

No. 816,160.

PATENTED MAR. 27, 1906.

J. D. GRAHAM.
MARINE TORCH.

APPLICATION FILED APR. 7, 1899.

Fig. 1.

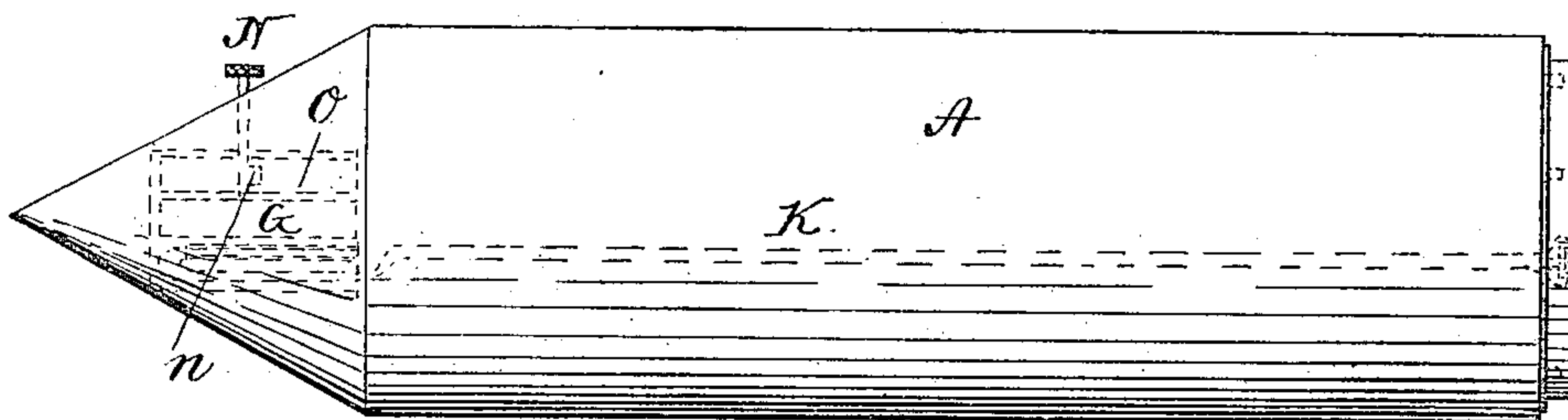


Fig. 2.

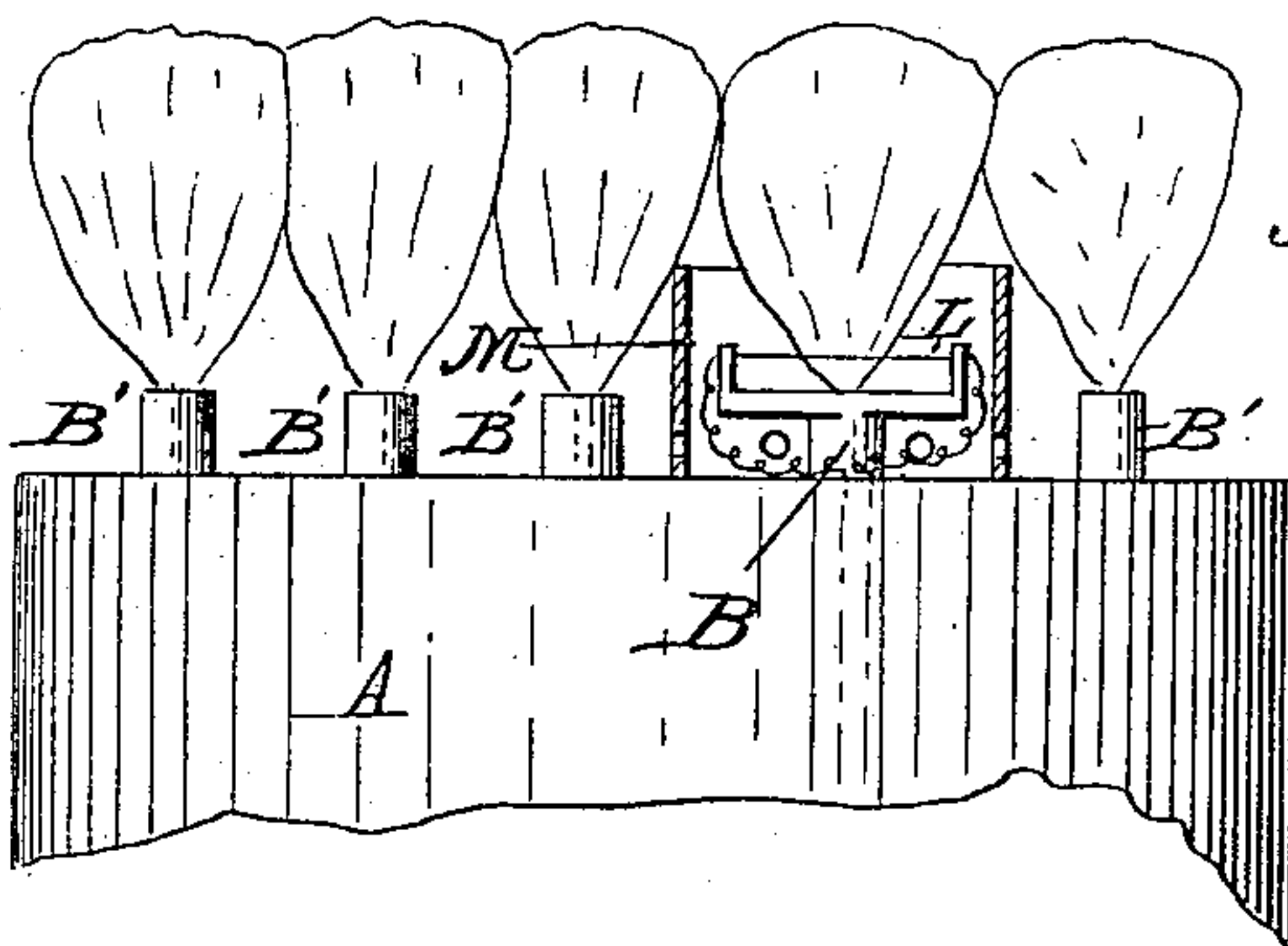
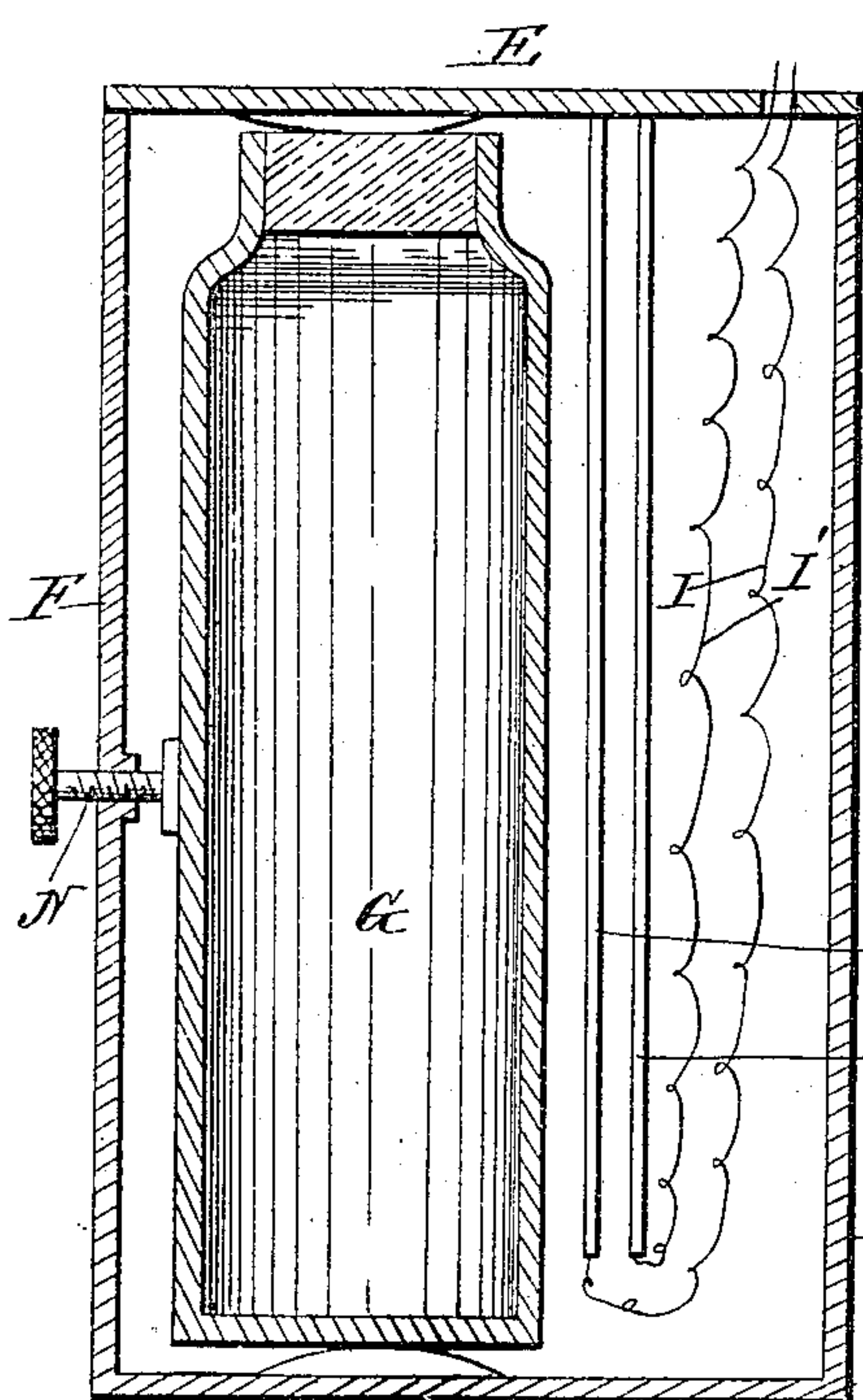


Fig. 3.

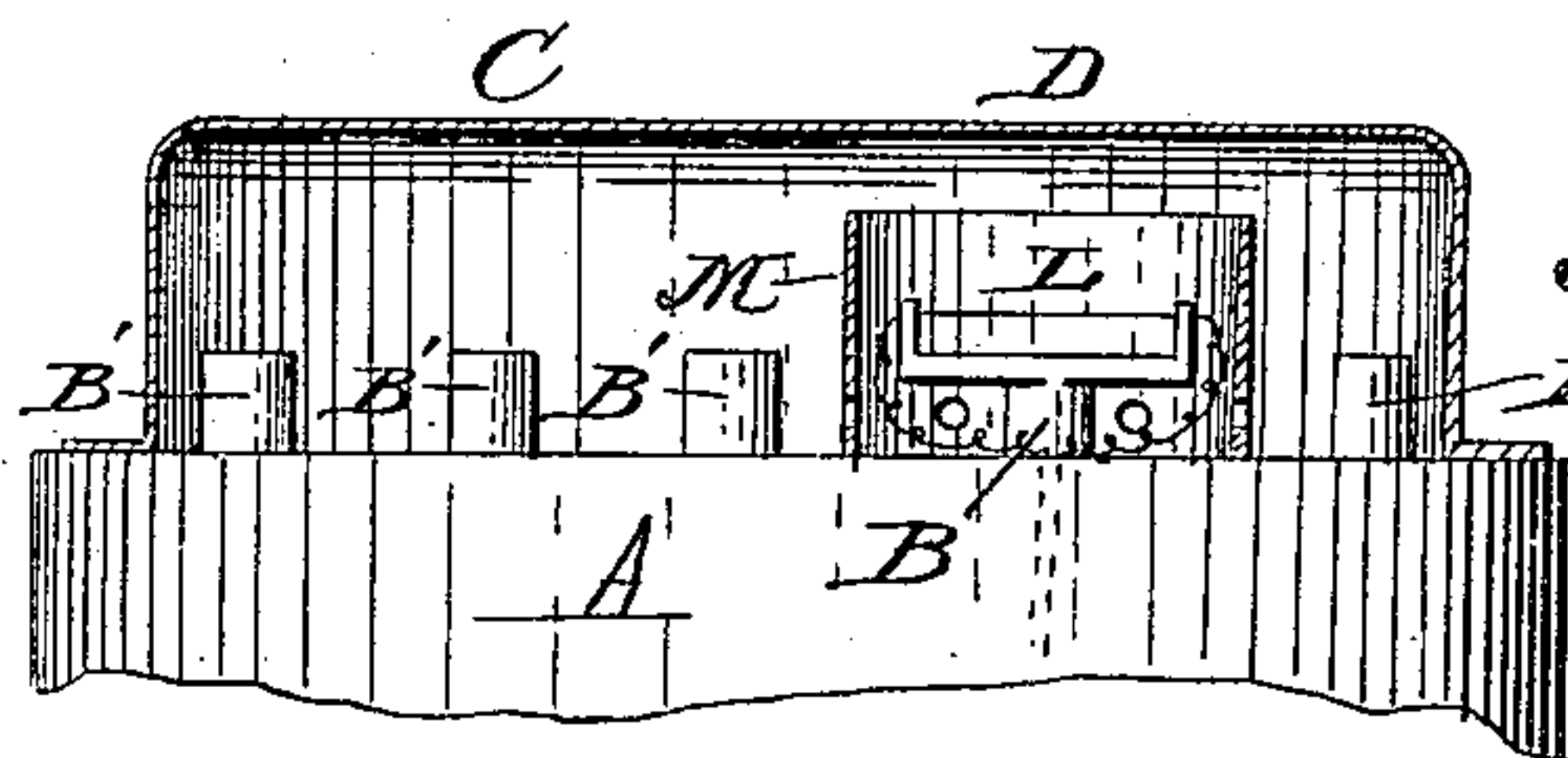


Fig. 4.

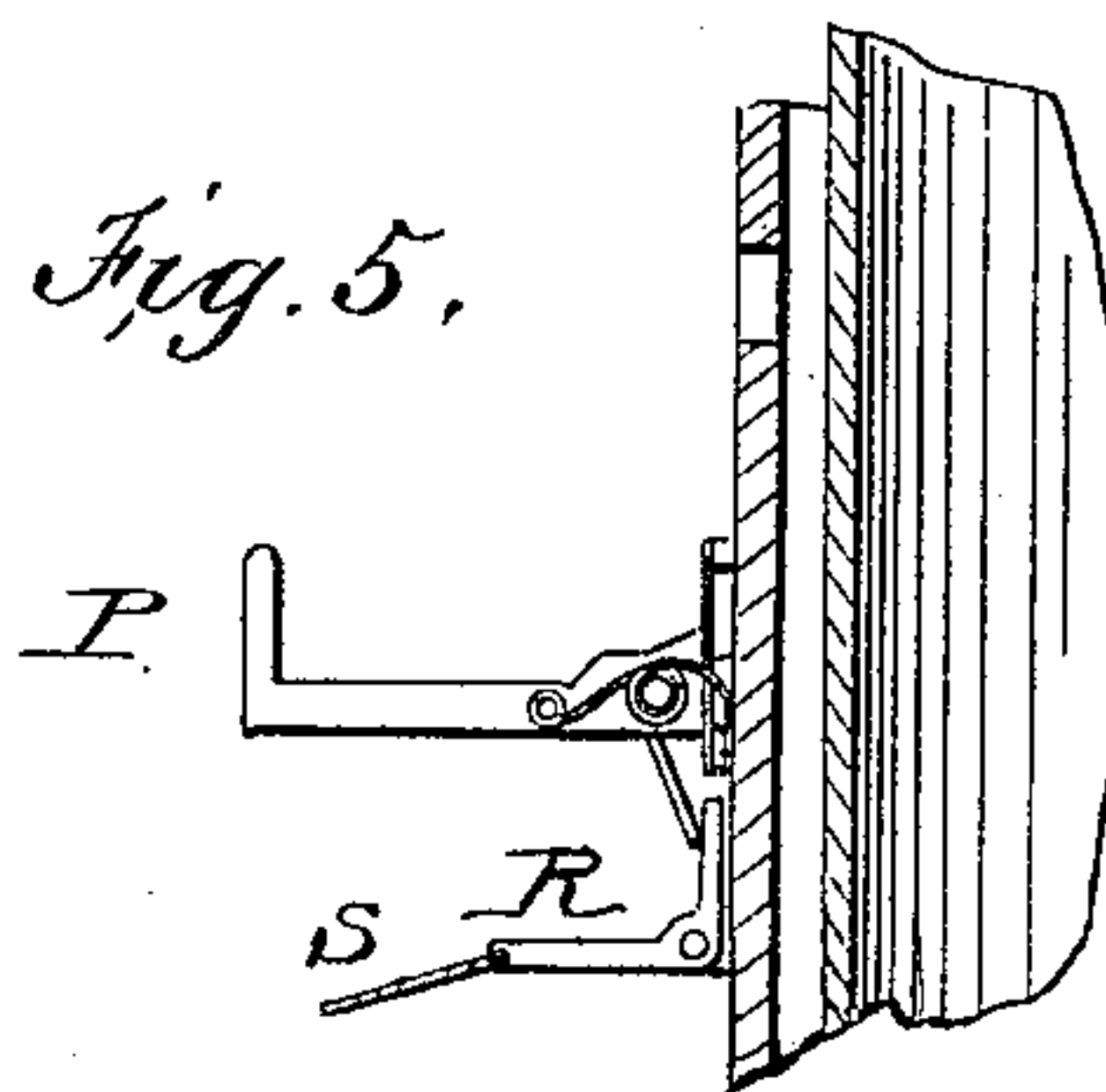


Fig. 5.

WITNESSES:

F. L. Ourand.

George J. Weber

INVENTOR:

John D. Graham.

BY

Samuel J. Wallace

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN D. GRAHAM, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MARINE TORCH COMPANY OF BALTIMORE CITY, A CORPORATION OF MARYLAND.

MARINE TORCH.

No. 816,160.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed April 7, 1899. Serial No. 712,186.

To all whom it may concern:

Be it known that I, JOHN D. GRAHAM, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Marine Torches, of which the following is a specification.

The improvements forming the subject-matter of the invention are applicable to torches in which gas is stored either compressed or in the form of carbid of calcium or liquid hydrocarbon.

The objects of the invention are to provide means for storing the illuminant in the shell and convenient means for lighting the illuminant and relighting it frequently in case the flame should be blown out or otherwise extinguished.

The invention will be described in detail in connection with the accompanying drawings, in which—

Figure 1 is a side view of a complete torch embodying the invention. Fig. 2 shows a battery in section. Fig. 3 shows the upper end of the shell and burners in side view, the guard surrounding the igniter being shown in section. Fig. 4 is a view similar to Fig. 3, but showing in addition the cap for protecting the apparatus from the atmosphere; and Fig. 5 is a view showing a device for starting the igniter.

My invention is intended to be used principally as a floating torch, which may be thrown as a projectile into the vicinity of a vessel, fort, or harbor which it is desired to illuminate. It may, however, be used wherever a brilliant torch is necessary, either on sea or on land.

Referring to the drawings, A indicates a cylindrical shell of suitable material having at one end a conical point and at the other end a series of burners B'. The shell is in the general form of a projectile, and it may be supplied with compressed gas or with some gas-generating substances, such as carbid of calcium and water.

The burner B, situated adjacent to the burners B', is provided with an igniting device, as follows: Upon or adjacent to the burner are two arms which support a platinum wire L, stretched across the opening in the burner. Said wire is connected to the terminals of line-wires I I', extending to the

positive and negative elements H H' of a battery E, which is located within the shell, preferably at the conical end thereof. The battery is inclosed in a hard-rubber case F, and the electrolyte fluid is normally carried in a sealed glass jar or bottle G. The bottle is so arranged within the case F that the shell may be handled without breaking it. Suitable means are provided for breaking the bottle and liberating the electrolyte fluid when it is desired to ignite the gas issuing from the burner B. As shown in Figs. 1 and 2, this is accomplished by means of a screw N, turning in a threaded socket in the case F and having its inner end bearing upon the bottle G.

For some purposes the shell is charged with carbid of calcium, and an extra jar O, filled with water, is provided adjacent to the battery E. When it is desired to use the torch, the jars or bottles G and O are broken, the water from bottle O being permitted to mix with the carbid to generate acetylene gas, while the bottle G discharges its fluid into the battery and creates a current which renders the wire L incandescent and ignites the gas issuing from the burner B. As shown in Fig. 1, the screw N, which should project from the shell, may be provided with a projection or ward n, arranged to break the bottle O when the screw is turned to crush the bottle G. The flame communicates to the jets of gas from the burners B', and a brilliant light is thereby produced. In some cases the vessel O may be charged with compressed or liquefied gas instead of water, the carbid of calcium being dispensed with.

To prevent the flame of the burner B from being blown out by wind or extinguished by waves, the burner is surrounded by a suitable guard M, preferably in the form of a cylindrical wall attached to the top of shell A.

To preserve the carbid within the shell or other contents of the torch from deteriorating from contact with the atmosphere, the torch is provided with a cap or cover C, preferably of stout inflammable paper, which incloses the burners and is suitably attached at its edges to the shell, thus excluding the air from the apparatus. This paper cover may be torn off or permitted to burn off when it is desired to use the torch.

In some instances I may use a spring-hammer P, as shown in Fig. 5, for the purpose of

breaking the fluid-containing jar. This device is useful in case the torch is to be ignited by a person at a distance, in which case a lever-arm may be used to throw the hammer, the lever being connected to a cord S.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a torch, a shell charged with illuminant and provided with suitable burners, in combination with an electric igniter for one of the burners, a battery within the shell and in circuit with the igniter, a fragile vessel containing the electrolyte fluid, and means for breaking said vessel to liberate the fluid when it is desired to operate the igniter.

2. In a torch, a shell charged with illuminant and provided with suitable burners, in combination with an electric igniter for one

of the burners, a normally inoperative battery in circuit with said igniter, a sealed vessel within the battery containing the electrolyte fluid, a second vessel containing material for producing the illuminant, and means for breaking both of said vessels, whereby the illuminant may be produced and simultaneously ignited, as set forth.

3. In a torch, a shell charged with illuminant and provided with suitable burners, in combination with a combustible cap or cover surrounding the burners and forming an airtight seal therefor, and an igniter for the illuminant.

JOHN D. GRAHAM.

Witnesses:

SAML. J. WALLACE,
SAML. C. MILLS.