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H. W. HIND ET AL
MEDICAMENT DISPENSER

2,861,572

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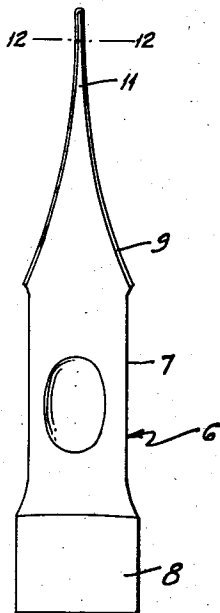


Fig. 1

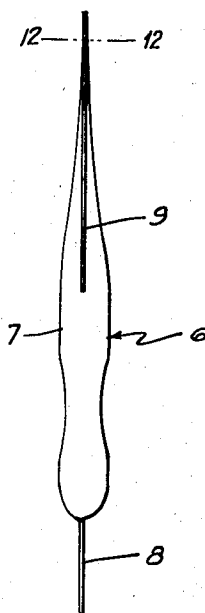


Fig. 2

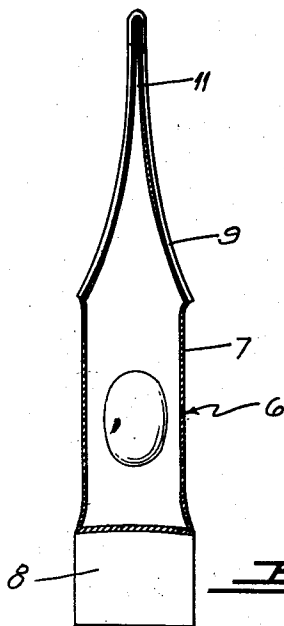


Fig. 3

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MEDICAMENT DISPENSER

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1 Claim. (Cl. 128—233)

This invention relates to an improved dispenser for dispensing of ophthalmic medicaments.

In the practice of ophthalmology, it is usual to place various liquids in the eye for diagnostic or therapeutic reasons. It has been found that various infectious diseases can be transmitted in this fashion as between patients with extremely harmful and, at times, tragic results, e. g., an ophthalctomy being required.

In accordance with the present invention, we provide a medicament dispenser particularly adapted for the administration of ophthalmic drugs and medicaments. This container is such that it can be readily sterilized by any of the usual sterilizing methods or agents, and its contents thereafter be administered to a patient, following which the container is discarded. We have found that the ophthalmic medicaments can be packaged in a plastic container which is water vapor impermeable and which has such thermal stability that it can be sterilized, for example, by the usual heat sterilization methods. Further, and in accordance with this invention, the container is of such a nature that it can be readily opened and its contents dispensed in a manner acceptable to the physician.

It is in general the broad object of the present invention to provide a novel and improved dispenser for a medicament intended for ophthalmic use.

The invention includes other objects and features of advantage, some of which, together with the foregoing, will appear hereinafter wherein the present preferred form of container of this invention is disclosed. In the drawing accompanying and forming a part hereof,

Figure 1 is a plan view of the container, the view being somewhat enlarged to reveal the various details of the device.

Figure 2 is a side elevation of the device shown in Figure 1.

Figure 3 is a plan view, partly in section.

In accordance with this invention, we provide a medicament container generally indicated at 6 and having a tubular body portion 7. Conveniently, the container is made of a tube of suitable material, the tube being flattened and sealed at one end, as at 8. At its other end, the tube is drawn out and so fashioned as to provide a long, narrow, sealed nozzle, generally indicated at 9. It is to be noted that this nozzle is of such length that the interior of the nozzle defines a relatively long, capillary-like conical passage 11 provided by the parallel walls defining the inner edges of the nozzle so this can act as a dropper. Upon severing the nozzle, as upon the line 12—12, a tubular dispensing nozzle is made available having a restricted outlet through which the contents of the tube can be ejected drop-by-drop, by pressing upon the body portion 7.

The tube is filled with any suitable medicament and is thereafter sealed as by any acceptable manner, as by electronic welding. The tube can be filled under initially aseptic conditions so that the interior of the tube and

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its contents are sterile. Thereafter, the outside of the tube can be sterilized, as by application of ethyl alcohol or a germicidal solution; it can also be sterilized by application of an atmosphere of ethylene oxide or by any of the usual heat sterilization methods. For example, several of the tubes of medicaments can be placed in the heat sterilizing apparatus commonly used along with the surgical instruments to be employed. Thus, the physician is assured that the tube and its contents are as sterile as the surgical instruments to be employed.

In those instances when medicaments having an appreciable vapor pressure are to be employed, it may be desirable to fill the tube under a partial vacuum so that if the tube is subsequently heated to an elevated temperature, as during sterilization, breakage of the tube does not occur. This has been indicated in the drawing wherein the body portion 7 is shown as partially collapsed (Figure 2).

As the material providing the dispenser, we prefer to use a material known as "Saran." This material is the best known vapor barrier—next to lead—and is a pliable but substantially nonstretchable thermoplastic resin having the functional properties previously enumerated and being particularly well suited to the present invention. "Saran" is a co-polymer of vinylidene chloride and is available in several grades. Grade S-517 is cited, by way of example, as suitable, although other formulations of this product can be successfully employed as the body material. This product can be readily heat sealed at about 290–310° F. and is readily extrudable, temperatures of about 450–550° C. being employed in converting the plastic from its powdered condition preparation to extrusion. The preferred wall thicknesses of "Saran" are in the neighborhood of about .002–.005", and thus form an extremely pliable body material.

From the foregoing, we believe it will be apparent that we have provided a novel, simple and improved medicament dispenser for ophthalmic use.

We claim:

A disposable, single dosage, ophthalmic medicament dispenser consisting of a tube of water-vapor impermeable "Saran" having a storage zone adapted to hold liquids and semiliquids; said tube being sealed upon itself at one end and having at its other end an extended narrow nozzle integral with said storage zone, said nozzle being at least about the length of said storage zone, said nozzle being formed by a pair of opposed seal lines, said seal lines being formed by the sealing together of opposite walls of said tube along the length of said nozzle, said seal lines approaching one another at the remote end of said nozzle whereby to form an elongated conical nozzle sealed at the apex; the opposed walls of said nozzle being progressively more closely juxtapositioned as the tip of said nozzle is approached to provide a capillary-like conical passage within the nozzle tapering to the apex in the nozzle, said nozzle being suitable for lateral severing at various points along the length thereof whereby to provide outlet orifices of varying sizes permitting discharge of medicaments of varying viscosities from said tube drop by drop.

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