

United States Patent

[11] 3,613,682

[72] Inventor **Richard Norman Naylor**
Clearwater, Fla.
[21] Appl. No. **8,878**
[22] Filed **Feb. 5, 1970**
[45] Patented **Oct. 19, 1971**
[73] Assignee **Concept, Inc.**
St. Petersburg, Fla.

2,994,324 8/1961 Lemos..... 128/303.18
3,152,590 10/1964 Zurdo et al. 128/303.18
3,234,356 2/1966 Babb 128/303.1
3,424,165 1/1969 Moss 128/405

Primary Examiner—Channing L. Pace
Attorney—Arthur H. Van Horn

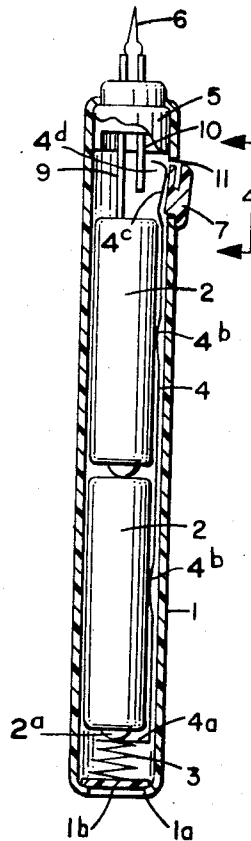
[54] **DISPOSABLE CAUTERIES**
6 Claims, 5 Drawing Figs.

[52] U.S. Cl..... 128/303.1,
128/405
[51] Int. Cl..... A61n 3/00
[50] Field of Search..... 128/303.1,
303.13, 303.18, 303.19, 355, 405, 406

[56] **References Cited**
UNITED STATES PATENTS

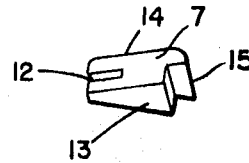
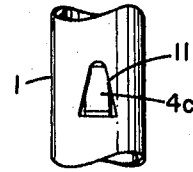
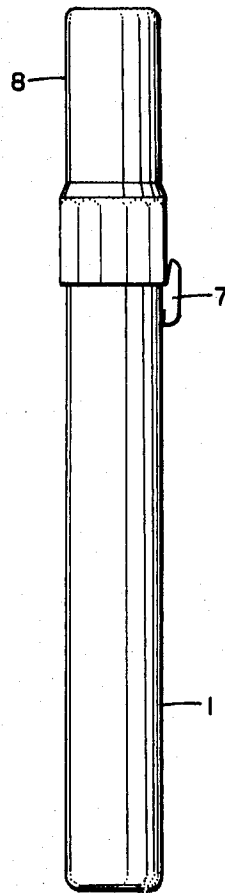
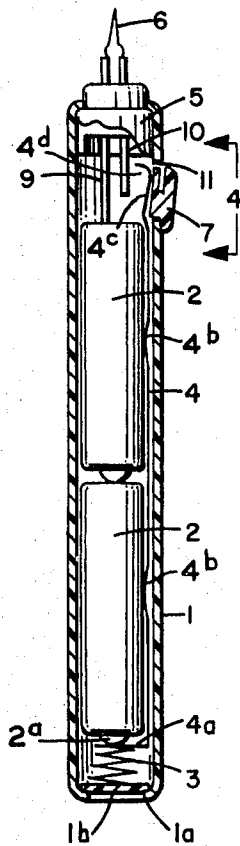
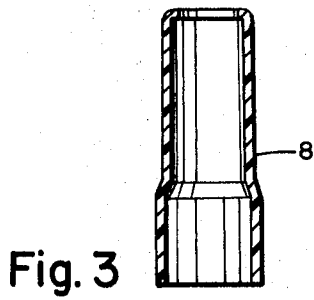
0,465,949 12/1891 Roovers et al. 128/406 X

ABSTRACT: A disposable hand-held portable cautery powered by self-contained energizers or batteries for energizing an electrode heating tip which is mounted in an insulating tube provided with a removable protective cap or cover encompassing the heating tip and the upper end of the tube, and the tube is further provided with a simple depressible latching or locking switch button on the tube, so that a portion of the button will frictionally overlies the adjacent end portion of the cap assembled thereon to thus prevent energization of the heating tip while the tube and cap are assembled.



3,613,682

PATENTED OCT 19 1971



INVENTOR
RICHARD NORMAN NAYLOR

BY *Arthur H. Jones*

ATTORNEY

DISPOSABLE CAUTERIES

NATURE AND OBJECTS OF THE INVENTION

This invention resides in a disposable, cordless cautery of the hot wire type particularly designed for single surgical use. The cautery is a self-contained battery or energizer-operated unit and is provided with an actuator button of unique construction which, in cooperation with an overcap or cover for the heating element, locks the cautery in "off" position to insure safety and to prevent accidental startup and also provides by its response to delicate touch immediate start and stop control by the physician handling the cautery.

The cautery shown here is a multiple cell battery type and is equipped with a hot wire tip on a shank length suitable for low or regular temperature use as in eye surgery. However, longer shanks and tips suitable for higher temperature use may be substituted for use in reaching beneath the skin surface.

DRAWINGS

In the drawings:

FIG. 1 shows the cautery with the protective cap in place on the tube and cooperating with the switch button on the shell to lock the same in "off" position.

FIG. 2 is a vertical section of the cautery unit.

FIG. 3 is a similar section through the protective cap or cover.

FIG. 4 is a fragmentary view of that portion of the shell receiving the switch button as shown in the direction of line 4-4, with the button removed.

FIG. 5 is a bottom perspective view of the actuator button.

DESCRIPTION

The cautery illustrated herein as an embodiment of the invention includes a rigid tube 1, preferably formed of a tough polyvinyl or similar substance to provide a container for one or more batteries or energizers 2, a compression means 3 for supporting the energizers in series electrical contact, a resilient conductor 4, a terminal-electrode-carrying plug 5, a heater tip 6, an activator switch button 7 and a protective cap or cover 8 telescopically and removably fitted over the plug upper end of the unit container to engage and lock the activator button in "off" position and to encompass the electrode plug 5 and its heater tip 6. It is contemplated that the energizers may also be employed in parallel or series-parallel relation.

More specifically, the container tube, which is a tough plastic, lightweight material, is closed at the bottom end by forming, as by rolling, an intumed annular flange 1a and inserting a closure disc 1b in the tube to rest upon the tube flanged open end.

The compression spring 3 is supported on the closure disc and exerts its force of compression upwardly against the lower intumed end 4a of the resilient conductor 4 which is in electrical contact with one of the terminals 2a of the lowermost energizer 2. Where a single energizer or even a multiple energizer is employed in series, as shown, the opposite uppermost energizer terminal is in electrical contact with an electrode 9 carried in the plug 5 which of course is formed of electrical insulating material. A second electrode 10 is also carried in the plug and electrically insulated from the electrode 9 by dielectric material of the plug. The outer terminal ends of the electrodes 9 and 10 extend upwardly beyond the plug and carry the wire heater tip 6 which is secured at its ends by staking, microwelding, or the like, to the respective terminal ends of the electrodes.

Resilient conductor 4 consists of a strip of resilient metal having an intumed lower end 4a, one or more depressed areas 4b abutting the insulated energizer wall and terminating at its upper end in a stressed contact portion 4c and an intumed arm 4d movable in a path toward and away from contact with the lower end of the electrode projecting below the base of the plug 5. Being under stresses normally urging the arm 4d out of contact with electrode 10, the arm is normally in the "off" position and, in order to move the arm to its opposite or "on" position, there is provided a unique actuator button 7.

The tube 1, as shown in FIG. 4, is provided with a substantially triangular opening 11 for receiving and supporting the button 7 at a location opposite the arm of the electrode 10, as illustrated in FIGS. 2, 4 and 5.

In FIG. 5, the button 7, per se, is shown as formed of a suitable dielectric material and is substantially triangular in shape, having a slot 12 formed inwardly from the apex end, thus bifurcating the button into a lower portion 13 engageable with the upper stressed end of the conductor 4 to move the arm 4d into electrical contact with the electrode 10 when the cap 8 is removed from the tube or withdrawn out of the path of movement of the button, and the button is manually depressed by applying pressure to the upper finger press portion 14.

The slot 12 is of slightly greater width than the thickness of the cap wall by a sufficient margin to allow the cap lower edge portion to enter the slot when the cap is telescoped over the upper end of the tube as shown in FIG. 1, thus preventing depression of the button out of its "off" position and at the same time encompassing and protecting the electrodes and the wire heating tip secured thereto.

The heel 15 of the button at the base thereof overlies the tube wall 1 at the base of the triangular opening 11 and is removably held in the opening by the heel 15 which acts as a fulcrum when the button is depressed. The button may be removed from the opening when the covering is off by a slight forward pressure on the heel and a downward pressure at the apex of the button against the upper end portion of the resilient conductor 4.

With the invention disclosed and described herein, it will be observed that this construction provides a unit which can be presterilized, is light in weight, sturdy and comprises a self-contained battery or energizer-operated hot wire heating element designed for simple surgery use. The increasing costs of presterilization and the incidence of cross infection are thereby eliminated. The unit also provides greater ease of handling and at the same time precludes damage to the hot wire tip when the cap is assembled on the tube by locking the button in "off" position, and thus prevents accidental startup or activation of the wire tip. With the cover removed, a gentle manual pressure on the button will activate the heating wire or deactivate it when pressure is released.

I claim:

1. The combination with a disposable, self-contained cautery comprising a tubular housing, a source of electrical energy contained within the housing, a wire tip mounted in the housing and projecting from one end thereof, and an on-off switch activator carried by the housing for operating electrical connections between the energy source and said wire heater tip, of a removable tip-protective cover telescopically receivable over said housing one end engageable with said switch activator when the cover is in telescoped position on the housing end to thereby block the switch activator in "off" position.

2. The invention defined claim 1, in which said switch activator is movable into "on" position under light finger pressure against the switch when the cover is removed from the housing.

3. The invention defined in claim 1 in which the on-off switch includes a control button mounted in an opening in a wall of the housing and adapted to be depressed under light finger pressure when the cover is removed from the housing.

4. The invention defined in claim 3 in which the control button is formed with a slot to receive the peripheral end portion of the cover when the cover is in telescoped position on the housing.

5. The invention defined in claim 2 in which the control button is provided with a heel portion opposite its slotted end, about which the button is fulcrumed under light finger pressure applied thereto to move to "on" position.

6. In a disposable, self-contained cautery, a tubular housing open at one end, a source of electrical energy within the housing, an electrode carrier plug formed of electrical insulating

3

material in the open end of the housing, a pair of electrodes secured in the plug material and extending at their ends in spaced relation beyond the respective upper and lower extremities of the plug, a wire heater tip connecting the said upwardly projecting electrode extremities, one of said lower electrode extremities having electrical contact with one side of said energy source, a removable cover cap for telescopically enclosing the electrode upper extremities and said tip, a spring-loaded conductor connected with the opposite side of the energy source and normally urged out of contact with said other electrode, said tubular housing having a substantially tri-

4

angular opening in its sidewall adjacent the lower extremity of said other one of said electrodes, and a substantially triangular-shaped switch button within said opening and operably by finger pressure to engage the spring-loaded conductor with said other electrode, said button having a bifurcating slot extending inwardly from the button apex portion to receive the lower edge portion of the cover member when assembled over the open end of the tubular housing, whereby to retain the spring-loaded conductor out of contact with said other lower electrode.

15

20

25

30

35

40

45

50

55

60

65

70

75