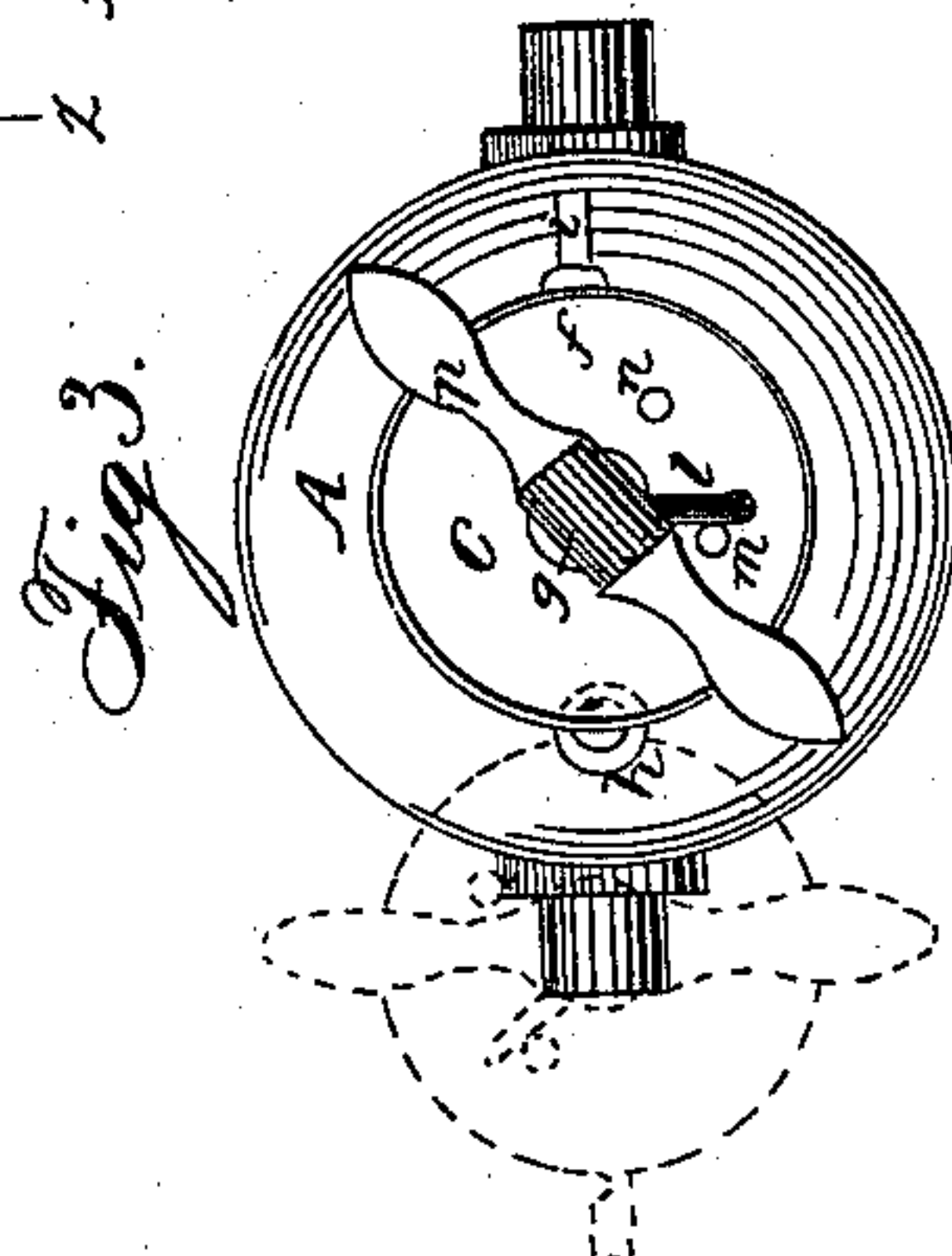
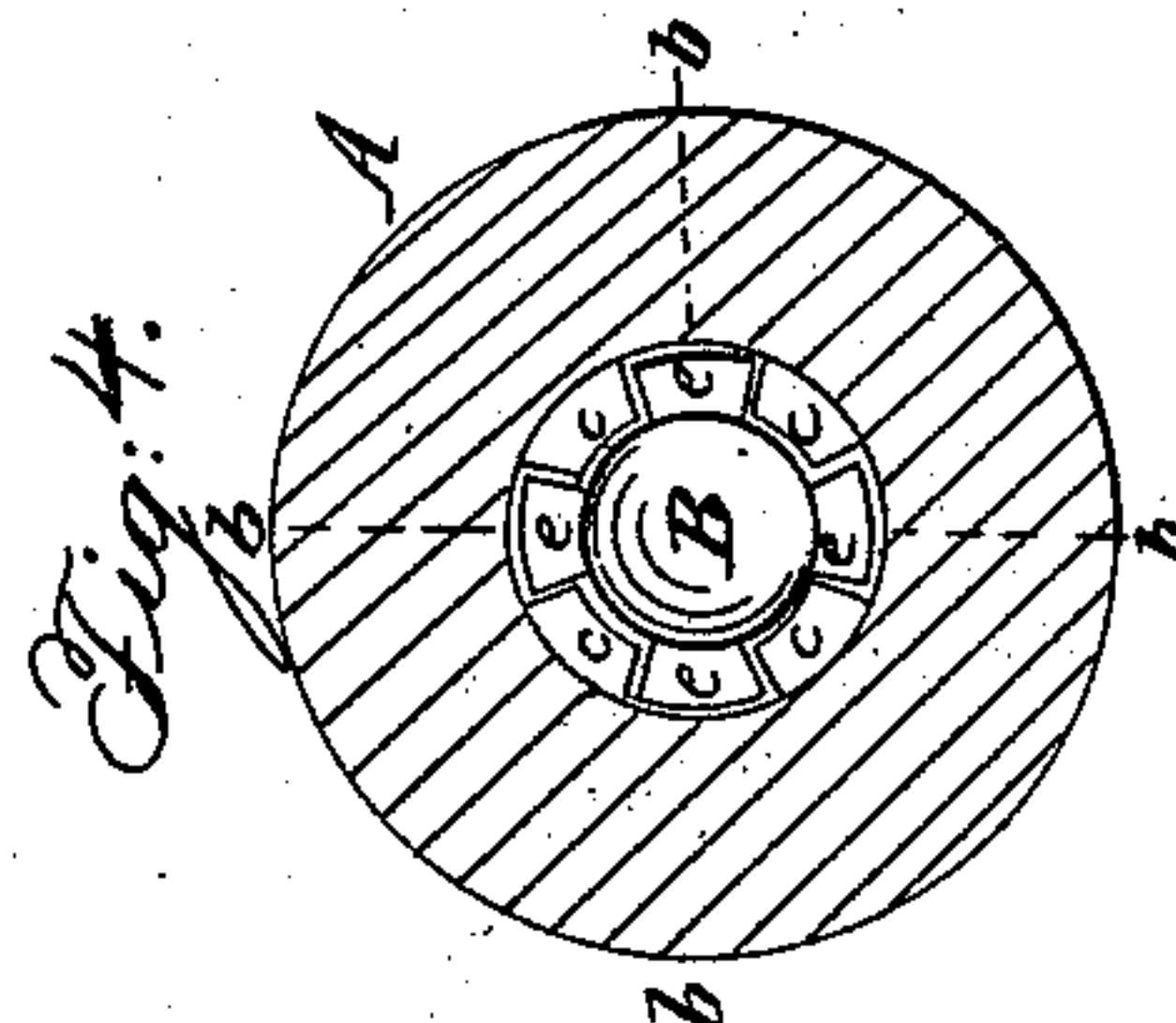
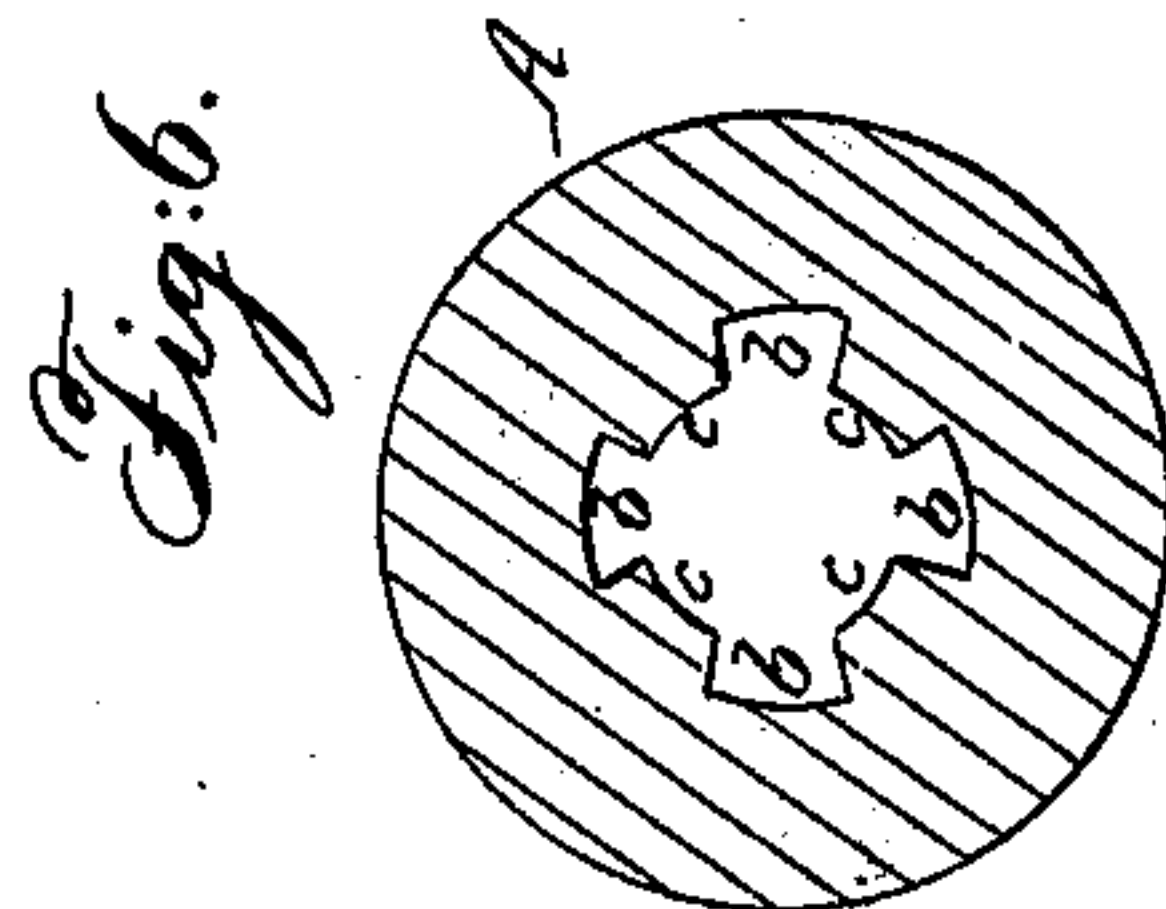
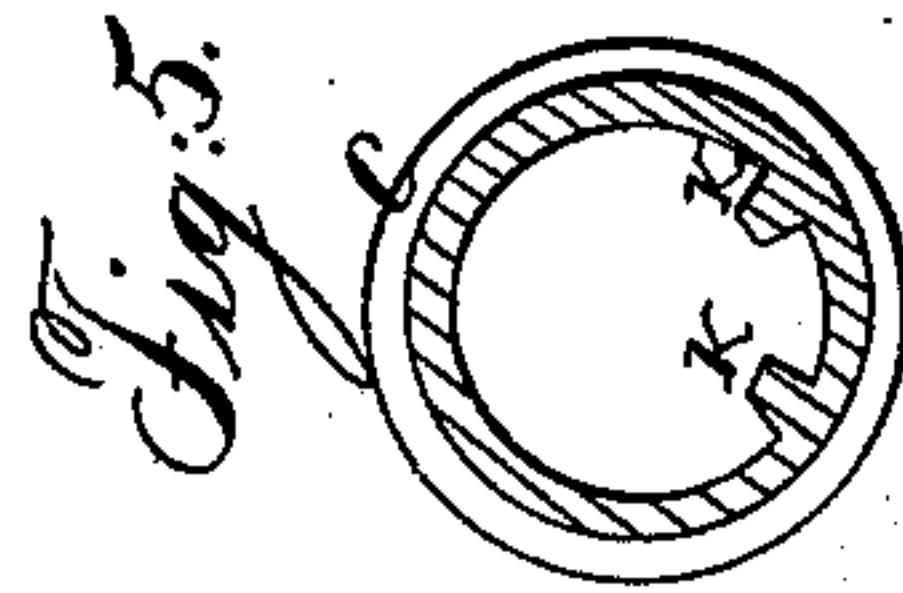
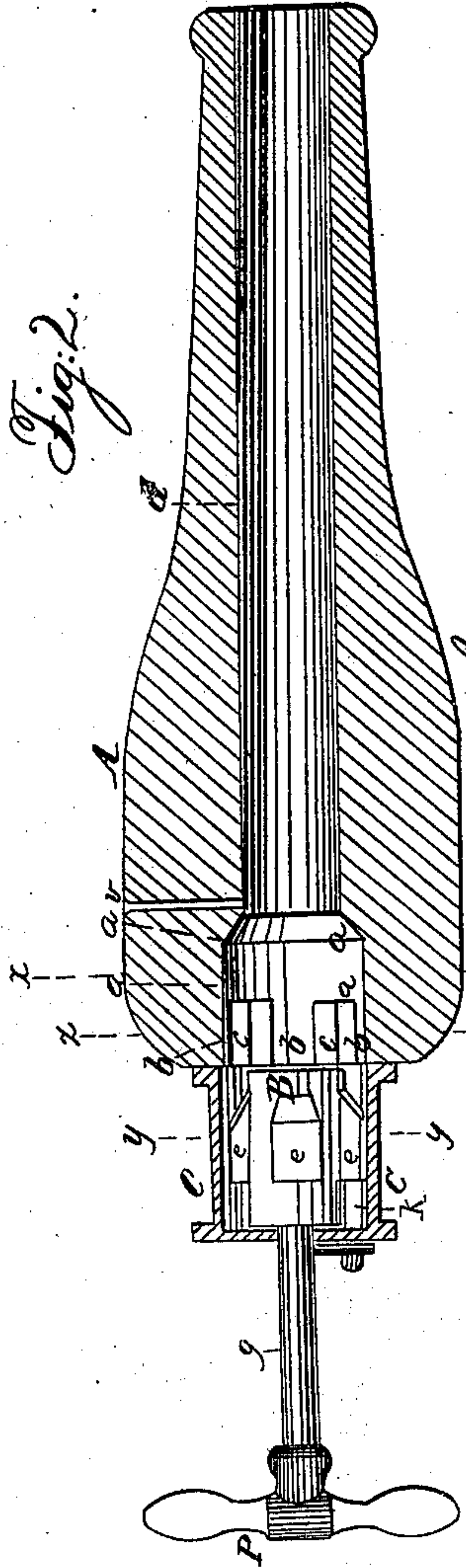
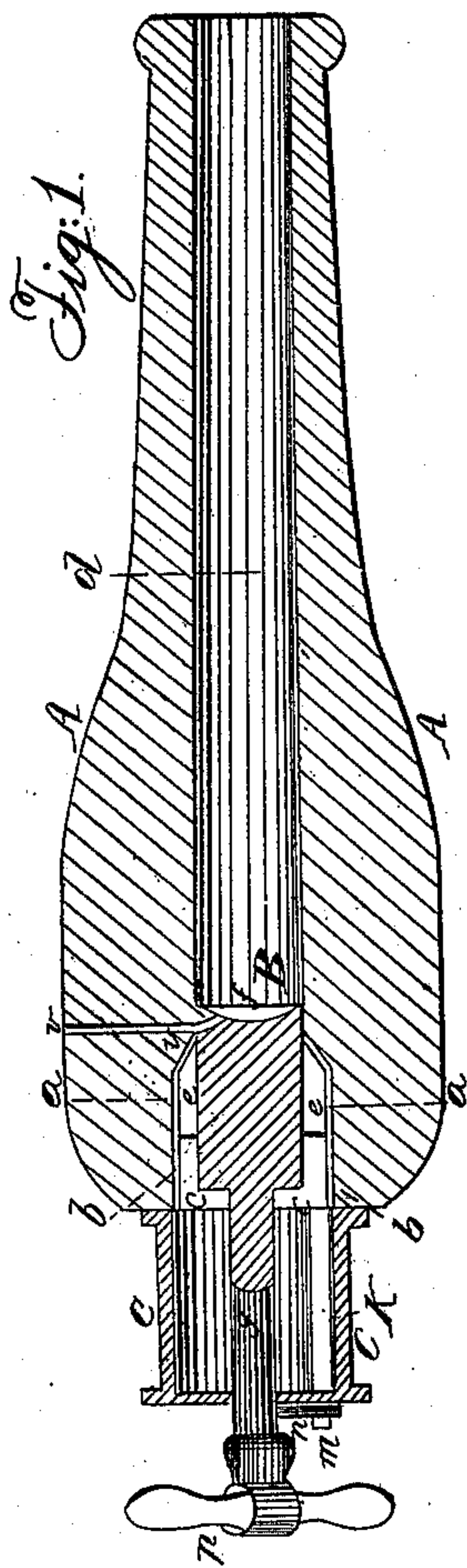


W. SCHMOELE, Jr.
Breech-Loading Ordnance.

No. 41,325.

Patented Jan. 19. 1864.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM SCHMOELE, JR., OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 41,325, dated January 19, 1864.

To all whom it may concern:

Be it known that I, WILLIAM SCHMOELE, Jr., of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Breech-Loading Ordnance; 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 central longitudinal vertical section of a cannon constructed according to my invention, showing the breech-pin in position for firing. Fig. 2 exhibits a central longitudinal vertical section of the barrel and breech-box, but represents the breech-pin entire and drawn back to a position to permit the opening of the box for loading. Fig. 3 is a rear view of the cannon. Fig. 4 is a transverse vertical section in the plane indicated by the line *x x* in Fig. 2, as seen looking toward the breech. Fig. 5 is a transverse vertical section of the breech-box and breech-pin in the line *y y* of Fig. 2. Fig. 6 is a transverse section of the cannon in the line indicated by the line *z z* of Fig. 2.

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

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

A is the gun, having its bore continued right through the breech, which is faced flat and perpendicular to the axis of the bore. At some distance forward of the breech the bore is enlarged, as shown at *a a*, for a suitable length, and in rear of the so enlarged portion there are cut a suitable number—say four—of radiating grooves, *b b*, the backs of which form continuations of the surface of the enlarged portion *a* of the bore. The solid metal *c c* intervening between the grooves *b b* presents surfaces which coincide with the bore *d*, or may be just so far reduced by boring as to permit the breech-pin to pass easily through them on its way into the bore *d*, into which the front end of the said pin should fit very snugly.

B is the breech-pin, made of cylindrical form or very slightly taper, and with radial projections *e e*, corresponding in number and arrangement and in the form of their transverse sections with the grooves *b b*, the said

projections being of a length and their longitudinal profiles of a form to fill the entire length of the enlarged portion *a a* of the bore. The breech-pin thus constructed can be inserted and secured in the piece by placing it opposite to the rear opening of the bore, with its projections *e e* opposite to the grooves *b b*, pushing it forward until the front faces of the projections come in contact with the front of the enlarged portion *a* of the bore, and then turning it to bring the projections *e e* opposite to the solid metal *c c*, which intervenes between the grooves *b b*. When thus inserted, the front portion of the breech-pin fits into the bore *d*, and the back part in the circular space left within the solid metal *c c*, which projects between the grooves *b b*, and in this position the breech will be sustained against the force of the explosion of the charge by the solid metal *c c*, which is behind its projections *e e*. The front end or face of the breech-pin is made concave, as shown at *f* in Fig. 1, and the vent *v* is so drilled into the gun, after the said pin has been put in place, that it passes through a portion of the said pin and into the concavity *f*, the vent being thus divided between the breech-pin and the surrounding portion of the gun, so that it must be closed after the insertion of the breech-pin, unless the latter has been turned exactly to its proper position. To enable the breech-pin to be easily handled, it is furnished at its rear end with a straight concentric stem or rod, *g*, at the extremity of which there is a cross-head handle, *p*, to take hold of for the purpose of drawing out, pushing in, or turning the pin.

C is the box, which constitutes the receiver for the breech-pin when it is withdrawn from the gun, made of cylindrical form, and of an internal caliber equal to that of the enlarged portion *a* of the bore and the circumscribing circle of the projections *e e* on the breech, and of a length at least equal to that of the breech-pin. This box is open at the front end, which fits against the flat surface of the breech of the gun A, but closed at the rear, except that there is a central aperture for the passage of the stem or rod *g*. This box is attached at one side by a pin, *h*, to the breech of the gun in such manner that it may swing upon the said pin to and from a position in which it is concentric with the bore of the gun, and is provided on the opposite side with a projection,

i, which, by coming in contact with a fixed stop, *j*, secured to the breech of the gun, stops it in the before-mentioned position. The projection *i* also serves as a handle by which to open the breech. In the interior of the said box C there are provided two longitudinal projections, *k k*, which serve as guides to one of the projections *e e* of the breech, to guide the breech in its backward and forward movement, and keep the said projections opposite to the grooves *b b*. The stem *g* has secured in it a projecting pin, *l*, which, when the breech is inserted into the gun, operates, in conjunction with two fixed stops, *m m*, on the rear end of the box C, to limit the turning movement of the breech to a sufficient portion of a revolution to bring its projections *e e* opposite to the grooves *b b*, and one of the said projections opposite the space between the guiding-projections *k k*, and to a position in which the said projections are in front of the solid metal *c c* between the grooves *b b* and the portion of the vent which is within the breech-pin opposite to the portion within the gun.

The operation of the breech-pin and box or receiver is as follows: To prepare for loading the gun, the breech-pin is turned by the handle *p* to bring the pin *l* in contact with the stop *m*, as shown in Fig. 3, and the breech-pin then drawn back entirely out of the bore of the gun and into the box or receiver C, which is afterward turned over to the position shown in red outline in the above-mentioned figure, leaving the bore of the gun open for the reception of the projectile and cartridge. After the projectile and cartridge have been inserted into the gun, the box or receiver C is turned over again to the stop *j*, and the breech is

pushed in till the projections *e e* arrive at the front end of the enlarged portion *a* of the bore, and then turned till the pin *l* comes in contact with the stop *n*. All is now ready for firing, which is effected in the usual manner.

To afford convenience in loading, one of the solid portions *c c* of metal may extend right across the enlarged portion of the bore, and thereby be made to serve as a bridge to support the ball and cartridge all the way into the bore *d*.

This bridge may also serve as a check to the breech-pin when turned to the position to secure it in the cannon.

The concave form *f* of the front end of the breech-pin B assists in keeping the joint tight between the barrel and pin when firing takes place. I, however, do not claim, broadly, as my invention the construction of breech-pins so that their edges will expand; nor do I claim, broadly, the locking of breech-pieces by means of lugs and grooves.

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

1. The receiver C, arranged to oscillate in line with the barrel A, in combination with the guide-projections *k k* upon the interior of the receiver, and the projections on the breech-pin, all operating in the manner herein shown and described.

2. The arrangement of the pins *l m n* with the stem *g* and rear face of the receiver C, as herein shown and described, and for the purposes specified.

WILLIAM SCHMOELE, JR.

Witnesses:

JOHN BARAGY,
HENRY HAASE.