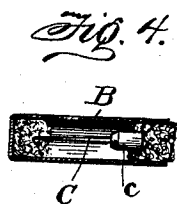
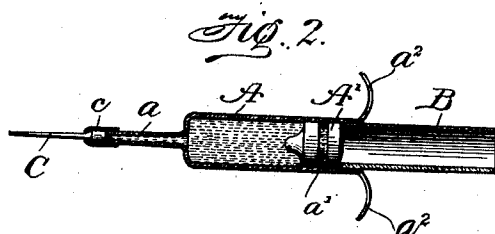
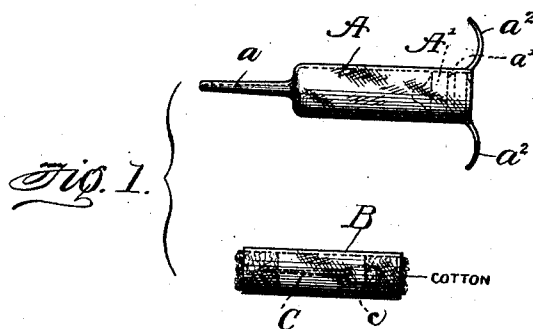


No. 718,979.

PATENTED JAN. 27, 1903.

M. CAMPBELL.
HYPODERMIC SYRINGE.
APPLICATION FILED SEPT. 5, 1902.

NO MODEL.



Witnesses
Fenton Stolt
John J. Nelligan.

Inventor
Milton Campbell
by Geo. H. Evans
Attorney

UNITED STATES PATENT OFFICE.

MILTON CAMPBELL, OF PHILADELPHIA, PENNSYLVANIA.

HYPODERMIC SYRINGE.

SPECIFICATION forming part of Letters Patent No. 718,979, dated January 27, 1903.

Application filed September 5, 1902. Serial No. 122,193. (No model.)

To all whom it may concern:

Be it known that I, MILTON CAMPBELL, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Hypodermic Syringes, of which the following is a specification.

My invention relates to that class of hypodermic syringes for use in storing and administering serums, &c. In this class of devices the entire implement is to be used but a single time and then thrown away, and in consequence it must be quite inexpensive, occupy but little space, and its parts be capable of ready assemblage. Moreover, the needle, as well as the serum, should be inclosed and protected from the air.

The objects of my invention are to provide a device of the character described in which the syringe-barrel, which serves also as a holder for a charge of serum, shall be closed at one end by a frangible point or extension and at the other end by a piston-forming stopper and to provide a tubular plunger entirely separate from the syringe-barrel and containing a needle occluded from the air by means of sterilized cotton or equivalent material at one or both ends, said plunger adapted to push the piston-forming stopper into the barrel to discharge the contents from the severed point or extension to which the needle will have been connected by means of a short length of flexible tubing. These objects I accomplish by the construction shown in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved hypodermic syringe with the syringe-barrel in use as a storage-receptacle for the serum and the plunger as a storage-receptacle for the needle. Fig. 2 shows the parts assembled when ready for use as a syringe. Fig. 3 is a detail view of the piston-forming stopper. Fig. 4 is a sectional view of a plunger closed at one end.

A designates the syringe-barrel, which also forms the storage-receptacle for the serum or other substance and is preferably of glass. This barrel A is formed at one end with a closed frangible point or extension *a* and at its other end is sealed by the stopper A', which not only prevents egress of the material in the barrel, but also prevents the entrance of

air. This stopper A' also forms the syringe-piston when actuated by the needle-carrying plunger B, now to be described. This plunger B is preferably formed of a length of glass tube of a size to snugly work in the syringe-barrel A and force the piston-forming stopper inwardly to expel the contents of the barrel. The needle C is sterilized either before or when placed in this tubular plunger, which is closed by means of sterilized cotton. Cotton may be used at both ends of the plunger, or the plunger may be formed of a tube closed at one end, in which case the open end will be plugged with sterilized cotton, this material in both instances serving to occlude the needle from the outer air.

The implement above described may be shipped in individual boxes or a number may be placed in a box—say a dozen.

When it is desired to administer a dose of the serum or other fluid, the operator will remove the needle C from the plunger B; then break off the end of the point or extension *a* and couple the needle to said point by means of the coupling *c*, formed, preferably, of a short length of rubber tubing carried by the heel of the needle. One end of the plunger will now be pressed against the piston-forming stopper A' and the latter started inwardly. The operator will now grasp the syringe in the usual manner by means of the finger-rests *a*² *a*² and use the thumb to force in the plunger.

It will be seen that the device is exceedingly simple and inexpensive and will greatly facilitate the storage of the material and needle and the administration of hypodermic injections. As the contents of the syringe and the needle also are both protected from external influences and as the needle and other parts are to be used at but one operation, all chances of infecting the patient are avoided.

For the more perfect sealing of the barrel or tube A by the stopper or plug A', I preferably form said stopper with a grooved surface *a'*, and this groove also causes the stopper to work more satisfactorily as a piston when pushed in by the plunger B, as it forms an air-space around the stopper and prevents backing up of the fluid and prevents the stopper from sticking. This groove also allows the use of a lubricant, such as a talcum

or other suitable material, and not only so, but it also allows the stopper to yield sufficiently to pass inequalities in the bore of the barrel. The stopper or plug A' may be made
5 of rubber, cork, or other suitable material, and its front side or that next to the liquid is formed with a projection a^3 , which serves to cause the expulsion of practically the entire contents of the barrel A. If desired,
10 however, the working face of the plug may be flat or concave or any other suitable shape.

What I claim is—

In a hypodermic syringe, a combined syringe and storage-receptacle comprising a tube hav-
15 ing one end sealed and adapted for connec-

tion with a syringe-needle, a piston-forming stopper closing the other end of said tube, and a plunger formed of a length of tube of a size to enter the first-named tube and force its stopper inwardly to expel the contents; 20 said plunger being of a length to contain the needle and its coupling, substantially as described.

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

MILTON CAMPBELL.

Witnesses:

HENRY N. WIDENER,
JOHN F. LENNY.