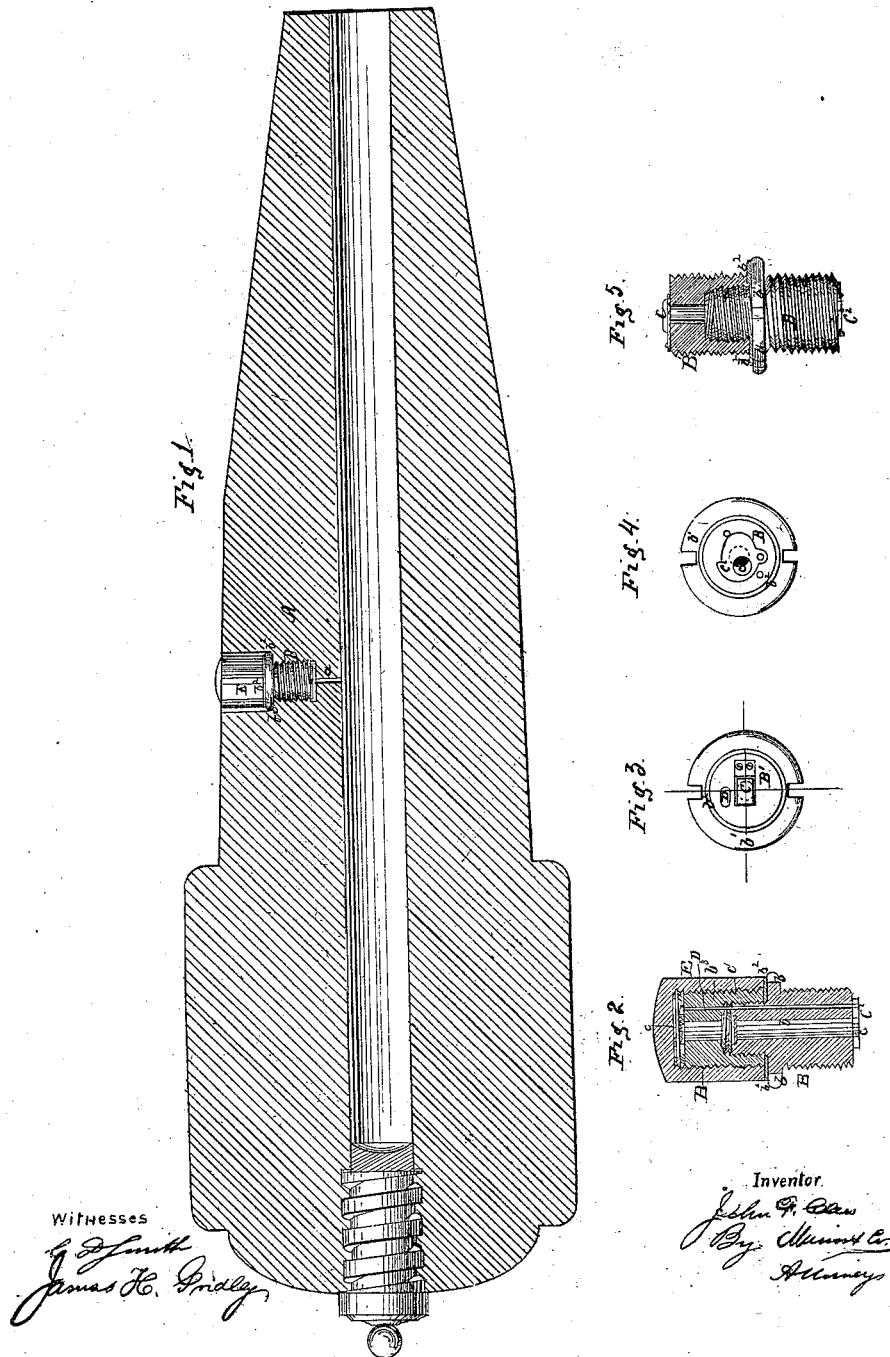


J. F. CLEU.

Valve for Submarine Ordnance.

No. 46,080.

Patented Jan. 31, 1865.



UNITED STATES PATENT OFFICE.

JOHN F. CLEU, OF NEW YORK, N. Y.

IMPROVED VALVE FOR SUBMARINE ORDNANCE.

Specification forming part of Letters Patent No. 46,080, dated January 31, 1865.

To all whom it may concern:

Be it known that I, JOHN F. CLEU, of the city, county, and State of New York, have invented a new and Improved Valve-Plug for Submarine and other Ordnance; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a horizontal section of a cannon with my valve-plug applied. Fig. 2 is a longitudinal section of the valve-plug on a larger scale. Fig. 3 is a view of the inner end of the said valve-plug. Fig. 4 is a view of the outer end thereof. Fig. 5 is a side elevation of the same, partly in section.

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

The nature of this invention consists in fitting a piece of ordnance with a valve-plug adapted for the attachment of an air-pump for the purpose of exhausting the air from the bore in front of the charge and projectile, and serving to maintain a vacuum therein. The projectile, having had all atmospheric resistance removed from it in the bore of the gun, takes a much higher initial velocity, giving it a greater range and much greater penetrative effect.

The invention further consists in an appliance for protecting the aperture and valves in the said plug from the expansive pressure of the gases within the bore in the act of firing.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A represents a gun of suitable form for submarine ordnance, and which may be used in connection with my submarine port-hole patented December 20, 1864.

To the muzzle of the gun may be applied a tampon-cap of the kind for which I obtained Letters Patent on the 15th day of November, 1864.

My valve-plug consists of a metal tube, B, screwed into a corresponding aperture formed for it in the side of the gun, at any suitable point between the muzzle and the part occupied by the projectile, the said tube being

provided with one or more valves, C C', which permit the egress of air when the exhausting apparatus is in operation, but prevent its ingress. The valve C is fitted upon the end of an outer section, B', of the tube, which outer section is screwed over the end of the inner section, B, with sufficient space between to permit the valve C' to open freely. The outer section, B', is screw-threaded externally, and constitutes a nozzle for the attachment of the exhausting apparatus and the subsequent application of a cap, E, by which the tube is finally closed.

Upon the outside of the tube B is formed a collar, b', for the reception of which the gun is counterbored, as shown in Fig. 1.

b² represents a packing-ring, of leather or other suitable material, to form an air-tight joint with the edge of the cap E.

a represents a narrow vent leading from the tube B to the bore of the gun.

Upon the inner end of the tube B is fitted a check-valve, c², by which the aperture of the said tube may be closed to protect the valves C C' from any effect from the expanding gases at the time of firing. An aperture, c, in the said check-valve affords communication with the bore when it is to be exhausted of air. The check-valve c² is turned by hand by means of a button, d, upon the rod D, to the inner end of which the check-valve is attached.

Operation: When the gun is to be exhausted of air preparatory to firing, the check-valve is so turned that its aperture c will open communication between the bore and the tube B. Any suitable exhausting apparatus is then connected to the nozzle B, and the air is withdrawn from the bore, the valve C C' closing automatically, so as to effectually prevent its return. When the bore has been completely exhausted, the apparatus employed therefor is removed from the nozzle B', the check-valve c² is turned by means of its button d, so as to close the inner end of the tube B, after which the cap E is applied to the nozzle B', and the piece is then ready for firing.

The invention is more especially intended for use with submarine ordnance, but is not necessarily confined thereto. It is proposed to use it with breech-loading and muzzle-loading cannon of all descriptions. In every case the piece must of course be loaded and its

muzzle closed with an air-tight cap before the bore is exhausted of air.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent—

1. The plug B, provided with one or more valves, C C', and a cap, E, for the purpose of protecting said valves and excluding air from an exhausted cannon.

2. The check-valve c^2 , employed, substantially as described, to protect the aperture b and valves C C' from the expansive pressure of the gases within the gun.

JOHN F. CLEU.

Witnesses:

OCTAVIUS KNIGHT,
EDWARD H. KNIGHT.