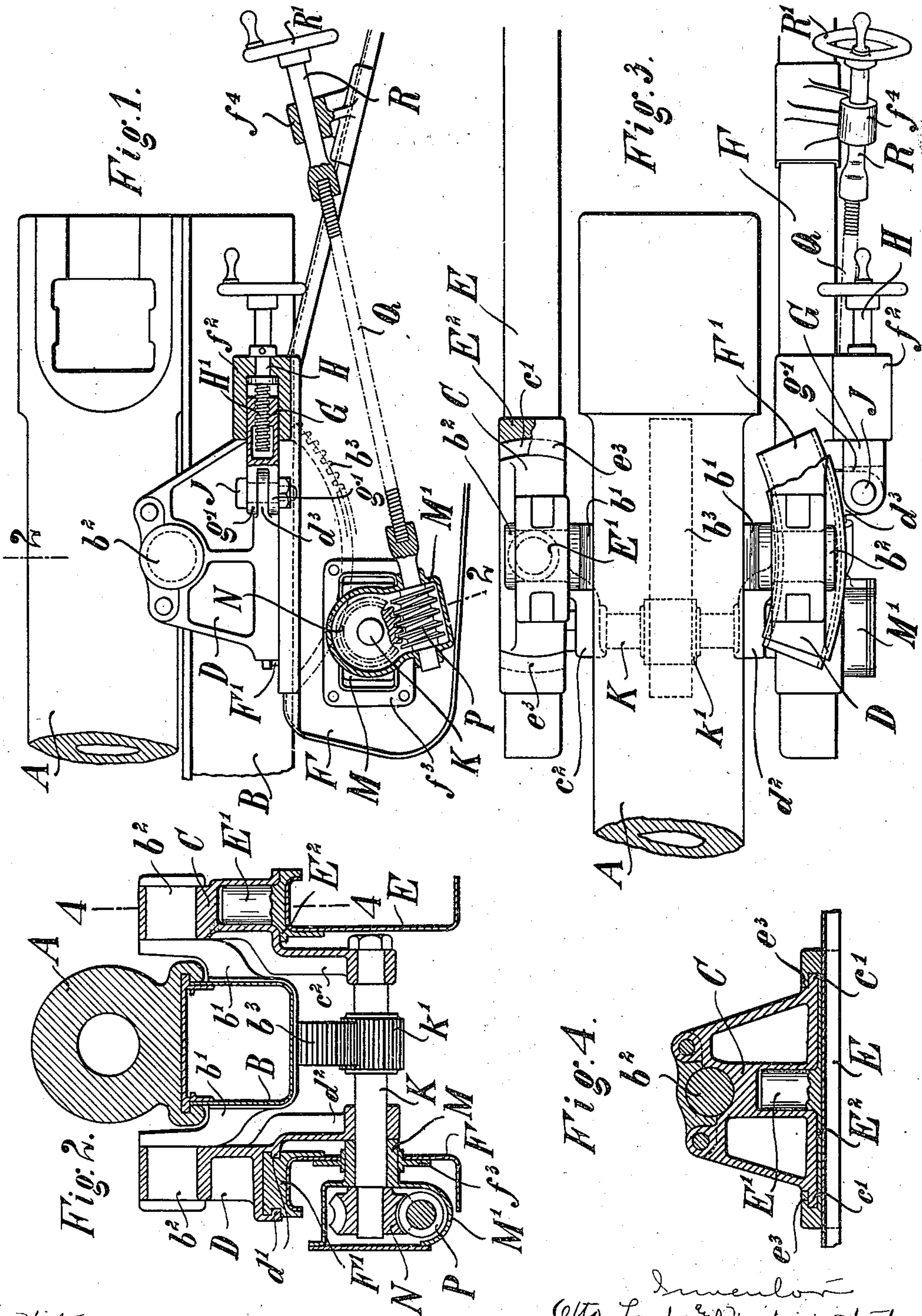


No. 860,490.

PATENTED JULY 16, 1907.

O. LAUBER & F. STOCK.
PORTABLE GUN.

APPLICATION FILED APR. 9, 1906.



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PORTABLE GUN.

No. 860,490.

Specification of Letters Patent.

Patented July 16, 1907.

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To all whom it may concern:

Be it known that we, OTTO LAUBER, residing at Essen-on-the-Ruhr, West, Germany, and FRIEDRICH STOCK, residing at Essen-on-the-Ruhr, Germany, both subjects of the Emperor of Germany, have invented a certain new and useful Improvement in Portable Guns, of which the following is a specification.

The present invention relates to portable guns having the gun-barrel and the horizontal trunnions adjustable about a vertical axis.

The gun according to the present invention is of simple construction and the weight of the mount is considerably smaller than in the known devices of this kind.

One embodiment of the invention is, by way of example, shown in the accompanying drawing applied to a high angle firing gun.

Figure 1 is a side view partly in section, of a part of the gun. Fig. 2 is a section on line 2—2, Fig. 1, looking from the right. Fig. 3 is a top view corresponding to Fig. 1, and Fig. 4 is a section on line 4—4, Fig. 2, looking from the left.

The gun-barrel A is guided in the cradle B which carries the horizontal trunnions b^2 through the medium of arms b' (see in particular Fig. 2). The trunnions b^2 are journaled in blocks C, D, one of which (C) is turnable on a vertical trunnion E' , which is arranged on a guide-piece E^2 secured on the wall E of the mount and provided with flanges e^3 (Fig. 3 and 4) which overlap corresponding flanges e' on the block C. The other bearing block (D) is also provided with guide flanges d' (Fig. 2) which engage with undercut grooves in a guide-piece F' secured on the wall F of the mount. The flanges e' , d' and their guide-ways are curved in arcs that are concentric with the trunnion E' .

The horizontal training mechanism engages with an eye d^3 (Figs. 1 and 3) arranged on the exterior of the block D and has its shaft H journaled in a housing f^2 mounted on the wall F of the mount. The shaft H is held from axial movement and is provided at H' (Fig. 1) with screw-threads which engage with corresponding threads in a slide-piece G which is slidably arranged in the housing f^2 and held from rotation therein. The slide-piece G is pivotally connected to the eye d^3 through the medium of arms g' and a bolt J having lateral play in the eye d^3 or in the arms g' .

An elevating mechanism provided with a toothed segment serves for adjusting the elevation of the gun. The shaft K of the pinion k' , which engages with the toothed segment b^3 secured on the cradle, is journaled in a slide-piece M, and in arms c^2 d^2 on the blocks C and D. The slide-piece M is slidably arranged in a rectangular frame f^3 inserted in the wall F of the mount.

Outside of the wall F, the shaft K carries a worm-wheel N which engages with a worm P. The shaft of the worm is journaled in a housing M' arranged in the slide-piece M and by means of flexible shaft Q, the worm shaft is connected with the shaft R of a hand-wheel R' , the shaft R being slidably arranged in a bearing f^4 on the wall F of the mount.

The mode of operation of the elevating mechanism need not be described as it is apparent from the drawing.

When the gun is adjusted laterally by means of the horizontal training mechanism, the gun-barrel A, the cradle B, the horizontal trunnions b^2 and the bearing blocks C D swing about the trunnion E' . By mounting the bolt J with lateral play in the eye d^3 or in the arms g' , provision is made for the movement of the eye d^3 in a circular path and the movement of the slide-piece G in a straight-lined path. The elevating mechanism partakes of the swinging movement of the above-mentioned parts, and the slide-piece M, therefore, slides in the frame f^3 , while the shaft R slides in the bearing f^4 , and the flexible shaft Q becomes slightly curved.

In the preamble, are stated the main advantages of the present invention over the known guns having the gun-barrel and the horizontal trunnions adjustable about the axis of a vertical trunnion. These advantages are due to the fact that in the improved gun, the vertical trunnion and its bearing are carried by one of the walls of the mount, while in the known guns of this class, a special part such as a cross-piece or the like, arranged between the walls of the mount, serves as carrier for the bearing of the vertical trunnion.

Having described the invention, what is claimed as new is:

1. In a portable gun, the combination with the barrel and the mount, of horizontal trunnions for the barrel, means supporting said horizontal trunnions on the mount and permitting said trunnions to swing about an axis located outside of the symmetry plane of the gun, and horizontal training mechanism connecting the horizontal trunnion supporting means.

2. In a portable gun, the combination with the barrel and the mount, of horizontal trunnions for the barrel, means supporting said horizontal trunnions on the mounting, permitting said trunnions to swing about an axis located in a plane outside the symmetry plane of the gun and confining said swinging to paths concentric to the axis.

3. In a portable gun, the combination with a gun barrel mounted to swing upon horizontal trunnions, of means guiding said gun barrel and its horizontal trunnions on the mount in paths concentric to an axis located outside of the symmetry plane of the gun.

4. A portable gun having its barrel and its horizontal trunnions adjustable about a vertical axis located in the plane of one of the walls of the gun-mount.

5. A portable gun having its barrel and its horizontal trunnions adjustable about a vertical trunnion secured to one of the walls of the gun-mount.
- 5 6. A gun having its barrel adjustable about a vertical axis located in a plane on one side of the barrel, and means confining the adjustment of the barrel to a path concentric to said axis.
- 10 7. The combination with the gun mount having a pair of walls, of a vertical trunnion located on one of the walls, and a gun barrel adapted to swing on the vertical trunnion and guided on the other wall in a path concentric with the vertical trunnion.

8. The combination with the gun mount, of a barrel, horizontal trunnions for the barrel, and a vertical trunnion located in a plane on one side of the symmetry plane 15 of the gun, and means guiding the gun in a path concentric with the vertical trunnion.

The foregoing specification signed at Düsseldorf this twenty-third day of March, 1906.

OTTO LAUBER.
FRIEDRICH STOCK.

In presence of—

WILLIAM ESSENWEIN,
ALFR. POHLMAYER.