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 SYRINGE FOR MEDICAL PURPOSES

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Fig. 1

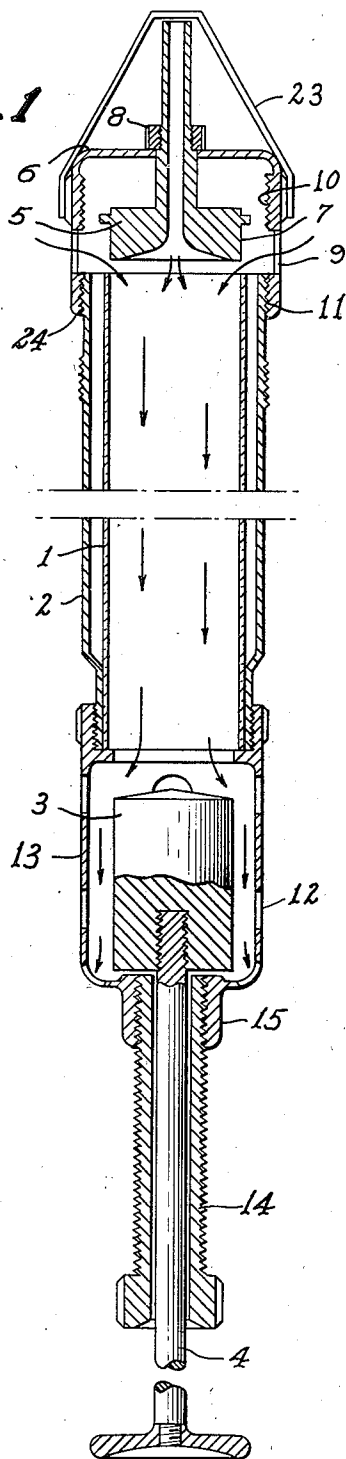
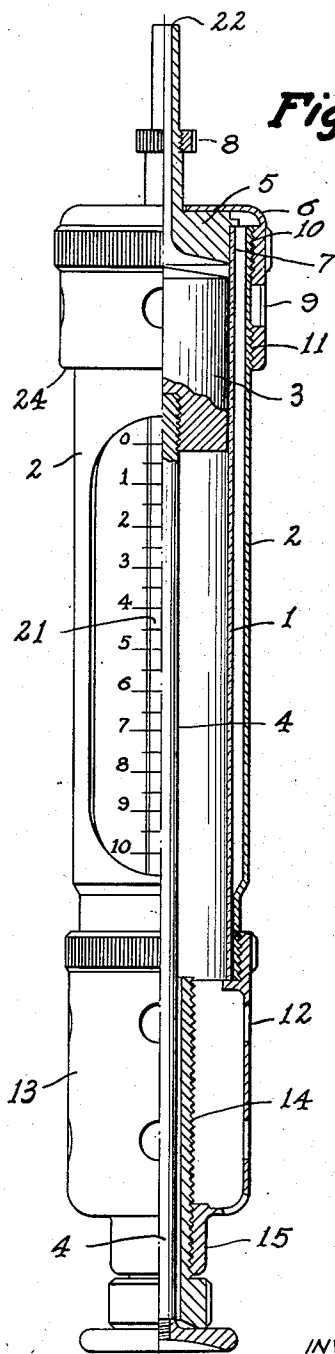


Fig. 2



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SYRINGE FOR MEDICAL PURPOSES

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3 Claims. (Cl. 128—215)

Hitherto, syringes for medical purposes, for example injecting syringes and the like, have been sterilized by taking to pieces the syringe, the parts of which, i. e., the cylinder with the short cannula on the one hand and the piston with the rearward cylinder lid on the other hand, being separately sterilized in steam. This manner of sterilizing has the disadvantage that, in spite of taking to pieces the syringe, not all important parts of the syringe are reliably sterilized. In addition, when reassembling the sterilized parts of the syringe, there is the danger of re-infecting it.

The present invention is based upon the fundamental idea of sterilizing the syringe in its assembled state, but to loosen the parts of the syringe in such a manner that the steam is given free access to all parts of the syringe coming into contact with the liquid to be injected. For this purpose, the invention provides at the front end of the cylinder for fixing the short cannula a perforated cap nut, which is screwed on to the glass cylinder or its protective tube, and which, when being loosened, draws the short cannula out of the glass cylinder, whereas at the rear end of the cylinder there is provided a widened and likewise perforated extension of the protective tube or of the glass cylinder, into which extension the piston of the syringe may be drawn completely.

Two constructional examples of the invention are illustrated in the accompanying drawing, in which—

Fig. 1 is a view of an injecting syringe, one half of which is shown in longitudinal section;

Fig. 2 is the same injecting syringe with the parts of the syringe loosened when being sterilized.

The syringe illustrated in Fig. 1 is composed of the following parts:

A glass cylinder 1, a protective tube 2 made of metal and surrounding said cylinder, a piston 3 with a piston rod 4, and a short cannula 5 which is fixed by means of a cap nut 6 screwed on to the tube 2.

As will be seen from Fig. 1, the liquid to be injected, which is contained in the cylinder 1, may, owing to the capillary action, also get between the cylinder 1 and the short cannula 5. Since the short cannula 5 was hitherto rigidly connected with the cylinder 1 while being sterilized, there was the great danger of the short cannula not getting sterilized at the peripheral wall 7.

According to the invention, the arrangement

is made so that, when loosening the cap nut 6, the short cannula 5 is at the same time drawn out of the glass cylinder, as shown in Fig. 2. This automatic withdrawing of the short cannula may be constructively effected in various manners. In the constructional example illustrated, an adjustable nut 8 is provided on the short cannula, against which nut bears the cap nut 6 as in Fig. 2 and, therefore, draws the short cannula out of the glass cylinder and lifts it off the latter far enough to let the sterilizing steam enter the cylinder 1 through openings 9 in the cap nut 6 in the direction of the arrows. Consequently, the above mentioned peripheral wall 7 of the short cannula is also sterilized in a perfect manner.

In the advantageous construction illustrated, the cap nut 6 has two spaced thread pieces 10 and 11, between which the perforations 9 are arranged. This construction facilitates a rapid loosening of the cap nut on the protective tube 2. Besides, the thread piece 11 is so arranged that, after loosening the thread 10, the short cannula 5 may be securely drawn out of the glass tube, as shown in Fig. 2. If desired, there may be provided a stop or the like, which prevents the cap nut from being completely screwed off. It is important that this cap nut is merely loosened, but not completely screwed off.

In order to be able to perfectly sterilize the piston 3 of the syringe together with the other parts of the syringe, the invention provides at the rear end of the cylinder an extension 13 of the protective tube with perforations 12, into which extension the piston may be drawn completely, as shown in Fig. 2. Consequently, the sterilizing steam can flow on all sides round the piston, as indicated by arrows.

Furthermore, there is provided on the extension 13 of the protective tube an adjustable stop for the piston, which stop prevents the piston from being accidentally drawn out of the glass cylinder. In the construction shown in Figs. 1 and 2, this stop consists of an externally threaded tube 14 serving to guide the piston rod 4, which threaded tube may be screwed in a projection 15 of the extension 13.

At its foremost position, as shown in Fig. 1, the tube 14 serves as a guide for piston rod 4 as the piston 3 is advanced or retracted and further serves as a stop to prevent accidental retraction of the piston from the cylinder 1. When, however, the tube 14 is turned to its rearmost position, as shown in Fig. 2, the piston 3 may be readily retracted into the extension 13 and held in position out of contact with the walls of the

cylinder 1 or extension 13, the piston rod 4 within the tube 14 supporting it in such position.

In the syringe according to the invention, the scale 21 for indicating the contents is arranged on the glass cylinder in such a manner that it may be calibrated to read at the rear end of the piston.

In order to securely prevent a reinfection of the sterilized syringe when fixing a cannula, by touching the short cannula at 22, a protective cap 23, which is pervious to steam, is passed over the short cannula and secured in any desired manner upon the cap nut 6.

The syringe described above is preferably sterilized in vertical position, advantageously in the position illustrated in Fig. 2. During this operation, the syringe may be suspended by means of a fork or the like, supporting the syringe under the edge 24 of the cap nut 6.

The invention is not limited to the above described construction of a syringe. If desired, the syringe may be made without a protective tube or substantially of glass.

What I claim is:

1. A syringe comprising an open-ended cylindrical body-portion provided with external threads adjacent each end, a centrally apertured cap nut threaded upon the forward end of the

body portion and provided with peripheral apertures, a cannula extending through the central aperture of the cap nut and having a cylindrical portion adapted to snugly fit within said body-portion, an adjustable member carried by the cannula forwardly of the cap nut, a piston adapted to snugly fit within said body-portion, a piston rod carried thereby, and a cylindrical extension member of greater diameter than the piston threaded upon the rear extremity of the body-portion and provided with peripheral apertures, said extension member having an end wall centrally apertured to receive said piston rod, said cap nut and extension member respectively housing said cannula cylindrical portion and said piston when withdrawn through the opposite ends of said body-portion to facilitate sterilization of the assembled syringe.

2. A syringe as recited in claim 1 wherein a releasable stop is carried by said extension member to prevent accidental withdrawal of the piston from said body-member.

3. A syringe as recited in claim 1 wherein said cap nut is formed with two spaced threaded portions between which said peripheral apertures are arranged.

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