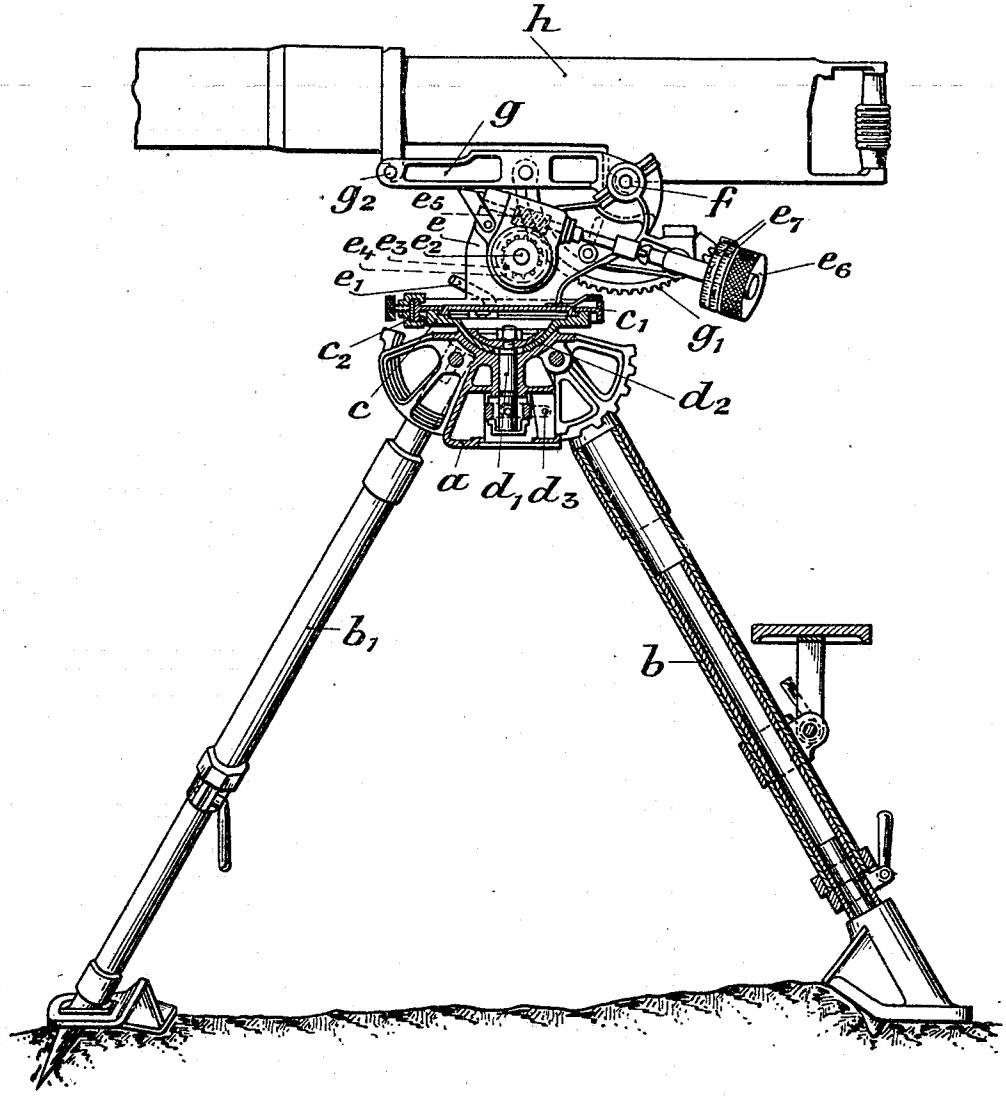
Feb. 11, 1930. H. SCHULER 1,746,364

AUTOMATIC FIREARM

Filed Nov. 28, 1928



INVENTOR:
Hermann Schuler
BY Louis Ponitz & Co
ATTORNEY.

Patented Feb. 11, 1930 1,746,364

UNITED STATES PATENT OFFICE

HERMANN SCHULER, OF DUSSELDORF, GERMANY, ASSIGNOR TO RHEINISCHE METALLWAAREN- UND MASCHINENFABRIK, OF DUSSELDORF-DERENDORF, GERMANY

AUTOMATIC FIREARM

Application filed November 28, 1928, Serial No. 322,514, and in Germany May 31, 1928.

My invention relates to a tripod carriage for automatic fire arms. The object of the invention is to provide a carriage of a construction which, with out unduly increasing the weight of the carriage, is adapted to carry an automatic fire arm in such a manner, that the same may quickly and easily be adjusted in any firing position occurring during use in the field, low and high firing adapted to the territorial conditions. A further object of the present invention is to provide a carriage which assures a firm stand of the arm for all kinds of firing, i. e. for direct and indirect firing under low and under high angle, point- and spread-fire.

In the accompanying drawing a carriage according to the invention supporting an automatic fire arm is shown in a sectional side elevation.

The under carriage comprises the carriage head a with the hinged supporting legs b, b_1 two of which are directed forward, while a third leg provided with a broad spade and an adjustable seat extends rearwardly. The supporting legs are individually adjustable on the carriage head a from a nearly vertical position to a horizontal stretched position in which the head a of the carriage rests upon the ground. The legs b, b_1 may be fixed in any adjusted position by means of snap pins adapted to engage with toothed sectors of the carriage head. Moreover, as shown in the drawing, the ends of the legs carrying the spades may, for the purpose of further altering the firing height, be telescoped out and fixed in the adjusted position by suitable clamping devices.

The upper part of the carriage head is formed as a concave spherical seat in which, by means of a convex spherical seat, a platform c, the horizontal pointing circle plate, is arranged. This plate may be tilted in the carriage head about an angle of 10° in all directions and serves the purpose of horizontizing the upper carriage and the fire arm mounted thereupon. Lifting off of the plate c is prevented by a plate d_2 arranged in the plate c and held by a bolt d_1 passing through the spherical seats. By turning a lever d_4, screwed upon the lower end of the bolt d_1, the pointing circle plate c together with the carriage head may be rigidly fixed. A ring c_1 provided with a scale is arranged around the plate c. This ring c_1 carries claws gripping over the base plate of the upper carriage e. The upper carriage e is therefore, with regard to the plate c, pivotally arranged upon a vertical axis around a swinging angle of 360°. To limit the angle of spread, the ring c_1 carries two adjustable stops c_2 adapted to be fixed in the adjusted position and against which a pointer fixed at the upper carriage may bear. By means of a clamping device the swinging movement of the upper carriage may altogether be prevented, whereupon lateral displacement of the upper carriage is impossible.

The forwardly extending support g, carrying the fire arm, is pivoted upon horizontal trunnions f at a point of the upper carriage e which lies above and behind the pointing circle plate c. Connected to the support g is a rearwardly and downwardly extending toothed sector g_1 with which engages a pinion e_3 rotatable upon a shaft e_2 in the upper carriage. Fixed upon the shaft e_2 is a worm wheel e_4 with which engages a worm e_5 capable of being thrown out, a so called drop worm, which may be rotated by means of a hand wheel e_6. Two adjustable stops e_7 of well known construction and adapted to be fixed to the shaft of the hand wheel e_6 serve as limiting device for the low spreading to be given to the fire arm.

The fire arm h proper rests and is fixed in two bearings upon the support g, the rear bearing of which is formed by the axis f of the trunnions. To obtain the connection, the fire arm is provided with two hook-shaped bearings the mouth openings of which are oppositely directed. By means of these hook-shaped bearings the fire arm rests upon a bolt g_2 at the front end of the fire arm support g and upon the axis f of the trunnions. To allow bringing of the two hook-shaped bearings of the fire arm over the supporting bolts the trunnion axis f is rotatable by means of a handle and flattened at one side at the point of engagement of the rear hook of the fire arm. To mount the fire arm, the trunnion

axis f is so rotated, that, after pushing the front hook of the fire arm upon the front supporting bolt g_2, the rear end of the fire arm, lifted a little in the first instance, may now be lowered, whereby the rear hook-shaped bearing passes along the flattened part of the trunnion axis. Then the trunnion axis is rotated, so that the solid part of same is moved into the hook-shaped bearing of the fire arm, whereupon the fire arm is rigidly fixed.

A compensation or balance spring, not shown in the drawing, which preferably is coiled around the shaft e_2 serves to compensate or balance the swinging fire arm masses distributed at one side of the trunnions f.

The carriage described above assures, on account of its compact and stable construction, an always firm stand and a universal use of the fire arm. The fire arm has a free horizontal pointing possibility of 360° and may, at horizontally positioned horizontal pointing circle, fire at a low angle of 15° and at a high angle of 90°. Moreover the fire arm may, if desired, be still further lowered by an inclination of the tripod head after the supporting legs have been adjusted correspondingly. The position of the trunnions for vertical pointing of the fire arm is so chosen that, notwithstanding the firing height adjusted by means of the tripod, the full horizontal movement of 360° and the vertical pointing up to 90° is always possible without parts of the fire arm, situated in rear of the trunnions, come into contact with parts of the carriage, even if the supporting legs are arranged nearly horizontally and the head of the tripod directly rests upon the ground. The horizontal pointing, if desired with adjusted angle of spread, is effected in the usual manner by direct movement by hand, the vertical pointing and low spreading may be effected, by means of the vertical pointing machine, over the whole range of the pointing angle, i. e. for firing at low angle and at high angle or particularly for firing upon quickly moving aims, as flying machines and tanks, by hand after the vertical pointing machine has been thrown out. The possibility of the special horizontal adjustment of the horizontal pointing circle relatively to the carriage which is already capable of being roughly horizontally adjusted by the supporting legs, whereby the horizontal position of the pointing circle is indicated by a level system, perfectly adapts the fire arm for indirect firing. For point firing all parts may be locked against movement.

What I claim is:

In an automatic fire arm mounted upon a tripod carriage having stretchable supporting legs for altering the firing height of the arm, a tripod head, a platform adapted to be levelled and fixed in said tripod head, an upper carriage journalled upon said platform and capable of turning about an angle of 360° and horizontal trunnions provided at said upper carriage for swingably carrying said fire arm by said upper carriage, said trunnions being arranged above and so far behind said tripod head, that the fire arm may, in any possible firing height, be pointed, by hand or by means of a vertical pointing machine capable of being thrown out, in a range of low angle firing of about 15° and of high angle firing up to 90° without impeding the horizontal turning about an angle of 360°.

In testimony whereof I have affixed my signature.

HERMANN SCHULER.