Jan. 26, 1932. A. L. ELIASOFF 1,842,471

ELECTRICALLY ILLUMINATED TOOL DEVICE

Filed June 13, 1930

FIG. 1

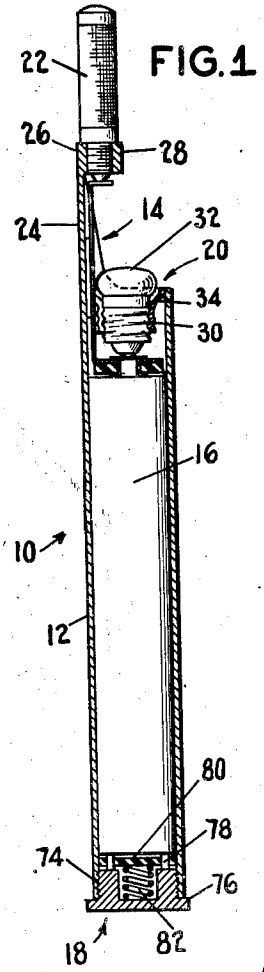


FIG. 3

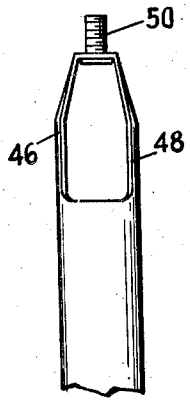


FIG. 2

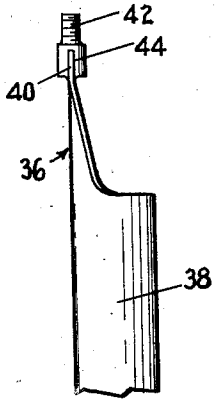


FIG. 5

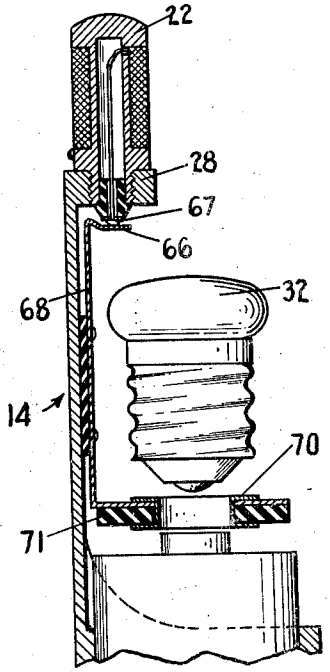
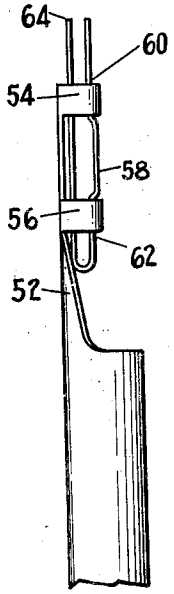


FIG. 4



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Patented Jan. 26, 1932

1,842,471

UNITED STATES PATENT OFFICE

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ELECTRICALLY ILLUMINATED TOOL DEVICE

Application filed June 13, 1930. Serial No. 460,971.

This invention relates to electrically illuminated tool devices.

The particular application of the invention is concerned with the provision of illuminating means for tools or instruments such as safety razors, or for use in conjunction with magnets, either of the permanent type or those in which a solenoid is used to magnetize soft iron core. The uses contemplated are such as where a magnet would be used for the removal of steel or iron splinters from eye-balls, or for similar purposes, in which the conjunction of the light directing source and the specific tool or instrument to be used are essential.

In a specific embodiment of the invention, as herein disclosed, the object of the invention is to provide a casing of substantially one-piece construction within which casing the battery for actuating the lighting means, and in a desired case, the electro-magnet, is housed. An integral portion extends from the casing and is designed to support any one of a plurality of different types of tools. The support provided is substantially rigid but does not in any manner, limit the removability of the tool and the replacement thereof with some other tool suitable for use in the combination related.

A further object of the invention is to provide in conjunction with apparatus of the type above set forth, a means for simultaneously connecting, in circuit with an electrical energy source, housed within the casing, both the electric lighting means and another electrically operated tool which may be mounted upon the casing for co-operation with the electric lighting means.

Another object of the invention is to provide apparatus of the type hereinabove set forth which is simple in its construction, lends itself to economy and ease in manufacture, and which requires little skill in its use.

Other objects will be apparent from the specification, and the drawings herein, which are made a part thereof, or will be specifically pointed out therein.

The invention is not intended to be restricted to the construction and arrangement of parts herein shown and described, nor to the specific methods of operation, nor to the various details thereof, as the same may be modified in various particulars without departing from the spirit and scope of the invention, some practical embodiments of which have been herein illustrated and described without attempting to show all the various forms and modifications in which the invention might be embodied.

On the drawings, in which are disclosed several preferred embodiment of the invention,

Fig. 1 is a longitudinal sectional view of a combination electric lighting means and tool holder, embodying the invention, parts thereof being shown in elevation.

Fig. 2 is a detail elevational view of a portion of the combination device, showing a modified form of the tool holder.

Fig. 3 is a detail elevational view of a still further modified form of the tool holder portion of the combination.

Fig. 4 is a detail elevational view of another modified form of the tool holder portion of the combination.

Fig. 5 is a detailed assembly view of an electro-magnet designed for use in conjunction with the tool holders above set forth, but more especially for use with the tool holder of Fig. 1.

In the specific embodiment of the invention disclosed in Fig. 1, the combination electric lighting device and tool holder 10 is seen to consist of a casing 12, a tool holding portion 14, an electric battery 16, a combination base and switch member 18, an electric light bulb retaining means 20 having an electric light bulb assembled therein, and any suitable tool for cooperation with the apparatus, such as the electro-magnet 22.

The particular assembly and the relation of the parts therein are not to be taken to be conclusive of the extent of the invention herein, since as it will appear from the description hereinafter, the construction might be varied without departing from the spirit of the invention. In the specific embodiment of the invention of Fig. 1, the casing 12 is preferably made from a piece of metallic tubing, the diameter of the bore of which is such

as to receive snugly therein the electric battery 16 which may take the customary form of a battery made up of a plurality of dry cells arranged in end to end relation, with the positive electrode of one in contact with the negative electrode of an adjacent cell.

The casing is preferably cut away at one end thereof so as to leave remaining an integral extension 24 which may be shaped, in any desired manner, for ornamentation, and to assure the necessary rigidity for the tool holding portion 14 of which it forms a part. The end 26 of the extension may have a strip of the metal running circumferentially of the tube left intact therewith, which strip may then be bent to form an ear 28, the internal diameter of which would be less than the diameter of the threaded portion of the tool which is to be connected with the tool holder. Preferably, the end of the strip would be anchored to the extending portion in any well known manner, such as by soldering such end to the extending portion, after which the ear may be drilled and tapped for the purpose of providing a threaded receiving element with which the tool may readily be assembled, or from which it may readily be detached.

At the point of junction of the extension 24 with the body of the casing, means, such as a socket 30, is seated within the bore of the tube and preferably takes the usual form of an electric light bulb receiving and retaining socket with which an electric light bulb 32 of any customary type may readily be assembled, or from which the bulb may be separated at will.

Preferably, the socket is slightly enlarged at the outer end thereof where is positioned the opening into which the bulb end is inserted for making the necessary electrical connection. The tube at the point of junction thereof with the extension 24 is spun, or otherwise worked so as to provide a substantial ledge 34 upon which the enlarged end of the socket may rest. In one embodiment of the invention, the socket may be forced down through the tube against the edge so that the natural elasticity of the metal will cause it to bind against the walls of the tube and to make electrical contact therewith. Further spinning of the metal at point of junction may be resorted to in order to insure perfect retention of the socket by the tube metal. However, if it is desired to insure electrical connection between the socket and the tube walls, for purposes hereinafter appearing, and also, simultaneously, to fix the socket more firmly in position relative to the tube wall, soldering of the edge to the ledge may be resorted to.

In Fig. 2 is illustrated another form of the tool holding portion in which case the extension 36 may be formed integral with the body portion 38 of the tube, in the same manner as above described. However, for this modification, the extension is not bent away from the circumference of the tube, but is merely cut away to provide the pointed end 40 upon which may be seated any such means such as the machine screw 42, the slot 44 of which has been seated over the end 40 and secured integrally therewith by means of soldering or the like. In this manner, there is provided a screw with which may be assembled, in a well-known manner, such implements as a safety razor, screw-driver, and other similar implements and instruments which might be associated for use in conjunction with the light directive means of the light bulb and the battery therefor.

If desired, the construction of Fig. 1 may be formed with an extension such as shown at 36, and an internally threaded bushing or similar means is secured to the extension by soldering or the like.

In the modification of Fig. 3, the tube wall is seen to have been cut away in such manner as to leave extending therefrom two portions 46 and 48, disposed substantially diametrically opposite each other. The ends of the portions are bent inwardly toward each other so that semi-circular cut outs in the ends of each of the portions may be brought into mating relation to form an opening. A threaded pin 50 is then positioned through this opening, the head of the pin providing a stop to position the same relative to the portions 46 and 48. Preferably, the opposed ends of the portions are brazed or otherwise united firmly to each other and the pin 50 is soldered or otherwise firmly and securely assembled with the brazed ends of the portions.

In the modification disclosed in Fig. 4, the extension 52 has assembled therewith in any suitable manner two bushings 54 and 56, the openings through which are aligned and are preferably unthreaded. The opening of the outer bushing 54 is sufficiently large to receive therethrough the enlarged projection 58 of the spring member 60, the end 62 of the member being adapted to seat in the bushing 56. Pressure is applied to the spring member until the enlarged projection may be slipped through the opening of the outer bushing. The spring member is then pushed through the bushing until the end 62 seats in bushing 56 and the projection 58, when the projection has passed beyond bushing 54 and pressure is released from the member, rests snugly between the bushings to retain the member anchored in position relative to the extension. One end 64 of the spring member may be formed to receive thereon a suitable tool such as a mirror for use in dentistry, or the like. Such tools are thus made capable of ready and immediate assembly with and disassociation from the support.

In one preferred embodiment of the invention, as shown in Figs. 1 and 5, an electromagnet is assembled with the apparatus in

such fashion that the solenoid of the electro-magnet derives its power from the same energy source as the electric light bulb, that is, the dry cell battery housed in the casing. In the construction herein, the electro-magnet 22 may be assembled upon the ear 28 in the same manner as an electric light bulb is assembled with its socket, so that a conductor may be led away from the screw mounting to the electro magnet, which is thus electrically connected with the casing wall. A spring finger 66 may be assembled on the extension and be insulated therefrom so that the end of the electro-magnet, which has an insulated electrode 67 extending therefrom, may be brought into contact with the finger which is electrically connected with an insulated electrical conductor 68, conductor 68 extending down along the extension and then through a suitable opening in the edge portion of the light socket to terminate in electrical connection with a metallic bushing 70. The bushing 70 is preferably seated in a disc 71 of fibre or similar insulating material and may be positioned on the end of the battery so as to make electrical contact with the electrode exposed at that end.

In this relation, it is to be noted that it is desired that the carbon electrode be positioned adjacent the electric light bulb and the bushing 70 so that the latter may encircle the electrode, as shown, and permit the end of the electric light bulb to make electrical contact with the extending end of the electrode in the usual manner. The introduction of the bushing 70, in this manner, eliminates interference with the assembly of the electric light bulb. For this purpose, therefore, the conductor 68 is secured to the body of the socket and of the tube in such manner as to support the bushing transversely of the tube and to position the opening of the bushing 70 centrally of the tube. Preferably the bushing and the disc retaining the same are of slightly smaller diameter than the tube proper so that the disc will be retained centrally of the tube.

The end 74 of the tube is internally screw-threaded to associate therewith the screw-threaded flange 76 of the base 18. Extending from the base are a pair of pins 78, extending through openings in an insulating disc 80. A spring 82 between the disc and the base serves to retain the battery pressed against the contact of the light bulb. When the base is rotated in a predetermined direction, the pins 78 will be moved transversely through the disc and make and break contact with the bottom surface of the battery, which constitutes the other electrode thereof, thereby making and breaking the circuit of the battery and the light. Since the base is received snugly and in metallic and electrical contact with the walls of the tube, the contacting of the electrode and the pins provides a simple switching mechanism for the operation of the electrically energized means associated with the device.

As many changes could be made in the construction herein involved, and many widely different embodiments of the invention designed without departing from the scope of the invention, as defined in the accompanying claims, the matter set forth by the above description may be interpreted as illustrative of operative embodiments of the invention and not in a limiting sense.

I claim:

1. A combination illuminating appliance and electrically operated tool comprising a single integral member providing a casing for an electrical energy source, a receptacle for an electrical illuminating device, and a support for an electrically operated tool, said energy source consisting of an electrodynamic cell, one electrode of which is contacted by said illuminating device, and means encompassing said electrode for coupling said electrically operated tool to said energy source, insertion of said energy source into said casing connecting said electrode to said illuminating device and said tool.

2. A combination illuminating appliance and electrically operated tool comprising a single integral member providing a casing for an electrical energy source, a receptacle for an electrical illuminating device, and a support for an electrically operated tool, said energy source consisting of an electrodynamic cell, one electrode of which is contacted by said illuminating device, and means encompassing said electrode for coupling said electrically operated tool to said energy source.

3. A combination illuminating appliance and electrically operated tool comprising a single integral member providing a casing for an electrical energy source, a receptacle for an electrical illuminating device, and a support for an electrically operated tool, said energy source consisting of an electrodynamic cell, one electrode of which is contacted by said illuminating device, and means associated with said receptacle for coupling said electrically operated tool to said energy source.

4. A combination illuminating appliance and electrically operated tool comprising a single integral member providing a casing for an electrical energy source, a receptacle for an electrical illuminating device, and a support for an electrically operated tool, and means associated with said receptacle for coupling said electrically operated tool to said energy source.

5. A combination illuminating appliance and tool holder consisting of a metallic tubular body and a portion integral with and extending from said body, said body having means therein for retaining an electric lighting device to project light therefrom at said

tool holder, said extending portion having a pair of aligned ears thereon, and a spring device for supporting a tool thereon constructed to be snapped into position between said ears.

In testimony whereof he has affixed his signature.

ABRAHAM L. ELIASOFF.