

PATENT SPECIFICATION

260,913

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Complete Accepted: Nov. 11, 1926.

COMPLETE SPECIFICATION.



Improvements in or relating to Apparatus for Igniting Flash Powder and for like purposes.

We, ROBERT ERNEST STEPHENS and JOHN JOSEPH YATES, both of 55, Market Street, Manchester, and BERNARD GRATTON, of 71, Herbert Street, Blackley, Manchester, all British subjects, 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:—

This invention relates to apparatus for igniting flash powder and for like purposes and more particularly to such apparatus in which an electric current is employed to effect the ignition.

The object of this invention is to provide a portable electric ignition apparatus having an improved combination construction and arrangement of parts.

According to this invention the ignition apparatus comprises a low tension fuse unit and a flash pan or container for the powder to be ignited by the fuse. In addition the flash pan may serve to secure the fuse, and means may be provided for adjusting the length of the fuse.

The accompanying drawing illustrates the invention as adapted for a portable photographic flash light apparatus, in which:—

Fig. 1 is a general arrangement in elevation with front removed.

Fig. 2 is a plan with lid open.

Fig. 3 is a front sectional elevation of the fuse unit.

Fig. 4 is a sectional elevation to show the switch mechanism.

Figs. 5 and 6 are detail front elevations of a modified fuse unit.

As illustrated the apparatus comprises a box *a* with hinged lid *b* and having a partition *c* slidably mounted in grooves in the box, dividing the box into two separate compartments. In the smaller of such compartments is mounted a

battery *d*, of the $4\frac{1}{2}$ volt dry battery type, the larger compartment providing the space for packing the fuse unit and connections therefor. Above the battery is mounted a switch comprising a spring contact *e* and fixed contact *f*, the switch being arranged for operation by the usual camera bulb, for which purpose a pneumatic bulb *g* is mounted on the side of the box with a screw connecting socket *h* on the outside for the bulb tube connection *k*. The electrical connections comprise plug-in sockets *m* and *n* on the outside of the box, the socket *m* of which is connected to a plate *m*¹ inside the box to engage the battery terminal, and the socket *n* is connected to the fixed contact of the switch, the spring contact *e* having an extension which engages with the other terminal of the battery. The bulb tube connection *k* joins to a "Y" connecting piece *k*¹ to which the bulb *o* and camera connection join.

The fuse unit comprises a body *p*, preferably of insulating material such as ebonite, having a base in which are mounted terminals *q*, *q*¹, a hollow body in which is mounted a reel of fuse wire *r*, and a top in which are secured two contacts *s*, *s*¹ separated by an insulating plug *t* and connected respectively to the terminals *q*, *q*¹. To the top of the fuse unit is hinged a flash pan *u* adapted to close over the contacts *s*, *s*¹ which project through the floor of the pan. The reel of fuse wire *r* is rotatably mounted on a spigot *r*¹ formed on a plug *r*² screwing into the hollow body of the unit, which plug may be formed with a screw thread *r*³ for mounting on the standard screw of a camera tripod. The wire *r* is taken through a small hole in the side of the body of the unit and is laid over the contacts *s*, *s*¹, the fuse pan being closed down over the wire securing it in place and holding it on to the contacts.

[Price 1/-]

In the modified form shown in Figs. 5 and 6, the contacts s, s^1 are secured from underneath and are of springy material, the insulating plug t being adjustable lengthwise between the contacts so as to vary the length of the fuse by opening the contacts and by forming a bridge for the wire. The plug t is conveniently secured by a thumb screw v , shown dotted, engaging with the front face of the plug, which face may also be conveniently marked with a scale to indicate various positions. A pin v^1 is provided in the plug t to provide a hold for adjusting the plug, and to prevent the plug from falling into the body of the unit. The object of the modification is to provide for adjusting the length of the fuse which adjustment may be obtained by other means, as by a cam between the two spring contacts s, s^1 or by screws adjustable at the side for setting the contacts relatively to one another.

A suitable length of twin insulated electric wire having plug in terminals x is provided as a connector between the fuse unit and the connecting sockets on the box.

In use the unit is placed where required and connected up to the box, the bulb being connected to the box and camera. The fuse is then set by raising the pan, laying the fuse wire across the contacts and then lowering the pan over the contacts so gripping the wire, the contacts having been previously set to the required gap. Flash powder is then poured into the pan and the apparatus is ready for use, pressing the bulb serving both to operate the camera shutter and to operate the switch causing the battery to fuse the wire and fire the charge. Adjustment of the fuse length enables the firing of the charge to be

timed for instantaneous or delayed firing as required. 45

Low tension electric ignition apparatus for igniting flash powder has been proposed in which a fuse wire is provided to be covered by the powder and in which the fuse wire has been secured between contacts by clips or by an adjustable insulating plug. 50

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:— 55

1. Low tension electric ignition apparatus for igniting flash powder and for like purposes comprising a body part, electric contacts separated by an insulator mounted on the body part and a flash pan or container for the powder hinged to the body part and adapted to close the contacts and insulator so as to secure in electrical connection therewith a piece of fuse wire placed across them, as set forth. 60

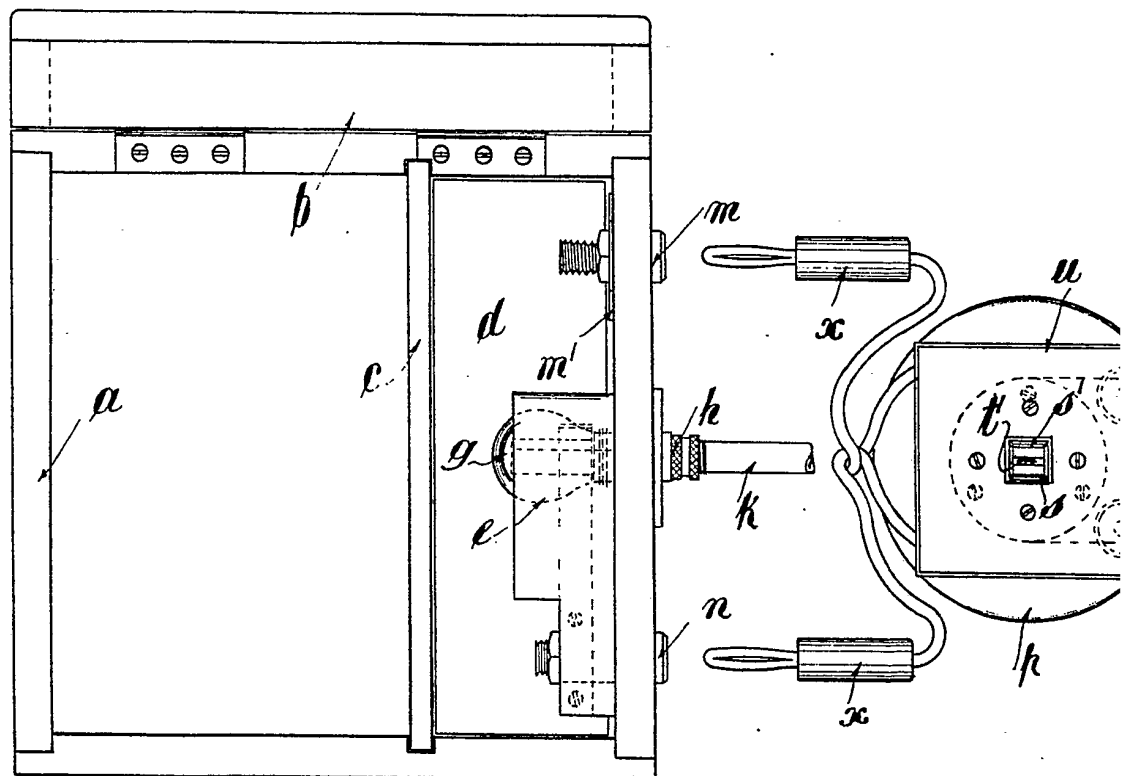
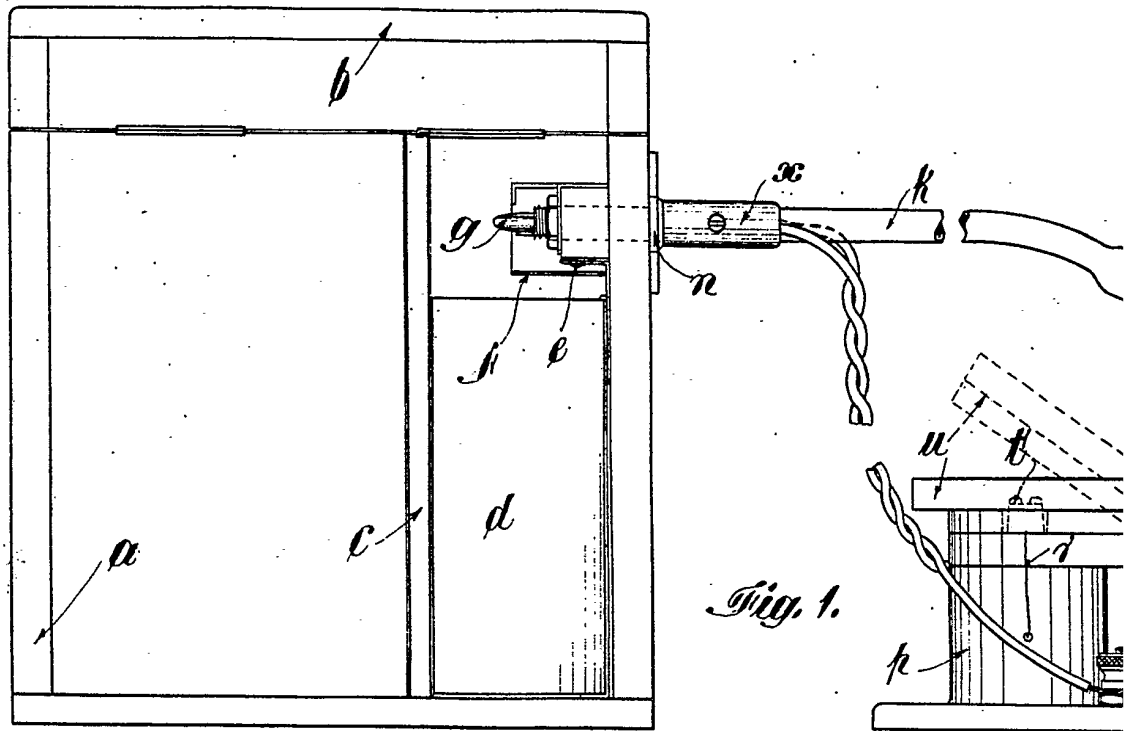
2. Low tension electric ignition apparatus for igniting flash powder according to Claim 1, characterised by curved spring electric contacts and by an adjustable insulator whereby the length of the fuse may be varied, as set forth. 65

3. A portable apparatus for igniting flash powder and for like purposes, constructed, arranged and adapted for use substantially as described with reference to and as illustrated in the accompanying drawings. 70 75 80

Dated this 30th day of June, 1926.

For the Applicants,
JOHN G. WILSON & Co.,
Chartered Patent Agents,
55, Market Street, Manchester. 85

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



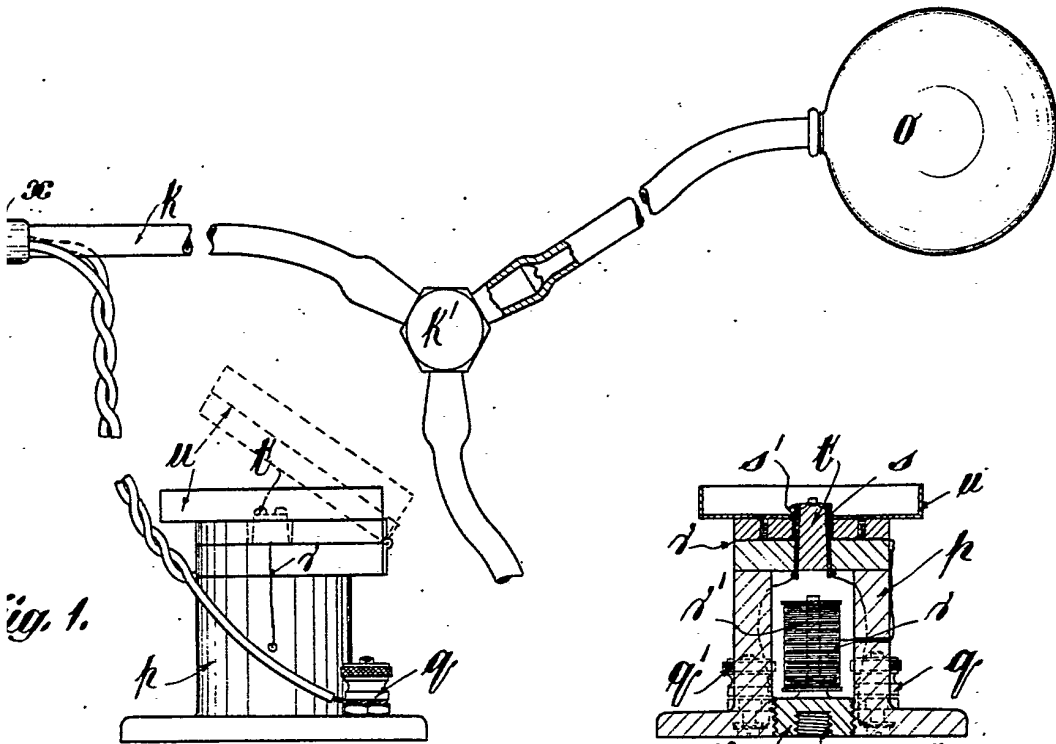


Fig. 1.

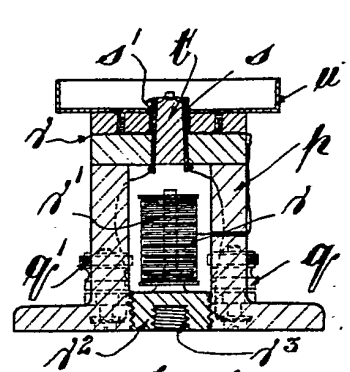


Fig. 3.

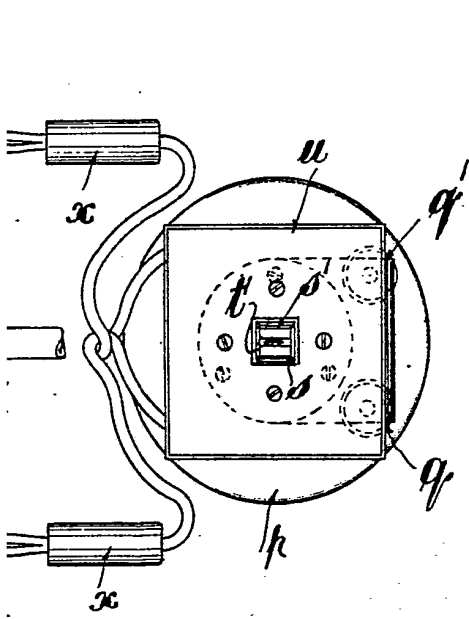


Fig. 2.

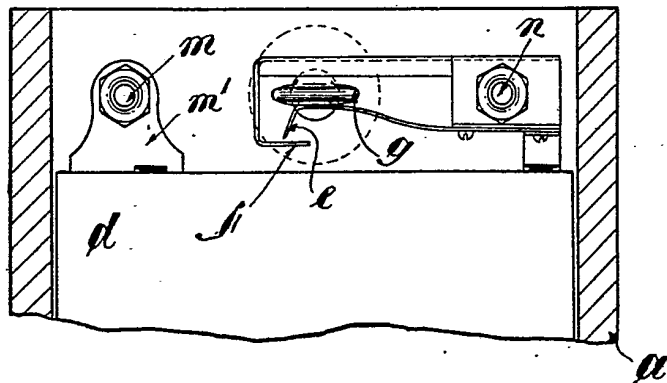


Fig. 4.

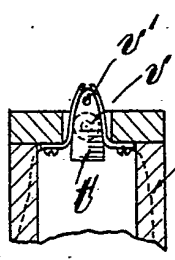


Fig. 5.

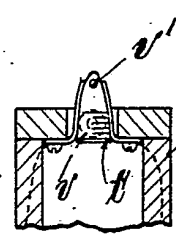


Fig. 6.

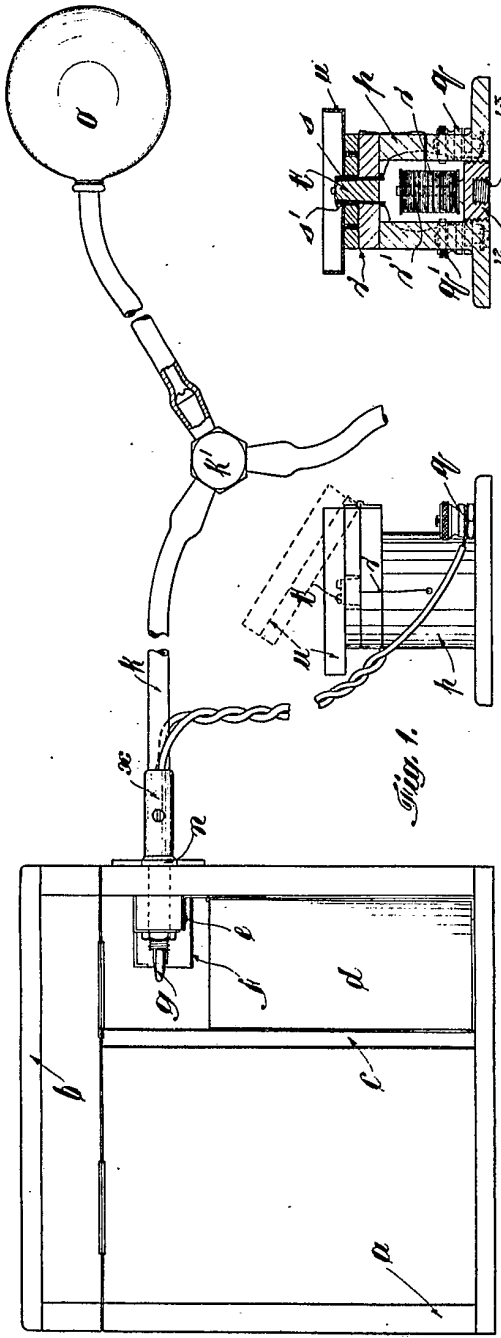


Fig. 1.

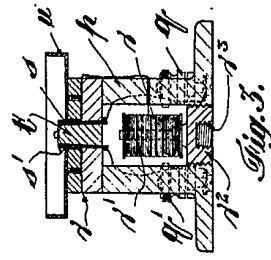


Fig. 3.

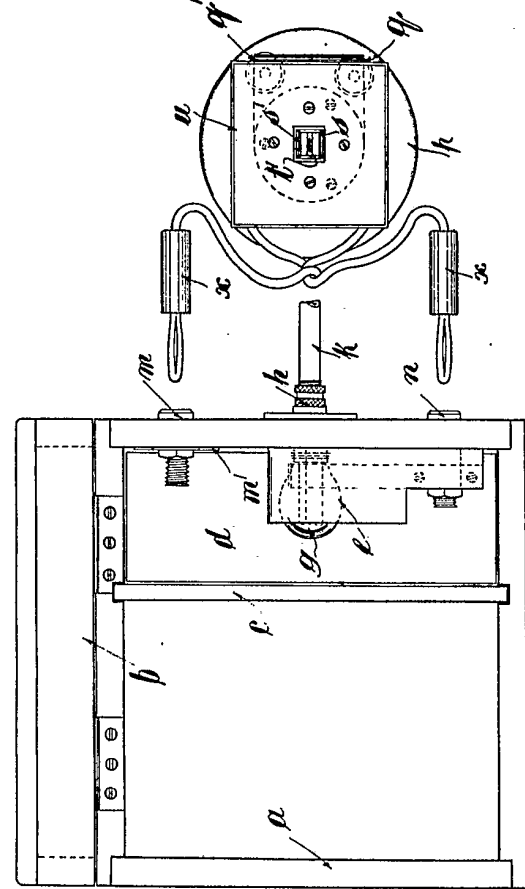


Fig. 2.

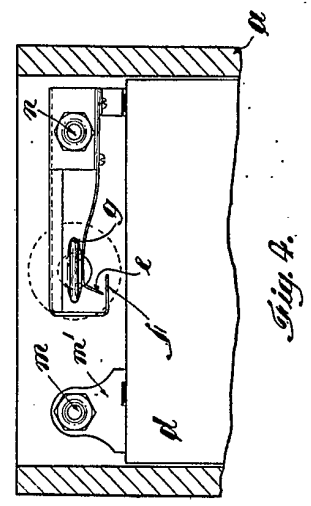


Fig. 4.

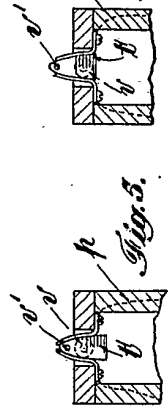


Fig. 5.

Fig. 6.

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