

1,003,102.

Patented Sept. 12, 1911.

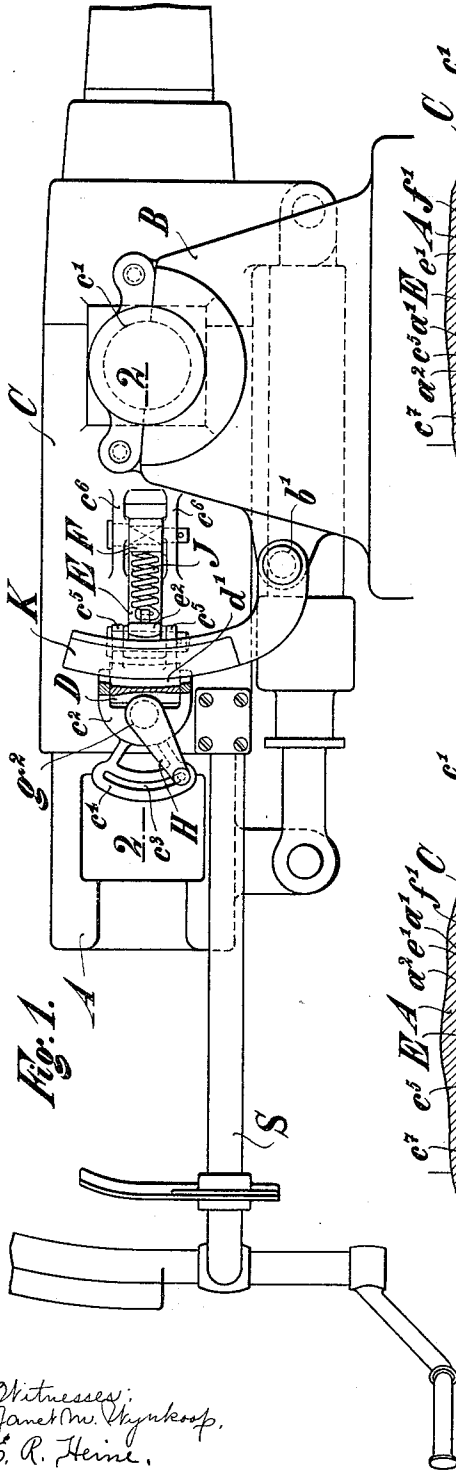


Fig. 1.

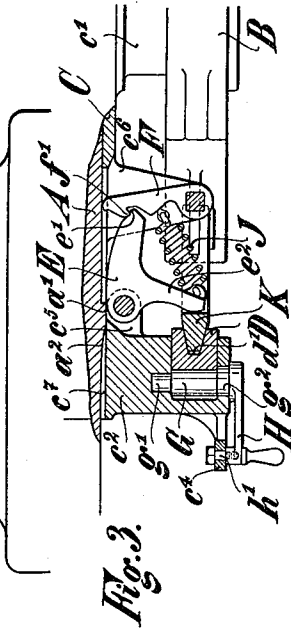


Fig. 3.

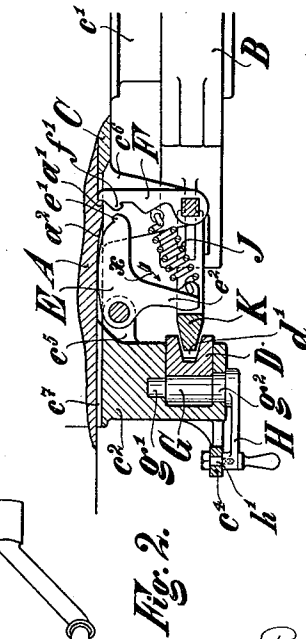


Fig. 2.

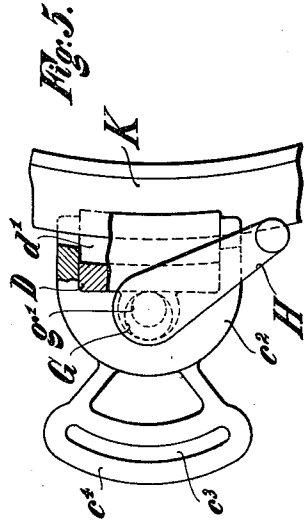


Fig. 5.

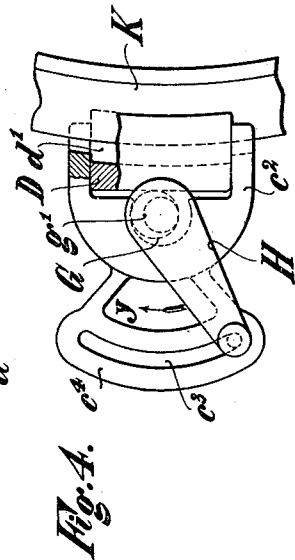


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SHOULDER-PIECE GUN.

1,003,102.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed June 17, 1910. Serial No. 567,449.

To all whom it may concern:

Be it known that I, PAUL HAACKER, a subject of the Emperor of Germany, and a resident of Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Shoulder-Piece Guns, of which the following is a specification.

The present invention relates to a gun with a shoulderpiece in which the elevation is secured during the recoil and running out of the gun barrel by means of a clamping catch interposed between the gun carriage and the cradle, see for example the specification of United States Patent No. 623,895. The clamping catch described in this patent is so constructed that it can be released by forces which tend to rotate the gun barrel together with the breech upward. Now as experience has shown that such forces (such for example as the reactionary forces of the recoil), may arise under certain circumstances, the object of this invention is to perfect guns of the kind referred to, in such a manner that the gun barrel shall be protected against any rotation about the axis of the horizontal trunnions during the recoil and running out of the gun.

In the drawing is shown a constructional form of the invention, and therein Figure 1 is a side elevation of the shoulderpiece gun with the barrel in the firing position and the clamping catch thrown out of action. Fig. 2 is a section on the line 2—2 of Fig. 1, looking from above. Fig. 3 is a section corresponding to Fig. 2 with the catch thrown into action. Figs. 4 and 5 show, on a larger scale, a detail of the clamping catch in two different positions.

When the gun is fired, the barrel A recoils and runs out again in the cradle C, which is carried by its horizontal trunnions c^1 in the gun carriage B. To the cradle C is attached the shoulderpiece S. Upon the cradle is arranged one part of the clamping catch, and the cradle has behind the right hand trunnion c^1 a projection c^2 , in which is carried a clamping piece D provided with a wedge-shaped clamping groove d^1 and adapted to move radially to the axis of the trunnions c^1 . This clamping piece bears against a bolt G, which is carried in the projection c^2 by pins g^1 and g^2 arranged eccentrically to its longitudinal axis, so that by rotating the bolt G the clamping piece D can be moved.

The bolt G can be rotated by means of a

lever H. The free end of this lever H, which is provided with a handle, can slide on a quadrant e^4 provided with a slot e^3 and can be secured to the quadrant e^4 by means of a screw passing through the slot. The other part of the clamping catch, the clamping quadrant K, is pivotally carried on the gun carriage B by means of a bolt b^1 , and its curved free end, which is wedge-shaped in cross section, enters the groove d^1 in the clamping piece D. The clamping faces of the clamping piece D and of the clamping quadrant K run concentrically with the axis of the trunnions c^1 when the clamping catch is in the clamping position.

To fix the clamping catch in the clamping position, two pawls E and F are employed. One pawl the one marked E, is made in the form of a bell crank lever and is carried between two eyes e^5 mounted on the projection c^2 . The other pawl, the one marked F, is rotatably mounted on two lugs e^6 placed directly on the cradle C. Both pawls have lugs e^1 and f^1 which are adapted to engage with each other. The pawls are so connected to each other by a tension spring J, that one pawl takes the other with it when it moves. Opposite the pawls E, F the cradle C has an opening e^7 in it. Into this opening projects a projection a^1 on the gun barrel A, which is provided, on the side next to the breech end of the gun barrel, with an inclined face a^2 , while on the other side it is shouldered down sharp. The projection a^1 can cooperate with the pawls E and F and does so with the pawl E when the gun barrel recoils and with the pawl F when it runs out again. The arm e^2 of the pawl E catches behind the concave edge of the clamping quadrant K, and is adapted to press this latter into the clamping groove d^1 in the clamping piece D.

Before firing, the gun barrel and the clamping catch are located in the position shown in Figs. 1 and 2, in which the clamping quadrant K loosely enters the groove d^1 of the clamping piece D, so that the necessary elevation can be imparted to the gun barrel A by means of the shoulder-piece S. When the gun is fired, the gun barrel recoils in the cradle. Immediately after the commencement of the recoil, the projection a^1 on the gun barrel rotates, by means of its inclined face a^2 , the pawl E in the direction of the arrow x (see Fig. 2). When this

takes place, the clamping quadrant K is carried along by the arm e^2 of the pawl E and pressed into the groove d^1 in the clamping piece D.

5 When the above mentioned movement of the pawl E takes place, the pawl F is rotated so far by the pull of the spring, that the lug f^1 thereon passes behind the lug e^1 on the
10 clamping catch is locked and the cradle cannot be rotated about the axis of the trunnions either by a pressure acting from above, downward, or by one acting from below upward. The elevation imparted to the gun
15 barrel A before the shot is fired, is therefore preserved until the clamping catch is again released. This is done immediately before the conclusion of the running-out of the gun barrel, by the projection a^1 striking
20 the pawl F with its sharply shouldered-down end and returning it to the original position (see Fig. 2). The movement of the pawl F is followed through the agency of the spring J by the pawl E, so that its arm e^2 raises
25 itself from the clamping quadrant and releases the latter. The cradle and gun barrel consequently again acquire their movability relatively to the gun carriage.

As above mentioned, the clamping piece
30 D can be moved in the projection e^2 by means of the bolt G. This arrangement enables the clamping piece to be adjusted when, after the clamping surfaces have become worn, the grip between the clamping
35 piece D and the clamping quadrant K is no longer sufficient. By turning the lever H in the direction of the arrow γ (Fig. 4) the clamping piece D is brought nearer to the clamping quadrant K, so that the grip between these parts is therefore increased.
40 After loosening the screw h^1 and turning over the lever H into the position shown in Fig. 5, the clamping piece D can be removed so far from the clamping quadrant, that no
45 further clamping action can take place between it and the clamping piece D. In such a position the clamping piece D would be brought when for example the gun barrel after firing should not run out again into
50 that position in which the projection a^1 on the gun barrel throws the clamping catch out of action. In such case the gun barrel would be depressed so that it can run out under the influence of its own weight.

55 Having thus described the invention, what is claimed as new therein and desired to secure by Letters Patent, is:

1. In a shoulder-piece gun, a clamping catch for securing the elevation of the gun
60 barrel during the recoil and running out movements of the barrel; said clamping catch comprising a clamping member carried by a part of the gun which partakes of the elevation movement of the gun barrel
65 and a clamping quadrant pivotally mount-

ed upon a part of the gun carriage which does not partake of the elevation movement of the gun barrel; and a member movably mounted upon a part of the gun which partakes of the elevation movement but does
70 not partake of the recoil and running out movements of the gun barrel, and located to be moved by the recoiling movement of the gun barrel and adapted by its movement to force the clamping quadrant into
75 engagement with the clamping member.

2. The combination with a gun, its cradle, and carriage; of means for fixing the elevation of the gun barrel during recoil and running-out movement thereof, comprising
80 a clutch element mounted on the cradle, an engaging arm mounted on the carriage, an actuating lever for the arm mounted on the cradle and adapted to be engaged by the gun barrel on its recoil and throw said
85 arm into engagement with the clutch element, and a latch for said actuating lever adapted to be engaged and released by the gun barrel on its running-out movement.

3. The combination with a gun having
90 horizontal trunnions, a cradle and carriage; of means for fixing the elevation of the gun barrel during recoil and running-out movement thereof, comprising a clutch element mounted on the cradle and formed concentric
95 with the axis of the trunnions, an engaging arm swingingly mounted on the gun carriage and formed concentric with said horizontal trunnions, a bell-crank lever mounted on the cradle and adapted to be
100 actuated by the gun barrel on recoil to effect engagement with and bring the arm into engagement with the clutch element, and a latch for securing such engagement, said latch adapted to be engaged and re-
105 leased by the gun barrel at the end of the running-out movement thereof.

4. The combination with a gun having horizontal trunnions, a cradle, and carriage; of means for fixing the elevation of the gun
110 barrel during recoil and running-out movement thereof, comprising a clutch element carried by the cradle, an engaging arm carried by the carriage, a bell-crank lever on the cradle actuated by the gun barrel on re-
115 coil to engage with and bring said arm into engagement with the clutch element, a latch for the bell-crank lever, a spring connecting the lever with the latch and adapted to bring said latch into locking relation with
120 the lever through the actuation of the latter, and said latch adapted to be engaged by the gun barrel at the end of its running-out movement and effect the release of the bell-crank lever through the medium of the
125 spring connection.

5. The combination with a gun having horizontal trunnions, its cradle, and carriage, of means for fixing the elevation of the gun barrel during recoil and running-
130

out movement thereof, comprising a clutch element adjustably mounted on the cradle and formed concentric with the horizontal trunnions, an engaging arm swingingly mounted on the carriage and formed concentric with the horizontal trunnions, a member movably mounted on the cradle and actuated by the gun barrel on recoil to bring the arm into engagement with the clutch element, and a latch for locking the member in such engagement, said latch being released by the gun barrel at the end of its running-out movement and effecting to disconnect the arm from engagement with the clutch element.

6. The combination with a gun having horizontal trunnions, its cradle, and carriage, of means for fixing the elevation of the gun barrel during recoil and running-out movement thereof, comprising a casing mounted on the cradle, an eccentric bolt mounted within the casing, a clutch block

mounted on said bolt and adapted to be adjusted therethrough, and the active face of said clutch block being formed concentric with the horizontal trunnions, a clutch block engaging arm swingingly mounted on the carriage and formed concentric with the horizontal trunnions, a member movably mounted on the cradle and actuated by the gun barrel on recoil to bring the arm into engagement with the clutch block and a latch for locking the member in such engagement, said latch being released by the gun barrel at the end of its running-out movement and effecting to disconnect the arm from engagement with the clutch block.

The foregoing specification signed at Bar-men, Germany, this 3rd day of June, 1910.

PAUL HAACKER. [L. s.]

In presence of—

OTTO KÖNIG,

CHAS. J. WRIGHT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."