March 13, 1956 M. BERTHIOT 2,737,950

SYRINGE FOR HYPODERMIC INJECTIONS

Filed Oct. 7, 1954

Fig. 1.

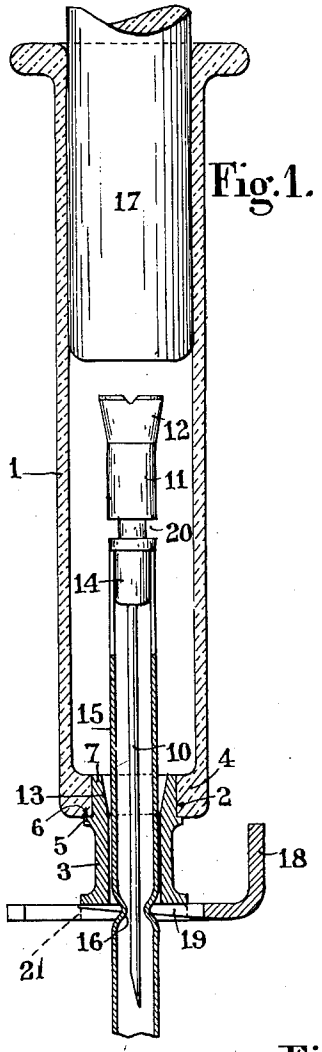


Fig. 2.

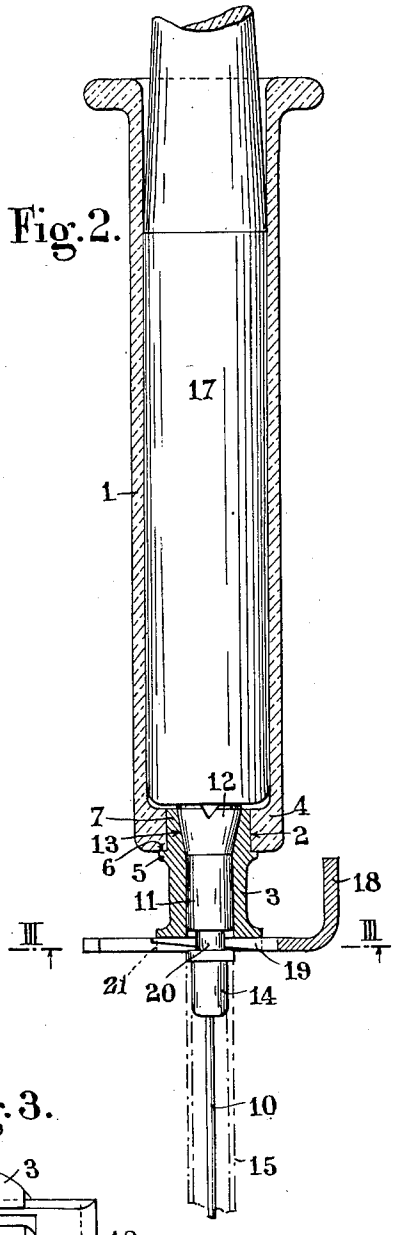
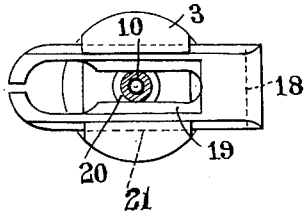


Fig. 3.



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United States Patent Office 2,737,950 Patented Mar. 13, 1956

2,737,950

SYRINGE FOR HYPODERMIC INJECTIONS

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Application October 7, 1954, Serial No. 460,984

5 Claims. (Cl. 128—218)

Syringes for hypodermic injections generally comprise a hollow, ground point; before using the syringe, the injection needle should be secured on this point, possibly with the interposition of a binding ring, these various elements being sterilized previously.

This assembling requires time of the operator and is liable to cause a loss of sterility for the elements if it is not carried out with the utmost care.

It has already been suggested, for obviating this drawback to realize a syringe for hypodermic injections, in which the needle is secured permanently at the end of the syringe; such a syringe, however, is very cumbersome and the needle may easily be broken.

The object of the present invention is a syringe in which, before use and for storing purposes, the needle is held inside the syringe, a very small portion of said needle alone protruding, possibly, out of the syringe, said needle being covered with its needle protector, and being capable of being pushed forward by means of the piston and easily secured in this position; it will be realized that the use of this syringe is much more practical than that of all the above-mentioned syringes, since the user only has to exert a first pressure on the piston for bringing the needle in position, to lock the latter by a simple device, and to withdraw the needle protector, and he can then fill his syringe and effect his injection in the usual manner.

Another characteristic of the invention resides in that the syringe which may be made of crystal, glass or plastic material has a normal shape, but does not comprise any hollow, ground point, but simply an orifice along the axis of its bottom, an orifice in which the needle holder is secured.

The appended drawing shows, by way of example, one mode of embodiment of the present invention.

Figure 1 is a view in longitudinal section.

Figure 2 is a similar view showing the needle in its position of utilization.

Figure 3 is a view in transverse section effected along the line III—III in Figure 2.

The syringe represented, **1**, has the usual shape, with the only difference that its bottom is simply drilled with an orifice **2**.

The needle holder **3**, engaged in this orifice **2**, is constituted by a socket, sealed at the bottom **4** of the syringe and comprising a shoulder **5** which rests on the outer face **6** of the bottom **4** of the syringe **1**.

The needle **10** comprises a head having a circular section **11** with a conical flaring **12** capable of being accommodated inside a bore **13** of corresponding dimensions, provided in the head **7** of the socket **3**; the lower end **14** of the head **11** of the needle **10**, also with a circular cross section, is chamfered and the needle protector **15**, which also has a circular shape, is engaged on this lower chamfered end of the needle head. A groove **20** is provided between the sections **11** and **14**.

The bore in the socket **3** also has a circular cross section and its dimensions are such that the needle protector **15** and the lower end **14** of the head **11** of the needle can slide therein with a soft friction; a circular groove **16**, provided in the needle holder **15** makes it possible to keep it normally in the high position in which it is represented in Figure 1, by means of a cooperating lock **18** comprising two wedge shaped branches **19** capable of sliding along the lower surface of the needle holder **3**, in grooves **21** thereof adapted to guide the sliding.

The piston **17** can slide in the usual manner inside the syringe **1**.

The various parts of the syringe having been sterilized and being assembled in the position represented in Figure 1, to make use of this syringe a pressure must be exerted on the piston **17** to cause the needle to move down to its position of utilization where it is represented in Figure 2; one then causes a sliding of the lock **18**, the wedge shaped branches of which, **19**, engage the groove **20** provided to that effect in the head **11** of the needle and lock firmly the latter in position.

The injection can then be effected in the usual manner after the needle protector **15** has been withdrawn.

It should be understood that the modes of embodiment which have been described above, with reference to the appended drawing, have been given purely by way of indications and not of limitations and that numerous modifications may be made thereto without departing from the scope of the present invention, thus, particularly, while the needle holder **3** has been represented sealed to the bulb, but it might also be secured removably on the bottom of the syringe, and different means could be used for securing the needle in its active position.

What I claim is:

1. A syringe for hypodermic injections comprising a needle holder secured to its bottom, a needle and its needle protector capable of sliding along their axis, in this needle holder, means for securing this needle and its needle protector before use and for storing purposes, inside the syringe, along the axis of the latter, a very small portion of the needle protector protruding out of the syringe, and means for securing the needle in its position of utilization, after its sliding through the needle holder.

2. A syringe according to claim 1, in which the needle holder is sealed at the bottom of the syringe.

3. A syringe according to claim 1, wherein the means for securing the needle in the storing position consist in a lock comprising two wedge shaped branches capable of sliding along the lower surface of the needle holder in grooves thereof adapted to guide the sliding and grooves in the needle protector for cooperating with the branches of the lock.

4. A syringe according to claim 1, wherein the means for securing the needle in the active position are constituted by a lock comprising two wedge shaped branches capable of sliding along the lower surface of the needle holder in grooves thereof adapted to guide the sliding and grooves in the head of the needle for cooperating with the lock branches.

5. A syringe according to claim 1, in which the head of the needle is terminated at the top by a conical flaring and the head of the needle holder comprises a bore the dimensions thereof corresponding to those of the conical flaring.

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