

June 30, 1931.

N. E. METHLIN

1,812,800

ARTILLERY GUN MORE PARTICULARLY APPLICABLE FOR FIRING AGAINST AIRCRAFT

Filed April 21, 1930

2 Sheets-Sheet 2

Fig. 3.

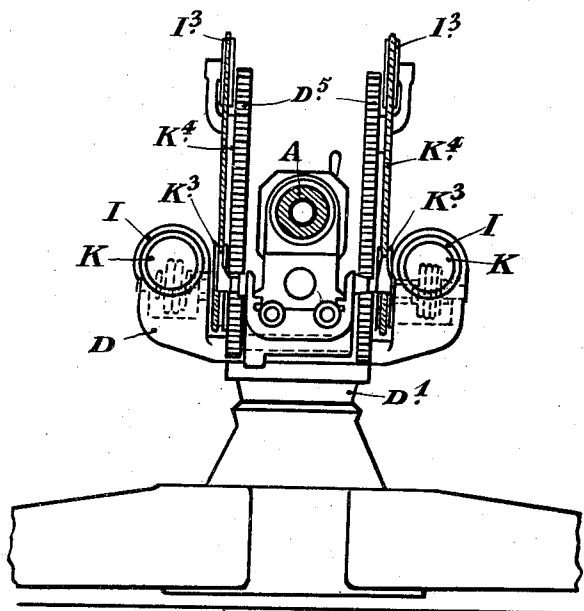
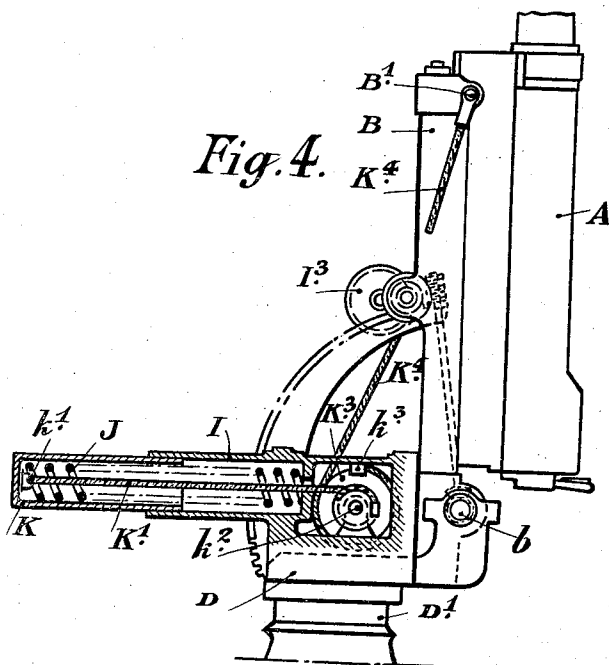


Fig. 4.



INVENTOR

Nicolas Emilius Methlin.

BY Cameron, Kerkam & Sutton.

ATTORNEYS.

UNITED STATES PATENT OFFICE

NICOLAS EMILIEN METHLIN, OF PARIS, FRANCE, ASSIGNOR TO SCHNEIDER & CIE,
OF PARIS, FRANCE, A LIMITED JOINT-STOCK COMPANY OF FRANCE

ARTILLERY GUN MORE PARTICULARLY APPLICABLE FOR FIRING AGAINST
AIRCRAFT

Application filed April 21, 1930, Serial No. 446,132, and in France February 11, 1930.

This invention relates to improvements in or modifications of the invention claimed in prior U. S. Letters Patent No. 1,672,949.

The object of the present invention is to provide a practical form, of construction of the anti-aircraft gun described and illustrated in the said prior specification.

This form of construction is shown in detail in the accompanying drawings, in which:

Figure 1 is a longitudinal elevation with a part in section.

Figure 2 is a corresponding plan view with a part in section.

Figure 3 is a side elevation viewed from the muzzle end of the gun.

Figure 4 is a longitudinal elevation similar to that shown in Figure 1, the barrel being shown elevated for firing in the direction of the zenith.

As in the gun according to the said prior specification the cradle B, in which the barrel A recoils, is journaled at its rear end *b* in bearings *d*, *d'* carried by a platform D which is movable about a pivot D¹, the oscillating mass being wholly supported on account of the fact that the cradle is coupled near the centre of gravity of the mass to a spring balancing device acting through a transmission and exerting its effort at a fixed point taken on a support situated substantially in the vertical plane passing through the axis of pivotal movement of the cradle, this point being chosen in such a way that for any angle of inclination of the oscillating mass a practical equilibrium will be ensured.

The particular form of construction illustrated is characterized by the judicious distribution of the attachment of the cable connecting the cradle, the fixed points situated in the vertical plane passing over the axis of pivotal movement of the said cradle, at the same time as the balancing elements are decomposed, in such a way that the fixed and movable masses will be symmetrically distributed with respect to the axial vertical longitudinal plane of the barrel.

As shown in the drawings, two points of attachment B¹ are distributed symmetrically on the cradle B on one side and the other

of the axial vertical plane of the barrel and of the cradle. Two cables K⁴ are provided which are attached respectively to the points B¹. These cables each pass over a guide pulley I³ carried by a corresponding elevating sector D⁵ rigid with the top carriage D. The elevating sectors D⁵ are arranged symmetrically on either side of the oscillating mass. The cables K⁴ guided over the corresponding pulleys I³ are each attached to a pulley K³ at a point *k*² (Figures 1 and 4), these pulleys being carried by a shaft *k*² journaled in the top carriage D.

Still for the same purpose of obtaining a uniform distribution of the masses on either side of the axial vertical plane of the oscillating mass, the material comprises in the new form of construction two balancing elements I, J, K, arranged symmetrically with respect to this plane, each of these balancing elements being formed like the single balancer in the examples shown in the main specification, by a cylinder I which in this case is preferably arranged horizontally and forms a projection on the top carriage D, and in which moves a piston K. A spring J bears at one end on the piston K and at the other end on a shoulder formed in the cylinder I. To the piston K is attached at *k*¹ the cable K¹ winding over a winch drum K² the shaft of which is formed by an extension of the shaft carrying the corresponding pulley K³. An elevating mechanism of any known type permits the transmission such as two pinions B² journaled on a shaft carried by the cradle to be travelled over the fixed elevation sectors D⁵.

Claims.

1. In an artillery piece, a platform rotatable about a vertical axis, a cradle pivoted at one end to said platform to oscillate about a horizontal axis, a gun carried by said cradle, resilient balancing means mounted on said platform, and means operatively connecting said balancing means to said cradle at a point near the center of gravity of the oscillating mass, said balancing and connecting means being symmetrically distributed with respect to a vertical plane passing through the longitudinal axis of the oscillating mass.

2. In an artillery piece, a platform rotatable about a vertical axis, a cradle pivoted at one end to said platform to oscillate about a horizontal axis, a gun carried by said cradle,
5 means including a pair of elevating sectors rigid with said platform for elevating said gun, counterbalancing means carried by said platform, and cable means for operatively connecting said counterbalancing means with
10 said cradle, said elevating counterbalancing and connecting means being symmetrically distributed with respect to a vertical plane passing through the longitudinal axis of said gun.

15 3. In an artillery piece, a platform rotatable about a vertical axis, a cradle pivoted at one end to said platform to oscillate about a horizontal axis, a gun carried by said cradle, means including a pair of elevating sectors
20 rigid with said platform for elevating said gun, counterbalancing means carried by said platform including a pair of cylinders, a piston within each of said cylinders and resilient means interposed between each cylinder
25 and piston, and means operatively connecting said pistons and said cradle including cables and cable guiding means, the latter being secured to said elevating sectors, said elevating, counterbalancing and connecting means being
30 symmetrically distributed with respect to a vertical plane passing through the longitudinal axis of said gun.

4. In an artillery piece of the type having a gun carried in a cradle, the latter being
35 pivotally mounted on a rotatable platform for oscillation about a horizontal axis, means for obtaining a static equilibrium of said piece by a symmetrical distribution of the masses on either side of the vertical axial
40 plane of the oscillating mass comprising a pair of elevating sectors rigid with said platform and arranged symmetrically with respect to a vertical plane passing through the longitudinal axis of said gun, cable guiding
45 means secured to each of said sectors, a shaft journaled in said platform, a pair of cable reeling devices mounted on said shaft, a pair of cables each secured at one end to said cradle, passing over said cable guiding means
50 and secured at the other end to one of said cable reeling devices, a second pair of cable reeling devices secured to said shaft, a pair of balancing elements carried by said platform, and a second pair of cables connecting
55 said balancing elements with said second mentioned cable reeling devices.

In testimony whereof I have signed this specification.

NICOLAS EMILIE MATHLIN.

60

65