

No. 754,015.

PATENTED MAR. 8, 1904.

F. G. RYAN.
DEVICE FOR STORING AND ADMINISTERING SERUMS.
APPLICATION FILED APR. 1, 1903.

NO MODEL.

Fig. 1.

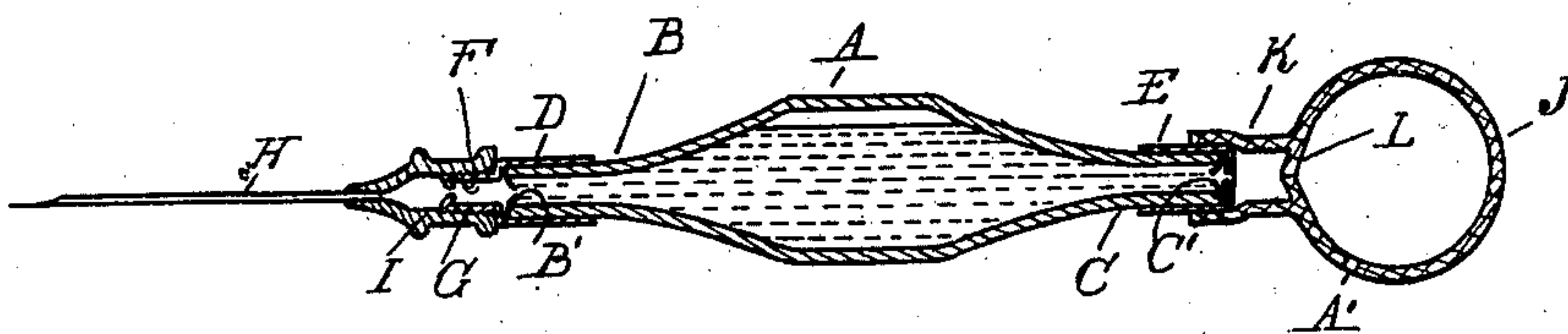


Fig. 2.

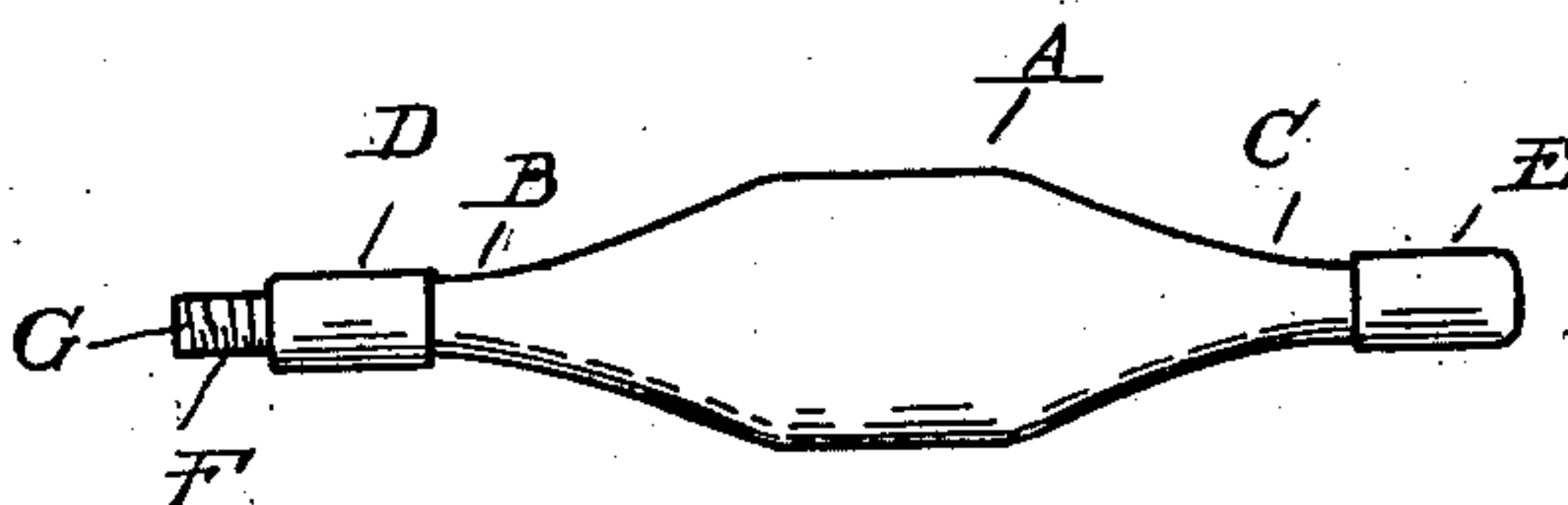
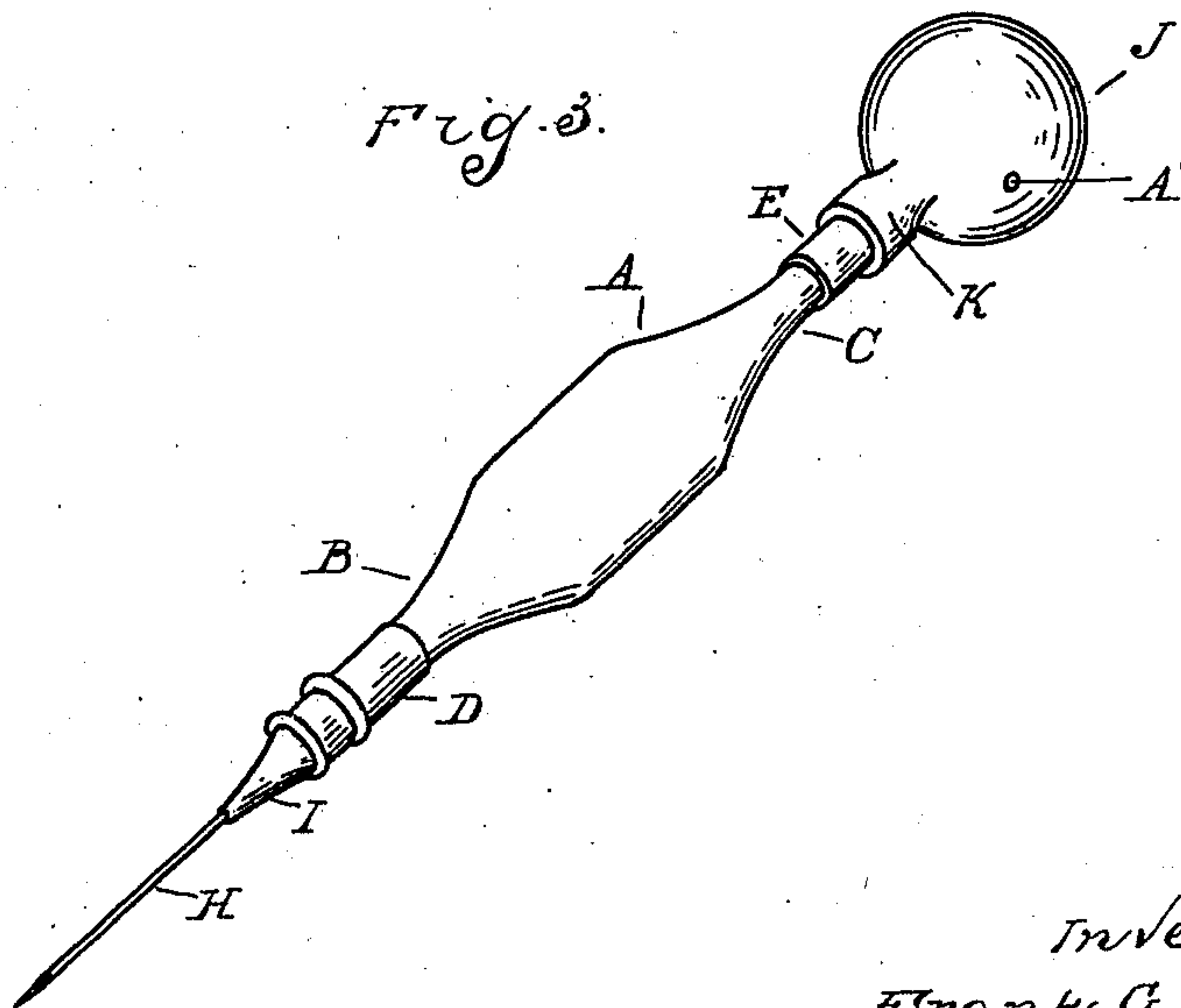


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK G. RYAN, OF DETROIT, MICHIGAN, ASSIGNOR TO PARKE, DAVIS & COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

DEVICE FOR STORING AND ADMINISTERING SERUMS.

SPECIFICATION forming part of Letters Patent No. 754,015, dated March 8, 1904.

Application filed April 1, 1903. Serial No. 150,573. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. RYAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Devices for Storing and Administering Serums, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates generally to syringes, preferably of the hypodermic type, for use in storing and administering serum or other medicaments; and it consists in the novel construction of the syringe-body which constitutes the storage-receptacle, in the peculiar arrangement and combination of the various parts of the syringe, and in other details of construction, as will be more fully hereinafter set forth and illustrated.

In the drawings, Figure 1 is a vertical central section through the embodiment of my invention. Fig. 2 is a view in elevation of the storage-receptacle, and Fig. 3 is a perspective view.

In the drawings thus briefly referred to the reference-letter A represents the syringe-body, bulb-shaped in configuration, made, preferably, of frangible material and provided at its opposite ends with tubular extensions B and C, open at their ends, as illustrated.

D represents a cap covering the open end of the extension B, and E is a similar cap, forming a closure for the end of the complementary extension C. Each cap is preferably shaped to engage over its extension and is adapted to be permanently attached to the receptacle which forms the syringe-body. These caps are also made of penetrable material, preferably tin, so that they may be readily punctured by a needle or other suitable instrument to establish communication between the interior of the receptacle and its attachments.

The cap D is shaped at its outer end to form an extension F, exteriorly screw-threaded, as at G, forming a simple means for attachment to the hypodermic needle H. The needle may be of the usual type having a threaded socket I, which is detachably connected to the extension in the manner indicated.

The cap E is adapted to receive thereon a suitable compressor J for discharging the contents of the receptacle. In this instance I have shown the compressor in the form of a bulb having a tubular section K, which engages over the cap, and provided with a conical valve L in the entry of said section, which allows the air from a suitable inlet A' to be forced within the syringe-body, but effectively prevents the passage of the medicament into the bulb.

In practice the sealed storage-receptacle containing the medicament, as shown in Fig. 2, is placed in a suitable box or package with its attachments, consisting of the needle and the compressor. When the serum or other material is to be injected, the caps are punctured or perforated and the needle and bulb applied thereto, as shown, when the syringe is in readiness for operation.

As a further safeguard I preferably provide seals B' and C' for the open ends of the receptacle, which are applied before the caps are placed thereon to prevent the medicament from contacting with the caps where metal is used. These seals may be formed by dipping the extension ends in a solution of sterilized gutta-percha, collodion, cellulose, or any other suitable material. The seals thus formed are in the nature of films and are adapted to be easily penetrated when puncturing the caps. It is to be understood, however, that any type of penetrable seal may be employed, or the seal may be dispensed with entirely, if desired.

Attention is particularly directed to the fact that by forming permanent caps upon the receptacle ends the attachments may be readily and securely fastened to the receptacle to form the syringe. Furthermore, the necessity of breaking off the ends of the extensions, which has been the usual practice, is dispensed with, and the consequent danger of fragments of the receptacle entering the medicament is entirely eliminated.

It will be obvious from the description of my invention that a simple and effective storage and delivery device for the medicament is produced, and while I have shown a type of permanent and penetrable cap, which is deemed

preferable in use, the construction is susceptible of various modifications without in any manner departing from the spirit of my invention.

5 What I claim as my invention is—

1. The combination with a receptacle having openings at its opposite ends, of penetrable caps covering said openings and engaging the sides of the receptacle, a delivery device and
10 compressor, and connections between said delivery device and compressor and said penetrable caps.

2. The combination with a glass receptacle having reduced complementary extensions,
15 open at their ends, and permanent penetrable metallic caps covering said openings and engaging the sides of the receptacle.

3. In a syringe, the combination with a glass syringe-body having reduced extensions, open
20 at their ends, of a delivery device and a compressor, and permanent metallic penetrable caps covering the open ends of the extensions and engaging the sides thereof and adapted for connection with said delivery device and
25 compressor.

4. In a syringe, the combination with a syringe-body having a reduced extension open at its end, a permanent penetrable cap covering the open end of the extension, a threaded portion on said cap, and a hypodermic needle having
30 a threaded engagement with the cap.

5. The combination with a receptacle having open ends, a cap covering one of said open ends, said cap being penetrable and having a
35 reduced portion at its outer end, and a hypodermic needle having an engagement with said reduced portion of the cap.

6. The combination with a glass storage-receptacle having a tubular extension provided
40 with an open end, a penetrable seal closing the end, and a permanent penetrable cap engaging over the tubular extension and covering the end and seal.

7. In a syringe, the combination with a syringe-body having oppositely - projecting re-

duced extensions open at their ends, of a penetrable seal closing each end, and permanent penetrable caps covering the extension ends and having portions adapted to receive thereon respectively a syringe-bulb and needle. 45 50

8. In a syringe, the combination with a glass receptacle, terminating in reduced open nipples, of a cap of penetrable material fitting over one end and having a plain exterior to receive the nipple of a rubber bulb, a cap over
55 the other end having a penetrable end and a screw-threaded nipple adapted to receive a hypodermic needle, the rubber bulb and the needle having means for connection to the opposite ends, substantially as described. 60

9. The combination with a receptacle having an open end, a cap covering said open end, said cap being penetrable and forming a stop having a reduced portion at its outer end, and a hypodermic needle having a screw-threaded
65 engagement with said reduced portion of the cap, and abutting against the stop.

10. The combination with a receptacle having an open end, a cap covering said open end, said cap being penetrable and having a shoulder around the outer surface of its sides, and a hypodermic needle having an engagement with said cap, the shoulders thereon limiting the inward movement of the needle-engaging
70 means. 75

11. The combination with a receptacle having a reduced tubular extension open at its end, and a penetrable cap covering said opening, the said cap having a portion engaging over the sides of the reduced tubular extension. 80

In testimony whereof I affix my signature in presence of two witnesses.

FRANK G. RYAN.

Witnesses:

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