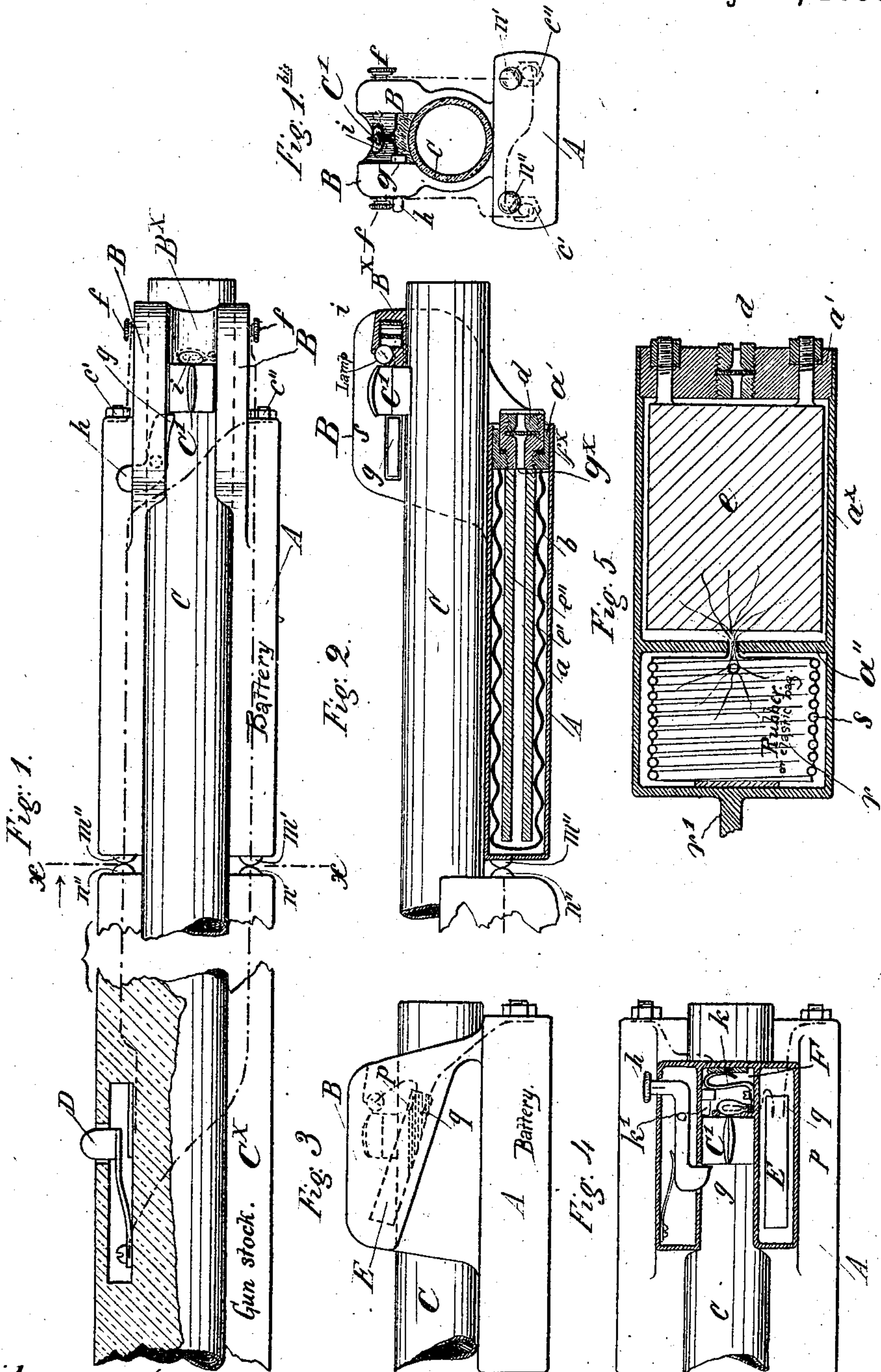


(No Model.)

G. GARASSINO DI GIOVANNI.
 DEVICE FOR ILLUMINATING GUN SIGHTS BY ELECTRICITY.
 No. 497,540. Patented May 16, 1893.



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UNITED STATES PATENT OFFICE.

GIOVANNI GARASSINO DI GIOVANNI, OF TURIN, ITALY.

DEVICE FOR ILLUMINATING GUN-SIGHTS BY ELECTRICITY.

SPECIFICATION forming part of Letters Patent No. 497,540, dated May 16, 1893.

Application filed September 19, 1892. Serial No. 446,277. (No model.)

To all whom it may concern:

Be it known that I, GIOVANNI GARASSINO DI GIOVANNI, a subject of the King of Italy, residing in Turin, Italy, have invented certain new and useful Improvements in Devices for Illuminating Gun-Sights by Electricity, of which the following is a specification.

My invention relates to means for illuminating gun-sights at the moment of aiming and firing at night or in the dark, and particularly to the illumination of the sights of small arms for both military and private use, by means of an electric light.

The invention consists essentially in providing the gun with a device which can be fitted to its barrel near the muzzle in a removable manner, which device comprises a generator,—either an accumulator or battery,—a small incandescent lamp, a circuit and means for closing the circuit only at the moment of or during the period when a light is needed. This latter may be an automatic device or it may be a device capable of being operated by the hand of the person using the gun.

In the accompanying drawings I have shown a satisfactory embodiment of my invention.

Figure 1 is a plan of the device mounted in place on a gun; Fig. 1^{bis} is a transverse section on line $\alpha\alpha$ in Fig. 1, and Fig. 2 is a longitudinal, vertical section of the same, the fragment of the gun shown being in side elevation. In these views a circuit-closer is shown which is adapted to be operated by hand. Fig. 3 is a side elevation and Fig. 4 a horizontal section of the device provided with an automatic circuit-closer. Fig. 5 is a sectional view of a battery cell adapted to serve as a generator in lieu of the accumulator shown in the other figures.

Referring to the principal views, Figs. 1, 1^{bis} and 2,—C represents the barrel of a gun of any kind, C^x the stock thereof, and C' the forward sight on the barrel near the muzzle. As represented in these views, the lighting device for the sight C' comprises a generator A, which is situated under the barrel C and has two cheek plates B which rise up at the sides of the barrel and are connected over the top of the latter by a tie-piece B^x, arranged in front of the sight C'. This device or frame is

slipped over the gun barrel at the muzzle and back as far as the base of the sight will permit, and held in this position by means of a pawl *g*, pivoted in one of the cheek plates B. The detent end of the pawl takes behind the sight at its base and it is operated by a button, *h*, which projects outwardly through the plate B. The tie-piece B^x has set in it, just in front of the sight, a small incandescent lamp, *i*, in circuit with the accumulator A, the tie-piece B^x having a recess in it to receive the lamp and being lower than the sight *i*, so that the person aiming may see the object aimed at over said tie-piece. The device may be secured more firmly on the barrel C by set-screws, *f*, in the plates B.

The circuit through the accumulator and the lamp is provided with a normally open circuit-closer, D, set in the stock C^x at a point where its button may be pressed, and the circuit thus closed, by the thumb or finger of the left hand while the gun is being aimed.

The broken lines in Fig. 1 designate the circuit, a part of which is situated in the gunstock C^x and a part in the removable device for lighting the sight. When the latter is mounted on the gun, the circuit is connected up at the contact points *m'n'*, and *m''n''*, as clearly shown.

Respecting the accumulator A, the kind I prefer to employ is illustrated in Figs. 1 and 2. Within a suitable box or casing, *a*, which may be of insulating material, are placed the electrodes *e'* and *e''*, of which there may be two or more. The casing or box *a* is closed by a cover *a'*, to which are fixed the electrodes and through which pass the terminals *c'* and *c''*. The electrodes and electrolyte will be, by preference, inclosed in an elastic bag *b*, of rubber which will permit of some expansion due to the generation of gas or to variations due to changes of temperature. The cover *a'* has in it a screw threaded socket, at the bottom of which, in the cover, is a small hole *g^x*, which is covered by a disk, *f^x*, of rubber placed in the bottom of the socket and held fast by a tubular screw-plug *d*. In the disk *f^x* is a small slit which is normally closed by the elasticity of the rubber, but when gas generates in the accumulator the internal pressure expands the rubber and slit and permits the gas to escape through the

same and out through the bore or passage in the plug *d*.

Fig. 3 is a side elevation and Fig. 4 a horizontal section of the device constructed in substance the same as described except that it has an automatic circuit-closer *E*, adapted to close the circuit by gravity when the gun is brought to a substantially horizontal position as in firing.

The circuit-closer is a tube, secured to the plate *B* and containing a small quantity of mercury, and the terminals *p* and *q* of the circuit enter at one end of said tube. When the gun is brought to the proper position for firing the mercury flows to the end of the tube where these terminals are situated and closes the circuit between them.

In order to prevent the closing of the circuit by inadvertence and the consequent exhaustion of the generator, when the device is off from the gun and not in use, I provide a normally open circuit-closer within the device or instrument itself, whereby the circuit will be open until the device is mounted on the gun. This feature is illustrated in Fig. 4. In a recess or mortise *F* in the tie-piece *B*^x, is a spring contact-piece, *k*, fixed to a button *k'*, precisely the same as an ordinary push-button for an electric bell. When the device is mounted on the gun barrel (as in Fig. 4) the button *K'* is pressed in by the base of the sight *C'* and this closes the circuit.

If a galvanic battery or battery cell be employed in lieu of an accumulator, the form illustrated in section in Fig. 5 may be employed. The casing or cup, *a*^x, has a partition *a''*, in it the electrodes, *e*, occupying one compartment and a bag, *r*, of rubber or other suitable flexible material occupying the other compartment. This bag is held normally distended by means of a coil spring, and its mouth is open to an aperture *o*, in the partition *a''*. Normally the exciting liquid is in the bag *r*, and under these conditions there will be, of course, no current through the lamp; but by pressure on a stem *r'*, secured to the bottom of the bag and passing out through a hole in the casing *a*^x, the bag may be compressed in the manner of a bellows and the exciting liquid be thus forced through the aperture *o* into the compartment containing the electrodes. This will set up a current, which may be broken or destroyed at any time by allowing the bag to expand, when the liquid will be again drawn into the bag.

My device is adapted to any form of gun or fire-arm without any material departure from the construction described.

The auxiliary automatic, circuit closer *k*, seen in Fig. 4, is as well adapted to the device as illustrated in Figs. 1 and 2 and I have merely shown it in Fig. 4 for convenience.

Having thus described my invention, I claim—

1. The combination with a gun having a

sight, of an electrical lighting device adapted to be mounted on the gun near the sight, said device comprising a generator, a circuit, a normally open circuit-closer in said circuit, and an incandescent lamp, also in the circuit and so arranged as to illuminate the sight on the gun when the circuit is closed, substantially as set forth.

2. The combination with a gun having a sight, a normally open circuit-closer, as *D*, in its stock, and a partial electric circuit with terminals at said circuit-closer and at the points *n'* and *n''*, of an electrical device, mounted removably on the gun near the sight and comprising a generator, an incandescent lamp arranged to illuminate the sight, and a partial circuit including the generator and lamp and having terminals at *m'* and *m''*, to contact with the respective terminals *n'* and *n''* when the device is in place, substantially as set forth.

3. The combination with a gun having a sight, of an electric lighting device adapted to be mounted on the gun near the sight, said device comprising a generator, an incandescent lamp, a circuit in which said lamp and generator, are included, and two circuit-closers in said circuit, one of which is normally open and adapted to be closed during the period of taking aim, and the other, consisting of a spring *k*, having on it a button *k'*, adapted to be pressed against the sight on the gun and the circuit thus closed when the lighting device is mounted on the gun, as set forth.

4. The combination with a gun having a sight, of an electric lighting device adapted to be mounted on the gun near the sight for lighting the same, said device comprising a circuit, an incandescent lamp in the circuit, and a generator in the circuit, said generator comprising a casing having two compartments, one containing the electrodes and the other an elastically expansible bag for the exciting liquid, said bag being open to the compartment containing the electrodes and having a stem for compressing it, substantially as set forth.

5. An electrical device for illuminating the sight of a gun at the moment of aiming and firing, comprising a circuit, a generator in the circuit, an incandescent lamp also in circuit, and an automatic circuit-closer, comprising a tube containing mercury and inclosing two terminals of the circuit, the mercury being adapted to close the circuit by gravity when the device is held in a predetermined position, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GIOVANNI GARASSINO DI GIOVANNI.

Witnesses:

GAETANO BERTINETTO,
SECONDO TORTA.