape with the interior face of one side wall serving to contact and actuate said nozzle and the opposite side of the wall having a recess to receive said nozzle and the base of the cap having an enlarged circular mouth to direct the spray and, said nozzle being a reciprocable right vertical cylindrical member having an out-

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standing projecting flat faced rib on one side thereof with a spray nozzle opening on the rib adjacent the end of the member and said opening being aligned with the longitudinal axis of the cap when the end of the nozzle contacts the interior face of the side wall said cap serving as a closure and spray director and acting in one position as a closure for a spray applicator can and in another position at a 90° angle from the first position and with the cap positioned on its side, to direct the spray from said can, said cap having a wide mouth to engage and close the top of the can and cover the spray nozzle in one position and in the other position having a side opening to engage the spray nozzle and direct the spray through said mouth, said cap being split and the split halves being resiliently connected together and each of said split halves having hand contact extensions to enable manipulation of said split head.

5. A spray applicator cap for a spray dispenser can having a reciprocatory spray nozzle, said cap being of frusto conical shape with the interior face of one side wall serving to contact and actuate said nozzle and the opposite side of the wall having a recess to receive said nozzle and the base of the cap having an enlarged circular mouth to direct the spray and, said nozzle being a reciprocable right vertical cylindrical member having an outstanding projecting flat faced rib on one side thereof with a spray nozzle opening on the rib adjacent the end of the member and said opening being aligned with the longitudinal axis of the cap when the end of the nozzle contacts the interior face of the side wall said cap serving as a closure and spray director and acting in one position as a closure for a spray applicator can and in another position at a 90° angle from the first position and with the cap positioned on its side, to direct the spray from said can, said cap having a wide mouth to engage and close the top of the can and cover the spray nozzle in one position and in the other position having a side opening to engage the spray nozzle and direct the spray through said mouth, said cap having a reduced interior small volume portion to receive said spray nozzle and a separated area portion leading said spray to said wide mouth.

6. A directional frusto conical molded plastic directional spray cup-shaped cap for a spray can with a keyed spray nozzle controlling a valve when pressed down, having a cylindrical mouth and having a flat end top at the most narrow portion thereof, the sides of said cap directly below the flat end top having a keyed opening at one side and actuator means at the other side, respectively, to receive the keyed spray nozzle and to press on the top of said nozzle and open the valve, the cylindrical mouth acting as a closure in upright position and as a spray director when on its side, said keyed spray nozzle having an outwardly projecting rib at one side thereof and a spray opening in the face of the rib adjacent the end of the nozzle and said opening being aligned with the cap axis when inserted into said keyed opening.

7. The cap of claim 6, said cap being transversely split and having a hinge extending across the top of the cap.

8. The cap of claim 6, said cap being split and hinged and having handle members projecting outwardly from the top.

9. The cap of claim 6, said actuator means consisting of flat faced inward projection diametrically opposite said keyed opening.

10. A frusto-conical spray can closure cap for a spray can having a cylindrical reciprocable upwardly projecting vertical nozzle with an elongated vertically extending rib on one side thereof with a spray opening transverse to the axis of the nozzle adjacent the upper end of the nozzle in the outer face of the rib, and a cylindrical closure base on the can below the nozzle, said cap having a cylindrical mouth to engage with closure base when in upright position and to direct the spray when in side position, the

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side of the cap having an opening to match and keyed to the cross section of the nozzle and an inwardly projecting abutment from the diametrically opposite interior of the cap facing the opening to contact the end of the nozzle and align the spray opening with the longitudinal axis of the cap. 5

11. The closure cap of claim 10, said cap having a split central portion parallel to the axis and finger grip portions at diametrically opposite sides away from the mouth and the cap to permit said cap to be opened and an encircling elastic band around the mouth of said cap to keep the cap closed and said cap having a projecting flat face portion at said keyed opening where said nozzle is inserted. 10

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12. The cap of claim 10, the mouth of said cap having inwardly directed wall members to close off the upper and lower portions of the cap on each side of the axis of the spray opening.

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