

No. 671,836.

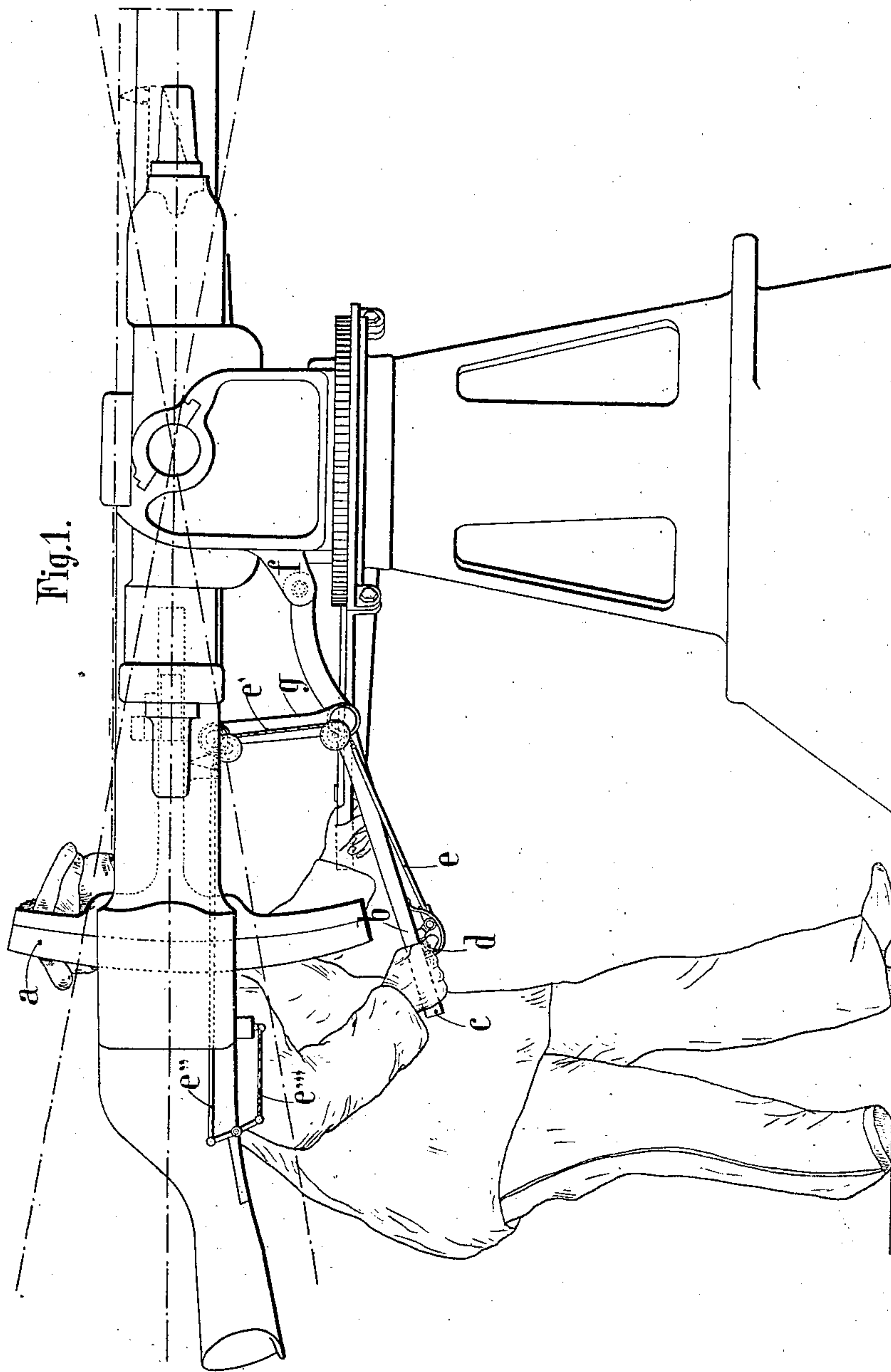
Patented Apr. 9, 1901.

A. NORMAND.  
SHOULDER POINTED ORDNANCE.

(No Model.)

(Application filed Nov. 23, 1900.)

4 Sheets—Sheet 1.



Witnesses.  
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*Robert Courtt*

Inventor,  
*Augustin Normand*  
By *James L. Norris*  
*Atty.*

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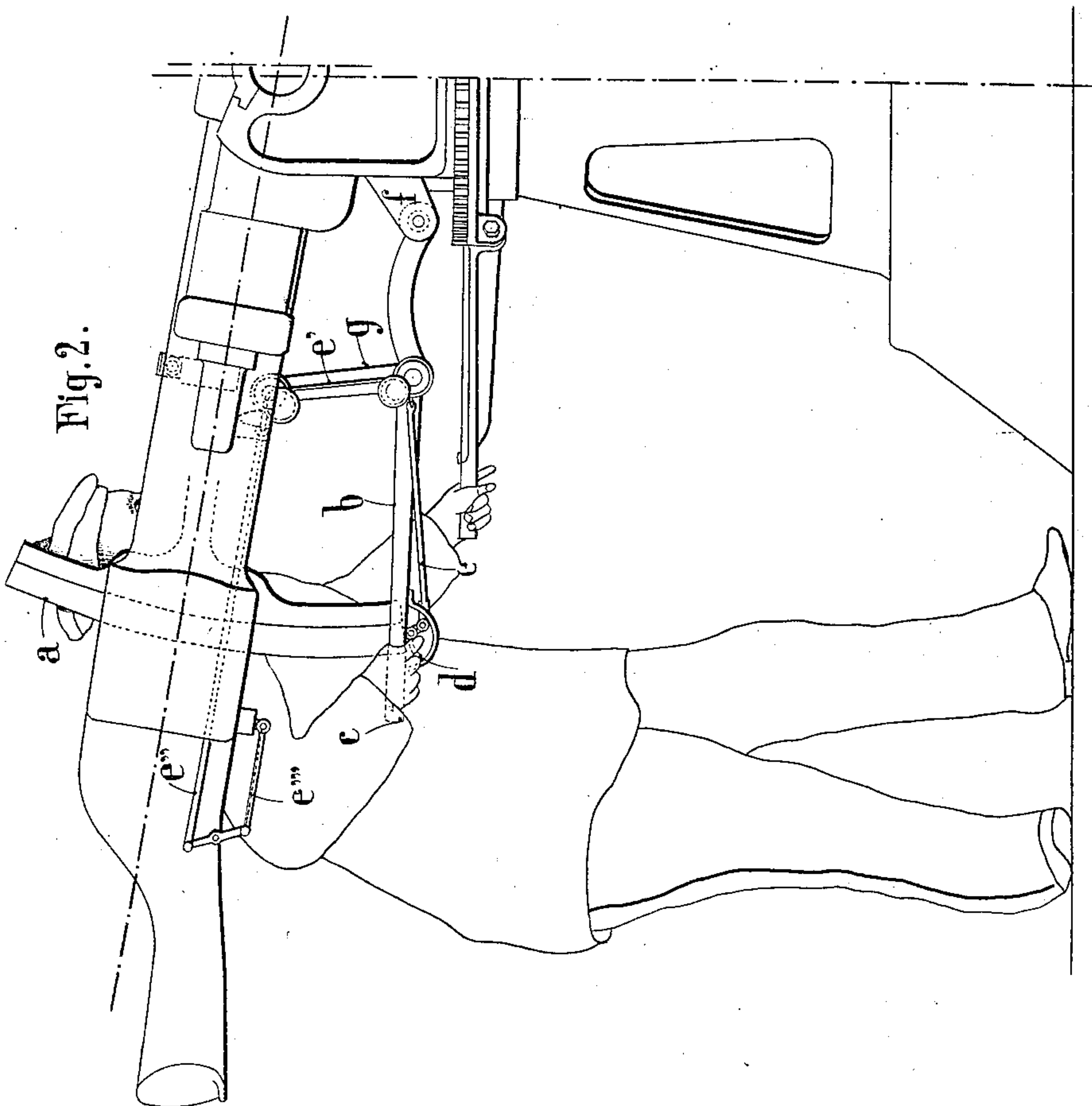
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(No Model.)

4 Sheets—Sheet 2.



Witnesses.

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**Patented Apr. 9, 1901.**

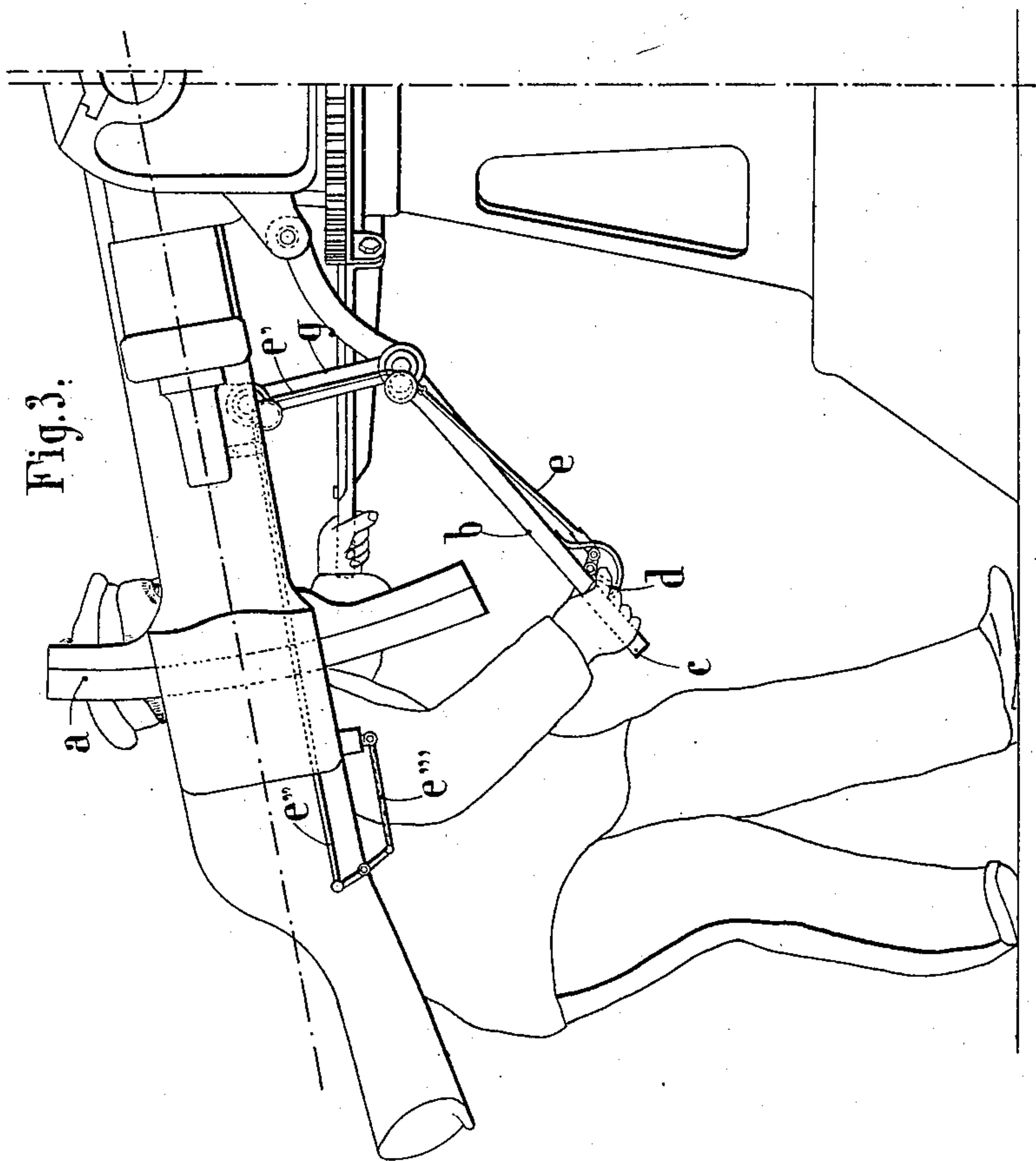
**A. NORMAND.**

## SHOULDER POINTED ORDNANCE.

(Application filed Nov. 23, 1900.)

(No Model.)

**4 Sheets—Sheet 3.**



Witnesses,

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No. 671,836.

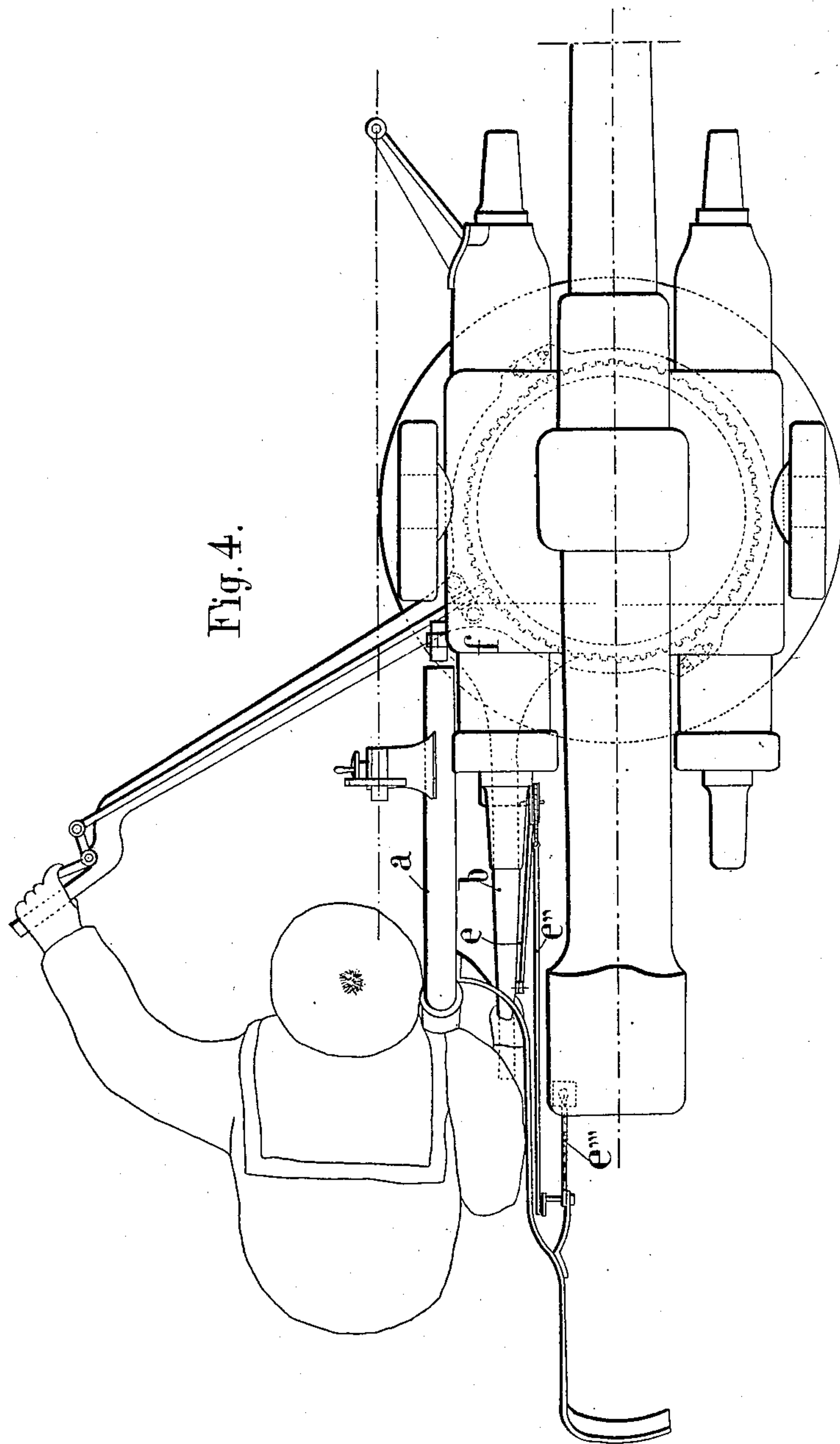
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(Application filed Nov. 23, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

AUGUSTIN NORMAND, OF HAVRE, FRANCE, ASSIGNOR TO THE SOCIÉTÉ  
AUGUSTIN NORMAND ET CIE., OF SAME PLACE.

## SHOULDER-POINTED ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 671,836, dated April 9, 1901.

Application filed November 23, 1900. Serial No. 37,536. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTIN NORMAND, engineer, a citizen of the French Republic, residing at Havre, in the department of the Seine-Inférieure, France, (and having post-office address at 67 Rue du Perrey, in said city,) have invented certain new and useful Improvements in Shoulder-Pointed Ordnance Operated Without Intermediate Screw-and-Wheel Gearing, of which the following is a specification.

The arrangements described in the United States Letters Patent No. 628,840, dated July 11, 1899, and more especially the radiating horizontal bar, afford to the gunner a bearing which, as experience has shown, enables him to exert much greater efforts when training the gun. It has thus been possible to reduce the radius of the shoulder-piece, to increase the elevation and depression, and to decrease the encumbrance; but when the gun is heavy the efforts necessary for elevating the gun prove a great strain on the gunner, especially if the reduction of the radius of the shoulder-piece be considerable. The efforts to be exerted are, in fact, inversely proportional to the radius of the shoulder-piece.

This invention has for its object to decrease the efforts required in elevating or depressing the gun, while at the same time permitting of the gunner taking a firm bearing on the shoulder-piece whatever the variations of the elevating-angle may be. The elevating motion of the gun is controlled by a handle attached to a lever, the fulcrum of which is situated in rear of the axis of the trunnions. A connecting-rod or any other equivalent mechanical arrangement connects this lever to the piece of ordnance in such a manner that the effort is decreased by the fact that the handle is imparted an angular motion, which is amplified in comparison to that of the gun. Controlling arrangement has already been used, in which the handle is an integral part of the shoulder-piece, so that the latter participates in the amplified motion of the handle, which destroys at every moment the alinement of three points—viz., the eye, the tangent-sight, and the foresight—constituting the line of sight. The gunner has therefore to change his bearing on the shoul-

der-piece and to find again the line of sight. These two circumstances are an absolute bar to exact and quick firing.

In the arrangement according to this invention a characteristic feature is that the shoulder-piece is secured to the gun or gun-mounting, whereas the handle is independent of the shoulder-piece. The gunner can therefore take a firm bearing on the shoulder-piece, and he will not have to alter his bearing, and when the movements of the handle determine the displacement of the gun and shoulder-piece the fixedness of the bearing-point, together with the pressure voluntarily exerted by the gunner on the shoulder-piece, will compel his shoulder to follow the shoulder-piece against which he is pressing, and the line of sight once found will never get lost.

In order that this invention may be clearly understood, I will, with reference to the accompanying drawings, more fully describe the same.

Figures 1, 2, and 3 are elevations of the gun and its mounting when firing horizontally and below and above the horizontal position, respectively. Fig. 4 is a plan.

The gun is supposed to be fitted with the radiating-bar described in the patent hereinbefore mentioned; but this arrangement is not necessary for the application of the present invention.

*a* is the shoulder-piece.

*b* is the lever carrying at one end the handle *c* and the trigger *d* for firing through the medium of the lanyards *e e' e'' e'''*.

*f* is the axis of the lever. It is sufficiently long to maintain the parallelism of the vertical planes in which the lever and gun move. This is a necessary condition, as the lever is also used when training the gun.

*g* is the rod transmitting to the gun-mounting or gun the motion of the lever.

It will be seen that when the gun is fired below the horizontal, Fig. 2, the arm of the gunner is bent, while it is more stretched when firing above the horizontal, Fig. 3, and only slightly stretched when firing horizontally, Fig. 1. This variation in the stretching of the arm, which presents nothing abnormal and does not cause any fatigue to the gunner, permits of considerably increasing



the path described by the handle when elevating the gun, and consequently reduces the necessary effort. To show to what extent this effort is reduced, it will suffice to compare a  
5 gun, such as the ordinary sixty-five-millimeter Hotchkiss, fitted with a shoulder-piece having a radius of 1.52 meters outside the india-rubber pad with the same piece of ordnance  
10 fitted with a shoulder-piece having a radius of 0.92 of a meter and a handle fixed to it, as has been done on some war vessels, and with the latter piece of ordnance provided with a lever forming no integrant part of the shoulder-piece and such as it is shown on the accompanying drawings. The efforts required  
15 for the pointing of the gun when firing above the horizontal are then respectively 1.00, 1.40, and 0.88. In other words, the arrangement according to this invention reduces the effort  
20 required in pointing above the horizontal with a shoulder-piece of 0.92 of a meter radius to a figure less than that which corresponds to the ordinary shoulder-piece having a radius of 1.52 meters. It is, besides, to be remarked  
25 that the greater the path traveled by the hand to produce a determined variation of the angle of elevation the more exact the pointing will be. From this point of view also the improved arrangement presents a marked advantage.  
30

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

35 1. In a pointing device for guns, the combination with a shoulder-piece attached to the gun or cradle, of a lever connected to the

gun or cradle and independent of said shoulder-piece, fulcrumed to the gun-mount, provided with a pointing-handle and having the  
40 position of its fulcrum such that, the path described by said handle is greater than if said handle were a fixed part of the gun or cradle.

2. In a pointing device for guns, the combination with a shoulder-piece attached to  
45 the gun or gun-cradle, of a lever independent of said shoulder-piece, provided with a pointing-handle, fulcrumed to the gun-mount and having the position of its fulcrum such  
50 that, the path described by said handle is greater than if said handle were a fixed part of the gun or cradle, and a rod for connecting the lever to the gun.

3. In a pointing device for guns, a shoulder-piece fixed to the gun or gun-cradle, a  
55 rod secured to the gun, a lever fulcrumed to the gun-mount connected to said rod and independent of said shoulder-piece, a pointing-handle for said lever, a trigger carried by the  
60 lever, and lanyards connected to said trigger and operated thereby for firing the gun.

4. In a pointing device for guns, a shoulder-piece, a lever independent thereof and  
fulcrumed to the gun-mount, means for connecting the lever to the gun, and a pointing-  
65 handle for said lever.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

AUGUSTIN NORMAND.

Witnesses:

VICTOR FANCOMPER,  
EDAUARD MILLET.