(No Model.)

F. SILAS.

LUMINOUS OIL PROJECTILE.

No. 397,031. Patented Jan. 29, 1889.

FIG. I.

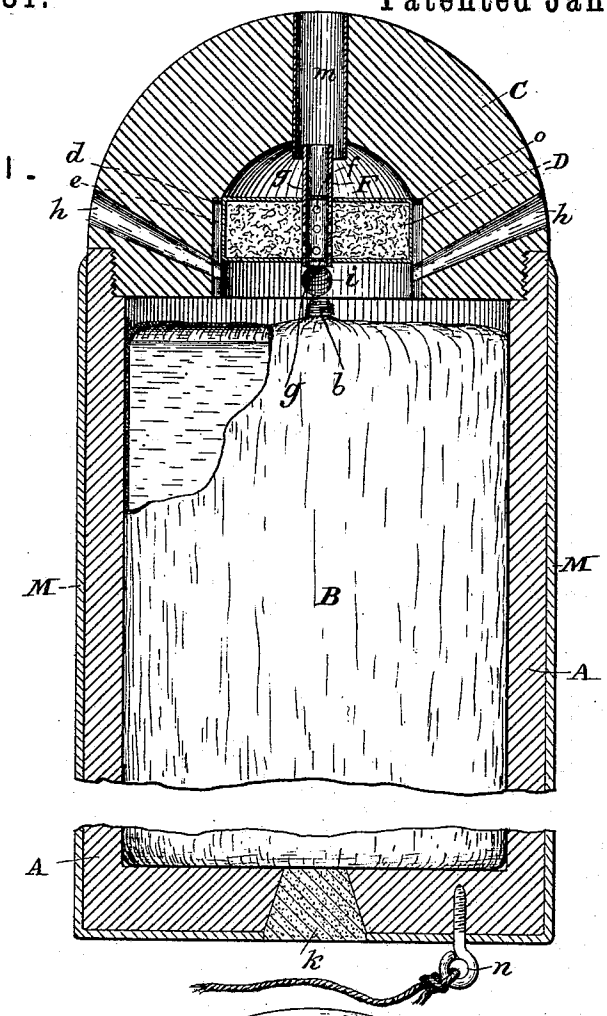
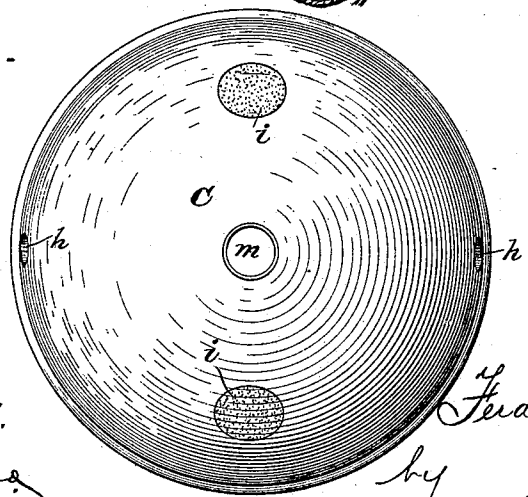


FIG. II.



Attest:
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UNITED STATES PATENT OFFICE.

FERDINAND SILAS, OF VIENNA, AUSTRIA-HUNGARY.

LUMINOUS OIL PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 397,031, dated January 29, 1889.

Application filed October 12, 1888. Serial No. 287,880. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND SILAS, a citizen of the Republic of France, and a resident of Vienna, Austria-Hungary, have invented a new and useful Improvement in Luminous Oil Projectiles, which improvement is fully set forth in the following specification.

This invention has reference to the construction of projectiles or missiles containing oil, adapted to be thrown or fired from a vessel or from shore or other point to quiet the waves in a storm.

The object of my invention is to provide means for releasing the oil from the projectile when the latter strikes the water, and permitting it to escape slowly, so as to obtain the largest benefit possible from the quantity of oil used, and also to render the projectile self-luminous, so that its position can be observed, and thus serve to direct those operating the discharging means as to the positions where other projectiles should be thrown.

In carrying out my invention I provide the shell of the projectile with openings at top and bottom, and close these with plugs of a material that speedily becomes disintegrated upon contact with water. Sugar, soap, unsized paper, or other like material could be used for this purpose. The oil, being incased in a bag of sail-cloth or like material, escapes slowly through the upper openings by the pressure of the water entering the opening at the bottom.

In the cap or head of the projectile I place a case or vessel containing phosphide of calcium, and arrange channels through the walls of the cap, so that water may get access thereto and generate phosphureted hydrogen, which, upon escaping at the apex of the cap or head, ignites itself, producing a brilliant and inextinguishable flame, which is very serviceable in indicating to those on board or on shore the positions of the projectile, or in showing the action of the oil upon the waves.

The invention includes certain special features of construction, as hereinafter described.

In the accompanying drawings, which show a projectile constructed in accordance with my invention, Figure I is a longitudinal section, and Fig. II a top view.

The case or shell A is made, preferably, of wood, and is constructed in such a manner that it will float in an upright position, with its upper end very slightly submerged. In the body of the projectile is a bag, B, made of sail-cloth or other suitable material, filled with porpoise or other oil, with which is preferably mingled sawdust, cork-meal, oakum, or other substance, to prevent the too rapid escape of the oil. The mouth of the bag may be tied with a cord, as shown at *b*. The oil-receptacle could of course be made of tin, pasteboard, or other material, with perforations made therein. The cap or head C, also of wood, is screwed onto the body. It has a large internal cavity or chamber, in which is fitted a cylindrical case, D, containing lumps of calcium phosphide.

To hold the case D in position, it is provided with pins *d*, which take into a horizontal groove, *o*, in the cap C, the latter having also communicating vertical grooves *e* for the passage of the pins. The case is inserted from below, the pins *d* passing through grooves *e* until the horizontal groove is reached, when the case is turned slightly. It can thus be readily inserted and removed. One of the pins *d* is omitted to show the groove *o*. Through the center of cylinder D passes a tube, F, having lateral perforations *f*, the upper end of the tube being just under the central opening, *m*. The portion of the tube within the cylinder D is inclosed by two disks, *g*, which may be of lead. In the cap or head C are two small lateral channels, *h*, through which the water can immediately enter tube F, and from the latter reach the calcium phosphide in cylinder D after the disks *g* have been perforated, which is done just before the projectile is used. Cap C also has two larger channels, *i*, which are closed by plugs of sugar, salt, soap, unsized paper, or like substance easily dissolved or disintegrated by the action of water. The large opening in the bottom of the projectile is also closed by a similar plug, *k*. There may of course be any desired number of channels *h i*.

It is preferred to inclose the shell in a sheath, M, of leather, to facilitate the discharge of the projectile from the bore of the gun and to protect it from the effect of the detonation, if that method of throwing be adopted. The case is also provided at the lower end with an eye, *n*, through which a cord can be passed to enable the device to be thrown by hand, after

the manner of heaving the lead. This eye can be removed when the projectile is fired from a gun.

In using the projectile the cap C is unscrewed and oil poured into bag B, which is first inserted and the mouth of the latter tied. Cap C is then screwed on and small holes punched with an awl through the disks *g* in tube F. The oil does not escape very rapidly from the bag B, and does not act so quickly as water upon the plugs of sugar or salt, so that the channels closed by them are not likely to be opened before the projectile strikes the water, which quickly dissolves or disintegrates them. The water entering the lower opening, *k*, forces the oil slowly through the top of the bag, whence it escapes through the outlets in cap C. In the meantime the water entering the small channels *h* has reached the phosphide of calcium in vessel D, decomposing the same and generating phosphureted hydrogen, which, passing through tube F, ignites at the opening *m*, giving a brilliant and inextinguishable flame.

It is obvious that modifications could be made in the details of construction, and that parts of the invention could be used without others.

I claim—

1. A projectile consisting of a case inclosing an oil-chamber and adapted to float in an upright position, said case having openings at top and bottom closed by plugs of a material soluble or which disintegrates in water, substantially as described.

2. In a sea-oiling projectile, the combination of the shell or case, a bag of textile material for containing oil, and plugs of sugar or like substance closing holes in said shell or case, substantially as described.

3. A projectile consisting of a case inclosing an oil-chamber, and inclosing also a receptacle or vessel containing calcium phosphide, and having openings for the exit of the oil and openings for access of water to the calcium phosphide and for egress of the self-illuminating gas generated thereby, substantially as described.

4. An oil-projectile comprising a body portion inclosing an oil-chamber, a detachable cap having perforations in its walls for the admission of water and the escape of oil, and a vessel or case for containing calcium phosphide located in said cap, and having a gas-outlet arranged to communicate with one of the perforations in said cap, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FERDINAND SILAS.

Witnesses:
PHILIP MAURO,
C. J. HEDRICK.