CUSHION TIP FOR ATOMIZER NOZZLES

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ABSTRACT

A tip is provided for atomizer nozzles of fluid medicament dispensers to cushion contact of the nozzle with tissue to be medicinally treated and to confine the applied medicament to a restricted area of tissue.

1 Claims, 4 Drawing Figures
CUSHION TIP FOR ATOMIZER NOZZLES

SUMMARY OF THE INVENTION

Medicament fluids are commonly applied to body tissue under pressure in the form of pressure-propelled streams or mists from dispenser containers. A common situation, typical of such in which this invention is very applicable, arises in dental practice. Dental medicaments such as anesthetic compounds are commonly supplied as solutions in dispenser containers provided with nozzles through which the liquids are dispensed under pressure as directed at tissue in the mouth. A target area is selected and the solution directed at it as a stream or atomized mist for the purpose of controlling surface pain as before needle puncture, sealing and curettage, and similar operations.

The stream striking tissue often flows away from the target area. Or the mist spreads and dissipates about the target area. In either case, the effectiveness of the anesthetic is reduced. Often more than necessary is applied. The anesthetic effect may be reduced or slowed or a larger than desirable area is anesthetized. The principle object of this invention is the provision of an applicator tip for dispenser nozzles which contains and confines a pressure dispensed stream of fluid in its application to a restricted tissue area, and which is soft and absorbent so that it may be pressed to tissue about the target area and serve to apply to the surface thereof fluid absorbed into its body as it is dispensed from a nozzle.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of a pressure dispenser equipped with this invention;
FIG. 2 is an enlarged perspective view of the nozzle tip;
FIG. 3 is an elevation view of the tip; and
FIG. 4 is a sectional view of the tip installed on a dispenser nozzle.

DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a spray container 10 has cap 12 provided with valve actuator head 14 from which projects tube 16 terminated by nozzle 18. Container 18 may be either a squeeze-bottle, or a pump-discharged bottle, or an aerosol pressure bottle from which fluids are easily dispensed under pressure through tube 16. Container 18 is merely shown as illustrative of these several types. The important factor is that fluid is introduced under pressure into tube 16, and discharged as a spray stream from nozzle 18.

In the typical case of dispensing oral anesthetic fluids, a nontipped nozzle 18 directs the stream of fluid at issue in a fine stream that tends to become a mist as it expands and flares in the air. Often more in amount of the fluid than is sufficient to accomplish anesthesia is applied around the target area of the tissue. In such cases, the fluid reaches other than the target area in part as a mist and in part on the tissue surface as a flowing liquid.

Porous annulus 20 has central passage 22 extending therethrough from the broad tissue-contacting face 24. At its rear annulus 20 supports sleeve 26 which engages nozzle 18. Flange 28 on the forward end of sleeve 26 attaches the annulus 20 to sleeve 26, accomplished by interposing adhesive at 30 between body 20 and flange 28, or by any of the conventional fusion methods well known in the synthetic polymer art.

An annulus 20 may be formed from any of the porous, resilient, spongeliike natural and synthetic rubbery materials widely available. The preferred material is of polyurethane origin. Cushioning effect and absorbency are desirable characteristics of annulus 20.

When broad face 24 of the annulus is placed against tissue with the passage centered on the target area, the dentist or doctor releases a small stream of the anesthetic fluid under pressure from the container 10 to nozzle 18 and into annulus passage 22. Any tendency of the fluid to expand out of the jet stream is contained and confined by the enclosing wall of passage 22. Should there be flow of the fluid on the tissue, the annulus acts as an absorbent dam, and takes any excess into itself. In such event, the otherwise vagrant anesthetic fluid is absorbed into the annular body 20. Its effect is restricted to that area of and around the target area contacted by broad face 24. Naturally, the fluid accumulated in annulus 20 will have anesthetic properties. Its retention in annulus 20 insures its application to the tissue about the target area thus accelerating localized anesthesia by holding the dispensed fluid to tissue around the desired target area. The annulus also functions as a dam against dilution of the anesthetic fluid by the intrusion of saliva when used in the mouth.

What is claimed is:

1. Apparatus for the local application of medicinal fluids, comprising:
a fluid container having a nozzle and comprising a source of pressure-dispensed fluid emitted through said nozzle as an atomized stream;
sleeve means engaging the discharge end of said nozzle and having an outstanding flange on its forward end;
a soft and porous annulus of resilient absorbent material having a through passage therein;
said annulus being at least codimensional with said flange and secured thereto so that said through passage absorbently surrounds a stream of medicinal fluid emitted from the nozzle; said flange being operable to squeeze said annulus when the nozzle is pressed forward while the same is disposed against tissue about a target area at which the local application of fluid is directed.

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