July 3, 1951 E. A. ERICSSON ET AL 2,558,742

RECEPTACLE FOR INJECTION SYRINGES

Filed Oct. 24, 1945

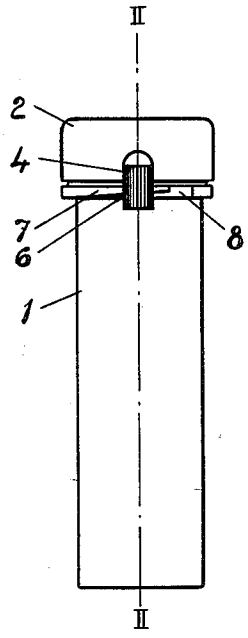


Fig. 1.

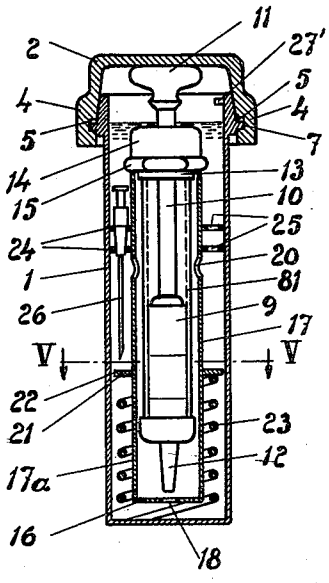


Fig. 2.

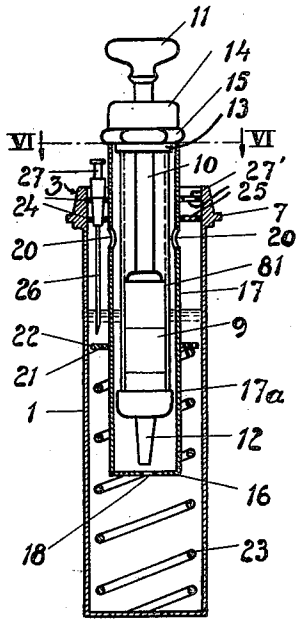


Fig. 3.

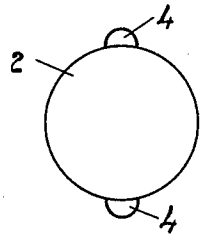


Fig. 4.

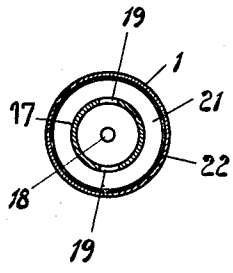


Fig. 5.

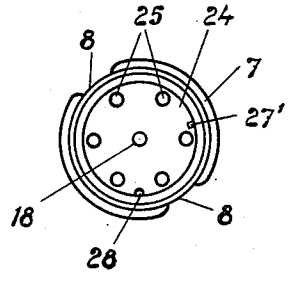


Fig. 6.

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RECEPTACLE FOR INJECTION SYRINGES

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2 Claims. (Cl. 206—43)

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The invention relates to receptacles for sterilization of injection syringes with accessories and for keeping of such instruments in sterilized condition. More particularly the invention relates to receptacles having an opening, adapted to be closed by a cover, and a holder for the syringe.

The invention has for its principal object to provide a receptacle of the kind referred to in such a manner that the syringe upon removal of the cover is automatically moved from its normal position, in which it is enclosed by the receptacle and immersed in the sterilization liquid, to a service position, in which the syringe is readily accessible by the user or operator.

To this and other ends the invention resides in certain improvements hereinafter described with reference to accompanying drawing illustrating an embodiment of the invention.

In the drawing, Fig. 1 is a side elevation of the receptacle closed by the cover. Fig. 2 is a vertical section of the receptacle on line II—II of Fig. 1. Fig. 3 is the same section but with the cover removed and the holder with the injection syringe in service position. Fig. 4 is a plan view of the cover. Fig. 5 is a horizontal section on line V—V of Fig. 2, the injection syringe being removed, and Fig. 6 is a view from above of the receptacle with both the cover and syringe removed.

The embodiment disclosed by way of illustration comprises a receptacle 1 in the form of a standing cylinder the upper end of which is open and adapted to be closed by means of a cover 2. In closed position, the cover tightly bears on a conical surface 3 (Fig. 3) of the receptacle. The cover on diametrically opposite sides is provided with downwardly projecting lugs 4 with recesses 5 adapted to engage with an inclined surface 6 on the under side of a flange 7 provided on the outer side of the receptacle 1. On diametrically opposite sides portions of the flange 7 are cut away whereby notches or recesses 8 are formed through which the lower ends of the lugs 4 may be moved when the cover is to be placed on or removed from the receptacle. By a slight rotation of the cover the lugs 4 are engaged with or disengaged from the flanges 7. By the friction between the lugs 4 and the surfaces 6 as well as between the inside of the cover and the conical surface 3 the cover will be retained in tightened position without any additional locking device.

In Figs. 2 and 3 an injection syringe is shown in place in the receptacle. The construction of this syringe may, of course, vary. According to the drawing it comprises a glass cylinder 81, a piston 9, a piston rod 10, a handle formed by a

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button 11 for the operation of the piston rod, a nozzle or outlet 12, a socket 13, to which the cylinder 81 is attached, and a cover 14 with a hole for the piston rod, said cover 14 being removably fastened to the cylinder. The cover 14 is provided with a flange 15 by means of which the syringe can rest upon a holder 17 for the parts to be sterilized. This holder 17 according to the drawing has the shape of a cylinder or socket which is substantially so-axial with the cylindrical receptacle 1. The socket 17 is provided with a bottom 16, and through holes the inside of the socket communicates with the receptacle 1. Thus, there is a central hole 18 in the bottom 16 of the socket, and in the wall of the socket two pairs of holes 19, 20 are provided at different heights. The pair of holes 19 is shown in Fig. 5. To the outer side of the socket 17 an annular disc 21 is attached below the holes 19, 20, a narrow intermediate space 22 being left between the disc and the inner side of the receptacle 1. The disc 21 together with the portion 17a of the socket or receptacle 17 located beneath the disc forms the piston of a liquid brake or dashpot the cylinder of which is formed by the receptacle 1. To the under side of the disc 21 there is attached one end of a helical spring 23 the other end of which rests on the bottom of the receptacle 1. The spring 23 is a compression spring and tends to move the socket 17 to the position of Fig. 3. The holder or socket 17 above the upper pair of holes 20 carries two plates 24 with a number of holes 25 arranged concentrically about the socket. These holes 25 are intended to form seats for syringe needles 26 with socket-shaped mouthpieces 27, by means of which the needles, formed by pointed fine tubes, may be detachably connected to the outlet 12 of the syringe as is well known.

In order to prevent unintentional displacement of the holder 17 beyond the service position, shown by Fig. 3, a stop member 27' is attached to the inside of the receptacle 1. In said position of the holder the outer holder plate 24 will engage with this stop member. In the edges of both plates 24 notches 28 (Fig. 6) are provided, and these notches enable the removal of the holder after the latter has been rotated until the projection 27' registers with the notches 28.

When the receptacle 1 is to be filled with sterilizing liquid the syringe is first inserted into the holder so that its flange 15 rests on the upper edge of the holder. During the filling operation the syringe and holder are held depressed in the receptacle against the action of the spring 23 by

exerting a pressure on the button 11 by a finger of the operator. The sterilizing liquid is filled until it reaches the vicinity of the upper edge of the receptacle and hence covers practically the whole syringe. Through the hole for the piston rod 10 in the cover 14 the liquid also will penetrate into the cylinder 81 above the piston so that the interior of the syringe also is sterilized. The receptacle is closed by means of the cover 2 whereupon the enclosed syringe and needles therefore carried by the holder plates for the most part or wholly are immersed in the sterilizing liquid as indicated by Fig. 2. In this normal or enclosed position the button 11 of the syringe is forced against the inside of the cover 2 by the spring 23 so that the syringe is held in position in the receptacle. When the syringe is to be used, the cover 2 is removed and as a result the socket-shaped holder 17 with syringe and needles therefore is moved by the spring 23 out through the opening of the receptacle to the service position of Fig. 3 in which the syringe as well as needles are easily accessible. This upward movement of the holder and parts carried thereby is damped by the dashpot action of the parts 1, 17*a*, 21, and the sterilizing liquid in this movement flows down through the hole 18 and the slight intermediate space 22 between the inside of the receptacle 1 and the plate 21. As the holder with the syringe is pushed outward, the level of liquid in the receptacle 1 is lowered so that any risk of spilling the sterilizing liquid after the removal of the cover 2 is reduced. During the displacement of the holder 17, the plates 24 and, possibly, also the disc 21 will constitute guiding members for the holder.

The design of the details may be varied in many respects without departing from the spirit of the invention. For instance, it is not necessary to give the receptacle 1 and the holder 17 a cylindrical form, but they may have any other suitable shape, such as oval or rectangular in cross-section. The securing device for the cover 2 may also be of another character than the one above described.

What we claim is:

1. In a container for an injection syringe, an elongated receptacle closed at one end and open at the other, a hollow socket for the reception of the syringe, said socket being of substantially smaller diameter than said receptacle and being longitudinally displaceable within the receptacle, resilient means for displacing said socket so that a portion thereof projects outwardly through the open end of said receptacle, a plurality of longitudinally spaced plates extending laterally outwardly from said socket and having outer edges contacting the inner side of said receptacle for locating and guiding the socket within the receptacle, openings formed in at least one of said plates providing seats for holding a plurality of syringe needles, and a removable cover for closing said open end and retaining said socket in retracted position.

2. A sterilizer for an injection syringe comprising an elongated receptacle open at one end and adapted to receive sterilizing fluid therein, a socket member longitudinally displaceable within said receptacle and adapted to receive the body of a syringe, the socket member being apertured to permit flow of sterilizing fluid between the receptacle and socket member, spaced guides carried by said socket member adjacent the syringe receiving end thereof, said guides extending outwardly from said socket member and cooperatively associated with the inner wall of the receptacle for guiding said socket member therein, said guides having spaced aligned apertures for the reception of syringe needles, additional guiding means spaced inwardly from said spaced guides and extending laterally from said socket member and contacting the inner wall of said receptacle, resilient means positioned between said last mentioned guiding means and the bottom of the receptacle for urging the socket outwardly, means for limiting the outward movement of the socket, and a removable cover for closing the open end of the receptacle and retaining said socket in retracted position below the level of fluid therein.

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