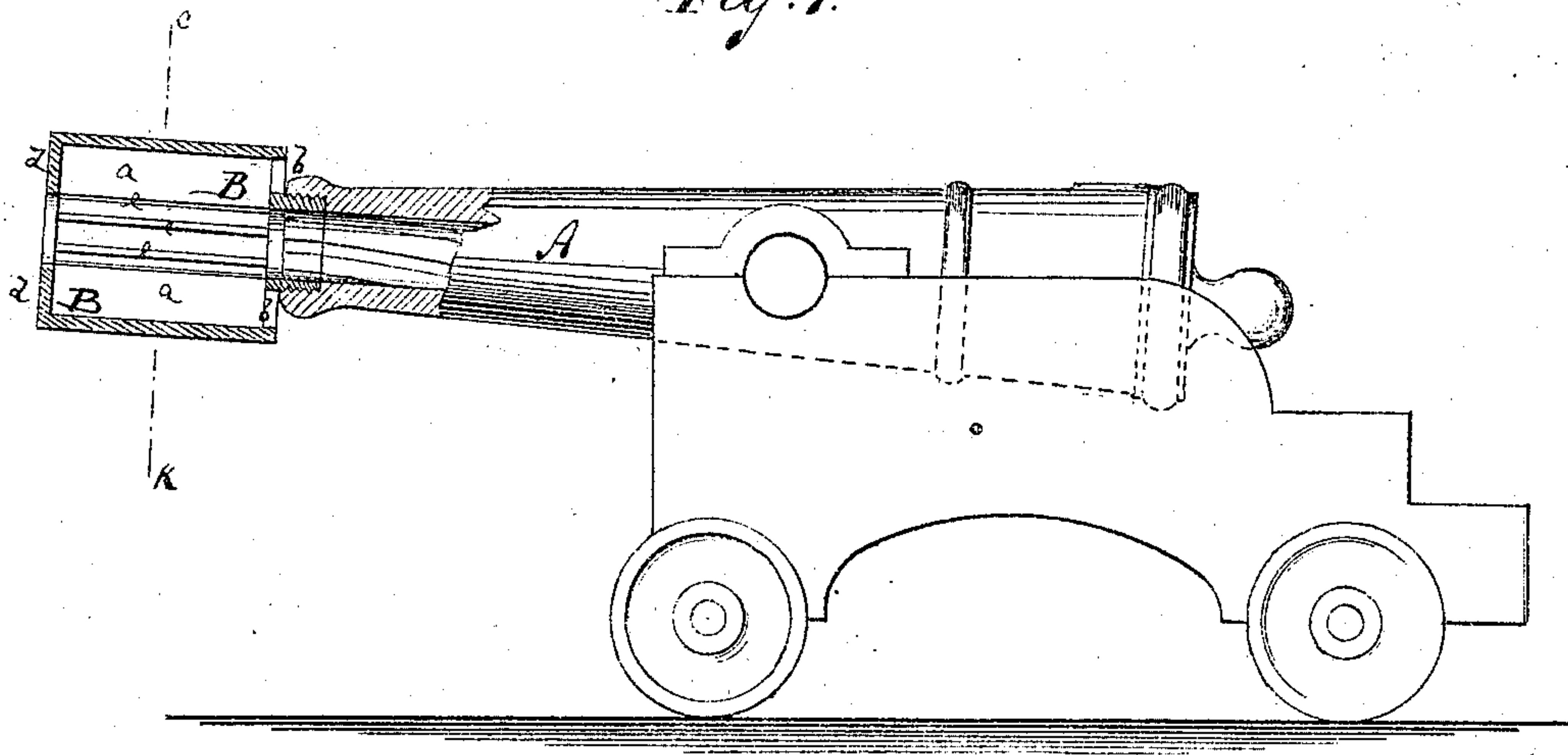
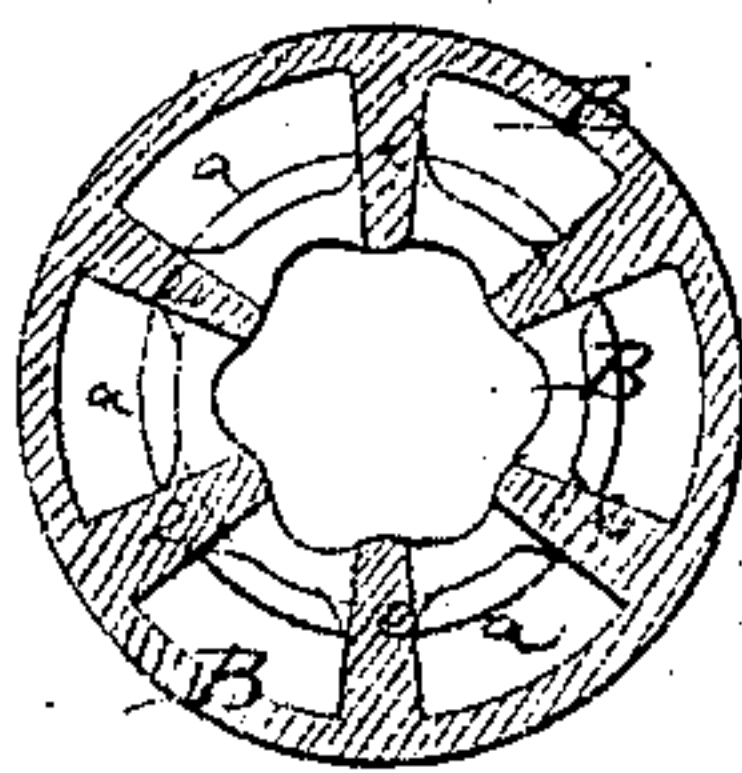


*S. F. Hawley, Recoil Obviator.*

*Fig: 1.*



*Fig: 2.*



**Witnesses:**

*C. Raettig.*  
*Wm. H. C. Smith.*

**Inventor:**

*S. F. Hawley.*

**PER**

*Wm. H. C. Smith.*

**Attorneys.**

# UNITED STATES PATENT OFFICE

SAMUEL F. HAWLEY, OF CONSTABLEVILLE, NEW YORK.

## IMPROVEMENT IN RECOIL-OBVIATORS FOR ORDNANCE.

Specification forming part of Letters Patent No. 118,933, dated September 12, 1871.

*To all whom it may concern:*

Be it known that I, SAMUEL F. HAWLEY, of Constableville, in the county of Lewis and State of New York, have invented a new and Improved Recoil-Obviator for Cannon; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a longitudinal section of a cannon having my improved recoil-obviator. Fig. 2 is a transverse section of the same on the line *c k*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention has for its object to prevent the recoil of cannon and heavy guns; and consists in the application to their muzzles of counter-recoil chambers, which receive the direct concussions of the charges, and thereby counteract the effect of the air rushing into the barrels to fill the vacuum subsequent to explosion.

A in the drawing represents the barrel of a cannon of suitable construction. To its front end is, in suitable manner, secured an extension, B, which

continues the bore of the gun and forms an annular chamber, *a*, around the bore. This chamber *a* is open at the back, as at *b*, but closed in front, as at *d*, and its inner wall is perforated, as is clearly shown in Fig. 2. The front *d* receives the concussion of the charge which escapes from the vent *b* in rear, while the vacuum created by the explosion is supplied, before the effects of the concussion on the front of the chamber is spent, through the same vent *b*, thus counteracting the ordinary effect of, and causing the cannon to remain stationary after, an explosion. The annular chamber *a* may be divided up by a series of longitudinal ribs *e e*, which strengthens the extension and are clearly shown in Fig. 2.

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

The recoil-obviator attachment to guns, consisting of the chamber *a*, open in rear and closed in front, and applied to the muzzle of the gun, substantially as herein shown and described.

SAMUEL F. HAWLEY.

Witnesses:

S. A. JOHNSTON,  
EDWARD C. THOMPSON.