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O. A. YCAZA.  
HYPODERMIC SYRINGE.  
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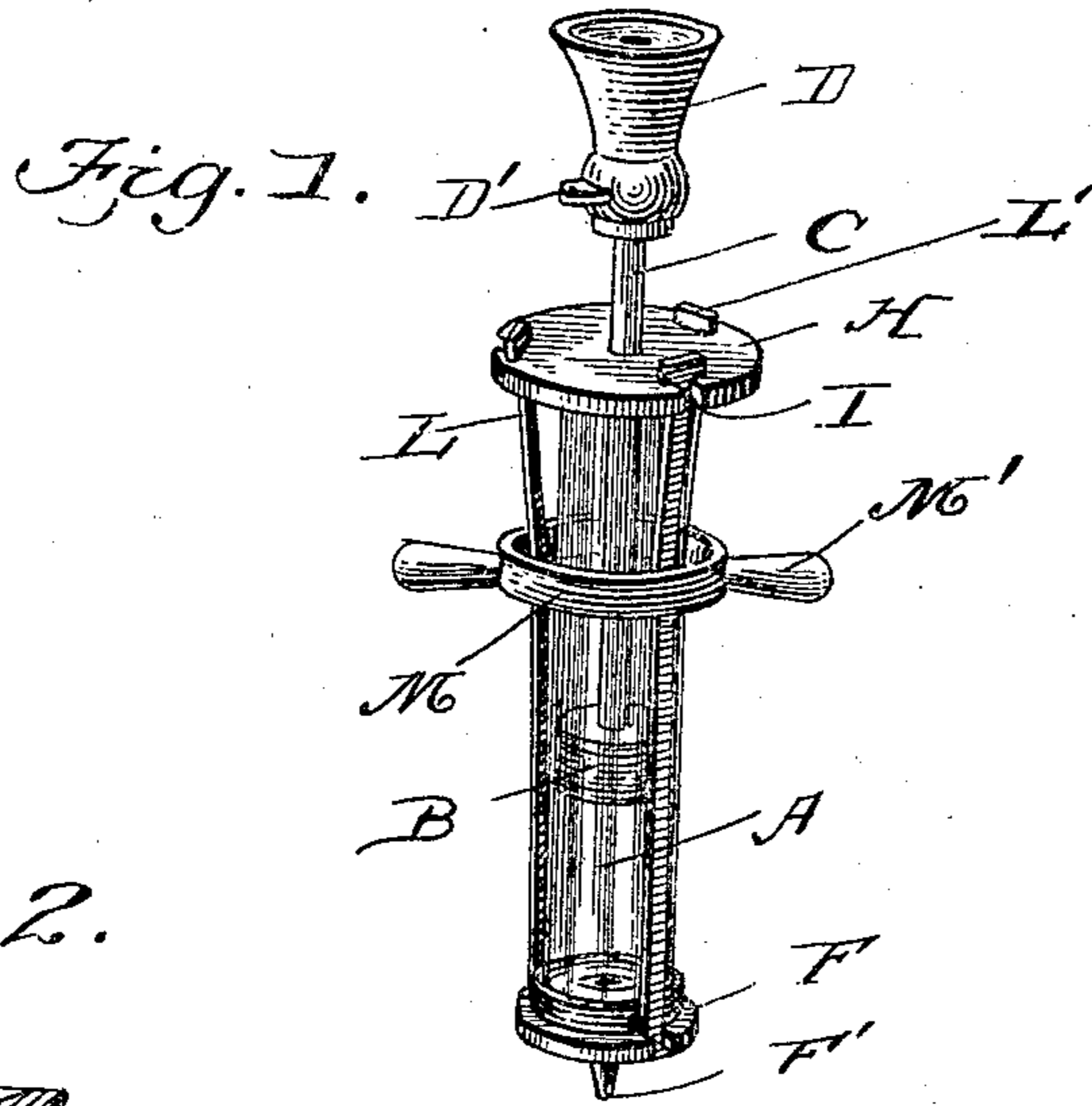


Fig. 2.

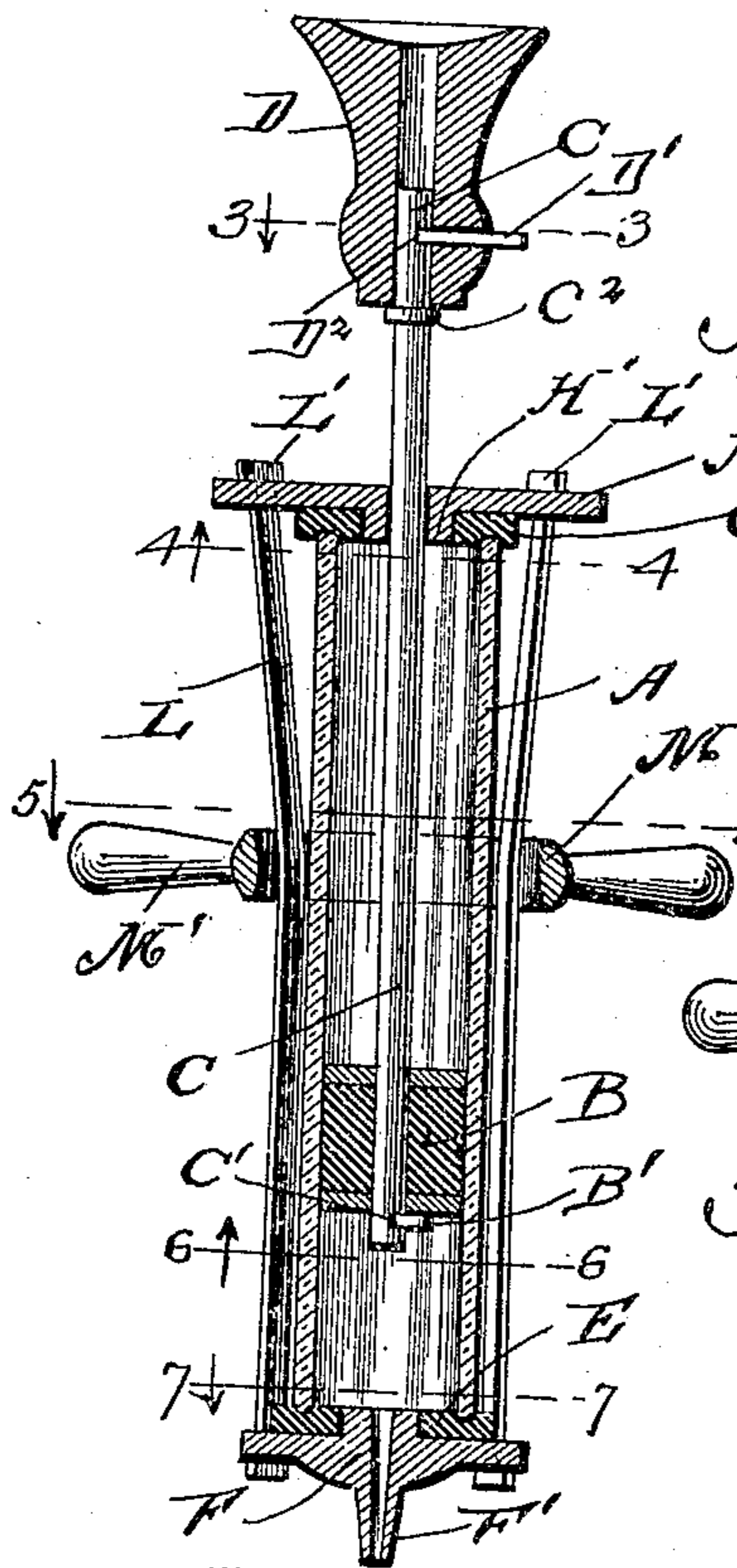


Fig. 3.

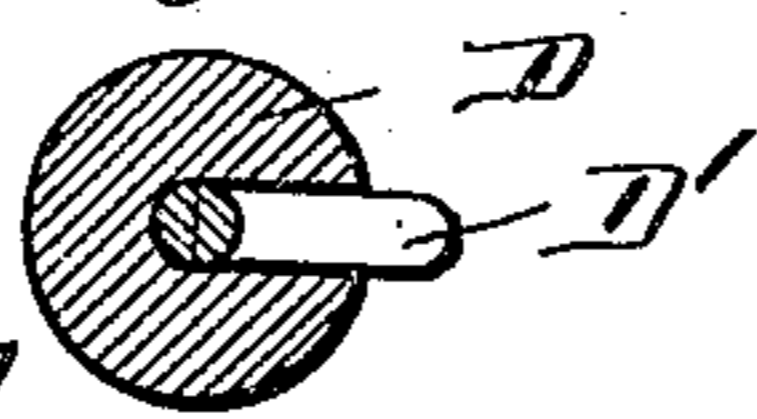


Fig. 4.

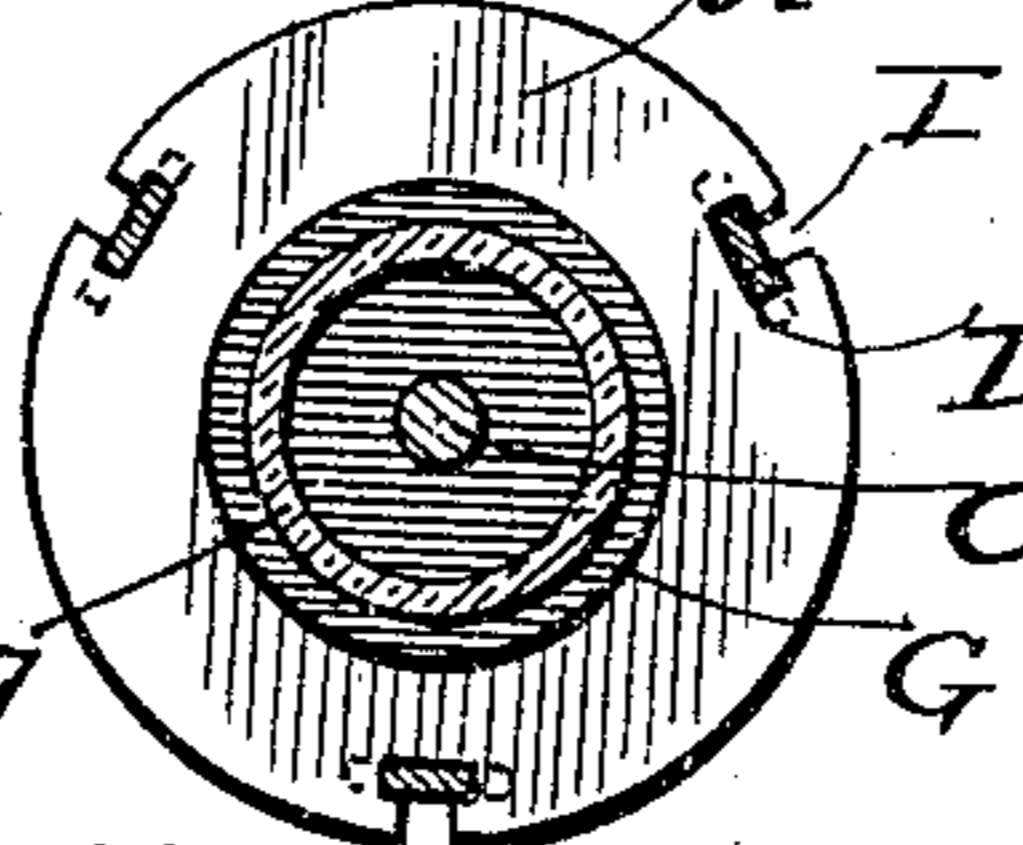


Fig. 5.

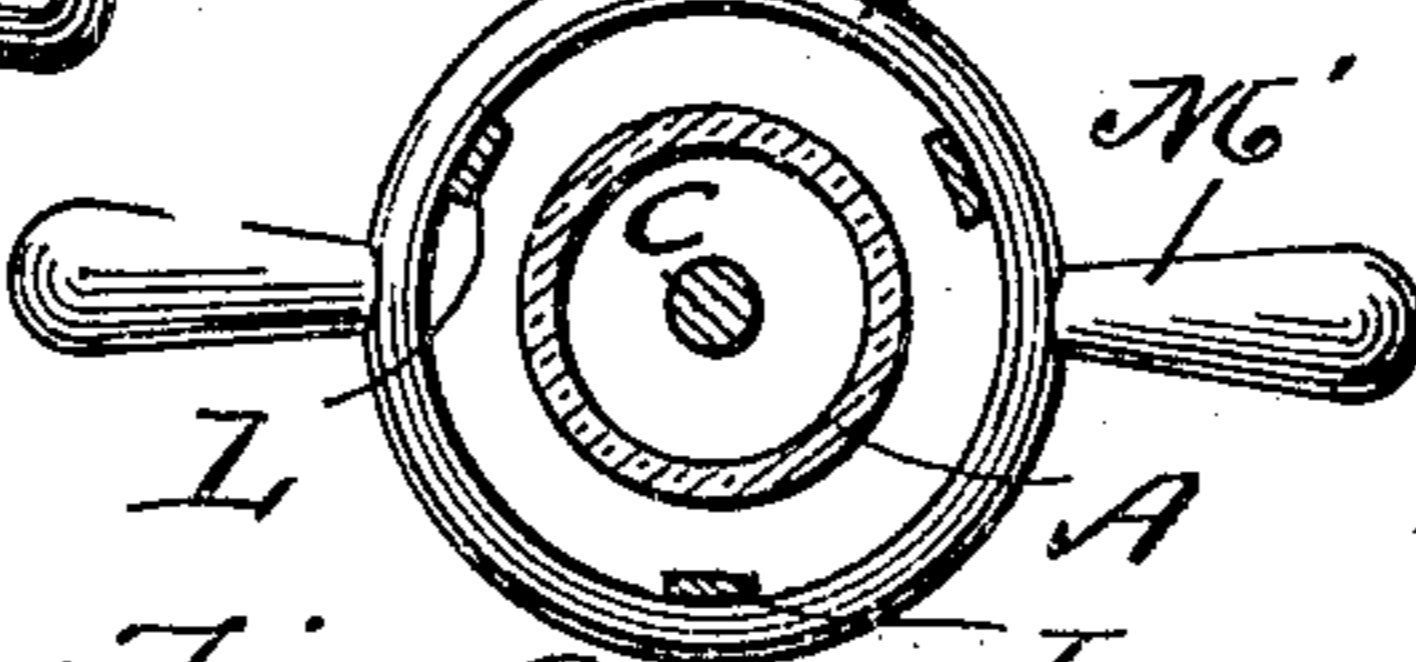


Fig. 6.



Fig. 7.

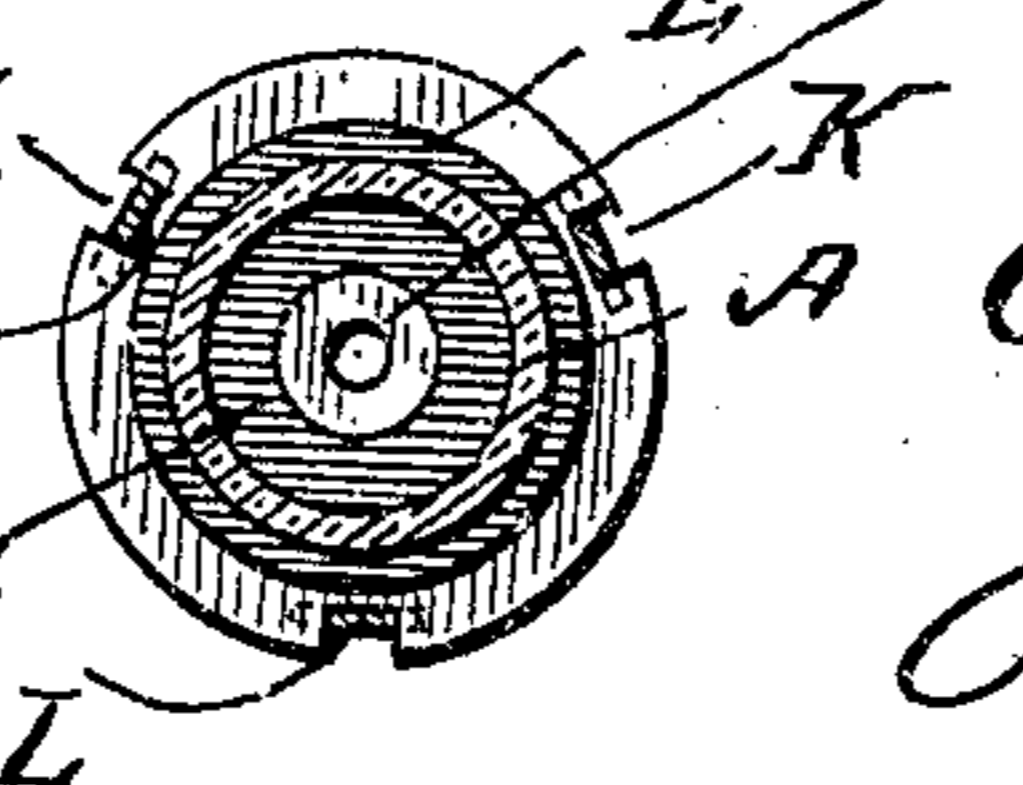


Fig. 8.

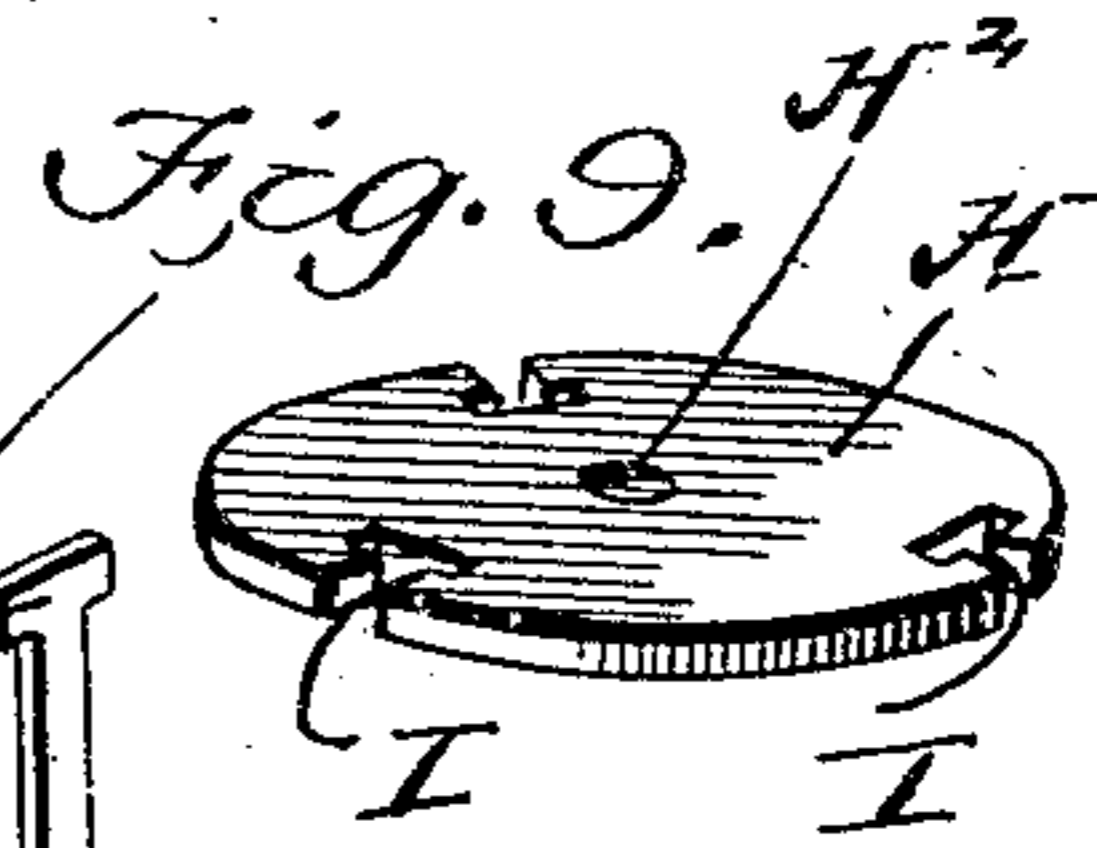
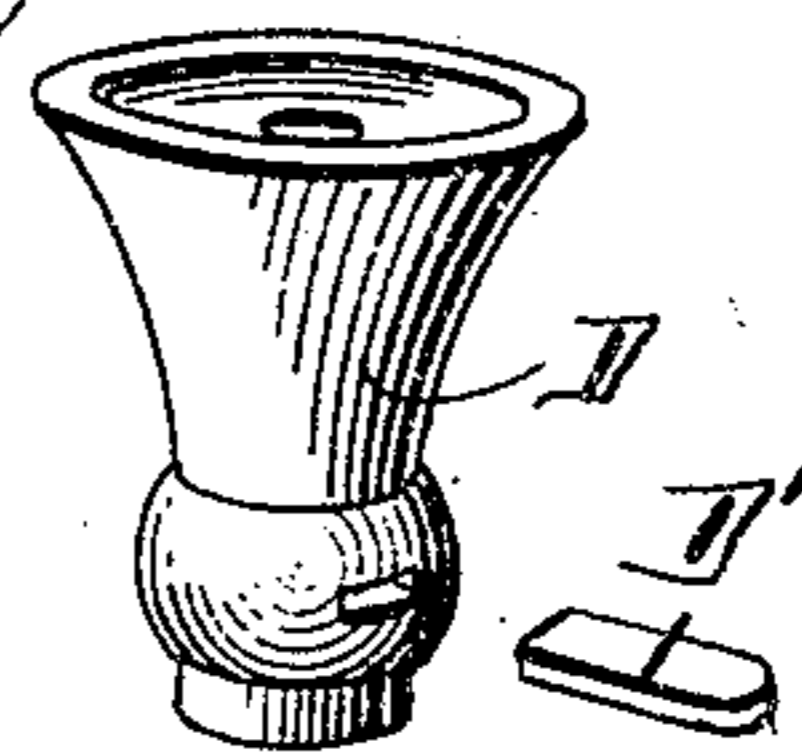
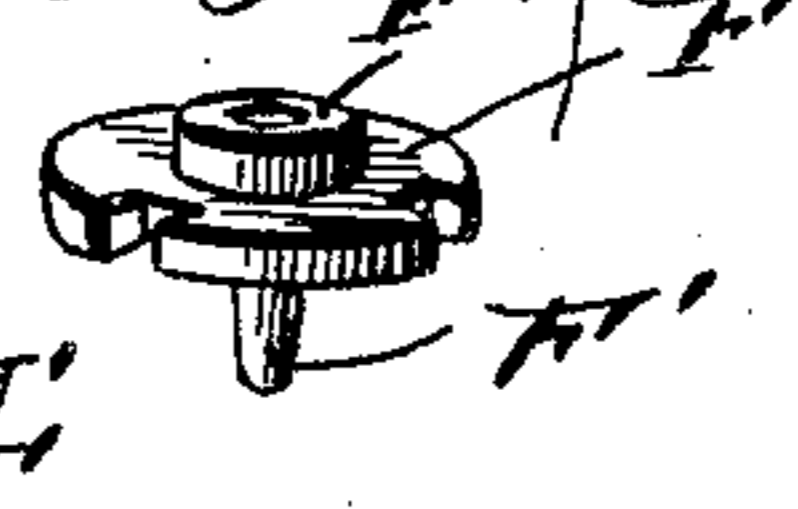


Fig. 10.



WITNESSES:

*W.D. Cloud*  
*E.B. McBath*

INVENTOR

*O. A. Ycaza*

BY

*Oliver Brock*  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

OSVALDO AUGUSTO YCAZA, OF GUATEMALA, GUATEMALA.

## HYPODERMIC SYRINGE.

No. 819,330.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed June 10, 1905. Serial No. 264,714.

*To all whom it may concern:*

Be it known that I, OSVALDO AUGUSTO YCAZA, a citizen of the Republic of Panama, residing in the city of Guatemala, Department of Guatemala, Guatemala, have invented a new and useful Improvement in Hypodermic Syringes, of which the following is a specification.

This invention relates generally to hypodermic syringes, the object being to provide a simple and efficient form of syringe in which the parts are put together without the use of threads.

Another object of the invention is to provide a syringe in which the said parts can be quickly and easily assembled or disconnected.

With these objects in view the invention consists in the novel features of construction hereinafter fully described, and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view of the syringe constructed in accordance with my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a section on the line 5 5 of Fig. 2. Fig. 6 is a section on the line 6 6 of Fig. 2. Fig. 7 is a section on the line 7 7 of Fig. 2. Figs. 8, 9, and 10 show details of construction.

In carrying out my invention, I employ a glass tube A, in which works the piston B, which is attached to the piston-rod C by means of a key B', pivoted to the bottom of the piston and adapted to engage the notch C', produced in the rod adjacent its lower end.

The knob or handle D rests upon a shoulder C<sup>2</sup> and is secured by means of a key D', entering a recess D<sup>2</sup>, produced in the upper end of the piston-rod.

It will be understood, of course, that the knob or handle is not arranged upon the upper end of the piston-rod until the parts have been assembled. The lower end of the glass tube A rests upon the hard-rubber washer E, the upper face of which is grooved to receive the lower end of the tube. This washer E fits upon the metallic disk F, carrying the nozzle or point F'. It also carries a central protuberance F<sup>2</sup>, upon which the hard-rubber washer E fits, as most clearly shown in Fig. 2.

The upper end of the tube bears upon a

washer G, arranged upon a metal disk H, which also has a central depending portion H', upon which the washer fits, and this disk is apertured, as shown at H<sup>2</sup>, and through which the piston-rod C passes. The disk H has a plurality of T-shaped notches I cut therein at equidistant points upon the circumference, and the disk F has a small number of notches K produced therein and also arranged at equidistant points. These notches are produced in the edges of the disks to receive the bars L, which have T-shaped heads L' at their upper and lower ends, said heads being adapted to contact with the upper and lower faces, respectively, of the upper and lower disks, as most clearly shown in Figs. 1 and 2. The disk H is somewhat larger in circumference than the disk F, and the bars L are constructed of spring metal, and for the purpose of causing the heads of the bars to be bound tightly against the disks, and thereby hold all of the parts in their proper positions, I employ a clamping-ring M having laterally-projecting handles M'. This ring M surrounds the bars L, and by forcing the same upwardly upon said bars they are caused to bend, as shown in Fig. 2, thereby drawing tightly upon the disks and binding all of the parts close together.

A syringe constructed as herein shown and described can be put together or taken apart in an exceedingly short space of time, and owing to the fact that no threads are employed there are no parts to become impaired, and, furthermore, it will be seen that all of the parts can be quickly and easily cleansed whenever desired.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hypodermic syringe comprising a tube, disks closing the ends of the tube, a piston, a piston-rod working through one of said disks, spring-metal bars connecting the disks, and a ring slidable on said bars and adapted to compress the bars and hold the disks in position.

2. A syringe comprising a tube and washers at the ends thereof, disks carrying said washers, bars connecting the disks, and a clamping-ring movable upon said bars to increase and decrease their tension upon the disks, as set forth.

3. A syringe of the kind described compris-

ing a glass tube having a piston working there-  
in, said piston being detachable from the rod,  
the washers against which the ends of the  
tube bear, the disks carrying said washers,  
5 said disks being notched at their edges, the  
bars engaging said notches and having heads  
adapted to engage the disks, the clamping-

ring embracing the said bars and movable  
thereon, all of said parts being arranged and  
adapted to operate as set forth.

OSVALDO AUGUSTO YCAZA.

Witnesses:

JUAN RODOLFO SÁNCHEZ,  
JUAN JOSÉ PÉREZ.