

R. C. BRISTOL.  
Breech-loading Ordnance.

No. 34,730.

Patented March 25, 1862.

Fig. 1.

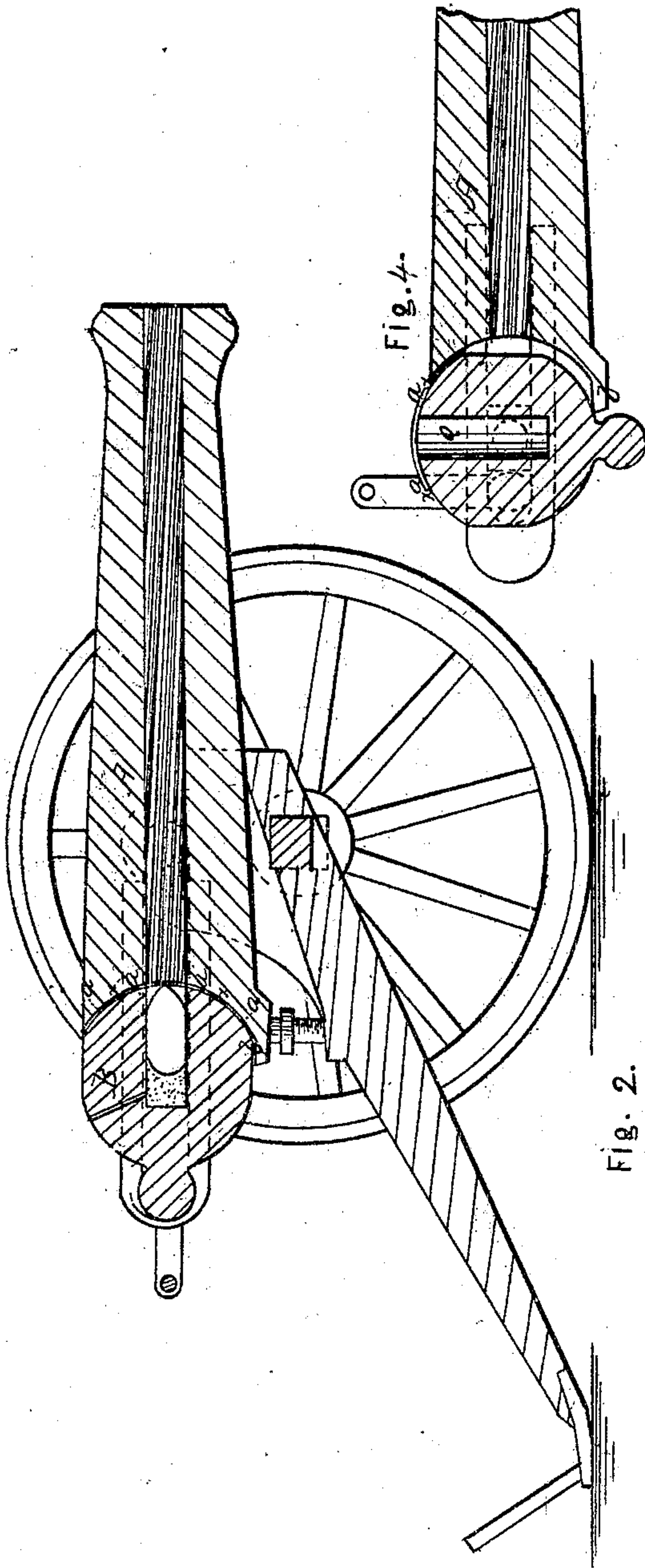


Fig. 4.

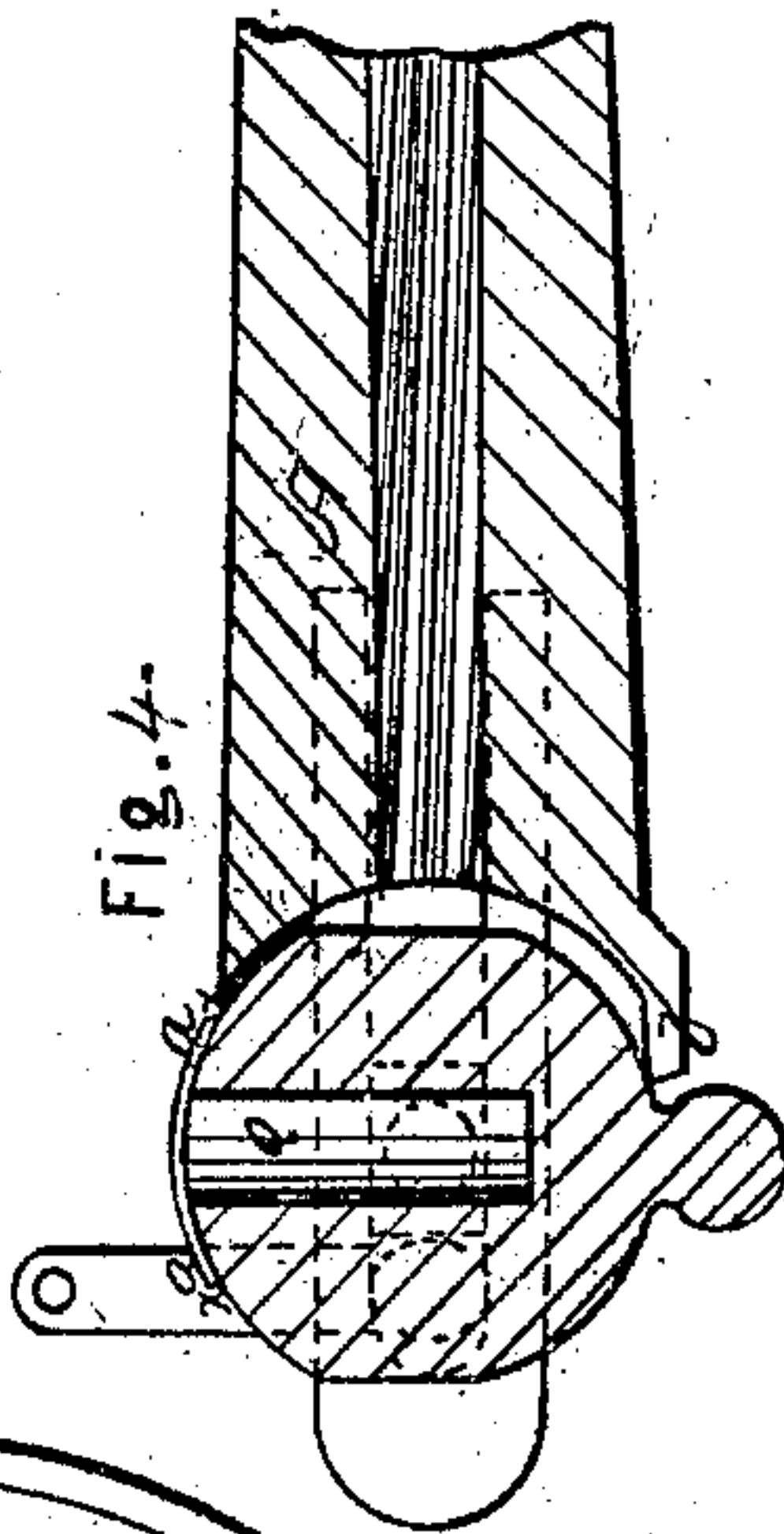


Fig. 2.

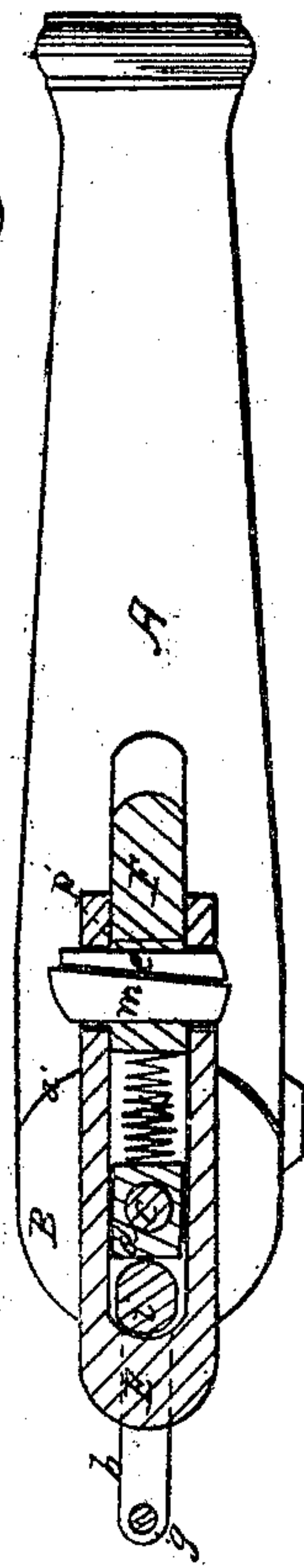
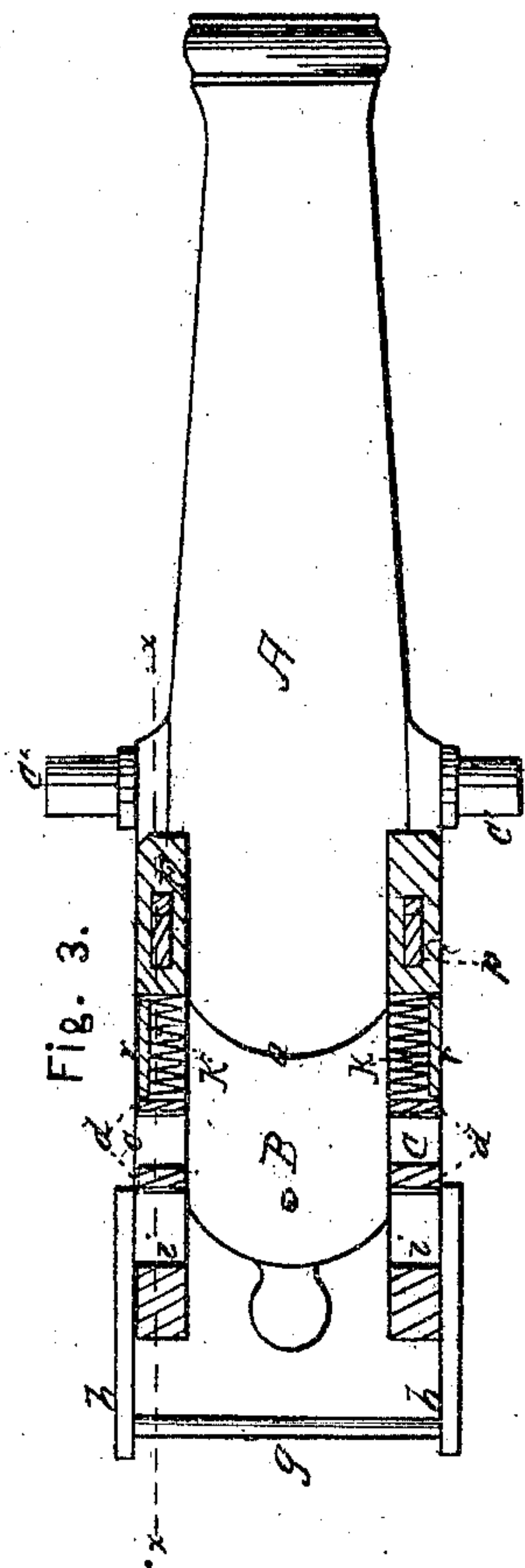


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

RICHARD C. BRISTOL, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 34,730, dated March 25, 1862.

*To all whom it may concern:*

Be it known that I, RICHARD C. BRISTOL, of the city of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Breech-Loading Ordnance; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon—like letters indicating the same or analogous parts—and in which drawings—

Figure 1 is a longitudinal vertical section of my said improvement; Fig. 2, a vertical section through line *xx*, Fig. 3, a horizontal section, the cannon being in elevation; and, Fig. 4 a sectional view, showing the breech thrown into position to receive a charge.

In the drawings, A indicates the main body of a cannon, rifled in the usual manner, with its rear end concave in the arc of a circle, and having its lower rear extremity terminating in a projection or rest, B.

B is the breech, having trunnions *c* projecting from its sides, as clearly shown in Fig. 3, which trunnions are supported on sliding boxes *d*, fitted to travel back and forth in adjusting yokes E, secured to ears or offsets F, extending back from the main trunnions *c* on either side of the main body A of the cannon. In the rear end of yokes E, I secure a hand cam-lever composed of a handle, *g*, arms *h*, and cams *i*, as clearly shown in Figs. 2 and 3, and interposed between the sliding boxes *d* and the rear termination of the ears or projections F are coiled springs *k*, as also shown in said figures.

By an inspection of Fig. 2 of the drawings it will be perceived that the yoke E, which supports the breech of the cannon, the hand cam-lever, the boxes, and springs, may be made to adjust back and forth by means of the wedges *e* and *m* being driven in or out of the mortises *p* and *p'* of the yoke E and projection F, as the case may be—that is to say, if in the course of use the cams *i* should become worn away upon their working-face, by driving in the wedges *m* and *e* the yoke E can be forced forward toward the mouth of the cannon, thus readily compensating for the frictional wear upon the cams, as well as for any wear upon parts in contact therewith, such forcing forward of the yoke also compensating for any wearing away

of the circular forward portion of the breech B against the corresponding main portion of the cannon A, to which it fits. The trunnions *c* of the breech B are so constructed with relation to the body of metal composing the breech that the center of gravity will be just so far in rear of the horizontal axis of the said trunnions that when the pressure of the cam-lever is withdrawn from the breech, the breech will automatically assume the position shown in Fig. 4, and be ready to receive a charge of powder and ball, so that but little effort by the hand of the operator will be required, after charging the breech, to return it to a position which will cause the bore Q of the breech to come in line with the bore of the main portion A of the cannon.

Supposing the cannon to have been just fired, the relation of the several parts will be as represented in Figs. 1, 2, and 3. The cam-lever is then thrown by the hand of the operator into the position shown in Fig. 4, the springs *k* meantime expanding and forcing the breech from contact with the rear end of the main part A a sufficient distance to permit the action of gravity upon the breech B to cause it to assume the position shown in Fig. 4. The breech is then loaded, whereupon the operator returns the breech to a position which will make its bore correspond with the bore in the main part A, and which position will be with certainty indicated to the operator by the lower portion of the breech striking and resting upon the lip or rest *b*. The operator then draws down the cam-lever from the position shown in Fig. 4 to the position shown in Figs. 1, 2, and 3, which act causes the cams *i* to force forward the blocks *d*, carrying the trunnions *c* of the breech, and contracting the springs *k*, situated between said blocks and the rear termination of the ears F, thus forcing the forward part of the breech in close contact with the rear concave end of the main portion A, and in which condition the cannon is again ready to be fired.

In the drawings, Fig. 3 shows caps *r*, which may be used to conceal and protect the springs *k*, and which caps may be removed and shortened so as to fit the contraction of the space between the blocks *d* and the rear end of the ears F whenever it should become necessary to force the yoke E forward by means of the wedges *e* and *m*, as above described.



It will be observed that when the breech is automatically being thrown into the position shown in Fig. 4 an excessive movement of the breech is arrested by the lip or rest *b* coming in contact therewith at the moment the breech has assumed the proper position for loading.

In the drawings, as clearly shown in Figs. 1 and 4, it will be seen that between the points *x x* the diameter of the breech *B* is reduced, so that but a small part, as at *a a*, immediately around the bore *Q* of the forward portion of the breech will come in contact with the rear end of the main portion *A* of the cannon at the moment of firing, or while in the act of loading. This reduction of the diameter of the breech admits of a more perfect joint being formed between the surfaces in contact, and in case of a leak of the explosive gas a less surface is presented against which it would act with a tendency to separate the respective parts. Besides this, between the points *x x* and the outer surface of the cannon an opening or space, as at *a' a'*, Fig. 1, is formed, which, being occupied with the surrounding atmosphere at the moment of discharge of the cannon, and at a point near the most intense heat generated by the ignited powder, tends to keep the metal of the cannon cool where it is most liable to become expanded by the action of heat.

Having thus described my said invention,

what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. Supporting the trunnions of a revolving breech upon movable blocks acted upon by springs in the manner described, for the purpose of forcing the breech from contact with the main barrel when the pressure which forces the breech against the main barrel is removed.

2. So constructing and hanging the turning breech on trunnions and against a yielding force that when the breech is released it will automatically move out of contact with the main body of the cannon, and also automatically turn its bore to a vertical position, substantially as and for the purposes set forth.

3. The yoke *E*, in combination with the ears *F* and wedges *m* and *e*, in the manner and for the purpose substantially as set forth.

4. The combination of a revolving breech with the cams *i*, springs *k*, and wedges *l* and *m*, substantially as described.

5. The rest *b*, in combination with the revolving breech *B*, for not only arresting the excessive automatic revolution of the breech, but for supporting it in a horizontal position, substantially as described.

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Witnesses:

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