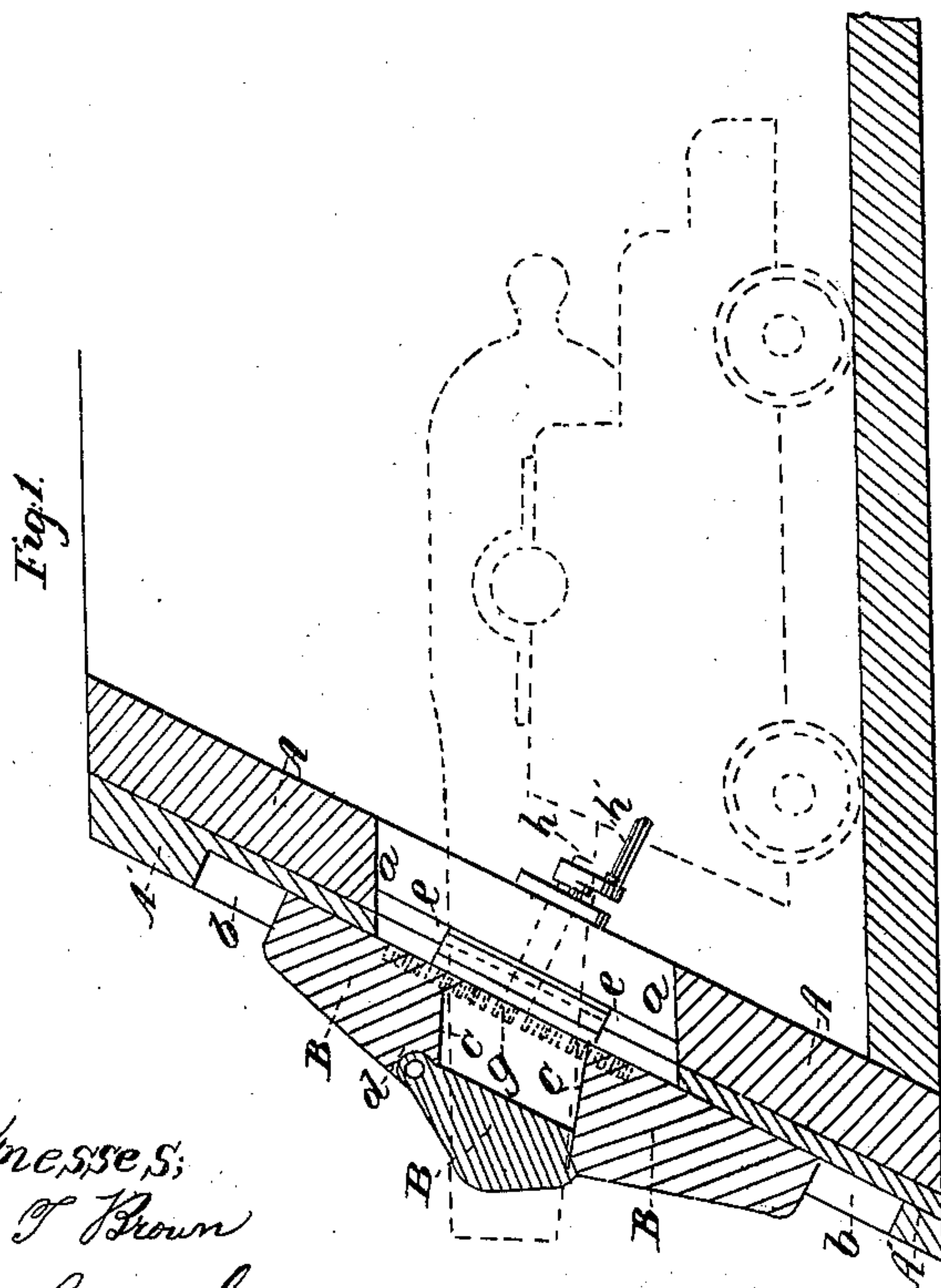
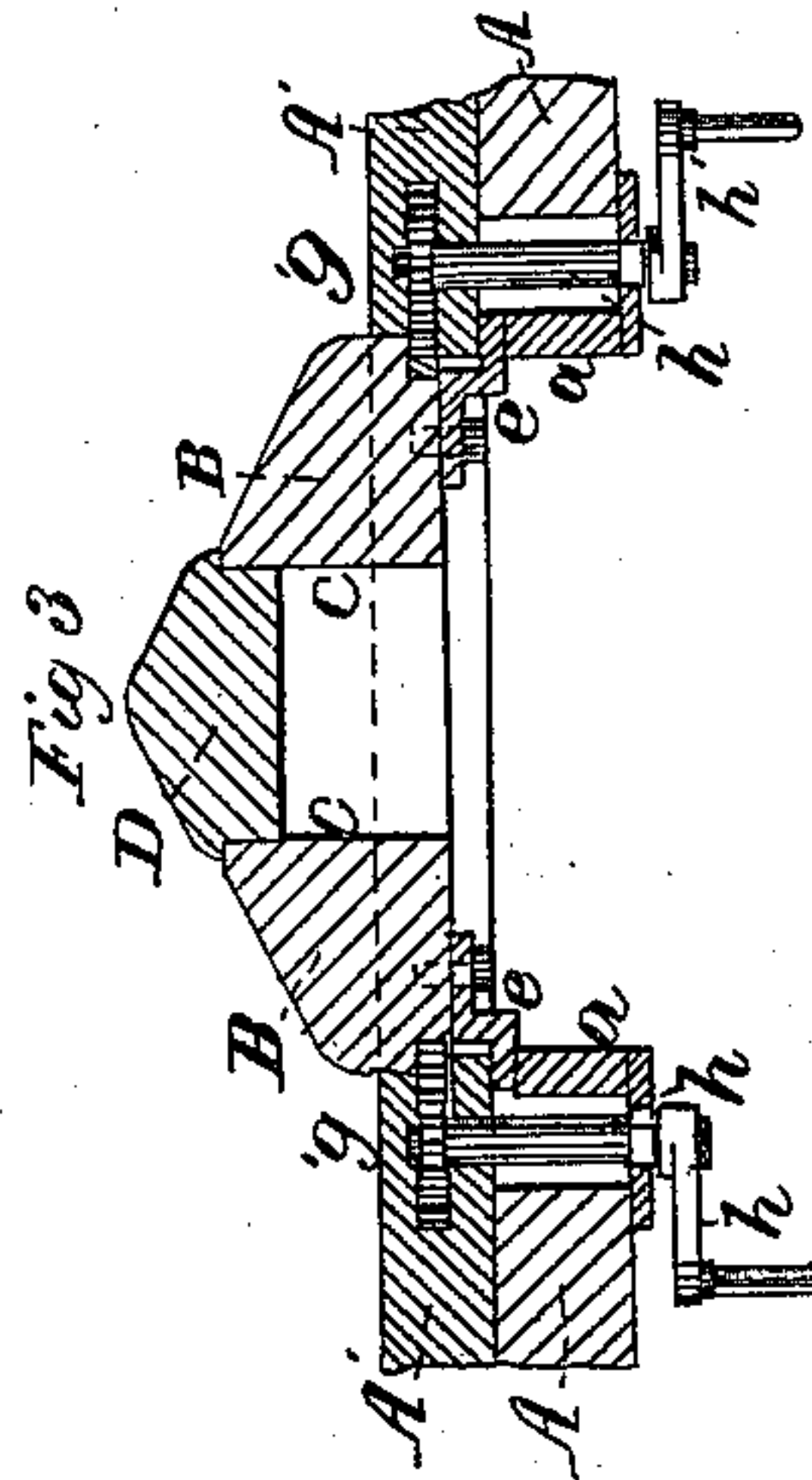
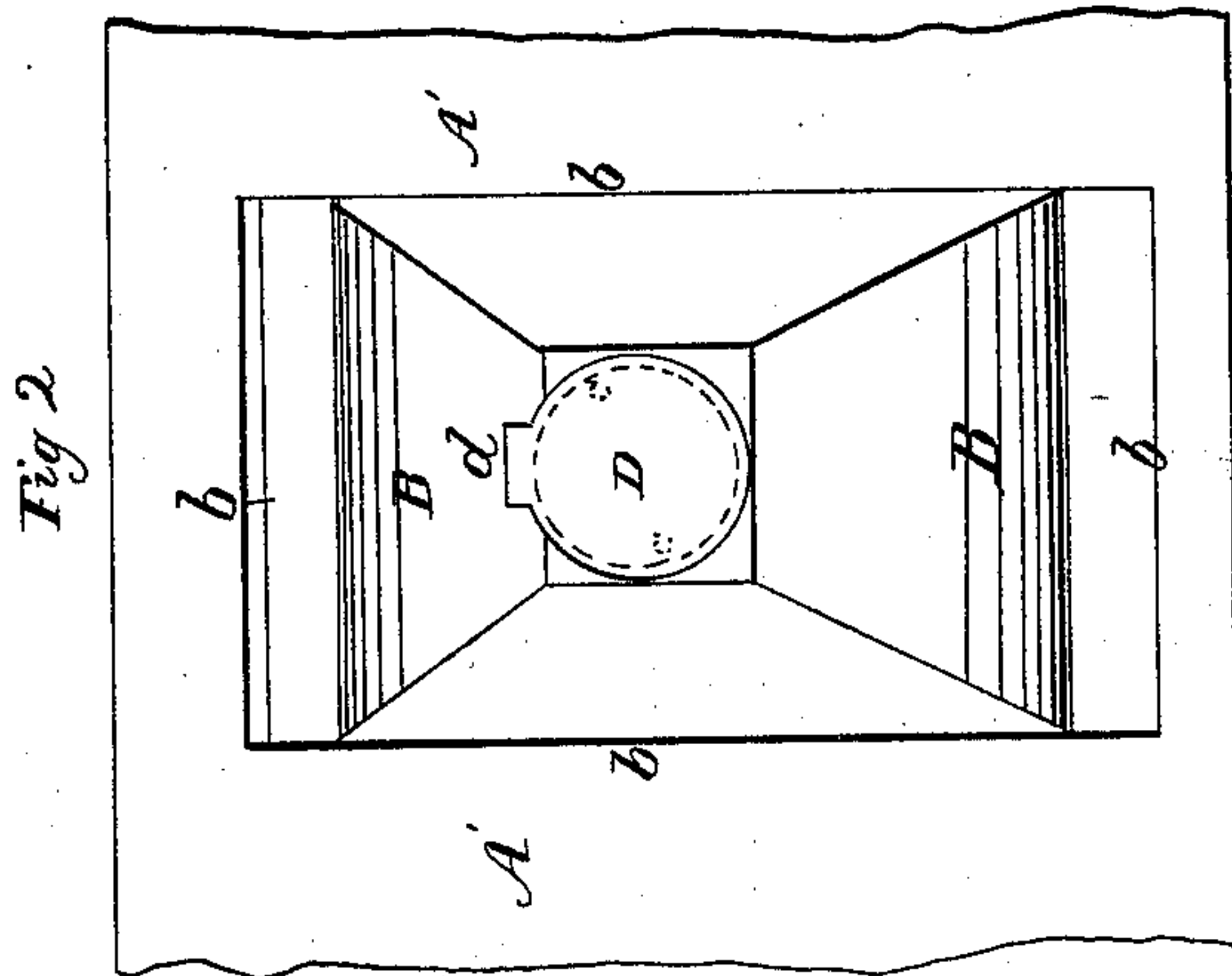


R. TRUSSELL.
Directing Ordnance.

No. 41,245.

Patented Jan. 12, 1864.



Witnesses;
Henry T Brown
Geo Coombs

Inventor;
Richard Trussell

UNITED STATES PATENT OFFICE.

RICHARD TRUSSELL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DIRECTING GUNS BY ADJUSTABLE PORTS.

Specification forming part of Letters Patent No. 41,215, dated January 12, 1864.

To all whom it may concern:

Be it known that I, RICHARD TRUSSELL, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful improvements in the gun-ports and mode of operating the guns of vessels of war and fortifications; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a transverse vertical section of part of the side of a vessel illustrating the application of my invention. Fig. 2 is a face view of the same. Fig. 3 is a horizontal section of the same.

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

This invention relates to constructing a gun-port in what may be termed a "port-slide," covering and fitted to work up and down over the exterior of an embrasure in the vessel or fortification, and containing a port only just large enough for the free passage of the muzzle and a sufficient portion of the length of the chase of the gun. The port-slide rises and falls as the elevation of the gun is increased or diminished, without uncovering any portion of the embrasure, so that the only opening presented on the outside of the vessel or fortification is the small port above mentioned, and this is provided with an outwardly-opening port-stopper which is self-closing, when the gun is drawn within the port-slide, and opened by the pressure of the muzzle of the gun when the gun is run out for action. It further relates to elevating and depressing the gun by mechanical power applied to the port-slide.

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

A represents a portion of the side of a vessel cased with iron armor A, and having in it an embrasure, *a*, large enough to allow the working of the gun and its elevation and depression to any desirable degree. This opening is situated within a parallel-sided recess, *b*, formed in the armor A', and between the sides of which the port-slide B is fitted to work freely up and down. This port-slide is made of solid iron, or of timber faced with iron of sufficient thickness to be shot or shell proof.

c is the port made in the center of the said slide, of circular form, and just large enough for the free passage of the muzzle and part of the chase of the gun, which is represented in Fig. 1 in red color as run out through the said port. The length of the slide from top to bottom is such that it will keep the embrasure *a* covered whatever may be the elevation and depression permitted to the gun, such elevation or depression requiring a corresponding elevation and depression of the slide. The length of the recess *b* must be sufficient to allow the proper upward and downward movement of the slide. The slide is held within the recess *b* by means of angle-irons *ee*, bolted to its inner side and lapping over the inside of the armor A'.

hh are short shafts arranged in suitable fixed bearings on each side of the embrasure, and furnished with pinions *g g*, which gear with toothed racks formed upon or within the port-slide. These shafts are furnished inside of the vessel with cranks *h' h'*, or ratchet-levers, for the purpose of turning them by hand, and so causing the pinions to act upon the racks for the purpose of raising and lowering the port-slide, and thereby elevating and depressing the gun when the latter is run out through the port *c*.

D is the self-closing port-stopper for closing the port *c*, consisting of an iron plate of corresponding form with and very little larger than the port itself, hinged at the top to the slide B by a sunk hinge, *d*, and closing by gravitation when the gun is run back within the port. The said stopper is opened by the pressure of the muzzle of the gun in the act of running out the gun for action, and when open its lower edge rests on the top of the gun. The exterior surfaces of the slide and port D are beveled in such a manner that projectiles striking them may glance off.

This mode of constructing the port in a slide, B, permits the gun to be elevated as much as necessary without making the port any larger than is absolutely necessary to admit the muzzle and part of the chase of the gun, and so leaves no space above or below the port for the entrance of an enemy's projectiles, and, by the use of the self-closing stopper D, closing by its own weight, the port is closed as soon as the gun is drawn in.

The invention is applied to an iron turret

or cupola or to a land fort in the same manner as to the side of a vessel, as herein represented and described. In its application to a land fort the fort, or the portion thereof containing the embrasure, should be covered with iron armor.

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

1. The combination of the port-slide B, applied outside of the embrasure, and the self-closing port-stopper opening outward by the

running out of the gun, substantially as herein described.

2. Elevating and depressing the gun by applying the necessary power to raise and lower the port-slide by means of racks and pinions, or their equivalents, substantially as herein specified.

RICHARD TRUSSELL.

Witnesses:

HENRY T. BROWN,
M. M. LIVINGSTON.