

No. 620,359.

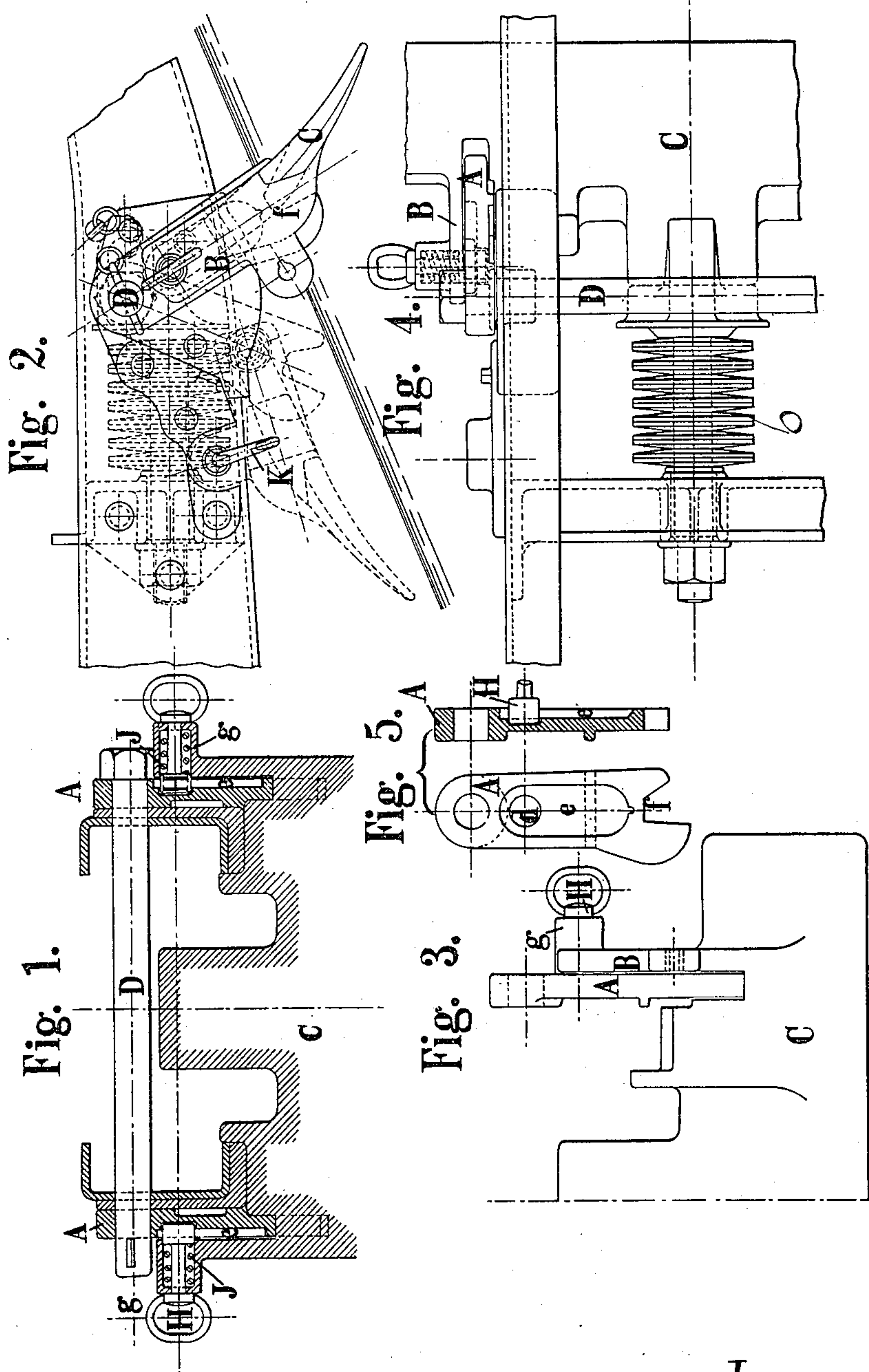
Patented Feb. 28, 1899.

A. RESOW.
GUN CARRIAGE.

(Application filed Dec. 31, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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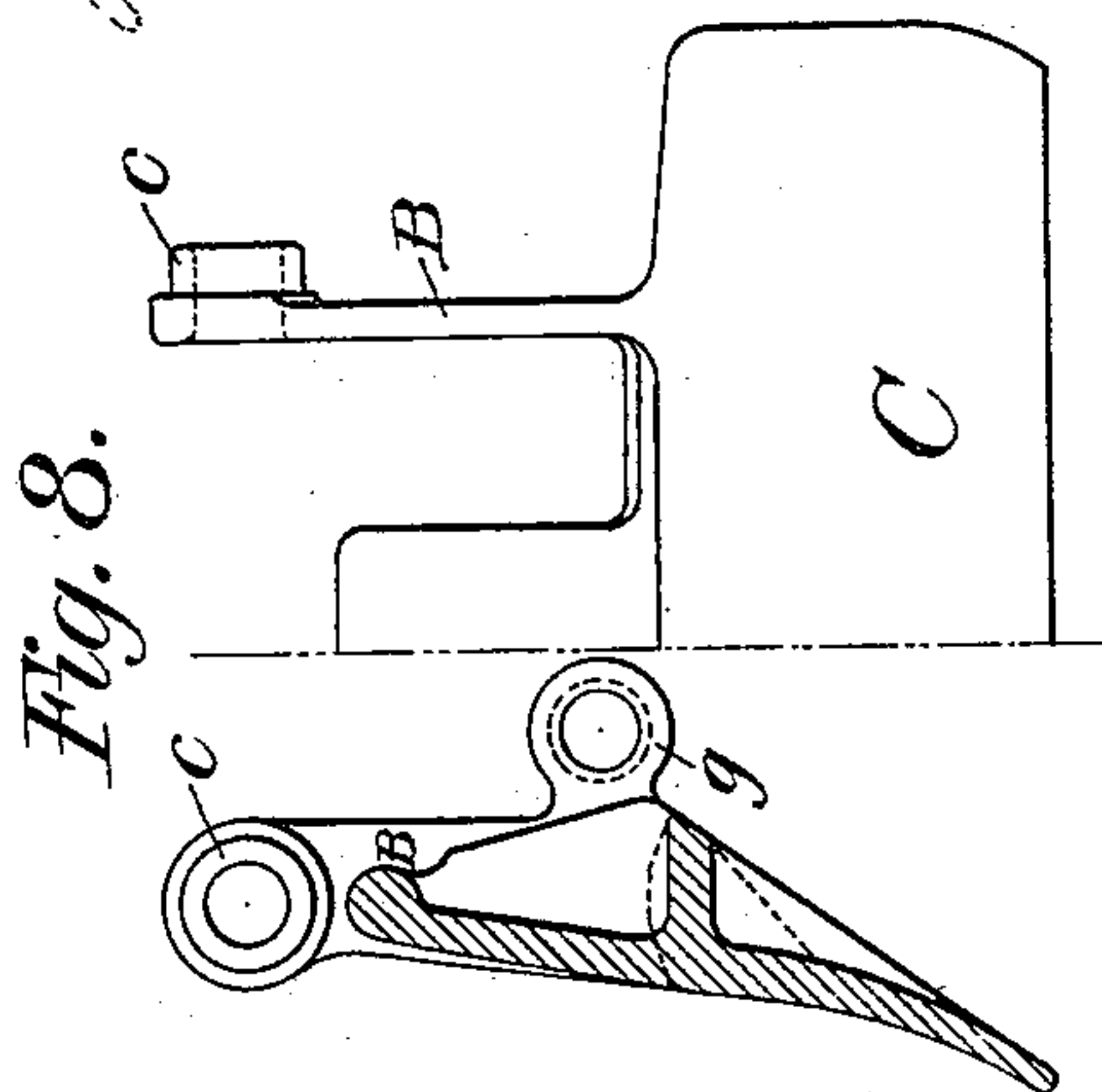
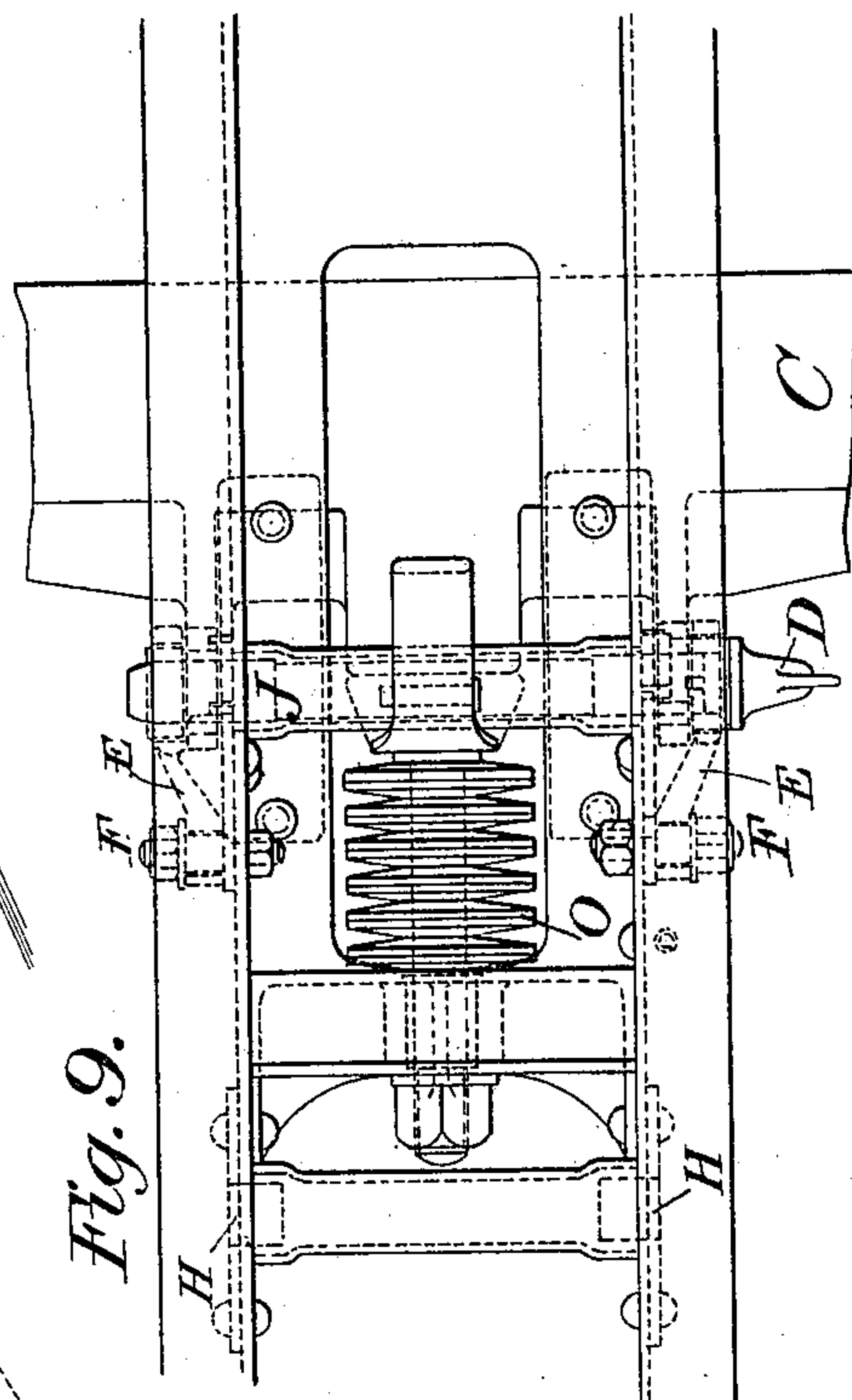
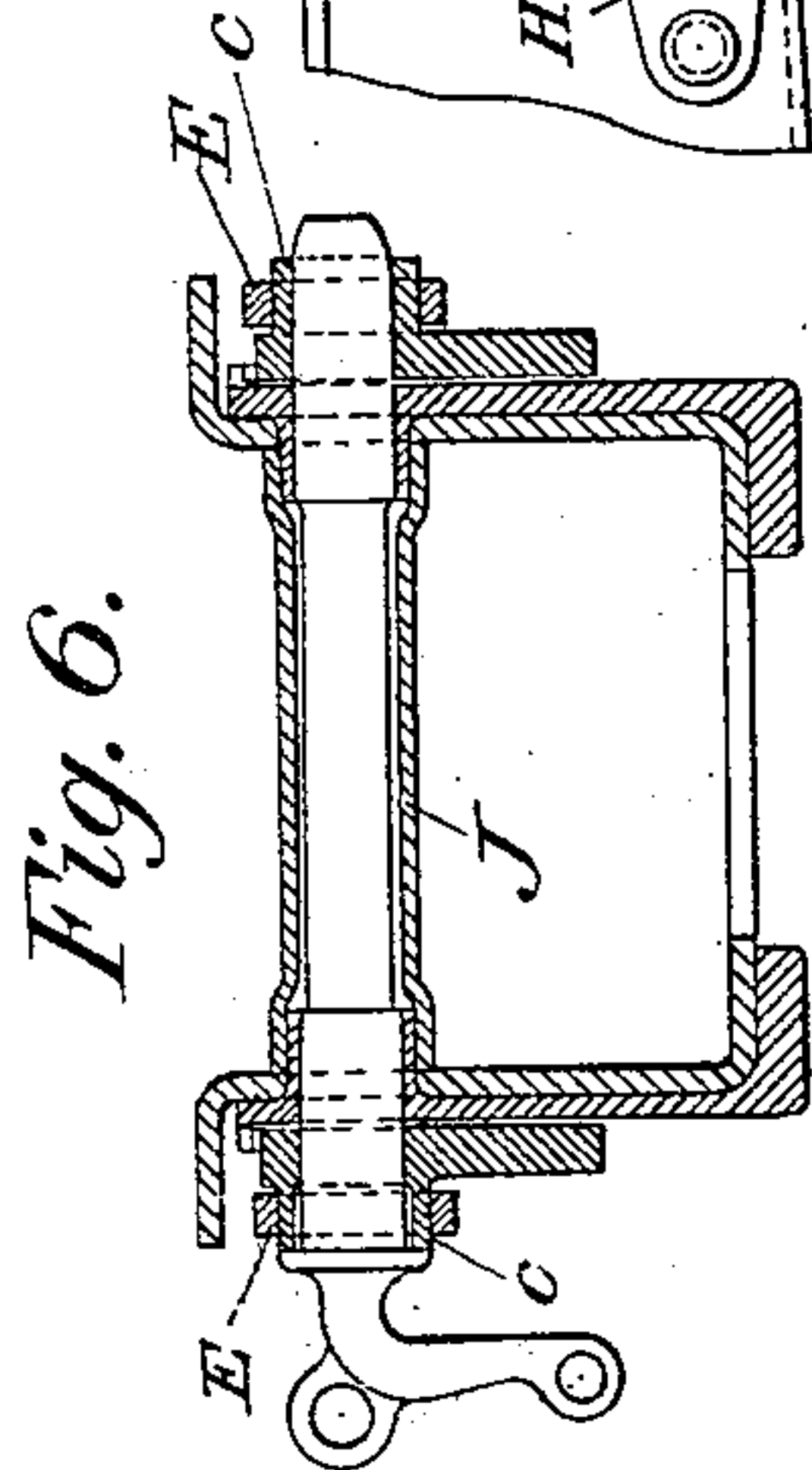
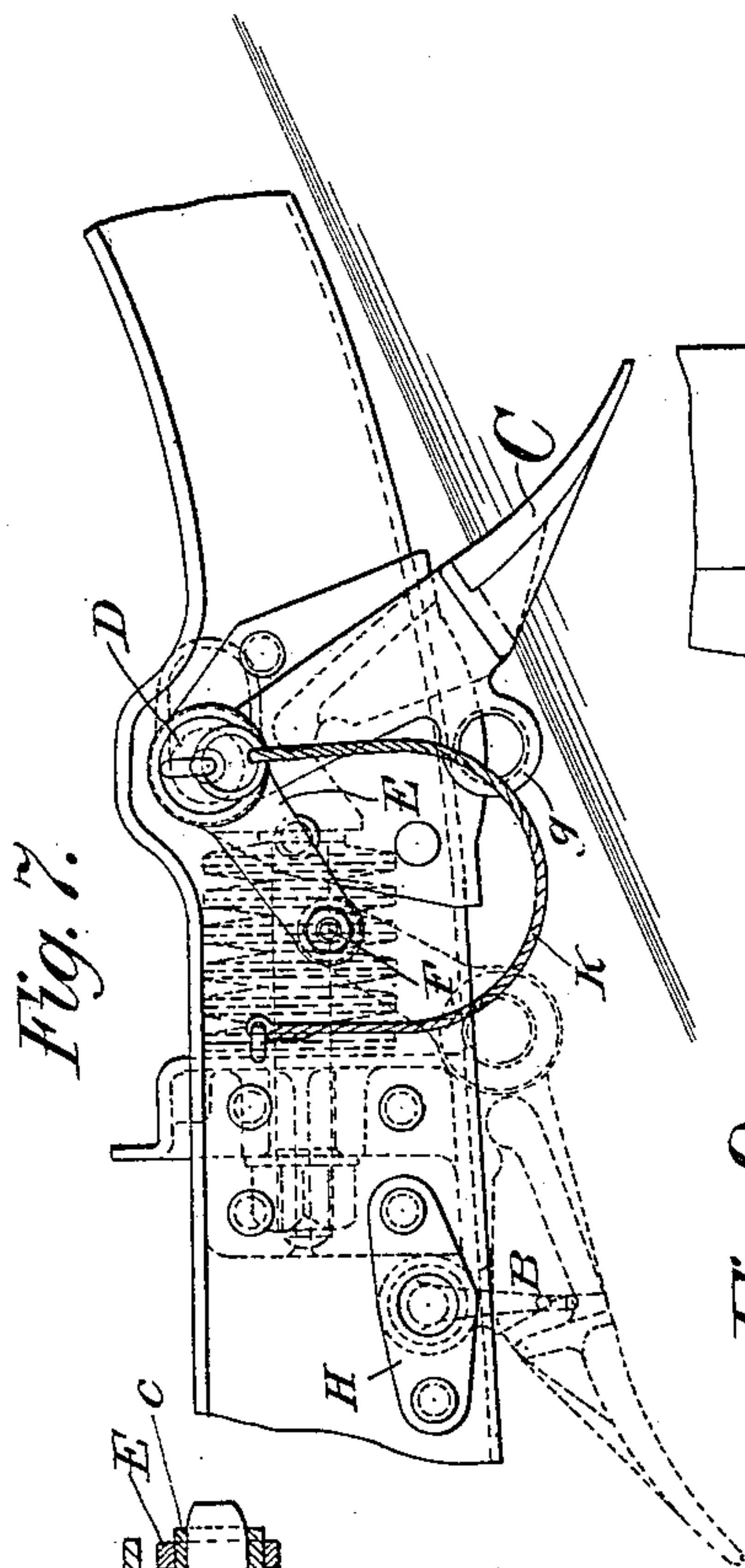
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

ADOLF RESOW, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP, OF
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GUN-CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 620,359, dated February 28, 1899.

Application filed December 31, 1897. Serial No. 665,061. (No model.)

To all whom it may concern:

Be it known that I, ADOLF RESOW, a citizen of the German Empire, residing at Essen, Germany, have invented new and useful Improvements in or Connected with Gun-Carriages, of which the following is a specification.

A spur which is not capable of being thrown out of operation and which projects beyond the under side of the carriage trail is attended by the disadvantage that the said spur is very liable to catch into the ground when the gun is being moved over an uneven surface and in such a manner as to offer resistance to the movement of the gun, especially when there is a considerable distance between the limber-hook and the limber-axle. When the gun is traveling at a quick speed, this resistance offered by the penetration of the spur into the ground may become so great as to suddenly arrest the vehicle, whereby serious damage to the horses is almost unavoidable. The gun may even be thereby brought to a stop and a favorable moment for going into action may be lost. It is therefore very desirable in the case of a limbered gun that the spur should be capable of being so arranged as to prevent its entering into the ground; but as the time to be occupied in limbering up is cut down as much as possible the alteration in the position of the spur must be capable of being easily and rapidly effected, and must not be liable to be hindered or rendered appreciably more difficult by the spur being covered with soil or dirt, which is unavoidable. Now the object of the constructions hereinafter described is to provide means whereby these requirements may be fulfilled, and, further, that in firing on very hard ground—for example, on road-paving—the spur can be thrown out of operation.

The invention will be best understood by reference to the annexed drawings, in which—

Figure 1 represents a cross-section of one form of the apparatus. Fig. 2 is a side view of the same. Figs. 3 and 5 are detail views. Fig. 4 is a plan of Fig. 2, partly broken off. Fig. 6 is a cross-section of a modification of the apparatus. Fig. 7 is a side view of the same. Fig. 8 is a detail view of the shoe. Fig. 9 is a plan view of Fig. 7, partly broken off.

Similar letters of reference designate corresponding parts throughout the several views of the drawings.

Referring to the construction shown in Figs. 1 to 5, the spur consists of three main parts—namely, the two loose arms A and the spur blade or palm C, with the arms B fixed thereto. Each loose arm A embraces with an eye the pivot-bolt D, about which it can turn. Near to and under the pivot-bolt each arm is provided with a recess *d*, Fig. 5, and a somewhat flatter groove *e*, which extends almost up to the lower end of the arm and is closed at that point. The lower end of each arm is cut out at *f*. Each of the arms B, fixed on the spur-blade C, is provided at its upper end, Fig. 1, with an eye *g*, in which the spring-bolt H and the spring J are mounted. The spur-blade is formed at two points to correspond with the cavities *f* of the arms A, so that it can enter the said cavities in the arms.

In using the spur the arms A are connected with the arms B and with the spur-blade in the following manner: The pins of the spring-bolts H are situated in the recesses *d* of the arms A and are held therein by means of the springs J, while the spur-blade engages with its cut-out upper side into the corresponding recesses in the arms A. In this manner the spur-blade C is rigidly and immovably connected with the arms A by means of its arms B, and the spur operates just as if it were suspended by means of fixed arms from the pivot-bolt D.

In order to throw the spur out of gear after the gun is limbered up, the spring-bolts H are drawn back until their pins pass out of the recesses *d*. The spur-blade, with its arms, then falls down as far as allowed by the spring-bolt pins, which slide in the groove *e*. In this movement the spur-blade passes out of the recess *f* of the arms A and the said blade can be rotated about the spring-bolts H, which are now situated at the lower end of the groove *e*. Owing to the extensible jointed connection described the whole arrangement can in this manner be easily brought into the inoperative position shown dotted in the drawings, Fig. 2, in which the spur-blade is fixed by means of the key-bolts K, for which suitable holes are provided in the spur and

also in the gun-carriage trail. The cutting edge of the spur-blade is in this position turned away from the direction of travel. This renders it impossible for the spur to engage, catch, and fix itself into the ground, even when it touches in the case of very rough ground. The spur is moved back again into its operative position by slacking the key-bolts K, turning the spur to the rear, and raising it until the spring-bolt pins enter the recesses *d* and the spur-blade enters the recesses *f* of the arms A.

Referring to the modification shown at Figs. 6 to 8, the arms B, fixed to the spur-blade A, are provided on the widened eye *c*, with which they embrace the pivot-bolt D, with an arm E, which is mounted on the eye *c* and is pivoted to the carriage-trail by means of the bolt F, and thus forms, with the shoe C, an extensible jointed connection, permitting the shoe to be turned forward from the firing position into the inoperative position shown in dotted lines in Fig. 7.

The spur is provided, in addition to the eyes *c*, also with eyes *g*, to which correspond the bearings H on the carriage-trail. The pivot-bolt D is inclosed during the firing in the tube J, the tube preventing the pivot D becoming soiled, and the said bolt is constructed as a key-bolt and is attached by means of a thin wire cord K or of a chain to the carriage.

While in use during firing the spur is situated in the position indicated in full lines in Fig. 7. If it is to be thrown out of operation, the key-bolt (or pivot-bolt) D is pulled out and the spur is turned into the position shown in dotted lines in Fig. 7, while the extending arm E maintains the connection with the carriage. The spur is fixed in the inoperative position by inserting the bolt D into the eyes *g* of the spur and into the bearings H on the carriage. The cutting edge of the spur is thus turned away from the direction of travel, whereby it is impossible for it to catch and become fixed in the ground. It is turned into its position of use by reversing the operations described.

In any of the above-described constructions the spring-column O, which forms an elastic body interposed between the spur C and the

trail, does not hinder the throwing out of action of the spur, because it is so regulated that the spur in the initial stage of its position for use has no pressure, and therefore is not pressed by the spring-column hard up against its point of support on the gun-carriage.

I claim—

1. A recoil-brake for carriages of field-guns consisting of a spur C extending across the trail beneath the same; arms B extending from said spur, jointed connections between the arms B and the carriage-frame, a bolt D on which the spur C is pivoted for action, and moved away from it when the carriage is limbered up, and an elastic body interposed between the spur C and the trail, substantially as and for the purpose specified.

2. In a recoil-brake for carriages of field-guns, the combination of the spur C extending across the trail and beneath the same; said spur being provided with arms B, a tube J secured on the trail; a bolt D removably inserted into the tube J, eyes *c* on the arms B adapted to suspend the same on the bolt D, arms E pivoted to the trail and to the eyes of the arms B, thus forming a jointed, extensible connection between the spur C and the carriage, and an elastic body interposed between the spur C and the trail, substantially as and for the purpose specified.

3. In a recoil-brake for carriages of field-guns, the combination of the spur C extending across the trail and beneath the same; said spur being provided with arms B; a bolt D removably secured in the frame, eyes *c* on the arms B adapted to suspend the same on the bolt D, arms E pivoted to the trail and to the eyes of the arms B, thus forming a jointed, extensible connection between the spur C and the carriage, and an elastic body interposed between the spur C and the trail, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADOLF RESOW.

Witnesses:

WILLIAM ESSENWEIN,
CARL POHLIT.