

No. 808,635.

PATENTED JAN. 2, 1906.

A. CIOLFI & R. A. CASE.  
APPARATUS FOR TREATING DISEASED TISSUES.

APPLICATION FILED SEPT. 21, 1904.

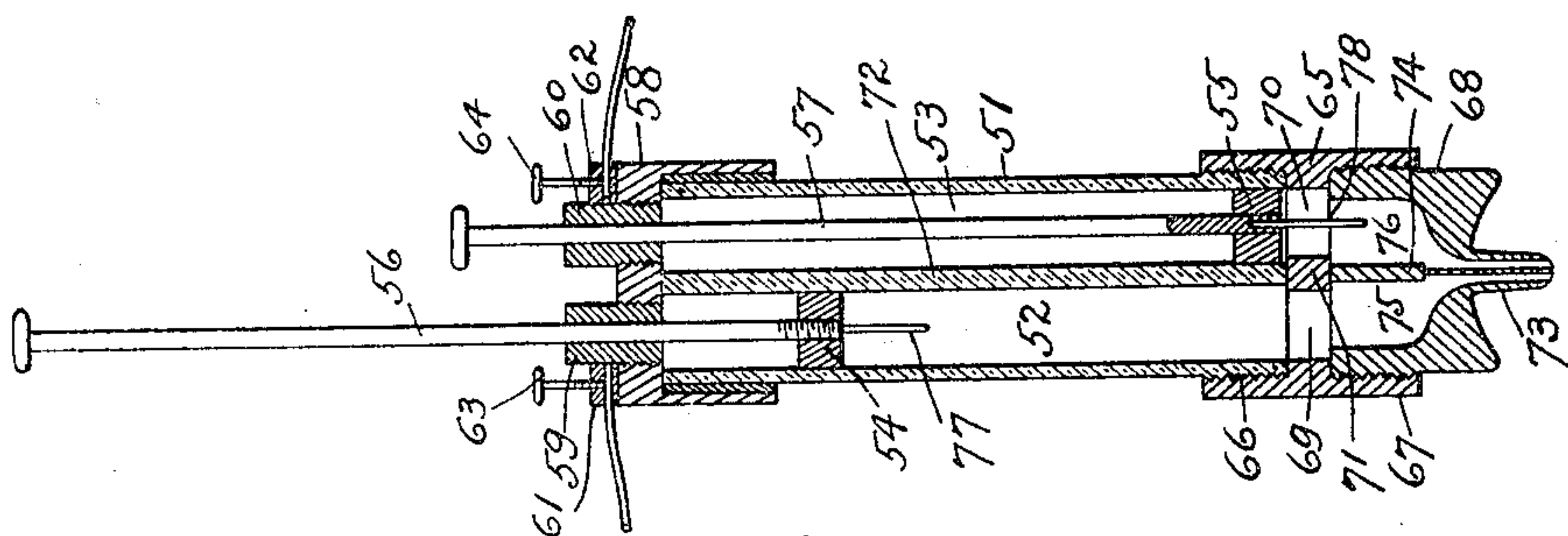


Fig. 3

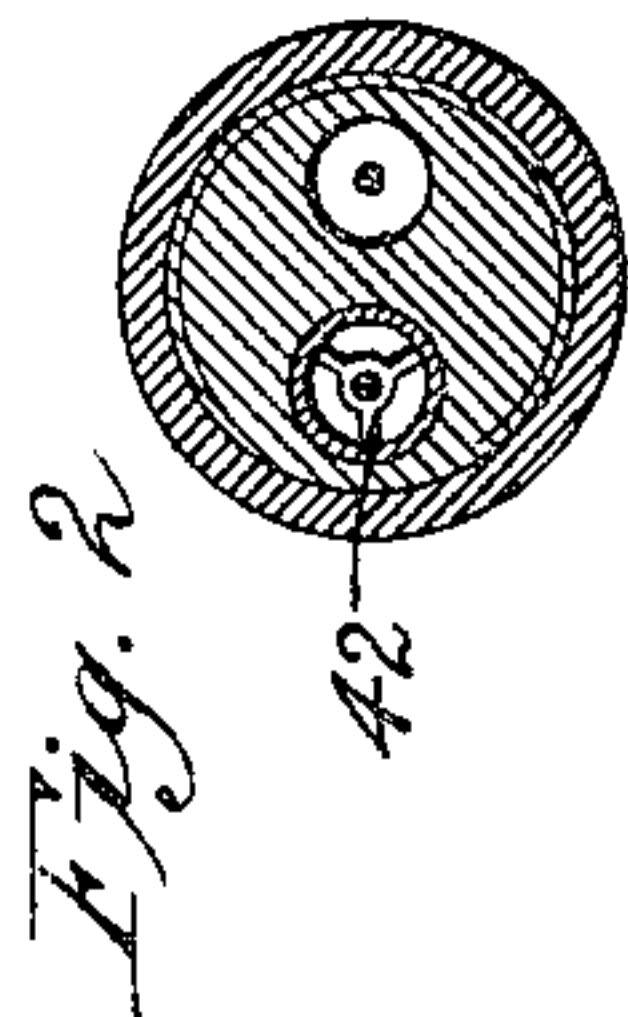


Fig. 2

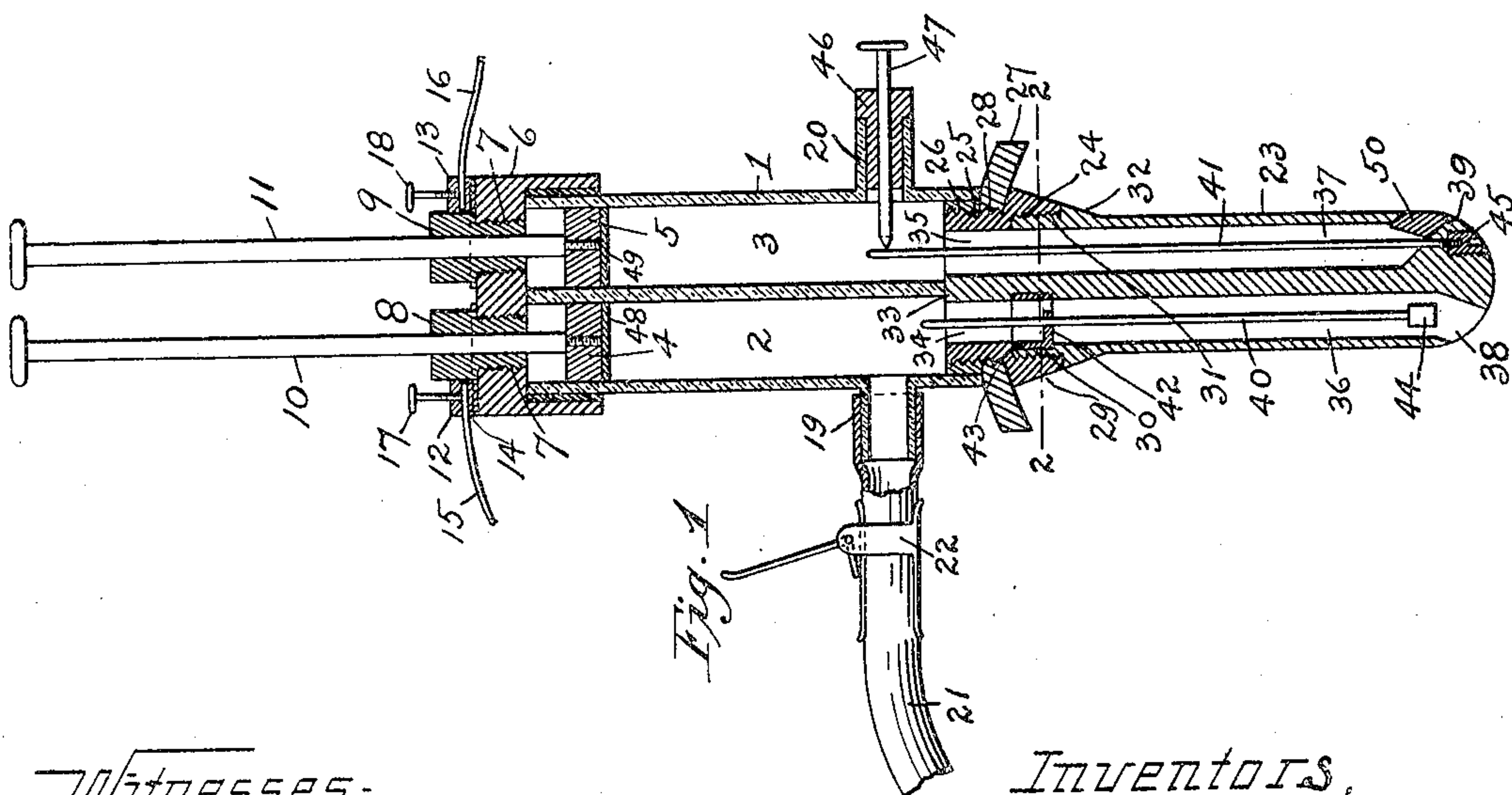


Fig. 1

Witnesses:

A. L. Lord.  
S. C. Fawcett.

Inventors,

Antonino Ciolfi and  
Rolland A. Case.

by Fawcett & Hull Attorneys.



# UNITED STATES PATENT OFFICE.

ANTONINO CIOLFI AND ROLLAND A. CASE, OF CLEVELAND, OHIO, ASSIGN-  
ORS TO THE AMERICAN SPECIALTY COMPANY, OF CLEVELAND, OHIO,  
A CORPORATION.

## APPARATUS FOR TREATING DISEASED TISSUES.

No. 808,635.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed September 21, 1904. Serial No. 225,348.

*To all whom it may concern:*

Be it known that we, ANTONINO CIOLFI and ROLLAND A. CASE, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Apparatus for Treating Diseased Tissues, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

Our invention relates to apparatus for treating diseased tissues, and particularly mucous membrane, and has for its object the construction of an apparatus by means of which such tissues or membrane may be effectively cleansed, sterilized, and nourished.

While the embodiment herein disclosed is particularly applicable to the treatment of venereal diseases, our invention is not limited in its application to such diseases, but may be employed in the treatment of others, particularly to the treatment of catarrhal and orificial diseases.

Referring to the drawings, Figure 1 represents a longitudinal sectional view of one form of our apparatus. Fig. 2 represents a transverse section on the line 2 2 of Fig. 1, and Fig. 3 represents a longitudinal section of a modification of the apparatus shown in Fig. 1.

Our invention is preferably embodied in a syringe, which consists generally of a casing 1, which may be of glass or other suitable material having therein two cylinders 2 and 3, within which are fitted pistons 4 and 5. Secured to the upper end of this casing, as by means of cement, is a closure or header 6, which is of ebonite or vulcanite or similar non-conducting material. This header is provided with threaded openings 7, into which are screwed metallic plugs 8 9, said plugs being inserted above the longitudinal axes of cylinders 2 and 3, respectively. Through these plugs extend the piston-rods 10 11. On top of the header 6 and adjacent to the plugs 8 and 9 is a pair of clamping members 12 and 13, each having a recess 14 for the insertion of an electrical conductor 15 16, the ends of said conductors being inserted into said recesses and clamped in contact with the adjacent plug by means of set-screws 17 18. Communicating with the lower portion of each of said cylinders 2 and 3 is a connection 19 20. To the former is attached a rubber pipe 21, which may be provided with any suit-

able clamping device 22 to close communication between said tube and the cylinder 2. To the casing 1 there is removably fitted a tip 23. This tip may be secured to the casing, as by means of an intermediate member 24, having an external thread 25, a portion of which engages the internal thread of a ring 26, soldered or otherwise secured to the interior of the casing 1. A flanged ring 27 is fitted to the thread 25 of the member 24, as by means of an internal thread 28. The lower end of the member 24 is tapered, as shown at 29, and is provided with an internal thread 30, which is engaged by a corresponding external thread 31 on the tip 23. The upper portion of the tip 23 is tapered at 32 to form a continuation of the surface 29. The tip and the connecting member 24 and ring 27 are preferably of vulcanite or ebonite.

The tip 23 is provided with a pair of compartments or channels in communication with and constituting extensions of the cylinders 2 and 3, but are smaller than said cylinders, an internal shoulder 33 being provided at the bottom of each of said cylinders serving as a stop to limit the movement of the pistons 4 and 5. These internal shoulders are formed at the top of the connection or intermediate member 24, said member being provided with a pair of channels 34 35, in communication with but somewhat smaller than the cylinders 2 and 3. The tip 23 is also provided with a pair of channels or compartments 36 and 37, in alinement with the channels 34 and 35 and preferably of the same size as said channels. Each of the compartments or channels 36 and 37 is provided with an outlet 38 39, respectively, said outlet being inclined, whereby any fluid emerging from said outlets is given a lateral direction.

Within each of the channels 36 37 there is removably fitted an electrode 40 41. The former electrode, which is the positive electrode, may be removably fitted in its channel, as by means of a spider 42, having a vertical flange 43 engaging a recess at the upper end of the said channel, the upper extremity of said flange engaging the lower surface of the adjacent portion of the intermediate member 24 when the tip 23 is screwed in place. The lower end of the electrode 40 is provided with a platinum plate 44. The negative electrode 41 is preferably soldered into a screw 45, which fits



into a threaded recess in the lower end of the tip, said tip being provided with a hole for the passage of the electrode. The lower end of said screw is rounded off to conform to the surface of the tip in which it is inserted.

In utilizing the electrodes it may be preferable or necessary to leave the piston 5 elevated. In this case the connection 20 may be closed by a suitable plug 46, having a pin 47 extending therethrough and contacting with the upper end of the electrode 41. When so arranged, the conductor 16 may be secured to the pin 47. As the pistons 4 and 5 are preferably of non-conducting material, the lower ends of the rods 10 and 11 are threaded through said pistons and their lower extremities are in contact with conductors 48 49, adapted to contact with the electrodes 40 and 41, respectively. When the apparatus above described is to be employed with electricity, a stopper 50 may be fitted into the outlet 39, the outer surface of said stopper being rounded to conform to the adjacent surface of the tip 23.

The apparatus above described is particularly adapted for the treatment of vaginal diseases. When it is desired to treat such diseases mechanically, the electrodes and the pin 47 and stopper 50 are removed. The tip is inserted into the vagina, the tapering surfaces 29 and 32 engaging the external portion of the vagina to prevent leakage therefrom, and the flange 27 limiting the penetration of the tip. The tube 21 is inserted into a receptacle containing the liquid which is to be injected, said liquid being of any desired character. The piston 5 may be pushed to the bottom of the cylinder 3 and left in that position temporarily. The elevation of the piston 4 fills the cylinder 2 with the liquid. The clamp 22 may then be operated to close the tube 21 and the liquid in the cylinder may be forced into the vagina. If sufficient liquid has not been introduced by the above operation, it may be repeated. The clamp is then closed on the tube and the pistons are operated alternately, causing the liquid to be alternately expelled through the outlets 38 and 39 against the membrane adjacent thereto. The inclination of these outlets causes the liquid to exercise a sort of mechanical scraping of the membrane, removing therefrom any foreign matter and effectually cleansing the same. In addition to this cleansing action the liquid may exercise its characteristic medicinal effect upon the membrane.

In the treatment of certain diseases—as, for instance, gonorrhea or other catarrhal infection—we may employ with our device the electrical appliances hereinbefore described. For this purpose we insert the electrodes 40 and 41, the stopper 50, and the pin 47. An electrolyte capable of yielding oxygen is preferably employed—as, for instance, a weak solution of ordinary salt in water. Before in-

serting the plug 50 a small quantity of the liquid is inserted into the channel 36, and the piston 5 is pushed down into engagement with the end of the electrode 41. The cylinder 2 is filled with the liquid by operating the piston 4. The tube 21 is clamped and the tip is inserted into the vagina. The piston 4 is then depressed to contact with the end of the electrode 40, forcing the liquid into the vagina. This operation is repeated until a sufficient quantity of liquid has been introduced to insure some of the liquid remaining in the channel 36, the piston 5 having been withdrawn to the end of its cylinder. The electrical connections having been made, the oxygen will be liberated from the electrode 40 and will be discharged through the outlet 38 and into contact with the membrane adjacent thereto. The hydrogen which is liberated from the electrode 41 collects within the channel 37 and may escape through the connection 20 or the plug 46 may remain in place, connection being made with the pin 47, and the piston 5 being in the lower portion of the channel 3 will provide a yielding resistance to the pressure of the hydrogen. This treatment by nascent oxygen may be continued as long as desired and is extremely beneficial not only in destroying disease germs, but in nourishing and stimulating the mucous membrane.

In Fig. 3 we have shown a modification of the device shown in Fig. 1 and which is particularly applicable to the treatment of the male urethra. Like the former apparatus the apparatus shown in Fig. 3 consists of a casing 5, having therein cylinders 52 53, pistons 54 55, piston-rods 56 57, a header 58 secured to the upper end of the casing, plugs 59 and 60 fitted in said header and through which the piston-rods extend, clamps 61 62, and clamp-screws 63 64. Secured to the lower end of the casing is a connection 65, said connection being provided with threaded flanges 66 67, the former engaging the lower end of the casing and the latter receiving the threaded end of a tip 68. This connection is provided with channels 69 70, registering with the cylinders 52 and 53, the portion 71 intermediate of said channels being thicker than the partition 72 between the cylinders, whereby stops are provided for the pistons 54 and 55. The tip which we employ with the above apparatus is provided with a short tubular extension 73 of a size to be readily inserted into the male urethra. A partition 74 divides the tip into two channels 75 76, communicating with the channels 69 and 70. This partition is extended down to the end of the extension 73. Owing to the small capacity of the male urethra, it will be unnecessary to provide the casing 31 with a connection and rubber tube, such as is employed with the former apparatus. The liquid may be drawn into the cylinders 52 and 53 by operating the pistons 54



and 55 and the tip then inserted into the urethra. In ordinary cases the infection extends only a portion of the length of the urethra. In such cases a rubber ring may be placed around the urethra to prevent the liquid from passing beyond and into the bladder. The operation of the device is similar to that of the one embodied in Fig. 1, the pistons 54 and 55 being operated alternately to force the liquid into contact with the membrane, to thoroughly cleanse the same, and to permit such liquid to exercise its appropriate medicinal effect thereupon. Should the infection, however, extend beyond the urethra proper, the ordinary return-flow cannula may be applied to the extension 73 and the infected part of the membrane may be treated as before.

In order to permit the apparatus last described to operate electrolytically, we connect electrodes 77 78 directly with the metallic piston-rods 56 and 57, respectively. Liquid is then introduced into the urethra by operating either or both of the pistons. The nascent oxygen liberated from the positive electrode will pass into the urethra and come into contact with the mucous membrane in the same manner as described in the operation of the device shown in Fig. 1. A tip similar to the tip 73 might advantageously be employed in treating diseases of the ear or nose.

From the above description it will be apparent that we have produced an instrument which may be employed for the mechanical or chemical treatment of diseased tissue, or both. In the latter treatment the apparatus generates nascent oxygen (ozone) at the place to be treated and applies the same directly to the tissue or membrane, destroying disease germs and stimulating such tissue or membrane.

While we have necessarily described our invention in detail, we do not propose to be limited to such details, except as such limitation may be rendered necessary by the prior state of the art or may be included in the claims hereto annexed.

Having thus described our invention, we hereby claim—

1. In an apparatus for treating diseased tissues, the combination of a casing having two compartments therein, an electrode for each of said compartments, connections between each of said electrodes and a source of electric energy, and means for introducing an electrolyte into said compartments, one of said compartments having an opening for the discharge of the liberated gas adjacent to the tissue to be treated.

2. In an apparatus for treating diseased tissues, the combination of a casing having two compartments therein, an electrode for each of said compartments, connections between each of said electrodes and a source of electric energy, and means for introducing an electrolyte into said compartments, one of

the compartments having an inclined outlet to permit the liberated gas to more readily contact with the tissue adjacent thereto.

3. In an apparatus for treating orificial diseases, the combination of a casing having therein two compartments, an electrode for each of said compartments, a piston for introducing an oxygen-producing electrolyte into said compartments and the orifice to be treated, the compartment for one of said electrodes having an outlet adapted to discharge the liberated gas into the orifice to be treated, and means for supplying electric current to said electrodes.

4. In a syringe, the combination of a pair of cylinders, a piston in each of said cylinders, each of said cylinders being provided with an extension, an electrode for each of said extensions, one of said extensions having an outlet, and means for supplying electric current to said electrodes.

5. In a syringe, the combination of a body portion having therein a pair of cylinders, pistons for said cylinders, a tip for said body portion having therein two compartments communicating with said cylinders, an electrode for each of said compartments having an outlet near the end of said trip, and means for applying electric current to said electrodes.

6. In a syringe, the combination of a body portion, having therein a pair of cylinders, pistons for said cylinders, a tip for said body portion having therein two compartments communicating with said cylinders, an electrode for each of said compartments, one of said compartments having an outlet near the end of said tip, and means including said pistons for supplying electric current to said electrodes.

7. In a syringe, the combination of a casing having therein a pair of cylinders, a tip secured to said casing and having therein compartments or channels communicating with said cylinders, pistons in said cylinders, and electrodes removably fitted in the compartments of said tip.

8. As a means for treating orificial diseases, a syringe having in combination a casing, said casing having a pair of cylinders therein, a tip secured to said casing, said tip being provided with a tapered portion adapted to fit the external portion of the orifice to close the same and having therein compartments or channels communicating with said cylinders, and electrodes fitted in said compartments or channels.

9. As a means for treating orificial diseases, a syringe having in combination a casing, said casing having a pair of cylinders therein, a tip secured to said casing, said tip being provided with a tapered portion adapted to fit the external portion of the orifice to close the same and having therein compartments or channels communicating with said cylinders, and pistons in said cylinders.



10. A syringe for the treatment of orificial diseases comprising a pair of cylinders, a piston for each of said cylinders, an extension common to said cylinders and having adjacent  
5 its point of connection with said cylinders a rounded tapered surface adapted to fit and close the orifice to be treated and being provided with channels communicating with said cylinders.

10 11. A syringe for the treatment of orificial diseases, said syringe comprising a casing having therein a pair of longitudinally-extending cylinders, pistons in said cylinders, a tip or extension secured to said casing and having  
15 therein channels communicating with said cylinders, said tip having a tapered portion adapted to fit the external portion of the orifice to be treated and a flange at the enlarged end of

said tapered portion to limit the penetration of said tip. 20

12. A syringe for the treatment of orificial diseases comprising a casing having a pair of cylinders therein, pistons for said cylinders, an extension or tip for said casing having  
25 channels communicating with said cylinders, the discharge ends of said channels being outwardly inclined, said syringe having a rounded tapered portion adapted to engage and close the external portion of the orifice to be treated.

In testimony whereof we affix our signatures in the presence of two witnesses. 30

ANTONINO CIOLFI.  
ROLLAND A. CASE.

Witnesses:

O. G. MELARAGNO,  
S. E. FOUTS.