

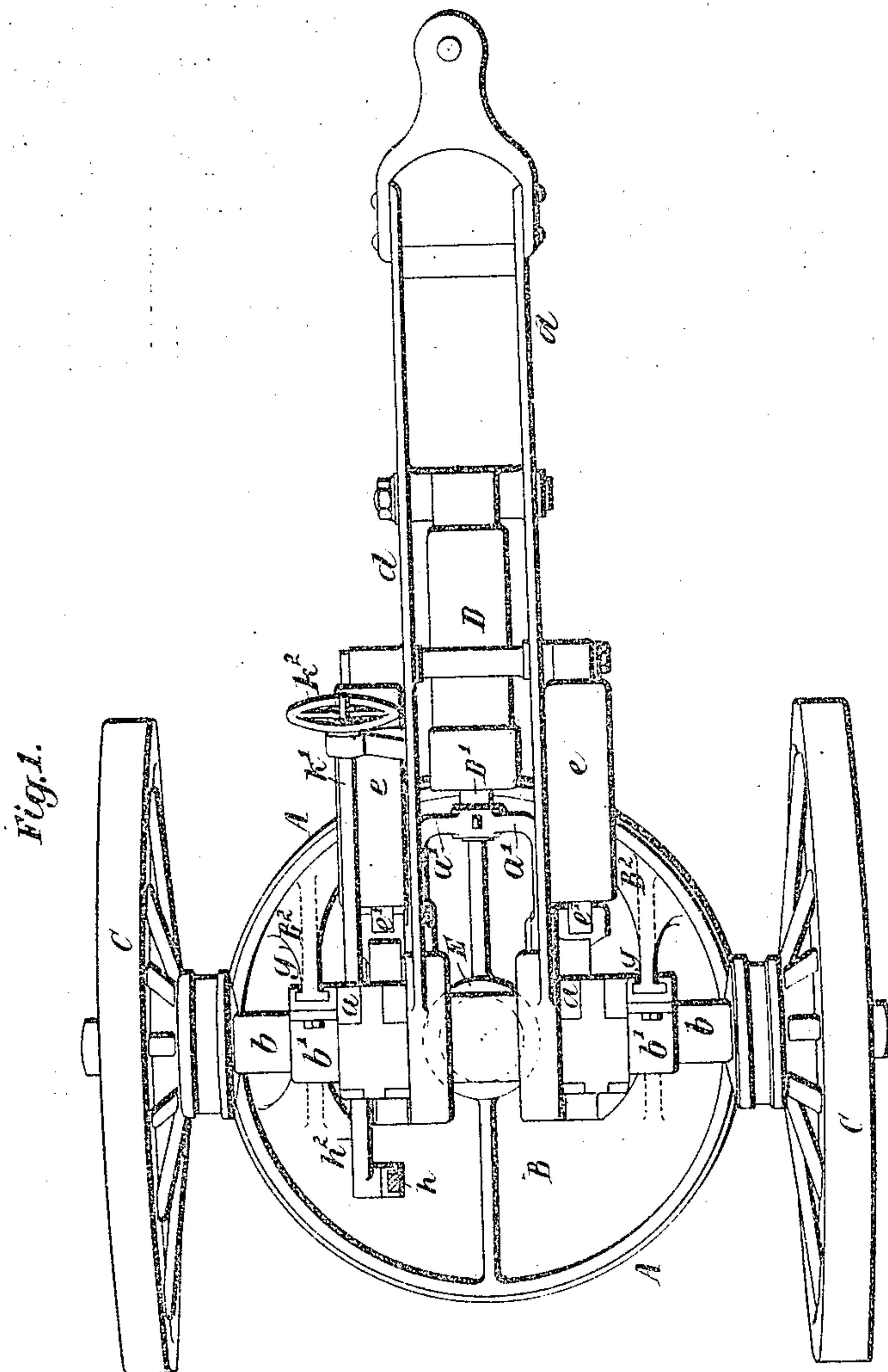
(No Model.)

4 Sheets—Sheet 1.

J. B. G. A. CANET.  
GUN CARRIAGE OR MOUNTING.

No. 470,287.

Patented Mar. 8, 1892.



Witnesses:—

J. A. Rutherford.  
J. H. Daly.

Inventor:—

Jean B. G. A. Canet  
By James L. Norris  
Attorney

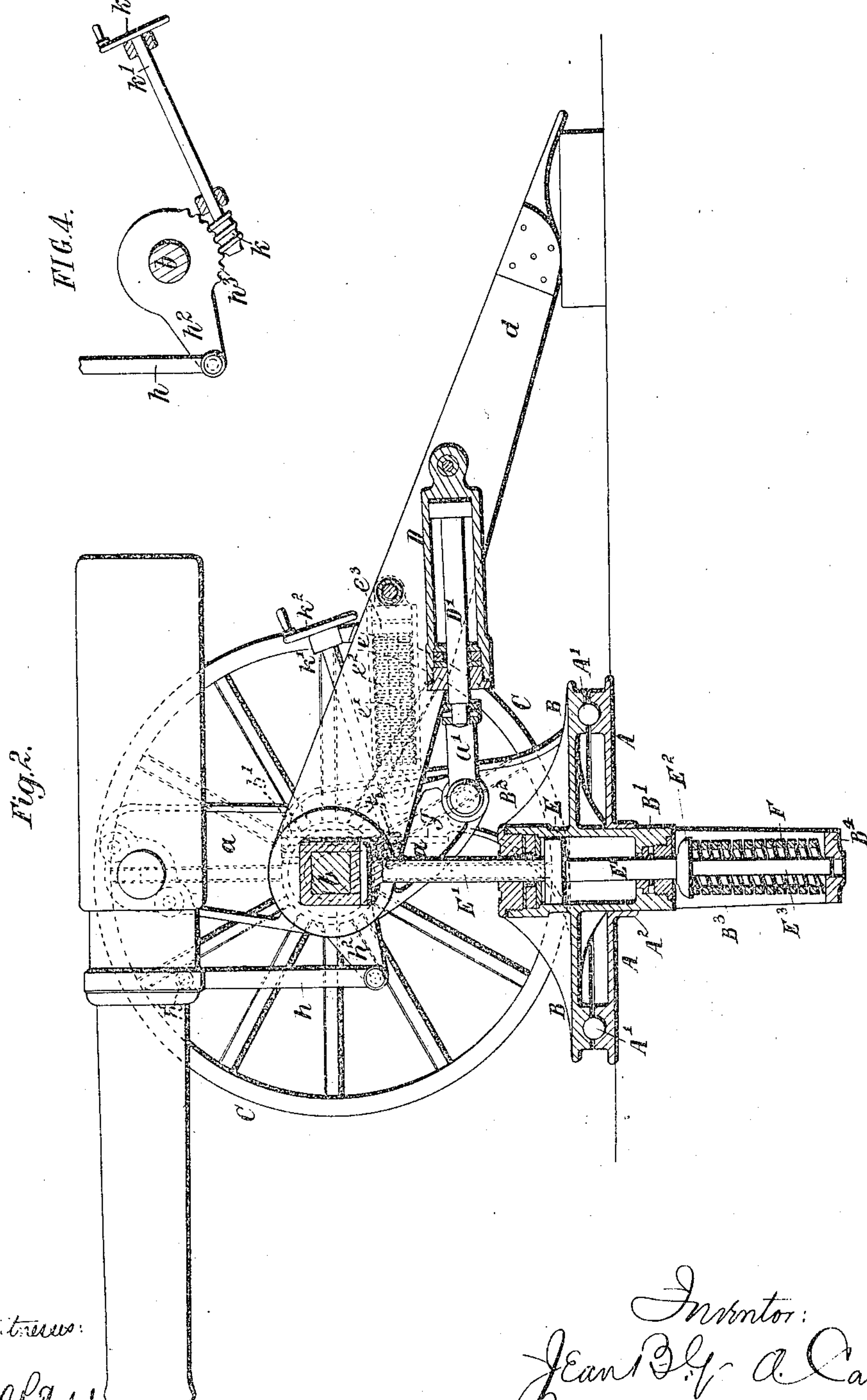
(No Model.)

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J. B. G. A. CANET.  
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No. 470,287.

Patented Mar. 8, 1892.



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(No Model.)

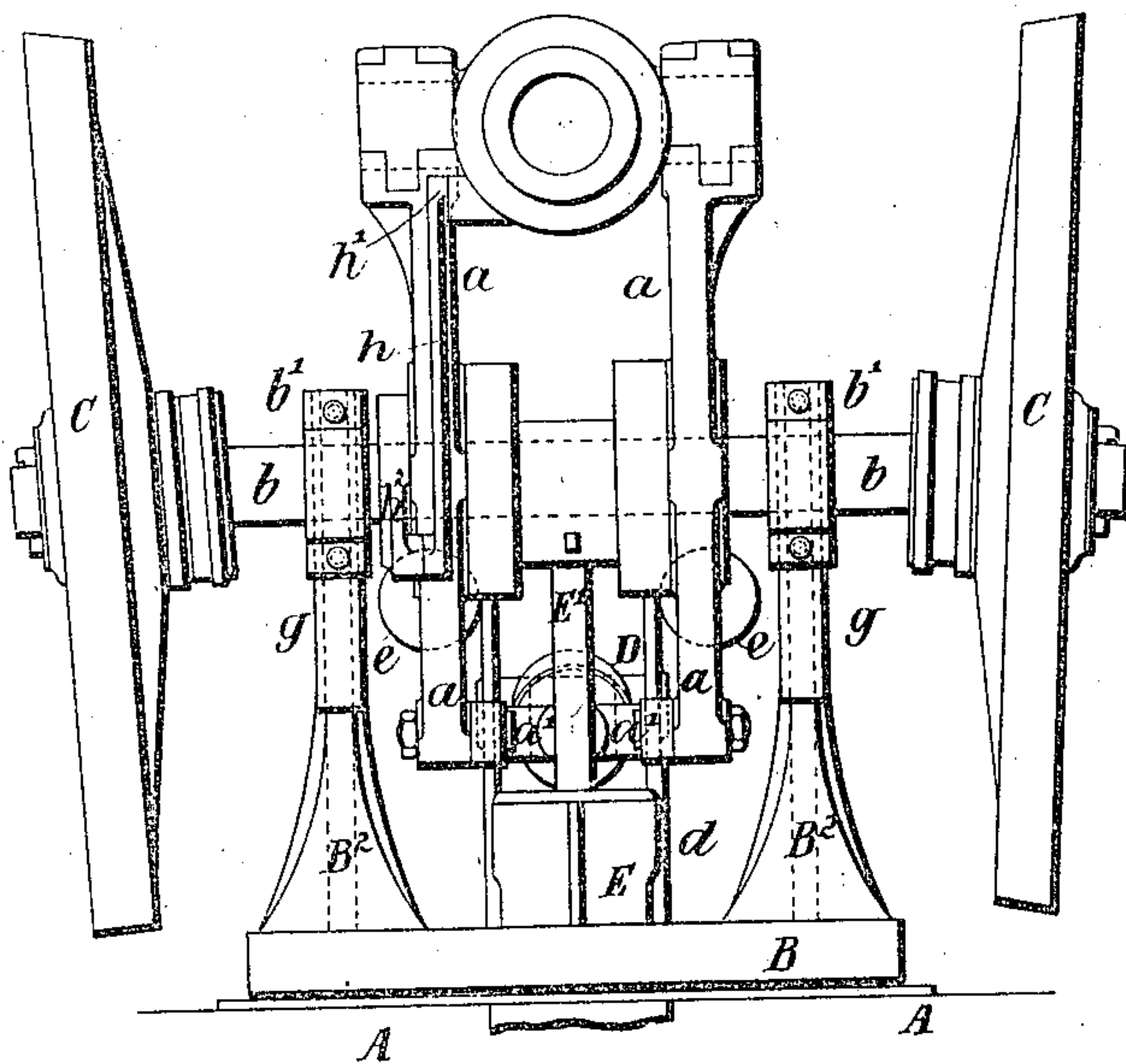
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Fig. 3.



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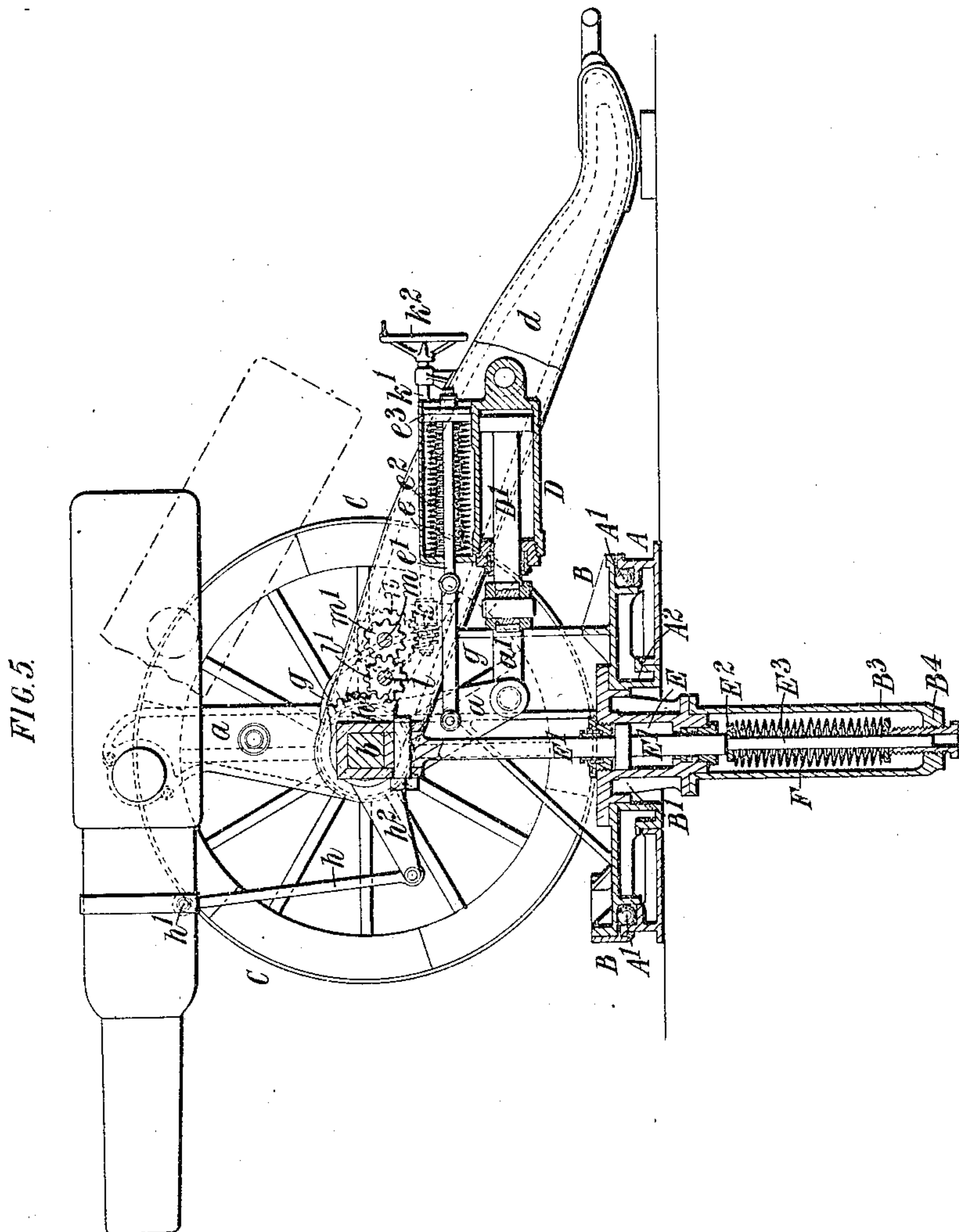
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4 Sheets—Sheet 4.

J. B. G. A. CANET.  
GUN CARRIAGE OR MOUNTING.

No. 470,287.

Patented Mar. 8, 1892.



Witnesses:-  
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# UNITED STATES PATENT OFFICE.

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OF ONE-HALF TO THE SIR JOSEPH WHITWORTH & COMPANY, LIMITED,  
OF OPENSHAW, ENGLAND.

## GUN CARRIAGE OR MOUNTING.

SPECIFICATION forming part of Letters Patent No. 470,287, dated March 8, 1892.

Application filed March 4, 1891. Serial No. 333,729. (No model.) Patented in France December 18, 1886, No. 180,349, and in  
England June 29, 1887, No. 9,217.

*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 Gun Carriages or Mountings, (for which I have obtained patents in the following countries, viz: in Great Britain, No. 9,217, dated June 29, 1887, and in France, No. 180,349, dated December 18, 1886, which invention was formerly included in my application for Letters Patent of the United States, Serial No. 278,594, filed June 29, 1888,) of which invention the following is a specification, reference being had to the accompanying drawings.

My invention relates to gun carriages or mountings of the kind or class in which a hydraulic brake is arranged between the turn-table or under carriage and a part of the mounting which is capable of up-and-down movement with the gun for the purpose of diminishing the concussion or shock to which the apparatus is subjected in the recoil of the gun.

In the specification of my former application for Letters Patent of the United States, Serial No. 278,594, filed on the 29th of June, 1888, I have described gun carriages or mountings of this kind or class.

My present invention is more particularly designed to improve the construction and increase the efficiency or utility of carriages or mountings for siege-guns or guns of position mounted on wheels.

In my improved gun-carriage I make use of two sets of brake apparatus so arranged that the one will resist the horizontal or nearly horizontal and the other the vertical or nearly vertical components of the force or stress exerted in the recoil. I will hereinafter refer to these sets of apparatus as "horizontal" and "vertical" brakes.

My present invention comprises the combination, with a gun-carriage mounted on wheels, of a turn-table provided with vertical guides in or upon which are fitted to slide blocks firmly secured to the axle, so that the axle can move up and down with the gun rela-

tively to the said turn-table and the gun-carriage can be rotated or trained about the axis of the said turn-table.

My said invention also comprises the combination, with the said turn-table and the axle, of a vertical brake and recuperator for counteracting or resisting the downward thrust of the recoil and for raising the gun and carriage after the recoil, a suitable horizontal brake and recuperator being also provided.

My said invention also comprises the combination of a rocking lever which carries the gun and which is mounted upon the axle and connected with the horizontal brake and recuperator, and parallel-motion apparatus whereby the gun can be elevated or depressed, and which will, at any angle of elevation or depression of the gun, keep the same in its recoil parallel to the line of fire.

In the accompanying drawings, Figure 1 is a plan of one form of my improved gun carriage or mounting. Fig. 2 is a vertical longitudinal central section of the same, the gun being shown in side elevation. Fig. 3 is a front elevation of the said carriage or mounting. Fig. 4 is a longitudinal section illustrating details of construction; and Fig. 5 is a vertical longitudinal section, the gun being shown in side elevation, illustrating another form or modification of my improved gun-carriage.

Like letters indicate corresponding parts throughout the drawings.

A is a base-plate or racer-path, which is designed to rest upon the ground or upon a suitable floor or platform.

B is the turn-table, which is supported upon the said base-plate or racer-path by means of rollers or balls A'. The said turn-table is provided with a central pivot B', working in a sleeve or socket A<sup>2</sup>, formed with or firmly attached to the base-plate A.

C C are the wheels.

The gun is supported by its trunnions in the upper end of a rocking or oscillating lever *a*, mounted upon the axle *b*. This lever is formed of two parts, one on either side of the gun. The lower arms of the said rocking or oscillating lever *a* are coupled, by means



of a forked piece  $a'$  or other suitable means, to the piston-rod  $D'$  of the horizontal brake  $D$ , which is coupled or pivoted at its rear end to the trail  $d$ . The lever  $a$  is, moreover, connected with the rods  $e'$  of recuperators  $e$ , which are also coupled or pivoted at their rear end to the trail  $d$  and which comprise springs  $e^2$ , inclosed in suitable boxes or casings, the said springs acting upon and being acted upon by disks or pistons  $e^3$ , formed or fixed on the rear ends of the said rods  $e'$ .

$E$  is a vertical hydraulic brake, the piston-rod  $E'$  of which is connected at its upper end with the axle  $b$ , through which the downward force or thrust due to the recoil of the gun will be transmitted to the said brake. The piston-rod  $E'$  extends through suitable stuffing-boxes at both ends of the brake-cylinder and is provided at its lower end with a fixed collar  $E^2$  and an extension  $E^3$ , which form, in combination with a spring  $F$ , a recuperator for raising the gun and carriage after the recoil. The spring  $F$  abuts at its upper end against the collar  $E^2$  and at its lower end against a cross-piece  $B^4$ , which forms part of an extension  $B^3$  of the pivot  $B'$  and in which works the extension  $E^3$  of the piston-rod  $E'$ .

In practice the pistons of the cylinders  $D$  and  $E$  do not accurately fit the said cylinders, but are made slightly smaller in diameter, so as to provide for the flow of the liquid alternately from one side to the other of the pistons as the latter move in the cylinders.

The axle  $b$  has firmly fixed thereon blocks  $b'$ , which are adapted to slide vertically in or upon guides  $g$ , formed or fixed on the standards  $B^2$  of the turn-table  $B$  for the purpose of guiding the axle in its up-and-down movement.

The vertical pointing or elevation of the gun is effected by worm-gearing or other suitable devices through the medium of a parallel-motion apparatus. The upper arm of the lever  $a$  forms a part of this apparatus, which also comprises a bar or link  $h$ , coupled at one end to the gun at  $h'$  and at its other end to a lever  $h^2$ , fitted to turn upon the axle  $b$ . The upper arm of the lever  $a$ , the rod or link  $h$ , the lever  $h^2$ , and that portion of the gun between the axis of the trunnions and the joint  $h'$  form the four sides of a parallelogram, whereby the gun in its recoil will at any angle of elevation or depression be kept parallel to the line of fire. The levers  $a$  and  $h^2$  being arranged to turn about the axle  $b$ , the elevation and depression of the gun can be effected without impairing the action of the parallelogram in this respect. The elevating-gear shown in the drawings comprises a worm or endless screw  $k$ , fixed upon a shaft  $k'$ , provided with a hand-wheel  $k^2$  for rotating it. The said worm  $k$  is geared with a worm-wheel segment  $h^3$ , formed or fixed on the lever  $h^2$ , as more clearly shown in Fig. 4.

The gun, mounted upon the carriage constructed and arranged as above described, is

intended to be used as a siege-gun or gun of position, and can be trained, as required, about the pivot or axis of the turn-table  $B$ .

The piston-rod  $E'$  of the vertical brake is so attached to the axle  $b$  that the said brake the vertical recuperator, the base-plate  $A$ , and turn-table  $B$  can be readily removed when the gun and carriage are to be transported from one place to another and can be readily replaced when the gun is to be used. The wheels  $C$  should be removed when the base-plate, turn-table, and vertical brake and recuperator are used.

In the form or modification of my invention shown in Fig. 5 the elevating-lever  $h^2$  is arranged between the cheeks of the trail  $d$  and the toothed segment  $h^3$  is geared with a pinion  $l'$ , fixed upon a shaft  $l$ , supported in suitable bearings in the trail. The said pinion  $l'$  is also geared with a pinion  $m'$ , fixed on a shaft  $m$ , which is supported in suitable bearings in the trail  $d$ , and upon which is also fixed outside the trail a worm-wheel  $n$ . This worm-wheel is arranged to be rotated by means of a worm  $k$ , formed or fixed on a shaft  $k'$ , provided with a hand-wheel  $k^2$ . There may, if desired, be two elevating-levers  $h^2$ , arranged between the cheeks of the trail, both levers being operated by means of pinions fixed on the shaft  $l$  and being connected to the gun by links  $h$ . The horizontal brake  $D$  and the recuperator  $e$  are in this modification arranged between the cheeks of the trail.

It is evident that other brakes and recuperators may be substituted for those above described. Moreover, the construction of my apparatus may be otherwise modified without departing from the nature of my said invention.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I wish it understood that I do not claim, generally or irrespectively of my present improvements, the use of parallel-motion apparatus for elevating the gun, as I have described and claimed such apparatus as applied to a disappearing gun in the specification of my former Letters Patent of the United States No. 413,130.

What I claim is—

1. A gun-mounting comprising an under-carriage or turn-table, a siege-gun carriage adapted to move up and down relatively thereto, guides on the turn-table for guiding the said carriage in its up-and-down movement thereon, and an elastic resisting device connecting the axle of the said carriage with the turn-table, substantially as and for the purposes above specified.

2. The combination, with a siege-gun carriage, of an apparatus for supporting the same, comprising a turn-table whereon the said carriage is free to move up and down and to be turned about a vertical pivot or axis for horizontal pointing or training and which is



provided with guides for guiding the said carriage in its up-and-down movement thereon, and an elastic resisting device consisting of a brake and recuperator connecting the axle of the said carriage with the said turn-table, for the purposes above specified.

3. In a gun-carriage mounted upon wheels, the combination, with the axle, of a rocking lever mounted thereon and carrying the gun, a vertical brake and recuperator for supporting the said axle, and a horizontal brake and recuperator connected with the said rocking lever, substantially as and for the purposes set forth.

4. In a gun-carriage mounted upon wheels, the combination, with the axle, of a rocking lever mounted thereon and carrying the gun, and a brake and recuperator coupled to the short arm of the said lever and to the trail of the gun-mounting, substantially as and for the purposes set forth.

5. In a gun-carriage mounted upon wheels, the combination of a rocking lever mounted upon the axle, a brake and a recuperator, both coupled to the short arm of the said lever and to the trail, a lever fitted to turn about the said axle for elevating the gun, a link whereby the said elevating-lever is coupled to the gun forward of the trunnions and which, together with the said elevating-lever, the rocking lever, and the gun, forms a parallelogram, and means, substantially such as above described, for turning the said elevating-lever about the axle to effect the vertical pointing

of the gun, all substantially as and for the purposes set forth.

6. In a gun-mounting, the combination, with a turn-table, of a brake the cylinder whereof serves as the pivot of the turn-table and the piston-rod whereof is adapted to be secured to a part of the mounting which is capable of up-and-down movement with the gun, and a recuperator acting in conjunction with the said brake and turning therewith, substantially as and for the purposes set forth.

7. In a gun-mounting, the combination of a turn-table, an axle *b*, supported thereon and capable of up-and-down movement relatively thereto, a brake arranged between the said turn-table and axle, a recuperator acting in conjunction with the said brake, a rocking lever *a*, mounted on the said axle for carrying the gun, a brake and a recuperator, both coupled to the short arm of the said lever and to the trail of the gun-mounting, a lever *h*<sup>2</sup>, fitted to turn upon the said axle, a link *h*, coupling the said lever *h*<sup>2</sup> to the gun, and elevating mechanism acting upon the gun through the medium of the said lever *h*<sup>2</sup> and link *h*, 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:

ROBT. M. HOOPER,  
DENIS P. KEOGH.