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CERVICAL APPLICATOR

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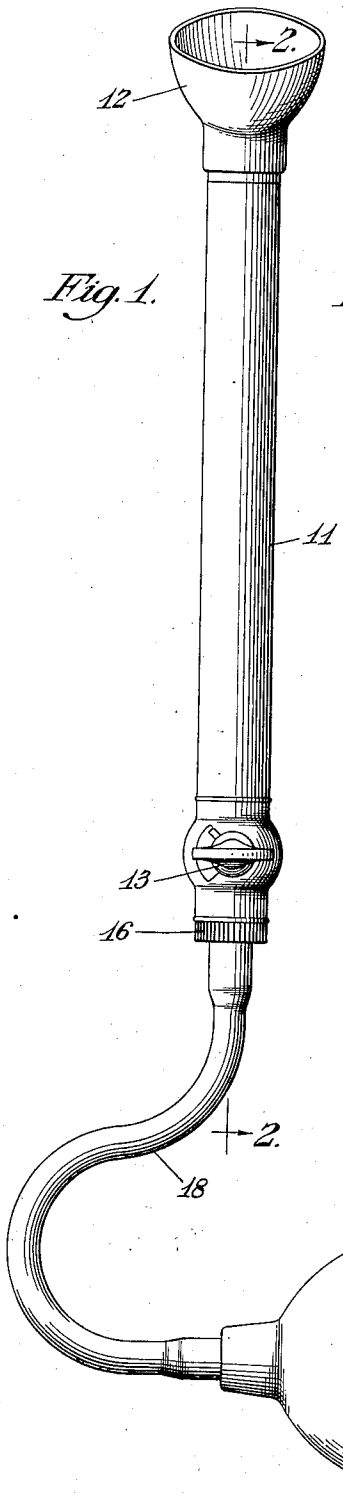


Fig. 1.

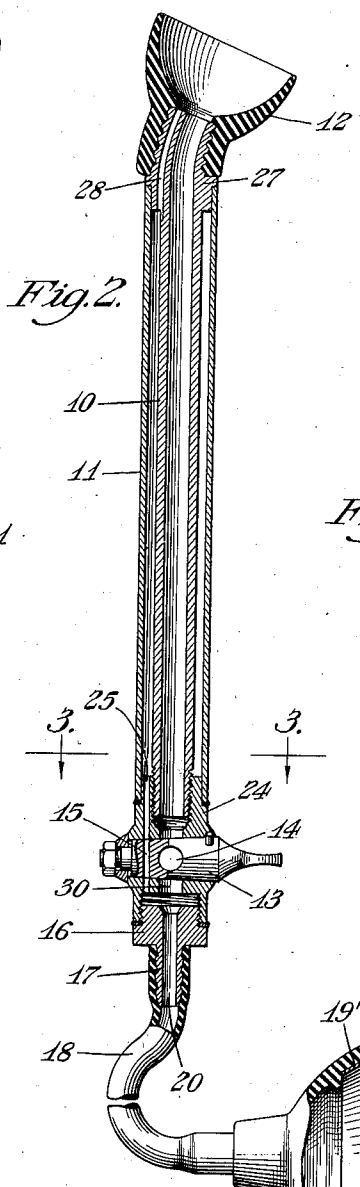


Fig. 2.

Fig. 3.

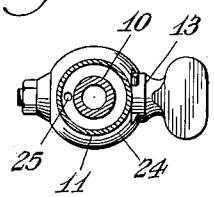
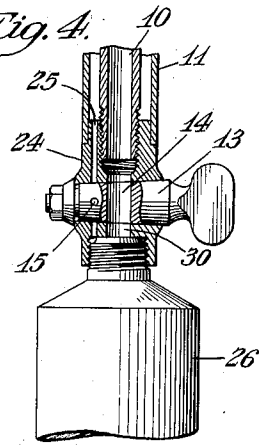
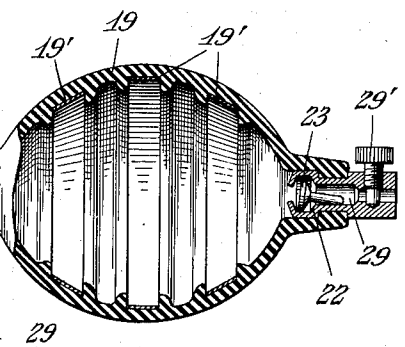


Fig. 4.





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CERVICAL APPLICATOR

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Chicago, Ill.

Application August 21, 1933, Serial No. 686,147

6 Claims. (Cl. 128—231)

This invention relates to certain novel improvements in cervical applicators, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a plan view of the new applicator;

Fig. 2 is a longitudinal sectional view of the same on line 2—2 in Fig. 1;

Fig. 3 is a transverse sectional view on line 3—3 in Fig 2; and

Fig. 4 is a fragmentary sectional detail view.

The new applicator comprises a barrel including inner and outer concentric tubular passages 10 and 11; the inner tube 10 having an enlarged externally threaded end portion 27 to which a cervix gripping member in the form of a suction cup 12 is attached, the suction cup 12 being adapted to grip the cervix under the force of negative pressure applied thereto in a manner presently to be described.

Threaded onto the end of the inner tube 10 that is opposite the end having the enlarged portion 27 is a valve bushing 24 in which is rotatably mounted a valve core 13. Provided in the valve core 13 are two non-communicating ports 14 and 15 which extend transversely therethrough at right angles to each other.

A closure nipple 16 is detachably threaded into the valve bushing 14 and has a stem 17 to which is attached a flexible rubber tube 18 having an air pump in the form of a compressible rubber air bulb 19 at its outer end, including expanders 19′ in the form of spring elements mounted in the bulb in the manner illustrated in the drawing.

Provided in the nipple stem 17 is a passage 20 (Fig. 2) which communicates at its inner end with both barrel passages 10 and 11.

Provided in the outer end of the air bulb 19 is an air inlet 29, adapted to be closed by a valve structure 29′, providing a valve seat 22 (Fig. 2) against which an air valve 23 is adapted to seat when the bulb 19 is compressed; the valve 23 being unseated by atmospheric pressure from outside the bulb when the bulb 19 is released and expanded from compressed position.

Extended through the bushing 24 are two passages 25 and 30 which provide for selective communication between the outer barrel passage 11 and the nipple stem passage 20 and between the inner barrel passage 10 and the nipple stem passage 20. Formed in the enlarged portion 27 of the inner barrel passage 10 is a passage 28 which opens at its outer end into the suction cup 12 and at its inner end into the bore of the outer barrel passage 11.

To apply a medicament to the cervix the nipple plug 16 (Fig. 2) is unscrewed and a container 26 (Fig. 4) of medicament is attached to the valve bushing 24 in place of the plug 16. The valve core 13 is then positioned so that the port 14 is in registration with the passage 30 and with the inner barrel passage 10; in which position of the valve core the port 15 is out of registry with the passage 25. The tube 26 is then compressed to inject a suitable quantity of medicament, which may be a medicament jelly or the like, into the inner barrel passage 10.

The valve 13 is then turned to position the port 14 out of registry with the passage 30 to close off the inner barrel passage 10. In this position of the valve core 13 the port 15 is in registration with the passage 25 and outer barrel passage 11. The tube 26 is then detached from the valve bushing 24 and the nipple plug 16 reattached thereto as in Fig. 2.

Before detailing the function of our invention it is important to note that to assure proper results the cervix must be held stationary and the air therefrom withdrawn. This withdrawal of the air from the cervix creates a negative pressure, thus holding the cervix in alignment with the chamber containing medicament in the cervical applicator.

The operation of our invention is as follows: The air bulb 19 is manually compressed against the action of the expander springs 19′. The valve 29′ is in a closed position. The cup is now applied to the cervix, after which the bulb is permitted to expand its maximum by virtue of the expander springs to assure partial vacuum. This expansion of the bulb creates a partial vacuum in the line which includes the suction cup 12, passage 28, outer barrel passage 11, the passage 25, port 15, nipple 20, tube 18, and air bulb 19. After compression of the bulb 19 and with the cup 12 in applied position with respect to the cervix, the bulb 19 is permitted to expand, and this expansion of the bulb 19 draws the air out of the cervix, thus preparing the cervix for the next operation, which is the injection of the medicament.

This injection of the medicament is accomplished in this manner: The medicament which is confined in the barrel 10 is injected by turning the valve core 13 to register the port 14 with the passage 30 communicating with the valve 10, and to move the valve port 15 out of registry with the passage 25. After this has been done, and the air inlet 29 opened, the air bulb 19 is compressed to eject the medicament from the inner barrel 10 into the cervix and thereon.

While we have illustrated a bulb 19 for the purposes herein set forth, it is manifest that if desired any bulb of a well known structure may be substituted for this bulb without departing from the spirit of the invention.

Having thus described our invention what we claim as new and desire to protect by Letters Patent is:

1. A cervical applicator comprising the combination of: a barrel having separate inner and outer concentric passages; a suction cup attached to one end of the barrel and having separate communication with both of said passages; an air valve structure arranged at the end of the barrel opposite the end therof to which the suction cup is attached; a compressible air bulb, including spring expanders, the air bulb having attachment to the valve on the opposite side thereof from said passages; said valve including a core having separate ports extended therethrough for providing in different positions of the core selective communication between the air bulb and said suction cup by way of said passages.

2. A cervical applicator comprising the combination of: a barrel having separate inner and outer concentric passages; a suction cup attached to one end of the barrel and having separate communication with both of said passages; an air valve structure arranged at the end of the barrel opposite the end thereof to which the suction cup is attached; and an air pump member having attachment to the valve on the opposite side thereof from said passages; said valve including a core having separate ports extended therethrough for providing in different positions of the core selective communication between the air pumping member and said suction cup by way of said passages.

3. A cervical applicator comprising the combination of: a barrel having separate inner and outer concentric passages: a cervix gripping member attached to one end of the barrel and having separate communication with both of said passages; an air valve structure arranged at the end of the barrel opposite the end thereof to which the cervix gripping member is attached; and a compressible air bulb, the air bulb including spring expanders, having attachment to the valve on the opposite side thereof from said passages; said valve including a core having separate ports extended therethrough for providing in different positions of the core selective communication between the air bulb and said cervix gripping member by way of said passages.

4. A cervical applicator comprising the combination of: a barrel having separate inner and outer concentric passages; a cervix gripping member attached to one end of the barrel and having separate communication with both of said passages; an air valve structure arranged at the end of the barrel opposite the end thereof to which the cervix gripping member is attached; and an air pump member having attachment to the valve on the opposite side thereof from said passages; said valve including a core having separate ports extended therethrough for providing in different positions of the core selective communication between the air pumping member and said cervix grippng member by way of said passages.

5. A cervical applicator comprising the combination of: a barrel having separate inner and outer concentric passages; a suction cup attached to one end of the barrel and having separate communication with both of said passages; an air valve structure arranged at the end of the barrel opposite the end thereof to which the suction cup is attached; a compressible air bulb having attachment to the valve on the opposite side thereof from said passages; said valve including a core having separate ports extended therethrough for providing in different positions of the core selective communication between the air bulb and said suction cup by way of said passages, said bulb having an air inlet, and an air valve controlling said inlet and unseated by atmospheric pressure from without said bulb to open said inlet when the bulb is released from compressed position and expanded.

6. A device of the type described comprising a tubular member having a body member connected with each of its ends, a cervix suction cup secured to one end of the tubular member, said tubular member communicating with the cup, a tube enclosing said tubular member and having its ends connected with said body members, said tube being larger than said tubular member to provide a space between the two, one of said body members having an opening communicating with the cup and the space between the tubular member and the tube, the other of said body members being provided with a transverse bore and a longitudinal bore communicating with the tubular member, a valve positioned within said transverse bore, the other of said body members being provided with a second bore communicating with the space between the tubular member and the tube, and an air bulb connected with the other of said body members and arranged for communication with said longitudinal bore and said second bore, said valve plug being provided with openings arranged to establish selective communication between the tubular member or the said second bore.

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