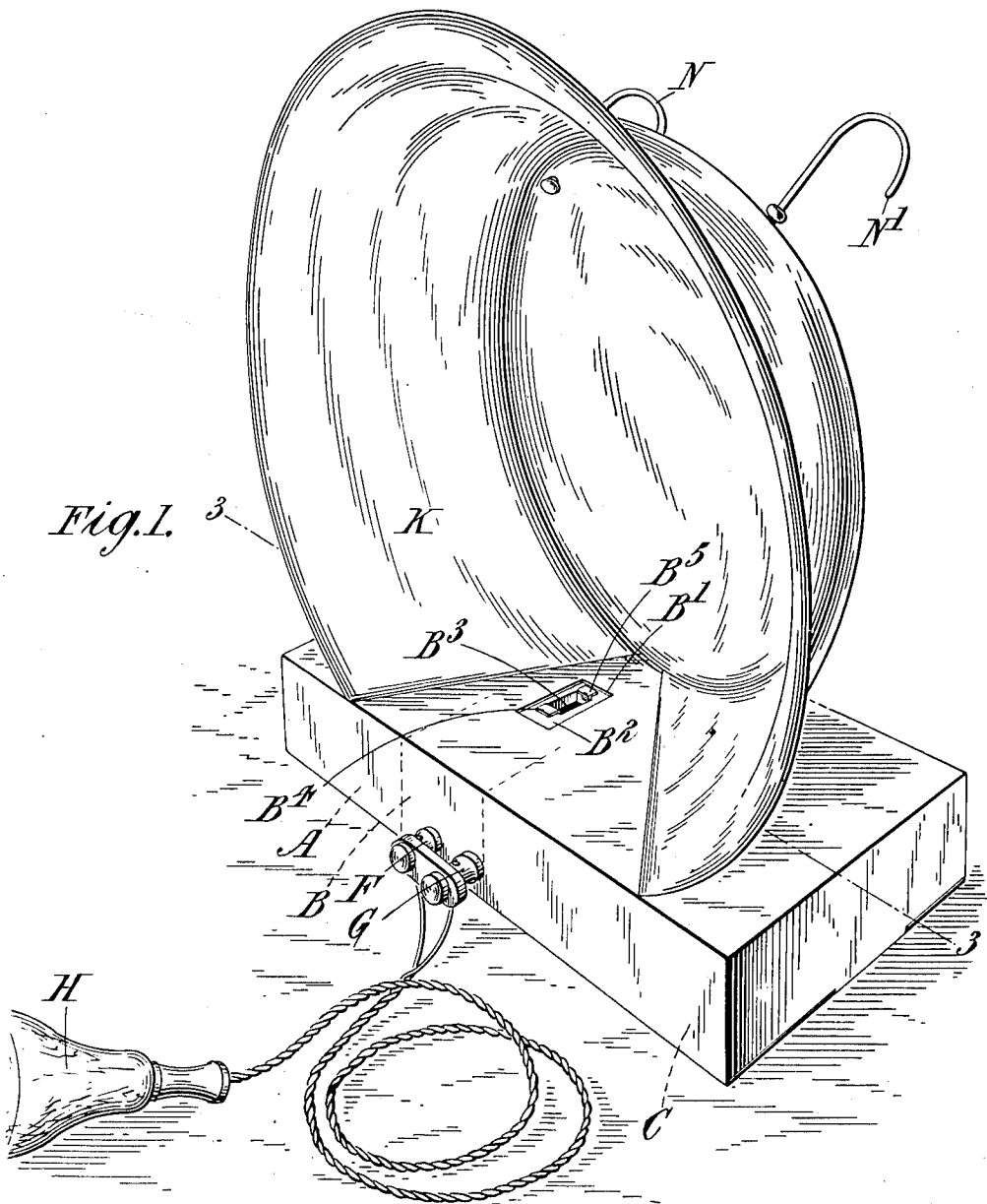


W. BALE.
ELECTRICALLY CONTROLLED IGNITING DEVICE.
APPLICATION FILED JAN. 20, 1912.

1,034,951.

Patented Aug. 6, 1912.

2 SHEETS-SHEET 1.



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Fig. 2.

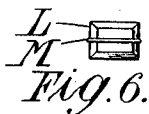
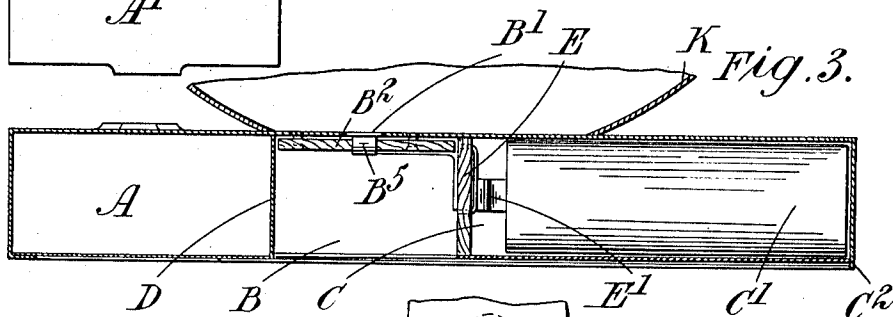
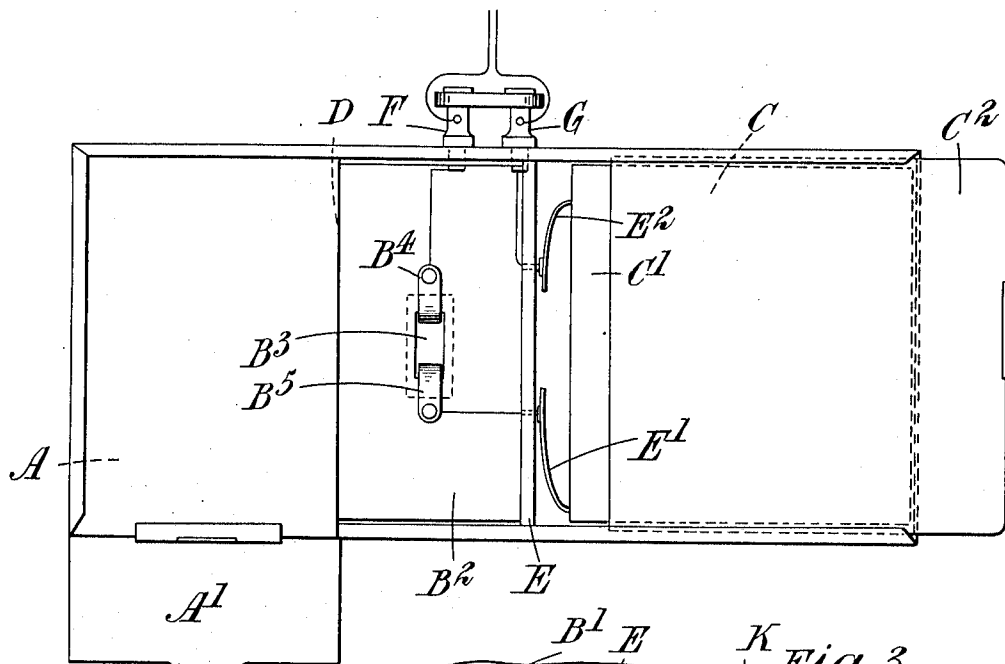
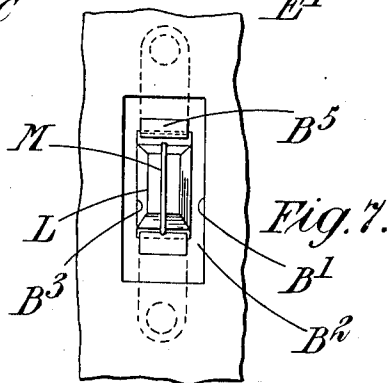


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM BALE, OF TOOTING, ENGLAND.

ELECTRICALLY-CONTROLLED IGNITING DEVICE.

1,034,951.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed January 20, 1912. Serial No. 872,381.

To all whom it may concern:

Be it known that I, WILLIAM BALE, subject of the King of England, and residing in Tooting, Surrey, England, have invented certain new and useful Improvements in Electrically-Controlled Igniting Devices, of which the following is a specification.

The present invention relates to electrically controlled devices for igniting material such as are used in flashlight photography, or for scenic or other purposes, and hereinafter referred to as flashlight apparatus, and the object of the invention is to provide apparatus of this type wherein the charge ignited thereby shall be more quickly and thoroughly ignited than heretofore, and to produce a portable form of apparatus.

The invention relates to the type of apparatus wherein a switch, a standard, and an igniter tray for holding the charges of flashlight material ignited by electrical means are employed. Portable apparatus has previously been used consisting of a battery and holder, a non-flashing igniter wire, and a tray, but to extend the usefulness of this apparatus we provide, according to this invention, a complete electrically controlled flashlight apparatus made in the form of a single portable unit comprising a reflector, battery and battery holder, a detachable igniter plug, and an igniter tray; a magazine for new igniters and flash charges, may also be included as part of the unit.

It is known to use a detachable igniter member in the form of a non-rigid wedge-shaped plug bearing a fusible filament and inserted between electrical contacts.

A further feature of this invention relates to a special form of plug hereinafter described.

According to another feature of the present invention, it is preferred to use metallic filament lamp wire preferably of tantalum, on the igniter plug, as this gives a large initial flash immediately it is traversed by the current.

Further features of the invention will be hereinafter more fully described.

In the accompanying drawings which illustrate one form of flashlight apparatus according to the present invention—Figure 1 is a perspective view of the apparatus; Fig. 2 is an under plan of the base with the door open and lid partly pulled out; Fig. 3 is a sectional elevation of the base only on the

line 3—3 of Fig. 1; Fig. 4 is a front elevation of the igniter; Fig. 5 is a side elevation, and Fig. 6 is a plan of the same; and Fig. 7 is an enlarged view showing the igniter in position in the aperture in the igniter tray.

Like reference letters refer to like parts throughout the drawings.

The apparatus comprises a box-like base preferably of sheet metal divided into three compartments A, B, and C by partitions D and E. These partitions D and E may be insulating. The compartment C is intended to receive the battery C¹ and is fitted with a sliding lid C² which gives ready access to the interior of the compartment C if the battery requires attention. The compartment A may receive a drawer but in the construction illustrated a hinged door A¹ is provided; this compartment is intended to constitute a magazine for carrying a stock of igniters and of packets of charges of the flashlight material. Upon the partition E, which in the construction illustrated is shown as being made of insulating material, are fixed two resilient contact terminals E¹ E² which engage with the terminals of the battery C¹ in the usual way when the latter is inserted into the compartment C.

The base of the compartment B is open as will be seen from Fig. 3 and the top of this compartment which constitutes the igniter tray is provided with an aperture B¹. Immediately underneath the top of the compartment B is a plate B² of insulating material having an aperture B³ situated immediately under the aperture B¹ but smaller than the latter; a clearance of metal parts is thus left around the aperture B³. On opposite sides of the aperture B³ are contact members B⁴ B⁵, the contact member B⁵ being electrically connected to the terminal E¹ as shown in Fig. 2. On the outside of the compartment B are binding posts F and G electrically connected with a switch plug H. The post F is also connected to the contact member B⁴ and the post G to the terminal E².

Above the base above referred to is arranged a reflector K of any suitable shape preferably basin-like in form and having a flat portion at one side whereby the reflector is mounted upon the base in any suitable manner, as for instance by soldering, if the reflector and framework of the base are of metal which is preferably the case.

The gap between the contact members B⁴ B⁵ is bridged by a detachable igniter preferably of the form shown in Figs. 4 to 6. This consists of a plug L, preferably of wood, tapered so that it may be wedged in the aperture B³ between the members B⁴ B⁵. The plug L carries a strip M of metallic-filament lamp wire which is arranged in such manner that when the plug L is inserted in the aperture B³ so that its upper extremity carrying the strip M is exposed within the reflector, the strip M engages and electrically connects the contact members B⁴ B⁵. As will be apparent from Fig. 2 the strip M when thus inserted in place will be in series with the battery C¹, and the circuit will be completed when the switch plug H is operated.

N N¹ indicate hooks by which the apparatus may be suspended when desired; these hooks may be arranged to swivel in the reflector.

It is preferred to pack the charge of flashlight material in conical or other shaped packets which are themselves formed of a highly inflammable material such as rice paper, and when it is desired to prepare the apparatus for use the apex or corner of a packet is torn off and a little of the powder sprinkled around the strip of wire M, the packet containing the remainder of the powder being placed on the igniter tray close to the strip M.

The use of metallic-filament lamp-wire is advantageous, since it gives a large initial flash as it is instantly consumed at each usage, and this is found to give a better flashlight effect by igniting the whole charge practically simultaneously than is possible with wires that merely melt or burn comparatively slowly.

The operation of the flashlight apparatus is as follows:—An igniter L carrying a strip of wire M is placed in the aperture B³ and a packet of flashlight powder is placed in position as already described. The operator with the switch H in his hand may be at any suitable distance from the flashlight apparatus and at an appropriate time may close the circuit by operating the switch H so as to ignite the flashlight powder.

Although one specific method of carrying out the invention has been described many modifications may be made without departing from the spirit thereof, for instance, the particular form of the igniter may be modified in many ways, as also may the shape of the reflector, the battery holder and the igniter magazine. Moreover, the igniter tray need not necessarily be disposed

between the battery holder and the igniter magazine.

A device has been described above which is more particularly adapted for igniting flashlight material, such as powder, but the metallic-filament wire may be used as an exploder for charges in general, *e. g.* for military work, or a wire of magnesium or any other conducting substance which during combustion provides sufficient light for photographic or other purposes may be substituted for the metallic-filament lamp wire. According to this latter modification no powder is required as the electric current is actually passed through the magnesium conductor so as to cause the latter to become incandescent and eventually to burn.

It will be seen that the apparatus described above is portable and always ready for use as all the parts can be moved as a single unit and the plug can be instantly replaced after each use; moreover, it is found to be eminently suitable for photographing moving objects, such as people dancing in a ballroom. As the apparatus moreover can be actuated from a distance the operator can use it to photograph himself separately or in a group.

What I claim as my invention and desire to secure by Letters Patent is:—

An apparatus comprising a rectangular casing providing a support; a partition in said casing providing a magazine chamber; a second partition of insulating material providing an intermediate and a battery chamber; electric terminals secured to said second partition; a battery located within said battery chamber and engaging said terminals; a plate of insulating material secured against the underside of the top wall of the intermediate chamber; said wall and plate provided with registering apertures; electric terminals secured to said insulating plate and projecting through said apertures; electrical connections between the aforesaid terminals; a plug for inserting in said apertures and bridging its respective terminals; a reflector mounted on said supporting casing; and means for closing, from a remote point, a circuit through said terminals and the plug, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM BALE.

Witnesses:

JOSEPH YOUNG,
WALTER PEARSON.