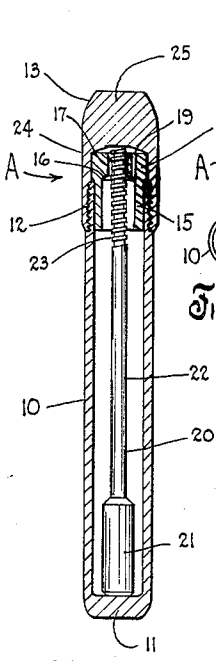
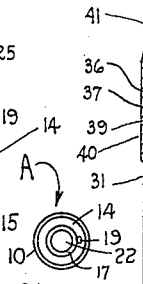
Jan. 13, 1953 V. H. ROEHRICH 2,625,159

NASAL APPLICATOR

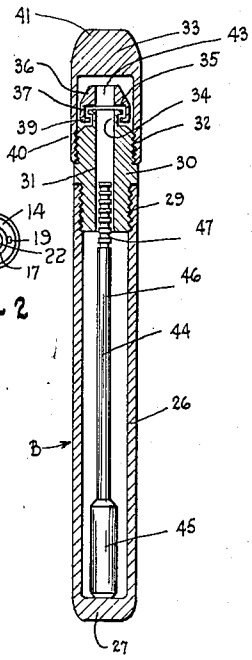
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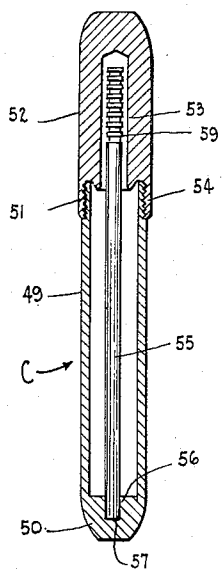
Fig~1



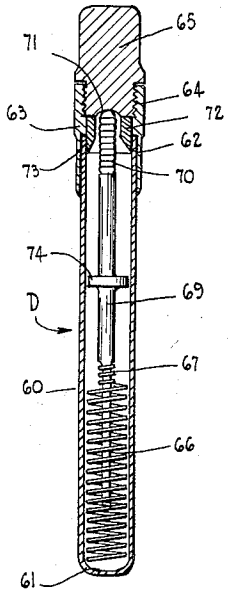
Fig~2



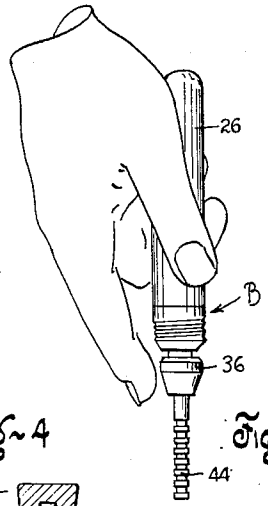
Fig~3



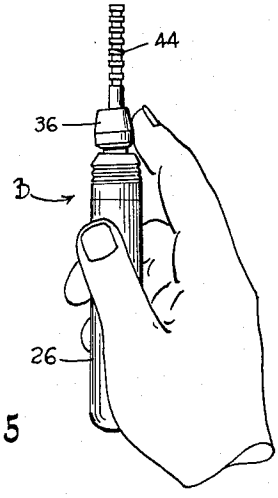
Fig~7



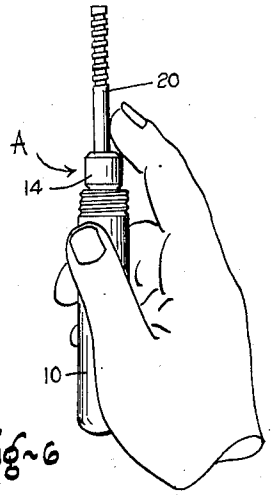
Fig~8



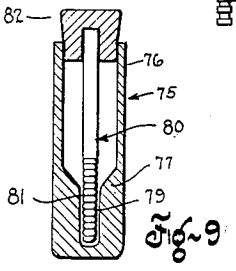
Fig~4



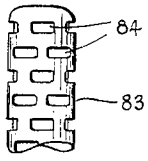
Fig~5



Fig~6



Fig~9



Fig~10

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NASAL APPLICATOR

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Application October 30, 1947, Serial No. 783,142

7 Claims. (Cl. 128—267)

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My invention relates to an improvement in nasal applicators wherein it is desired to provide a means of applying a suitable solution to the interior of the nostrils.

I have discovered that it is possible for a person to greatly increase resistance to infection by airborne diseases by applying to the inside of the nostrils, a small amount of a suitable therapeutic solution. One or two daily applications of a drop or less of certain such solutions, particularly before exposure to possible infection in crowded places, will often give freedom from infection to those previously very frequently infected. For example some persons seem particularly susceptible to common respiratory infections, such as colds. I have found that by treating the nostrils as above described the susceptibility of these persons to such infections is materially reduced.

It is an object of the present invention to provide an applicator rod or element which may be easily coated with a small amount of a suitable treating solution and which may be easily inserted into the nostrils. This applicator serves as a support for sufficient liquid to treat the nostrils and to apply to the lining of the nose a coating of solution.

A feature of the present invention lies in the provision of a receptacle for containing a small amount of treating solution and to incorporate with this receptacle an applicator rod for supporting one or more drops of the solution. The receptacle is of such a size that it may be easily carried in the pocket or purse and forms a convenient means of applying the solution to the nostrils.

A pocket clip identical to that used on pens and pencils may, if desired, be used to hold the device in upright position in a pocket.

A feature of the present invention lies in the provision of an applicator element having a series of encircling grooves or indents thereabout capable of containing the desired amount of the treating solution. These grooves or indents serve as pockets for containing the solution and preventing the solution from immediately draining downwardly from the end of the applicator element during use. At the same time, the peripheral grooves appear to be advantageous over other types of pockets as the surface tension of the liquid extending about the surface of the applicator element tends to hold the liquid contained in the grooves. These indents may be pockets having a large amount of circumferential liquid supporting surface, or may be circular

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grooves or spiral grooves depending upon the result desired. Circular grooves have a tendency to retain liquid longer than the spiral grooves. On the other hand, the spiral shape of the grooves has the advantage of tending to drain away excessive solution before application. The applicator rod must be of small diameter, must hold solution while supported tip up, and must be easy to clean.

An added feature of the present invention lies in the provision of an applicator element which may be moistened while the receptacle is closed and which will support the necessary amount of solution when the receptacle is opened. Thus in the operation of the device it is only necessary to tilt or invert the receptacle containing the applicator element, and then to remove the closure of the applicator to move the applicator into accessible position.

A feature of the present invention lies in the provision of a receptacle containing an applicator element of smaller dimensions and in supporting this applicator element in a well of restricted size or to pass the applicator element through an opening of restricted size. As a result excessive liquid is removed from the applicator element before use thereof.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a cross sectional view through a nasal applicator showing the construction thereof.

Figure 2 is a top plan view of the applicator shown in Figule 1 with the receptacle cap removed.

Figures 3 is a sectional view through a modified form of applicator construction.

Figure 4 is a view of the applicator shown in Figure 3 showing the method of operating the same.

Figure 5 is a view similar to Figure 4 showing the manner in which the applicator rod is held in projecting position.

Figure 6 is a view similar to Figure 5 showing the manner in which the applicator rod of Figure 1 is held in projecting position.

Figure 7 is a sectional view through a modified form of construction.

Figure 8 is a sectional view through another modified form of construction.

Figure 9 is a sectional view through a somewhat different type of applicator.

Figure 10 is an enlarged view of a modified form of applicator rod.

The applicator A illustrated in Figures 1 and 2 of the drawings includes an elongated cylindrical shell 10 having a closed lower end 11 and an open upper end. The open upper end is externally threaded at 12 to accommodate a cap or closure 13 which will be later described in detail.

A plug 14 is frictionally or otherwise engaged in the open upper end of the shell 10 to project somewhat therefrom. This plug 14 is provided with an internal recess 15 at its lower end which merges into an inwardly tapering wall 16. The tapered wall 16 communicates with a relatively small diameter passage 17 which is coaxial with the plug and which is of proper diameter to accommodate the applicator rod or element which will be later described.

A small auxiliary passage 18 extends through the upper end of the plug 14 communicating with the tapering wall 16. The applicator element 20 is slidably positioned within the shell 10. This applicator element includes an enlarged end 21 and a smaller diameter stem or shank 22. The upper end of the applicator element is provided with a spiral groove 23 therein which has relatively square edges.

The cap 13 includes a sleeve 24 having a closed end 25 and an internally threaded open end. The threaded end of the cap fits the threads 12 of the shell 10 so that the cap may be screwed onto the body of the receptacle. The inner surface of the closed end is shaped to fit against the upper end of the passages 17 and 19 and to act as a closure therefor.

The operation of my device is extremely simple. The shell 10 is filled with a therapeutic solution of a type which will be later generally described. If described the entire receptacle may be inverted while the cap 13 is in place. To use the applicator the cap 13 is removed while the receptacle is in the upright position shown in Figure 1. The receptacle is then inverted, the weight of the applicator rod allowing the applicator rod to slide through the passage 17 and to slide into extended position, projecting through the plug 14. Air is simultaneously drawn by displacement into the interior of the applicator through the small aperture 19 and about the stem of the applicator rod. This separate air vent 19 also prevents liquid from being drawn from the grooves when the rod moves outwardly and air is drawn inwardly. The openings through the plug 14 are not of sufficient size to allow the liquid to drain from the receptacle when the applicator rod is in place in the passage 17, while the enlarged end 21 helps to seal the opening and to act as a stop against the plug 14 to limit the protrusion of the applicator element 20.

When the applicator rod has slid into projected position the device may be turned into upright position and the projecting end thereof inserted into each nostril in turn. By moving the applicator rod over the inner surface of the nostril some of the solution is transferred from the applicator rod to the nostril, providing a coating of solution thereupon. During the time the applicator rod is in upright position it is held from sliding back into the receptacle by a slight pressure of a finger against the side of the shank as illustrated in Figure 6 of the drawings.

After the applicator has been used the finger pressure against the applicator rod is removed and the weight of the rod returns the same into the receptacle. The enlarged end 21 on the applicator rod assists this act. The cap 13 is next replaced, sealing the top of the applicator receptacle until it is next used.

In Figures 3, 4, and 5 of the drawings, I disclose a somewhat similar form of construction to that just described. The applicator B illustrated in these figures includes an elongated sleeve 26 having a closed lower end 27 and an open upper end. The open upper end is internally threaded at 29 to accommodate the externally threaded lower end of the plug 30. The plug 30 has an aperture 31 therethrough through which the applicator rod may slide. The plug 30 is externally threaded at 32 to accommodate the cap 33.

The plug 30 is provided with a reduced diameter portion 34 near its upper extremity which supports the ring 35 of somewhat larger diameter. A sleeve 36 is supported upon this ring or flange 35. The sleeve 36 is provided with an internal circular groove 37 which is designed to accommodate the flange 35 and an internally projecting flange 39 at its lower extremity. The flange 39 has an internal diameter which is slightly less than the external diameter of the flange 35. However, by slightly expanding the flange 35 by heat or other means, the two parts may be telescoped together in the manner illustrated so as to be retained securely, but with slight play as shown.

The cap 33 includes a sleeve portion 40 and an upper closed end 41. A gasket may if desired be positioned adjacent the closed end 41 to form a seal with the axial passage 43 through the sleeve 36 when the cap is in place.

The applicator rod 44 is provided with an enlarged or weighted end 45 and a relatively smaller diameter shank 46 which terminates in a closed upper extremity 47. The closed upper extremity is provided with a series of spaced circular grooves having substantially square sides as illustrated. Obviously the spiral groove shown in Figure 1 could be used in place of the circular grooved structure of Figure 3 with corresponding advantages or disadvantages in operation. The cap 33 is removed and the receptacle B is inverted. The weight of the applicator rod causes the same to move through the aligned passages 31 and 43 into projecting position as illustrated in Figures 4 and 5 of the drawings. The pressure of the finger is next placed against the sleeve 36 which then binds against the applicator rod and holds it in extending position. The device may then be swung into upright position as shown in Figure 5 of the drawings and the rod is held from retracting into the receptacle by slight pressure of the finger against the sleeve 36. In other words, this structure is similar to the structure previously described, with the exception of the fact that the applicator B includes an additional sleeve which prevents the finger from directly contacting the applicator rod.

The applicator C shown in Figure 7 of the drawings is of somewhat different form. This applicator includes an elongated sleeve 49 having a closed lower end 50 and an externally threaded open end 51. A cap 52 is disengageably threaded to the sleeve end 51. The cap 52 includes an axial well 53 of slightly larger diameter but smaller than the sleeve 51 so as to require a minimum amount of solution to cover the depressions in the rod 55 upon inversion. The cap is likewise provided with an internally threaded sleeve 54 which is engageable with the threads of the sleeve end 51. An applicator rod 55 is frictionally en-

gaged or otherwise secured at 56 in a socket 57 in the closed lower end 50 of the body. This applicator 55 includes an elongated shank having an upper end 59. This end 59 extends into the well 53 as illustrated in the drawings.

In operation the applicator is inverted to allow some of the solution therein to flow into the well 53 surrounding the grooved end 59. The body is then returned to upright position and the cap 52 is removed. The end of the applicator rod then projects from the open end 51 of the body and may be used as previously described.

While this structure is slightly simpler than the structures previously described, it is not quite as handy to use as the applicator does not extend as far from the body without unduly elongating the cap or shortening the body. Furthermore, it is less convenient because it must be tightly capped and then inverted before each application.

The nasal applicator D illustrated in Figure 8 of the drawings is also of somewhat different form and construction. This applicator D includes an elongated shell 60 having a closed lower end 61 and an open upper end 62. A second sleeve 63 is engaged in frictional telescoping relation with the upper end of the sleeve 62 or else may be integral with the sleeve 60. The upper end of the sleeve 63 is internally threaded at 64 to accommodate the external threads of a plug type cap 65.

A light spring 66 is provided near the closed end 61 of the shell and this spring supports at its upper extremity 67 an elongated applicator rod 69. This rod 69 is provided with a circularly grooved upper extremity 70 which may be of the type shown in Figure 1 or 3 of the drawings or which may be of the grooved construction illustrated. The lower extremity of the cap 65 is provided with a slight hollow or recess 71 in which the upper end of the applicator rod is engaged.

A collar 72 is frictionally or otherwise engaged within the shell 60 near the open end 62 thereof. This collar is provided with a hole 73 therethrough of a diameter slightly greater than that of the rod 69 to guide the rod and to limit the liquid covering the indents in the rod 69. A flange or collar 74 on the rod 69 is engageable with the under surface of the collar 72 when the cap 65 is removed, limiting the outward movement of the rod 69.

In operation the applicator D is inverted so as to immerse the grooved end 70 of the applicator rod in a treating solution. The cap 65 is next unscrewed and removed whereupon the spring 66 elevates the upper end 70 of the applicator rod to a point substantially above the upper end of the sleeve 63. Thus the applicator rod automatically is urged into projecting position when the cap 65 is removed. In replacing the cap, it is only necessary to engage the upper end of the applicator rod in the hollow or recess 71 and to press the applicator rod downwardly compressing the spring 66.

In Figure 9 of the drawings I disclose an elongated hollow body 75 having a relatively large internal diameter near the open upper end 76 thereof. The inner wall surface tapers inwardly at 77 to connect the larger diameter upper portion to a restricted diameter lower portion 79. The lower portion 79 is but slightly larger in diameter than the applicator rod 80 which is supported therein in closed condition of the applicator 75.

The rod 80 is provided with an indented lower end 81, and is attached to, or frictionally supported by, a cork or plug 82 which is proportioned to engage in the open body end 76. When removed from the body 75, the applicator rod may be inverted and used in the manner previously described.

This construction has the disadvantage that the liquid is more apt to become contaminated by impurities carried thereinto by the rod 80; and also has the disadvantage that the rod must be inverted after removal, increasing the likelihood of dropping liquid from the rod. However, it may be preferable in some respects as the last drops of liquid may be applied to the rod without inversion of the entire applicator.

The applicator rod may, if preferred, have pockets or depressions of various types therein in place of the annular or spiral grooves described. In Figure 10 I disclose an applicator rod 83 which may be provided with oval pockets or depressions 84 in spaced relation. This type of pocket will not support liquid as well as the grooves previously mentioned, but is particularly useful when the particular liquid used has a tendency to cling to the surface of the rod, or where less liquid is to be dispensed. The shape of the pockets 84 may be varied to provide the desired circumferential supporting surface. All of the applicator rods shown and described are preferably formed of firm material such as glass or plastic and are provided with highly polished surfaces to prevent injury to the inner surface of the nostrils.

I have found that various types of solutions are suitable for my purpose. Such solutions are preferably water solutions which possess high germicidal power and sufficiently dilute to be harmless and non-irritating. These solutions are also preferably non-staining and odorless. In addition to the germicides, moistening agents of a non-toxic nature may be used if desired.

In accordance with the patent statutes, I have described the principles of construction and operation of my nasal applicator, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A nasal applicator including an elongated receptacle having a restricted passage through the upper end thereof, an applicator rod slidable through said restricted passage and a sleeve on said receptacle having an aperture therethrough aligned with said restricted passage, said sleeve being engageable against said rod to hold said rod from slidable movement.

2. A nasal applicator including an elongated shell having a closed end and a restricted opening in the opposite end thereof, a rod in said shell having an applicator end portion freely slidable through said restricted opening, and an enlarged portion on said rod spaced from said applicator portion of larger size than said opening, said enlarged portion limiting outward sliding of said rod through said opening, and a separate removable cap for said shell to close said opening.

3. A nasal applicator including a hollow elongated body portion having a closed end and an open end, said body portion having at its open end an axial opening of smaller diameter than the remainder of said body, the interior of said body between said closed end and said axial opening forming a reservoir, an applicator end of proper size to slide through said axial opening,

an enlargement on said rod spaced from said applicator end, said applicator rod being oriented in said body with the applicator end directed away from said closed end of said body, said enlargement being of greater dimension than said axial opening to limit outward movement of said applicator rod, said rod being of proper size to project from said body portion when said enlargement engages the body adjacent the inner end of said axial opening, whereby said applicator rod will perform its applicator function while partly retained within the reservoir of said body portion.

4. The structure defined in claim 3 and in which the applicator end of the rod is within the opening of said body when the other end of the rod is in contact with the closed end of the body.

5. The structure defined in claim 3 and including means for normally urging said rod outwardly through said opening.

6. The structure defined in claim 3 and including a ring-shaped member secured to the

open end of the body portion through which the axial opening extends.

7. The structure defined in claim 3 and including an air vent through the open end of the body in spaced relation to said axial opening.

VICTOR H. ROEHRICH.

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