Aug. 18, 1931. F. R. HART 1,819,368

APPLICATOR FOR ADMINISTERING IRRIGATING FLUIDS AND RADIANT ENERGY TO THE URETHRA

Filed Dec. 4, 1929

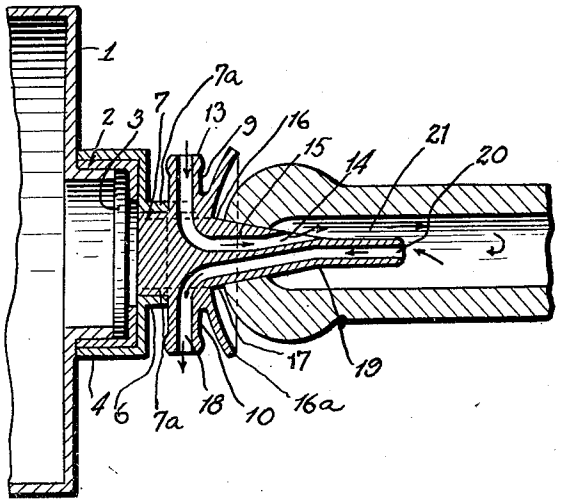


Fig. 2.

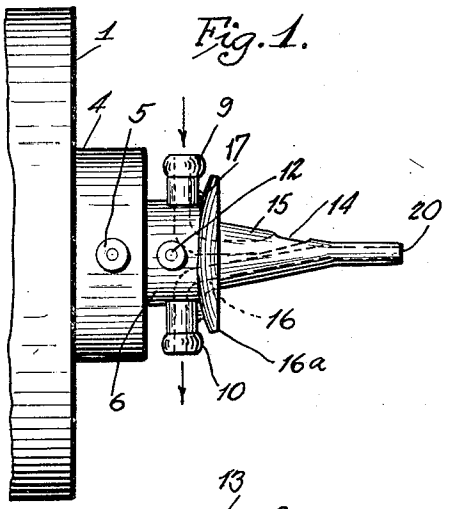


Fig. 1.

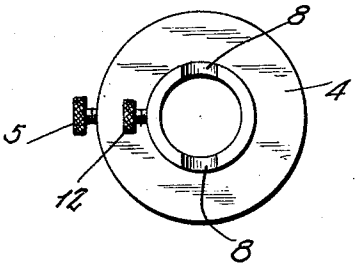


Fig. 3.

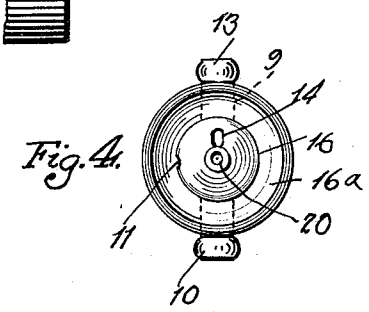


Fig. 4.

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UNITED STATES PATENT OFFICE

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APPLICATOR FOR ADMINISTERING IRRIGATING FLUIDS AND RADIANT ENERGY TO THE URETHRA

Application filed December 4, 1929. Serial No. 411,585.

My invention relates to a novel, and simplified, dual-purpose applicator for administering cleansing or healing fluids to the urethral canal, said applicator being adapted for use with a source of fluid supply and in conjunction with a source of radiant energy such as an ultraviolet ray machine; the applicator being composed of material permeable to the ultra-violet rays and so constructed and arranged with relation to both the fluid supply and the ray projection that either of them may be used selectively or both used simultaneously.

The present invention is an improvement on my copending application, Serial Number 333,141, filed January 17, 1929; which application is an improvement on the invention disclosed in Patent Number 1,721,019 issued to me July 16, 1929 for Apparatus facilitating the application of radioactive energy into inaccessible tissue and positions.

Both said former inventions provide an adapter-container vessel adapted to act as a reservoir in connection with a body of water which serves as means for suitably dilating the urethra for passage of radiant energy thereinto.

In my practice I have found that said body of water somewhat impairs the effective action of the rays when passing therethrough, and therefore, it is very desirable to eliminate the container element.

In the invention disclosed in said copending application an irrigating return flow is attained by the use of small metallic tubes which are hard to sterilize, difficult and costly to manufacture and serve to impede the rays in their rectilineal path directed to the posterior portion of the urethral canal close to the shut-off muscles.

The objects of my present invention comprise the following desideratums:—

To provide an applicator composed of quartz or other material penetrable by the ultra-violet rays, the applicator being jointlessly formed of one solid piece capable of being removably attached to an ultra-violet machine so that the rays will pass longitudinally of the applicator.

To provide a novel applicator such as may be cast or blown in one single structure composed of two organically different materials, comprising an axial, core-like part composed of substance such as quartz or other material penetrable by and adapted to carry the ultra-violet rays; and a certain circumferential splash-guard portion that may well consist of ordinary glass, which, although capable of being readily united by fusion with said core-like portion will form an exclusive barrier to insulate said rays from said guard and thus prevent the outer surface of said gland being burned during treatment; said structure having ducts formed therein suitable for inflow and reflow of fluid in relation to a dilated urethral canal.

To provide an inflow means of larger carrying capacity than the reflow means.

To provide a nipple means for attachment an inflow hose to the applicator and a nipple for the reflow outlet, the nipple being formed integral with the body of the applicator.

To provide an irrigating applicator every portion of which is adapted to carry the ultraviolet rays without any interfering non-permeable material such as the tubes of my copending application.

These objects are attained by the qualities of the material constituting the structure of said applicator and by the construction illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevational view of the present applicator shown as attached to an ultraviolet ray machine.

Fig. 2 is a vertical longitudinal, mid-sectional view of Fig. 1.

Fig. 3 is an end elevational view of the adapter.

Fig. 4 shows an end elevation of the applicator as viewed from the distal end.

Like indicia of reference refer to like parts throughout the several views.

In the drawings, 1 designates the ultraviolet ray machine, 2 is the bezel thereof securing the lens 3 in position; the adapter 4 cups over the bezel 2 being secured in removable relation thereto by the screw 5 or in other suitable manner.

The cylindrical reducing member 6 pro-

jects to the right so as to form a socket for the inner end 7 of the applicator, said member being provided with the notches 8—8, well shown in Fig. 3 for reception of the nipples 9 and 10.

As shown in Fig. 4, which represents the applicator proper, it should be understood that all the material disposed within the circle 16 is adapted to carry said rays; whereas, the portion 16*a* is composed of ordinary glass or some suitable substance which is impervious to said rays so as to insulate the glans penis from the action of said rays and prevent its becoming burned during treatment. Said insulatory material may be confined merely to the guard 17 or it may extend to the end 7 as indicated by the dotted lines 7*a*, Fig. 2, a construction tending to cheapen production by the employment of ordinary glass for these parts instead of the more expensive quartz. An alternative construction would be to make said applicator entirely of quartz and coat the front of said guard with substance adapted to prevent the rays projecting forward beyond said guard.

The rear portion 7 is provided with the centering dimple 11 adapted to seat the point of the set-screw 12 or equivalent means for removably securing said applicator to said adapter in true axial alinement with the path of said rays.

The nipples 9 and 10 are enlarged at their outer ends for securing hose thereto, the nipple 9 is provided with the duct 13 descending concentrically therewith for a suitable distance and then turning to the right so as to form the outlet 14 in the taper portion 15 of the applicator, said portion being disposed with its base 16 extending to the right from the concave surface of the guard 17.

The nipple 10 is provided with the duct 18 of smaller diameter than the duct 13, as is well shown in Fig. 2, said duct extends upwardly through said nipple and then curves to the right with a slight elevation until meeting the central axis of the applicator at 19 whence the duct extends along said axis to form the inlet 20.

The method of treatment to be followed and the use of the adapter will now be fully described.

Assuming that a case of gonorrhea of the male is to be treated, then the applicator is first thoroughly sterilized, such as by boiling; after which, the end 7 thereof is inserted in the member 6 and secured by the set-screw 12 which seats in the dimple 11. The adapter 4 is then secured to the front of the ray machine 1 by means of the set-screw 5. As thus secured the respective nipples 9 and 10 fit back into the notches 8—8 with the nipple 9 uppermost. Now, by connecting the nipple 9 by an obviously applied hose, connection may be had with a suitable water supply.

The meatus of the patient is now forced over the distal end of the applicator until the head of the penis abuts against the adjacent surface of the guard 17. With the parts thus disposed, water or other suitable fluid may be admitted to the applicator through the nipple 9 so as to flow through the duct 13 and emerge through the opening 14 into the urethral canal 21, there being no escape for the water from said canal except by the greatly reduced duct whose inlet is 20, it follows that the urethral canal will dilate under fluid pressure and the relatively keen reflow jet will emerge from the nipple 10 thus producing the dual effect of washing away mucous matter and securing cleansed tissue and at the same time distending the urethral wall for free passage of said rays which may now be applied.

The above described treatment is practically painless; the tapered glass-smooth surface of the applicator can be inserted into the inflamed urethra without excessive distention or injury to the organ; the infected, mucous-laden walls are thereby cleansed and rendered fit for the radio-therapeutic action of the ultraviolet rays to exercise their well known lethal effect upon micro-organisms present.

My novel applicator is equally effective in the treatment of sinuses and other deep-seated areas of infection; other uses will suggest themselves to those who are familiar with the therapeutic properties of said rays.

I do not wish to be confined in the employment of my applicator to the use of the ultraviolet rays exclusively but desire to be protected in the use thereof with any radio-active or radiant energy that may, beneficially, be used therewith.

It is believed that the operation and advantages of the invention will now be clearly understood. The present embodiments of the invention have been disclosed in detail merely by way of example, since in actual practice they attain the features of advantage set forth as desideratums in the statement of the invention and the above description.

Numerous changes in the details of construction and in the composition and combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:—

1. A dual-purpose applicator of the kind described, comprising a one-piece structure the heart only of which is composed of substance penetrable by the ultraviolet rays as quartz, a rear end to fit an adapter means, an adapter means connecting said applicator with a source of radiant energy and in axial alinement with the path of said energy, inlet

means adapted for connection with a source of fluid supply, an inlet duct adapted to convey fluid toward the distal end of the applicator, an outlet for said inlet duct, a reflow duct adapted to carry fluid back toward said rear end of said applicator and outlet means therefor, said outlet being suitably smaller than said inlet as a means of restricting free flow of fluid through the applicator.

2. In an applicator as defined in claim 1, a solid rear portion capable of being suitably held in position by said adapter, perforate means for attachment of fluid supply means to the applicator, the former means communicating with said inlet duct.

3. In an applicator as set forth in claim 1, said rear portion of the applicator adapted to fit a reducing socket of said adapter, branched inlet and outlet stems disposed transversely of the applicator adjacent said rear end, notched means in said socket to accommodate said stems, a guard means forward of the stems, said guard constituting means whereby splash of fluid is controlled.

4. In an applicator in accordance with claim 1, inlet and outlet perforated stems having bulbous extremities adapted to secure inlet and outlet hose to the applicator.

5. In an applicator as particularized in claim 1, having a solid rear end adapted to engage with a reducing member of said adapter element, a depression means adapted for interengagement with a retaining means carried by said member.

In testimony whereof I affix my signature this 26th day of November, 1929.

FRANK R. HART.