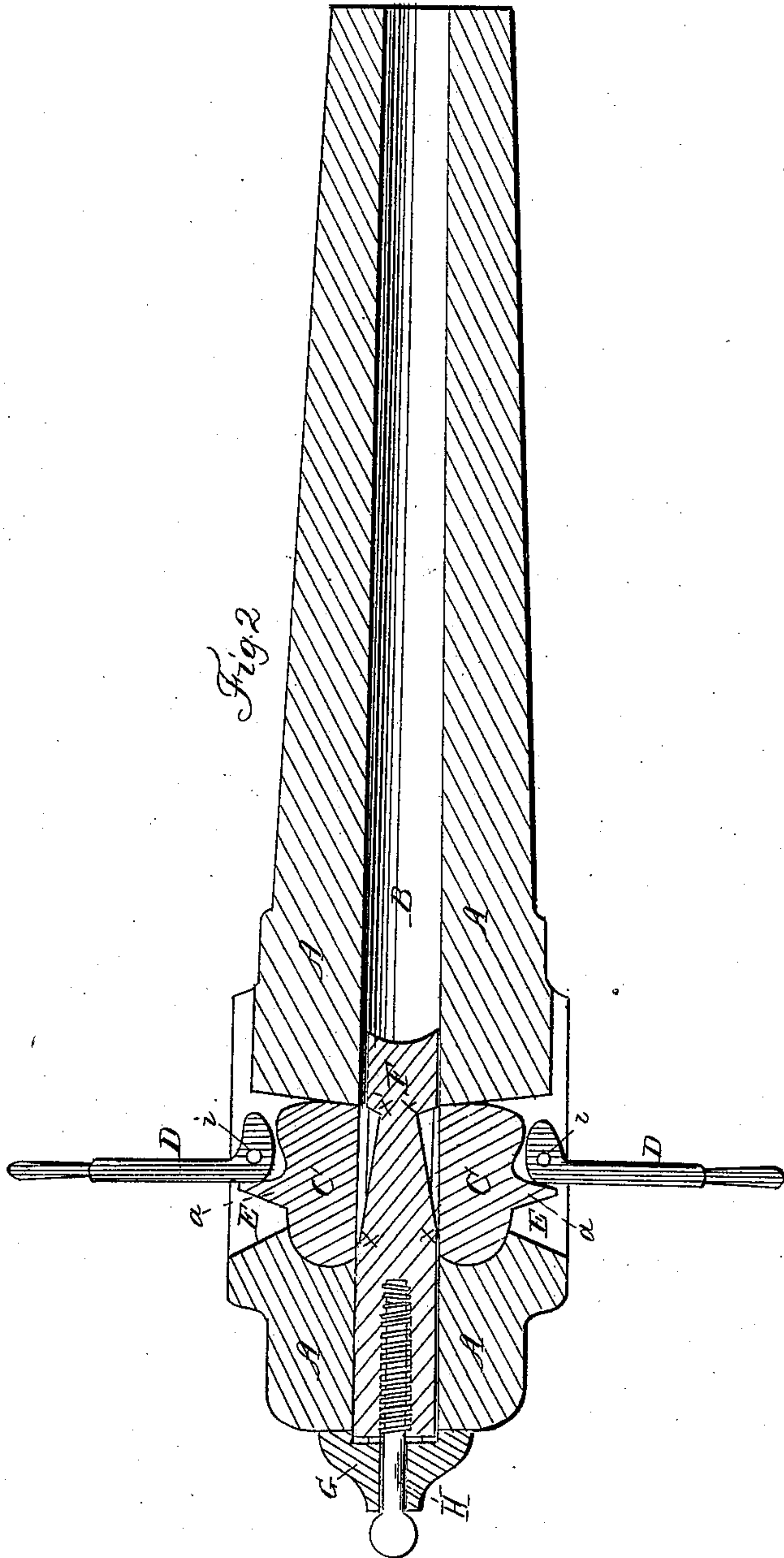
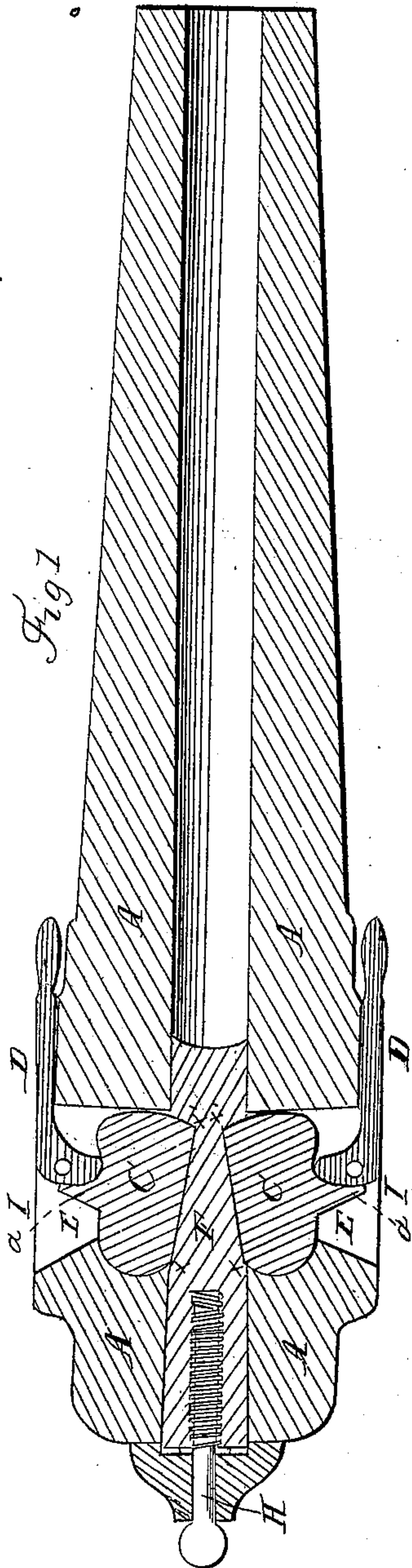


E. MARSHALL.  
Breech-Loading Ordnance.

No. 22,299.

Patented Dec. 14, 1858.



Witnesses:  
C. M. Alexander  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

EDWARD MARSHALL, OF NEW YORK, N. Y.

## IMPROVEMENT IN BREECH-LOADING CANNON.

Specification forming part of Letters Patent No. 22,299, dated December 14, 1858.

*To all whom it may concern:*

Be it known that I, EDWARD MARSHALL, of the city and State of New York, have invented certain new and useful Improvements in Breech-Loading Guns or Cannon; 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, and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement of the chucks, the cams, and the breech-pin with the cannon, the same being constructed substantially in the manner which will be hereinafter described, for the purpose of making a breech-loading cannon which may be reloaded without waiting for the recoil of the gun.

In the annexed figures, which are sections of the cannon, the parts are represented in different positions, Figure 1 representing the parts in position for the gun to be fired, the breech-pin being secured in the bore by means of the chucks. Fig. 2 represents the chucks drawn back and the breech-pin in condition to be drawn out for the purpose of reloading the gun.

A A represent in the two figures the metal of the gun.

B represents the bore of the gun.

E E represent two recesses, which are made on two sides of the gun into the bore. Within these recesses are placed two chuck-heads, C C. These chucks are made semicircular at their rear ends, and these ends fit snugly in semicircular cavities or sockets in the back sides of the recesses E E. The sides of these chucks which are presented to the bore of the gun are made straight, but their opposite sides are made irregular, as shown in the drawings, and are provided with arms *a a*, against which the heel of the cam-lever D operates. The center the radius of which describes the semicircular end of the chuck is the center upon which the chucks turn, they not being pinned or riveted to the gun in any manner. The forward ends of these chucks are slightly convex, as is seen.

D D represent two cam-levers, said levers being pivoted in the recesses E E in such proximity to the chucks C C that they will operate upon the arms of the chucks with the heels of the cams and upon the chucks, near their forward ends, with their toes in such a manner as

to throw the forward ends of the chucks in or out of the bore of the gun, as may be desired.

F represents the breech-pin, which is provided with two recesses which are formed by sloping two sides of the pin from *x x* to *x' x'*, at *x' x'* it being seen there are two shoulders, which are slightly convex to agree with the form of the forward ends of the chucks. The slopes on the pin are straight from *x x* to *x' x'*, and correspond with the straight sides of the chucks, as is seen in Fig. 1, when the chucks are forced in toward the bore and into the recesses in the pin. Into the rear end of the pin F passes a screw, H. This screw passes through a collar, G, which fits against the butt of the gun. The rear end of the pin passes into this collar, said collar being provided with a countersink, which enables the pin to play in and out of said collar. The object of this arrangement of the pin, screw, and collar is to enable me to take up any play which the pin may have from any wear after being used some length of time. It is possible that the shoulders on the pin at *x' x'* may wear in such a manner that they will not fit snugly against the front end of the chucks. After the gun has been used a long time, this screw will take up this slack, and thus always keep a snug fit of those parts.

In operating this gun, when I wish to use it I first throw out the lever D D. As their forward end comes out, the heel-cam presses against the arm of the chuck and forces it out from the recess in the pin. When the side of chuck stands on a line with the bore, so as to permit the shoulders on the pin at *x' x'* to pass by, I draw out the pin, place in the charge, and push it home with the pin. Then, by turning the levers back toward the forward end of the gun, the toes of the cams strike the sides of the chucks, near their front end, and forces them tightly into the recesses in the sides of the pin.

It is very evident that the chucks being located within the metal of the gun and pressing against it, there can be no danger of there being any give to them or any danger of their getting out of order.

The socket in which the end of the chuck rests may be changed in form from the concave to the convex. This will of course require a change of the form of the end of the chuck from a convex to a concave; but this is a mere change of form and is not material. The sides of the

chucks which are next to the bore are made concave and on a circle corresponding with that of the bore.

I I are ribs or projections cast on the outside of the gun near the breech. A pin passes through these ribs and through the cam-levers, and secures said levers in place. These ribs are also grooved in the direction of the length of the gun, so that the handles D D may lie in said grooves, and thus be out of the way of the enemy's guns.

The chucks may be operated by cams or by any other suitable mechanical means.

Having thus fully described my invention, what I claim is—

1. The employment of the adjustable chucks C C, constructed, arranged, and operated substantially in the manner and for the purpose herein set forth.

2. The recesses E E, made from the outside of the gun into the bore, for the purpose of containing and concealing the chucks C C, as is herein set forth.

3. The combination of the chucks C C with the pin F, constructed substantially in the manner herein described.

4. The arrangement of the pin F, the collar G, and the screw H, substantially in the manner and for the purpose specified.

5. The employment of projections I for the purpose of securing and concealing the handles of the cam, as is herein fully set forth.

EDWD. MARSHALL.

Witnesses:

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