

Aug. 5, 1952

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2,605,937

ETHER DROPPER

Filed June 28, 1948

Fig. 1

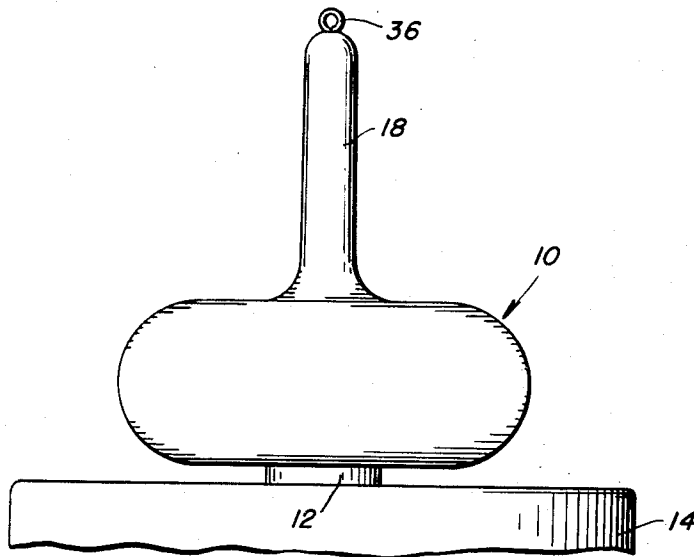
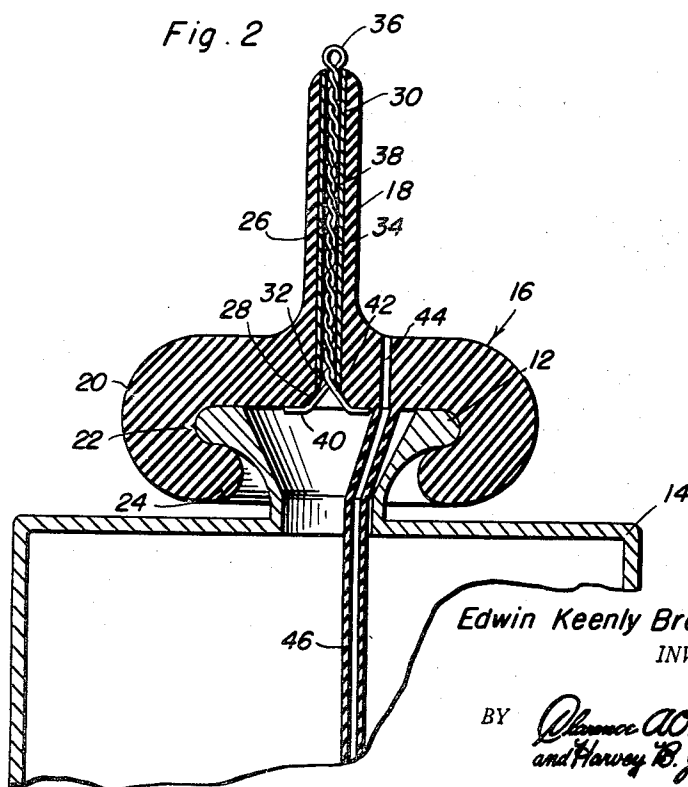


Fig. 2



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UNITED STATES PATENT OFFICE

2,605,937

ETHER DROPPER

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Application June 28, 1948, Serial No. 35,725

3 Claims. (Cl. 222-420)

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This invention relates to certain new and useful improvements in a novel dropper-type dispensing device which is expressly adapted for use on and in intimate connection with the discharge neck of a container for an anesthetic, for example, a can of ether.

It is a matter of common knowledge that ether is administered to juveniles, children ranging up to 12 years of age, and that, for the most part, the mode of dispensing ether from the can is rather crude and unreliable. It is the practice of surgeons and others who handle the anesthetic administration step to force the pin portion of a safety pin through the cap on the discharge neck in order to provide pouring holes and with the pin left in place a sort of a make-shift drop controlling device is had. In other instances the cap is simply plugged out with a penknife and the ether is poured out rather haphazardly. Then, to preserve the contents, a cork stopper or the like is used to replace the removed cap and the cork is loosened slightly to allow ether to trickle out between the surface of the cork and the marginal edge portion of the discharge neck of the can. There has long existed a recognized need for a more reliable and satisfactory dispensing device for use in connection with ether cans. It is, therefore, the principal object of the present invention to provide a simple, practical and economical dispensing and drop forming device which is susceptible of being attached with requisite nicety to the discharge neck and which is characterized by efficient structural means which, in action, permits the user to regulate and control the flow and to thus take care of the administration step with required finesse and safety.

Another object of the invention is to provide a dropper that is adapted to regulate the rate of flow of fluid by varying the angle of inclination of the container.

Yet another object of the invention is to provide a dropper adapted to be secured to a container in such manner that substantially all of the fluid is removed, thereby avoiding waste.

And yet a further object of the invention is to provide a dropper that is simple and durable in construction, economical in manufacture, and effective for the intended use.

Other objects of the invention reside in the details of construction and in the combination of the various parts and in their mode of operation, as will hereinafter appear.

The following is a detailed description of a preferred embodiment of the invention and is

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illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the dropper of the invention as secured to a container;

Figure 2 is a vertical sectional view of the device shown in Figure 1.

By way of introduction to the detailed description and briefly summarized the invention has to do with a device embodying a rubber or an equivalent nipple, the latter having an attaching portion which is fitted over and snugly retained in a desired position on the neck of the stated ether can. The stem portion of the nipple provides a dispensing bore and this is bushed with an open ended tube, the latter fitting into the bore of the stem and being of a length substantially commensurate with said bore. The tube provides a fitting or sheath for a readily insertible core which latter is constructed from a length of properly gaged wire. The wire is bent upon itself intermediate its ends to define an eye and strand portions. The strand portions are helically twisted together from the point of location of the eye to points near the free terminal ends of said strand portions. Thus, a helical feeding and conveying "screw" is provided and the feedways existing between the convolved portions serve to satisfactorily deliver the ether from the can lengthwise along the twisted portion and into the eye without hindrance. This nonturbulous passage of the ether into the eye forms the desired drops for adequately controlled use, that is one-handed use, by the surgeon.

Referring to the drawings, the dispenser or dropper of the invention is indicated generally by numeral 10 and is secured to the neck 12 of a container 14 in firm manner.

The component 16 which may be called a nipple, is constructed of any suitable semi-rigid material, such as rubber or plastics and includes a vertical stem section 18 of relatively small cross-section, stem 18 being integral with a resilient neck capping and attaching member 20. Member 20 is adapted to be securely but removably received on neck 12 of the container. Member 20 is annularly counter-bored on the inner surface 22 and terminates in a lip 24. When fitted in seated position, as illustrated in Figure 2, lip 24 overlies the neck flange portion to prevent accidental displacement thereof. The stem 18 is axially bored at 26, said bore 26 terminating with annular counter-bore 22. It will be noted that bore 26 is beveled at 28, adjacent counter-bore 22, for a purpose presently to appear.

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A hollow tube or bushing 30 is press-fitted in bore 26 and is beveled at 32 at the lower surface thereof, to provide a continuous inclined surface with bevel 28. While it is preferred to construct tube 30 of steel, it is readily understood that any other suitable non-corrosive material might be substituted therefor.

The ether feeding and conveying means, a simple core, takes the form of a wire 34 of silver or any other non-corrosive material, which latter is looped at 36 the intermediate length thereof, and the strands are then helically twisted together as shown at 38 in Figure 2 through the entire length of tube 30, wire-ends or terminals 34 being separated at the lower extremity thereof and bent laterally at 40 to seat against the inner surface of mounting member 20. In this manner, the helical feedways direct the flow of fluid toward the outlet by means of the inclined surface 42, and the convoluted portion thereof reduces turbulence and permits a steady and regular flow of fluid. When the fluid has reached loop or eye 36, it will be retained thereon for an instant, after which it is transformed into a drop which then drops directly to the point of use. Thus, tube 30 and conveying helical feedways 38 plus the drop releasing eye 36 constitute guide and control means for the flow of ether in a simplified practical and reliable manner.

A vertical bore 44 extends through member 20, member 20 continuing downwardly in tubular construction 46 to the interior of container 14. This is done in order to break the vacuum in the container and permit all of the fluid therein to be transferred to the point of use, thereby eliminating waste. If desired, of course, vent means 44 and 46 could be dispensed with without materially affecting the operation of the device.

If it is desired to accelerate or diminish the rate of flow of fluid, this is readily accomplished by merely varying the angle of inclination of the container to control the flow therein.

From the above description, the use of the device is readily apparent. While a preferred embodiment of the invention has been shown and described, it is to be understood that various changes in size, shape and arrangement of parts may be made without departing from the spirit of the invention or the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. For use on an anesthetic container which has a pouring neck; a dropper-type dispensing nipple of resilient material embodying a capping and attaching member releasably connectible with said neck and an axially bored flexibly resilient stem carried by said attaching member,

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a non-corrosive tube fitted into and lining the wall of said bore, and a feeding and conveying core located in the passage in said tube, said core being a length of non-corrosive wire bent upon itself between its ends into an eye and having its strand portions helically twisted together from the point of location of said eye to points near the free terminal ends of said strand portions, said eye abutting and being disposed outwardly of and in axial alignment with the discharge end of said tube.

2. For use on an anesthetic container which has a pouring neck; a dropper-type dispensing nipple of resilient material embodying a capping and attaching member releasably connectible with said neck and an axially bored flexibly resilient stem carried by said attaching member, a non-corrosive tube fitted into and lining the wall of said bore, said tube being of a length substantially commensurate with the length of the bore, and a feeding and conveying core located in the passage in said tube, said core being a length of non-corrosive wire bent upon itself between its ends into an eye and having its strand portions helically twisted together from the point of location of said eye to points near the free terminal ends of said strand portions, said eye abutting and being disposed outwardly of and in axial alignment with the discharge end of said tube and the extremities of said terminal ends being bent laterally outward in respect to the inner end of said tube and secured to said attaching member.

3. The structure of claim 1 wherein at least one of the portions of said eye at the point of juncture with said twisted strands is in uninterrupted feeding relation with the helical feedways provided by the twisted portions of said strands, whereby the fluid flows continuously and fluently along said feedways, when the anesthetic container is properly tilted, and into the confines of said eye to successively form the desired drops at the rate desired by the user.

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