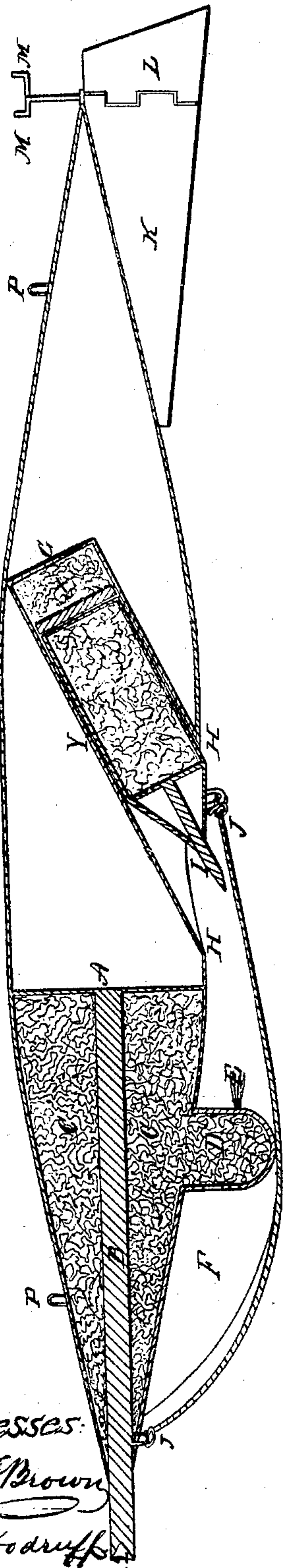


M. L. CALLENDER.  
Marine Torpedo.

No. 39,612.

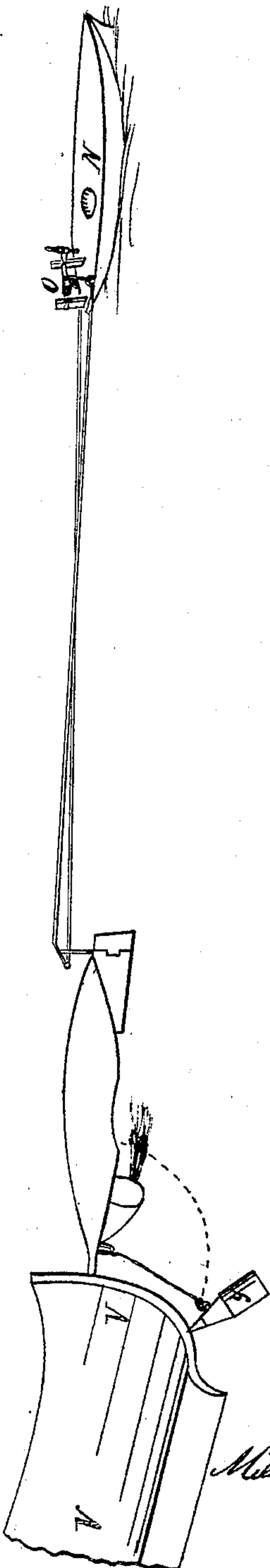
Patented Aug. 18, 1863

Fig. 1.



Witnesses:  
Edw. P. Brown  
C. M. Woodruff

Fig. 2.



Inventor:  
Miles L. Callender



# UNITED STATES PATENT OFFICE.

MILLS L. CALLENDER, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, CHARLES H. WELLING, AND ELBERT PERCE, ALL OF SAME PLACE.

## IMPROVEMENT IN SUBMARINE EXPLOSIVE PROJECTILES.

Specification forming part of Letters Patent No. 39,612, dated August 18, 1863; antedated October 16, 1862.

*To all whom it may concern:*

Be it known that I, MILLS L. CALLENDER, of the State and city of New York, have invented a new and useful Water Projectile or Rocket and Torpedo and Apparatus for Coast and Harbor Defense and for Sea Service; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in propelling a proper vessel on or beneath the water by means of gases formed by the combustion of compounds that form large volume of gases, or by compressed air, and projecting and exploding a torpedo or magazine under a gun-boat or other vessel or object, or against the same.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct a vessel of tin, iron, or other material in a cylindrical form, and tapering to a point at each end, and intended to float on or under the water, as the case may require. The interior of this cylinder or rocket, Figure 1, has a partition at A, forming a chamber in its front part, through which passes and is secured the heavy bar of steel or iron B, projecting beyond the vessel and ending in the form of a round hollow or concave punch, the cutting-edge being the outer circumference of the edge of the bar, with the center hollowed out or concave at Q. The chamber C C is intended to contain rocket or meal powder, or its equivalent, or compressed air, and has a hollow projection at D, with an opening or vent at E. This projection has a cut-water and brace combined at F. A smaller fixed cylinder, G, is inserted at H H in the larger or main projectile at the bottom, and inclines and opens only at the bottom, at an angle toward the front of the main cylinder. This is to contain a small charge of powder at X, and is also supplied with another smaller cylinder or magazine Y, pointed and armed with a penetrating bar at its lower extremity I, and is secured by stout staples and a chain, J J, to the front part of the main cylinder or water-rocket. At K is a false keel, a rudder, L, and rudder-post and arms M M.

P P are staple-rings, by which the cylinder

can be hoisted up and suspended from the davits of a gun-boat or vessel.

At N, Fig. 2, is a small boat with a windlass or tiller at O, intended to be attached to the water-rocket by and to operate the rope or ropes of the rudder L to guide it in its direction. The small boat N may be replaced by a dummy, tow-clog, or drag, attached to the rudder L by a single line to act as a self-guide, by a device to be described hereinafter, or it may be guided from a gun-boat or vessel.

The rocket, Fig. 2, is represented in the act of striking the side of the vessel V V, while the magazine Y is projected under and against the bottom, where it explodes. The dotted lines show the direction it moves through the water. This rocket, Fig. 1, is intended to move on or beneath the water by the force of gases evolved in it by combustion of semi-explosive compounds, or by compressed air, either acting directly as a reactionary force or by the aid of mechanical appliance, as a screw or paddle-wheel, when moved by explosive gases or compressed air. The rocket is to be suspended by davits on a gun-boat or vessel, or secured in some convenient and ready manner, so that the fuse E can be ignited and the rocket lowered and cast loose readily, obtaining its direction and an initial velocity by the momentum given it by the motion of the gun-boat or vessel, which is increased by the gases escaping from the chamber C C until it strikes the object to be destroyed. When used thus the rudder L, guide-ropes, &c., will not be used, as the gun-boat will be sufficiently near to render it unnecessary; but otherwise it may be used with and directed by aid of a small boat, or kept in its original direction by a tow-clog or drag, without the aid of a small boat-tiller and man, or it may be started directly from the shore.

The magazine may be a part of the rocket, or be a separate cylinder, as at Y, which is to be projected against and under the vessel to be destroyed, or other object, by its own momentum when the rocket strikes, or by a small charge of powder, as at X, to explode when the rocket strikes, the chain J J operating to give it a direction to bring it more certainly against the bottom of the object, where it is exploded by either percussion or time fuse.

The hollow or concave punch at Q is in-

tended to cut in and penetrate when striking at an angle without glancing off, and this same principle will apply to any kind of a projectile.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The application and use of a water-rocket or self-propelling vessel or projectile, to move upon or beneath the water, for the purposes and in the manner substantially as described.
2. Driving a torpedo, or explosive case, or

magazine under and through the water at any object, by the momentum gained by the moving force of another body, or by discharging it by other force with a view to explode it under or against a vessel or other object under water.

MILLS L. CALLENDER.

Witnesses:

EDM. F. BROWN,  
E. W. WOODRUFF.