

No. 706,345.

Patented Aug. 5, 1902.

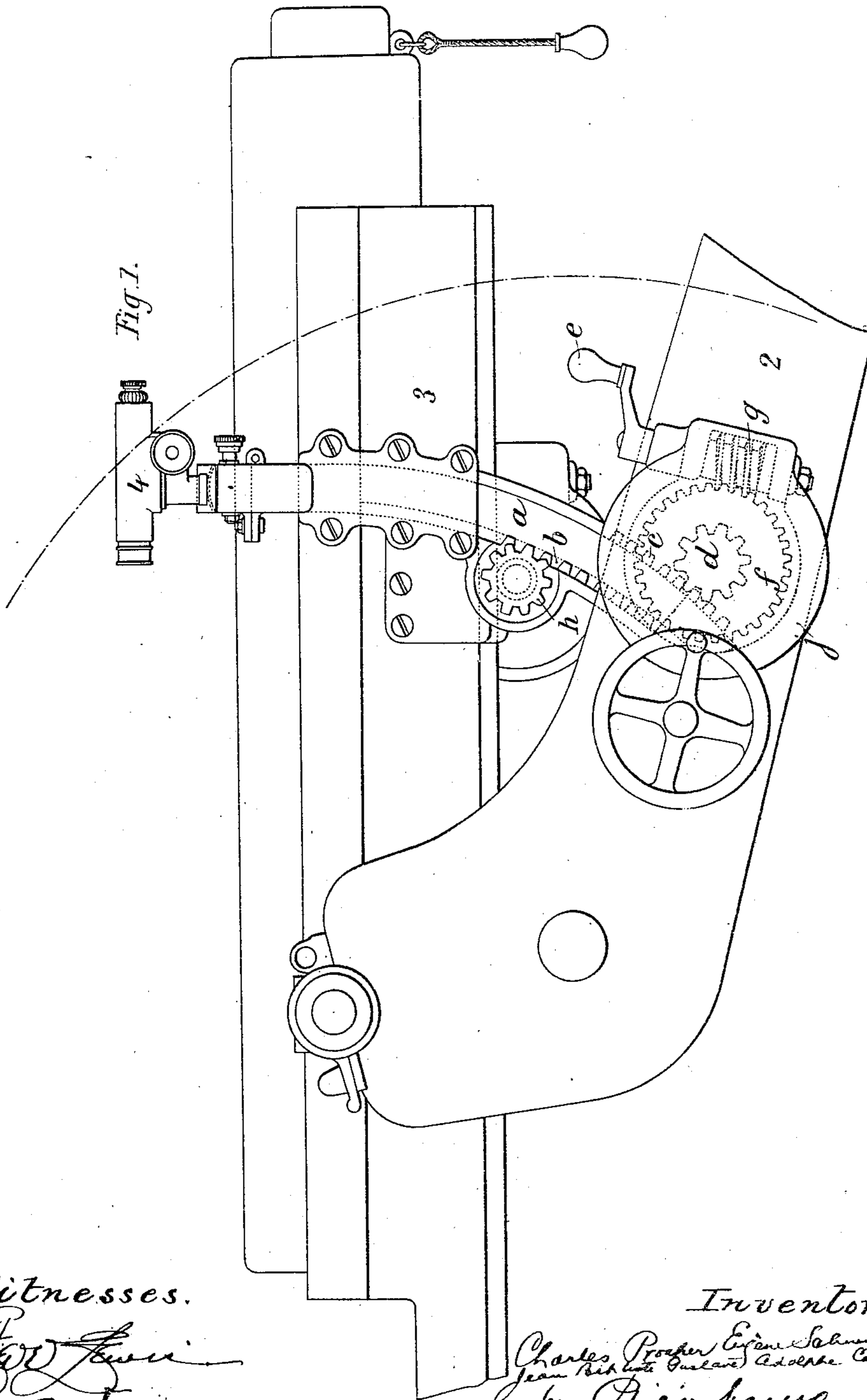
C. P. E. SCHNEIDER & J. B. G. A. CANET.

APPARATUS FOR SIGHTING GUNS WITH INDEPENDENT LINE OF SIGHT.

(Application filed Jan. 29, 1901.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses.

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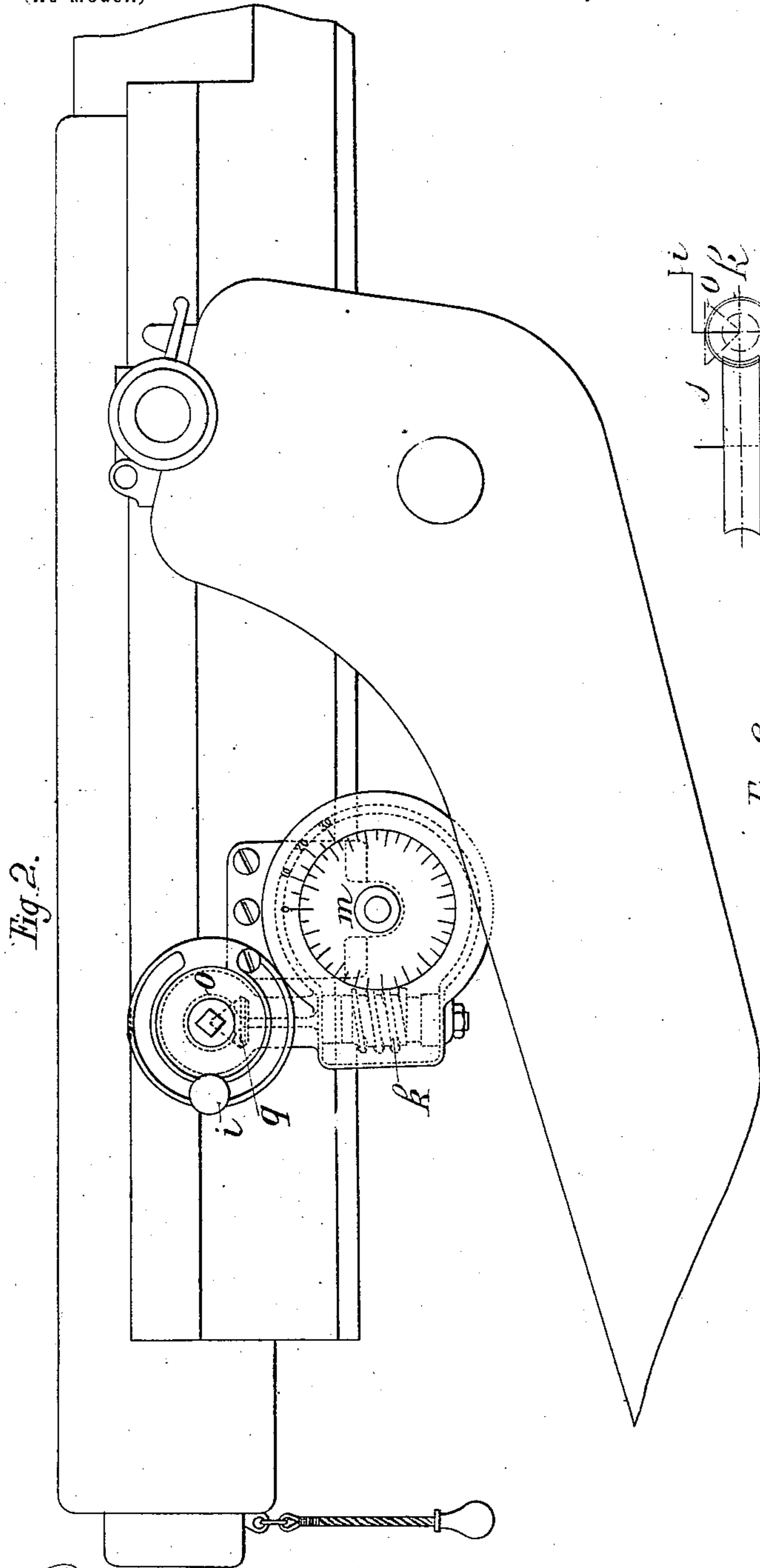


Fig. 2.

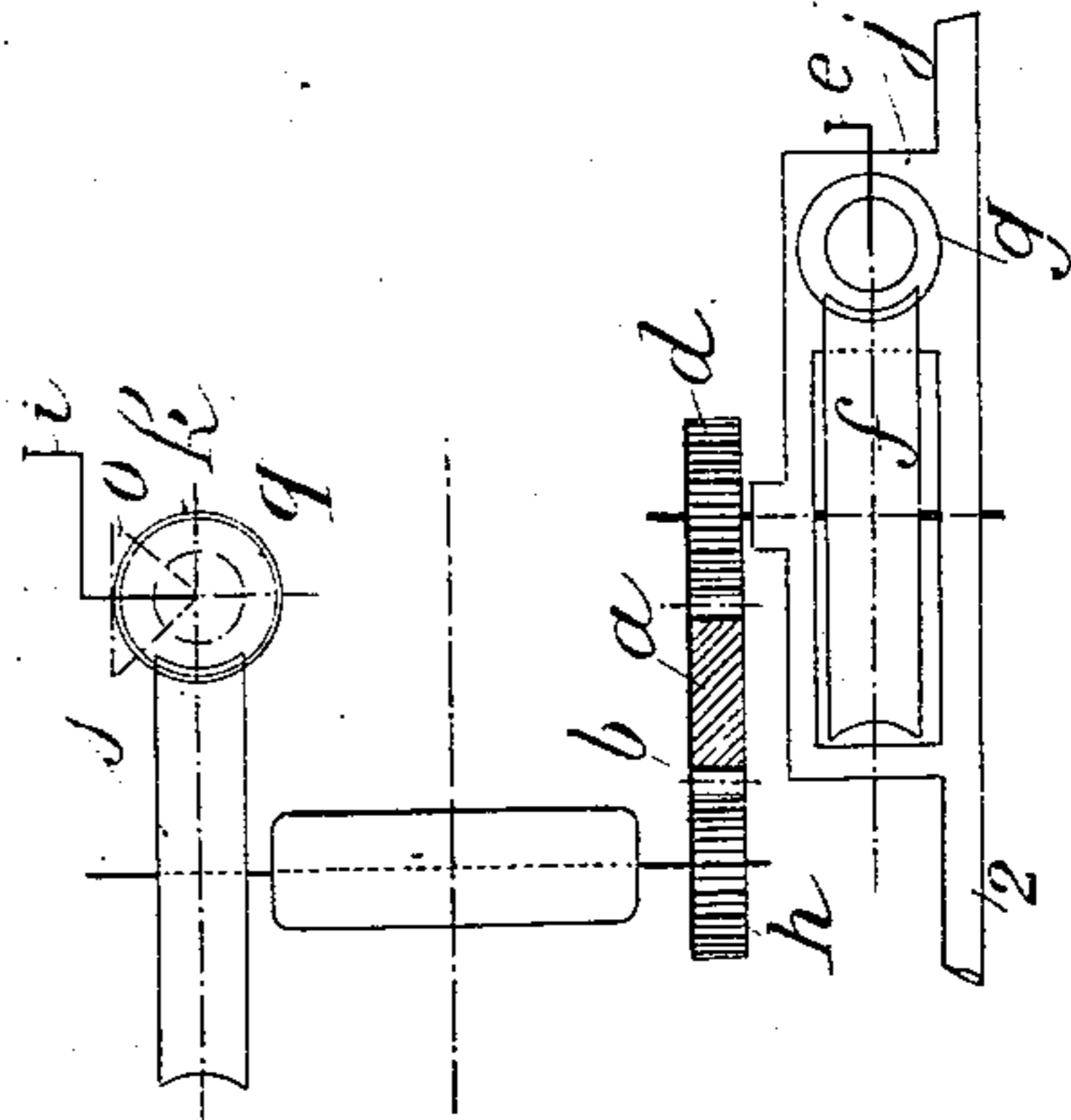


Fig. 3.

Witnesses
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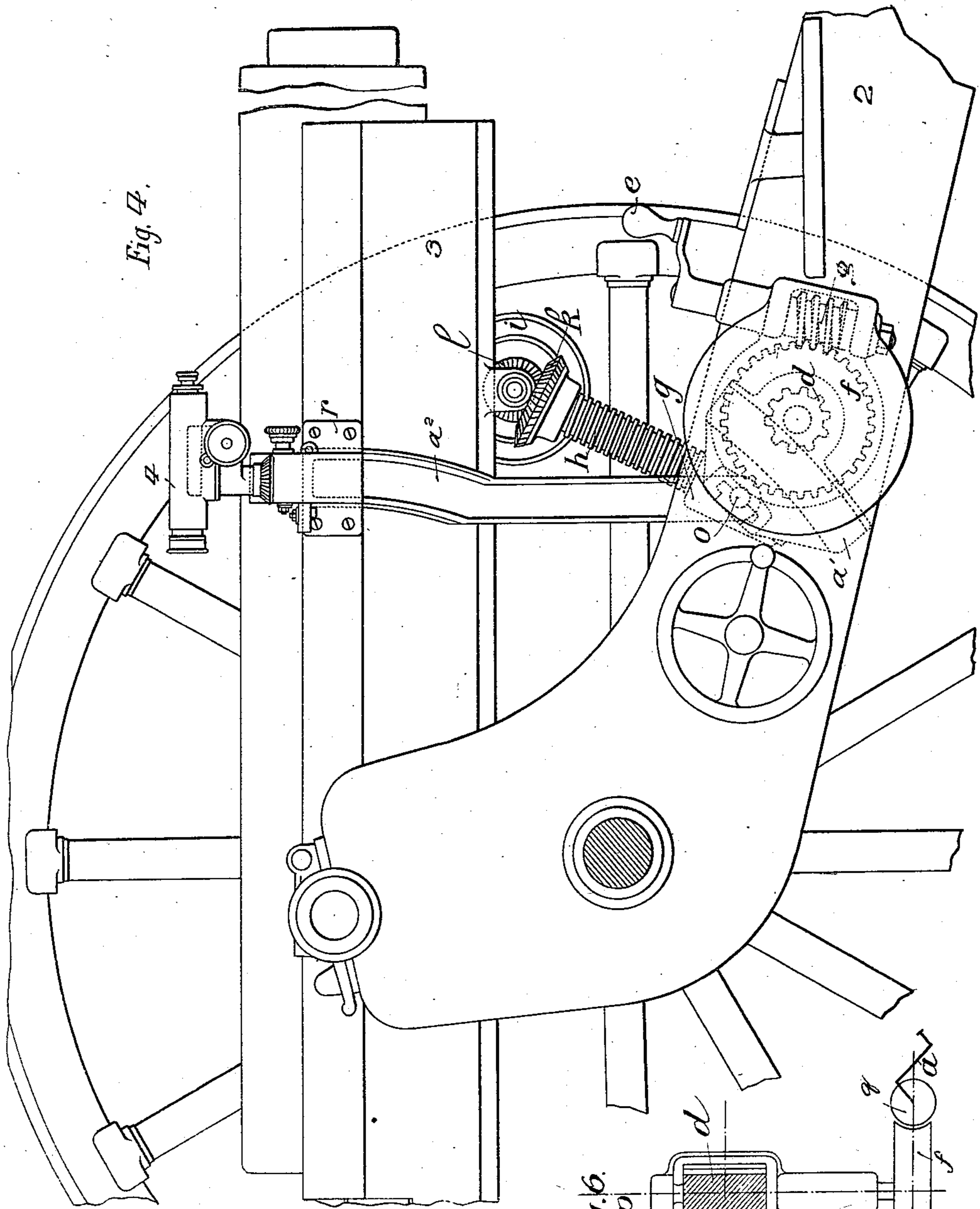
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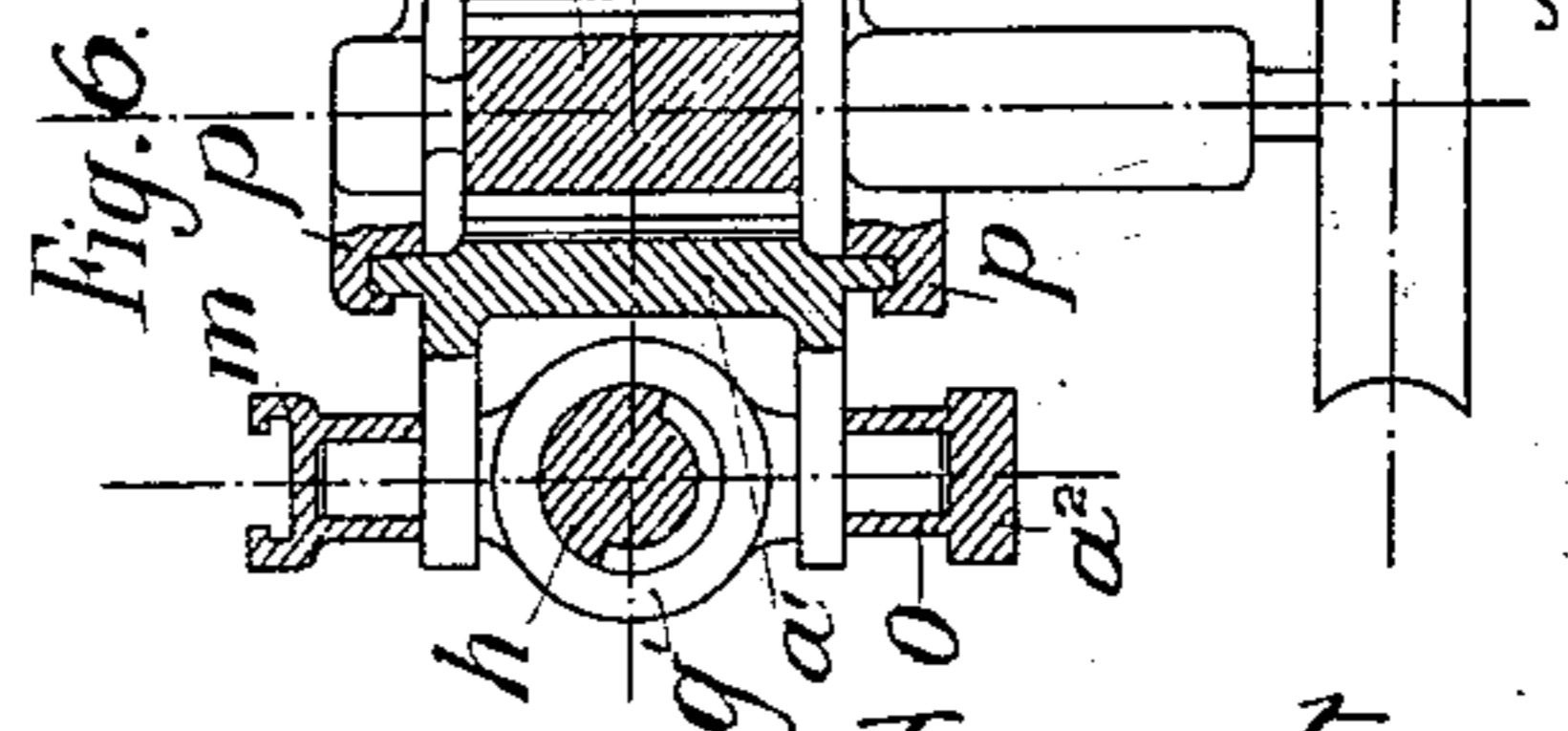
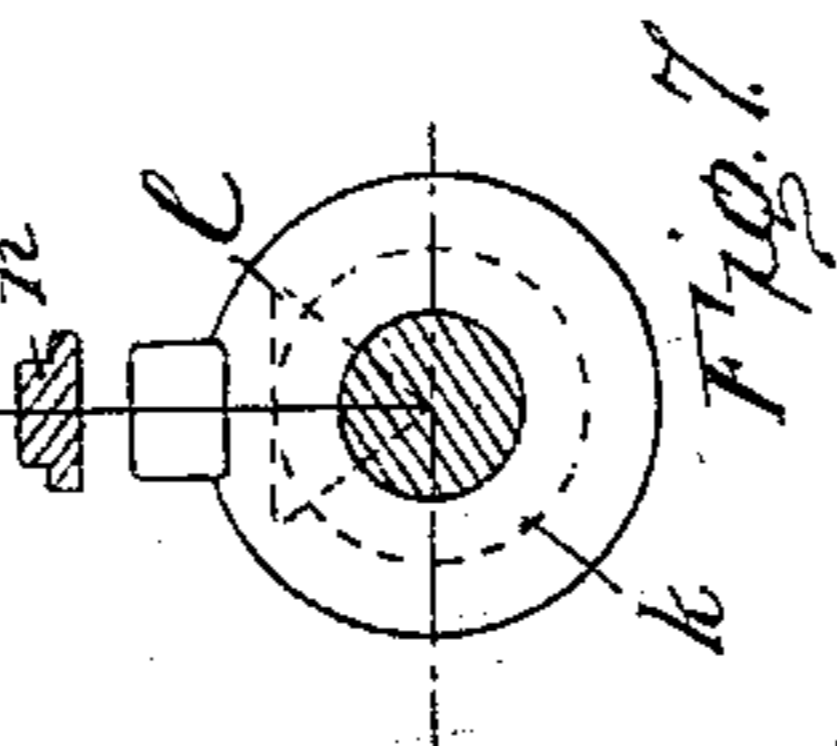
(Application filed Jan. 29, 1901.)

(No Model.)

5 Sheets—Sheet 3.



Witnesses
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No. 706,345.

Patented Aug. 5, 1902

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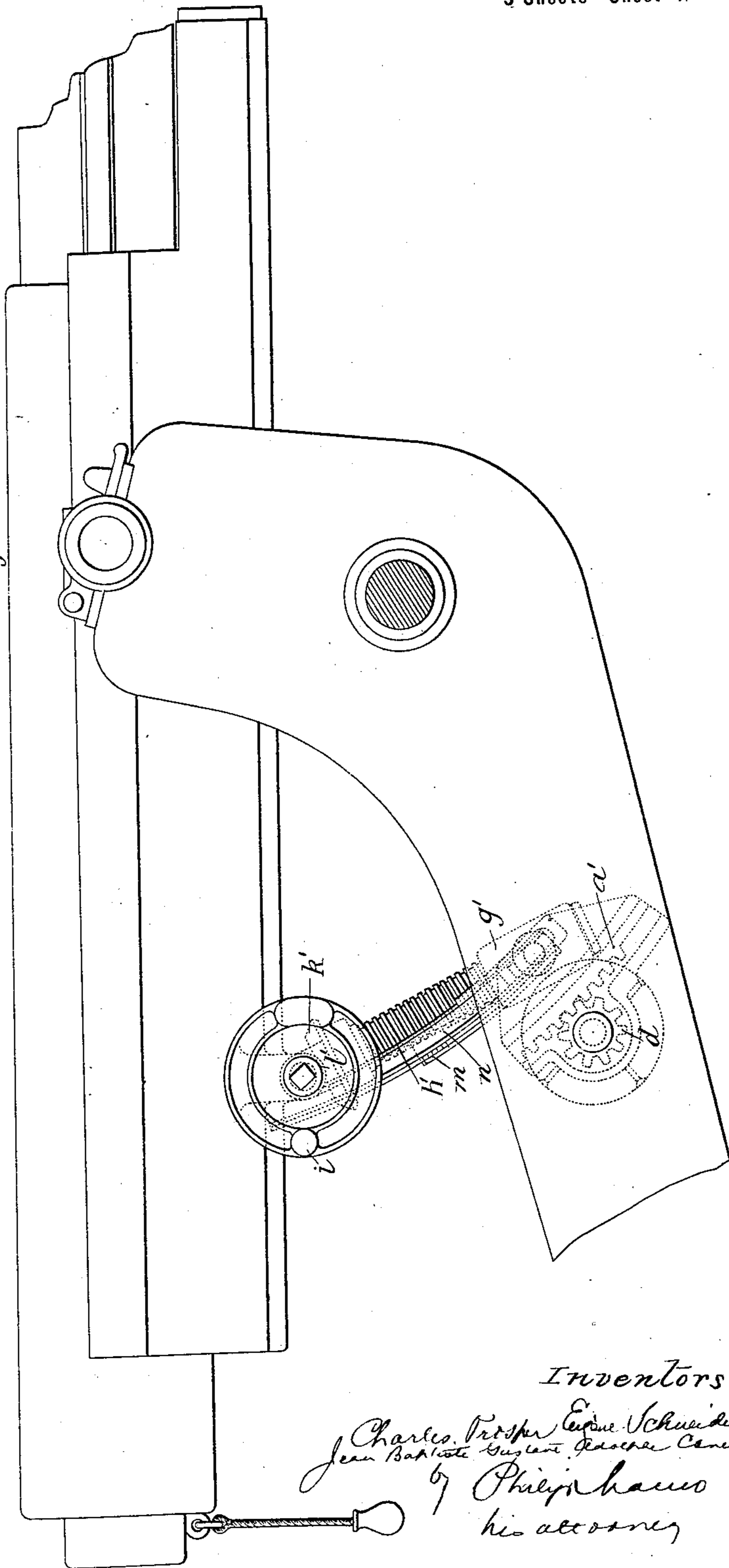
APPARATUS FOR SIGHTING GUNS WITH INDEPENDENT LINE OF SIGHT.

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5 Sheets—Sheet 4.

(No Model.)

Fig. 5.



Witnesses

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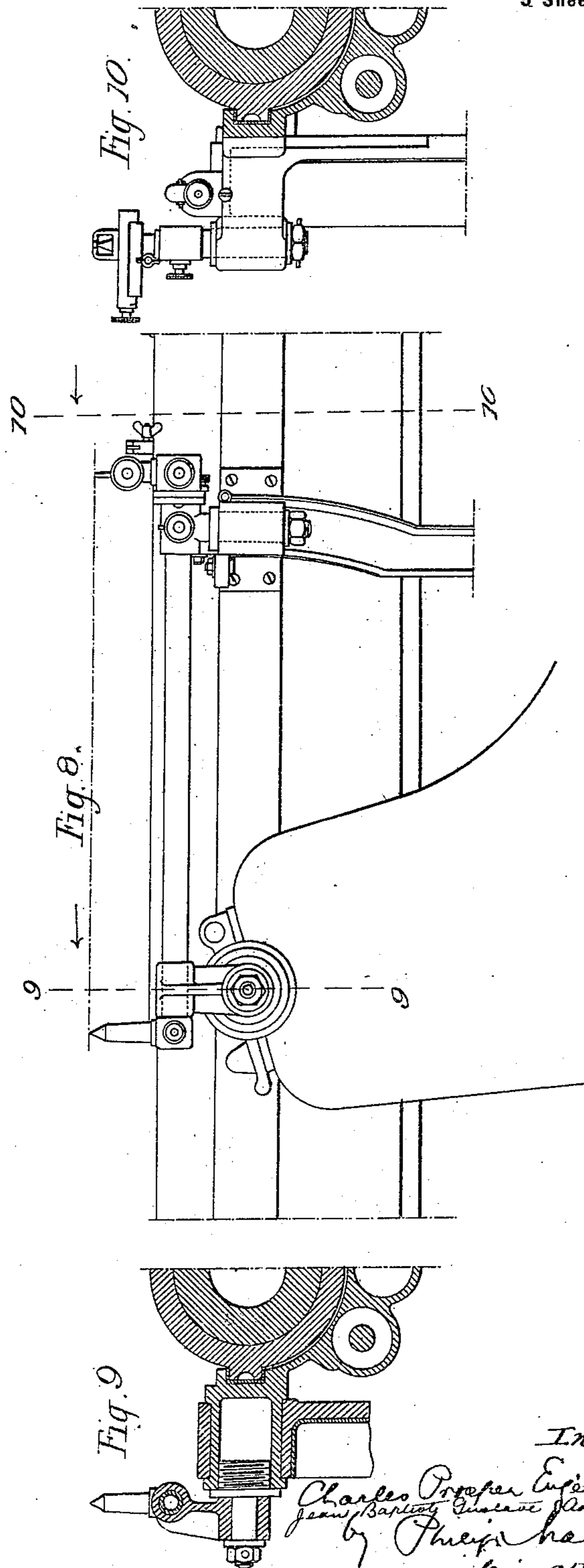
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(Application filed Jan. 29, 1901.)

(No Model.)

5 Sheets—Sheet 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES PROSPER EUGÈNE SCHNEIDER AND JEAN BAPTISTE GUSTAVE
ADOLPHE CANET, OF LE CREUZOT, FRANCE.

APPARATUS FOR SIGHTING GUNS WITH INDEPENDENT LINE OF SIGHT.

SPECIFICATION forming part of Letters Patent No. 706,345, dated August 5, 1902.

Application filed January 29, 1901. Serial No. 45,265. (No model.)

To all whom it may concern:

Be it known that we, CHARLES PROSPER EUGÈNE SCHNEIDER, ironmaster, and JEAN BAPTISTE GUSTAVE ADOLPHE CANET, engineer, residing at Le Creuzot, Saône-et-Loire, in the Republic of France, have invented certain new and useful Improvements in Apparatus for Sighting Guns with Independent Line of Sight, of which the following is a full, clear, and exact specification.

This invention relates to the art of sighting guns or cannon, and has for its object to provide mechanism whereby the angle of inclination of the line of sight to the horizon may be changed so as to bring it upon the target without altering the firing-angle of the gun—that is, the angle between the line of sight and the axis of the gun—said mechanism being also so constructed as to permit the alteration of the firing-angle without disturbing the sight-line, to the end that the sight-line and the firing-angle may be changed independently one of the other and such changes made simultaneously, if desired.

With this object in view the invention consists in means for simultaneously turning the gun and the sighting apparatus about a common axis, whereby the angle of inclination of the sight-line may be changed without changing the firing-angle, combined with a gun-elevating device operable entirely independent of said means, thereby elevating or depressing the gun to change the firing-angle or for charging the gun without disturbing the sight-line.

The inventive idea involved may be expressed in a variety of mechanical forms, some of which are shown in the accompanying drawings, in which—

Figure 1 is a left-hand side elevation, and Fig. 2 is a right-hand side elevation, of a part of a gun and gun-carriage having the invention applied thereto. Fig. 3 is a diagrammatic plan, partly in section, of parts shown in Figs. 1 and 2. Fig. 4 is a left-hand side elevation, and Fig. 5 a right-hand side elevation, of a modified form of the invention, while Figs. 6 and 7 are diagrammatic plans, partly in section, of parts shown in Figs. 4 and 5. Fig. 8 is a side elevation showing a different form of sight. Fig. 9 is a part-sectional view on line 9 of Fig. 8 looking in the

direction of the arrow. Fig. 10 is a similar view on line 10 of Fig. 8.

The sighting apparatus illustrated by Figs. 1, 2, and 3 comprises an independent sector *a*, having a double series of teeth *b* and *c*, guided in the trail 2 and upon the cradle 3. This sector carries at its upper part the sights proper, 4, and gears, through the intervention of its teeth *c*, with a pinion *d*, which is adapted to be operated by means of the crank-handle *e*, the helicoidal wheel *f*, and worm *g*. This worm is mounted upon a shaft carried in a bracket *j*, fixed to the trail 2, the axis of *f* being also carried by the said bracket *j*. The sector, which is concentric with the axis of the trunnions, will, when the crank-handle *e* is operated, cause the sight-line of the sighting apparatus to be shifted, so as to direct it either above or below the horizon. Sector *a* in moving carries with it the gun or gun-cradle, the teeth *b* of the sector engaging gear *h*, the shaft of which is mounted on the cradle and locked against rotation by the engagement of worm *k* with worm-wheel *s* thereon. The gun is thus caused to follow automatically the movements of the sight-line, and is therefore at any moment ready for firing if the firing-angle is known.

In case it is required to modify the angle of firing, it can be effected independently of the movement of the sight-line and simultaneously therewith. For this purpose the pinion *h* is operated by a hand-wheel *i* through the intervention of wheels *o* and *q* and a helicoidal wheel *s*, engaging with the endless screw *k*. These parts are carried by the cradle 3 or by the gun. To ascertain at any moment the value of the angle of firing—that is to say, the angle existing between the axis of the gun and the sight-line—a plate with divisions *m* is fixed to the pinion-shaft *h* and carried by the casing of the endless screw *k*.

The sighting apparatus illustrated by Figs. 4, 5, 6, and 7 comprises also two devices, one for adjusting the sight-line vertically with respect to the target and the other for modifying the angle of firing—that is to say, for elevating. The former of these devices, Figs. 4 and 6, is placed on the left side of the carriage or mounting and comprises a crank-

handle *e*, an endless screw *g*, and a helicoidal wheel *f*, upon the shaft of which is keyed a pinion *d*, which gears with a small movable sector *a'*, sliding in guides *pp*, Fig. 6, carried by the trail 2. This sector *a'* carries an arm *a²*, supporting the sighting apparatus proper, 4, disposed at the left of the gun. The said arm *a²* is articulated upon the sector at *o'* and is guided at its upper part at *r* by the cradle 3 of the gun, the guiding means being concentric with the trunnions. The movable sector is provided at its middle with a nut *g'* and a strong screw *h'*, which supports the gun and the cradle in all the various positions for pointing. The second device, Figs. 5 and 7, which is disposed at the right side of the gun, consists of a hand-wheel *i*, a pair of beveled toothed wheels *k' l'*, the screw *h'*, and its nut *g'*. All these parts except the nut *g'*—viz., *i l' k' h'*—move with the cradle and the gun during the elevation. From the foregoing description it follows, first, that by operating the crank-handle *e* of the first device the sector *a'* is displaced, and consequently also the arm *a²* and the sight 4, carried thereby, this being for the purpose of adjusting the line of sight to the elevation of the target, while also moving the gun. During this motion the angle of firing is not altered. The gun is therefore ready to fire as soon as the sight-line is properly directed upon the target; second, that by operating the wheel *i* of the second device the screw *h'* is caused to travel in its nut, thereby effecting the movement of the gun about its trunnions without interference with the sight-line. In this manner the angle of firing is altered—that is to say, the elevation of the gun is changed, while maintaining the sight-line directed toward the target. The variations in the angle of firing are ascertained from a curved slide

marked with divisions at two parts, one, *m*, fixed, the other, *n*, movable. This arrangement therefore fully insures the independence of the sight-line.

The sighting apparatus carried by the sector *a* or arm *a²* may, as desired consist of a telescope, Fig. 4, or of a collimator with level, as shown in transverse section through the trunnion in the modification Fig. 10, or of a simple sight-hole for the rear sight, with the front sight constructed, as shown in longitudinal elevation and transverse section at Figs. 8 and 9, or of any other appropriate sighting device proper.

What is claimed is—

1. The combination of a sight device, a gun, and its carriage, with a sector-shaped bar supporting the sight and with which the gun moves, a guide for said bar on the gun or cradle and concentric with the trunnions, means on the carriage for shifting said bar in a vertical plane, and gun elevating and depressing devices connected to the gun and to said bar.

2. The combination of a sight device, a gun and a gun-carriage of a gun elevating and depressing mechanism, a sector-shaped bar supporting the sight device and said elevating and depressing mechanism, a worm-gear operatively connected to said bar for elevating and depressing the same and thereby simultaneously moving the sight device and gun in a vertical plane without altering their angle of inclination to each other.

In witness whereof we have hereunto set our hands in presence of two witnesses.

CHARLES PROSPER EUGÈNE SCHNEIDER.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET.

Witnesses:

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