

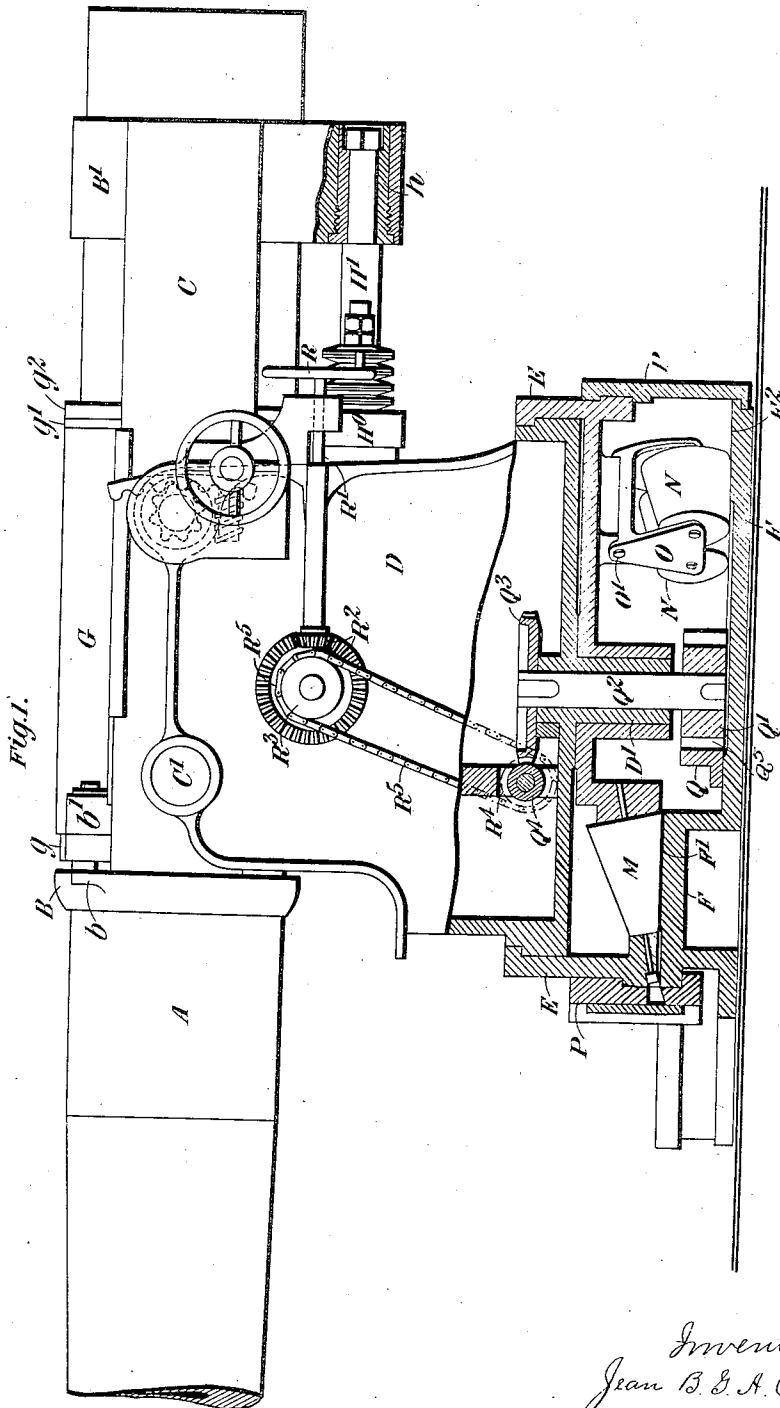
(No Model.)

4 Sheets—Sheet 1.

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

No. 508,278.

Patented Nov. 7, 1893.



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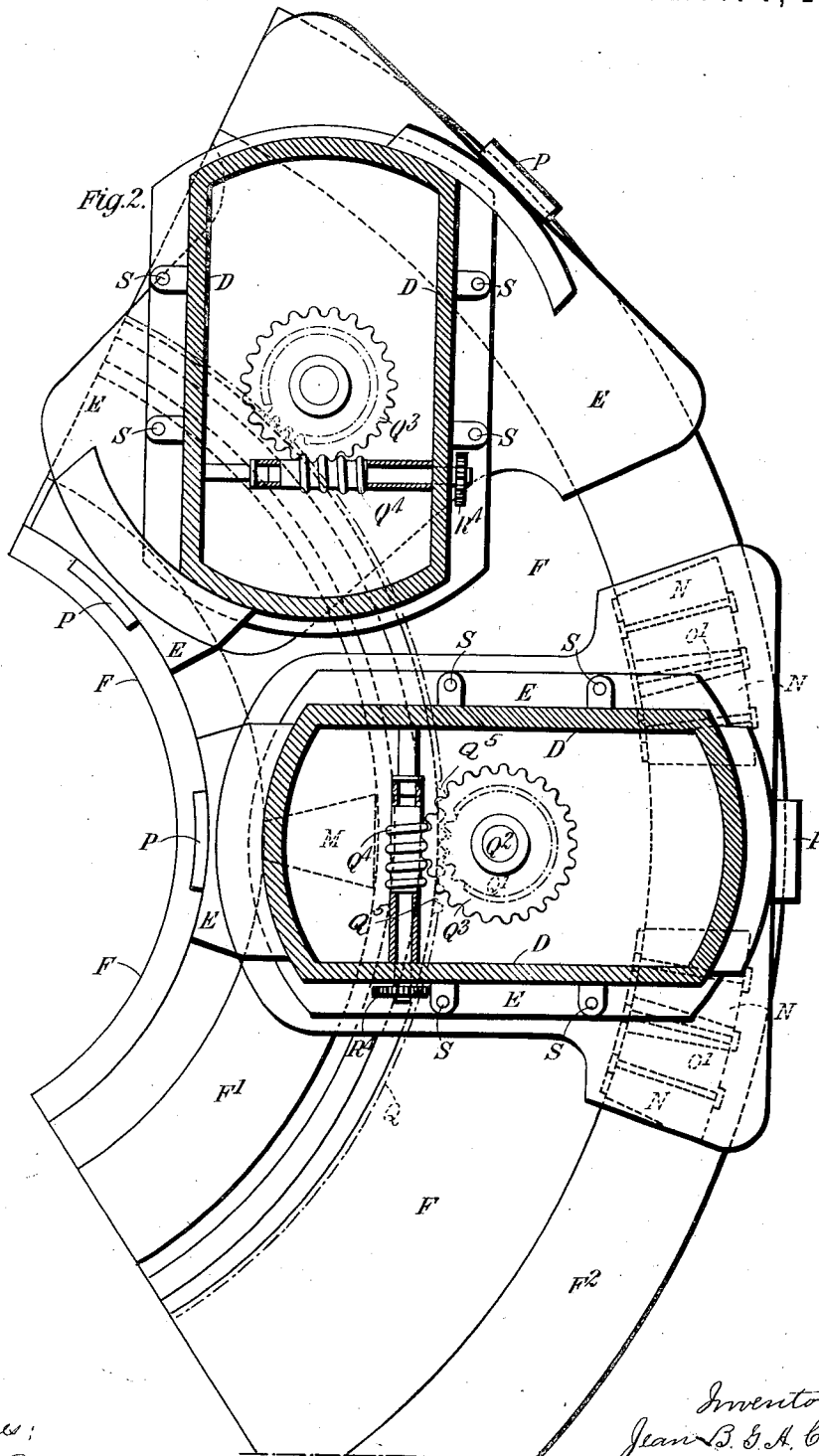
(No Model.)

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

4 Sheets—Sheet 2.

No. 508,278.

Patented Nov. 7, 1893.

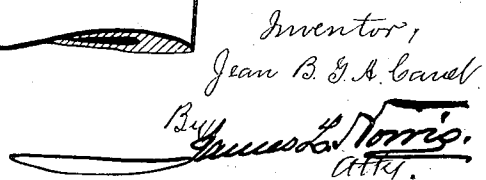


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4 Sheets—Sheet 3.

Patented Nov. 7, 1893.



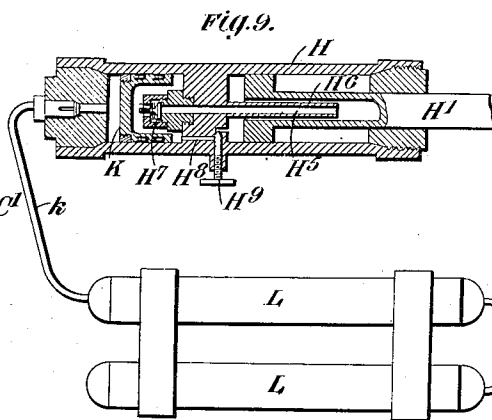
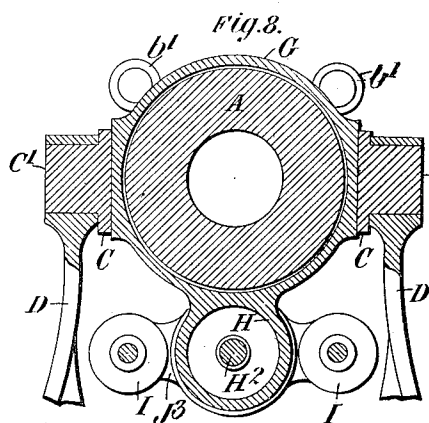
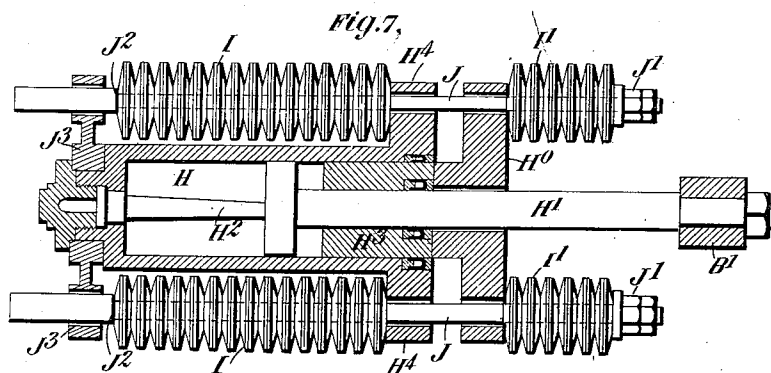
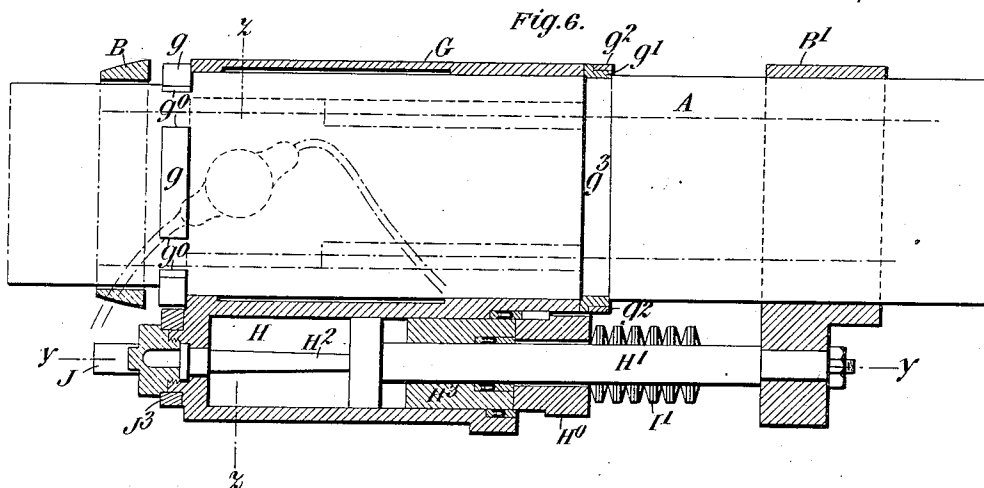
(No Model.)

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

4 Sheets—Sheet 4.

No. 508,278.

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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET, OF PARIS, FRANCE.

GUN-MOUNTING.

SPECIFICATION forming part of Letters Patent No. 508,278, dated November 7, 1893.

Application filed February 23, 1893. Serial No. 463,390. (No model.) Patented in England January 21, 1890, No. 1,078, and in France June 8, 1889, No. 198,814, and February 26, 1890, No. 204,021.

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 or Relating to Gun-Mountings, (for which I have obtained patents in Great Britain, No. 1,078, dated January 21, 1890, and in France June 8, 1889, No. 198,814 and No. 204,021, dated February 26, 1890; French patent of addition, February 8, 1892, to No. 204,021, dated February 26, 1890; French certificate of addition, dated December 14, 1889, to Patent No. 198,814, dated June 8, 1889,) of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to gun-mountings and comprises an improved construction of chassis, brake cylinder, base-plate, and platform, and mode of mounting the carriage on the platform, also improved means for traversing the gun, and turning the carriage or chassis on the platform, and combinations of these parts as hereinafter described.

An important object of the present invention is to provide for the rapid horizontal adjustment of the chassis whereby the gun can be placed for example parallel with the side of the ship or battery and there secured.

The mounting is so constructed that the gun when trained or traversed turns about an imaginary vertical axis outside the mounting and preferably passing through a point in the port-hole or embrasure in the side of the vessel or wall of the battery. The mounting is also constructed to permit the easy recoil of the gun, and the securing of the gun in any desired position.

Referring to the accompanying drawings, Figure 1 is a side elevation of the gun and mounting, the latter being shown partly in section. Fig. 2 is a sectional plan showing the chassis in two different positions. Fig. 3 is a side elevation of the gun and a portion of the mounting removed from the chassis. Fig. 4 is a rear view of the parts shown in Fig. 3. Fig. 5 is a section on the line $x-x$, Fig. 3. Fig. 6 is a longitudinal vertical central section of the parts of the mounting

shown in Fig. 3, the construction of the rear sleeve being slightly modified as hereinafter described. Fig. 7 is a horizontal section on the line $y-y$ Fig. 6. Fig. 8 is a transverse section on the line $z-z$ Fig. 6, and Fig. 9 is a plan of the air-recuperator, and section of a modified construction of brake cylinder hereinafter described.

Like letters denote corresponding parts throughout the drawings.

A is the gun.

B, B' are forward and rear sleeves through which the gun can freely slide; C, C are side frames or beams connecting said sleeves; C' C' are the trunnions formed on said side frames; D is the carriage in which the trunnions are supported.

E is a platform on which the carriage rests; and F is an arc shaped base plate formed with racer paths on which the platform can travel.

Upon the gun is secured a hoop or ring G preferably as follows, that is to say, the hoop is secured between projections, g see Fig. 6, formed on the gun and a hoop g' constructed in halves and held by means of a ring g^2 in a recess g^3 formed in the gun. The said projections g form an interrupted collar on the gun, into the interruptions g^0 of which project and fit parts of the hoop or ring G. By this means the gun is prevented from turning in the said hoop or ring G during the firing. The hoop G is formed with grooved guides G' , Figs. 4 and 5, which slide on the side beams C, C during the recoil and running out of the gun. b, b , Fig. 3, are stops carried by the forward sleeve B and intended to limit the outward run of the gun by encountering suitable buffers b', b' on the hoop G. The brake cylinder H is secured to or formed with the hoop G beneath the same and carries the recuperator springs I, I'. I sometimes use a compressed air recuperator in lieu of the springs I, I'. The piston rod H' of the brake cylinder is passed through and secured to the rear sleeve B' either directly as shown in Figs. 6 and 7 or indirectly by means of a bush h which is screwed in the said sleeve as shown in Fig. 1. The latter mode of attachment allows of the dismounting of the piston from the rear without necessitating the complete

dismounting of the sleeve B'. By arranging the brake cylinder below the gun as described, the width between the cheeks of the carriage may be reduced to a minimum.

5 The brake may be of any suitable type such as one having a cock or valve for controlling the flow of the liquid; the one shown in Figs. 3 to 8 is furnished with a taper rod H² secured to the cylinder end and arranged to enter a
10 central aperture in the piston for the purpose of regulating in a well known manner the area of the opening in the piston through which the liquid displaced by the entrance into the cylinder of the piston rod H' flows
15 from one to the other side of the piston during the recoil. The liquid so displaced operates to force outward the movable head H³ of the brake cylinder and thereby compresses the spring recuperator which serves to run
20 out the gun at the end of the recoil. The head H³ is suitably packed to prevent leakage of liquid. The recuperator spring I, I', I' are threaded upon rods J. The springs I, I' bear at their forward ends against the front
25 of a piece H⁰ which bears upon the movable head H³ and at their rear ends against nuts J' screwed on the rods J. The springs I, I' bear at their rear ends against a flange H⁴ of the brake cylinder and at their forward ends
30 against shoulders J² formed on the rods J. J³ is a piece secured to the brake cylinder and forming a guide for the forward ends of the rods J.

In the brake apparatus shown in Fig. 9 the
35 forward end of the brake cylinder is extended to form a second cylinder which is fitted with a tightly packed piston K and which communicates through pipe k with a compressed air recuperator L fixed beneath the gun. The
40 end of the brake cylinder proper is pierced with an axial opening H⁵ and is formed with a tubular extension H⁶ which projects into the hollow piston rod H'. The forward end of the said axial opening H⁵ is adapted to be
45 closed by a non-return valve H⁷ which is loaded with a light spring. The rear end cover of the cylinder is in this construction fixed to the cylinder. When the recoil takes place, the liquid displaced by the piston rod
50 H' passes along the tube H⁶, raises the valve H⁷, enters the second or extended cylinder and displaces the piston K therein, thus compressing still more the air in the recuperator L with which the forward face of the said
55 piston is in contact. For running the gun out again the liquid is allowed under the pressure of the air in the recuperator acting on the piston K to return into the brake cylinder proper through a by-pass H⁸ which is fitted
60 with a screw down-valve H⁹ whereby the area of the opening and consequently the speed of running out can be regulated.

The chassis or carriage D is capable of turning about a vertical axis on the movable platform E which is supported by conical rollers

resting upon arc-shaped racer paths provided on the base plate F. The platform E is supported at three points only and is therefore evenly supported in all positions, notwithstanding that there may exist unevenness in the track or racer paths. I prefer to support the platform on a system of five conical rollers. One roller M is situated at the front of the platform and rolls on an inner racer path or track F' and the other four rollers N are
70 situated at the back and roll on an outer racer path or track F². The said rear rollers are arranged in pairs, each pair being pivoted in a triangular frame O which is connected to the platform at O'. The said frame O is capable of oscillating about the center O' and thus allows the rollers N to accommodate themselves to the unevenness of the track if
75 such exist. By this construction the advantages of supporting the platform at three points only are combined with a distribution of the load on the track over more than three points.

The base plate F may be made in one, two, or more parts provided with the aforesaid inner and outer curved racer paths F', F² which
90 have their centers outside the mounting, for example in the port hole or embrasure of the ship or battery, so that when the gun is trained horizontally the chase of the gun does not
95 move laterally to any material extent, and consequently the width of the said port hole or embrasure need not be much greater than the external diameter of the chase of the gun. P, P, are claws secured to the platform, and
100 which engage a rim formed on the base plate to prevent the lifting of the platform during firing.

The means for training or traversing the gun are as follows: A curved rack Q having
105 teeth Q⁵ shown in full lines, Fig. 1, and in dotted lines Fig. 2, and struck from the same center as the racer paths is fixed in the base plate, and with this rack is geared a pinion Q' fixed on a vertical shaft Q² which is carried by the
110 carriage or chassis D. The said shaft passes axially through a hub D' formed on the carriage which hub has a bearing in the platform and forms the axis about which the carriage can turn with respect to the platform. On the
115 upper end of the shaft Q² is fixed a worm wheel Q³ which gears with a worm Q⁴ having its bearings on the carriage. The worm can be driven by a hand wheel R, Fig. 1, acting through a
120 shaft R', gear wheels R², chain wheels R³, R⁴, and chain R⁵ connecting said wheels. Bolts S, Fig. 2, are provided for locking the carriage D to the platform in various positions. When it is desired to turn the gun away from the
125 firing position and secure it for example in a position parallel with the side of the vessel or battery, the platform is first moved, by turning the hand wheel R, to any position wherein it can be secured to the base plate, as for example at the extreme ends of its travel. Then
130

the platform is locked to the base plate by suitable clamps, and then the bolts which lock the carriage to the platform are raised or removed so as to unlock the carriage. If
 5 now the hand wheel R be again rotated then, since the platform is locked, the shaft Q² cannot turn, and therefore the worm Q⁴ must travel round the worm wheel Q³, and the carriage will therefore be turned on the
 10 platform and can thus be brought to any desired position and there secured either by the bolts S or by other means.

What I claim is—

1. The combination with a gun and carriage, of a hoop or ring fixed on the gun, a hydraulic brake cylinder on said hoop or ring, a sleeve through which the gun slides, to which sleeve the piston rod of the brake apparatus is secured, side beams secured to said sleeve,
 20 trunnions formed or secured on the side beams and resting in the carriage, and guide ways formed in the hoop or ring constructed to fit the said side beams so as to be supported thereby and slide thereon during the recoil and running out of the gun, substantially as
 25 described.

2. The combination, with a gun and carriage, of a hoop or ring fixed to the gun, a hydraulic brake cylinder on said hoop or ring, two sleeves through which the gun slides one in front and the other in rear of the said
 30 hoop or ring, the piston rod of the brake apparatus being attached to the said rear sleeve, side beams connecting said sleeves and having trunnions formed or secured thereon and resting in the carriage, and guide ways formed in the hoop or ring adapted to slide on the
 35 said side beams during the recoil and running out of the gun, substantially as described.

3. The combination with a gun and carriage, of a hoop or ring fixed on the gun, a hydraulic brake cylinder on said hoop or ring, sleeves through which the gun slides, one in front of and one in rear of the fixed hoop or
 40 ring, side beams connecting said forward and rear sleeves, trunnions formed on said side beams and resting in the carriage, guide ways formed in the fixed hoop or ring which slide on the side beams during the recoil and running out movements of the gun, buffers carried by the fixed hoop or ring and stops
 50 formed on the forward sleeve in the path of the buffers to limit the running out movement of the gun, substantially as described.

4. The combination with a gun and carriage, of a hydraulic recoil brake apparatus having a movable head which is free to slide on the piston rod and in the brake cylinder, and is forced outward by the liquid displaced
 60 during the recoil by the entering piston rod, and a recuperator that presses upon said movable head, substantially as described for the purpose specified.

5. The combination with a gun, of a hydraulic recoil brake having an outlet H⁵ from

the brake cylinder fitted with a non-return valve H⁷ and leading into one end of a second cylinder, a compressed air recuperator L communicating by a pipe k with the other end of said second cylinder, a tight fitting piston
 70 K in said second cylinder, a by-pass H⁸ between the brake cylinder and said second cylinder, and a screw down valve H⁹ adapted to close said by-pass whereby the return of the liquid can be checked entirely or regulated
 75 as desired, substantially as described, for the purpose described.

6. In a gun mounting, the combination with the gun and carriage, of a hoop or ring fixed on the gun and carrying the brake cylinder, a forward and rear sleeves through which the gun slides connected by side beams trunnioned in the carriage, and a removable bush mounted in said rear sleeve in which bush is secured the end of the brake piston rod, substantially as described, for the purpose specified.

7. In a gun mounting, the combination of a base plate, a platform movable thereon, a chassis or carriage mounted on said platform
 90 and turning thereon about a vertical axis, and means for locking the chassis to the platform in different positions, substantially as described, for the purpose specified.

8. In a gun mounting, the combination of a base-plate, racer paths formed thereon, a platform supported at three points on said base plate by a system of conical rollers, the rear rollers being arranged in two pairs each pair being journaled in triangular frames
 100 which are pivoted to the platform, substantially as described, for the purpose specified.

9. In a gun mounting, the combination of a chassis, a conical roller for supporting the front thereof, and four conical rollers for supporting the rear thereof, said rear rollers being mounted in pairs in triangular frames, which can oscillate about a center attached to the chassis, substantially as described for the purpose specified.

10. In a gun mounting, the combination of a base plate, arc shaped racer paths formed on said base plate, a platform furnished with bearings and conical rollers which rotate in said bearings and roll on said racer paths, a carriage which turns on said platform about a vertical axis, and means for securing the carriage to the platform in various positions, substantially as described, for the purpose specified.

11. In a gun mounting, the combination of a base plate, arc shaped racer paths formed on said base plate, a platform furnished with conical rollers which rotate in bearings in or attached to the platform and roll on said racer paths, a carriage or chassis which turns on said platform about a vertical axis and can be secured thereto in various positions, a vertical shaft carried by the chassis and situated in the axis about which the chassis turns, a

pinion at the lower end of said shaft, a curved
rack fixed on the base plate engaging said
pinion, a worm wheel at the upper end of said
shaft with which wheel is engaged a worm
5 carried by the chassis, means for driving said
worm, means for locking the chassis to the
platform, and other means for locking the
platform to the base plate, whereby upon ro-
tating the said worm the platform can be

traversed across the base plate, or the chassis 10
turned on the platform, substantially as de-
scribed, for the purpose specified.

In witness whereof I have hereunto set my
hand this 8th day of February, 1893.

JEAN BAPTISTE GUSTAVE ADOLPHE CANET.

Witnesses:

ROBT. M. HOOPER,
D. HAROD.