W. P. CLOTWORTHY.

Syringe.

No. 169,238. Patented Oct. 26, 1875.

Fig. 1:

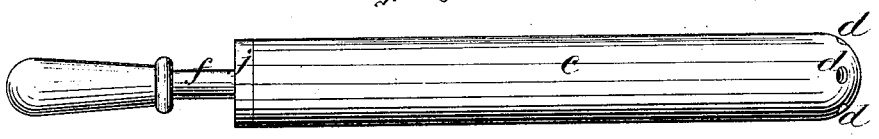

Fig. 2:

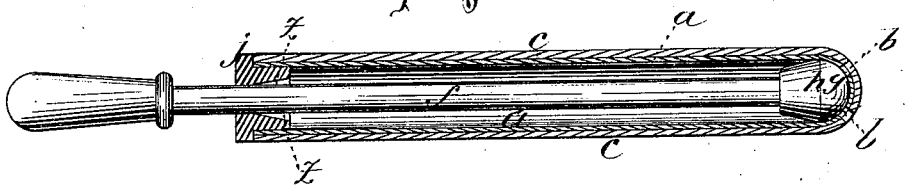

Fig. 3:

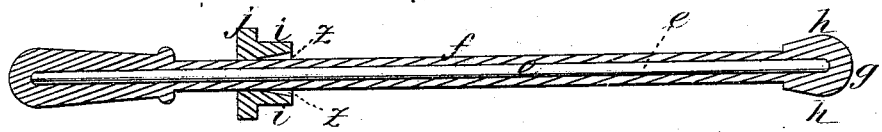

Fig. 4.

Attest:

J. Wes. Wagner.

J. A. Rutherford

Inventor:

Wm. P. Clotworthy

By Johnson & Johnson

his Attys.

UNITED STATES PATENT OFFICE.

WILLIAM P. CLOTWORTHY, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN SYRINGES.

Specification forming part of Letters Patent No. **169,238**, dated October 26, 1875; application filed October 8, 1875.

CASE B.

To all whom it may concern:

Be it known that I, WILLIAM P. CLOTWORTHY, of Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Syringes; and I do hereby declare that the following is a specification of the same.

I have improved the syringe patented to me August 24, 1875, No. 166,967, in several important particulars, and by which I obtain highly useful advantages.

I combine with the barrel of syringes a rubber jacket or inclosing-case, which, fitting the barrel tightly, has perforations at its injecting end coincident with those in the barrel for adaptation as a female syringe, and by such combination I obtain a protection for the glass barrel, and render it less liable to break, and should it be broken prevent thereby injury to the person.

A rubber tube or covering is combined with the piston-rod, which may be either of metal or glass, and if the former all corrosion thereof is prevented, and if the latter, and it should become broken, the rubber tube or covering will brace and hold it intact, and serve as a continuous splint, so that if the fracture should be in one or more pieces it will yet be sufficiently rigid to be serviceable. The piston is of solid rubber, is more durable than an inflated bulb, or any other substance hitherto used in syringes, and besides is more effective in making a closer fit in the barrel, and is of such construction as to adapt it to barrels of different sizes, and with the rubber covering of the piston-rod renders it more effective in maintaining a closer fit, and in being more durable than cork, wood, or metal. These several features constitute the invention claimed in this patent, and give to the syringe a degree of durability and usefulness not attained in any article for the purpose hitherto furnished by the trade.

In the accompanying drawings, Figure 1 represents an exterior view of my improved syringe; Fig. 2, a longitudinal section of the same; Fig. 3, a view of the solid-rubber piston and its rubber-covered piston-rod, and showing the rubber cap thereon; and Fig. 4, a cross-section.

The barrel *a* is of glass, rounded at one end, and provided with perforations *b*, through which the liquid is forced out. It is covered and protected by a rubber jacket, *c*, which fits tightly thereon, conforms to the rounded end of the glass syringe-barrel, and has perforations *d* coincident with those in the barrel. It is of equal length with the barrel, and of course open at the filling end thereof, and is made of such thickness as will afford proper protection. The piston-rod *e* is covered by a tightly-fitting rubber tube or covering, *f*, which isolates the rod from corroding effect of the liquid medicament, if of metal; and, if of glass, will hold it compactly together should it become broken. This latter function is that of a continuous splint. The piston *g* is of solid rubber, and may either be made integral with the piston-rod tube or separate. It is formed with a rounded end, the base of which constitutes its largest diameter, and from this base *h* it tapers back, forming a solid-surface packing at the base *h*, which, not only lessens the friction, and thereby renders its working more easy, but gives a solid fitting and durable surface, and which I find more effective than a bulbous hollow-sphere rubber piston. It is non-absorbent, and always ready for use. Its rounded end fits the rounded end of the barrel, and thereby prevents the admixture of air with the injected fluid. The rubber cap has a neck, *i*, which fits within the open end of the syringe-barrel, and a flange, *j*, which acts against the end of said barrel and its rubber jacket. The neck has a conical interior, *z*, so as to form a space round the piston-rod, and thereby give the cap the capacity to fit different-sized barrels, or open ends, as, by such construction, it is plain that it can be crowded into an opening of a diameter smaller than that of the neck.

The rubber cap forms a packing of itself, and its combination with the rubber covering of the piston-rod makes a closer and more durable fit than could be obtained by any other material, for, in crowding the hollow neck of the cap into a small mouth, it contracts to fit both the mouth and the rubber-covered piston-rod.

I claim—

1. The combination, with a glass syringe-barrel, of a rubber jacket therefor, having an end conforming to the shape of the barrel end and openings therein coincident with the barrel-openings, substantially as and for the purpose herein set forth.

2. In combination with the barrel and piston-rod of a syringe, the rubber tube or covering *f* for said piston-rod, substantially as and for the purpose herein set forth.

3. In combination with the barrel and piston-rod of a syringe, the solid-rubber piston *g*, having tapering sides and the packing-base line, as and for the purpose specified.

4. In combination with the piston-rod *e*, covered with a rubber tube, *f*, and the syringe-barrel *a*, the rubber cap, in the manner and for the purpose herein set forth.

5. The rubber cap of a syringe-barrel, having the interior hollow neck *i* and the flange *j*, whereby it is adapted as a packing-cap for different-sized barrels, as described.

In testimony that I claim the foregoing I have affixed my signature in presence of two witnesses.

WILLIAM P. CLOTWORTHY.

Witnesses:
GEO. P. JACKSON,
OTTO CHRISTE.