

(No Model.)

J. F. HARTZ.  
SYRINGE.

No. 545,647.

Patented Sept. 3, 1895.

Fig. 1.

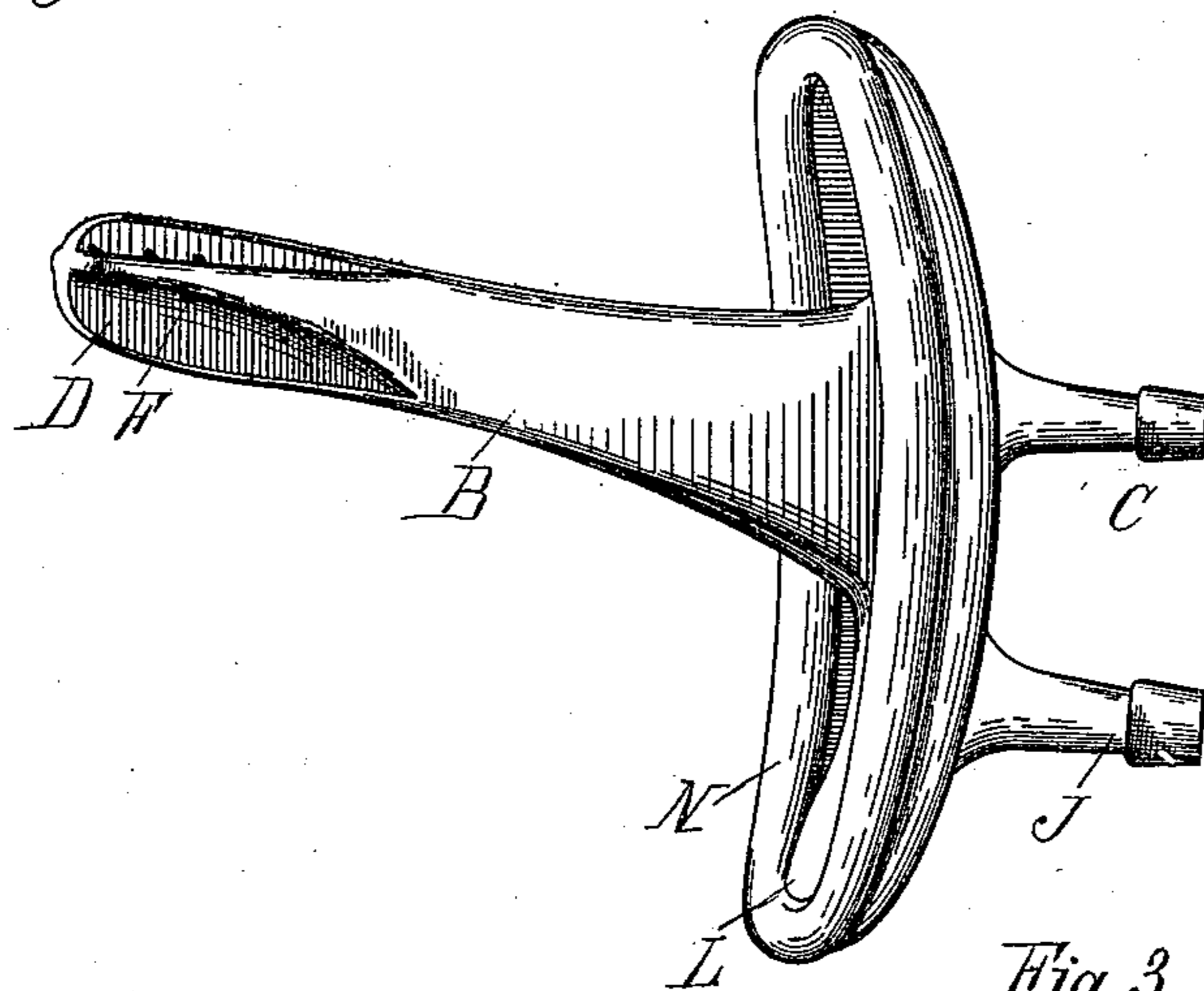


Fig. 2.

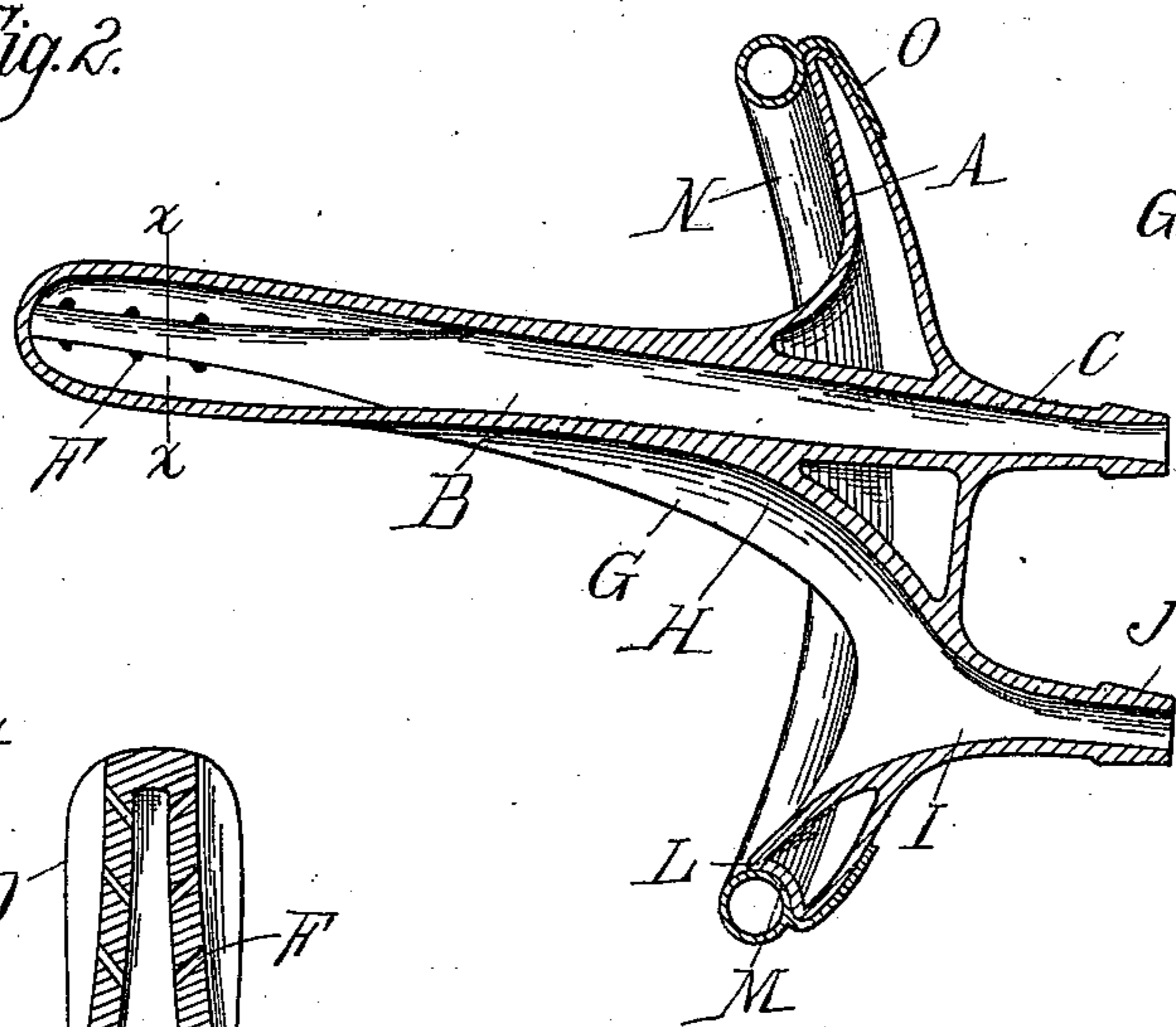


Fig. 4.

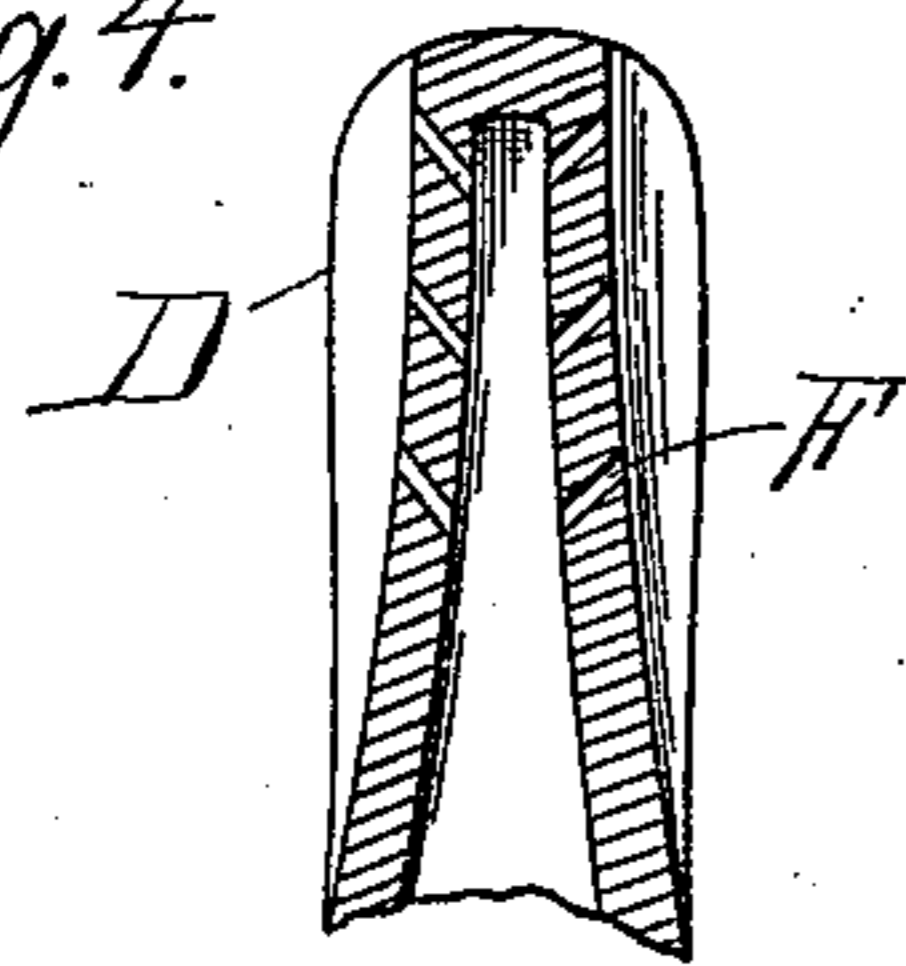
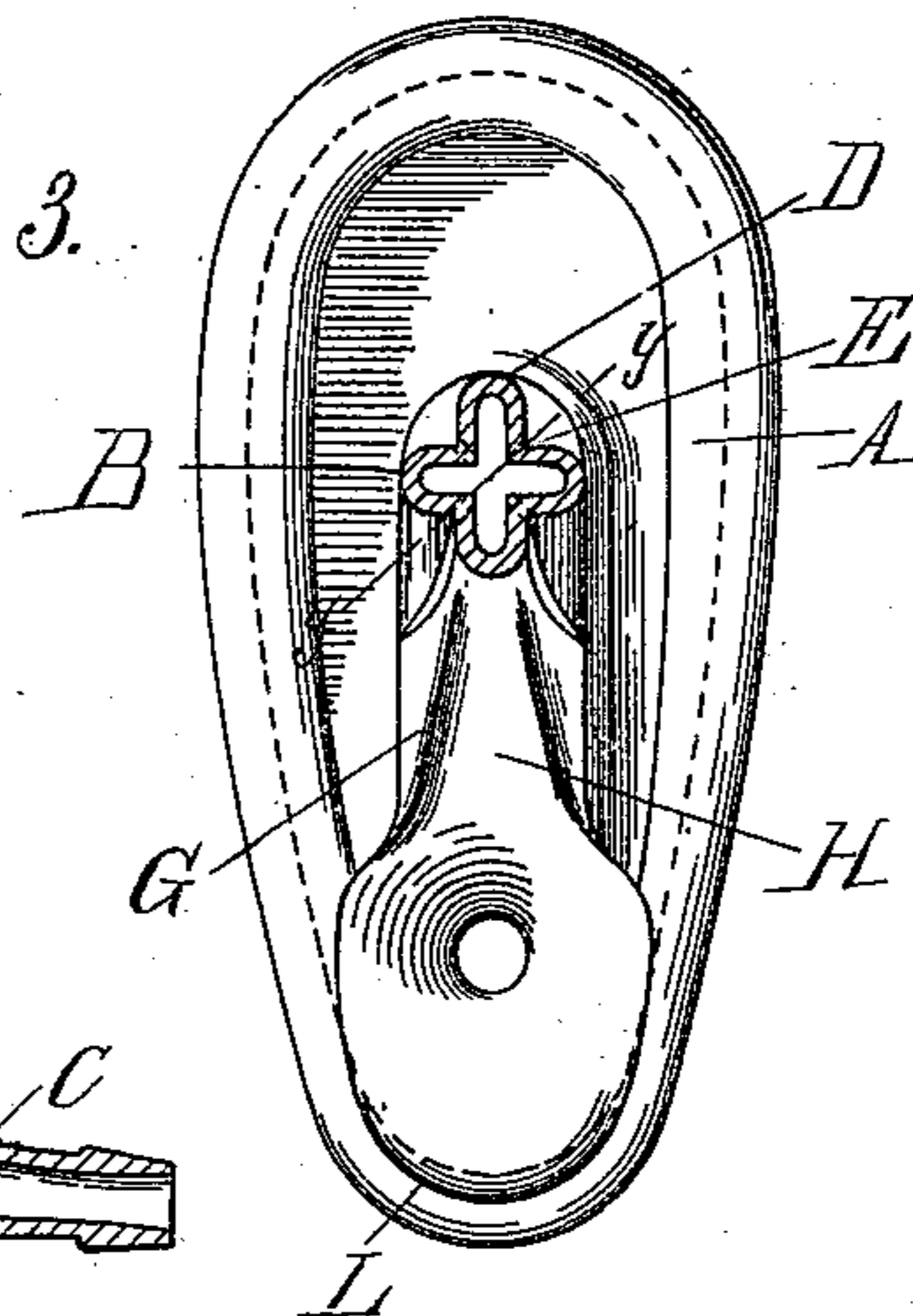


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## SYRINGE.

SPECIFICATION forming part of Letters Patent No. 545,647, dated September 3, 1895.

Application filed February 20, 1895. Serial No. 539,100. (No model.)

*To all whom it may concern:*

Be it known that I, JOHANNES F. HARTZ, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Syringes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to the class of vaginal syringes each of which comprises a shield, a nozzle, an inlet-nipple for the liquid connected with the nozzle, and a drainage or outlet nipple, all rigidly connected together; and the object of the invention is, in part, to provide against the formation of any crevices or joints between the parts, and thus avoid the collection of filth and germs not easily removable by washing; in part to provide means for assuring the free outflow of the waste liquid, and in part to certain novel features of construction and combinations of parts which will be hereinafter described.

The accompanying drawings illustrate an embodiment of my invention.

Figure 1 is a perspective view of my device. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a face view with the nozzle in transverse section on line  $x x$  in Fig. 2. Fig. 4 is a section of the nozzle in the plane indicated by line  $y y$  in Fig. 3.

A represents the shield, preferably of vulcanized rubber, of oval configuration when seen from the front, as in Fig. 3, and curved or bow-shaped when seen in side elevation, the outer face being somewhat convex. From slightly above the center of the inner face of this shield projects the nozzle B at a slight upward inclination. This nozzle is formed on the inner face of the shield and is tubular. C is a nipple formed on the outer face of the shield, the bore thereof forming a continuation of that of the nozzle. The nipple C provides a means for connecting the supply pipe or tube to the device. The outer end of the nozzle B has ribs D, between which are grooves or channels E, extending longitudinally of the nozzle. At the re-entering angles of the groove E are formed the forwardly-inclined jet-passages F, as shown in Fig. 4. The ribs D serve to expand the parts, so that the liquid may escape freely from the passages

F, and the liquid is directed forward by the inclination of said passages.

Along the under side of the nozzle B are two flanges G. These flanges commence at about the termination of the ribs D and extend to and merge into the shield A, flaring outward from each other somewhat, as indicated in Fig. 3. Between these flanges is formed a channel H, which connects or merges into a flaring outlet-passage I in the inner face of the shield, said outlet gradually contracting and merging into the passage through a discharge-nipple J, to which a waste pipe or tube may be coupled at the outer face of the shield.

About the margin of the shield is fitted a tubular cushion and packing-ring N, having a flap O, which fits over the outer edge and face of the shield all around, the tubular portion thereof being inside the plane of the shield; but at the bottom of the shield the latter is provided with a lip L, which is an inward extension of the lower wall of the outlet-passage I, and between the margin of this lip and the lower edge of the shield is formed a concave groove or recess M, in which the tube of the packing-ring rests at the lower curved part of the shield. The tension of the rubber holds the packing-ring in place, but it may be readily removed for cleansing.

In practice the packing-ring not only prevents leakage around the edges of the shield but also prevents the injected liquid from coming in contact with any portion of the exterior sensitive surfaces. This enables the user to employ very hot water without feeling the heat unpleasantly. Thus the device is especially desirable and is intended for use to allay inflammation or for medication, as by shutting off the outlet-pipe, and by pinching the tube the liquid may be maintained within without any appreciable pressure on the nozzle, without leakage and without allowing the liquid to reach any exterior parts. The purpose of the lip L and groove M is to permit the liquid to flow out freely at the passage I and prevent the tubular part of the packing-ring from forming a dam to check the outward flow of the liquid to the discharge-nipple. The two flanges G along the under side of the nozzle B serve to

spread and hold back the parts and assure a free passage for the outflow of the waste liquid; otherwise these soft parts would be liable to close in and close or choke the  
5 passage.

Except as to the removable soft-rubber packing-ring the entire device, which is integral and without joints, will be smooth and preferably polished, so that it may be readily  
10 cleansed or washed. The absence of joints and crevices enables it to be cleaned without difficulty.

Having thus described my invention, I claim—

15 1. A jointless, vaginal syringe of smooth, hard material, comprising a shield, the hollow flexible edge on the shield a nozzle with jet-apertures, an inlet nipple communicating with the nozzle, and an outlet nipple for the  
20 waste-liquid, all rigidly and jointlessly connected, whereby the formation of crevices for the collection of filth and germs is avoided and cleansing facilitated, substantially as set forth.

25 2. In a syringe, the combination with the shield, having an outlet for the waste-liquid, and a nozzle B, united in a rigid and jointless manner to the inner face of said shield, of the two flanges G, along the under side of  
30 the nozzle and adapted to hold back the adjacent parts so that they will not impede the outflow of the waste-liquid, substantially as set forth.

35 3. In a syringe, the tubular nozzle B, having its outer end formed of longitudinally extending ribs D, and having jet-apertures

F, at the re-entering angles between said ribs, said apertures being inclined forward, substantially as set forth.

4. In a syringe, the combination with a  
40 smooth shield of hard material, of the nozzle B having ribs D at the end, separated by grooves E, and the jet-apertures D situated at the base of said grooves, the inlet nipple C, the flanges G on the under side of the nozzle  
45 and forming the channel leading to the discharge outlet, the outlet, or discharge nipple J, the lip L, forming the lower wall of the flaring mouth of the discharge outlet and the tubular ring of soft rubber detachably se-  
50 cured about the edge of the shield, substantially as set forth.

5. In a syringe, the combination with a smooth, oval shield of hard material, provided with a nozzle, an inlet nipple, an outlet nip-  
55 ple, a flared outlet passage I, connecting with the outlet nipple, a lip L, forming an extension of the lower wall of the passage I, and with a groove M, of the removable tubular, packing ring N, of soft rubber provided with  
60 a flap O, said flap embracing the edge of the shield all around and the tubular ring occupying the groove M, at the bottom of the shield, substantially as and for the purposes  
65 set forth.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:

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