

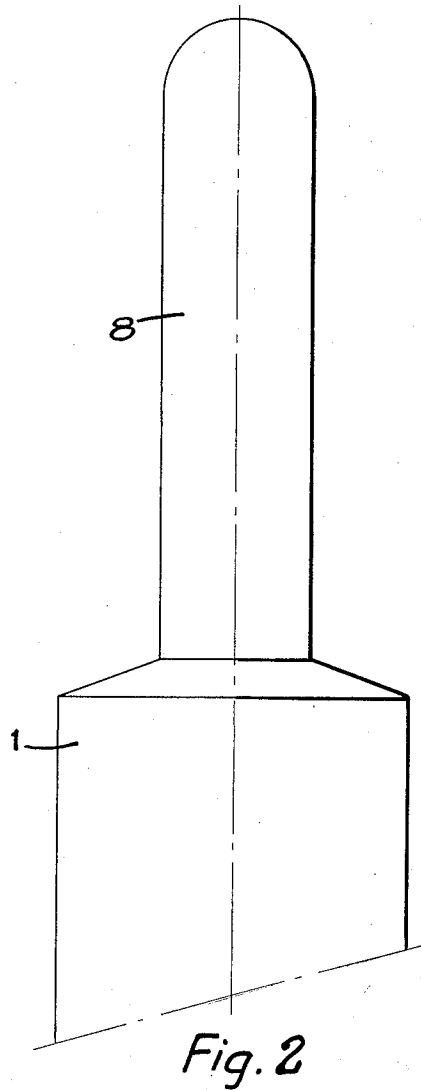
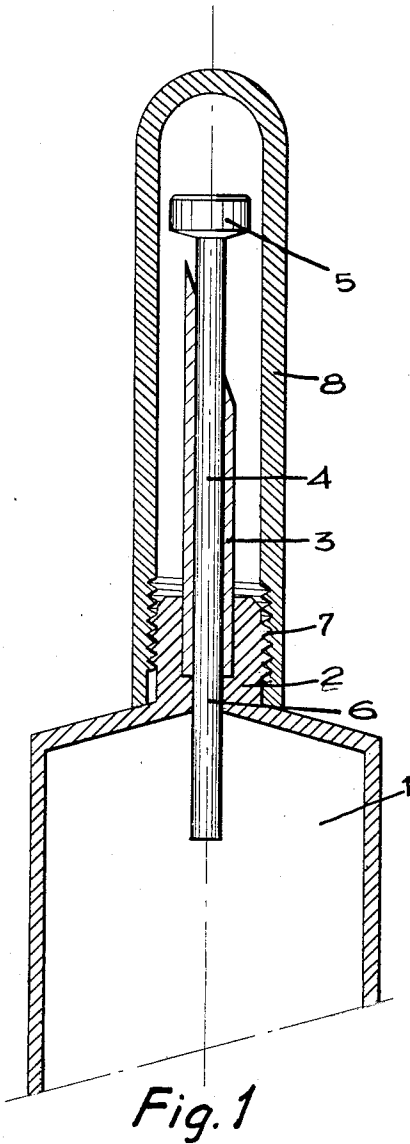
Nov. 10, 1959

A. QUINCHE ET AL

2,911,971

SYRINGE

Filed Jan. 21, 1954



INVENTORS:
ALBERT QUINCHE
EDOUARD LECLUYSE
BY *Leon M. Strauss*
ATT.

1

2,911,971

SYRINGE

Albert Quinche, Saint-Sulpice, and Edouard Lecluyse, Vevey, Switzerland, assignors, by mesne assignments, to American Can Company, New York, N.Y., a corporation of New Jersey

Application January 21, 1954, Serial No. 405,468

9 Claims. (Cl. 128—216)

Several types of syringes lending themselves to a single use are already known, such syringes including a distortable reservoir for the liquid to be injected to which a hypodermic needle is secured. Said needle, when in inoperative position, does not contact the liquid to be injected. Each syringe belonging to these known types also comprises a perforating member slidably received inside the hypodermic syringe for being capable of piercing a closure wall provided inside the liquid container.

When a syringe of this type is used, the perforating member is withdrawn from the hypodermic needle after having perforated the closure wall, whereupon the needle may be inserted into the patient's body. The perforating member is merely housed inside the needle and therefore runs the risk of easily falling off and thus becoming lost. It also involves the serious disadvantage that extraneous and non-sterile bodies may be introduced into the reservoir containing the liquid to be injected.

Moreover the perforation of a metal or plastic wall cannot be conveniently performed by merely pressing or withdrawing the perforating member because a hole made in this way will often close back almost entirely and will not allow the liquid to be injected to pass through it.

An object of the invention is to provide a new or improved hypodermic syringe obviating the aforesaid disadvantages while lending itself to an easy manufacture.

Another and more specific object of the invention is to provide an improved hypodermic syringe as aforesaid comprising a distortable reservoir or container for the liquid to be injected with this particular feature that one end of said container is formed as a bored spigot into which is firmly tucked and held one end of a hypodermic needle, the latter being fitted with a stopper rod ensuring sealing of the container, said spigot being provided with a removable cap adapted to shroud and protect the needle and the stopper rod.

With these and such other objects in view as will incidentally appear hereafter, the invention comprises the novel construction and combination of parts that will be now described with reference to the accompanying diagrammatic drawing exemplifying the same and forming a part of the present disclosure.

The drawing shows the relevant portions of a hypodermic syringe according to an embodiment of the invention.

Figure 1 is an axial sectional view of the syringe.

Figure 2 is an elevational view of this syringe.

As shown, the hypodermic syringe comprises a pliable or distortable container or reservoir 1 made of a suitable moldable thermoplastic material and adapted to contain the liquid to be injected. This container 1 is formed at one end with a bored spigot 2 into which is firmly tucked and held one end of a hypodermic needle 3. Inside this needle is housed a stopper rod 4 provided at one end with a knurled head 5. The other end 6 of the rod 4 is engaged through the spigot 2 and performs perfect sealing of the container 1.

2

The spigot 2 is provided on its peripheral surface with a screw-thread 7 upon which is removably secured a cap 8 adapted to shroud and protect the hypodermic needle 3 and the stopper rod 4.

The operation of the hypodermic syringe as shown is as follows:

After the cap 8 has been unscrewed from 7 and taken off, the stopper rod 4 is withdrawn by grasping its knurled head 5, thereby providing inside the spigot 2 and the needle 3 a channel of sufficient size for driving and instilling into the patient's body the liquid which is contained in the reservoir 1.

According to a preferred constructional modification which can be readily understood without requiring a special illustration, the stopper rod 4 has a slight frusto-conical shape and is advantageously made of a stainless metal or alloy.

When manufacturing the hypodermic syringe as above described by using a plastic material, care must be taken to position the needle 3 and the rod 4 before molding the spigot 2 to proper shape, whereby when the plastic material cools and sets after molding, it tightly encompasses and clamps the needle 3 and the rod 4 while perfectly sealing the reservoir 1 to prevent any leakage. If desired, of course, the needle 3 at the part which will be in molded contact with the spigot may have formed thereon a roughened or other irregular surface to insure a firm grip by the plastic.

Minor constructional details may be varied without departing from the scope of the subjoined claims.

What is claimed is:

1. In a hypodermic syringe of the type including a distortable reservoir for a liquid to be injected, a molded thermoplastic spigot arranged adjacent one end of the reservoir and having a bore communicating with the inside of the reservoir, a hollow hypodermic needle having one end penetrating into the spigot bore for being held therein, a portion of reduced diameter in said bore between the end of the needle and the inside of the reservoir, a stopper rod removably held in the hypodermic needle and extending into the inside of the reservoir, said spigot being molded against said stopper rod whereby the latter is tightly gripped with an hermetic sealing action and firmly retained in place by the said reduced diameter portion of the spigot bore.

2. In a hypodermic syringe of the type including a distortable liquid reservoir, a molded thermoplastic spigot arranged adjacent one end of the reservoir and having a bore communicating with the inside of the reservoir, a hollow hypodermic needle held by one of its ends in the spigot bore, the channel in the needle communicating with the inside of the reservoir, a portion of reduced diameter in said bore between the end of the needle and the inside of the reservoir, a stopper rod removably engaged in the inner channel of the needle and extending into the reservoir, said spigot being molded against said stopper rod whereby the latter is tightly gripped with an hermetic sealing action and firmly retained in place by the said reduced diameter portion of the spigot bore, and a knurled head on the outer end of the stopper rod.

3. A hypodermic syringe as claimed in claim 1 wherein said liquid reservoir and spigot are of polyethylene.

4. A method for producing a hypodermic syringe comprising positioning in a mold cavity a hypodermic needle fitted with a stopper rod, and molding a hollow plastic reservoir thereon, said plastic reservoir surrounding and tightly gripping the said needle and rod assembly.

5. A method as claimed in claim 4 wherein one end of the said plastic reservoir is formed as a spigot and surrounds the needle and rod assembly tightly gripping the same.

6. A method as claimed in claim 4 including providing

3

a removable cap to cover and protect the needle and rod assembly.

7. A method as claimed in claim 4 wherein said plastic reservoir is polyethylene.

8. A method as claimed in claim 4 wherein said plastic reservoir is polyvinyl chloride.

9. A hypodermic syringe as claimed in claim 1 wherein the stopper rod is slightly frustoconical in shape, tapering towards the interior of the reservoir.

References Cited in the file of this patent

UNITED STATES PATENTS

1,021,146	Greely	Mar. 26, 1912
1,518,521	Kraft	Dec. 9, 1924
2,230,879	Bronson	Feb. 4, 1941

10

15,900
480,233
16,545
482,598
169,702
882,897
1,067,257

15

4

Lingenfelter	Oct. 28, 1952
Butler	Jan. 12, 1954
Smith	Jan. 26, 1954
Fox	Apr. 27, 1954
Ogle	Nov. 9, 1954
Walter	Feb. 15, 1955

FOREIGN PATENTS

Great Britain	1915
France	Apr. 18, 1916
Great Britain	Nov. 23, 1916
France	Jan. 9, 1917
Great Britain	July 13, 1922
Germany	July 13, 1953
France	Jan. 27, 1954