

[54] **DEVICE FOR INTRODUCING A
MEDICINAL MEDIUM INTO THE BODY
THROUGH THE ANUS**

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[56] **References Cited**

UNITED STATES PATENTS

3,301,390 1/1967 Via, Jr. 206/47 A

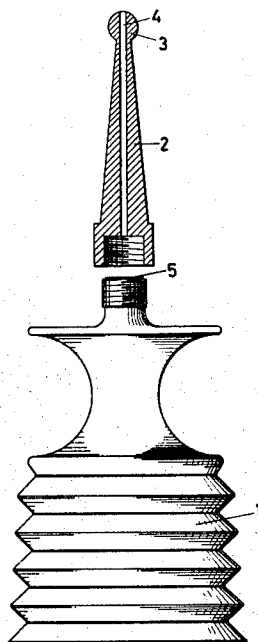
3,507,280	4/1970	Pollock	128/232
3,620,418	11/1971	Stevens et al.	128/232
3,401,695	9/1968	Rosenberg et al.	128/232
136,544	3/1873	Quinby	222/523 X
3,046,983	7/1962	Grubb et al.	128/200

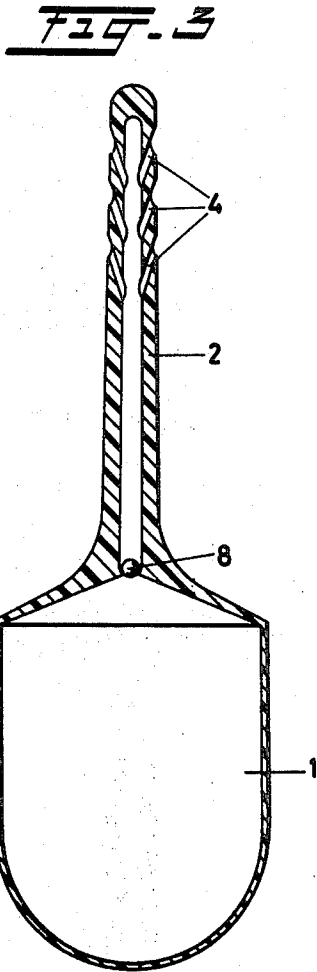
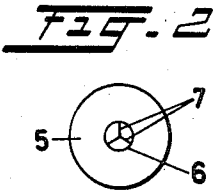
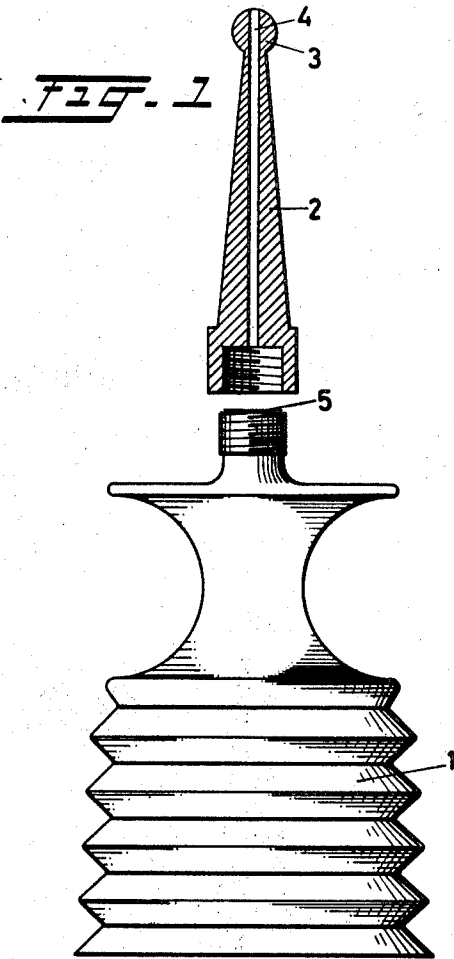
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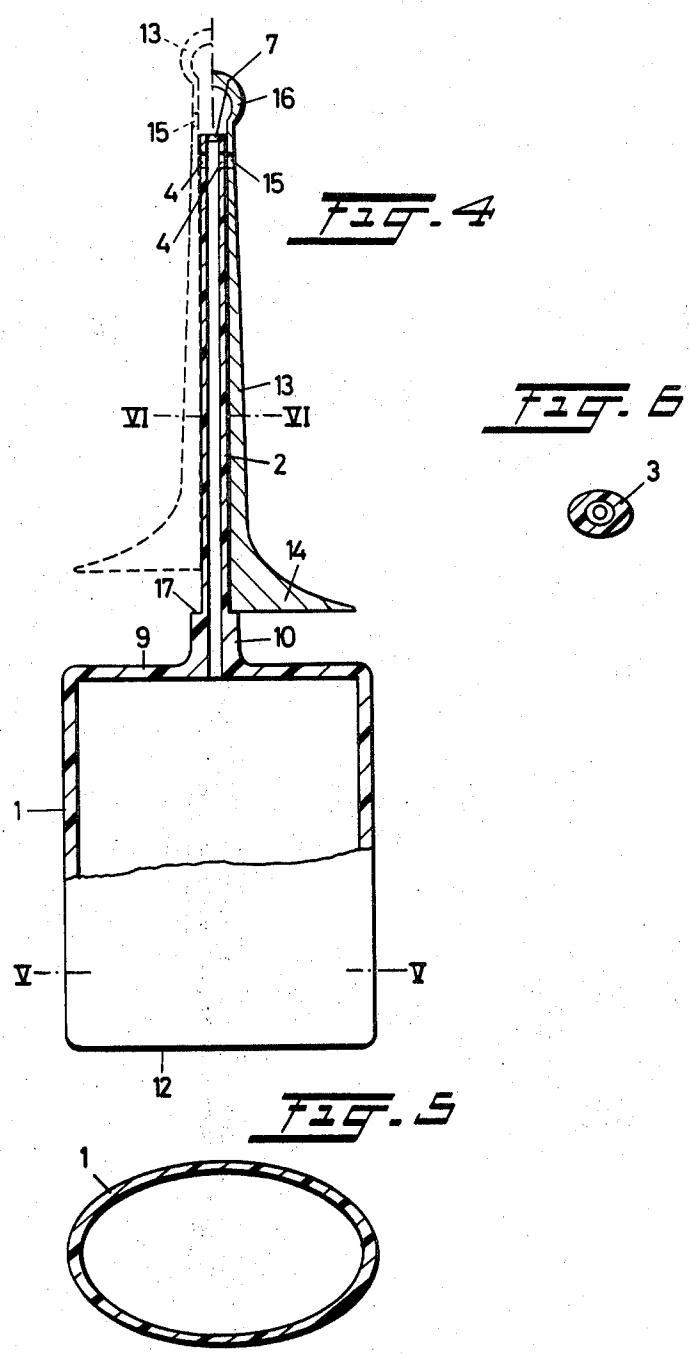
[57] **ABSTRACT**

A device for introducing a medicinal medium into the body through the anus, which device comprises a container and a contiguous cannula having one or more outlets. The cannula is so adapted as to open the outlets only after the medium has been pressurized. By providing the openings in the correct position in the cannula and at the correct angle to the longitudinal axis thereof, the medium can be injected in the intestines in the correct position.

6 Claims, 6 Drawing Figures







DEVICE FOR INTRODUCING A MEDICINAL MEDIUM INTO THE BODY THROUGH THE ANUS

The invention relates to a device for introducing a medicinal medium into the body through the anus, comprising a container for said medium and a cannula contiguous to the container, in which at least one outlet for the medium is made.

The object of the invention is to improve such a prior device.

To this end, the device according to the invention is characterized in that in the cannula there is provided a sealing means which opens the passage to the outlet owing to pressure build-up in the container.

Said means may be formed by a rupturable or tear foil sealing the passage in the cannula before use of the device.

Said means may also be formed by a sealing means movable through the cannula having a fit creating frictional force, each outlet being positioned adjacent the closed end, directed away from the container, of the cannula in the sidewall thereof.

It is also possible to provide a construction wherein a second cannula, also having at least one outlet, is telescopically slidable around the first cannula, which after impression in the anus takes a position in which the outlets of the two cannulas cover each other entirely.

The invention will now be elucidated in more detail with reference to the drawings showing some embodiments of the device for introducing a medicinal medium into the body through the anus.

FIG. 1, in fragmentary section, a side elevational view of a device for introducing a medicinal medium into the body through the anus;

FIG. 2 is a top view of a foil used in the device shown in FIG. 1 for the assembly thereof and

FIG. 3 is a section of a second embodiment of the device for introducing a medicinal medium into the body through the anus.

FIG. 4 is a longitudinal section of a third embodiment, wherein the device is drawn in the closed position in the left-hand half with dotted lines and in the operative position in the right-hand half with fully drawn lines, and

FIG. 5 and 6 are cross-sections on the lines V—V and VI—VI in FIG. 4.

As is apparent from FIG. 1, a device for introducing a medicinal medium into the body through the anus comprises a container 1 made of polyethylene or similar resilient material and a cannula 2 made of more rigid polyethylene than the container or similar material. The end of the cannula which is directed away from the container has a rounded head 3 with an outlet 4. This outlet is concentric with the axis of the cannula. However, it is clear that also several openings can be made which are at an angle to the axis of the cannula.

After the container 1 is filled with a medicinal medium, the cannula 2 is screwed thereon while inserting a foil 5 consisting of aluminium, plastic or similar material, after which the assembly is sterilized.

When using the device the foil will tear through the exertion of pressure on the container, after the head 3 has been correctly introduced into the rectum, as a result of which tearing the liquid will spout via the cannula out of the contiguous opening or openings 4 under the influence of the "pinching pressure."

Lest no delicate parts are damaged during introduction of the cannula into the anus, said cannula is rounded on the extremity which is directed away from the container. Besides, to ensure that the liquid is injected correctly into the rectum or the like, the junction from the cannula to the container is constructed as a shoulder and the cannula has a length which is dependent on the medium to be injected and on the length of the patient.

To ensure that the container is emptied in the best possible way, it is constructed in the form of a bellows. It is clear, however, that also other shapes are possible.

To effect easy tearing of the foil 5, the part 6 thereof, which is mounted condition seals the passage in the cannula, is made thinner. Moreover tear lines 7 are made in that part (see FIG. 2).

To easily grip and handle the device, the container 1 has a narrowed portion in which the fingers of a hand fit.

The embodiment shown in FIG. 3 is provided, just like the above embodiment, with a container 1 with a contiguous cannula 2. In the end which is directed away from the holder there are provided laterally a number of openings 4 through which a medium present in the container can escape.

The cannula 2 further comprises a ball 8 having a fit creating frictional force, but which is for the rest freely movable.

When the container is filled with a medicinal medium, the ball consisting of glass, metal or plastic is so mounted in the cannula that said ball, retained on all sides by friction, will entrap the medium present in the container.

When using this device the wall will move through the cannula by exerting pressure on the container and will clear the openings, so that the medium will spout of the openings under the influence of the "pinching pressure." It is clear that the diameter of the ball is larger than the diameter of the openings.

In the embodiment shown in FIG. 3 the openings 4 are positioned obliquely forwardly at an acute angle to the axis of the cannula. Moreover there are a number of openings axially in series.

In the embodiment shown in FIGS. 4-6 the container 1 and the first cannula 2 are made integrally of preferably polyethylene and they are constructed as a cylindrical, in cross-section oval, hollow body, said container having a substantially flat top 9, terminating in an upwardly extending neck 10, said neck either surrounding the first cannula 2 or merging into said cannula. The cannula has two diametrically opposite outlets 4 adjacent its closed end 11 which is directed away from the container 1.

After the container is filled with a medicinal medium the bottom 12 is sealed against the lower edge of the container.

A second cannula 13, preferably of somewhat harder plastic, is slid telescopically on the first cannula 2 with light friction. The second cannula having a flat convex-conical collar 14 on the end directed to the container, is slid to the position shown in the left-hand half of FIG. 4 after filling of the container. In this case two diametrically opposite outlets 15 are axially spaced from the openings 4 of the first cannula in such a manner that the device is entirely closed and no medium can escape.

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When the second cannula with a spherical head 16 is introduced into the anus and the container is pressed inwards while being simultaneously pinched, the second cannula slides over the first one to the position shown in the right-hand half of FIG. 4, in which the bottom of the collar 14 abuts the top edge 17 of the neck 10. In this position the openings 4 and 15 are aligned and the medium can flow out.

To avoid mutual rotation of the cannulus so that the openings of the second cannula no longer tally with those of the first cannula, the cross-section of the cannulas, and from an esthetic point of view also that of the reservoir, is constructed in oval shape. This is shown in FIGS. 5 and 6.

The pressure build-up, referred to extensively above, takes place in the embodiment shown in FIGS. 4-6, on account of the fact that during the introduction of the device into the anus and using the collar 14 as an abutting face on the end of the anus, the first cannula can be pressed deeper into the second cannula till the outlets of the two cannulus cover each other entirely and the liquid flows out under pressure by pinching in the reservoir.

It is clear that a great number of variations is possible within the framework of the inventive ideas.

The device according to the invention has several advantages:

after removal from a sterile packing it is immediately ready for use (no necessity of removing sealing caps from the openings, neither is it necessary to wait till wax pellets sealing the openings have melted). Neither is there a chance of tissue damage when the cannula is introduced through the anus, as the end thereof is rounded. Besides a rapid emptying of the container is effected, as it takes place under pressure. By providing the openings in the correct position and at the correct angle the desired spreading of the contents of the cannula in the intestine is achieved.

I claim:

1. A device for introducing a medicinal medium into the body through the anus, of the type which is provided with such a medium and sealed against premature discharge, comprising a compressible container for the medium and a cannula connected to the container, at least one discharge outlet for discharging medium from the cannula, a passage means between said container and said cannula, and sealing means normally closing said passage means, said sealing means being operative to release said medium for passage through said discharge outlet only upon opening of said sealing means by increasing of the pressure upon said

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medium in the container by squeezing compression of the container, said sealing means being operative to provide that any and all medium discharged is discharged through said at least one discharge outlet under pressure.

2. A device according to claim 1 wherein said sealing means comprises a rupturable or tear foil arranged at a joint formed between said cannula and said container and sealing a passage in the cannula off from communication with the container before use of the device, whereby pressure on the medium in the container is operative to open said passage by breaking said foil.

3. A device according to claim 1, wherein said cannula has a permanently closed end remote from said container and an internal passage formed from said container to said closed end, a side wall of said passage having a plurality of discharge outlets therethrough near said closed end and wherein said sealing means is formed by a sealing element movable through the passage in the cannula to a point closer to said closed end than said discharge outlets, said sealing element having a fit creating frictional force with said passage sidewall for motion along said passage only in response to pressure on the medium.

4. A device according to claim 1 wherein said cannula has a permanently closed end remote from said container, said at least one discharge outlet comprising an opening through a wall of a passage extending through said cannula from said container to said closed end, said device including a second cannula fitted telescopically around said first mentioned cannula for sliding longitudinal movement with respect to said first mentioned cannula upon insertion into the anus, said second cannula also having at least one outlet through a wall thereof, the outlets of said cannulas being spaced apart to constitute said sealing means before pressure is exerted on the container and said outlets being so arranged that upon the application of pressure and said sliding longitudinal movement in response to said pressure the outlets will be moved into registry whereupon medium under pressure can flow through said outlets.

5. A device according to claim 4 wherein the second cannula has a collar on an end thereof facing the container, which in operative position when the outlets are in registry abuts a lengthened neck of a top portion of the container which surrounds the first cannula.

6. A device according to claim 4 wherein each of said two cannulas has two diametrically opposite outlets.

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