No. 782,723. PATENTED FEB. 14, 1905.

M. CAMPBELL.

HYPODERMIC SYRINGE.

APPLICATION FILED JULY 28, 1904.

Fig. 1.

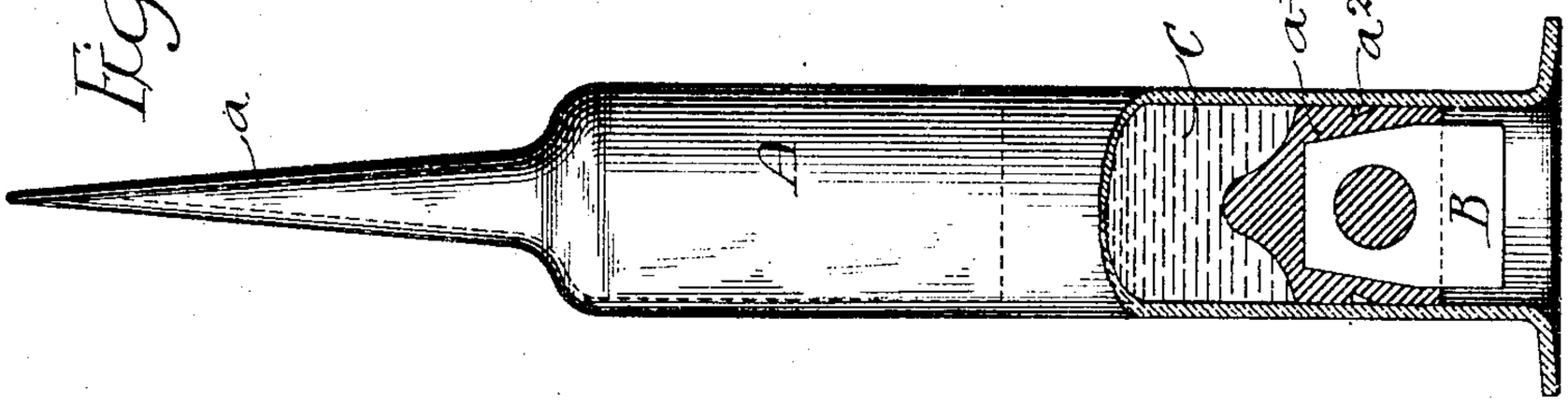


Fig. 2.

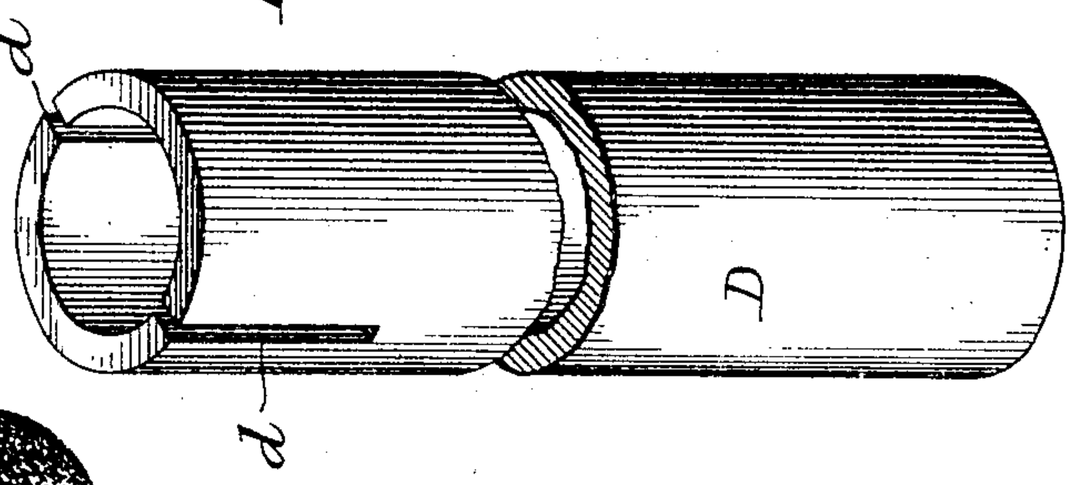


Fig. 3.

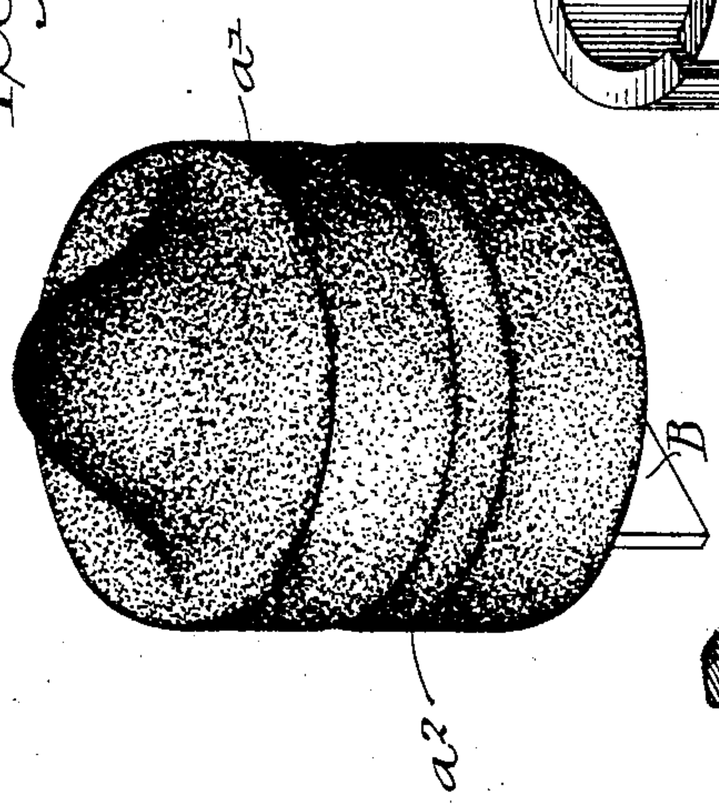
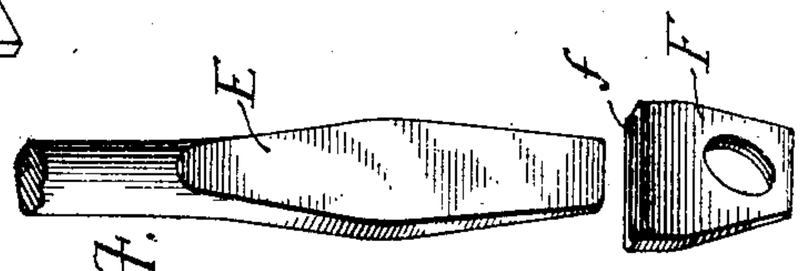


Fig. 4.



Witnesses:-
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Titus H. Howson.

Inventor:-
Milton Campbell
by his Attorneys,
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No. 782,723. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

MILTON CAMPBELL, OF PHILADELPHIA, PENNSYLVANIA.

HYPODERMIC SYRINGE.

SPECIFICATION forming part of Letters Patent No. 782,723, dated February 14, 1905.

Application filed July 28, 1904. Serial No. 218,488.

To all whom it may concern:

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

My invention relates more particularly to improvements in the detail construction of a form of hypodermic syringe particularly designed for use in connection with the preservation and application of antitoxin serum, the invention having for its object the provision of an improved type of piston and operating-handle therefor, by the use of which it shall be possible to impart a rotary motion to the piston when it is desired to eject the serum from the barrel of the syringe, even though said piston adheres firmly to the walls of said barrel, owing to the use of cement or by the gumming action of the serum itself. This object I attain as hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is an enlarged elevation, partly in section, of an antitoxin-syringe barrel, showing the detail construction of a piston or plunger made in accordance with my invention. Fig. 2 is a perspective view, on a larger scale than the syringe shown in Fig. 1, of the operating handle or piston-rod by which the piston may be made to move in the syringe-barrel. Fig. 3 is a greatly enlarged perspective view of the piston or plunger, and Fig. 4 is a modified form of my invention.

Hitherto in antitoxin-syringe tubes of the general type shown in Fig. 1 much trouble has been experienced from the fact that when the point of the tube has been broken and it was desired to move the plunger inwardly, so as to eject the serum, it was found practically impossible in many cases to move said plunger on account of its having been gummed by the serum, so as to adhere firmly to the sides of the syringe-barrel. In order that it may be possible in every case to start the piston with ease, I propose to embed in the body thereof a piece of material by which said piston may be rotated by proper manipulation of a handle or piston-rod, so constructing these two parts that it shall not be possible for said embedded piece to twist out of the substance of which the piston is made, even though this latter adheres firmly to the glass of the syringe tube or barrel. It will be noted that I accomplish this result in a very simple and relatively inexpensive manner, this also being one of the objects of the invention.

In the above drawings, A represents a syringe tube or barrel having an elongated pointed portion *a* and open at the opposite end in the well-known manner. This end is closed by a piston or plunger *a'*, usually made of rubber and provided with an annular groove a^2, whereby the serum or other liquid C within the barrel is prevented from leaking out.

In my preferred form of the invention I provide a flat piece of metal B, having through it an opening, and cast around it the rubber forming the plunger, so that said rubber will pass through the opening in the piece, which latter projects from the rear face of the plunger, as shown.

In order to cause the piston to move in the barrel when desired, I provide a handle or piston-rod D, in the present instance made in the form of a tube having slots *d* in one end cut substantially parallel to its axis and of such a size as to fit over the portion of the flat piece B which projects beyond the rear face of the rubber plunger. When it is desired to use the apparatus, the end of the glass point *a* is broken, and the handle D is fitted over the projecting portion of the flat piece B, the edges of said handle bearing upon the rear face of the piston or plunger *a'*. The piston-rod or handle is now turned or rotated, so that the piston or plunger is loosened from the walls of the syringe-barrel and also rotated, after which said piston is moved inwardly by suitable pressure on the handle D, so as to eject the fluid in said barrel in the well-known manner. It is obvious that while I preferably employ a piece of metal embedded in a plunger of rubber other materials may be used for this purpose, it being further noted that it is immaterial whether the piece of metal B be formed as illustrated or be made, as at F, with a slot *f* in it, so as to receive a screw-driver-like projection E, as illustrated in Fig. 4, since this construction is

the well-known mechanical equivalent of that shown in Figs. 1 to 3 and preferably employed by me.

I claim as my invention—

1. As a new article of manufacture a syringe-tube having a piston normally closing one of its ends, with a piece embedded in said piston, said piece being constructed so that a handle for moving the piston may be operatively engaged with it by a rectilinear movement, substantially as described.

2. As a new article of manufacture, a syringe having a piston closing one end, and a piece of relatively stiff material adapted to receive an operating-handle, said piece being embedded in the piston and projecting from the same, substantially as described.

3. The combination with a syringe-barrel of a piston therefor, a piece embedded in said piston and a handle for moving the piston, one of the parts comprised by the handle and said piece having a transverse slot and the other having a portion formed to enter the same, substantially as described.

4. As a new article of manufacture, a syringe having in its barrel a plunger and a flat piece of relatively stiff material embedded transversely in the plunger, there being an opening through the piece and a portion thereof projecting from the rear face of said plunger, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILTON CAMPBELL.

Witnesses:

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