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Wahl et al.

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[54] **CORDLESS ELECTRIC IGNITION TOOL**

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[73] Assignee: **Wall Clipper Corporation,** Sterling, Ill.

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[52] **U.S. Cl.** **219/268;** 30/140; 128/303.14; 219/233; 219/240; 219/270; 317/95; 317/98

[51] **Int. Cl.**[2] **F23Q 7/16;** H05B 1/00

[58] **Field of Search** 219/221, 227, 230, 233, 219/235–241, 260–270, 533; 317/79, 95, 98; 128/303.1, 303.13, 303.14; 30/140

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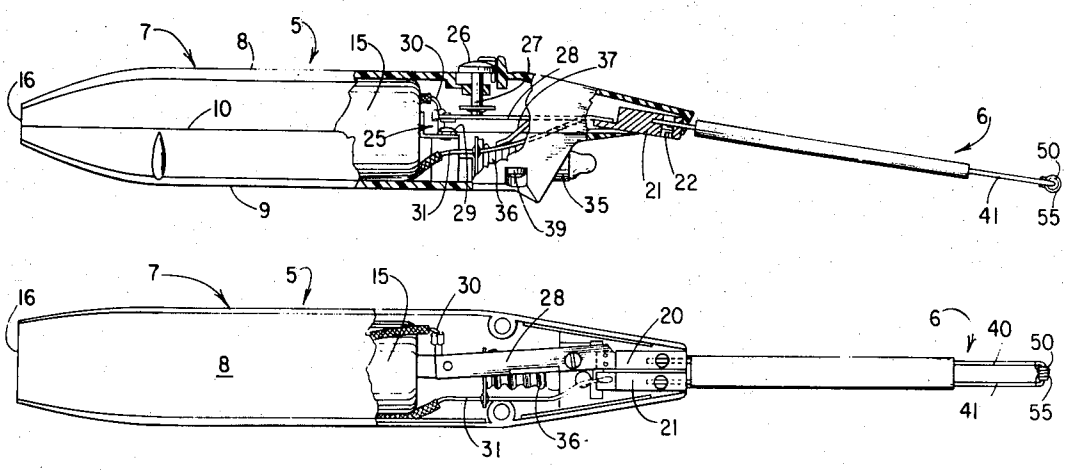
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Attorney, Agent, or Firm—Edward U. Dithmar

[57] **ABSTRACT**

A cordless electric igniton tool having a handle portion comprising a housing containing a battery, a pair of terminals and a normally open switch in circuit with the battery and the terminals. A pair of elongated electrical conductors extend from the terminals, the free ends thereof being bent at right angles toward each other. An electrically conductive tube extends along and in electrical contact with a major part of the length of each conductor for stiffening the conductor and for increasing the electrical conductivity thereof. Electrical insulation is provided between the tubes to keep them apart and around the tubes for safety. A supporting member is mounted on the inturned ends of the conductors, and resistance heating wire is carried on the supporting member and connected to the conductors, the heating wire on closure of the switch having a temperature above 1400° F., whereby the tool is capable of igniting lamps, candles, cigarettes, cigars, pipes, gas stove burners and the like.

4 Claims, 4 Drawing Figures



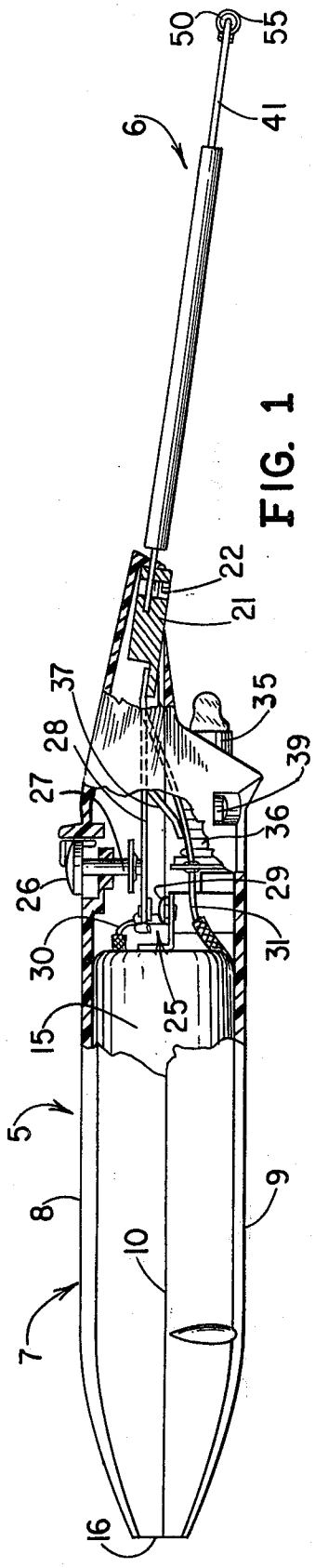


FIG. 1

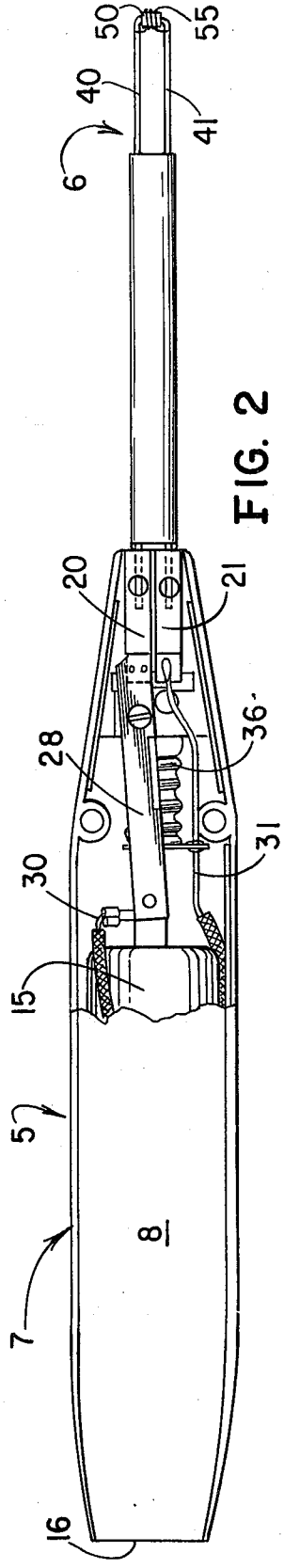


FIG. 2

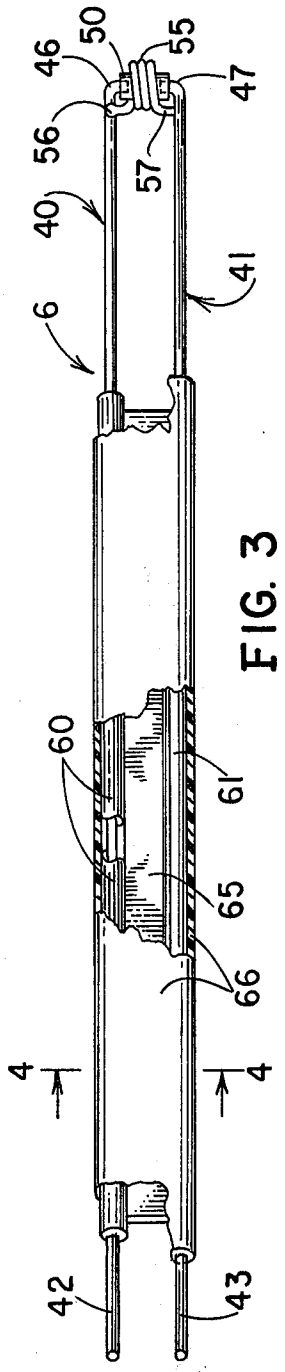


FIG. 3

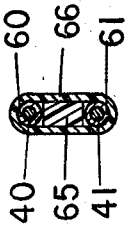


FIG. 4

CORDLESS ELECTRIC IGNITION TOOL

BACKGROUND OF THE INVENTION

This invention relates to a cordless electric ignition tool, and more particularly to a portable tool for igniting lamps, candles, cigarettes, cigars, pipes, gas stove burners and the like.

The handle portion of the invention which comprises a housing containing a battery, a pair of terminals and a switch in circuit with the battery and terminals is substantially the same as that shown in co-pending application of William M. Walton for Soldering Iron Tip Assembly and Cordless Soldering Iron Embodying Same, Ser. No. 401,060, said co-pending application and the instant application having common ownership.

SUMMARY OF INVENTION

The invention contemplates a cordless electric ignition tool comprising a housing, a battery in the housing, a pair of terminals insulated from each other in the housing, a normally open switch in the housing in circuit with the battery and terminals and a pair of elongated electrical conductors connected to the terminals and extending therefrom away from the housing. The free ends of the conductors carry a heatable assembly, and the conductors themselves are capable of retaining shape at the temperature encountered during use.

The heatable assembly comprises a supporting member of heat resistant, electrically insulating material mounted on the free ends of the conductors. Resistance heating wire is carried by the supporting member and connected to the conductors, the heating wire on closure of the switch generating a temperature above 1400° F.

In more detailed aspect, the supporting member consists of ceramic material, and, in preferred form, is of tubular shape.

In the form of the invention shown, each of the elongated conductors is enclosed for the most part by a tube of electrically conducting material for purposes of stiffening and additional conductivity. Electrically insulating material is disposed between the tubes for the purpose of spacing, and around the tubes for purposes of safety.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a side elevational view, partly broken away and partly in section, of a cordless electric ignition tool embodying the invention.

FIG. **2** is a top view, partly broken away, of the tool shown in FIG. **1**.

FIG. **3** is an enlarged plan view, partly broken away and partly in section, of the ignition portion of the tool used in a preferred embodiment of the invention.

FIG. **4** is a sectional view on line **4—4** of FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawing, the cordless electric ignition tool of the invention includes a handle portion generally designated **5** and an ignition portion generally designated **6**.

Handle portion **5** comprises a housing **7** of insulating material. As shown, housing **7** is split longitudinally in two parts **8** and **9**, the junction line being shown at **10** in FIG. **1**.

A battery **15**, preferably a rechargeable battery is

mounted rearwardly in housing **7**, suitable charging terminals (not shown), if used, being located at rear end **16** of the housing.

A pair of adjacent terminals **20** and **21** are mounted at the forward end of housing **7**, the terminals being electrically insulated from each other. Each terminal has a longitudinal opening in its forward end, and a transverse threaded opening adapted to receive a set screw **22** (FIG. **1**).

A normally open switch generally designated **25** (FIG. **1**) is mounted within housing **7** and actuated by an external button **26**. Button **26** has a stem **27** bearing on resilient switch member **28**, and when the button is depressed, the contact on member **28** closes on fixed contact **29**.

Switch **25** is connected in circuit with battery **15** and terminals **20** and **21** by means of conductors **30, 31** and switch member **28**.

In the form of the invention shown, housing **7** carries a forwardly facing lamp **35** mounted in a socket **36**, the socket being connected in the circuit by means of conductor **31** and conductor **37**. Thus, lamp **35** is energized when switch **25** is closed.

Screw **39** (FIG. **1**) is one of a plurality of fasteners holding the two parts **8** and **9** of housing **7** together.

Ignition portion **6** of the tool of the invention, best shown in FIGS. **3** and **4**, comprises a pair of elongated conductors **40** and **41**, the conductors being formed of material such as steel, which is capable of retaining shape at the temperatures encountered during use. Conductors **40** and **41** have rear ends **42** and **43** respectively received within the logitudinal openings in terminals **20** and **21**, the set screws **22** in the terminals securing the conductor ends in place. The free ends of conductors **40** and **41** are bent toward each other as shown at **46** and **47** in FIG. **3**.

A supporting member **50** of heat resistant, electrically insulating material is mounted at the free ends of conductors **40** and **41**. Member **50** has openings at opposite ends, and the inwardly bent ends **46** and **47** of the conductors are received within these openings.

Supporting member **50** preferably is made of ceramic material, and, in the form of the invention shown, has tubular shape.

Resistance heating wire **55** is mounted on supporting member **50**, and, as shown, member **50** carries three turns of wire **55**. Ends **56** and **57** of resistance heating wire **55** are connected respectively to conductors **40** and **41**.

Still referring to FIG. **3**, elongated tubes **60** and **61** of electrically conducting material such as brass respectively enclose major intermediate lengths of elongated conductors **40** and **41**. Tubes **60** and **61** effectively stiffen the conductors and provide additional conductivity.

Electrically insulating material **65** is disposed between tubes **60** and **61** to keep the tubes apart, and additional insulating material **66** encloses material **65** and the tubes **60** and **61** for safety, as shown in FIGS. **3** and **4**. Insulating material **65** and **66** may be integral or separate, as desired.

Resistance heating wire **55** is selected to generate a temperature in excess of 1400° F., and this elevated temperature is developed almost immediately when switch **25** is closed. Comparatively little drain of the battery is experienced in an instance of use for most ignitions, and virtually all heating takes place at the point

of use. Thus, the tool is highly efficient electrically, and many ignitions can be made before battery **15** needs to be recharged or replaced.

From the above description it is thought that the construction and advantages of this invention will be readily apparent to those skilled in the art. Various changes in detail may be made without departing from the spirit or losing the advantages of the invention.

Having thus described the invention, what is claimed as new and desired to secure by Letters Patent is:

1. A cordless electric ignition tool, comprising:

a housing;

a battery in said housing;

a pair of adjacent terminals electrically insulated from each other in said housing and electrically connected to said battery;

a normally open switch in said housing in circuit with said battery and said terminals;

a pair of elongated unitary electrical conductors electrically connected to said terminals and extending therefrom away from said housing, said conductors capable of retaining shape at high temperature;

a supporting member of heat resistant, electrically insulating material having spaced openings, the free ends of said conductors being received within said openings whereby the supporting member is supported at the free ends of the conductors;

resistance heating wire on said supporting member electrically connected to said conductors, said heating wire on closure of said switch heating to a temperature above **1400** degrees F.;

tubes of electrically conducting material on said elongated unitary electrical conductors extending the major part of the length of said conductors and in electrical contact therewith for stiffening said conductors and for additional conductivity; and

electrical insulating material between and enclosing said conductive tubes.

2. The ignition tool of claim **1** wherein said supporting member consists of ceramic material.

3. The ignition tool of claim **1** wherein the free ends of said conductors are bent toward each other.

4. The ignition tool of claim **3** wherein said supporting member has tubular shape.

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