

No. 628,840.

Patented July 11, 1899.

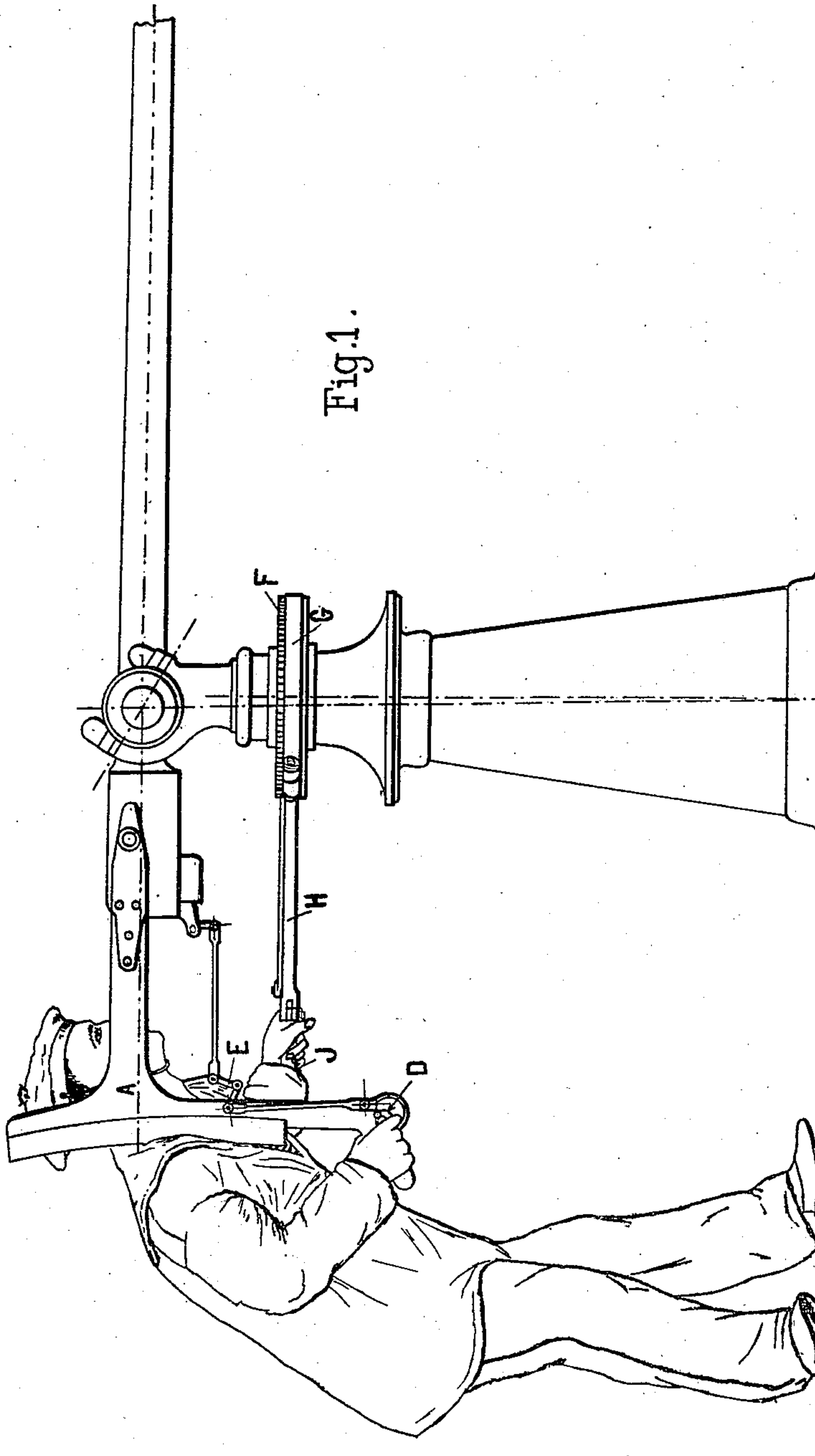
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MEANS FOR USE IN WORKING QUICK FIRING GUNS ON BOARD SHIP.

(Application filed Dec. 23, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

*J. B. Taylor*  
*W. Lee Holmes*

Inventors

*Jacques A. Normand*  
*Francis E. Normand*  
*Marie E. Normand*

By

*James L. Norris*

att'y

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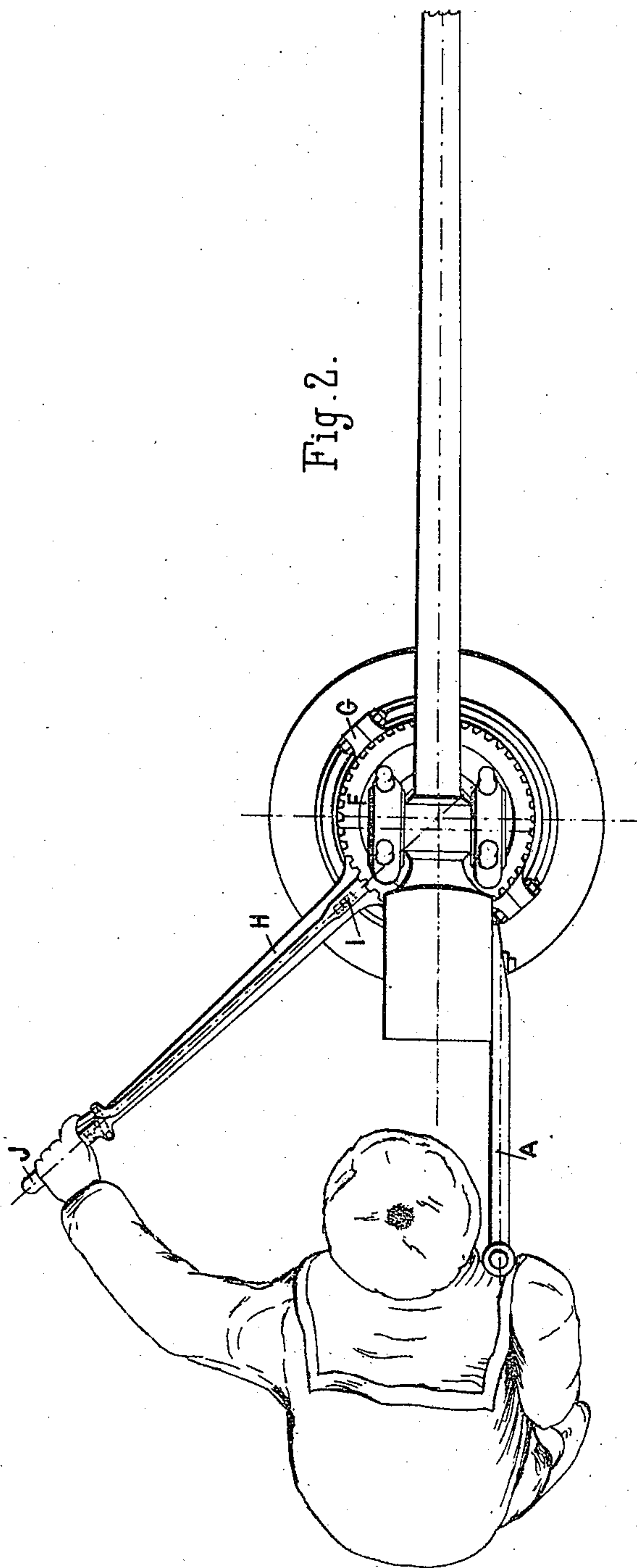
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Witnesses

*W. D. Keefe*  
*W. Lee Wilson*

Inventors

*Jacques A. Normand*  
*Francoise E. Normand*  
*Marc E. Normand*  
*James L. Norris*  
att'y



# UNITED STATES PATENT OFFICE.

JACQUES AUGUSTIN NORMAND, FRANCOISE ELISABETH NORMAND, AND  
MARIE EMILIE NORMAND, OF HAVRE, FRANCE.

MEANS FOR USE IN WORKING QUICK-FIRING GUNS ON BOARD SHIP.

SPECIFICATION forming part of Letters Patent No. 628,840, dated July 11, 1899.

Application filed December 23, 1897. Serial No. 663,260. (No model.)

*To all whom it may concern:*

Be it known that we, JACQUES AUGUSTIN NORMAND, FRANCOISE ELISABETH NORMAND, and MARIE EMILIE NORMAND, citizens of France, residing at Havre, in the Department of the Seine-Inférieure, France, have invented certain new and useful Improvements in Pointing and Firing Guns at Sea, of which the following is a specification.

Quick-firing guns of small caliber as now employed are elevated, depressed, and trained by the gunner without the use of screws or other gearing, they being provided with a butt or stock against which the gunner presses his shoulder, a vertical attachment provided with a handle or handles being provided on the said butt, which attachment the gunner grasps with one hand, while with his other hand he attends to the firing operation. This system answers its purpose in calm seas; but in rough seas the accuracy of firing diminishes enormously, especially on board vessels of small tonnage—such, for instance, as torpedo-boats and torpedo-boat destroyers. The movements to which the gunner's body are subjected at sea may be divided into three kinds, viz: first, movements forward and backward; second, movements up and down, and, third, movements from side to side. In bearing against the butt the gunner is supported against forward and backward movements and if the up-and-down movements of the ship be moderate the weight alone of his body protects him from the effects of these; but with regard to the movements from side to side the gunner under the influence of these involuntarily imparts to the gun circular movements around the vertical axis of its mount or carriage. If, generally speaking, the changes in the direction of the gun, due to the gunner's involuntary side movements, are not more considerable in rough weather, it is owing to the fact that the friction of the mount upon its support is considerable, whereas it is very desirable to reduce this friction to a minimum—for instance, by means of friction-rollers. This would be possible if the gunner instead of taking his point of support on the gun for the purpose of resisting the lateral movements due to the mo-

tion of the vessel took his support at a point fixed relatively to the vessel; but this is in the arrangements hitherto used impracticable, because he must have one hand free for operating the gun. Any one having been at sea in rough weather knows how much easier it is to keep one's equilibrium when holding a fixed point with one hand. The gunner's object is not solely to retain his equilibrium from such a fixed support, as he must also be enabled to exert efforts (which increase with the weight of the gun operated) in order that the necessary movements of elevating or depressing and training may be imparted to the gun. The fixed support to be grasped by one hand will be found of great assistance, especially for lowering the butt, and still much more so for training the gun. Even if the gunner were to separate his feet to a considerable distance apart the lateral effort which he could exert would be but small, whereas this effort would equal the whole weight of his body if he take with one hand a firm hold on a fixed support, and, moreover, the movements which the gunner will impart to the gun will be far more regular, a fact of great importance in obtaining accuracy of aim. It is well known that owing to the great friction the movements and more especially that of training or moving laterally at starting require an intense effort, and that in consequence the gun is abruptly displaced, and especially is this the case with heavy guns. If the gunner takes a firm hold on a fixed support, he will not only be enabled to exert the requisite effort far more easily, but he will also be capable of limiting its effect without difficulty. To sum up, if the gunner can use one of his hands for seizing a support fixed relatively to the vessel he will be able to avoid the involuntary displacements which are due to the rolling and pitching and to the vertical movements of the vessel, and he can exert far greater vertical and especially lateral efforts upon the butt, which efforts are necessary in order to properly elevate and train the gun, and, moreover, he will impart to the gun perfectly regular movements. It will therefore be possible to reduce the lever which he acts upon. The reduction of the radius of the butt



will present this double advantage—first, that of diminishing the incumbrance and of admitting of the artillery equipment of the ship being increased, and, secondly, that of reducing the amplitude of movement which the gunner has to execute in order to keep his mark within the line of sight. This result cannot be obtained in a simple manner except when the following conditions are fulfilled: First, a basis of support must be afforded the gunner whatever may be the direction of the gun; second, this basis must not impede the elevating and pointing or training movements imparted to the gun; third, the gunner must effect the firing by the aid of the hand with which he seizes the butt, and, fourth, this support must be stationary with relation to the ship.

Of course one of the men serving the gun may fire upon the command of the one pointing the gun; but this method would not be conducive to accuracy of fire.

In the accompanying drawings devices according to this invention are represented for realizing the above-mentioned three conditions.

Figures 1 and 2 represent in elevation and plan the device in which the point of support is given to the gunner's left hand, this support consisting of a bar adjusted in a special manner.

In the drawings, a horizontal circle F is mounted around the gun-support, the center of the said circle coinciding with the vertical axis of the lateral or training movement of the gun. Upon this circle turns, through the medium of a collar G, a bar H, the end of which, situated at a convenient height, moves in a horizontal plane and is adapted to assume the best direction to serve as a point of support, according to the position of the mark to be hit. The bar H is fixed to the circle F either by a spring-bolt I for engaging with notches of the circle, like the levers employed for reversing the motion in locomotives, or by other suitable means, such as a friction-brake actuated electrically. A handle J, arranged at the extremity of the bar, serves as the point of support for the gunner, who changes at will the direction of the bar by releasing the bolt or other means, according to the system of release and fixing adopted. He executes these operations instantaneously with the hand with which he takes hold of the bar.

The operation of firing here represented is effected mechanically. A trigger D, fixed to the handle of the butt, transmits by a bell-crank lever E to the trigger or releasing mechanism of the gun the effort exerted by the finger of the gunner. If several butt-handles are employed, each of them is provided with a trigger. The height of the butt can be modified according to the stature of the pointer and to the angle of mean elevation of the gun.

The gunner bears with his right shoulder against the butt A of the gun, seizes with his right hand one of the handles of the butt, and fires by pressing the trigger D. The operation of firing can be effected through the medium of any one of the butt-handles in case several of such handles are provided.

The gunner's position may vary. He can bear against the butt with his left shoulder, effect the firing with his left hand, and support himself by his right hand.

We have so far supposed the power employed in operating the gun to be derived from the muscular strength of the gunner; but this may be inadequate in the case of quick-firing guns of medium or large caliber guns, and then the working of the gun is often effected by power derived from electric or other auxiliary motors. In this case, again, the movements of the vessel interfere with the gunner and cause him to lose his line of sight, so it is very useful for him to be able to grasp a fixed point, so that he may keep his equilibrium.

In the case of guns fitted with a training-platform which does not move with the gun, the bar radiating about the vertical axis of the movement of training, the gunner would obtain a hold with one hand on the fixed support thus offered, while with the other hand he would operate the motor by which the elevating, depressing, and training movements of the gun are obtained.

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

1. A gun-mount provided with a radiating bar adjustable to any position in a horizontal plane, as set forth.
2. A gun-mount provided with means adjustable to any position in a horizontal plane to form a support for the gunner to assist him in firing the gun, as set forth.
3. The combination with a gun-mount, of an adjustable support movable independently of the gun and supported from said mount to serve substantially as set forth.
4. The combination with a gun-mount, of a radiating bar provided with a handle serving as a point of support for the gunner, and means whereby said bar may be adjusted to stand in any position in a horizontal plane, substantially as specified.

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

JACQUES AUGUSTIN NORMAND.  
FRANÇOISE ELISABETH NORMAND.  
MARIE EMILIE NORMAND.

Witnesses:

E. MILLET,  
JOHN PRESTON BEECHER.