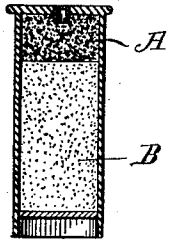
(No Model.)

H. G. PIFFARD.

PHOTOGENIC CARTRIDGE.

No. 383,984. Patented June 5, 1888.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY G. PIFFARD, OF NEW YORK, N. Y.

PHOTOGENIC CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 383,984, dated June 5, 1888.

Application filed October 19, 1887. Serial No. 252,784. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. PIFFARD, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Photogenic Cartridge or Shell, of which the following is a specification.

My invention relates to a novel means of developing a bright light of momentary duration at any given point sufficient in intensity for a variety of useful purposes.

To this end my invention consists in a novel device, which I term a "photogenic cartridge," designed to produce the desired effect. This result I accomplish by placing in the interior of a primed cartridge-shell a charge consisting partly of an easily ignited or explosive material of a nature and in sufficient quantity to discharge the load of the cartridge, and in part of powdered magnesium, which will be ignited by the combustion of the easily ignitible or explosive material and be discharged from the cartridge. The cartridge shell is of the ordinary description adapted to fit a pistol, gun, or other fire-arm. The cartridge-shell is exploded in the usual manner in the weapon to which it is adapted.

In the accompanying drawing, the figure represents a vertical section of a cartridge-shell adapted for use with any of the well-known forms of small-arms, and having arranged in its interior a charge of the ingredients above mentioned.

It will be observed that the primed cartridge-shell is of the ordinary description known as "center-fire," and requires no modification to accommodate it to the uses of the present invention, the nature of the charge being such that it is adapted to be fired from a gun without the slightest danger or discomfort to the operator.

In the case of the cartridge, as illustrated in the figure, the charge is fired in the ordinary manner by the flash of the percussion-cap, which fires the gunpowder or other explosive element, which in turn ignites and projects the powdered magnesium from the weapon in any desired direction.

The cartridge-shell in the figure is provided with a center-fire primer; but it will be understood, of course, that this particular form of primer forms no part of my invention, as it is equally applicable to cartridges that contain the fulminate in the rim and known as "rim-fire cartridges." I have shown this particular form of cartridge merely for convenience of illustration.

I have found that the purposes of the invention may be accomplished in varying degrees by the use of different explosives and different relative quantities of ingredients. I prefer to use gun-cotton, gunpowder, "wood-powder," or any similar nitro-lignine equivalent in connection with a suitable bulk of magnesium powder.

The proportion of one part of explosive material and two or three parts of magnesium powder I have found effective for the purpose; but I do not confine myself to any precise proportion of ingredients, which may be varied to suit the circumstances of the case.

When a cartridge charged as above described is fired in a pistol or other weapon, the magnesium powder will be wholly burned at or near the mouth of the weapon, thus producing a magnesium light at the place where the weapon is discharged and of great intensity, though of momentary duration. In this particular my invention differs essentially from prior inventions, wherein a light-giving projectile is employed, since in the latter case the light is distributed over the whole path of the projectile and in some cases is produced almost entirely at the end of the flight. A device of this nature is entirely unsuited to many of the purposes for which my invention may be employed.

A variety of uses to which the photogenic cartridge as now described may be applied will readily suggest themselves. It will be found to be of great assistance in any operations conducted at night where a light is required of high intensity and of momentary duration, and especially for photographic purposes.

The method of producing a magnesium light, which consists in exploding gun-cotton, gunpowder, wood-powder, or a similar nitro-lignine equivalent in contact with a sufficient quantity of powdered magnesium to give the desired light is not herein claimed, as it forms the subject of a separate application for patent filed by me October 22, 1887, Serial No. 253,126.

What I claim as my invention is—

As a new article of manufacture, a photo-

genic cartridge containing a charge consisting partly of an easily ignited or explosive material of a nature and in a sufficient quantity to discharge the load of the cartridge, and in part of powdered magnesium, which will be ignited by the combustion of the easily ignitible or explosive material and burned entirely at or near the mouth of the weapon, so as to produce at the place of discharge a magnesium light of great intensity, but momentary duration.

Signed at New York, in the county of New York and State of New York, this 18th day of October, A. D. 1887.

HENRY G. PIFFARD.

Witnesses:
WM. H. CAPEL,
HUGO KOELKER.