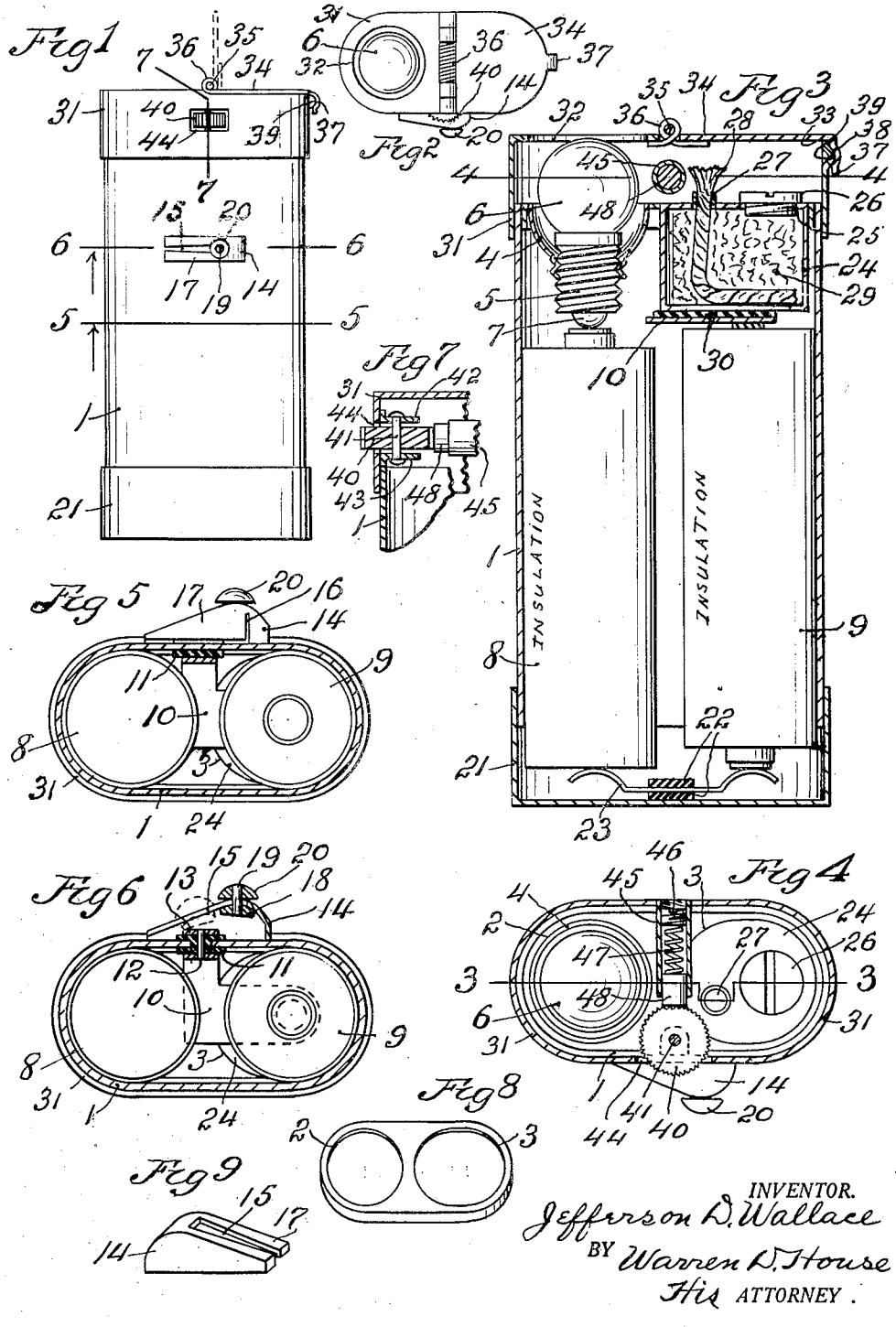
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FLASHLIGHT SWITCH

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INVENTOR.
Jefferson D. Wallace
BY Warren D. House
His ATTORNEY.

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FLASHLIGHT SWITCH

Jefferson D. Wallace, Kansas City, Mo., assignor of one-half to John C. Wallace, Minerva, Tex.

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2 Claims. (Cl. 200—60)

My invention relates to improvements in flash light switches.

The object of my invention is to provide an electric switch mechanism of novel construction, which is adapted for use in connection with a small portable battery casing, and which is simple, cheap, strong, durable, not likely to get out of order, is easy to operate, and efficient in its operation.

My invention provides further a novel circuit closer particularly well adapted for use in a flash light circuit.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawing, which illustrates the preferred embodiment of my invention,

Fig. 1 is a side elevation of a combined lighter and flash light provided with my improved switch mechanism.

Fig. 2 is a reduced top view of the same.

Fig. 3 is an enlarged vertical section on the plane of the line 3—3 of Fig. 4.

Fig. 4 is a section on the line 4—4 of Fig. 3, with the wick omitted.

Fig. 5 is an enlarged cross section on the line 5—5 of Fig. 1, the battery cells being shown not sectioned, looking upwardly.

Fig. 6 is an enlarged cross section on the line 6—6 of Fig. 1 the battery cells not being sectioned, looking upwardly.

Fig. 7 is an enlarged section on the line 7—7 of Fig. 1.

Fig. 8 is a perspective view of the top of the body of the casing, reduced.

Fig. 9 is a perspective view of one of the switch elements.

Similar characters of reference designate similar parts in the different views.

My flash light switch is provided with a casing consisting of a tubular metal body 1 of elliptical cross section having an open bottom and a closed upper end having two openings 2 and 3, the opening 2 having secured in it the upper end of an arcuate reflector 4 having a threaded hole in its lower end adapted to have removably fitted in it the outer terminal 5 on the stem of an electric light bulb 6 of usual type having an inner terminal 7 projecting downwardly from the stem of the bulb.

The bulb 6 projects above the upper end of the body 1, so as to be adapted to be gripped for inserting and removing the bulb.

Reversely disposed in the body 1, and insertable therein and removable therefrom at the open lower end of the body are two battery cells 8 and 9, disposed side by side, and each having its terminals at its respective ends. The upper terminal of the battery cell 8 bears against the inner contact terminal 7 of the bulb 6. The upper terminal of the cell 9 bears against a contact comprising an angular conductive plate 10, which is attached to the inner side of one side of the body 1, but insulated therefrom by insulation 11, by means of a rivet 12 which extends through but is insulated from the body 1, and is fastened at its outer end to a contact plate 13, which is also insulated from the body 1 by the insulation 11.

Covering the contact 13 is a conductive housing 14 which is fastened to and in conductive engagement with the outer side of the body 1. One end of the housing 14 is rounded and raised from the body 1. The housing converges toward the other end, and is provided with a slot 15 which also converges toward said end.

One side of the housing 14 is transversely slit at 16, Fig. 5, and the portion at the left of the slit 16 and designated by 17 is not attached to the body 1 and is free to be moved laterally outwardly by a contact 18 which is slidable against the inner side of the sloping portion of the housing 14, and is adapted to be moved from an open position, shown in solid lines in Fig. 6, to a closed position, shown in dotted lines in said figure, in which closed position it will contact with the contact plate 13, thereby closing the circuit between the body 1 and the contact plate 10. The contact 18 is fastened to the inner end of a rivet 19 which extends through the slot 15 and is attached at its outer end to a thumb button 20 which has sliding engagement with the outer side of the housing 14.

Removably slidably fitted on the lower open end of the body 1 is a closure 21, upon the inner side of which is fastened, but insulated therefrom by insulation 22, a resilient conductive plate or member 23 which bears against the lower terminals of the cells 8 and 9, Fig. 3. The plate 23 holds the battery cell 8 and the battery cell 9 respectively against the inner terminal 7 and against the contact plate 10. It also serves to connect in series the cells 8 and 9.

Upon moving the thumb button 20 from the open position, shown in solid lines in Fig. 6 to the dotted position, shown in said figure, the contact 18 will bear against the contact plate 13, thus closing the circuit. The current passes from battery cell 9 through the plate 23, cell 8, terminal 7, filament of the lamp bulb 6, outer terminal 5, reflector 4, body 1, housing 14, contact 18, rivet 12, contact plate 10, back to cell 9, thereby lighting the lamp.

Upon slipping the thumb button 20 back to the open position, the circuit will be opened.

The cells 8 and 9 are covered with insulation, as shown.

In the hole 3 in the upper end of the body 1 is secured the upper end of a liquid fuel container 24, Figs. 3, 4, 5, and 6, adapted to contain liquid fuel, such as alcohol or gasoline or other volatile liquid, which is inserted through an opening 25 in the top of the container 24, which opening is normally closed by a screw 26, Fig. 3. The container 24 is provided with another opening 27, in its top, through which extends upwardly above the container 24 a wick 28. To prevent spilling of the liquid fuel, the container 24 may be filled with an absorbent material, such as cotton 29.

The container 24 has its bottom disposed so as to serve as an abutment against which the contact plate 10 has a bearing when pushed upwardly by the battery cell 9 through the agency of the spring plate 23. Insulation 30 is disposed between the container 24 and the contact plate 10, Fig. 3.

Removably fitted on the upper end of the body 1 is a cover 31, which is provided with an opening 32 in its top that registers with the bulb 6, whereby light from the bulb may be projected outside the cover 31. The top of the cover 31 is provided also with an opening 33 over the container 24 and registering with the wick 28. The opening 33 is normally closed by a lid 34 hinged to the top of the cover 31, adjacent to the middle of the latter, by a pintle 35 around which is disposed a coil spring 36, one end of which bears against the under side of the lid 34, and the other end of which bears against the under side of the top of the cover 31. The tension of the spring 36 is such as to normally force the lid 34 to the open position, shown in dotted lines in Fig. 1. For holding the lid closed, any suitable means may be employed. As shown in Figs. 1 and 3, such means consists in a downwardly turned projection 37 provided at the edge of the free end of the lid 34, which projection has at its inner side a recess 38 adapted to releasably lockingly engage a projection 39 on the adjacent end of the cover 31.

By pushing upwardly on the projection or lip 37, the latter will be released from the projection 39, and the spring 36 will swing the lid 34 to the open position for access to the lighted wick, or to the screw stopper 26.

For igniting the vapor discharged from the wick 28, the following described mechanism is employed.

A disk like abrading member 40 is rotatably mounted on a vertical axis comprising a vertical pin 41, Fig. 7, having its ends respectively mounted in two brackets 42 and 43 fastened to the inner side of one side of the cover 31 respectively above and below an opening 44 in said side of the cover 31. The periphery of the abrading member 40 is roughened, and a portion of said peripheral portion of the member extends outwardly through the opening 44, whereby the abrading member 40 may be rotated from the exterior by hand.

Longitudinally alined with the opening 44 is a transverse tube 45 having one end spaced from the periphery of the abrading member 40, and having its other end fastened in and extending through the opposite side of the cover 31, said other end being internally threaded and having fitted removably and longitudinally adjustable therein a screw 46 against which bears one end of a coil spring 47 in the tube, the other end of said spring bearing against the adjacent end of a cylindrical flint 48 longitudinally slidable in the tube 45 and bearing at its other end against the roughened periphery of the abrading member 40.

When it is desired to ignite the vapor discharged from the wick 28, the lid 34 is opened and the operator revolves the abrading member 40, which on revolving against the flint 48 will make sparks which will ignite the vapor. Upon closing the lid, the lighted wick will be extinguished.

Upon removing the screw 46 and the spring 47, a new flint may be inserted into the tube as a substitute for the flint that has been in use.

The end of the flint 48 which has frictional contact with the roughened periphery of the abrading member 40 is closely adjacent to the wick 28, so that the sparks thrown from the flint will at once ignite vapor issuing from the wick 28.

The reflector 4 is so shaped as to project the rays falling thereon from the bulb 6, through the opening 32 in the cover 31.

Upon removing the cover 31, the bulb 6 is accessible for removal from the reflector 4, and for the substitution of another bulb.

Upon removing the bottom closure 21 fresh battery cells may be substituted for those contained in the body 1.

The operator while holding the body 1 in one hand can with that hand open and close the lid 34, operate the abrading member 40, and move the circuit closing button 20 to and from a position closing the circuit in which are located the battery cells 8 and 9, and the bulb 6.

By mounting the abrading member 40 and the flint 48 and spring 47, contained in the tube 45, in the cover 31, an integral structure is provided which is adapted for mounting on or removal from the body 1 as a unit.

The cover 31 serves the double function of protecting the bulb 6 from breakage and for protecting the wick 28 and extinguishing the flame from the wick, as well as a support for the igniting elements.

The container 24 performs the double function of holding the fuel liquid and as an abutment limiting the upward movement of the battery 9, so as to remove the strain from the contact plate 10.

I do not limit my invention to the structure shown and described, as many modifications of my invention, within the scope of the appended claims, may be made without departing from the spirit of my invention.

What I claim is:—

1. In a device of the kind described, the combination with an electrically conductive casing, of electrically conductive means in said casing extending through the wall of said casing and insulated therefrom, a conductive housing mounted on the exterior of said casing and conductively connected therewith and covering the exterior portion of said conductive means and having a slot which converges toward said exterior portion, said housing at one side of said slot having a portion outwardly movable, and circuit closing means extending through and slidable in said slot and including a contact in and slidably engaging said housing and movable to and from contact with said exterior portion of said conductive means, said circuit closing means when being moved from the open to the closed position forcing said outwardly movable portion outwardly, whereby movement of said circuit closing

means to the closed position is resisted by said housing.

2. In a device of the kind described, the combination with an electrically conductive casing, of electrically conductive means in said casing insulated from and extending through the wall thereof, a conductive housing on the outer side of said casing and conductively connected therewith and covering the exterior of said conductive means and having an outwardly converging slot and an outwardly movable portion at one side of said slot, a contact in and slidably engaging said housing and movable therein to and from pressing contact with said conductive means, and manually operable means attached to and adapted to so move said contact and extending outwardly through said slot and having said portion which extends through said slot of greater diameter than the outer end portion of said slot, whereby when said contact is moved thereby to the closed position, said outwardly movable portion of said housing will be forced outwardly, and when said contact is moved from the closed to the open position, said housing will prevent the contact moving accidentally to the closed position.

JEFFERSON D. WALLACE.