(No Model.)

M. C. LEFFERTS.

Manufacture of Syringes from Celluloid and other Plastic Material.

No. 235,953. Patented Dec. 28, 1880.

Fig. 1.

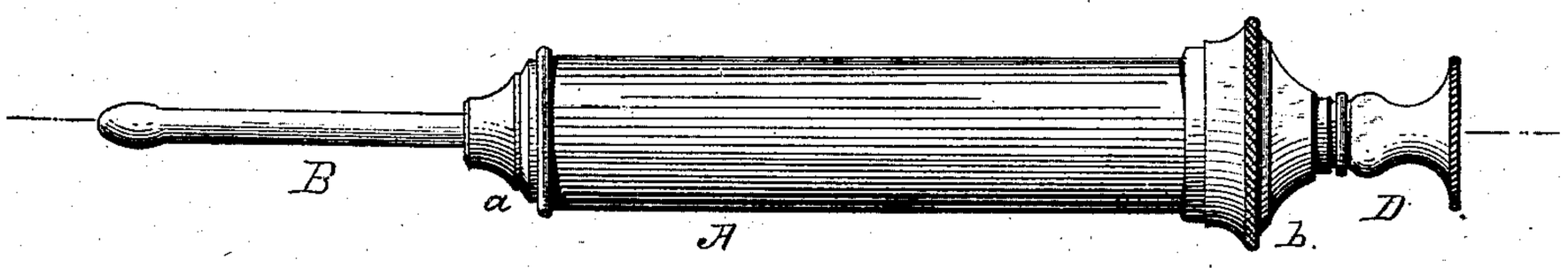


Fig. 2.

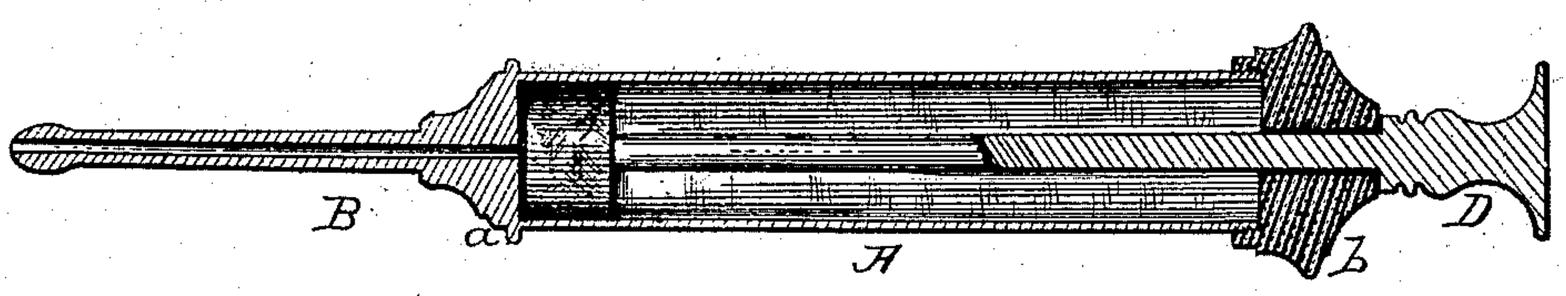
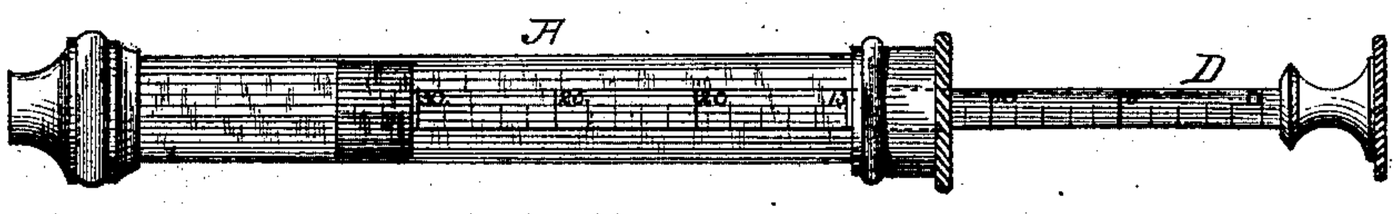


Fig. 3.



Witnesses:
J. Walter Fowler,
Chas. C. Gill

Inventor:
Marshall C. Lefferts,
By his Attys.
Cox and Cox

UNITED STATES PATENT OFFICE.

MARSHALL C. LEFFERTS, OF NEW YORK, N. Y., ASSIGNOR TO THE CELLULOID MANUFACTURING COMPANY, OF SAME PLACE.

MANUFACTURE OF SYRINGES FROM CELLULOID AND OTHER PLASTIC MATERIAL.

SPECIFICATION forming part of Letters Patent No. 235,953, dated December 28, 1880.

Application filed November 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL C. LEFFERTS, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in the Manufacture of Syringes from Celluloid and other Plastic Material, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to improvements in syringes. It is intended to obviate certain objections to all classes of syringes, as well those having opaque as translucent barrels, as hereinafter fully set forth.

That class of syringes which are so constructed as to permit of an examination of the charge after it has been taken into the cylinder or barrel have heretofore been made with a barrel or cylinder of glass, and have, as a consequence, been obnoxious to a number of objections. Owing to the fact that barrels or cylinders of glass are necessarily delicate and easily fractured, there has been great danger of such syringes becoming inoperative at critical moments during administration of a remedy or otherwise. It is also true that it has not been possible to construct a barrel or cylinder, whether made of glass or hard rubber, metal, &c., without more or less unevenness of the interior diameter, whereby there has been a want of perfect uniformity in the action of the piston. Where glass has been used great annoyance, too, has been caused by the difficulties experienced in attaching the mountings to support the piston and hold the nozzle, there being inevitably very considerable loss by breakage of the edges of the barrels. To obviate these and other objections is the object of my invention, which is effected by forming the barrel or cylinder of celluloid or analogous plastic material. By preference translucent celluloid will be used, whereby I am enabled to produce a syringe having all the advantages which pertain to the use of a glass cylinder, the interior of the barrel of which is exceptionally even and of an unvarying diameter, which is light and strong, and readily and economically manufactured.

Referring to the accompanying drawings, Figure 1 is a side view of a syringe embodying the elements of the invention. Fig. 2 is a central vertical longitudinal section of same; and Fig. 3 is a side view of a syringe having a translucent barrel, also made according to my invention.

A indicates the barrel of the syringe, consisting of a plain hollow tube of celluloid or analogous plastic material; B, the nozzle or tip, and D the piston. The barrel and nozzle will be connected by a nut, *a*, or both made in one piece, as may be preferred, and at the upper end of the barrel a similar nut, *b*, will be provided, to insure the perfect working of the piston.

In the construction of the barrel A, I force the celluloid or other material, in a plastic state, from a nozzle around a metallic mandrel having a polished surface. The material issues in the form of a tube of proper size to snugly fit over the mandrel. After a tube of suitable length has been formed it is cut off and allowed to dry on the mandrel. During the drying process the material shrinks to some extent, which causes it to hug the mandrel very tightly and to dry with a bore of the exact size and shape of the surface on which it has been formed. The tube hugs the mandrel so closely that it can only be removed therefrom under heavy pressure, and when removed, the mandrel having had a polished surface, the interior of the tube will present a smooth finished appearance, and its bore will be of exactly equal diameter throughout. The barrel having been made, the threads are cut at the ends to receive the mountings, which may be made of celluloid, rubber, or any other suitable material, although I prefer to make them of celluloid.

The nozzle B may be formed in the same manner as the barrel A, or, if preferred, it may be made a part of and formed at the same time with the barrel A by the employment of a mandrel of the proper configuration.

In Fig. 3 is shown the preferred form of syringe, the barrel of which is made of translucent celluloid, and is suitably threaded at its ends to receive the nuts which sustain the nozzle and piston in place. The method of

construction of the preferred form does not differ from that hereinbefore presented.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A syringe the barrel of which is formed of celluloid or analogous plastic material.

2. A syringe the barrel of which is formed of translucent celluloid or analogous translucent plastic material.

In testimony that I claim the foregoing improvement in manufactures of plastic material, as above described, I have hereunto set my hand this 3d day of November, 1880.

MARSHALL C. LEFFERTS.

Witnesses:
C. S. WHITMAN,
CHAS. C. GILL.