

July 19, 1949.

W. A. LOBDELL

2,476,612

ELECTRICALLY OPERABLE BURNING INSTRUMENT

Filed Aug. 7, 1946

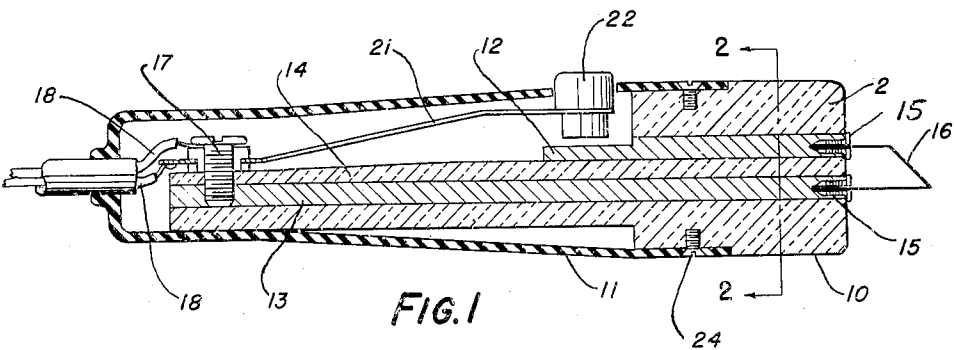


FIG. 1

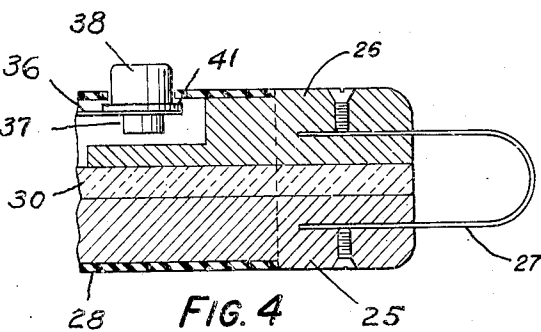


FIG. 4

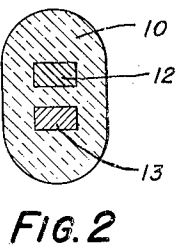


FIG. 2

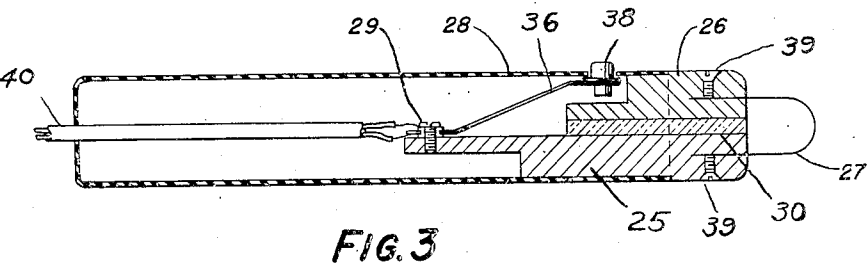


FIG. 3

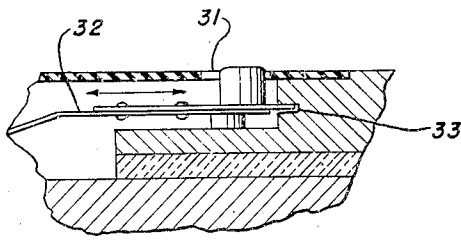


FIG. 5

INVENTOR.
WEBSTER A. LOBDELL
BY
W. H. Sullivan
ATTORNEY

UNITED STATES PATENT OFFICE

2,476,612

ELECTRICALLY OPERABLE BURNING INSTRUMENT

Webster A. Lobdell, Painesville, Ohio

Application August 7, 1946, Serial No. 688,855

1 Claim. (Cl. 219-29)

1

This invention relates to instruments adapted to be used for wood etching, leather tooling and the like, and more particularly to an instrument of this type which is electrically operable under low voltage through a finger tip control.

Instruments of this type are commonly used for etching wood, tooling leather, caponizing roosters, and making incisions in boils or wind puffs on animals. Frequently instruments of this general type are used by children and operable from a conventional electric light outlet with resultant danger of burning furniture or rugs if left plugged in after use. Further, these instruments operate under relatively high voltage with resultant possibility of shock injury to a user in the event of a short or breakage of the heating element or wire.

I devised an instrument of this general type which is provided with a finger tip control whereby the circuit will be broken when not in use and which is adapted to operate on low voltage such as $1\frac{1}{2}$ to 6 volts. The instrument is preferably comparable to a fountain pen in size, the heating element is quickly replaceable, and the construction is simple and economical of manufacture.

It is a primary object of the invention to provide a burning instrument having an electrically heated element which minimizes danger of fire or injury to a user.

Another object of the invention is to provide an instrument of this type which has a finger tip control switch.

Another object of the invention is to provide an instrument of this type adapted to operate at low voltage.

Another object of the invention is to provide an instrument of this type wherein the heating element is quickly and easily replaceable.

Another object of the invention is to provide an instrument of this type having relatively few parts and which are economical of manufacture and assembly.

Other objects of the invention will be apparent from a consideration of the following description and drawings wherein:

Fig. 1 is a longitudinal medial sectional view of an instrument embodying the invention.

Fig. 2 is a transverse section taken along line 2-2 of Fig. 1.

Fig. 3 is a longitudinal medial sectional view of a modified construction.

Fig. 4 is an enlarged fragmentary section of the construction illustrated in Fig. 3, and

2

Fig. 5 is a fragmentary section showing a modified finger tip control switch.

Referring now to the drawings, and particularly Figs. 1 and 2, I have indicated generally at 2 a unitary body formed of suitable insulating material comprising a front portion 10 generally elliptical in cross-section and a rearwardly extending portion 14 of reduced vertical thickness. Portion 10 has an upper slot 12 through to tightly receive a conducting strip 12 and a lower slot which extends through portion 14 to receive a conducting strip 13. Contacts 15 are mounted in the ends of strips 12 and 13 and may comprise screws each having a bore therein and a slot at one side of the bore whereby the ends of a heating element 16 may be tightly gripped by the contacts.

One lead 18 from a suitable power source is connected to lower strip 13 by a screw 17 and the other lead 18 is connected to a push button 22 by a resilient conducting arm 21 which is secured to body 2 by screw 17. A handle or housing 11 formed of insulating material is secured to body 2 in any suitable manner as by screws 24. In assembling the parts described the strips 12 and 13 may be pressed into the body 2, the handle 11 will be telescoped over the leads 18 a sufficient distance to expose the ends of the leads permitting the upper lead to be connected to strip 13 and the arm 21 to be mounted by means of screw 17, and the handle 11 may then be slid forwardly along the leads and secured to body 2. The push button 22 which has the upper or finger contact portion insulated may then have the reduced or conducting portion press fitted within a hole formed in the end of arm 21 to interlock the push button and arm.

The leads 18 are connected to a transformer, storage battery, or dry cell to provide low voltage such as from $1\frac{1}{2}$ to 6 volts. It will now be understood that upon pressing button 22 downwardly to engage strip 12 that a circuit will be established through heating element 16 whereby the heating element may be guided to etch wood, tool leather, treat boils or the like on animals, and for similar operations. Of course, the circuit will only be maintained while pressure is applied on button 22 preventing danger of burning furniture, rugs or the like when not in use. Further, the low voltage used minimizes danger to an operator in the event of a short circuit through breakage of the heating element wire.

Referring now to Figs. 3 and 4 I have shown a modified construction wherein a generally

semi-circular metal conducting strip 25 is insulated from an upper generally semi-circular metal conducting strip 26 by a strip of insulating material 30. The contact arm 36 is insulated from conducting strip 25 but is mounted thereon by a screw 29 which also connects one power lead to strip 25, the other lead being connected to arm 36. The free end of arm 36 has a contact 37 fixed to the under side thereof in any suitable manner which is adapted to engage strip 26 and complete a circuit through heating element 27 when the free end of arm 36 is depressed by push button 38. The unit illustrated in Figs. 3 and 4 is preferably assembled as follows. The power leads and the arm 36 are secured to strip 25, the strips 25, 26 and 30 are then held assembled by a chuck or the like. The handle 28 formed of insulating material is generally cylindrical in form with an open end adapted to telescope over reduced portions of strips 25 and 26 and abut shoulders formed thereon, the opposite end of the handle being closed except for an opening through which the power lead conduit 40 is projected. The push button 38 has an enlarged flange 41 thereon and the push button is inserted through the open end of the handle and the reduced portion thereof projected through the opening provided therefor in the handle with the flange 41 abutting the inner wall of the handle and maintained by turning the handle to have the push button lowermost. The conduit 40 is then projected through the handle and the handle moved towards the right (Fig. 3) whereby the flange 41 of the push button will engage the horizontal portion of contact arm 36 and the open end of the handle will tightly engage strips 25 and 26. The ends of heating element 27 are inserted in holes provided therefor in strips 25 and 26 and secured by screws 39.

The device illustrated in Fig. 1 may be assembled in the same general manner by employing push button 39 instead of push button 22.

Fig. 5 shows a modified form of finger tip control which may be adapted to the constructions of Figs. 1 and 3 wherein the contact arm 32 may be locked in circuit closing position eliminating the necessity for continued finger pressure on the push button during use. This may be effected by providing an elongated slot in the upper end of arm 32 and mounting the push button on a strip which is loosely connected to the arm 32 by projecting rivets through the slot whereby the strip may be moved longitudinally to engage a groove 33 formed either in portion 10 of body 2 or strip 26 to lock the arm 32 in circuit closing position. An elongated slot 31 is provided in the

handle to permit withdrawal of the strip from groove 32 whereby the circuit may be opened.

The instrument may be of any desired size but I find that approximately fountain pen size is convenient for the uses intended. The handle may be formed of phenolic resin or any highly heat resisting plastic and may have any desired cross-sectional contour such as circular, hexagonal or square. The conducting strips may be formed of aluminum, brass, stainless steel or any metal forming a suitable electrical conductor. The heating element may be formed of copper, brass, silichrome or the like wire having high tensile strength and which will not easily break. The contact arm is preferably formed of phosphor bronze spring material or the like with a silver contact point.

Although I have shown and described preferred forms of my invention I contemplate that numerous and extensive departures may be made therefrom without departing from the spirit of my invention and the scope of the appended claim.

What I claim is as follows:

In an instrument of the type described, the combination of an elongate body of insulating material having an enlarged head portion, the body having an axial perforation co-extensive thereof, the head portion having an axial perforation therethrough spaced from the other perforation, a first conducting strip in the head portion perforation and extending rearwardly thereof, a second conducting strip in the other perforation, a screw projecting through the insulating material and engaging the second conducting strip, a resilient contact arm having one end secured by the screw, means insulating the arm from the screw, a button contact at the free end of the arm depressible to engage the second conducting strip, an electrical lead secured to the screw, an electrical lead secured to the contact arm, a generally cup-shaped housing encasing the contact arm and extending from the leads to the head portion, the button contact projecting loosely through the housing, and a heating element secure to said strips at the head portion.

WEBSTER A. LOBDELL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,033,897	Jenkins et al. -----	Mar. 10, 1936
2,101,913	Meyer -----	Dec. 14, 1937
2,120,598	Beuoy -----	June 14, 1938