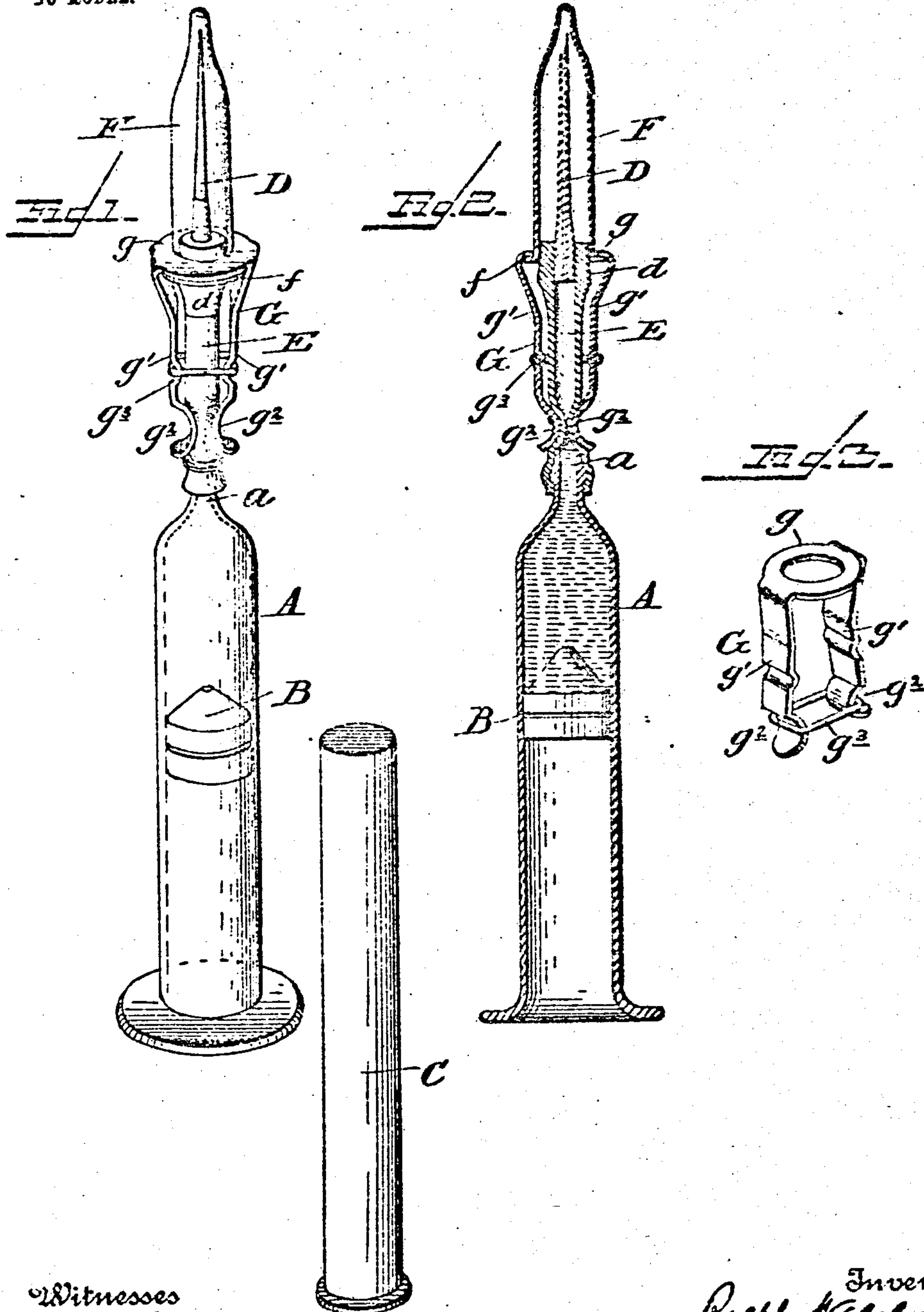


No. 742,762.

PATENTED OCT. 27, 1903.

R. WALSH.
HYPODERMIC SYRINGE.
APPLICATION FILED MAR. 7, 1903.

NO MODEL.



Witnesses
Frank L. Ouraud
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UNITED STATES PATENT OFFICE.

RALPH WALSH, OF WASHINGTON, DISTRICT OF COLUMBIA

HYPODERMIC SYRINGE.

SPECIFICATION forming part of Letters Patent No. 742,762, dated October 27, 1903.

Application filed March 7, 1903. Serial No. 146,647. (No model.)

To all whom it may concern:

Be it known that I, RALPH WALSH, a resident of Washington city, in the District of Columbia, have invented a new and useful Improvement in Hypodermic Syringes, of which the following is a specification.

My invention has to do with syringes designed more particularly for injecting antitoxic serum. Syringes of this kind of more recent make consist usually of a glass cylinder, open at its rear end, sealed at its nozzle end, and containing between its sealed nozzle and a piston-like plug located within and movable lengthwise of the cylinder the antitoxic serum. Accompanying the cylinder is a sterilized hollow-glass plunger, corked at its open end and containing the hypodermic needle and its connected rubber tube, by which it may be mounted upon the nozzle of the glass cylinder.

To use the syringe, the sealed tip of the glass nozzle of the cylinder is broken off, the plunger is uncorked, the needle and its connected rubber tube are removed therefrom, and the tube is fitted upon the nozzle. After this has been done the plunger can be inserted into the cylinder from the rear of the latter, so as to bear upon the piston therein. Pressure upon the plunger will push the piston forward, and consequently eject the fluid contents of the cylinder through to the hypodermic needle. Under this arrangement the operation of getting the syringe ready for use is necessarily somewhat troublesome and tedious and in fitting the parts together there is great liability of infecting the needle by contact with the hand. It is my object to remedy this and to put the syringe in condition for practically instantaneous use with but the manipulation of a single part. This result I attain by leaving the cylinder-nozzle open, mounting the rubber needle-holding-tube thereon, providing the needle with a protecting-cap, and combining with these parts a clip having the dual function of holding the covering-cap in place over the needle and of hermetically closing the rubber tube at a point intermediate between the nozzle and the needle. The moment the grasp of the clip is relaxed it releases both the cap and the rubber tube and the syringe is ready for use.

In the drawings accompanying and forming part of this specification, and to which I will now refer for a better understanding of the invention, Figure 1 is a perspective view of a syringe embodying my invention. Fig. 2 is a longitudinal axial section of the same. Fig. 3 is a view of the spring-clip detached.

A is the cylinder, of glass or other suitable material, having a nozzle *a* (which is unsealed) and an open rear end.

B is the longitudinally-movable piston (of soft rubber or other suitable material) within the cylinder.

C is the glass plunger, by the forward pressure of which upon the movable piston B the fluid in front of the latter is ejected from the cylinder-nozzle.

D is the tubular hypodermic needle.

E is the rubber connecting-tube, fitting at one end upon the base *d* of the needle and at the other end upon the nozzle *a*.

Up to this point the syringe is as it exists to-day when in readiness for use and is not of my invention. What I have added is the needle-cap F and the clip G, which latter serves at once to hold the cap tightly in place over the needle and also by gripping and compressing the rubber tube E to practically seal the contents of the syringe.

The cap F is preferably of glass and of a length to receive the needle. Its open end is adapted to fit upon and make close contact with the tapering rubber-covered base *d* of the needle, which when the cap is pressed or drawn down upon it acts as a cork or stopper to close the open end of the cap, which latter before being applied to the needle is of course sterilized, and around the open end of the cap is an annular radial flange *f*.

The clip G, which preferably is formed of spring sheet metal, has an annular head or top *g* to fit over the cap F and down upon the flange *f* of the latter, and with two spring-jaws *g'* *g'*, which extend from the head *g* rearwardly upon opposite sides of the rubber tube E and are provided on their internal opposite faces with ribs or projecting parts *g²*, which when the jaws *g'* *g'* are pressed toward each other will close upon and compress the rubber tube, so as to effectually seal it against the passage of the liquid contents of the syringe. Not only have the jaws this

function, but by their grip upon the rubber tube they keep the head *g* down upon the flange *f*, so as to hold the cap *F* tightly in place over the needle and down upon the rubber base *d* thereof, thus practically sealing the cap. The jaws *g'* are held in their closed position by a clamp sleeve or band *g''*, which when pushed forward onto the outwardly and oppositely flaring shanks of the jaws *g'* will draw the latter together upon the tube *E*.

In order to put the syringe in condition for use, all that is needed is to draw the clamp *g''* in a direction to release the jaws *g'* and permit them to move apart. The clip can then be drawn off and removed, carrying with it the cap *b*, thus at once opening the tube *E* and uncovering the needle *D*. It can when the services of the syringe are no longer needed be replaced in position with the same facility.

Having described my improvement and the manner in which the same is or may be carried into effect, I state in conclusion that I do

not limit myself strictly to the structural details hereinbefore set forth, since manifestly the same can be varied in some particulars without material departure from my invention; but

What I claim herein as new, and desire to secure by Letters Patent, is—

The tubular syringe barrel or cylinder, the hypodermic needle and intermediate rubber tube connected at one end to the nozzle of the cylinder and at the other end to the base of the needle, in combination with the needle-covering cap, and the removable clip, constructed and adapted substantially as described to engage and hold the cap in position over the needle, and also to compress and close the rubber tube, as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 7th day of March, 1903.

RALPH WALSH.

Witnesses:

EWELL A. DICK,
GEO. F. HARELL.