

N^o 23,483



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COMPLETE SPECIFICATION.

Improvements in Apparatus for Producing Flash Lights.

We, SIMON DORAN ALTER, of 700, Passyunk Avenue, in the City of Philadelphia, State of Pennsylvania, United States of America, Book-keeper, and LEWIS TORRENCE YOUNG, also of No. 700, Passyunk Avenue, in the City of Philadelphia, State of Pennsylvania, United States of America, Merchant, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

One object of our invention is to provide an apparatus for producing lights for photographers which is perfectly safe from risk of premature or accidental ignition or explosion of the flash powder, a further object being to provide for the use of an electric igniter in such manner that the explosion of the powder will not destroy or injure the same.

We will describe our invention with reference to the accompanying drawings, in which,

Figure 1, is a sectional elevation of a flash light apparatus for photographers constructed in accordance with our invention and Figures 2, 3, and 4, are views illustrating modifications.

1 represents a box or casing containing an electric battery 2 of any desired construction, either primary or secondary. In the present instance we have shown a two cell battery having its - pole connected to a socket 4 on the casing and its + pole connected to a post 10 on a partition 12 in the casing.

Another post 11 on the said partition is connected to another socket 5 on the casing the said sockets 4 and 5 being adapted for the reception of plugs forming the terminals of wires 6 and 7 which lead to a push button 9 so that when the circuit is closed by the operation of the said push button it will render incandescent a platinum wire 13 which connects the posts 10 and 11.

Mounted upon suitable supports in the casing 1 above the partition 12 is a plate 14 preferably of sheet metal and upon this plate the flash powder is placed, the plate having an opening for the reception of one end of a fuse 15, preferably of inflammable cotton or other suitable material, the opposite end of which is in contact with the platinum wire 13.

In preparing the apparatus for use the plate 14 is removed and one end of the fuse 15 put in place in contact with the platinum wire 13 and the plate then returned to its position within the casing the other end of the fuse being drawn through the opening in the plate so that the flash powder may be piled around the exposed end of the fuse, as shown in Figure 1.

All of this may be done before the plug terminals of the push button wires have been applied to the sockets 4 and 5 of the casing so that there is absolutely no risk, of premature or accidental explosion while the flash powder is being placed in position. The plug terminals of the push button wires being applied to the sockets 4 and 5, the powder can be exploded by pressing the push button, which effects the heating of the wire 13 and the ignition of the fuse.

It will be observed that the mass of flash powder is separated from the electric

[Price 8d.]

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igniter by the interposed plate 14 which prevents contact of said flash powder with the igniting device, so that the heat and shock caused by the explosion of the powder will not destroy or injure the delicate platinum wire of the said igniting device; thereby overcoming an objection to electrically ignited flash light apparatus hitherto in use in which the explosive powder was applied directly to the platinum wire which thus received the full heat and force of the explosion and was almost invariably melted or ruptured thereby.

While we prefer in all cases to use the plate 14 to prevent the shock of the explosion from reaching the igniting device, the separation of the igniting device and the powder may be effected without the use of the plate if desired by simply locating the mass of powder at a point remote from the igniter and connecting the two by means of the fuse, as shown in Figure 2.

A sparking device may, if desired, be employed instead of the incandescent wire as the igniting device, thus in Figure 3 we have shown a sparking device in which an elastic tongue 16, projects from the post 10, while the post 11 carries a lever 17 one arm of which normally projects over the outer end of the finger 16, while its other arm carries the armature of an electro magnet 19 and is acted upon by a spring 20 tending to retain the parts in the position shown in Figure 3.

The arm 17 may have a pocket 21 for receiving one end of the fuse 15, the other end of the said fuse projecting through the opening in the plate 14, when the latter is used so as to communicate with the mass of flash powder piled on the said plate or, if desired, the fuse may simply be laid upon the finger 16 and lever 17 so as to be ignited by the spark produced when, after having been depressed, by the swinging downward of the lever 17, the free end of the finger 16 is released and springs backward.

The operation of the lever 17 may be effected by energizing the magnet 19 by a current controlled by the push button, a suitable induction coil being connected to the posts 10 and 11 so as to produce the desired spark.

The fuse may consist of a small portion of the flash powder leading from the igniter to the main mass of powder, if the powder is such that the explosion of a limited quantity of the same at the igniter will not generate heat or shock sufficient to injure or destroy the igniter, but the use of the special fuse is preferred in all cases.

In order to prevent the accidental ignition of the flash powder such as might be caused by the handling of the push button by ignorant or mischievous persons after the wires 6 and 7 have been connected to the casing, we provide the said push button with a cap 22 which must be removed before access to the moveable terminal of the push button can be had, and to still further guard against accident we provide the said push button with a slide 23 of insulating material which is inserted between the fixed and moveable terminals and which must be removed before the push button can be operated, so that even if the cap 22 is removed the push button cannot be operated until the slide 23 is also removed, and, as the presence of this slide is not likely to be known to anyone except the person in charge of the flash light apparatus, there is practically no risk whatever of premature ignition of the powder.

The apparatus, is of compact form and of simple construction, hence it can be sold at a moderate price and is not liable to get out of order.

When the incandescing wire 13 is located above the plate 14 on which the mass of flash powder is deposited, the said wire may, if desired, be protected from the destructive effects of the explosion, by means of a plate 25 pivotted to suitable studs or posts 26, as shewn in Figure 4, this plate being lifted in order to permit of the application of the fuse 15 to the wire, and being then lowered so as to rest upon the fuse as shewn.

When the fuse burns away from beneath the plate, the latter will before the explosion of the powder, fall into contact with the plate 14 and will thus be interposed between the powder and the wire in order to prevent the shock of the explosion from reaching the said wire.

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Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed we declare that what we claim is:—

5 1st. A flash light apparatus in which are combined an electric igniter separated from and free from contact with the mass of flash powder, and a fuse connecting said electric igniting device with the powder, substantially as hereinbefore described.

10 2nd. A flash light apparatus in which are combined an electric igniter separated from and free from contact with the mass of flash powder, and a non-explosive fuse connecting said electric igniting device with the powder substantially as hereinbefore described.

15 3rd. A flash light apparatus in which are combined an electric igniting device a plate interposed between the same and the mass of flash powder, and a fuse extending in both directions from said plate and connecting the electric igniting device with the said mass of flash powder, substantially as hereinbefore described.

20 4th. A flash light apparatus in which are combined an electric igniting device, a plate upon which the flash powder is deposited, and which separates the flash powder from the igniting device, and a fuse extending from the igniting device through an opening in said plate and into the mass of flash powder deposited thereupon, substantially as hereinbefore described.

5th. A push button for an electrically ignited flash light apparatus, said push button having a detachable plug of insulating material interposed between the fixed and moveable terminals thereof substantially as hereinbefore described.

Dated this 8th day of November 1898.

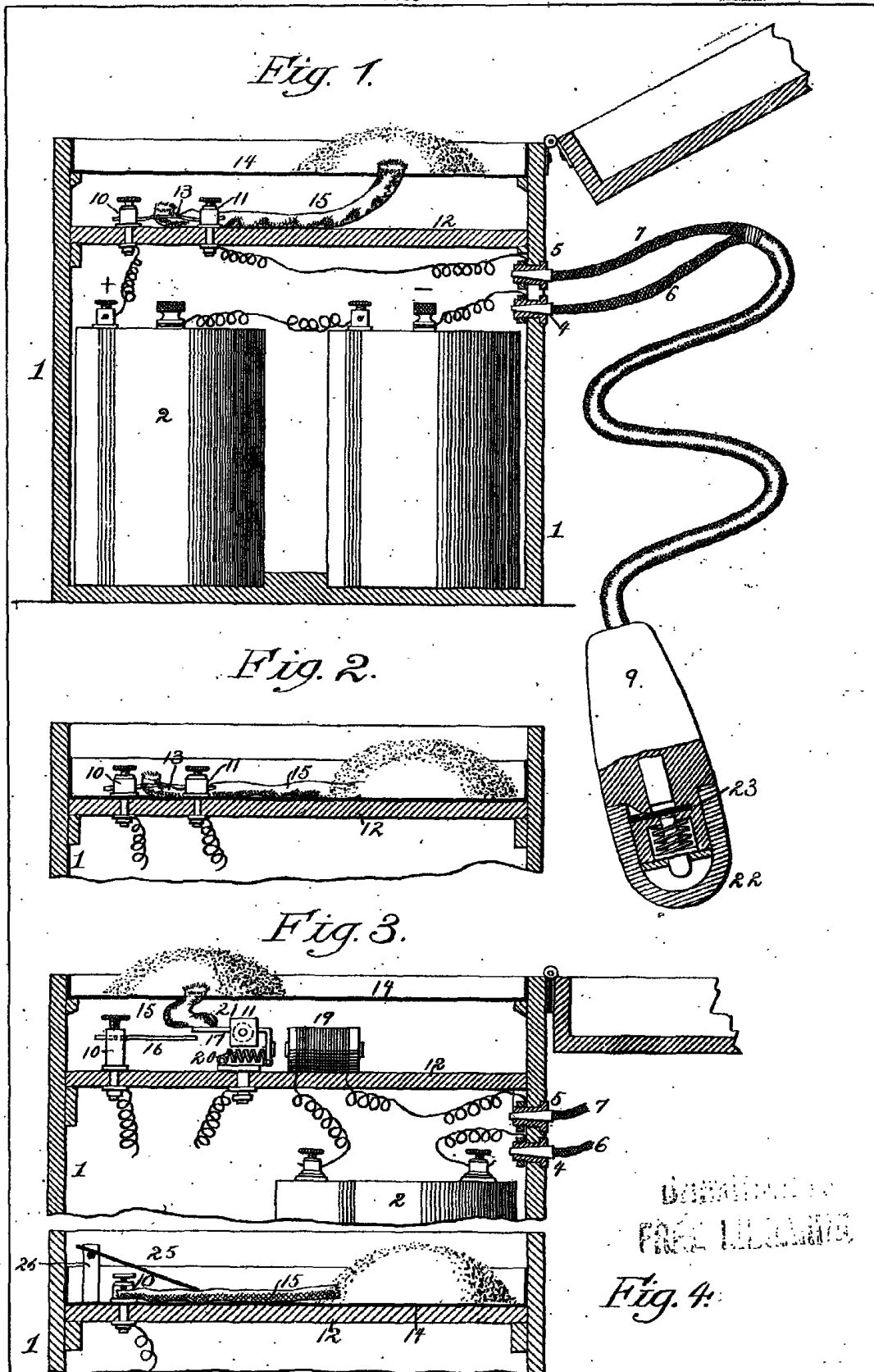
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ALTER & another's COMPLETE SPECIFICATION

[1 SHEET]



[This Drawing is a reproduction of the Original on a reduced scale.]

DEPARTMENT OF
PATENT LITIGATION

Fig. 4: