

No. 706,390.

Patented Aug. 5, 1902.

A. P. COLLINS.

RANGE FINDER ATTACHMENT FOR GUNS.

(Application filed Nov. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

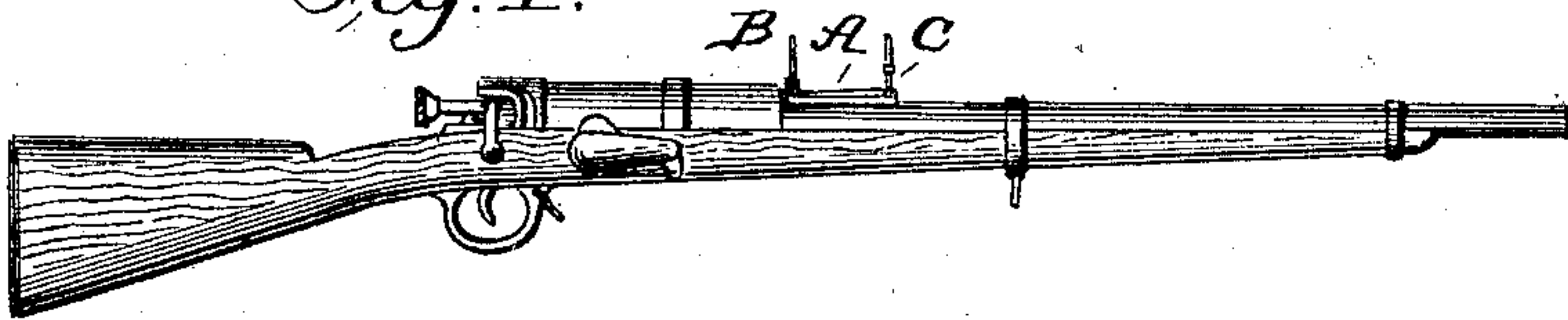


Fig. 2.

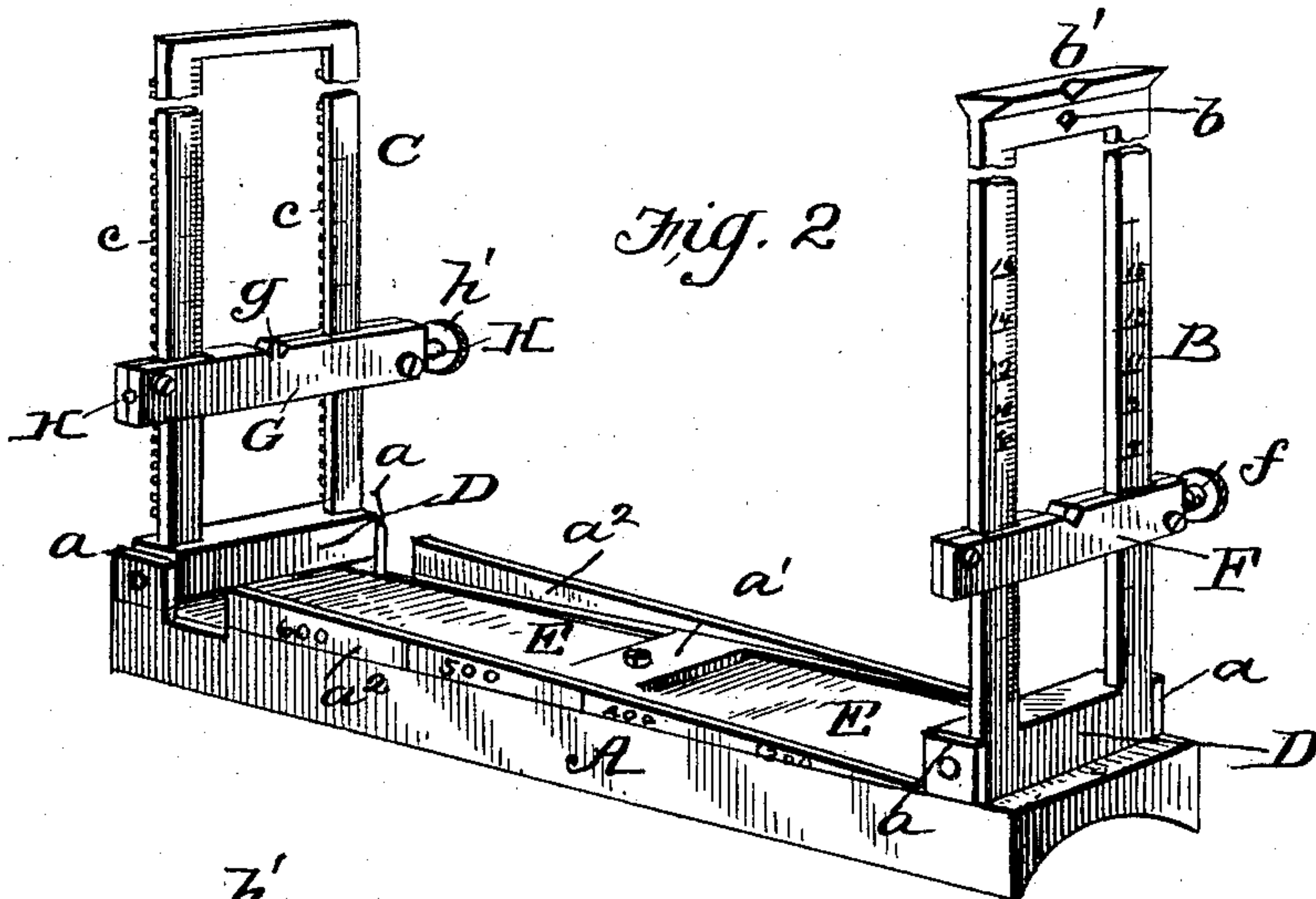


Fig. 3.

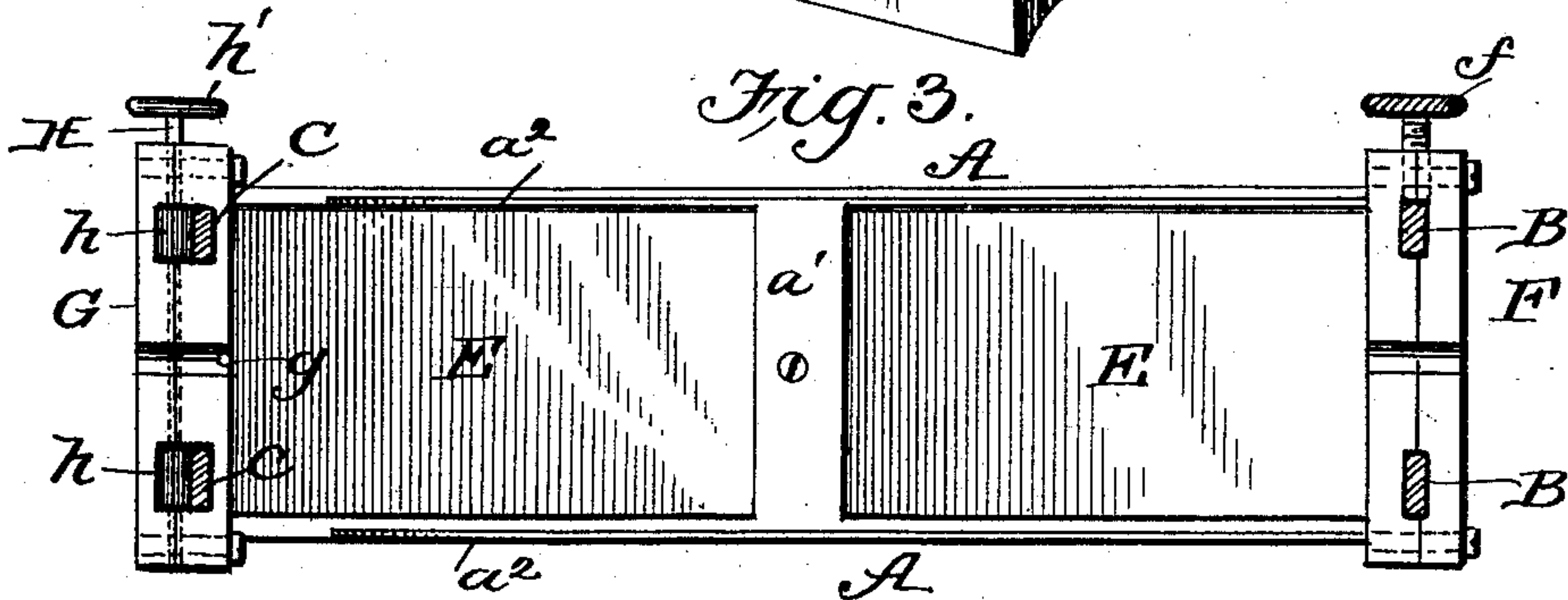


Fig. 4.

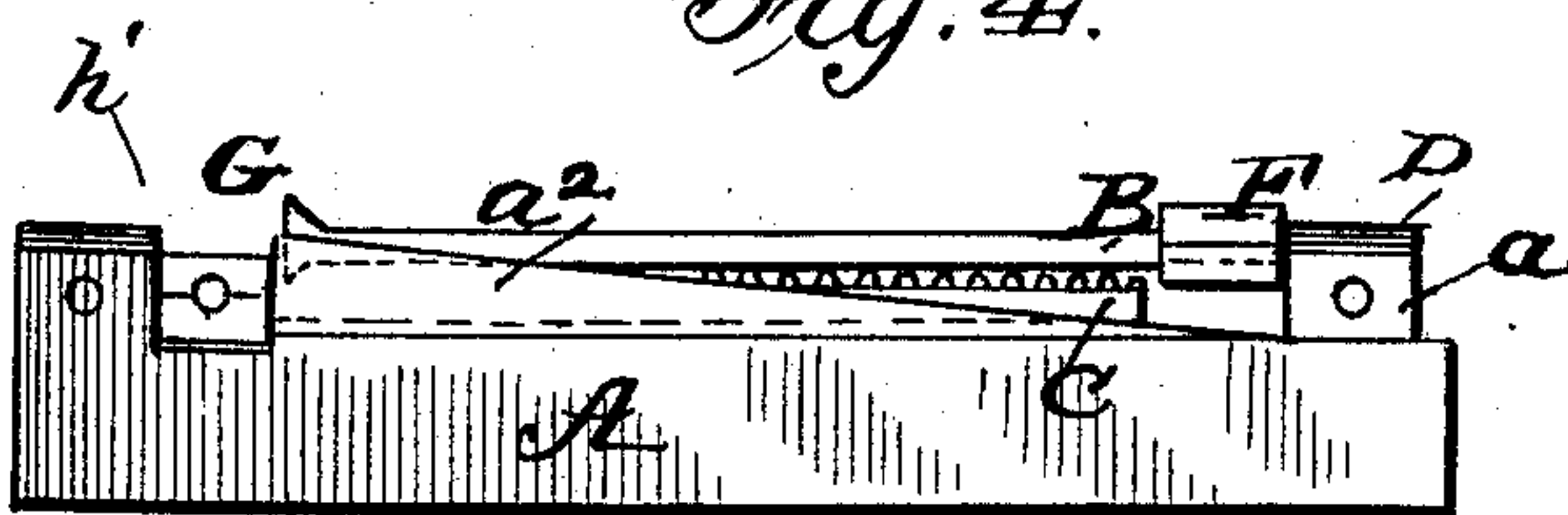


Fig. 6.

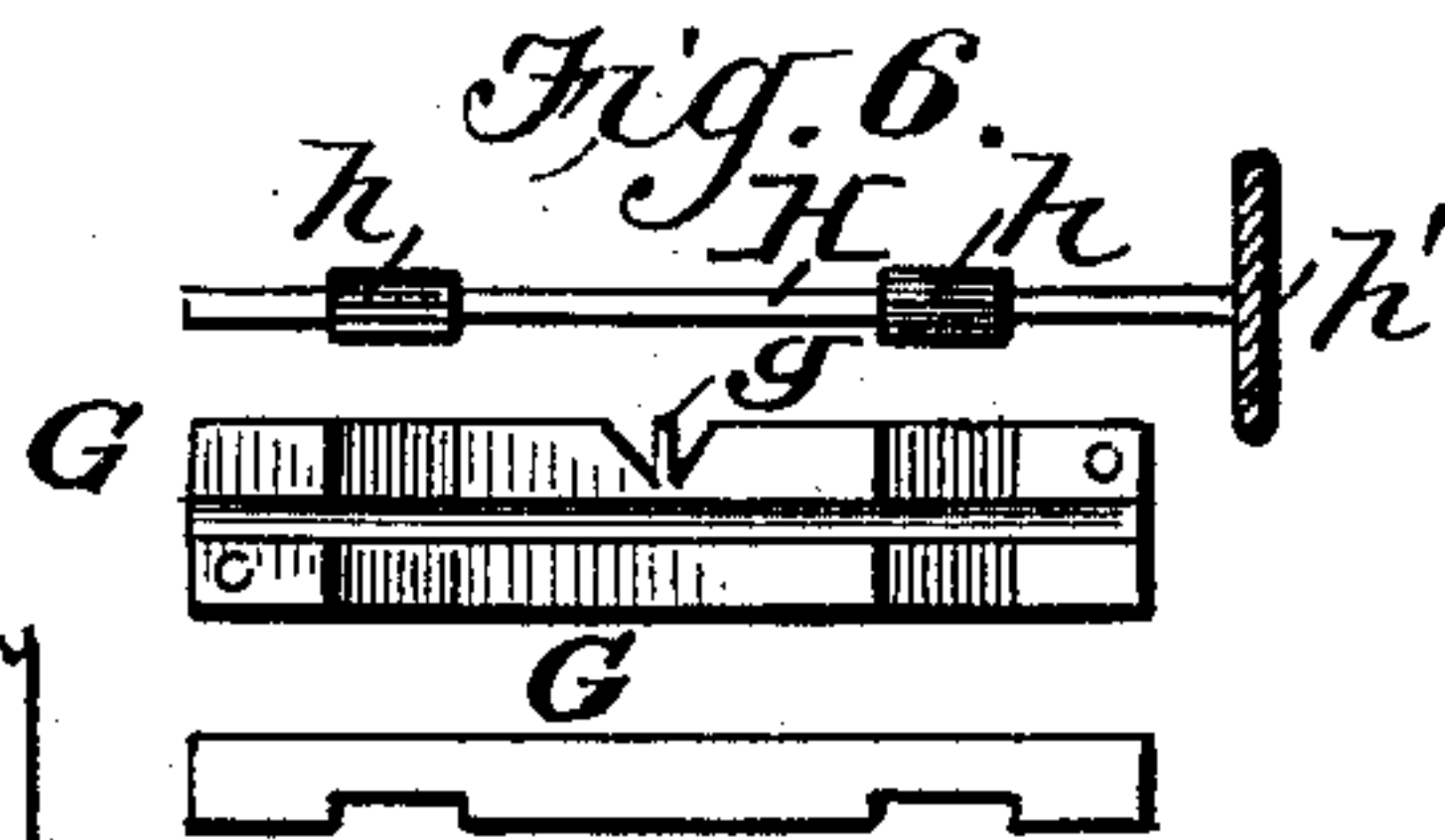
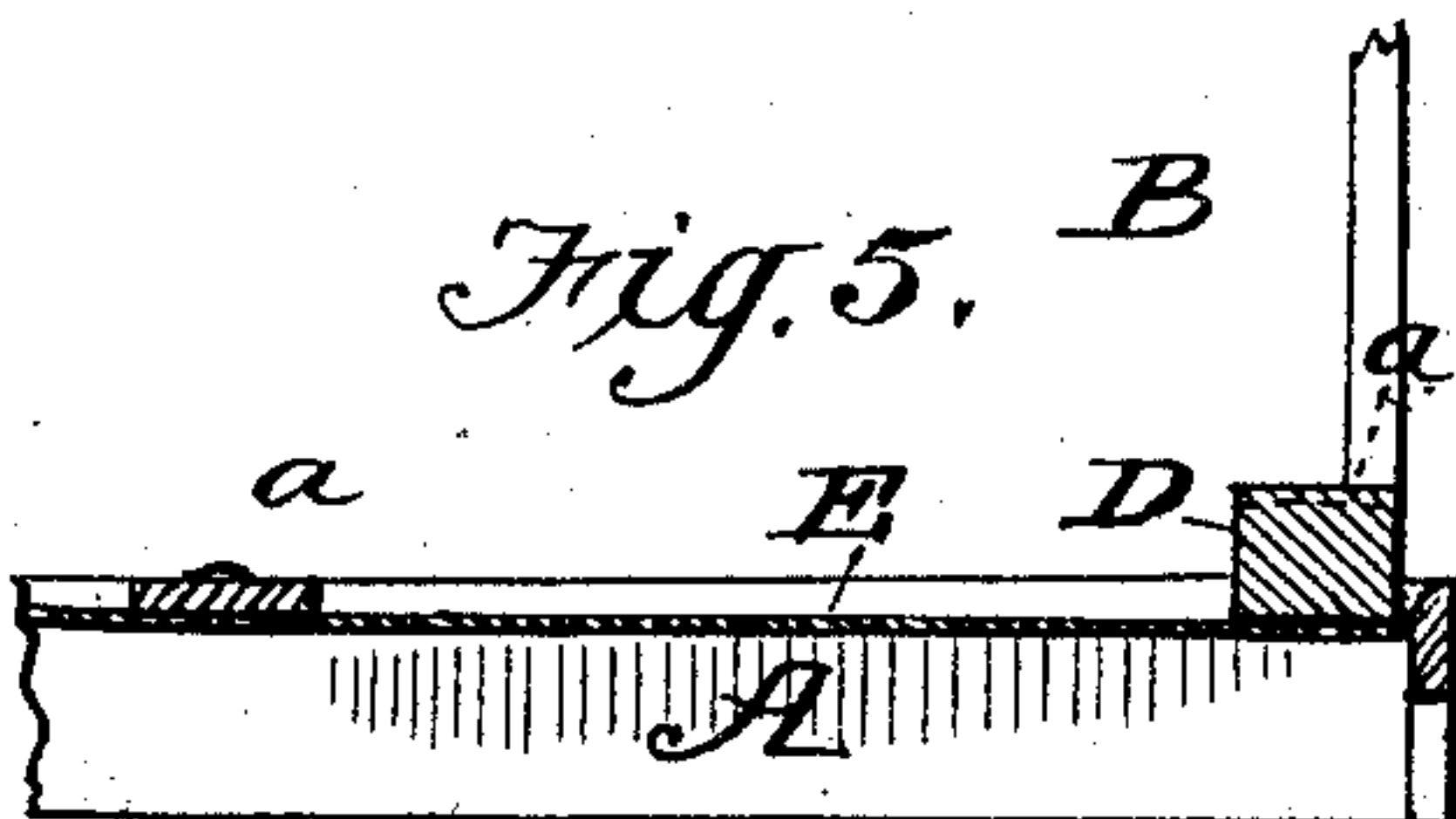


Fig. 5.



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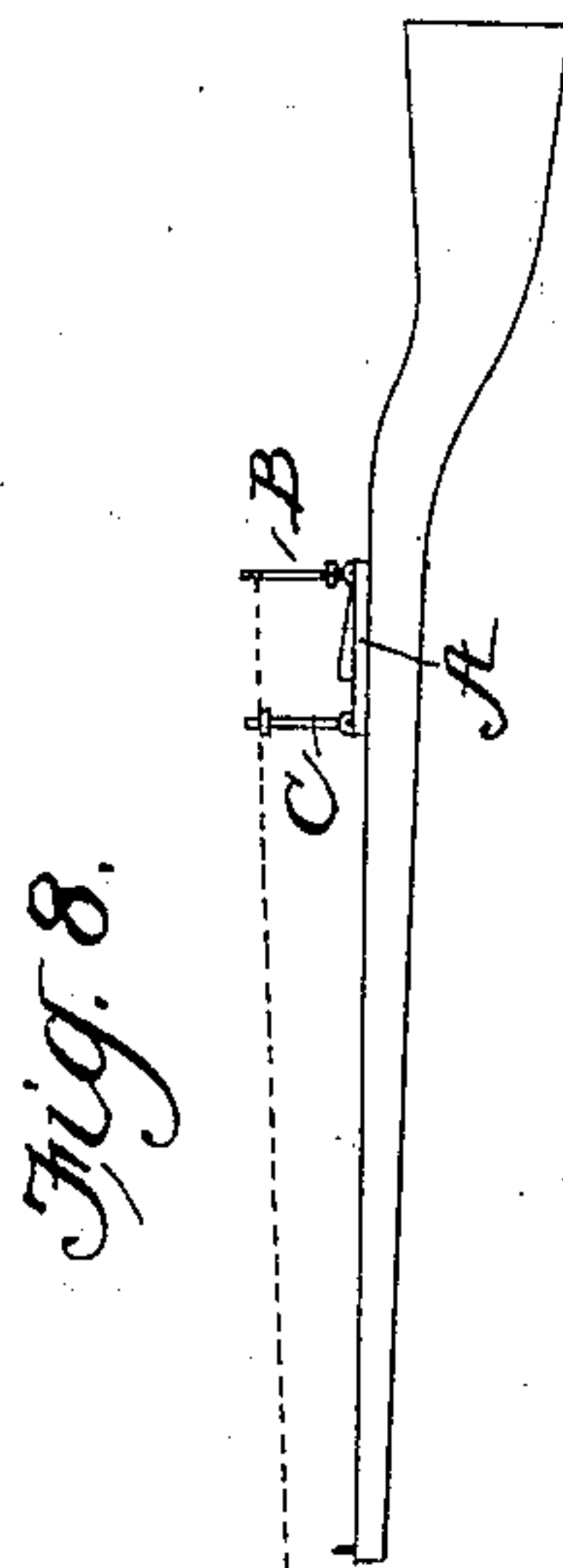
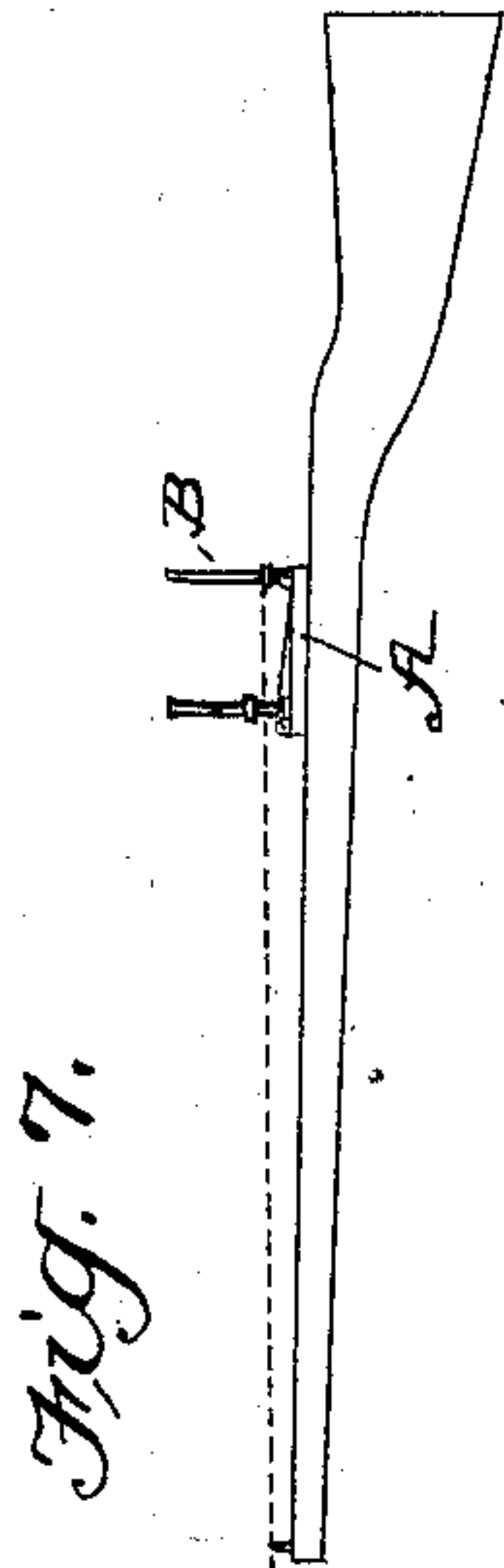
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

ARTHUR P. COLLINS, OF THE UNITED STATES ARMY.

## RANGE-FINDER ATTACHMENT FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 706,390, dated August 5, 1902.

Application filed November 5, 1901. Serial No. 81,194. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR P. COLLINS, of the United States Army, a citizen of the United States, residing at Manila, in the Philippine Islands, have made a certain new and useful Improvement in Range-Finder Attachments for Guns, of which the following is a specification.

Practical experience in the field has demonstrated that when the enemy is at a distance between four hundred and two thousand yards it is difficult for the average soldier to gage it with sufficient accuracy to make his fire effective. I have devised a simple attachment for use in connection with the ordinary elevating sight on firearms which will enable the soldier to determine the range or distance of the object to be fired at and the corresponding adjustment required to be given to the elevating-sight.

The construction and operation of the attachment are as hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a Krag-Jorgensen rifle provided with my improved range-finder attachment. Fig. 2 is a perspective view of such attachment with the parts adjusted as in use. Fig. 3 is a horizontal section of the attachment with parts adjusted as represented in Fig. 2. Fig. 4 is a side view of the attachment, the sights being folded as when not required for use. Fig. 5 illustrates the application and operation of a spring for holding the sights in vertical or in horizontal position. Fig. 6 is a plan view of several parts constituting the adjustable sight-bars. Figs. 7 and 8 are diagrammatic views illustrating the manner of using the range-finder attachment.

The base-piece A (see Fig. 2) is suitably constructed for application to a firearm of the Krag-Jorgensen or other type, as shown in Fig. 1. An ordinary elevating-sight B is pivoted at the rear end of such base-piece A, and my range-finder attachment proper, C, is similarly pivoted at the other end. In both cases the parts B and C are pivoted between vertical lugs  $a$ , the pivots being formed at the ends of square base-bars D, which are employed to adapt the sights to be held rigidly vertical, as shown in Fig. 2, or horizontal and folded, as shown in Fig. 4, by means of a plate-spring

E. The latter is secured centrally to a cross-bar  $a'$  of base-piece A, and its ends press upward on the pivot-bars D of the sights B and C, as shown in Fig. 5. The operation is obvious. The elevating-sight B is provided with a vertically-adjustable sight-bar F, which is composed of two parts screwed together and provided with a clamp-screw  $f$  in the usual way. This elevating-sight has no peculiarity except the peep-hole  $b$  at the top. (See Fig. 2.)

The range-finder attachment proper, C, consists of an oblong rectangular frame, similar to the part B, and is provided with a sight-bar G, which is adjustable vertically, similarly to F, and is provided with a pin  $g$ , located in the central notch. The frame C is graduated in inches and fractions thereof on the rear or inner side and is provided with rack-teeth  $c$  on the outer side, as shown in Fig. 2. The sight-bar G is adjusted higher or lower, as may be required, by means of a shaft H, (see Fig. 6,) which is suitably journaled in said sight-bar and provided with pinions  $h$ , adapted to engage the racks  $c$ . It is obvious that by rotating the said shaft by means of its enlarged and milled head  $h'$  the sight-bar G may be adjusted as conditions require.

When the range-finder is to be used, the bars B and C are raised to vertical position, as shown in Figs. 1, 2, and 7, and sight-bar F is then lowered upon the base-bar D, and sight-bar G on C is slightly raised. This is always done before the rifle is sighted on the object to be fired at, the line of sight in such case passing between the two uprights of C and through notch of cross-bar F. This is done in order to remove all danger of moving the rifle after sighting it, which might occur by manipulating the sights. The soldier sights the distant object in the usual way, and, the rifle being held immovable, he next sights the object through the peep-hole  $b$  at top of bar B and at the same time adjusts the sight-bar G of the range-finder, as in Fig. 8, until the pin  $g$  is in line with the said peep-hole and object. The distance to which the sight-bar G has been raised is then noted, and this determines the height to which the sight-bar F is to be fixed on the frame B. In other words, the more distant the object to be fired at the greater will be the elevation or vertical



adjustment of the sight-bar G of the range-finder attachment and the higher will be the required elevation of the sight-bar F correspondingly. When this operation has been effected, the sight-bar G is lowered, and the frame C of the range-finder is folded to horizontal position. The elevating-sight B is then used in subsequent firing in the usual way. It will be understood that the relation to each other of the graduations on the respective bars or frames B and C will have to be determined by experiment, according to conditions, especially according to the particular firearm to which the attachment is to be applied.

As shown best in Fig. 2, I provide the base-piece A with vertical guards  $a^2$ , which are in the nature of flanges and constructed, preferably, in triangular form. The sights B and C fold between these guards  $a^2$  and are protected thereby, as will be understood from Figs. 3 and 4. It will be noted that there is sufficient space between the vertical ends of the guards  $a^2$  and the adjacent lugs  $a$  to receive the sight-bar G of the range-finder when the latter is folded.

When the bar C is closed down, as shown in Fig. 4, its base-bar D depresses the spring E sufficiently to prevent its contact with the adjustable side bar G, so that C will have a firm rest on the side bars or body A of the attachment.

The rear bar B is spaced and graduated in distances ranging from seven hundred to eighteen hundred yards. At three hundred yards the rifle is pointed blank, and at four hundred, five hundred, and six hundred the range is obtained by sliding sight-bar G of C, the ends of G in such case resting on the flanges  $A^2$ . The latter are spaced and graduated to indicate distances in yards, as shown

in Fig. 1. In all cases when B is closed down, as in Fig. 4, and a sight is taken upon an object it is through the notch  $b'$ , Fig. 2, at top of B. When B is set vertical, the notch of front sight-bar G is never used, except in connection with the range-finder.

While my invention is particularly intended as an attachment for the army-rifle now generally used, it is obviously adapted for use on others and also on guns of large caliber.

What I claim is—

1. The improved range-finder, comprising a base-piece; a graduated rear frame adapted to be held vertical and serve as an ordinary sight; and the range-finder attachment proper, consisting of a front frame also adapted to be held rigidly vertical parallel to the first-named one, and having a sight-bar which is adjustable vertically thereon, so that it may be brought into line with a distant object and a selected and fixed point on the elevating-sight; both of said frames being graduated correspondingly; substantially as shown and described.

2. The improved range-finder comprising a base-piece; the rear elevating-sight frame, having a sight-guide at the top; the front range-finder attachment proper, consisting of a pivoted frame which is provided with graduations corresponding to those of the rear frame and having rack-teeth which are arranged transversely, the transverse sight-bar adapted to slide on said front frame, and a rotatable shaft having pinions that engage the rack-teeth on the range-finder frame, for adjusting said sight-bar higher or lower, as shown and described.

ARTHUR P. COLLINS.

Witnesses:

HARRY W. JAMES,  
JOHN BELL.