

No. 680,585.

Patented Aug. 13, 1901.

K. HAUSSNER.
FIELD CARRIAGE FOR QUICK FIRING GUNS.

(Application filed Oct. 15, 1900.)

(No Model.)

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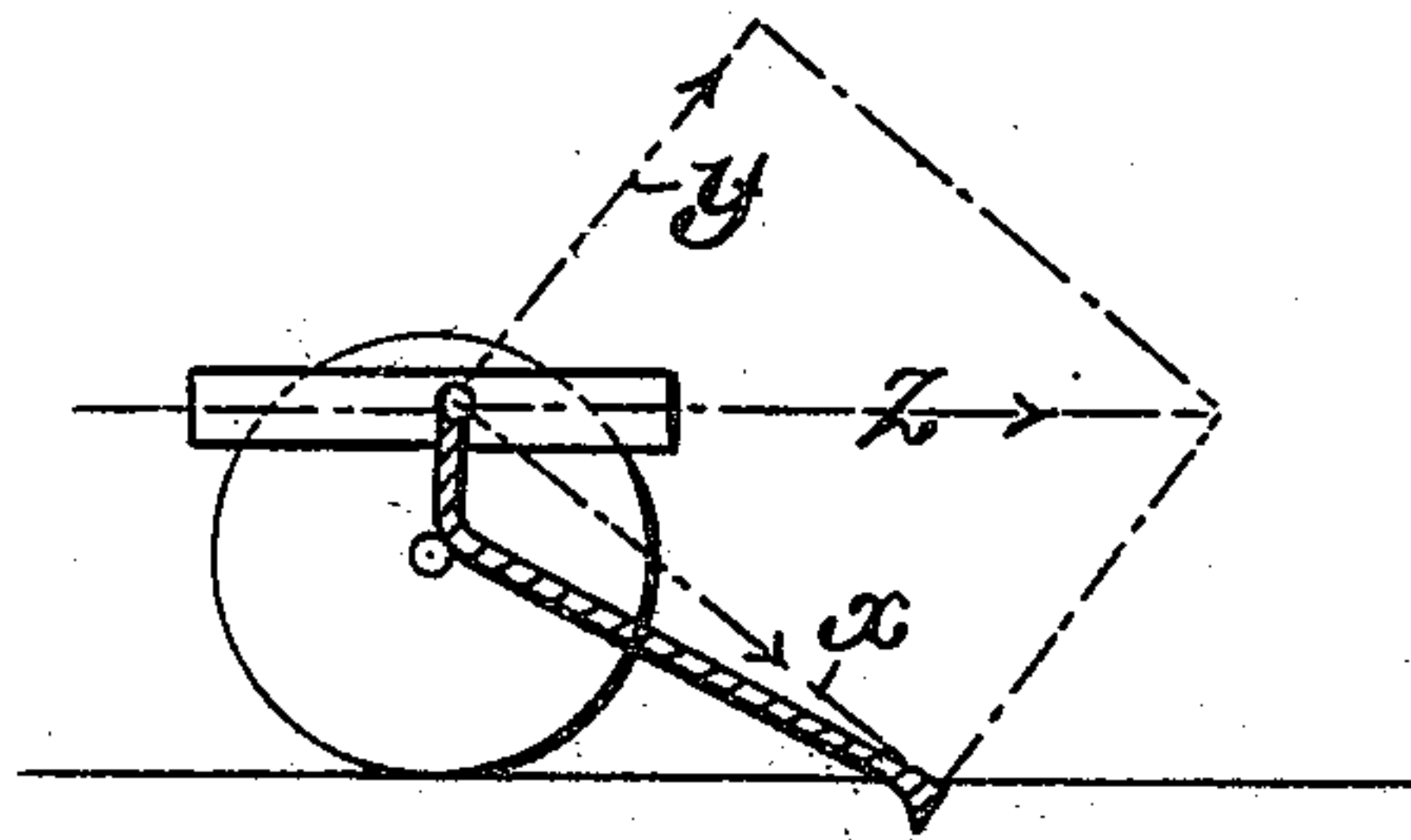


Fig. 1.

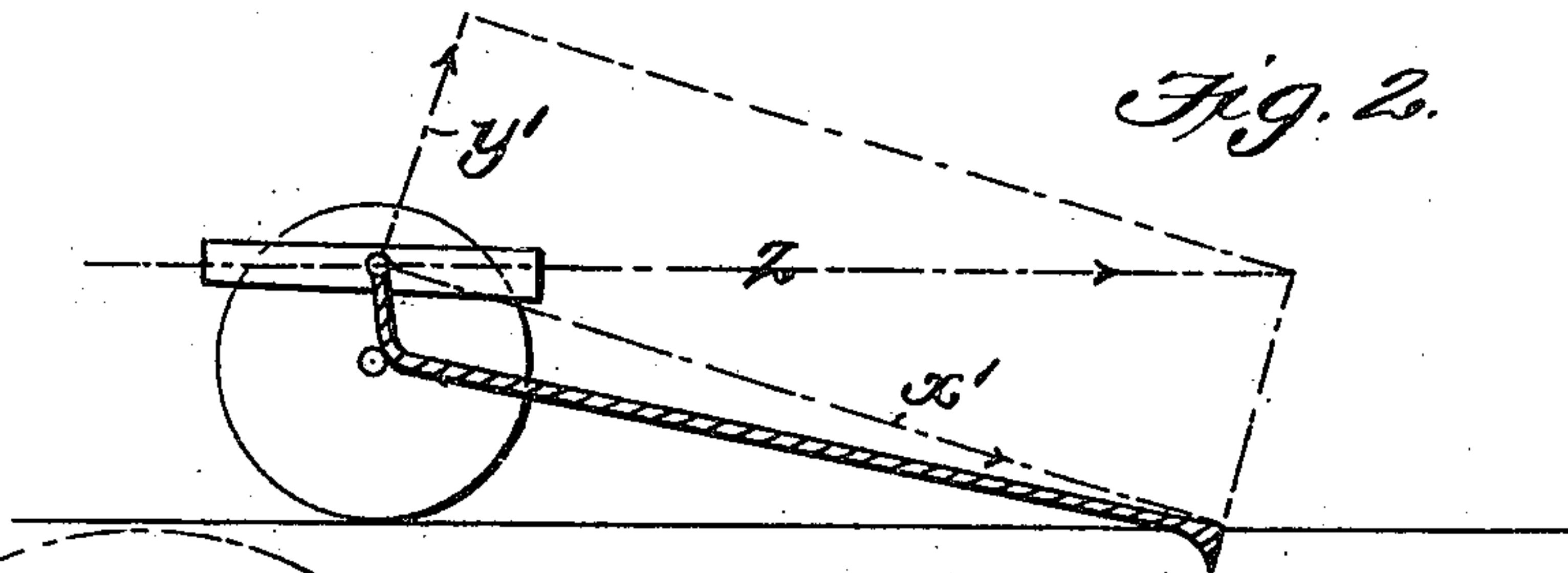


Fig. 2.

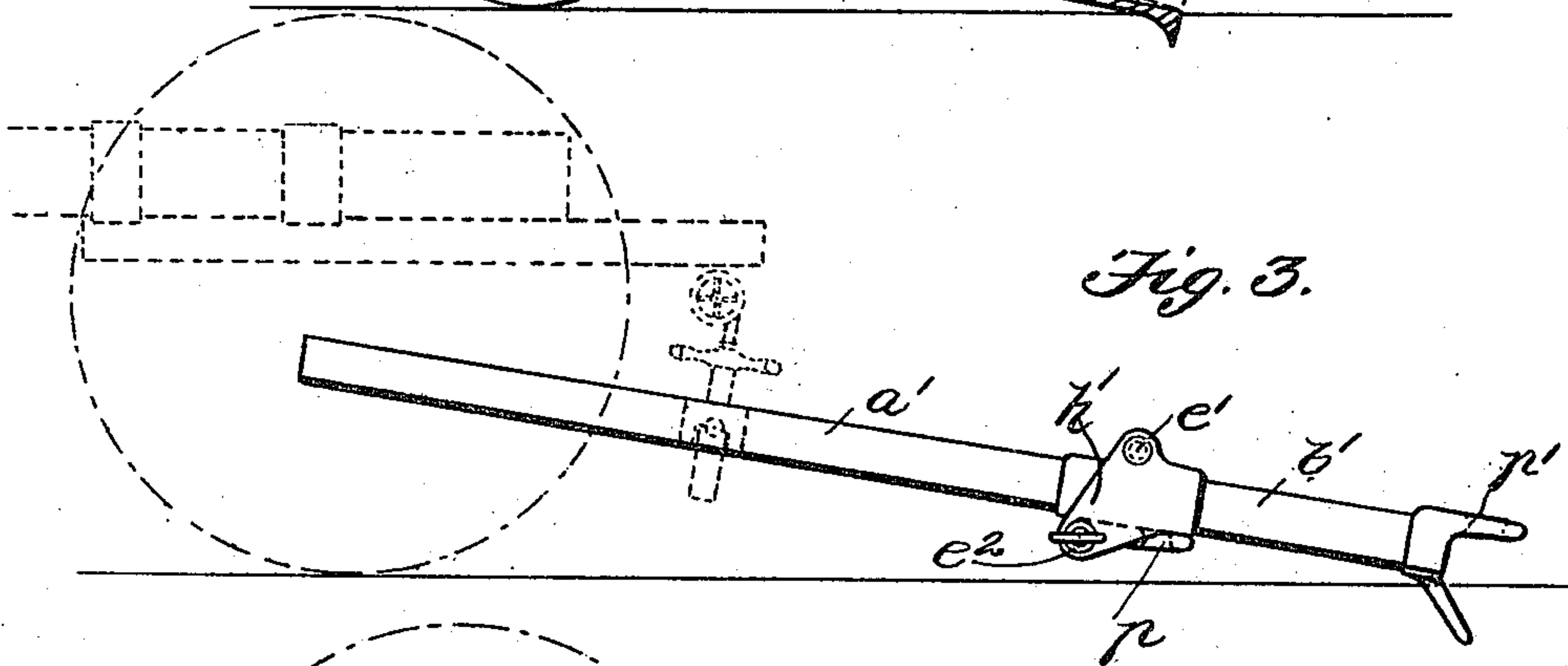


Fig. 3.

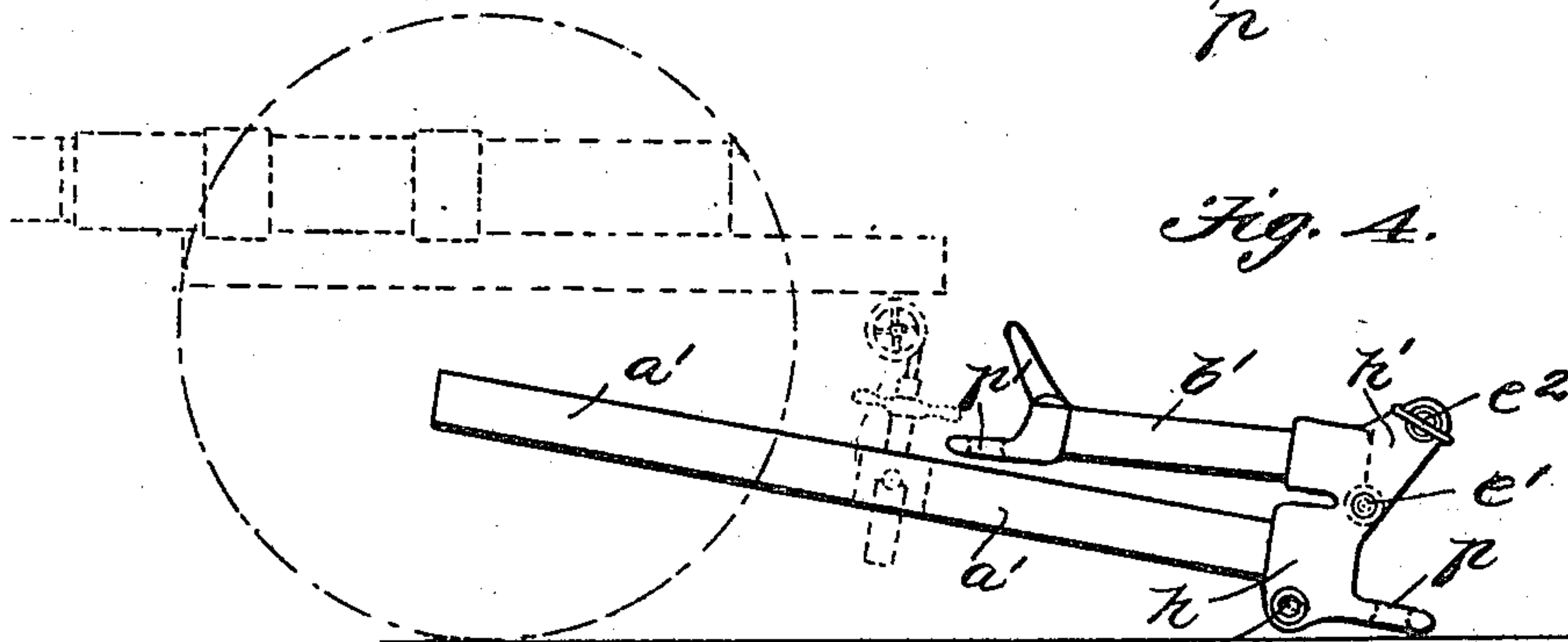


Fig. 4.

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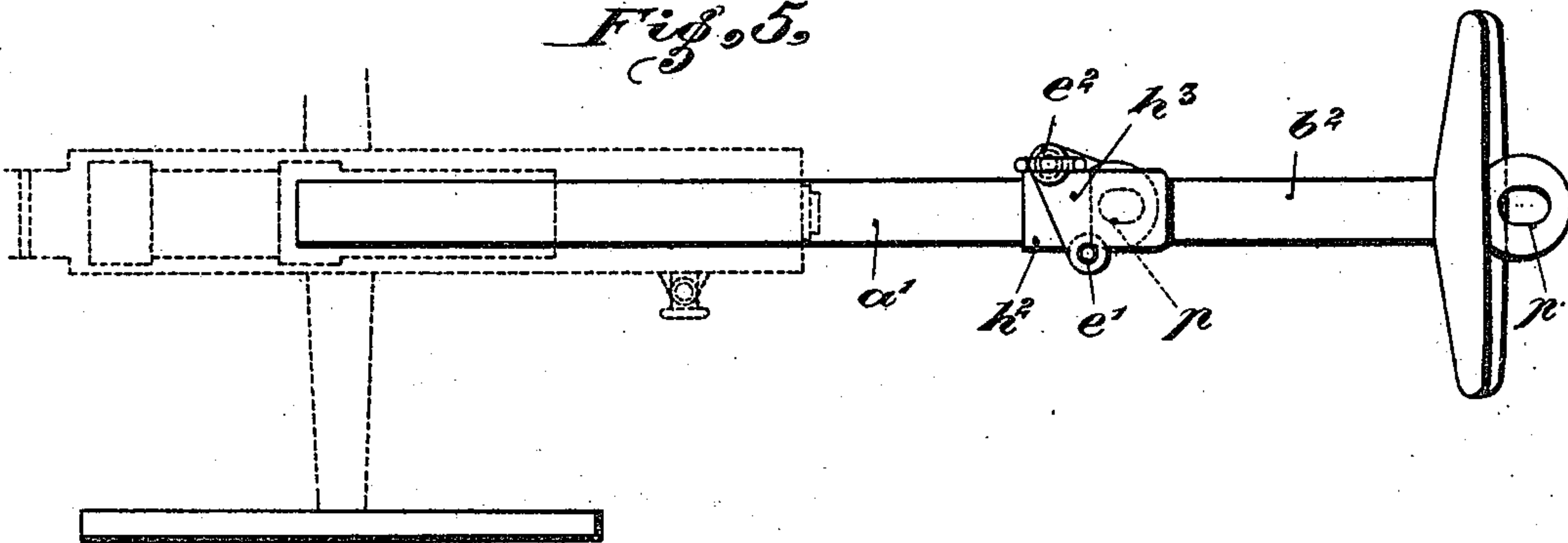
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Fig. 5.



Fig, 6,

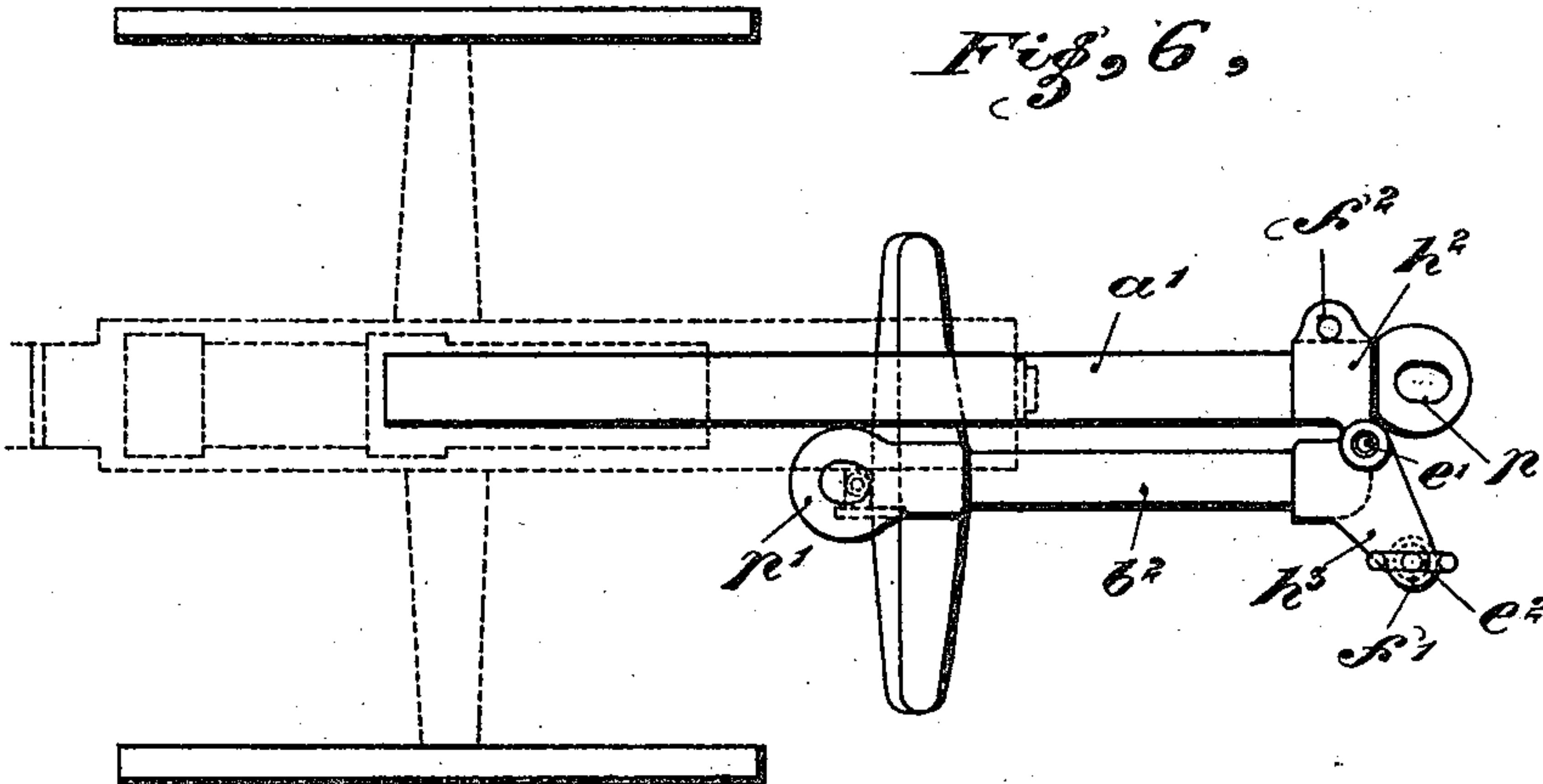
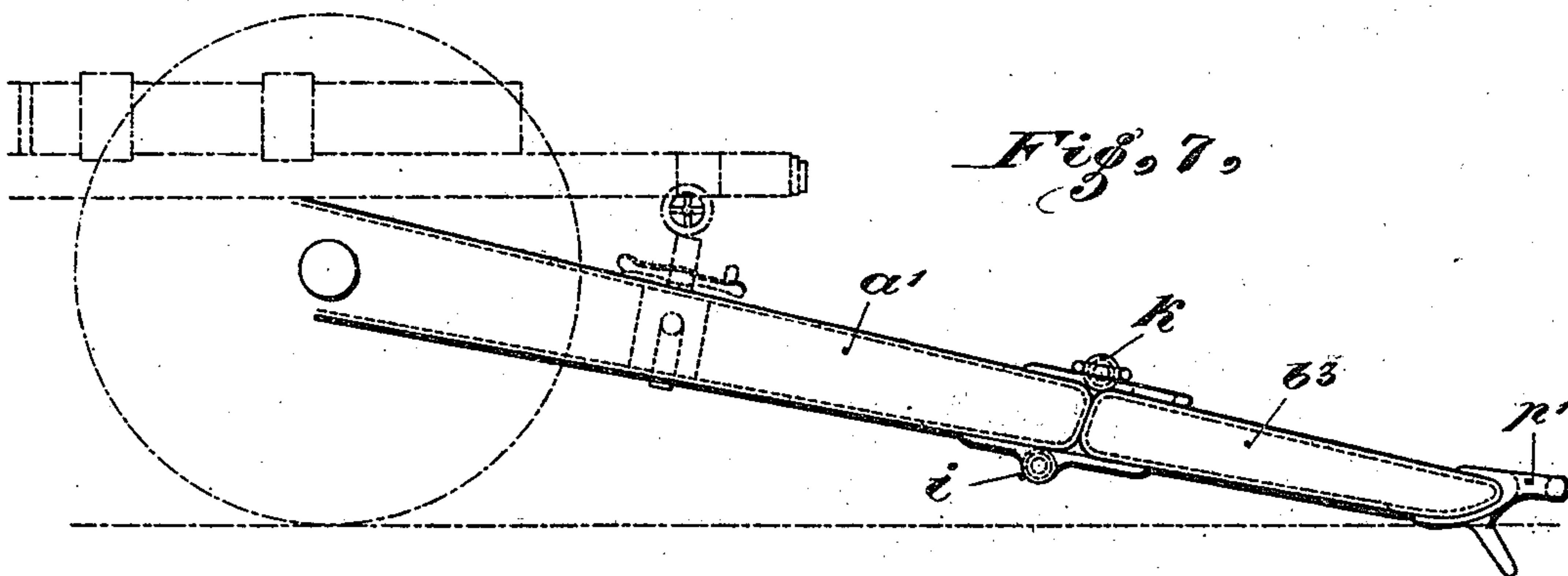


Fig. 7,



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Fig. 8.

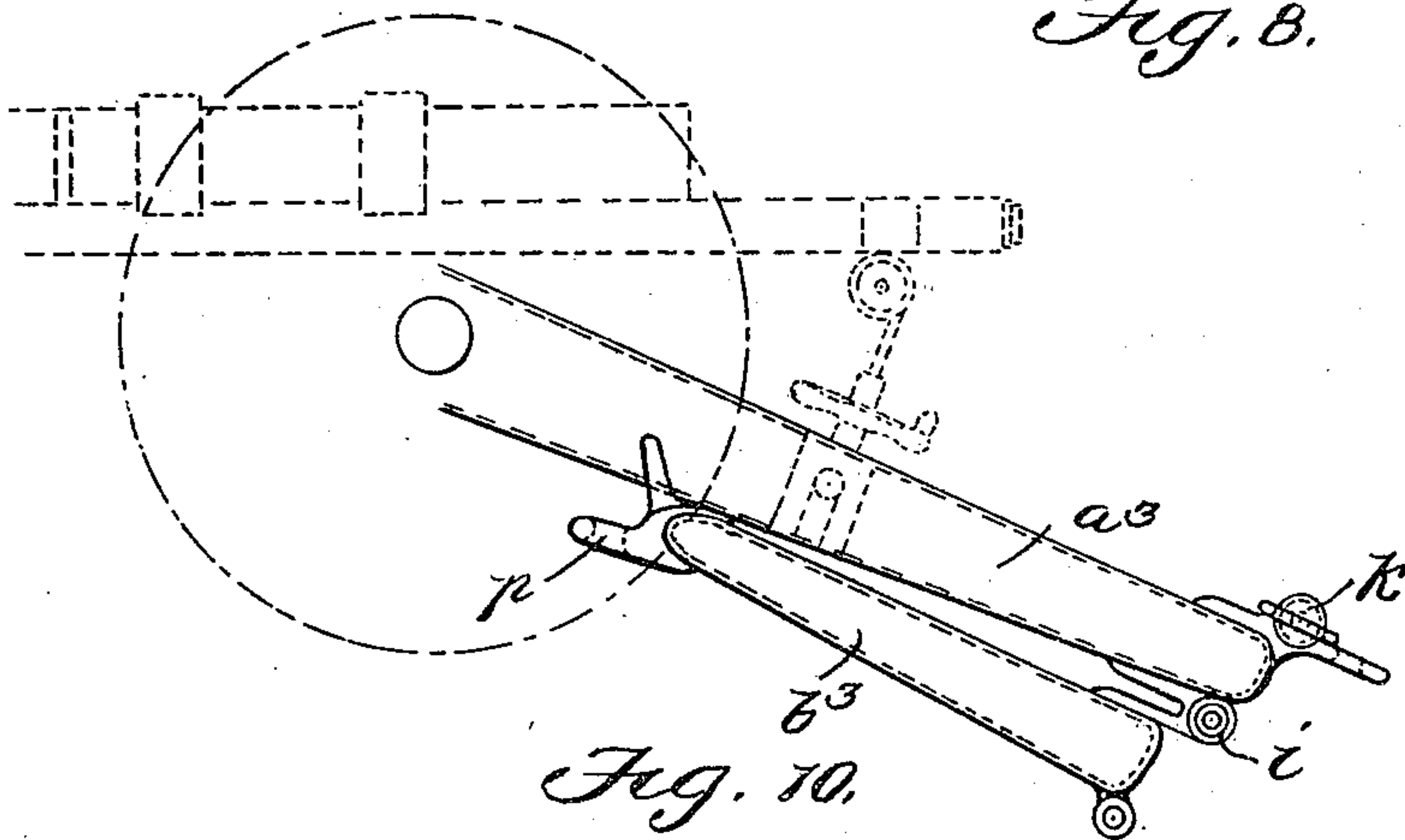
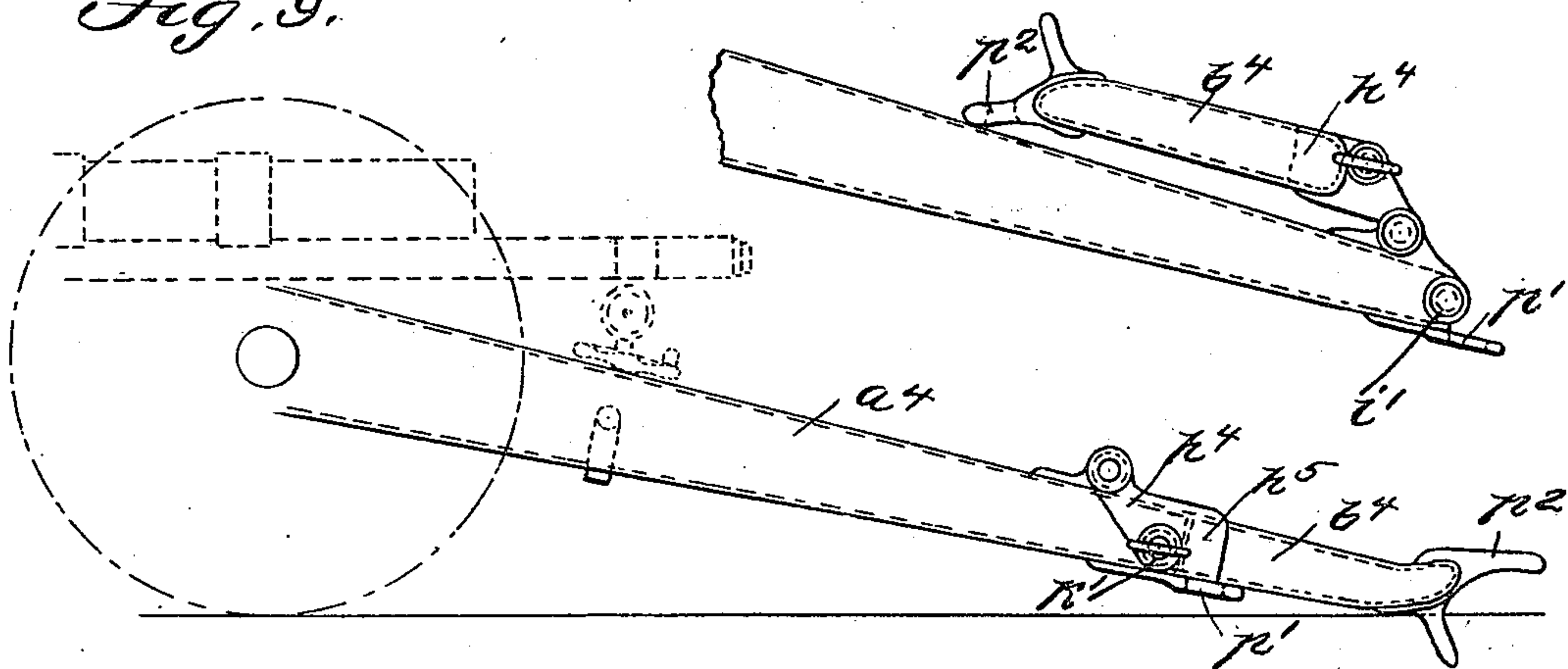


Fig. 10.

Fig. 9.



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UNITED STATES PATENT OFFICE.

KONRAD HAUSSNER, OF EISENACH, GERMANY.

FIELD-CARRIAGE FOR QUICK-FIRING GUNS.

SPECIFICATION forming part of Letters Patent No. 680,585, dated August 13, 1901.

Application filed October 15, 1900. Serial No. 33,040 $\frac{1}{2}$. (No model.)

To all whom it may concern:

Be it known that I, KONRAD HAUSSNER, engineer, a subject of the Grand Duke of Saxe-Weimar, residing at Eisenach, in the Grand Duchy of Saxe-Weimar and German Empire, have invented certain new and useful Improvements in Field-Carriages for Quick-Firing Guns, of which the following is a specification.

My present invention relates to a field-carriage for quick-firing guns provided with a spade attachment for checking the recoil.

The principal purpose of the invention is to minimize or entirely suppress the so-called "bucking" or jumping upward of the gun when fired.

The subject-matter of the invention is shown in the annexed drawings, wherein—

Figures 1 and 2 illustrate, diagrammatically, the effect of the bucking action and the resolution of forces which causes the bucking. Fig. 3 is a side elevation of a gun-carriage with the gun-trail extended in position for firing. Fig. 4 is a like view with the extension-piece of the gun-trail folded back in position for traveling. Fig. 5 is a top plan of a gun-carriage with the gun-trail extended in position for firing and the extension-piece folding toward the left. Fig. 6 is a like view with the extension-piece of the gun-trail folded back in position for traveling, the extension-piece folding toward the left. Figs. 7 and 8 are side elevations of a gun-carriage with a modified form of trail, Fig. 7 showing the trail extended and Fig. 8 with the extension-piece folded under. Figs. 9 and 10 are side elevations of a modified form of gun-trail, the former showing the trail in its extended position and the latter in its folded position.

The principal advantage of the gun-carriage for quick-firing field-guns described herein-after lies in the fact that the so-called "bucking" of the gun when fired is reduced or entirely suppressed. The following remarks will serve to explain this.

In order to facilitate rapidity of firing in modern quick-firing field-guns, it is requisite that there should be little or no recoil, and this end is obtained by means of a spade attachment penetrating into the ground; but the consequence of this arrangement is that

the gun "bucks"—that is to say, it jumps upward—so as to describe a short arc on the spade as a fulcrum, the recoil z of the gun itself being resolved into one component x , passing through the spade, and another component y , directed upward. (See Fig. 1.) This latter component in the case of modern field-guns is so great that the gun when fired will jump up on the spade as a fulcrum to a height of half a meter and over and then drop down again, whereby the correct aim of the gun is lost, so that it requires relaying in a tedious manner by shifting the gun-trail and repeated turning of the elevating-screw; but the upward component y' (see Fig. 2) of the recoil z will become less in proportion as the gun-trail is elongated, and one would therefore feel inclined to make the gun-trail longer than hitherto customary, but for the fact that thereby the mobility of the gun when limbered up and traveling would be impaired and the difficulty of giving great elevation to the guns would be enhanced. I therefore conceived the idea of an extensible gun-trail, which in a folded or collapsed state would afford sufficient mobility, while when unlimbered and extended its length would reduce bucking to a minimum, and thus afford the possibility of very rapid firing without any need of tedious relaying of the gun. If with such an arrangement the extension-piece of the gun-trail is provided, as well as the fixed part of the trail, with a pintle-eye, it will be possible to limber up, if desired, with the extended gun-trail and travel with the gun in this state, which may frequently be an advantage in view of the great desirability of speediest mobility of the gun.

A further advantage afforded by this invention is the possibility of giving a high elevation to the gun when unlimbered with the trail in the collapsed or shortened state.

Figs. 3 and 4 show a form of the invention in which a tubular gun-trail is adopted, Fig. 3 showing the extended gun-trail in the position for firing, while Fig. 4 shows the gun-trail with the extension-piece folded back in the position for traveling. The extension-piece of the gun-trail b' pivots on a pin-bolt e' . In order to fix the extension-piece rigidly in the extended position, a bolt e^2 is thrust through the flanges h , arranged on the rear

end of the front part a' of the gun-trail, and flanges h' , arranged on the anterior end of the rear part or extension-piece of the gun-trail. The flanges $h h'$ are arranged on both
 5 sides at such distance from each other as to leave sufficient room for the pintle-eye p of the gun-trail (in the shortened or folded state) to pass through between them. In order to be able to travel also, if desired, with
 10 the gun-trail in the extended state, a second pintle-eye p' is provided on the extension or rear piece.

In the gun-carriage as shown in Figs. 5 and 6 the trail is likewise a tubular one, but the
 15 rear part or extension-piece b^2 folds over toward the left. In this instance also, as in Figs. 3 and 4, the flanges $h^2 h^3$ are placed at a sufficient distance from each other to leave room for the pintle-eye p on the front part
 20 of the trail to pass freely between the flanges. In order to be able to travel with the gun-trail in the extended state, a second pintle-eye p' is provided on the extension-piece b^2 . In this arrangement also the pin or bolt e'
 25 forms the hinge-pin on which the extension-piece b^2 pivots, while bolt e^2 serves for fixing it in position, being thrust through holes f^2 in the flanges and holes f^3 in flanges h^3 .

In Figs. 7 and 8 the gun-trail $a^3 b^3$ consists
 30 of brackets or cheeks. The rear part or extension-piece b^3 folds underneath the front part a^3 on a hinge-pin or pivot-bolt i , as shown in Fig. 8. The extension-piece b^3 is fixed in the extended position by means of the removable bolt k . In order to be able to travel
 35 with the trail in the extended position, a second pintle-eye p' is provided on the extension-piece b^3 .

Figs. 9 and 10 show a gun-carriage with trail
 40 likewise constructed with cheeks or brackets, but with an extension-piece folding over upon the front part of the trail. The two sets of flanges $h^4 h^5$ on the adjoining ends of the two parts of the gun-trail $a^4 b^4$ are placed at such
 45 distance from each other as to permit the gun-trail cheeks to project through between them. In order to be able to drive the gun with the trail either in the extended or in the shortened position, two pintle-eyes $p' p^2$
 50 are provided. The extension-piece b^4 is again rigidly fixed in the extended position by means of the removable bolt k' , the extension-piece being pivoted on the hinge-bolts i' on the rear end of the front part a^4 of the
 55 gun-trail.

The various forms of execution of the invention forming the subject-matter of this application, as described above, are arranged so as to enable the gun to travel with the trail
 60 either in the extended or in the shortened state. This is an essential feature of the in-

vention and exceedingly expedient, because it may happen in the course of an action that there may be no time to spare for folding up or shortening the gun-trail before limbering
 65 up. Consequently styles of execution provided with an alternate pintle-eye are of greater practical value than those which have one single pintle-eye only. The present invention, therefore, differs from other systems
 70 of gun-carriages which have extensible trails, such as hitherto known, inasmuch as in these a short extension or rear piece was only attached to the gun-trail for the purpose of facilitating the fire with various elevations.
 75 Such constructions had solely been devised with a view to creating mountain gun-carriages capable of being carried by beasts of burden, but not with a view to preventing the
 80 bucking of quick-firing field-guns, nor does this invention apply to Maxim guns, which are not liable to bucking, but in case of which, on the contrary, the direction of the gun is varied during the act of firing for the purpose
 85 of dispersing the projectiles, nor has the subject-matter of the present invention any connection with those arrangements in which the body of the gun carriage or trail consists of two elastic tubes acting as elastic buffers, so
 90 as to weaken the recoil on firing.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination with a gun-carriage, of
 95 a complete trail therefor having a pintle-eye whereby it may be limbered, an extension-piece suitably connected to said trail and provided with a pintle-eye whereby the carriage with the extended trail may also be limbered,
 100 means connected to the trail and extension-piece to permit of the folding of the latter, and means for securing the extension-piece rigidly to the trail whereby the upward element or component of the recoil during firing
 105 is reduced.

2. The combination with a gun-carriage, of a complete trail therefor having a pintle-eye whereby it may be limbered, an extension-piece hinged to said trail and provided with
 110 a pintle-eye whereby the carriage with the extended trail may also be limbered, and means for securing the extension-piece rigidly to the trail whereby the upward element or component of the recoil during firing is reduced.
 115

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

KONRAD HAUSSNER.

Witnesses:

WILHELM BINDEWALD,
 CARL KIND.