

No. 709,781.

Patented Sept. 23, 1902.

J. KRONE.

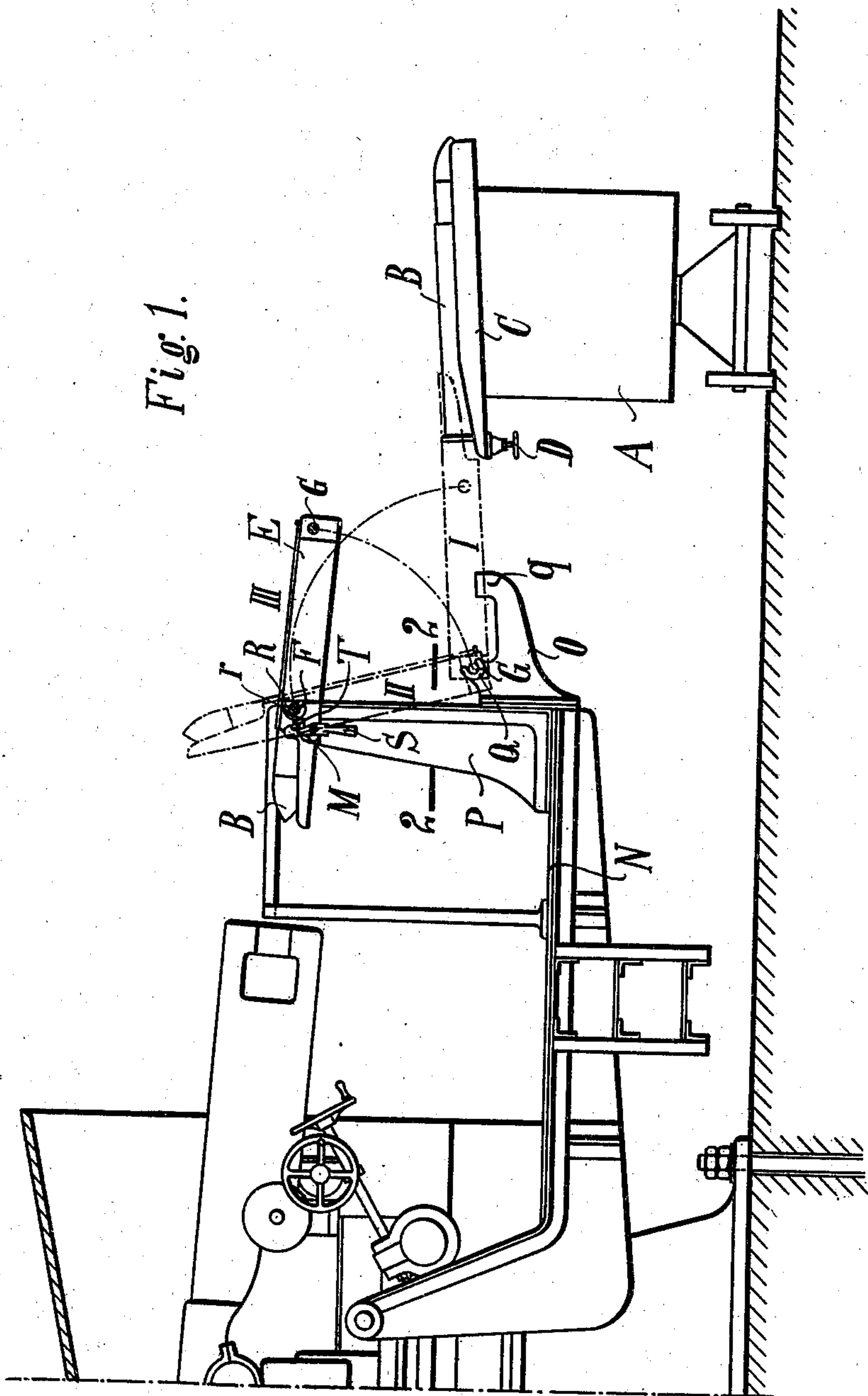
APPARATUS FOR TRANSFERRING AMMUNITION FROM THE AMMUNITION CARRIAGE
INTO THE LOADING AXIS OF THE GUN.

(No Model.)

(Application filed Apr. 22, 1902.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses:

W. E. Manning.

H. H. Simms.

Inventor.

Johannes Krone

By Knight Bros

Attys.

No. 709,781.

Patented Sept. 23, 1902.

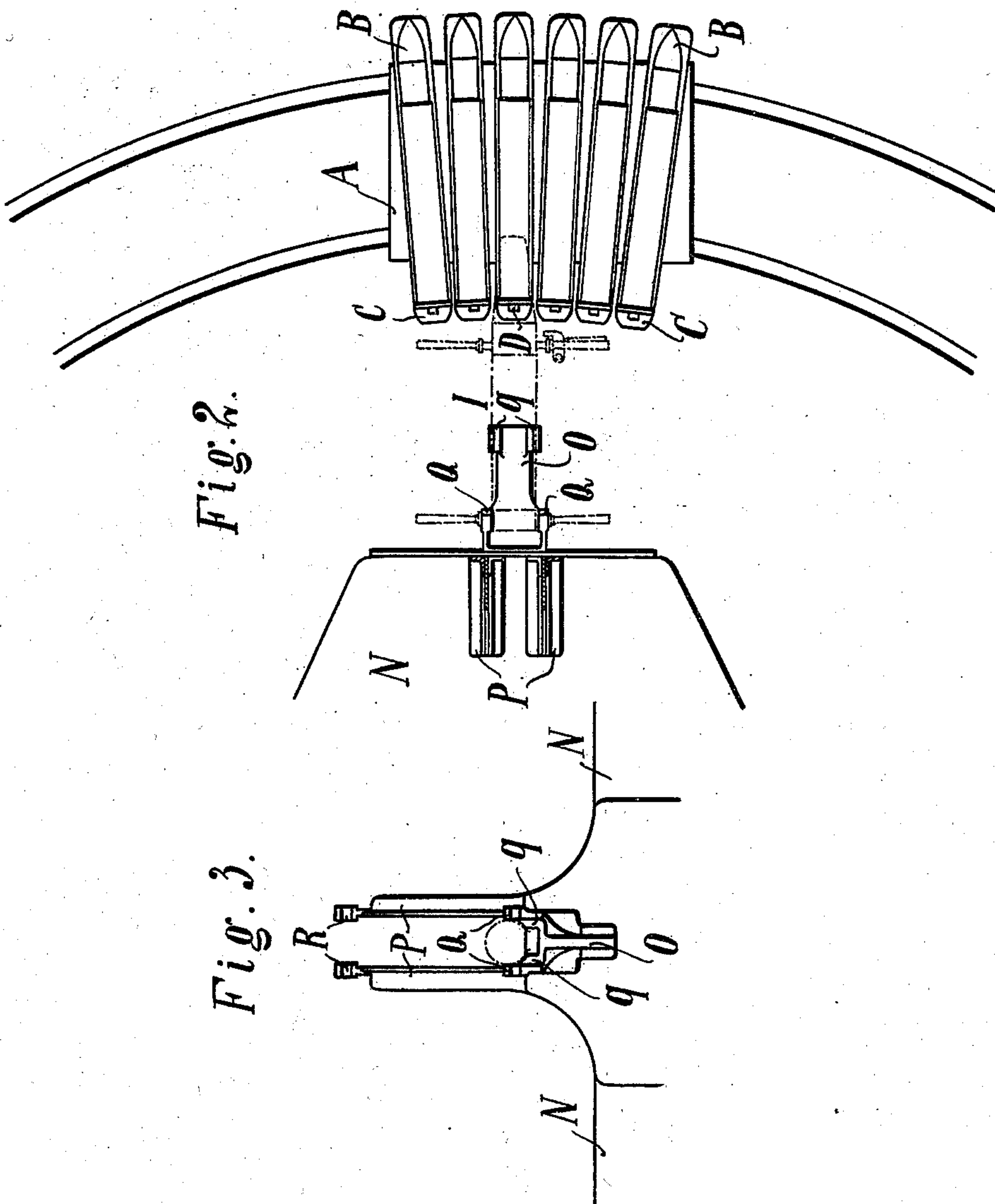
J. KRONE.

APPARATUS FOR TRANSFERRING AMMUNITION FROM THE AMMUNITION CARRIAGE
INTO THE LOADING AXIS OF THE GUN.

(No Model.)

(Application filed Apr. 22, 1902.)

3 Sheets—Sheet 2.



Witnesses:

N. E. Manning.

H. H. Gimms.

Inventor:

Johannes Krone

By Knight Bros attys.

No. 709,781.

Patented Sept. 23, 1902.

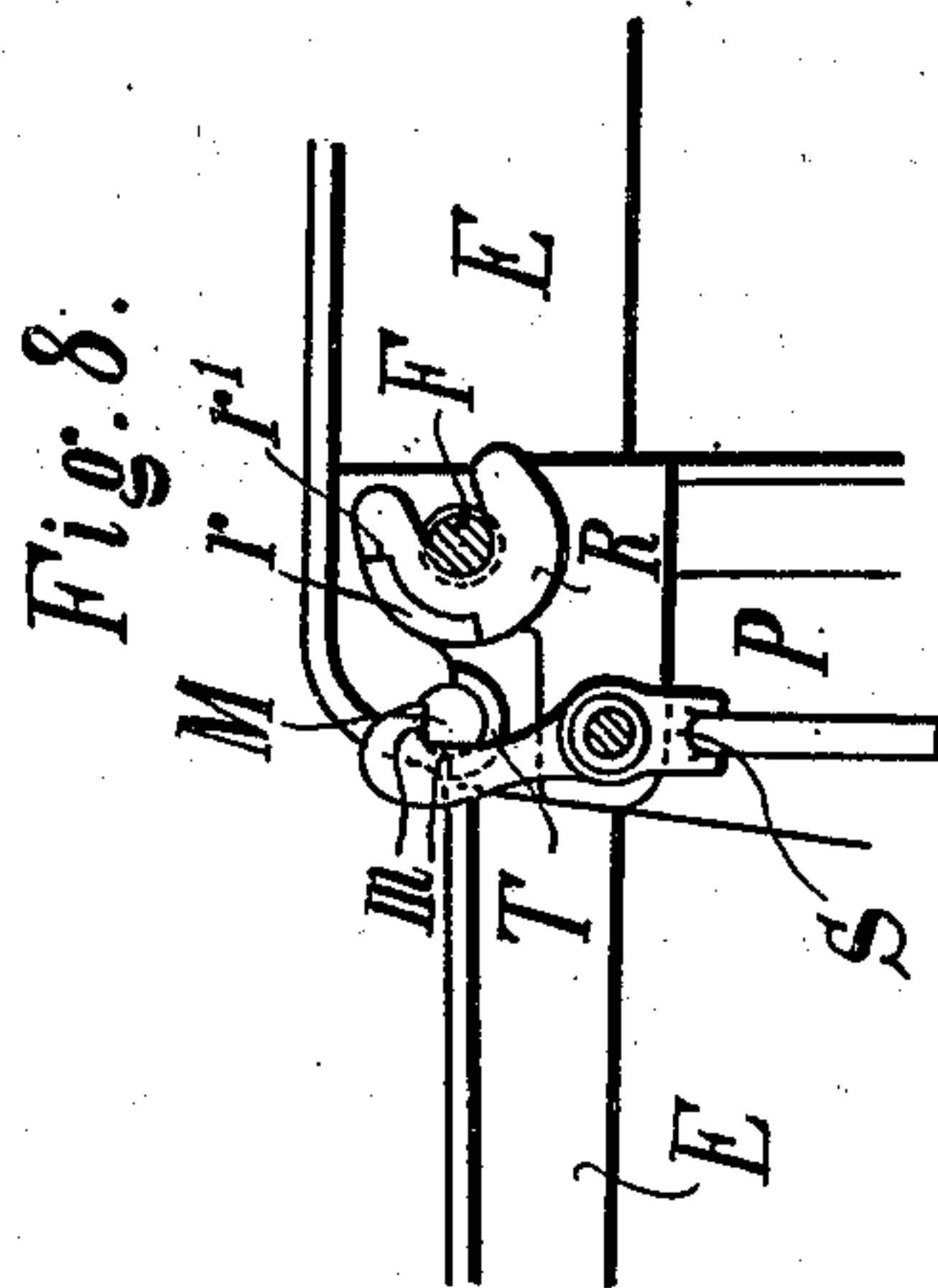
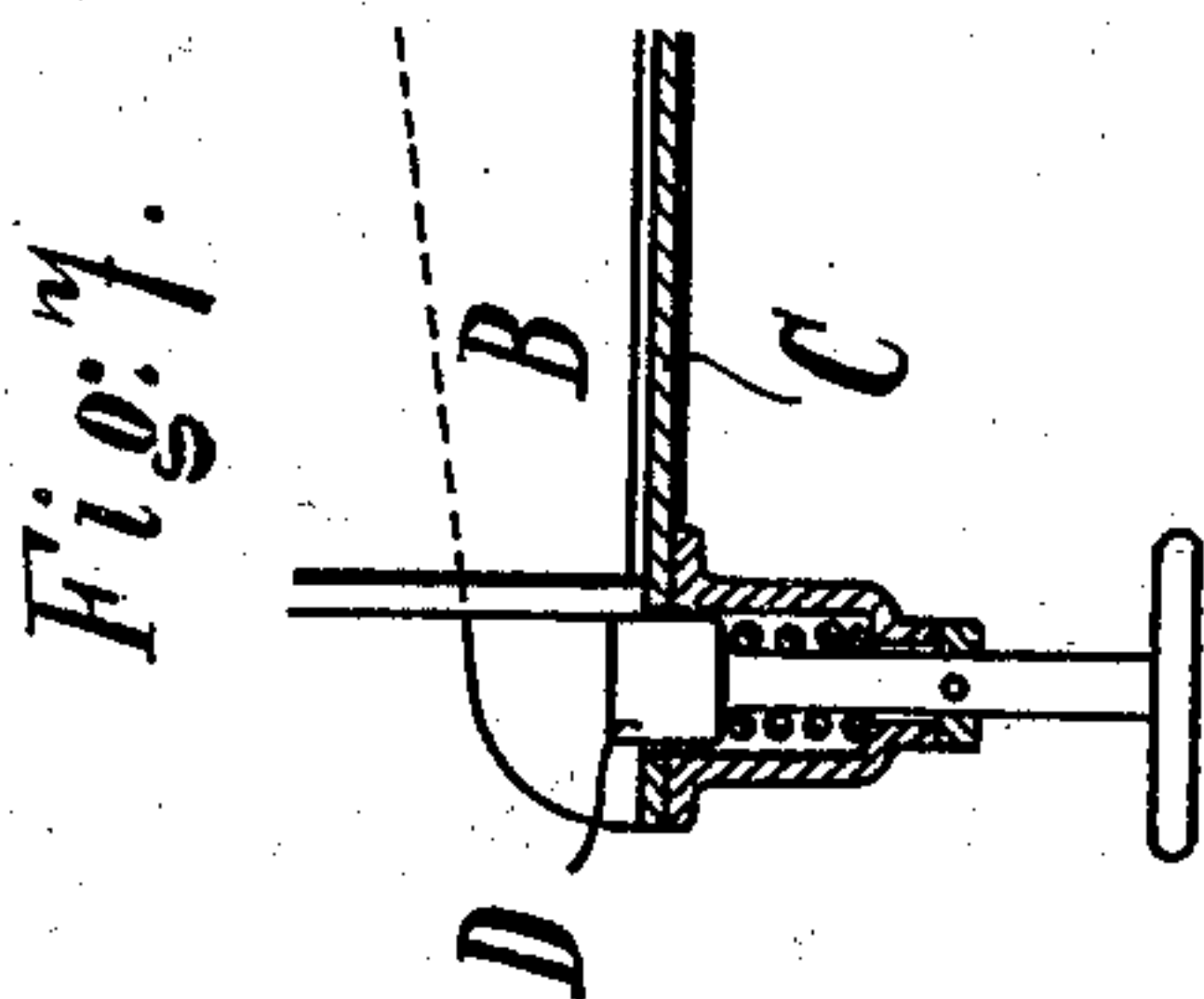
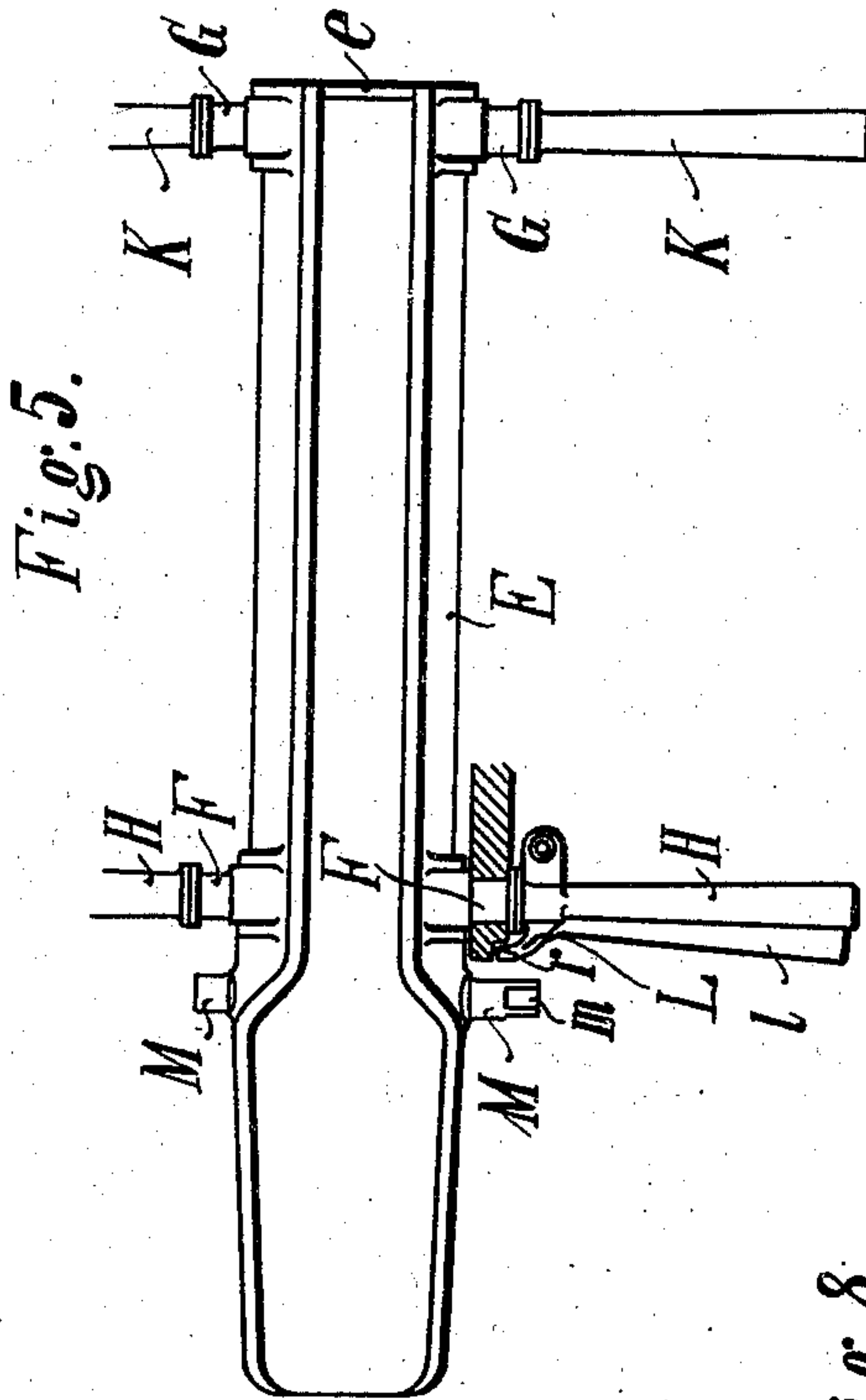
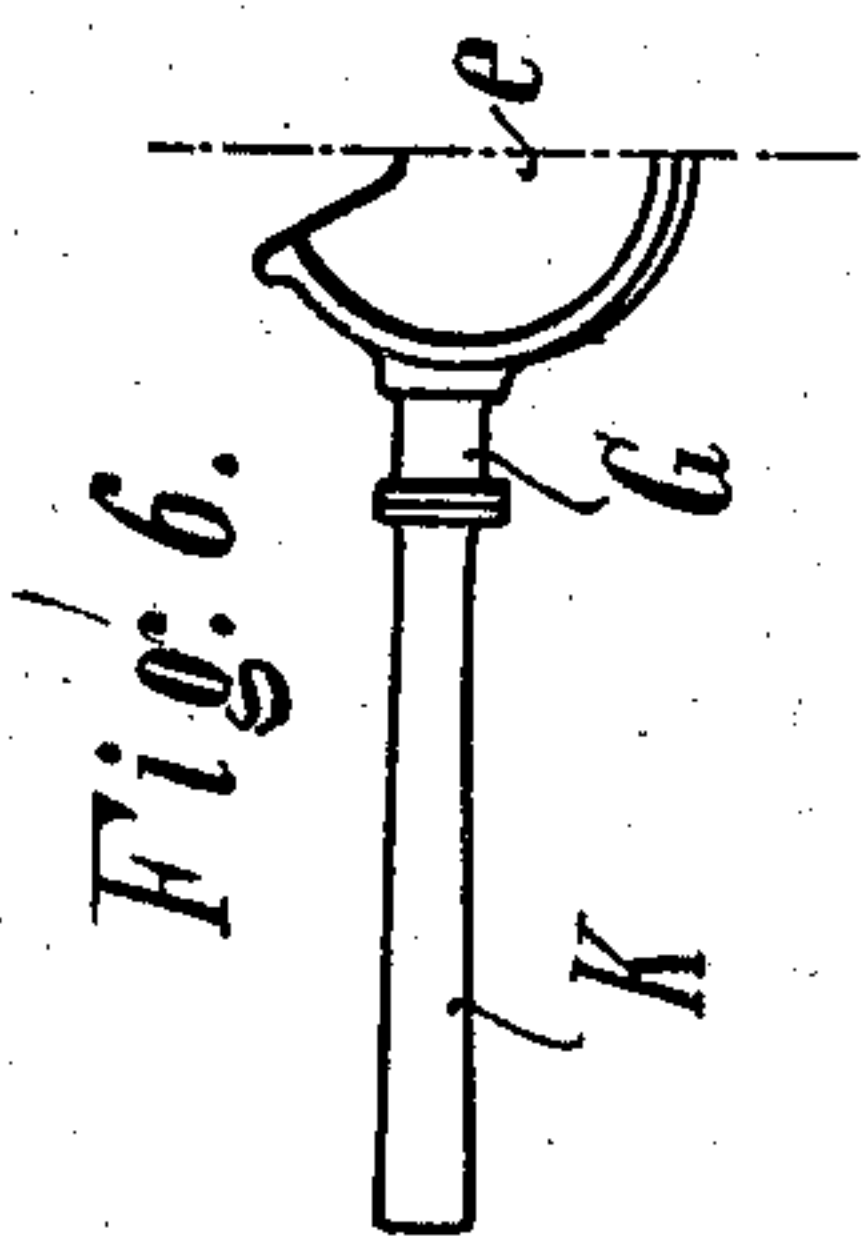
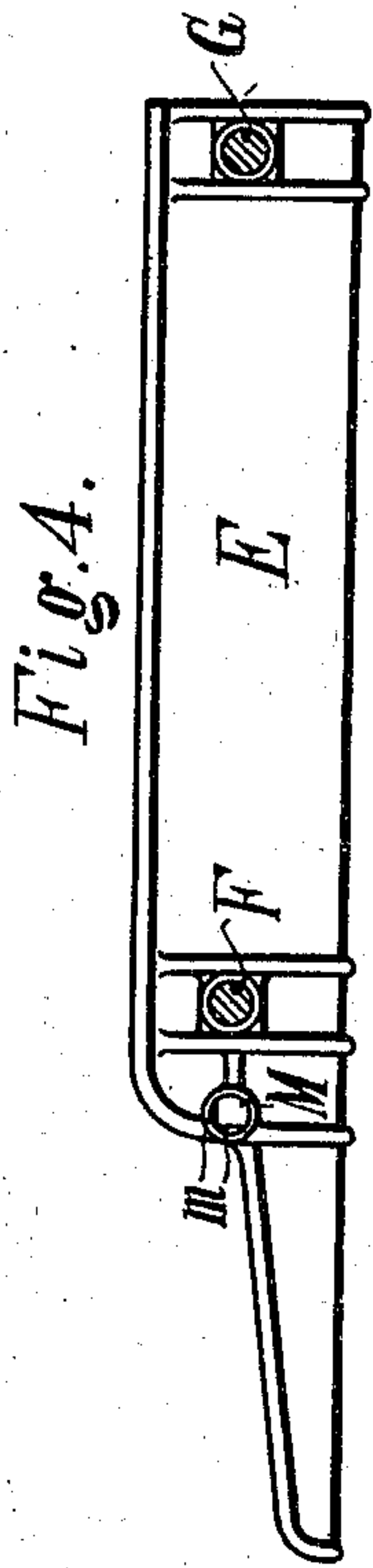
J. KRONE.

APPARATUS FOR TRANSFERRING AMMUNITION FROM THE AMMUNITION CARRIAGE
INTO THE LOADING AXIS OF THE GUN.

(No Model.)

(Application filed Apr. 22, 1902.)

3 Sheets—Sheet 3.



Witnesses:
H. E. Manning.
H. H. Simms.

Inventor:
Johannes Krone
by Knight Bros
attys

UNITED STATES PATENT OFFICE.

JOHANNES KRONE, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP, OF ESSEN, GERMANY.

APPARATUS FOR TRANSFERRING AMMUNITION FROM THE AMMUNITION-CARRIAGE INTO THE LOADING-AXIS OF THE GUN.

SPECIFICATION forming part of Letters Patent No. 709,781, dated September 23, 1902.

Application filed April 22, 1902. Serial No. 104,188. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES KRONE, a subject of the Emperor of Germany, and a resident of 56 Bismarckstrasse, Essen-on-the-

5 Ruhr, Germany, have invented certain new and useful Improvements in Apparatus for Transferring Ammunition from the Ammunition-Carriage into the Loading-Axis of the Gun, of which the following is a specification.
10 The present invention is applicable to those guns in which the ammunition is supplied by a carriage in the rear of the gun and raised from this carriage to the loading-axis of the gun. The invention relates to an apparatus
15 for thus raising the ammunition from the carriage to the loading-axis of the gun, the object being to accomplish this result by hand with a comparatively slight expenditure of work. This object is attained according to
20 this invention by shifting the ammunition into a loading-tray at the height of the ammunition-carriage and then by successively tilting the tray to different elevations bringing the ammunition to the loading position.
25 The method of procedure, as well as the principle of the mechanism, will be described, by way of example, upon the basis of an apparatus designed to handle fixed ammunition, which is illustrated in the accompanying
30 drawings, in which—

Figure 1 is a side elevation, partly in section, showing the apparatus with the cooperating parts of the gun and the ammunition-carriage. Fig. 2 is a corresponding plan view
35 of the apparatus and of the ammunition-carriage, partly in section, on the line 2 2, Fig. 1. Fig. 3 is an end elevation of the standard upon which the tray is supported in the loading-axis of the gun. Figs. 4, 5, and 6 are respectively a side view, a plan, and a half-end elevation of the loading-tray. Fig. 7 is a vertical sectional detail view of the spring-stop
40 located at the end of each trough of the ammunition-carriage, and Fig. 8 is a detail view of the means for locking the loading-tray in its position in the loading-axis of the gun.

The carriage A, Figs. 1 and 2, upon which the cartridges B are delivered in rear of the gun, runs upon a track concentric with the
50 pivot of the gun and is provided with a plurality of troughs C, each for the reception of

one cartridge. The troughs C are inclined toward the gun and at their lower ends are provided with spring-pressed stops D, Figs. 1, 2, 7, which prevent the cartridges from
55 sliding out of the troughs.

The loading-tray E, Fig. 1 and Figs. 4 to 6, through the medium of which the ammunition is transferred from the carriage A to the loading-axis of the gun, consists of a cylindrical shell constructed with one end scoop-shaped and with a broad longitudinal slot. The end opposite the scoop-shaped end of the loading-tray is closed by the head e, having
60 a cut-away section which merges into the longitudinal slot of the loading-tray. At the base of the scoop-shaped portion and at the closed end of the loading-tray are formed in each place a pair of coaxial trunnions F or G, which are prolonged into hand-grips H or
65 K. The axes of these trunnions are perpendicular to the axial plane of the loading-tray, passing through the center of the longitudinal slot of said tray. One of the hand-grips H carries, for a purpose hereinafter more
70 fully explained, a spring-catch L, the arm l of which upon grasping the hand-grip H enters a longitudinal slot of the latter to permit the engaging end of the catch to withdraw from the shoulder with which it en-
75 gages. Adjacent to the trunnions F upon the loading-tray are arranged two coaxial studs M, one of which is provided with two plane faces m, extending at right angles to each other. These studs M serve to hold the load-
80 ing-tray in the loading position, as will hereinafter more fully appear.

Upon the platform N of the oscillating upper carriage is mounted a frame the individual parts of which are disposed symmetrically to the vertical plane of the loading-
85 axis, and this frame consists of a horizontal seat O, as well as two vertical supporting-columns P, Figs. 1 to 3. The supporting-seat O is bifurcated at q and carries a pair of co-
90 axial bearings Q, which are separated by such a distance that they will receive the loading-tray with freedom of swing between them. The supporting-columns P are arranged in the same manner and carry bearings R upon
100 their upper ends. The common axis of the bearings R runs parallel to that of the bear-

ings Q. These bearings Q and R are open upon their sides away from the gun. Adjacent to the bearings R upon the two columns P are provided arresting-bearings T, Figs. 1 and 8, upon which the studs M of the loading-tray are to rest while the tray is in the loading position. Upon one of the arresting-bearings T is arranged a spring-catch S, which is designed to engage over that one of the studs M which is provided with the squared faces *m* when the tray reaches the loading position. In the body of one of the bearings R is formed a groove *r*, concentric with the surface of the bearing, to receive the catch L and provided with an arresting-face *r'*.

The method of performing the operation of loading is as follows: To receive the cartridge, the loading-tray assumes the position I, (shown in dotted lines in Figs. 1 and 2), its trunnions G resting in the bearings Q of the supporting-seat O, the loading-tray itself resting at *q* in the bifurcated end of the seat. The scoop-shaped end of the loading-tray rests upon the cartridge which is to be transferred to the loading-axis of the gun, the longitudinal slot of the loading-tray being presented downwardly. The appropriate stop D is then withdrawn downward, and the cartridge is shoved from the trough C into the loading-tray as far as the base of the latter. The loading-tray is grasped by the hand-grips H and tilted upwardly about the trunnions G as a pivot into the position I I, Fig. 1. At the end of this tilting movement the trunnions F of the loading-tray enter the bearings R of the supporting-columns P. At the same time the catch L snaps into the groove *r*, and by impinging against the arresting-face *r'* locks the loading-tray against tipping backward toward the receiving position. From the position I I the loading-tray is raised through the grips K into the position I I I, in which position the studs M rest in the sustaining-bearings T and the catch S engages over the squared portion of one of the studs M, so that the loading-tray is held fast. After the cartridge is introduced by hand into the chamber of the gun the catch S is released. Then the loading-tray is returned to the position I I, and from this position after the release of the catch L is again tilted into the receiving position.

Having thus described the invention, the following is what is claimed as new therein:

1. An apparatus for transferring ammunition from a lower level into the loading-axis of the gun, comprising a loading-tray and a series of supports at progressively-increasing elevations constructed to receive the ends of said tray, whereby it may be tilted end over end from the lower level into successive elevations until it reaches the loading-axis of the gun.

2. An apparatus for transferring ammunition from a lower level into the loading-axis of the gun, comprising a loading-tray, having hand-grips projecting from its opposite

ends, and a series of supports at progressively-increasing elevations constructed to receive the ends of said tray, whereby it may be tilted end over end from the lower level into successive elevations until it reaches the loading-axis of the gun.

3. An apparatus for transferring ammunition from the ammunition-carriage into the loading-axis of the gun, comprising a series of bearings suitably supported at progressively-increasing elevations, and a loading-tray having at or near its opposite ends trunnions entering the bearings as the loading-tray is tipped end over end from the lower position to the higher.

4. An apparatus for transferring ammunition from the ammunition-carriage into the loading-axis of the gun, comprising a series of bearings suitably supported at progressively-increasing elevations, and a loading-tray having at or near its opposite ends trunnions entering the bearings as the loading-tray is tipped end over end from the lower position to the higher, and hand-grips projecting from said trunnions.

5. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a support provided with a plurality of bearings at different heights, opening to one side, and the loading-tray having two pairs of trunnions at or near its opposite ends adapted to engage successively in said bearings as the loading-tray is tilted end over end.

6. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a support provided with a plurality of bearings at different heights, opening to one side, and the loading-tray having two pairs of trunnions at or near its opposite ends adapted to engage successively in said bearings as the loading-tray is tilted end over end, and a catch holding the trunnions in one pair of bearings while the other end of the tray is being swung.

7. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a support provided with a plurality of bearings at different heights, opening to one side, and the loading-tray having two pairs of trunnions at or near its opposite ends, adapted to engage successively in said bearings as the loading-tray is tilted end over end, and a catch holding the trunnions in one pair of bearings while the other end of the tray is being swung, said catch being carried by one trunnion and engaging a groove formed in the body of the corresponding bearing.

8. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a support provided with a plurality of bearings at different heights, opening to one side and the loading-tray having two pairs of trunnions at or near its opposite ends adapted to engage successively in said bearings, as the loading-tray is

tilted end over end, hand-grips projecting from said trunnions, the catch on one of said hand-grips and trunnions, and a recess on the bearing in which said catch engages, as the trunnion enters its bearing, to hold one pair of trunnions while the tray is being lifted by the other pair.

9. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a support provided with a plurality of bearings at different heights, opening to one side, and the loading-tray having two pairs of trunnions at or near its opposite ends, adapted to engage successively in said bearings as the loading-tray is tilted end over end, and a catch holding the trunnions in one pair of bearings while the other end of the tray is being swung, said catch being carried by one trunnion and engaging a groove formed in the body of the corresponding bearing, and the groove being concentric with the bearing so that the tray can swing while the catch is in engagement.

10. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a tray having trunnions, and studs adjacent to said trunnions, a support having bearings receiving said trunnions to permit the tray to swing thereon, and arresting-bearings receiving said studs to sustain the tray in horizontal position.

11. An apparatus for transferring ammunition from the ammunition-carriage to the loading-axis of the gun, comprising a tray having trunnions, and studs adjacent to said trunnions, a support having bearings receiving said trunnions to permit the tray to swing thereon, and arresting-bearings receiving said

studs to sustain the tray in horizontal position, and provided with a releasable catch to retain the studs in their bearings.

12. An apparatus for transferring ammunition to the loading-axis of the gun, comprising a tray with trunnions, and a support upon which said tray is tilted end over end, constructed with a horizontal bracket holding the tray in receiving position and a vertical standard containing trunnion-bearings upon which the tray is tilted.

13. An apparatus for transferring ammunition to the loading-axis of the gun, comprising a tray with trunnions, and a support upon which said tray is tilted end over end, constructed with a horizontal bracket holding the tray in receiving position and a vertical standard containing trunnion-bearings at its upper end, which receives the trunnions of the tray when the tray is tilted upward and upon which the tray is tilted.

14. An apparatus for transferring ammunition to the loading-axis of the gun, comprising a tray with trunnions, at or near its respective ends, and a support constructed with lower bearings that receive the trunnions at one end of the tray and with a rearwardly-projecting bracket that supports the tray in receiving position, and bearings on the upper portion of the support that receive the other pair of trunnions.

The foregoing specification signed at Düsseldorf this 8th day of April, 1902.

JOHANNES KRONE.

In presence of—
WILLIAM ESSENWEIN,
PETER LIEBER.