Nov. 6, 1928. 1,690,926

J. H. DEQUER

ELECTRIC THERAPEUTIC APPLIANCE

Filed July 26, 1926

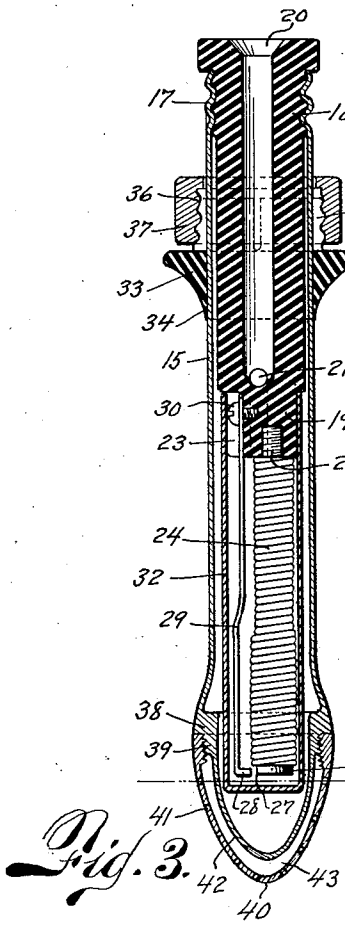


Fig. 3.

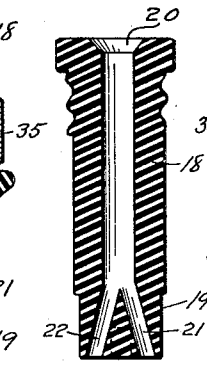


Fig. 5.

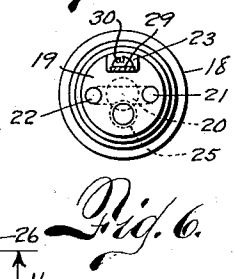


Fig. 6.

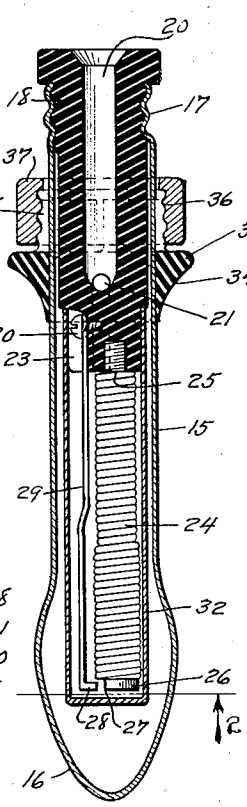


Fig. 1.

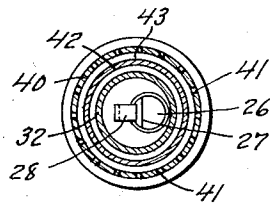


Fig. 4.

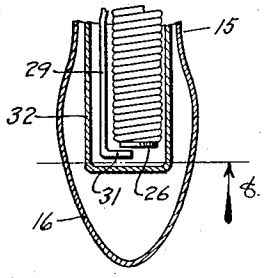


Fig. 7.

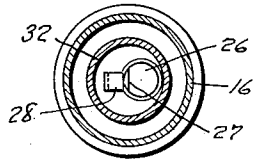


Fig. 2.

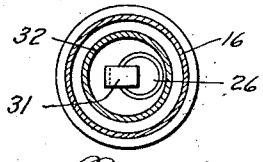


Fig. 8.

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UNITED STATES PATENT OFFICE.

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ELECTRIC THERAPEUTIC APPLIANCE.

Application filed July 26, 1926. Serial No. 125,048.

This invention relates to therapeutic appliances of the character of internal applicators, adapted for insertion within various orifices of the human body to locally treat affected parts or organs thereof.

The invention more particularly embodies improvements in the structural assembly form and functioning of internal applicators, both of themselves and when combined as an attachment appliance with an electric current reducing agency of any suitable character, such as electric heating blankets, or the like, and preferably a therapeutic blanket of the type substantially disclosed in a former application filed by me on November 28, 1924, under Serial No. 752,782, and also illustrated and described herein, the pertinency of all of which will hereinafter more fully appear.

Pathologically speaking, it is understood that stricture-like or contracted conditions of certain passages, channels or ducts, as well as congestion, ulceration, inflammation, glandular swelling, or analogous ailments of the rectal, vaginal and urethral passages, where such ailments occur, and likewise of the throat and nose in some relations, may be greatly alleviated by the application of dilating devices or applicators to the affected parts. From extended experimentation, I have found that responsiveness to such treatments is more speedily and effectively attained by the application of a mild heat to the affected part, during the dilating period.

The primary object of my invention broadly, therefore, has been to devise simple, comparatively inexpensive and effective internal applicators of the character aforesaid, essentially embodying an electrical circuit element encased within a sheathing or casing of suitable external conformation, adapted for the particular usage, whereby a mild or moderated heat may be locally applied to the affected part being treated, as auxiliary to treatment by dilation, and with the electrical circuit element preferably further functioning to establish a magnetic field, with the employment of the aforesaid physical vibrator extending longitudinally and vibrating laterally of said magnetic field.

The foregoing as well as other objects, features and advantages of the invention, however, will be more clearly apparent, it is believed, as incidental to the following disclosure, so that with these general outlining remarks reference will now be immediately had to the accompanying drawings, illustrating practical embodiments of the improvements, in which drawings

Figure 1 is a longitudinal sectional view through one form of a rectal dilator, embodying the broader features of my improvements, and Figure 2 is a cross-sectional view on the line 2 thereof; Figure 3 is an analogous view of a slightly modified form, additionally embodying a medicament receiving chamber, and Figure 4 is a cross-sectional view on the line 4 thereof; Figure 5 is a longitudinal sectional view of a wire-way plug support, taken at right angles to its position of illustration in Figures 1 and 3, and Figure 6 is a bottom plan view thereof and also showing the physical vibrator or elongated spring attached thereto; Figure 7 is a fragmentary view of the lower portion of Figure 1, showing a slightly modified disposition of the vibrator spring, which might also be applied to Figure 3, and Figure 8 is a cross-sectional view on the line 8 thereof.

To avoid substantially duplicated views on the drawings and lengthened description, I am only illustrating and describing the improvements as applied to rectal dilators; but it is to be emphasized at the outset that the essential features thereof are intended to be incorporated in internal applicators for other equivalent uses, such as prostate gland, vaginal, urethral, tonsilar and nasal applicators, the housing or outer shell to be varied or modified, with perhaps a slightly altered disposition of the encased elements, to meet the requirements of internal application for the various orifices of the body, as will be obvious. It is to be understood, therefore, that I do not confine my improvements specifically to rectal dilators, excepting as limitations may appear in the claims, as in the main my invention is intended to also comprehend the several other forms of internal applicators.

The numeral 15 designates a cylindrical housing or outer metallic casing, which in Figures 1 and 7 is shown as provided with an integrally formed hollow knob or insertion head 16 of appropriate oval-like shape, although this hollow head could be made detachable substantially in the manner shown at Figure 3.

The opposite end of the housing 15 encompasses a wire-way plug support 18, which latter may be formed of a suitable hard insulating substance, and the two elements are preferably detachably connected, as indicated by the threading 17, to permit of the ready detachment of the housing element for sterilizing or other purposes.

This plug support is provided with a suitable wire-way, as for instance a longitudinal bore 20 in communication with lower branching or forked bores 21—22, the lower end of the plug support terminating in a slightly reduced shoulder 19 that may be provided with a shallow recess 23 extending longitudinally of its periphery.

The numeral 24 designates the electrical circuit coil of a heating unit, the ends of the coil being connected in circuit with lamp cord wires, not shown, extending as will be understood through the wire-way 20—21—22, and provided with a switch control and plug-in element for attachment to a current reducing agency, such as any suitable rheostat or resistance means, but preferably a heating blanket or the like, which in turn is adapted for connection in circuit with an ordinary house current fixture.

This heating coil 24 is suspended from the plug support as by means of an electromagnetic core element, which could be a bundle of soft wires but is actually shown as a soft iron rod 25 that is threaded at its upper end into the terminal end 19, of the plug support, and is provided at its lower end with a disk-like head 26, which latter at Figures 1 to 4 is shown slightly cut away, as at 27, to form a shoulder that is adapted to be engaged, with a tapping-like contact, by the bent in or inturned lower free end 28 of an elongated vibrator spring 29, the upper end of said spring being seated in the recess 23 of the plug shoulder 19, and attached thereto as by a screw 30.

It may be conveniently stated here that the only difference in Figures 7 and 8, over the analogous arrangement of Figures 1 to 4, is that the inturned lower end 31 of the spring extends underneath the core head 26, not being designed for tapping the core head which tapping is not essentially necessary, and accordingly in this case the core head need not be shouldered or cut away, as is shown at 27 of Figures 1 to 4. In fact, the physical vibrator or spring element 29 itself is not strictly essential to the broader aims of the improvements, although in a more specific sense it is considered to be a material factor for the reasons herein stated.

In all cases, the heating coil 24 with the vibrator spring 29, when the latter is employed, should preferably be encompassed by a housing shell or internal protective casing 32 which may be of cylindrical form, closed at its lower end, and at its upper open end adapted to snugly fit over the reduced shoulder 19, of the plug support, in detachable connection therewith.

In order to control the appropriate degree of maximum insertion of the applicator, the outer housing 15 should be provided with a limiting stop or shoulder element, which could be fixedly carried by said outer housing. However, it may be very desirable and even expedient to vary such maximum degree of insertion, under varying conditions, and accordingly I prefer to employ an adjustable control element.

To this end, an abutment collar or shouldered element 33, preferably of hard rubber or the like, encompasses the outer housing 15 in snug fitting but longitudinally adjustable relation, the peripheral surface 34 of said abutment collar being preferably of downwardly concavely tapering or inverted conical-like formation, and the opposite end being formed with a tubular shank having end opening slots 35, providing for springy clamp sections, with the peripheral outer surface of said shank threaded, as at 36, to receive a clamping lock nut 37.

In the modified form of Figures 3–4, the hollow knob or insertion head is designed to provide for a medicament chamber, and the lower part of the applicator is accordingly made of two-part construction, or with the hollow head detachable. To this end, the lower portion of the outer housing 15 may be formed with an internal annular rib 38 having an externally threaded reduced shoulder 39 for the attachment of the hollow head 40, which is internally threaded at its upper end for this purpose. This hollow head 40, otherwise corresponding with the head 16 before described, is freely perforated by discharge orifices 41, and provides for a medicament chamber to receive a salve-like unguent or like medicine, for topical application, which is caused to flow or ooze through said orifices 41 when a mild heat is established by the heating coil arrangement. Although it may not be strictly essential, in order to maintain this medicine chamber out of direct association with the inner protective casing 32, the annular shoulder 39 may be formed with a continuing oval-like hollow extension 42, functioning as a partitioning wall to form the medicine chamber 43 between it and the perforated hollow head 40.

In order to couple up these applicators in the usual house lighting circuit, it is necessary to interpose a suitable resistance means, and as before stated I prefer to employ for this purpose a certain type of therapeutic blanket, for which the present improvements are attachments in combination, because of the additional beneficial results obtained in the treatment of patients.

In operation, when an alternating electric

current is caused to traverse the coil 24 of one of my improved internal applicators, a suitable resistance medium such as my improved blanket being interposed in the circuit, a mild heat is generated by the coil 24, which heat supplies soothing and curative aid to the affected part being treated, in addition to the benefits of dilation. Also, where the vibrator spring 29 is employed, the same is caused to rapidly vibrate laterally of the magnetic lines of force, distorting or disrupting the same as it were in the manner and for the purposes hereinbefore set forth, and finally in addition to the heat induced, when the spring end 28 is disposed in the plane shown at Figures 1–2–3–4, there is caused a physical vibration of the applicator by the tapping of the spring end against the head 26 of the soft iron magnetic core, which latter causes the applicator to additionally function in the manner of a mild massaging of the affected part or organ being treated.

Although I have thus made a complete disclosure of my improvements, and the preferred manner of their application in practical use, it will nevertheless be understood that I do not wish to unnecessarily restrict myself to all of the details exactly as shown and described, excepting as they may come within the terms of my claims, or equivalent elements and arrangements and combinations thereof, or as when fairly interpreted in the light of the specification if necessary.

What I do claim, as new and patentable, is:—

1. An internal applicator, of the character disclosed, comprising an outer casing, shaped for appropriate insertion within a desired orifice of the body, an elongated iron core extending longitudinally within said casing, an insulated heating coil encompassing said core, within said casing, and adapted to be energized by an alternating electric current, and a springy vibrator extending longitudinally along said coil and core, which vibrator is magnetically actuated thereby.

2. An internal applicator, of the character disclosed, comprising an outer casing, shaped for appropriate insertion within a desired orifice of the body, a wire-way plug detachably encompassed by the inner end of said casing, an elongated iron core depending from said plug, an insulated heating coil encompassing said core and adapted to be energized by an alternating electric current, a springy vibrator depending from said plug and extending longitudinally along said coil and core, which vibrator is magnetically actuated thereby, and an inner casing depending from said plug and housing said vibrator and coil within said outer casing.

3. An internal applicator, of the character disclosed, embodying an outer casing that is shaped for appropriate insertion within a desired orifice of the body and is provided at its insertion end with a medicine chamber, comprising an inset peripherally closed wall depending from said casing in spaced relation to a detachable outer wall section thereof that has exteriorly discharging orifices, a wire-way plug detachably encompassed by the inner end of said casing, an elongated iron core depending from said plug, an insulated heating coil encompassing said core and adapted to be energized by an alternating electric current, a springy vibrator depending from said plug and extending longitudinally along said coil and core, which vibrator is magnetically actuated thereby, and an inner casing depending from said plug and housing said vibrator and coil within said outer casing.

In testimony whereof, I affix my signature.

JOHN H. DEQUER.