T. IMAIZUMI.

UTERINE SYRINGE.

APPLICATION FILED NOV. 23, 1918.

**1,304,054.** Patented May 20, 1919.

*Fig. 3.*

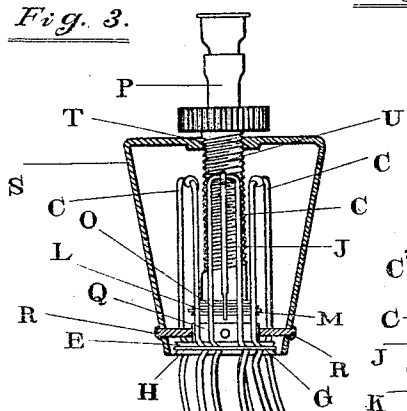



*Fig. 4.*

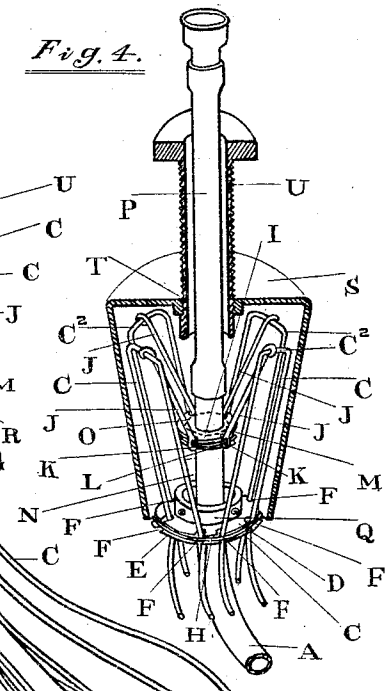



*Fig. 2.*

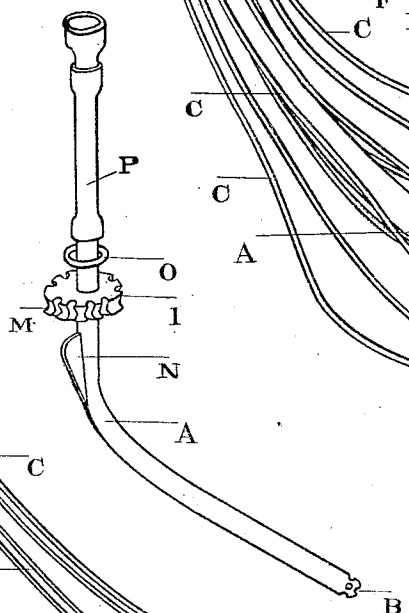



*Fig. 1.*




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# UNITED STATES PATENT OFFICE.

TATSUJIRO IMAIZUMI, OF SEATTLE, WASHINGTON.

## UTERINE SYRINGE.

1,304,054. Specification of Letters Patent. Patented May 20, 1919.

Application filed November 23, 1918. Serial No. 263,837.

*To all whom it may concern:*

Be it known that I, TATSUJIRO IMAIZUMI, a subject of the Emperor of Japan, and resident of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Uterine Syringes, of which the following is a clear and exact specification.

This invention relates to improvements in uterine syringes, and the object of this improvement is to provide a dilator or instrument for expanding or opening the passageways to the uterus in combination with a syringe nozzle through which liquid for washing may be introduced.

Further and more specific objects are to provide dilator members that may be folded into close proximity to the syringe nozzle while the latter is being inserted, and to provide simple and easily operated means for expanding such dilator members after the syringe nozzle has been inserted to completely open the passageways and permit a thorough washing of the same, and a free discharge of the liquid introduced through the syringe nozzle.

The invention consists in the novel construction, adaptation and combination of parts of an instrument of this class as will be more clearly hereinafter described and claimed.

In the accompanying drawings Figure 1 is a view in perspective of an instrument constructed in accordance with this invention showing the dilator members in a folded or closed position; Fig. 2 is a detached view in perspective of the syringe nozzle showing parts of the mechanism for connecting the dilator members thereto; Fig. 3 is a view partly in cross section and partly in elevation of the device showing the dilator members in an open or expanded position; and Fig. 4 is a view in sectional perspective with parts broken away illustrating the actuating mechanism for the dilator members.

Referring to the drawings, throughout which like characters of reference designate like parts the letter A designates a uteral syringe nozzle of the usual curved shape that is provided at its outer end with a plurality of holes B through which water may be discharged and is adapted to have a hose P fitted over the inner end, the hose P being adapted to extend to and be connected with suitable devices (not shown) by which the liquid that is used for washing may be supplied to the nozzle A.

The dilator members C, which are preferably, though not essentially four in number, are each formed of a single piece of wire having somewhat the appearance of a flattened wire hoop that is bent to conform substantially to the curvature of the nozzle A, and is rounded sharply without being pointed at its outer end as indicated at C′ and bent to form a short section $C^2$ at its inner end that is substantially at right angles to the two wires forming the dilator member proper.

The sections $C^2$ at the inner ends of the dilator members are each connected by a link J with a collar I that is slidably mounted on the upper straight portion of the nozzle A, there being a stop member N provided on the nozzle A to prevent such member A from sliding upwardly through the collar I and to cause the nozzle A to be projected outwardly a short distance when the collar I is forced downwardly into the position shown in Fig. 3.

The ends of the links J are placed in notches in the periphery of the collar I and are secured to such collar by means of a wire L that passes through holes K in the ends of the links and is fastened tightly around the periphery of the collar I, the periphery of such collar being concave as indicated at M, Figs. 2 and 3.

Disposed below the collar I is another collar D having peripheral notches F through which the wires C may pass and within which such wires are pivotally held by means of a wire H that encircles the concave periphery E of the collar D, the wires C having short sharp bend G as shown in Fig. 3 to prevent them from sliding lengthwise within the notches F.

The central portion of the collar D is provided with an upwardly directed flange Q for the reception of screws R that extend through the lower peripheral wall of a casing 5 within which the mechanism that operates the dilator members is housed and secure the collar D to the casing 5.

The top of the casing 5 is provided with a centrally arranged threaded hub T through which is screwed a tubular shank U that is provided on its top end with a suitable

thumb nut, by which it may be turned and is adapted to be screwed downwardly onto a washer O that rests on the top of the collar I.

When the shank U is screwed upwardly as shown in Fig. 1, the collar I may be raised and will permit the dilator members to be folded in close proximity to the nozzle A preparatory to insertion, the links J and upper ends of the dilator members assuming the position shown in Fig. 4. After the device has been inserted the shank U may be screwed downwardly thus causing the links J to exert an inward pull on the top ends of the dilator members and expand or move the outer ends thereof into a position as shown in Fig. 3, thereby opening the passageway in which they are inserted and permitting a free discharge of the liquid that is emitted from the holes B in the tip of the nozzle A.

It will be understood that changes in the precise form of construction of the various parts of this device may be resorted to within the scope of the following claims.

What I claim and desire to protect by Letters Patents, is—

1. A uterine syringe of the class described comprising a nozzle, a casing inclosing the upper end of said nozzle, a collar disposed on said nozzle and rigidly secured to the lower end of said casing, dilator members shaped to conform to the curvature of said nozzle said dilator members extending upwardly into said casing and being pivoted to said collar, another collar movable on said nozzle above said first named collar, links connecting said last named collar with the upper ends of said dilator members and means for moving said last named collar on said nozzle to expand said dilator members.

2. A dilator of the class described comprising a shank, a collar disposed thereon, dilator members pivotally secured to the periphery of said collar and projecting in both directions therefrom, another collar slidable on said shank, links connecting the inner end of each of said dilator members with said slidable collar and means for moving said slidable collar lengthwise of said shank to move the outer ends of said dilator members toward or away from each other.

3. A uterine syringe of the class described comprising a nozzle, a casing inclosing the upper end of said nozzle a collar disposed on said nozzle and rigidly secured to the lower end of said casing said collar having a concave peripheral edge that is provided with notches, another collar slidable on said nozzle above said first named collar, dilator members constructed of wires bent double and shaped to lie in close proximity to said nozzle said wires being adapted to pass through the peripheral notches in said lowermost collar and having bends therein at the lowermost collar, links each pivotally connected at one end with said dilator members, and at the other end with said last named collar, and a tubular shank threaded through the top end of said casing and adapted to be screwed downwardly onto said upper collar to depress said collar and move the outer ends of said dilator members away from said nozzle.

4. A uterine syringe of the class described comprising a nozzle adapted to have its upper end connected with a liquid inlet hose, a casing inclosing the upper end of said nozzle, a collar disposed on said nozzle and rigidly secured to the lower end of said casing said collar having a concave peripheral edge that is provided with notches, another collar slidable on said nozzle above said first named collar and having a concave peripheral edge that is provided with notches, dilator members constructed of wires bent double and shaped to lie in close proximity to said nozzle said wires being adapted to pass through the peripheral notches in said lowermost collar and having bends therein at the location of said notches, a wire secured tightly around the periphery of said lowermost collar, links each pivotally connected at one end with said dilator members, a wire extending around the periphery of said uppermost collar and connecting the other ends of said links thereto, and a tubular shank threaded through the top end of said casing and adapted to be screwed downwardly onto said upper collar to depress said collar and move the outer ends of said dilator members away from said nozzle.

Signed at Seattle, Washington, this 18th day of November, 1918.

TATSUJIRO IMAIZUMI.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**