

(No Model.)

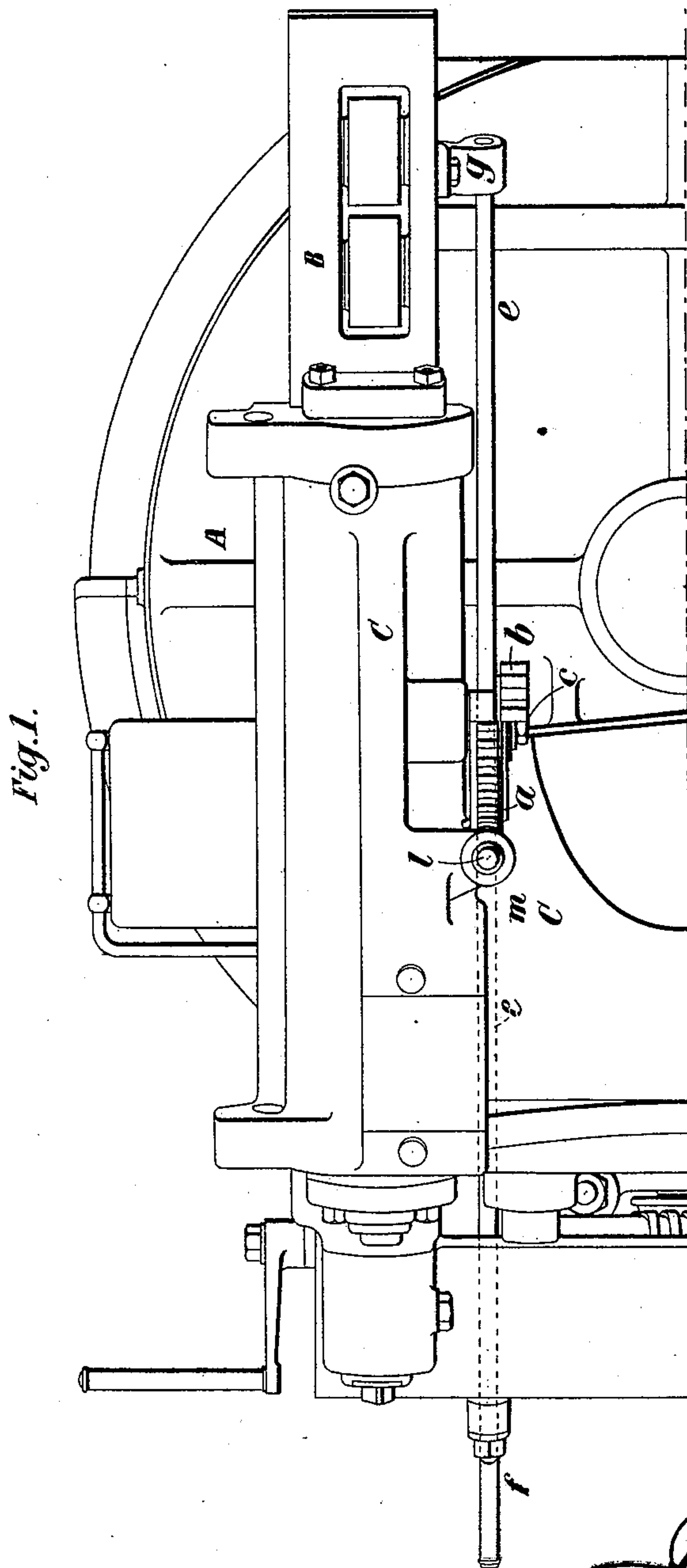
4 Sheets—Sheet 1.

J. B. G. A. CANET.

# APPARATUS FOR POINTING OR LAYING GUNS.

No. 430,062.

Patented June 10, 1890.



Witnesses:

J. A. Rutherford  
Geo. H. Peck

*Inventor.*

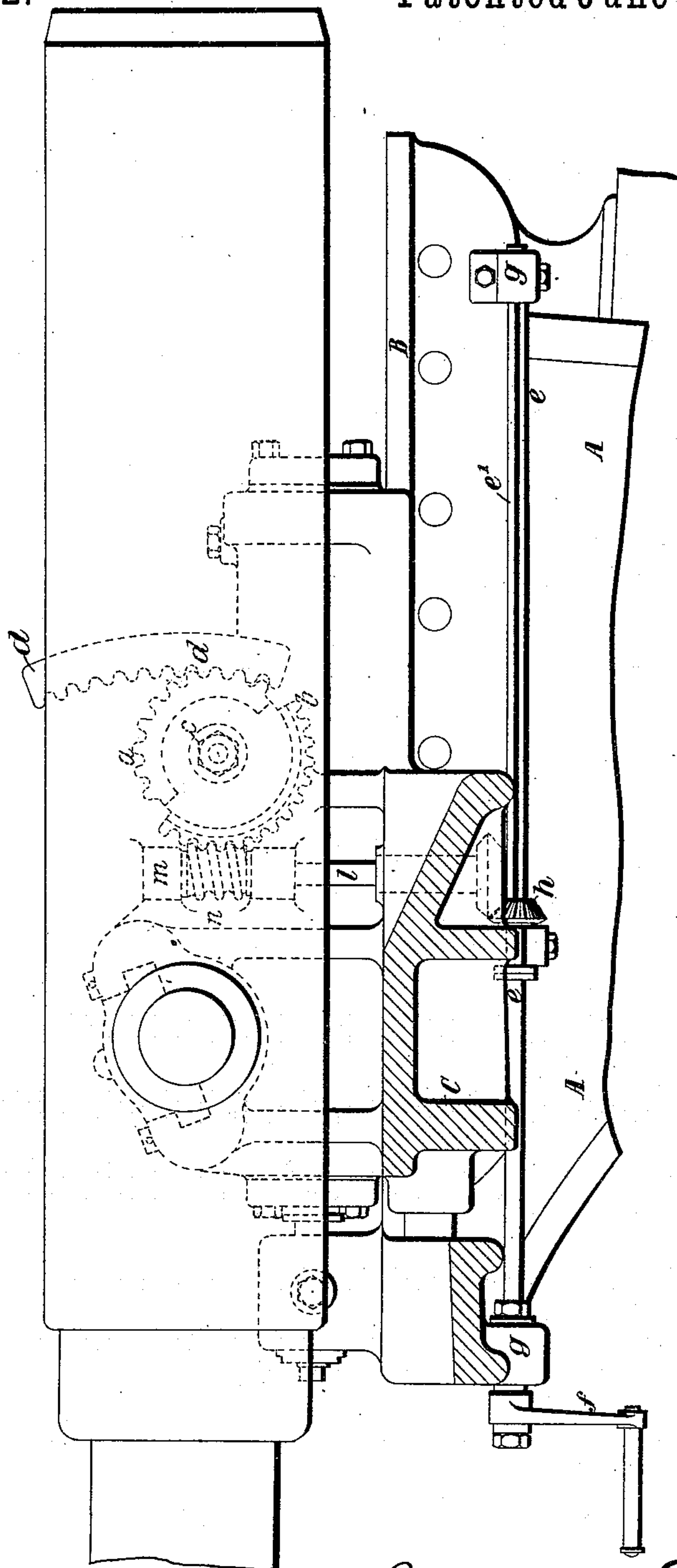
By James L. Norris  
 Atty

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Fig. 2.



Witnesses:  
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Geo. W. Rea

Inventor:  
Jean B. G. A. Canet  
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(No Model.)

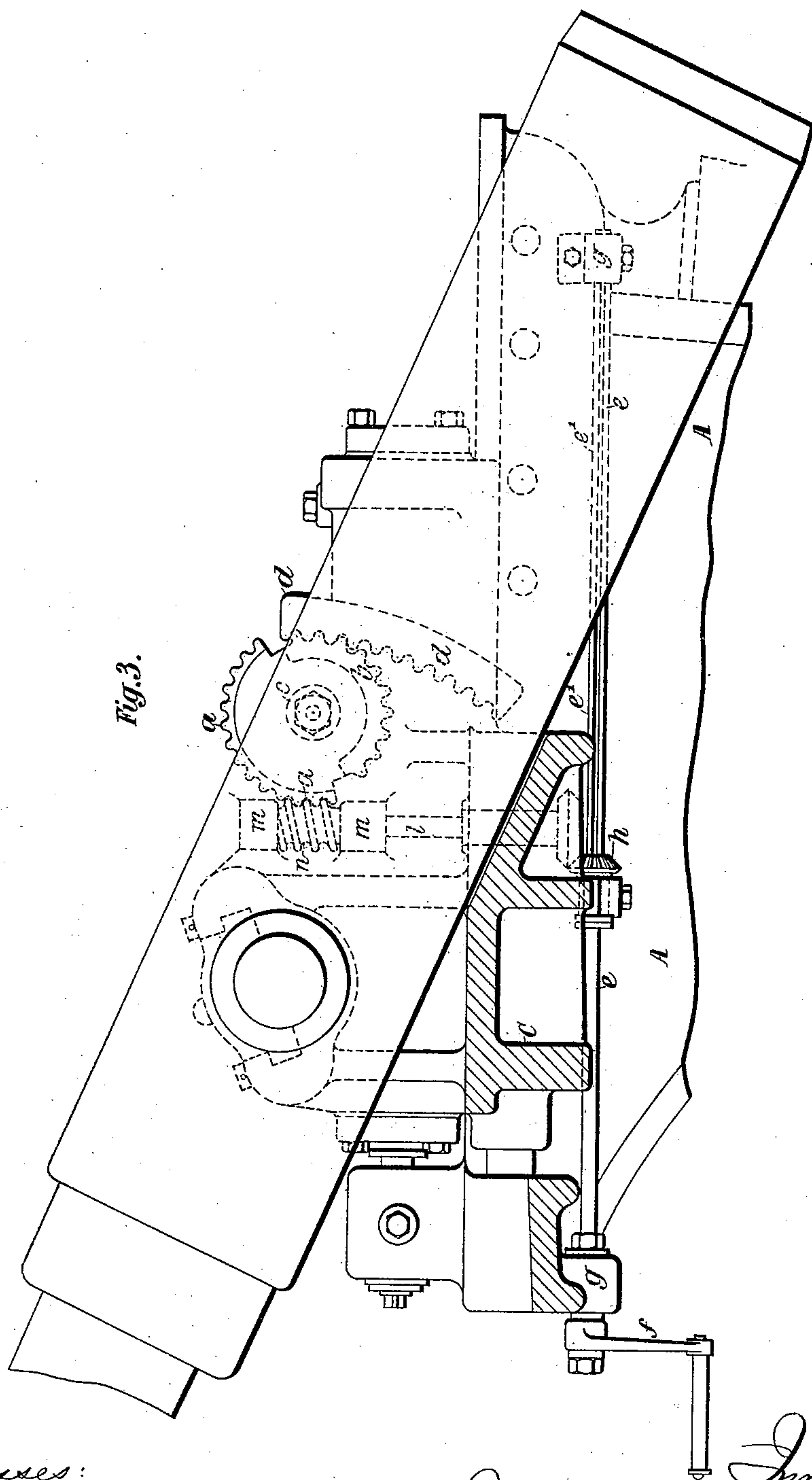
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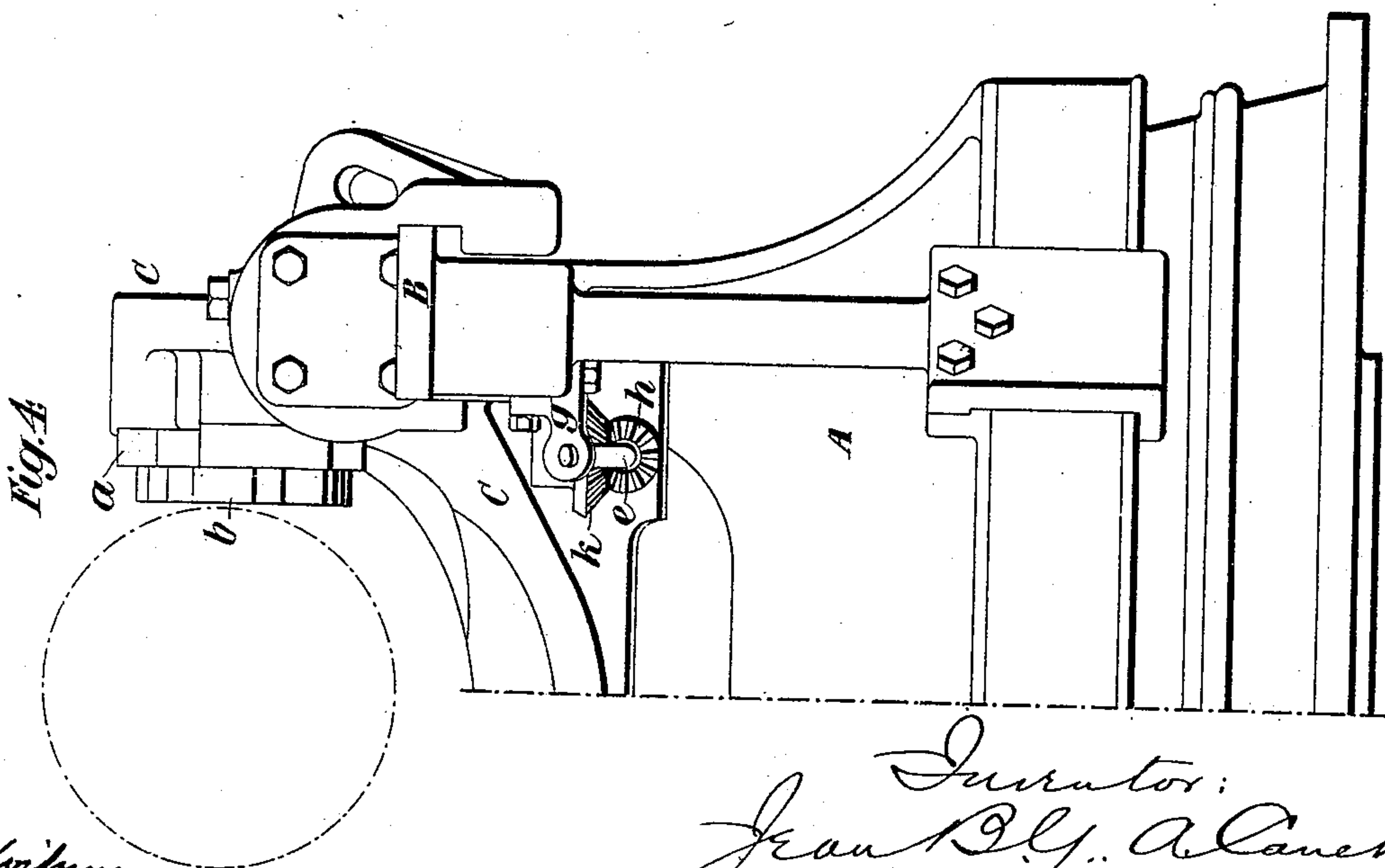
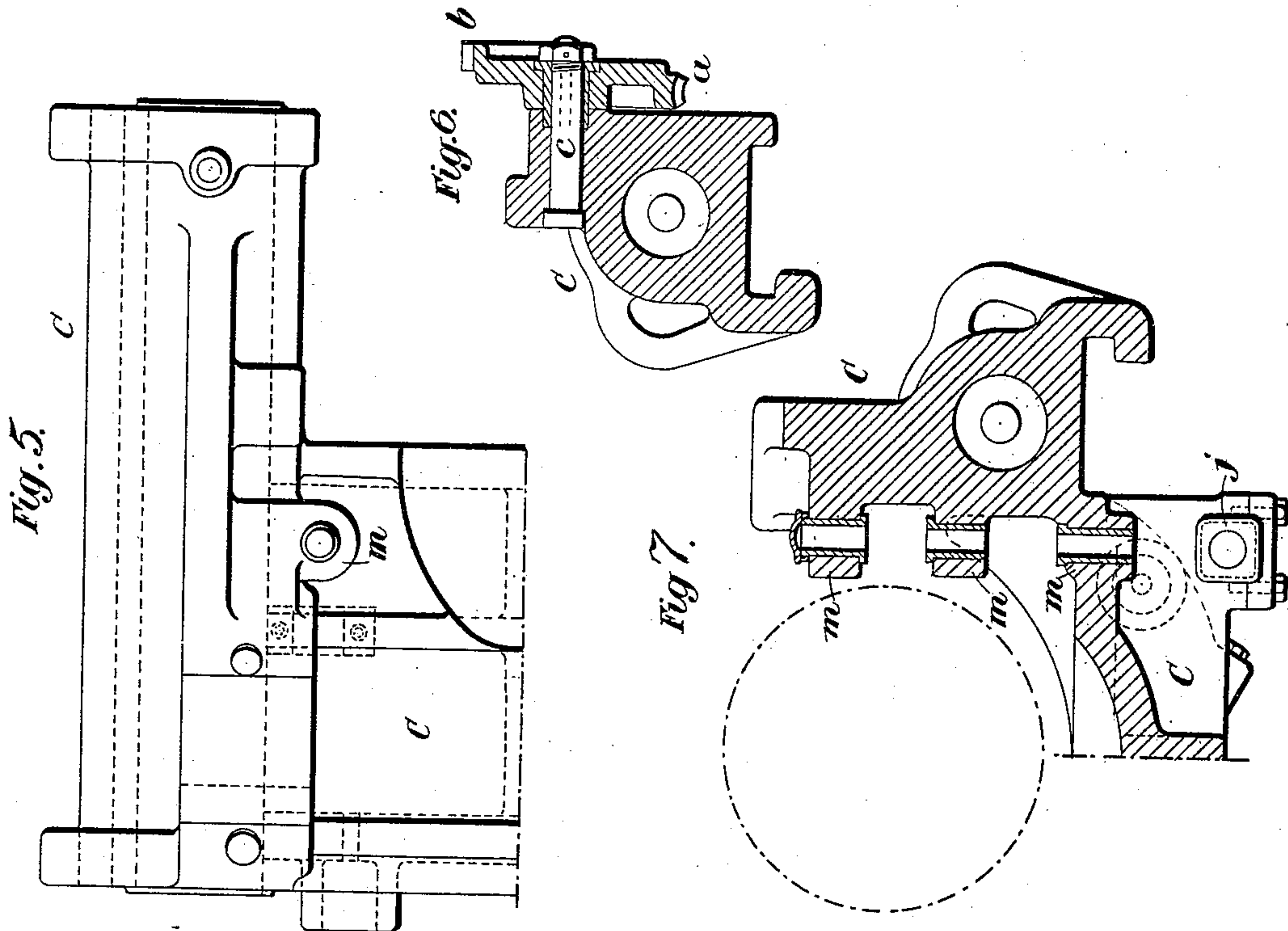
(No Model.)

4 Sheets—Sheet 4.

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Inventor:  
Jean B. G. A. Canet.  
By James L. Norris  
att'y.



# UNITED STATES PATENT OFFICE.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET, OF PARIS, FRANCE, ASSIGNOR  
OF ONE-HALF TO SIR JOSEPH WHITWORTH & COMPANY, (LIMITED,) OF  
OPENSHAW, ENGLAND.

## APPARATUS FOR POINTING OR LAYING GUNS.

SPECIFICATION forming part of Letters Patent No. 430,062, dated June 10, 1890.

Application filed March 27, 1889. Serial No. 304,931. (No model.) Patented in France September 9, 1886, No. 178,422, and June 29, 1887, No. 184,518, and in England July 1, 1887, No. 9,373.

*To all whom it may concern:*

Be it known that I, JEAN BAPTISTE GUSTAVE ADOLPHE CANET, engineer, a citizen of the Republic of France, and a resident of Paris, France, have invented certain new and useful Improvements in and Relating to Apparatus for Pointing or Laying Guns, (for which I have obtained a patent in Great Britain, No. 9,373, dated July 1, 1887, and in France, No. 178,422, dated September 9, 1886, and No. 184,518, dated June 29, 1887, which invention was included in the specification accompanying my application for Letters Patent of the United States, filed August 21, 1888, No. 283,390,) of which invention the following is a specification, reference being had to the accompanying drawings.

This invention relates to apparatus for pointing or laying guns.

The said invention comprises a spur-wheel segment and a worm-wheel segment, which are rigidly united and are connected by suitable gearing with the gun and with a crank-handle or other device for operating them to elevate or depress the gun. I prefer to form the spur-wheel and worm-wheel segments in one piece and to combine the same with a segmental rack or elevating-arc firmly attached to the gun.

My said invention also comprises means whereby the said segments may be operated, whatever may be the position of the gun upon the chassis or slide or while the gun is moving thereon.

In the accompanying drawings I have shown how my said invention may be conveniently and advantageously carried into practice.

Figure 1 is a plan of part of a gun-mounting embodying my said improvements. Fig. 2 is a sectional side elevation of the same, the parts being shown in the positions which they occupy when the gun is horizontal. Fig. 3 is a similar view, the parts being shown in the positions which they occupy when the gun is at its greatest angle of elevation. Fig. 4 is a rear elevation of the said portion of the gun-mounting. Figs. 5, 6, and 7 are different views illustrating details of construction.

Like letters indicate corresponding parts throughout the drawings.

A indicates a part of the platform, turntable, or under carriage carrying the chassis or slide B.

C is the cradle or top carriage in which the gun is supported by its trunnions and which recoils with the gun upon the said chassis or slide against the resistance of suitable hydraulic brakes.

*a* is a worm-wheel segment, which is formed with or firmly attached to a spur-wheel segment *b*. The combined spur and worm wheel segments are fitted to rotate on a shaft or bolt *c*, secured in the cradle or top carriage C. The spur-wheel segment *a* is geared with a segmental rack or elevating-arc *d*, fixed on the gun. I provide the means hereinafter described for turning the said spur and worm wheel segments *a b* upon or about their axis, whatever may be the position of the gun and top carriage upon the chassis or under carriage or while they are moving thereon—that is to say, a shaft *e*, capable of being rotated by a crank-handle *f* or by other suitable means and having a long keyway *e'*, is fitted to rotate in bearings *g*, formed on or firmly attached to the under carriage A. A bevel-wheel *h* is mounted on the shaft *e* and is provided with a key or feather fitting into the said keyway *e'*. The said bevel-wheel *h* is held in a bearing *j*, formed with or firmly attached to the cradle or top carriage C, so that the said bevel-wheel will move to and fro with the said cradle, and will in this movement slide upon the said shaft *e*. The bevel-wheel *h* is geared with another bevel-wheel *k*, fixed on a vertical shaft *l*, which is supported in bearings *m*, formed with or firmly attached to the cradle C. A worm or endless screw *n* is also fixed on the shaft *l* and is geared with the worm-wheel segment *a*. By this mechanism the vertical pointing or elevation of the gun can be effected; but as the worm *n* cannot be driven by the worm-wheel segment *a* any tendency to movement of the gun upon or about its trunnions, due to the shock of the recoil, will be counteracted by the said mechanism—an advantage which is not obtained



by the toothed gearing ordinarily employed. Moreover, by the construction of the elevating mechanism in the manner above described I provide for keeping it all within the space inclosed by the brake-cylinders and other parts of the gun-mounting, so that it is well protected against injury.

It is obvious that other suitable means for imparting rotary motion to the toothed wheel composed of the spur and worm wheel segments may be substituted for the bevel-gearing above described; also, that any equivalent device may be substituted for the segmental rack or elevating-arc hereinbefore mentioned.

It will be seen that by forming the worm-wheel teeth *a* on one part and the spur-wheel teeth *b* on another part of the periphery of the same wheel and combining the said wheel with a worm or endless screw and an elevating-arc I am enabled to construct very simple, cheap, and efficient elevating mechanism, which cannot be driven by the weight of the gun or by the tendency thereof to move about its trunnions under the influence of the shock or concussion due to the recoil. Moreover, I am enabled to construct elevating mechanism which can be conveniently arranged between the gun and the recoil-brake at one side thereof without increasing or with but a slight increase in the width of the gun-mounting.

What I claim is—

1. A gun-mounting provided with elevating mechanism comprising a wheel having on one part of its periphery worm-wheel teeth and on another part thereof spur-wheel teeth which are geared with a segmental rack or elevating-arc fixed on the gun, and a worm or endless screw geared with the said worm-wheel teeth, for the purposes above specified.

2. In a gun-mounting, the combination, with a segmental rack or elevating-arc fixed on the gun, of a wheel having on one part of its periphery worm-wheel teeth and on another part thereof spur-wheel teeth which are geared with the said elevating-arc, and a worm or endless screw geared with the said worm-wheel teeth and fixed upon a shaft which is fitted to rotate in bearings on the gun-mounting, for the purpose above specified.

3. In a gun-mounting, the combination, with the gun, the top carriage, and the chassis, slide, or under carriage, of a segmental rack or elevating-arc fixed on the gun, a wheel which is fitted to turn upon a shaft, stud, or bolt fixed in the top carriage, and which has on one part of its periphery worm-wheel teeth and on another part thereof spur-wheel teeth which are geared with the said elevating-arc, and a worm or endless screw geared with the said worm-wheel teeth and fixed upon a shaft

which is fitted to rotate in bearings on the top carriage, substantially as and for the purposes set forth.

4. In a gun-mounting, the combination, with the gun, the top carriage, and the chassis, slide, or under carriage, of a segmental rack or elevating-arc fixed on the gun, a wheel which is fitted to turn upon a shaft, stud, or bolt fixed in the top carriage, and which has on one part of its periphery worm-wheel teeth and on another part thereof spur-wheel teeth which are geared with the said elevating-arc, a worm or endless screw geared with the said worm-wheel teeth and fixed upon a shaft which is fitted to rotate in bearings on the top carriage, and an operating-shaft fitted to rotate in bearings on the chassis or under carriage and geared with the worm-shaft, substantially as and for the purposes set forth.

5. In a gun-mounting, the combination, with the gun, the top carriage, and the chassis, slide, or under carriage, of a segmental rack or elevating-arc fixed on the gun, a wheel which is fitted to turn upon a shaft, stud, or bolt fixed in the top carriage, and which has on one part of its periphery worm-wheel teeth and on another part thereof spur-wheel teeth which are geared with the said elevating-arc, a worm or endless screw geared with the said worm-wheel teeth and fixed upon a shaft which is fitted to rotate in bearings on the top carriage, and an operating-shaft fitted to rotate in bearings on the chassis or under carriage and geared with the worm-shaft by means of bevel-wheels, one of which is keyed upon the said operating-shaft, so that it will turn therewith, but can slide longitudinally thereon, substantially as and for the purposes set forth.

6. In a gun-mounting, the combination of a wheel composed of a worm-wheel segment *a* and a spur-wheel segment *b*, a segmental rack or elevating-arc *d*, fixed on the gun and geared with the said spur-wheel segment, a worm *n*, geared with the said worm-wheel segment, a shaft *l*, on which the worm is fixed, a shaft *e*, mounted in bearings in the under carriage, and bevel-wheels *h* *k*, connecting the said shaft *e* with the worm-shaft *l*, the bevel-wheel *k* being keyed upon the said shaft *e*, so that it must turn with the said shaft, but can slide along it, thus permitting the pointing or laying of the gun in any position of the top carriage on the chassis or under carriage, all substantially as and for the purposes set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET.

Witnesses:

R. J. PRESTON,

JOHN H. R. WHINFIELD.