J. W. MEAD.

ELECTRIC HAND LAMP.

APPLICATION FILED APR. 20, 1910.

983,742.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

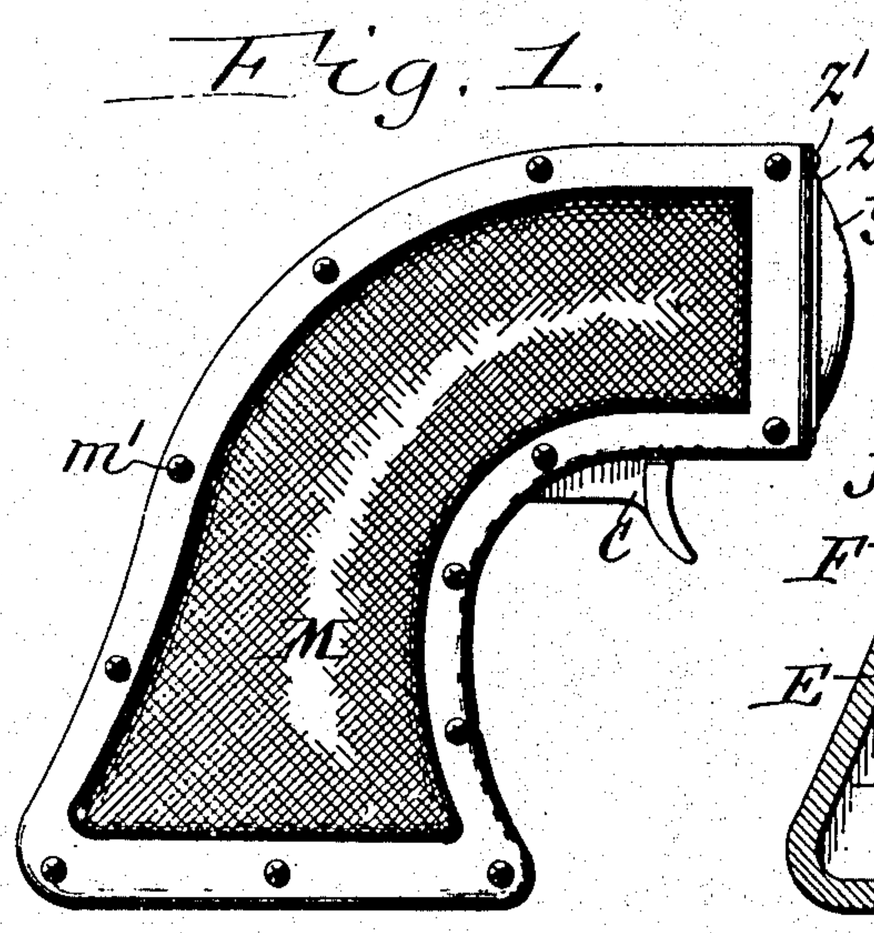
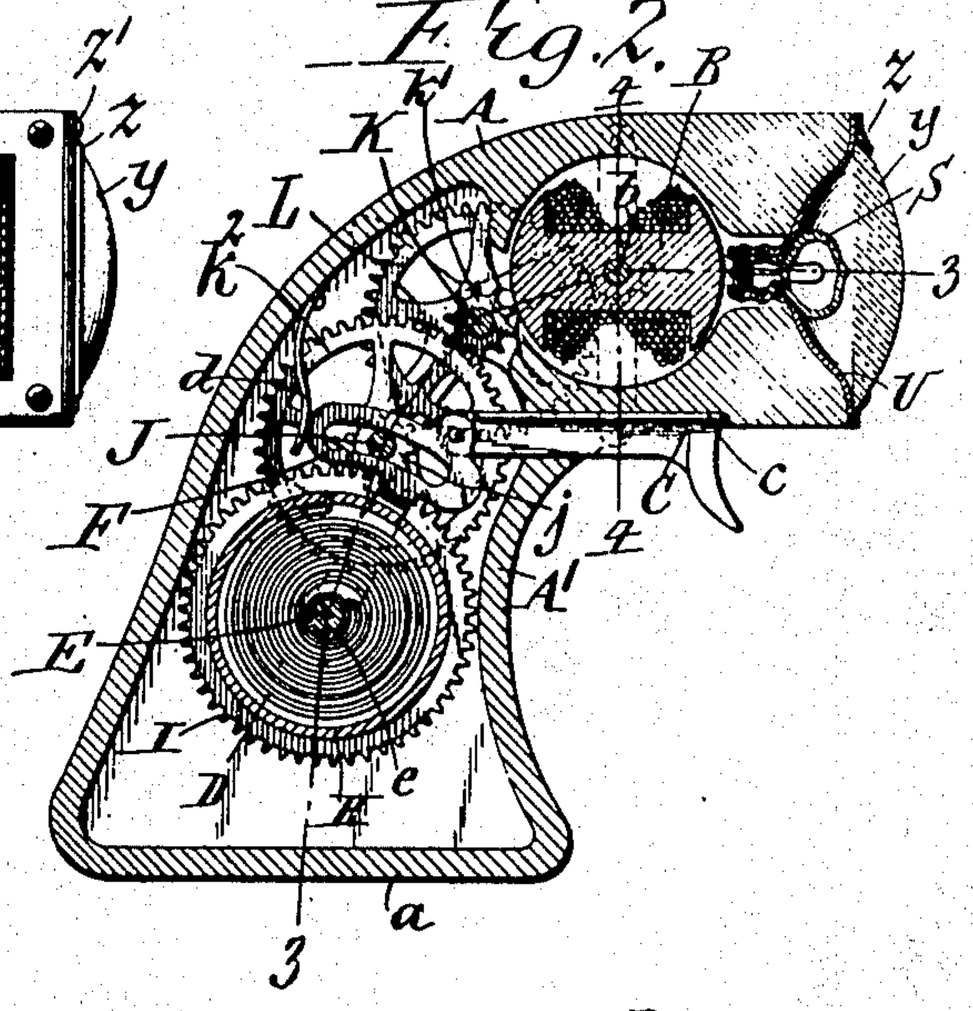


Fig. 2.



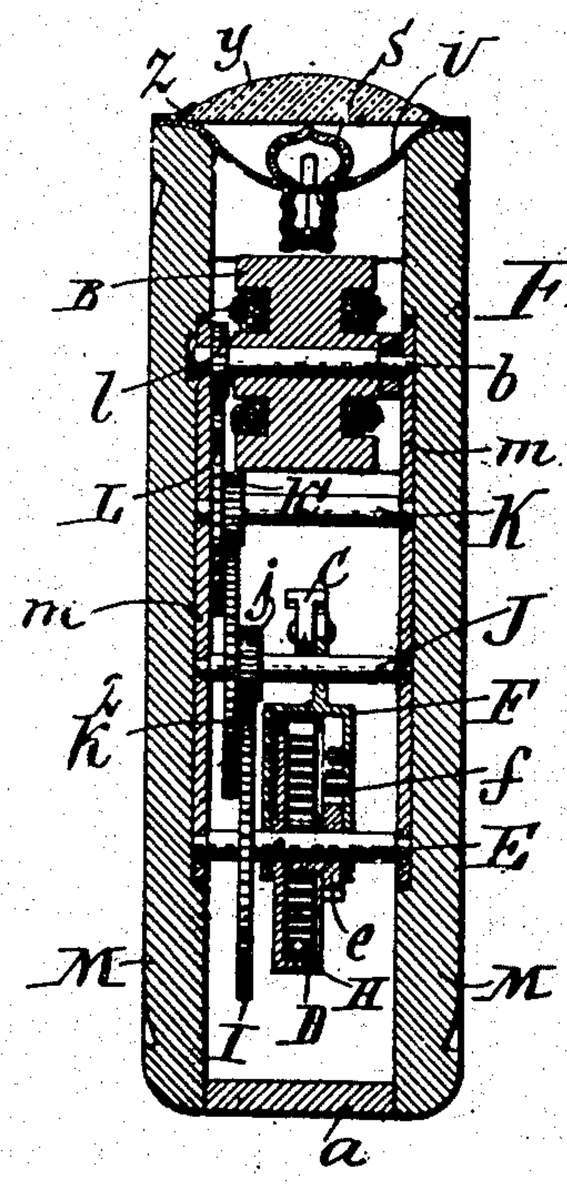


Fig. 3.

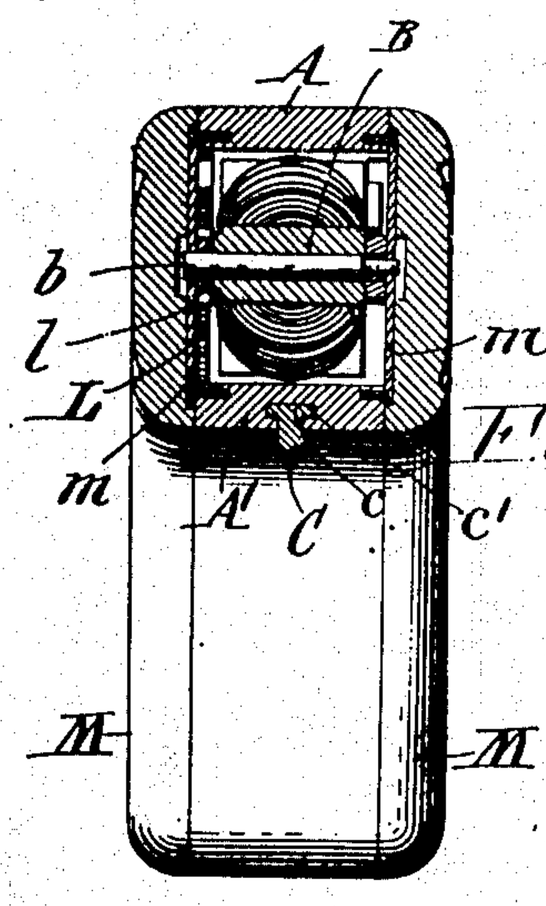


Fig. 4.

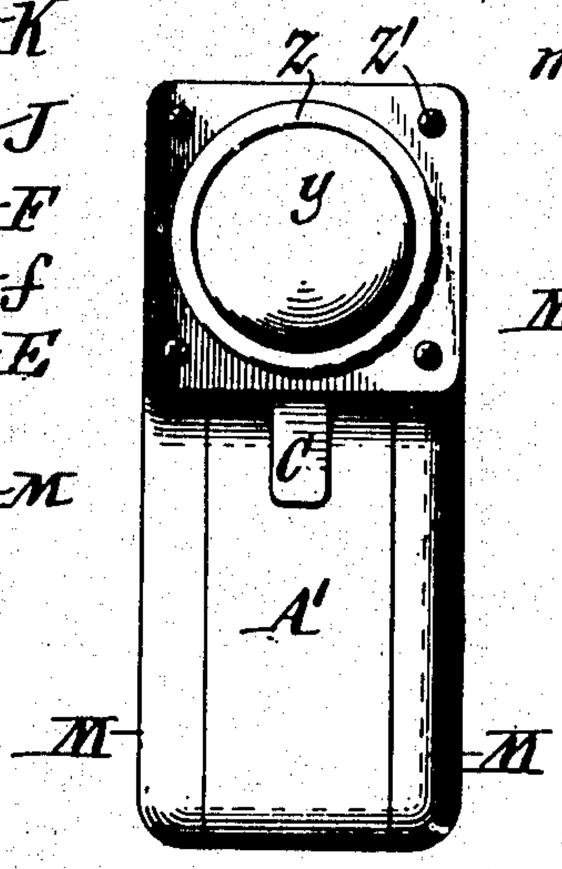


Fig. 5.

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2 SHEETS—SHEET 2.

Fig. 6.

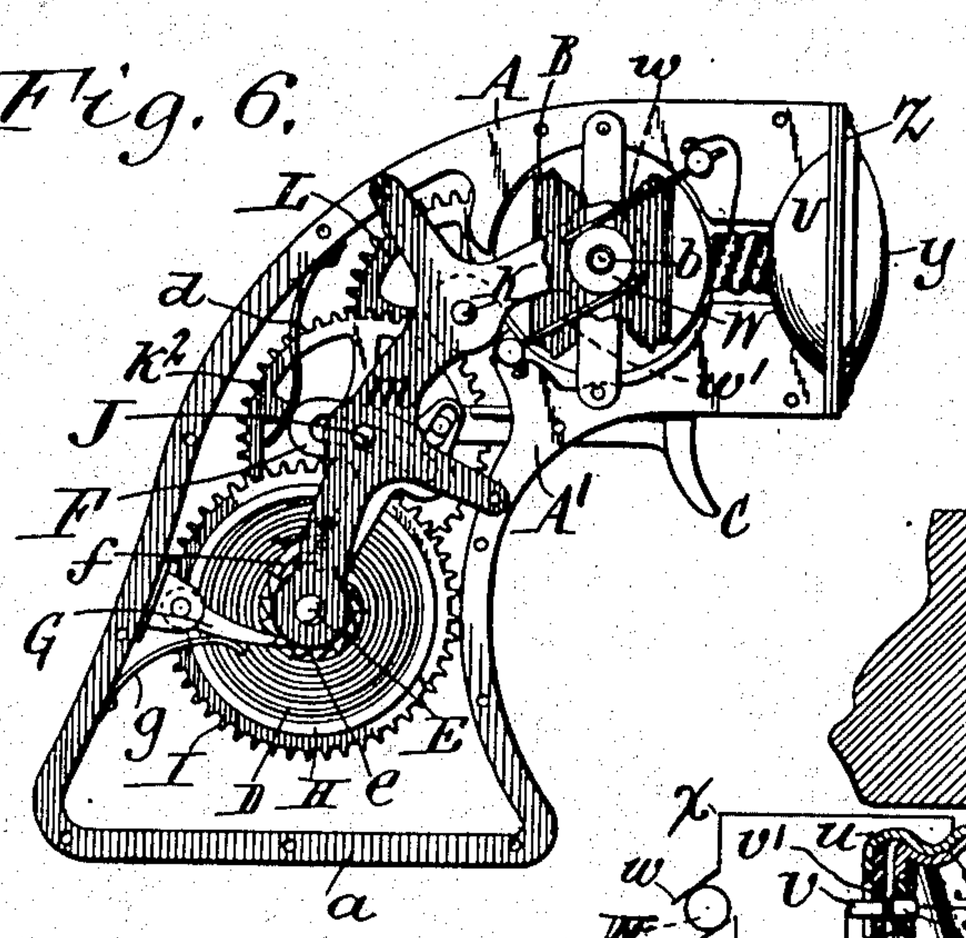


Fig. 7.

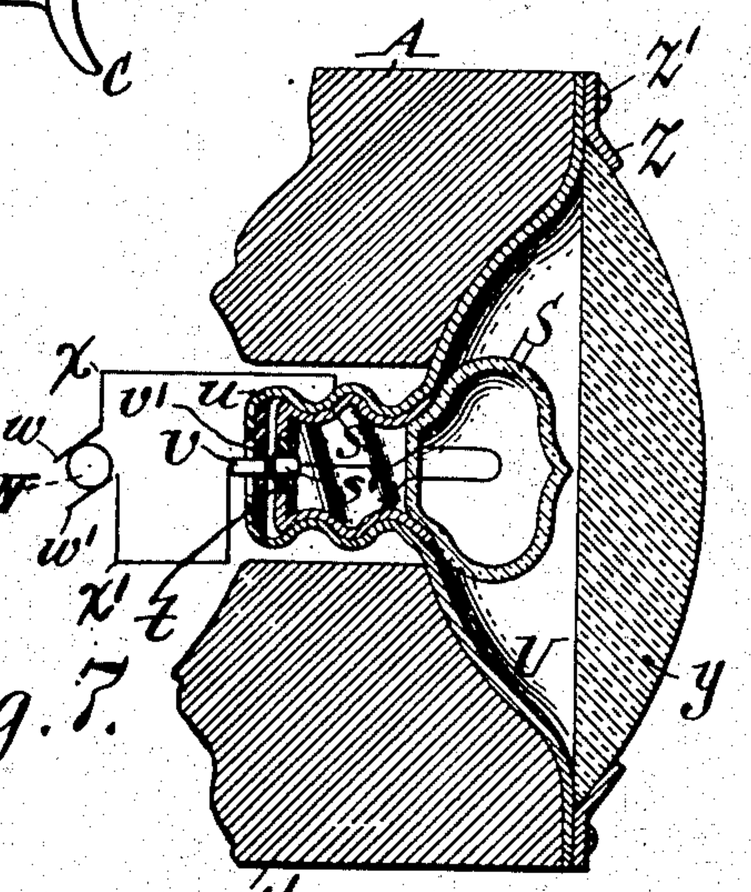


Fig. 8.

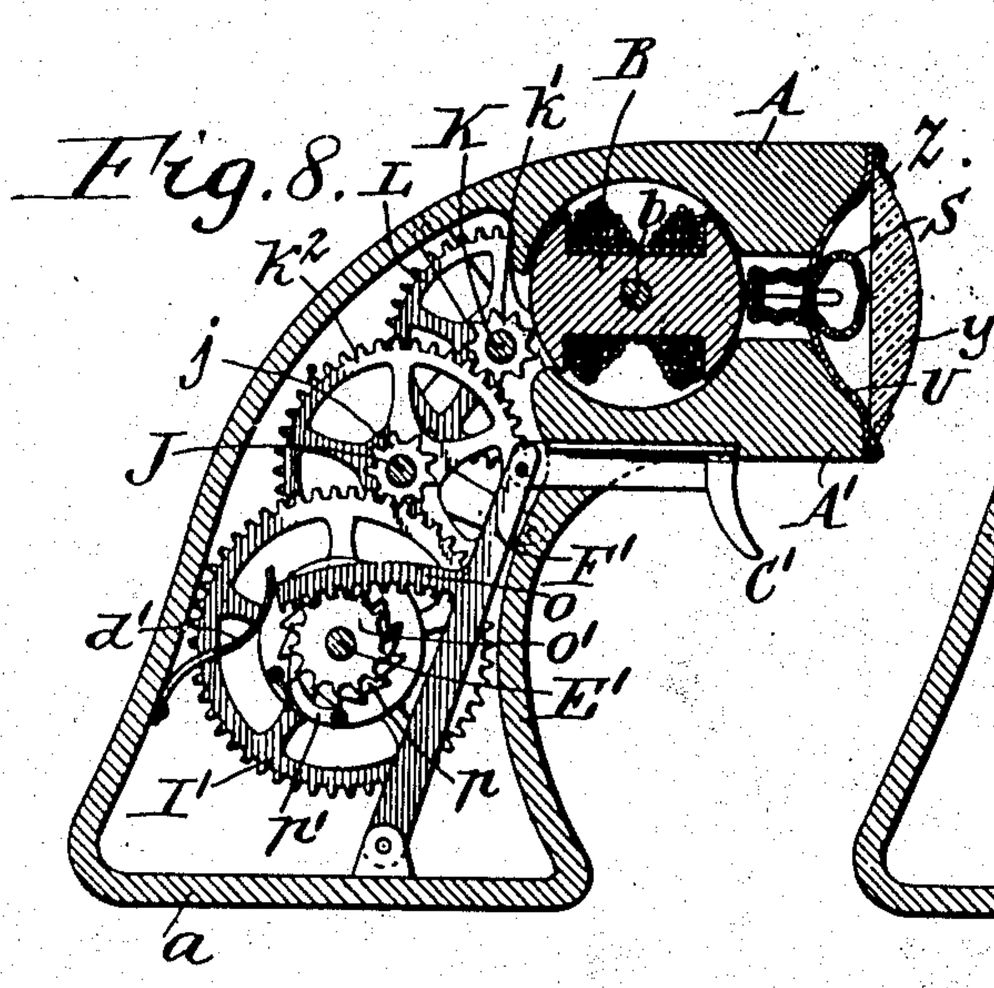
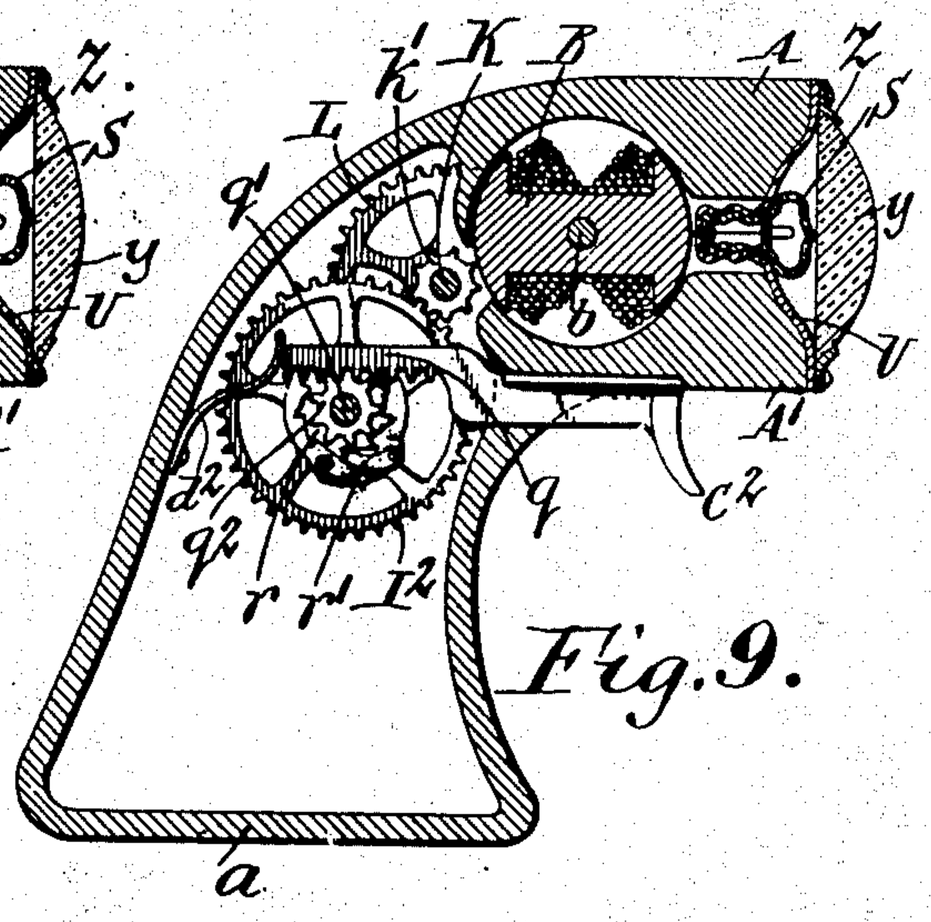


Fig. 9.



Witnesses:-
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UNITED STATES PATENT OFFICE.

JOHN W. MEAD, OF BUFFALO, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO ALBERT H. DEREMO, OF BUFFALO, NEW YORK, ONE-SIXTH TO GUSTIN WELCH, OF NIAGARA FALLS, NEW YORK, AND ONE-SIXTH TO DUNCAN A. CARMICHAEL AND ONE-SIXTH TO ESTELLA BEEMAN, OF BUFFALO, NEW YORK.

ELECTRIC HAND-LAMP.

983,742. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed April 20, 1910. Serial No. 556,515.

To all whom it may concern:

Be it known that I, JOHN W. MEAD, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Electric Hand-Lamps, of which the following is a specification.

This invention relates to an electric hand lamp.

The current for lamps of this character has heretofore been furnished by dry batteries located in the handle of the lamp. Inasmuch as such batteries are necessarily small they soon become exhausted and require frequent renewal, thus involving constant expense for maintenance.

It is the object of this invention to produce an electric hand lamp containing a magneto for generating the current for lighting the lamp, the body of said lamp having preferably the form of a pistol or revolver and the armature being operated by a trigger in substantially the same manner in which a pistol is fired.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a side elevation of an electric hand lamp embodying my invention. Fig. 2 is a central longitudinal sectional elevation of the same. Fig. 3 is a horizontal longitudinal section of the same in line 3—3, Fig. 2. Fig. 4 is a vertical cross section in line 4—4, Fig. 2. Fig. 5 is a front elevation of the lamp. Fig. 6 is a side elevation thereof with the near side wall or covering piece removed. Fig. 7 is a fragmentary sectional elevation, on an enlarged scale, showing the manner of mounting the incandescent lamp bulb on the poles of the magneto. Figs. 8 and 9 are longitudinal sectional elevations showing modifications of the means for operating the armature of the magneto.

Similar letters of reference indicate corresponding parts throughout the several views.

The handle of the lamp is so constructed that it has the general appearance of the handle or stock of a pistol or revolver, so that the lamp may be pointed toward the object to be illuminated in the same manner in which a pistol is pointed at the object to be shot at. This handle supports the incandescent lamp at the front end of the same which corresponds to the front end of the pistol barrel and the armature of the magneto which generates the current for the lamp is operated by a finger pressed trigger located on the underside of the barrel or front end of the handle, so that the magneto may be operated by pulling the trigger in the same manner in which a pistol is fired. A device of this character therefore serves not only for illuminating purposes but also for frightening trespassers into the belief that they are being threatened with a pistol.

The main part of the handle is formed by the steel magnet of the magneto which magnet is preferably of the horseshoe type and comprises upper and lower legs A, A^1 the front ends of which correspond to the barrel of a pistol and are substantially parallel and form the poles of the magnet while their rear ends correspond to the handle of a pistol and are curved concentrically and—connected by the cross piece or bar *a*.

In the field between the poles of the magnet the armature B is arranged which is mounted on a horizontal transverse shaft *b*. This armature may be rotated by any suitable means but preferably by a finger operated trigger C which is mounted on the underside of the lower magnet leg so as to be capable of longitudinal reciprocation and which is operatively connected with the armature for transmitting power from the trigger to the armature for operating the latter. The preferred way of mounting the trigger consists in constructing the same in the form of a dove-tail in cross section, as shown at *c*, and sliding the same in a correspondingly shaped guideway c^1 formed on the lower side of the lower leg of the magnet and extending through the rear part of this leg, as shown in Figs. 2 and 4.

The means whereby the movement of the trigger is transmitted to the armature preferably comprise a spring power storing device which is wound up by the backward movement of the trigger and gives off power while the trigger is moving forward, thereby causing the armature to run more steady. For obtaining the desired speed of

the armature a speed multiplying gearing is preferably interposed between the power storing device and the armature. In its preferred form this armature driving mechanism is constructed as follows:—D represents a spiral spring arranged in the space between the rear parts of the magnet legs and having its inner end secured to the hub of a ratchet wheel *e* which turns loosely on a rear transverse shaft E. Forward turning movement of the ratchet wheel is effected upon moving the trigger backwardly by means of a rock lever F which is pivoted at its lower end loosely on the shaft E and connected at its upper end with said trigger, and a driving dog or pawl *f* mounted on the rock lever and engaging with the teeth of the ratchet wheel. Backward movement of the ratchet wheel is prevented by a detent pawl or dog G pivoted on the adjacent part of the magnet and held by a spring *g* in engagement with the teeth of the ratchet wheel. Forward movement of the trigger and lever F is effected by a spring *d* secured to the magnet and engaging with the inner end of said lever, as shown in Fig. 2. Upon pressing the trigger backwardly the inner part of the power storing spring D is wound up but during the forward movement of the trigger the detent pawl prevents unwinding and compels the same to expend its resilience in driving the armature. Motion may be transmitted from the outer end of the power spring to the shaft *b* of the armature by any suitable gearing that shown in the drawings comprising a casing H secured to the rear shaft E and connected with the outer end of the power spring, a primary or rear gear wheel I secured to the rear shaft, an intermediate shaft J provided with a pinion *j* meshing with the rear gear wheel I and a front shaft K provided with a pinion k^1 which meshes with a gear wheel k^2 on the intermediate shaft and also provided with a gear wheel L which meshes with a pinion *l* on the armature shaft. By thus interposing the power spring between the trigger and the train of gearing which operates the armature the spring can be wound up by intermittently pressing the trigger backwardly but power is delivered constantly by the spring to the armature whereby the latter is rotated uniformly.

The shafts of the armature, power spring and gearing are preferably journaled in bearings formed in side frames *m* which are secured to the opposite longitudinal sides of the magnet legs, as shown in Figs. 3, 4, and 6. The opposite sides of the space between the legs of the magnet are normally closed by covers or side plates or pieces M secured to the magnet by screws m^1, as shown, or by any other suitable means.

If it is not desired to employ a power storing spring the driving mechanism for the armature may be modified, as shown in Figs. 8 and 9. The construction shown in Fig. 8 comprises a rock lever F^1 pivoted at one end of the magnet and connected at its other end with the trigger C^1, a gear segment *o* arranged on the lever F^1 and meshing with a pinion o^1 on the rear shaft E^1, a ratchet wheel *p* connected with the pinion o^1, a spring pressed pawl or dog p^1 engaging with the teeth of the ratchet wheel and mounted on the primary or rear gear wheel I, and a spring d^1 secured to the magnet and engaging with the gear segment. Upon pressing the trigger C^1 backwardly the ratchet wheel *p* is coupled with the rear gear wheel I^1 by the pawl p^1, so that the motion of the trigger is transmitted by the intermediate gearing to the armature. During the forward movement of the trigger under the action of the spring d^1 the ratchet wheel *p* moves backward idly past the pawl p^1 while the gear wheel I^1 continues to move forwardly independently of the ratchet mechanism, thereby causing the armature to run practically continuous in the same direction.

The driving mechanism shown in Fig. 9 comprises a gear rack *q* connected directly with the trigger C^2, a pinion q^2 mounted on a rear shaft q^1 and meshing with the rack, a ratchet wheel *r* connected with the pinion q^2, a gear wheel I^2 mounted on the shaft q^1 and meshing with the pinion k^1 of the front shaft, a spring pressed pawl r^1 mounted on the gear wheel I^2 and engaging with the ratchet wheel *r*, and a spring d^2 secured to the magnet and engaging with the gear rack and operating to normally push the same and the trigger connected therewith forwardly. Upon pressing the trigger backwardly the armature is turned and upon releasing the trigger the spring d^2 pushes the same forwardly while the ratchet mechanism permits the armature to continue its movement in the same direction.

The burner of the lamp is arranged between the poles of the magnet and consists of an ordinary incandescent lamp having a glass vacuum bulb S and a filament within the bulb. The latter has a metallic screw threaded shank *s* which forms one terminal of the lamp filament and a central contact s^1 forming the terminal of the other end of the filament and supported on the shank by an insulating disk *t*.

Secured to the front ends of the poles of the magnet is a rearwardly dished reflector U of diamagnetic material such as brass or copper which is provided between the poles with a screw threaded socket *u*. Centrally within this socket is arranged a contact *v* which is supported within the socket by an insulating disk v^1.

w, w^1 represent two brushes engaging with opposite sides of a commutator W on the

armature shaft and connected by wires x, x^1 with the reflector socket U and the contact v, respectively. Upon screwing the shank of the incandescent lamp into the socket until the contacts v, s^1 engage, as shown in Fig. 7, the electrical circuit from the armature to the lamp is completed, thereby causing the lamp to be lighted upon rotating the armature.

In front of the incandescent lamp is arranged a lens y for intensifying the light of the incandescent lamp. This lens is secured at its edge between the margin of the reflector which engages with the rear side of the lens and a fastening ring z of diamagnetic material engaging with the front side of the lens and secured to the reflector and magnet poles by screws z^1 or other suitable means.

I claim as my invention:

1. An electric hand lamp comprising a magneto having its magnet constructed to form a handle, and an incandescent lamp mounted on said magnet and connected in circuit with the armature of the magneto.

2. An electric hand lamp comprising a magneto having its magnet constructed to form a handle which has the shape of a pistol, and an incandescent lamp mounted on the magnet and connected in circuit with the armature of the magneto.

3. An electric hand lamp comprising a magneto having upper and lower permanent magnetic legs which are curved substantially concentric, an armature rotatable between the poles of said legs, and an incandescent lamp mounted on said legs and connected in circuit with said armature.

4. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet, an armature rotatable between the poles of said magnet, an incandescent lamp mounted on the magnet and connected in circuit with said armature, and means for operating said armature comprising a reciprocating trigger mounted on the magnet and operatively connected with the armature.

5. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet constructed in the form of a pistol handle, the poles of said magnet being at the upper front end and the cross bar at the lower rear end thereof, an armature rotatable between the poles of the magnet, and an incandescent lamp mounted on the magnet and connected in circuit with the armature.

6. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet having upper and lower concentrically curved legs the poles of which are at the front ends thereof, an armature rotatable between the poles of said magnet, means for rotating said armature comprising a finger operated trigger arranged below the lower leg of the magnet, and an incandescent lamp mounted on the magnet and connected in circuit with said armature.

7. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet having upper and lower concentrically curved legs the poles of which are at the front ends thereof, an armature rotatable between the poles of said magnet, means for rotating said armature comprising a finger operated trigger arranged below the lower leg of the magnet and a train of gearing arranged between the rear ends of said legs and interposed between said trigger and armature, and an incandescent lamp mounted on the magnet and connected in circuit with said armature.

8. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet constructed in the form of a pistol handle, the poles of said magnet being at the upper front end and the cross bar at the lower rear end thereof, an armature rotatable between the poles of the magnet, an incandescent lamp mounted on the magnet and connected in circuit with the armature and side pieces connecting the sides of said legs and inclosing the space between the same.

9. An electric hand lamp comprising a magneto having a permanent horse-shoe magnet having upper and lower concentrically curved legs the poles of which are at the front ends thereof, an armature rotatable between the poles of said magnet, means for rotating said armature comprising a finger operated trigger arranged below the lower leg of the magneto and a train of gearing arranged between the rear ends of said legs and interposed between said trigger and armature and side pieces connecting the legs of the magnet and inclosing the space between the same, and an incandescent lamp mounted on the magnet and connected in circuit with said armature.

10. An electric hand lamp comprising a permanent magnet having two legs forming poles at their front ends while their rear ends are separated and form a space therebetween, an armature rotatable between the poles of the magnet, an incandescent lamp mounted on the front ends of said poles and connected in circuit with said armature, and means for operating said armature, and means for operating said armature comprising a spring, a trigger operatively connected with one end of the spring, and transmitting gearing interposed between the opposite end of the spring and said armature.

11. An electric hand lamp comprising a permanent magnet having two legs forming poles at their front ends while their rear ends are separated and form a space therebetween, an armature rotatable between the poles of the magnet, an incandescent lamp

mounted on the front ends of said poles and connected in circuit with said armature, and means for operating said armature comprising a spiral spring arranged between the rear ends of the magnet legs, a trigger mounted on the magnet, a ratchet mechanism interposed between said trigger and one end of the spring and gearing interposed between the other end of said spring and the armature.

Witness my hand this 18th day of April, 1910.

JOHN W. MEAD.

Witnesses:
A. H. DEREMO,
THEO. L. POPP.