

No. 638,358.

Patented Dec. 5, 1899.

W. F. RICHARDS.  
CAR COUPLING.

(Application filed Mar. 28, 1899.)

(No Model.)

3 Sheets—Sheet 1.

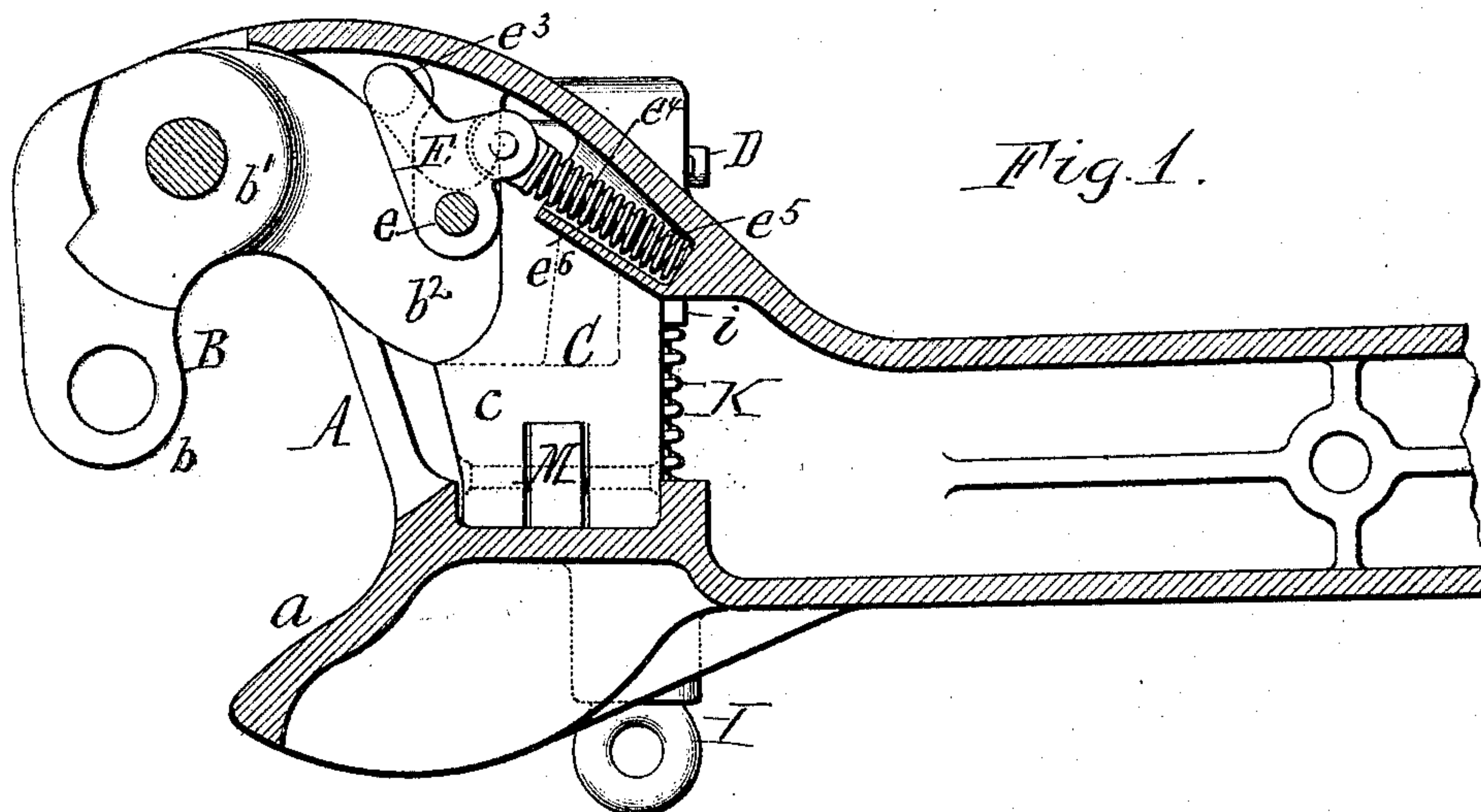


Fig. 1.

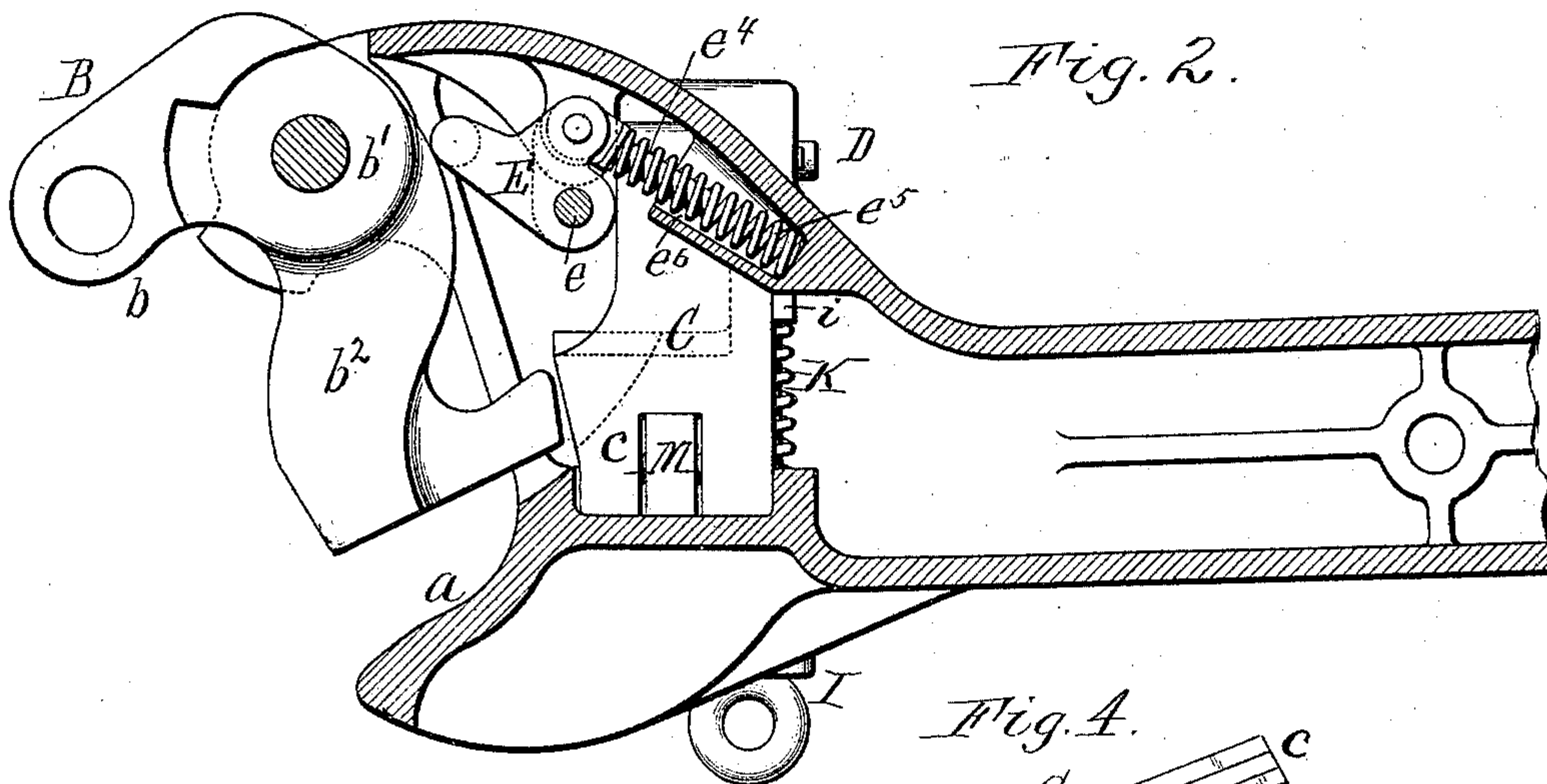


Fig. 2.

Fig. 3.

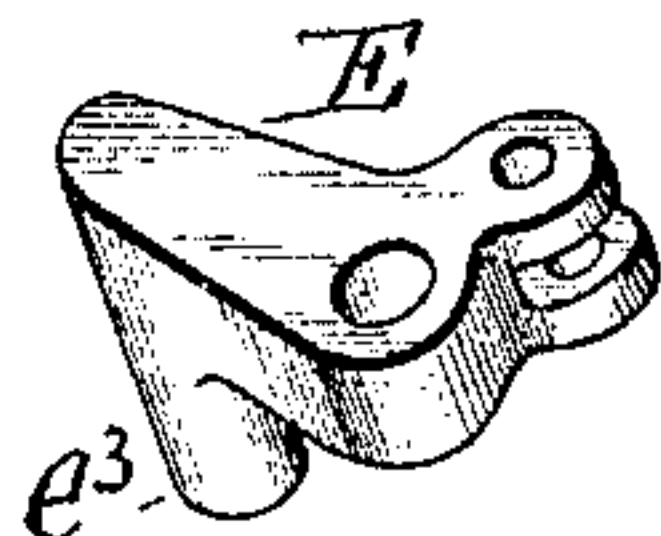
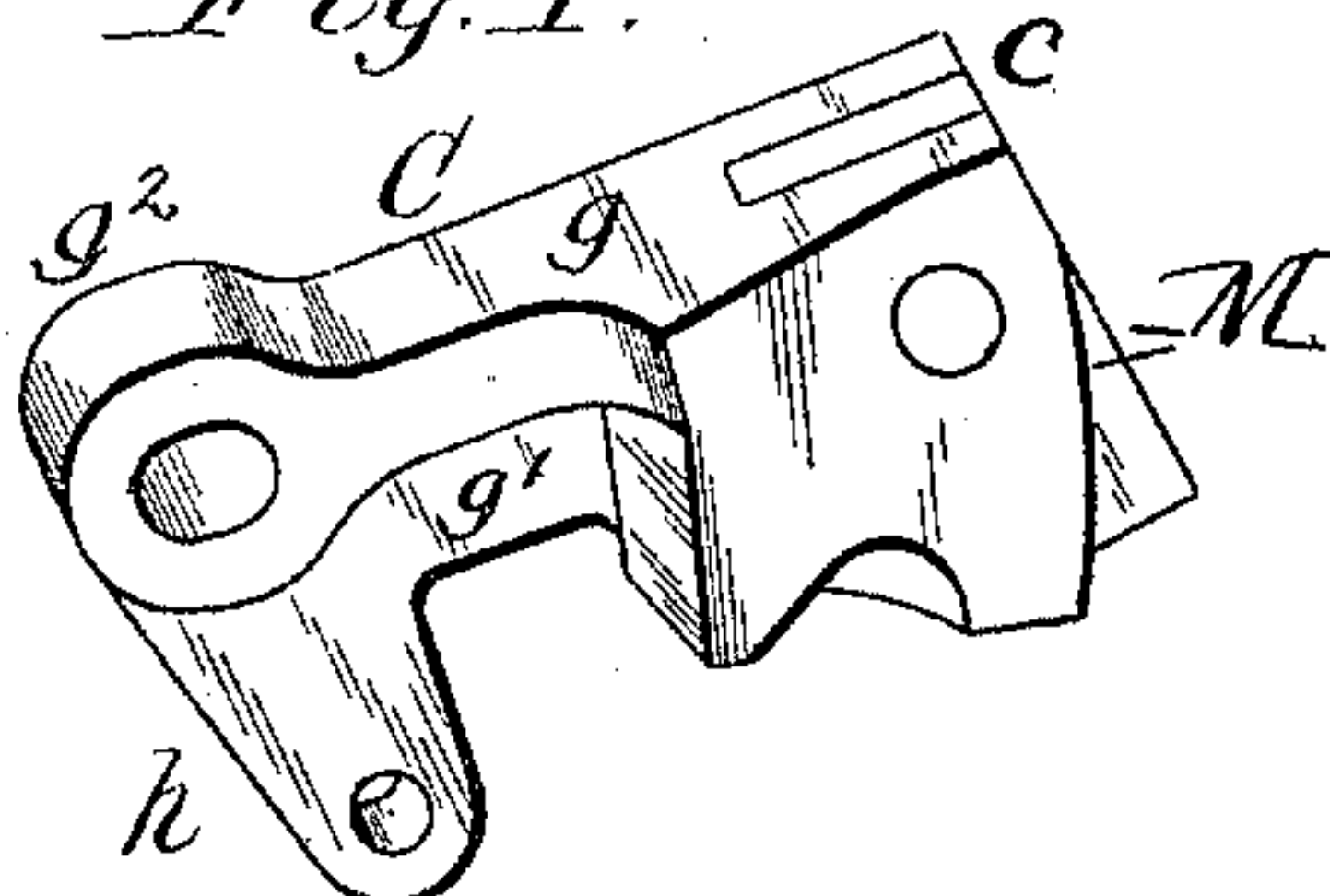


Fig. 4.



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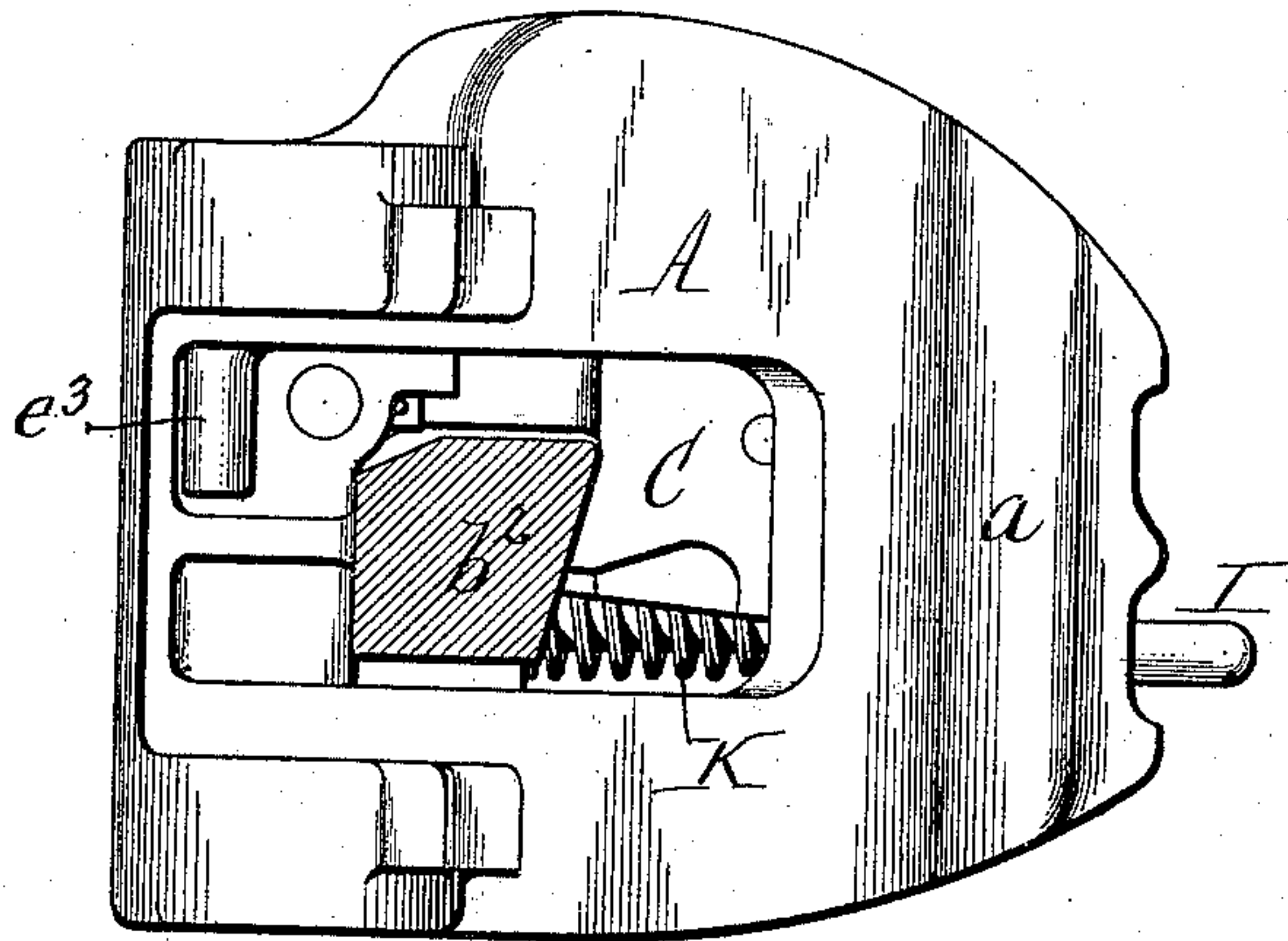
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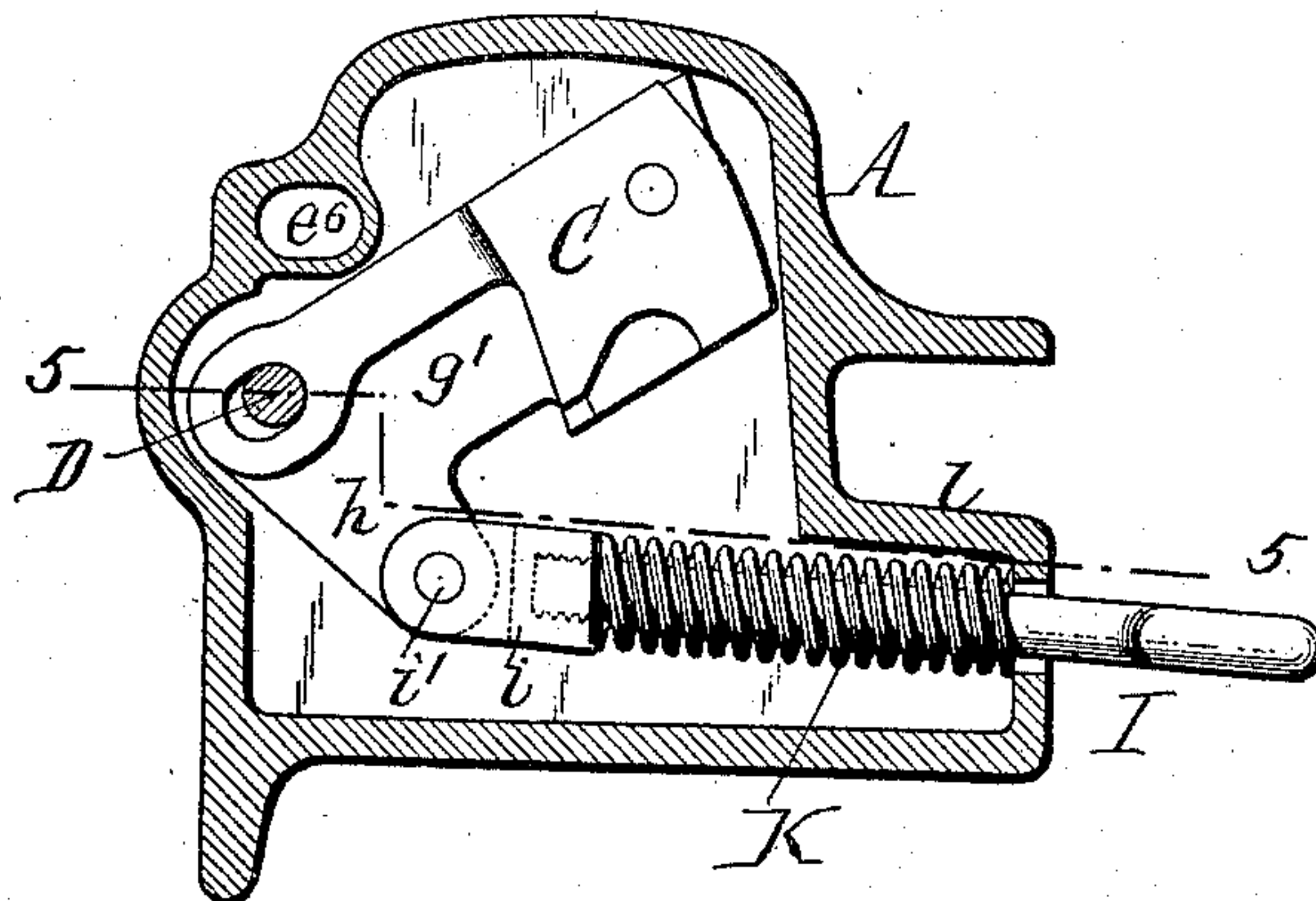
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3 Sheets—Sheet 3.

*Fig. 9.*



*Fig. 10.*



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 638,358, dated December 5, 1899.

Application filed March 28, 1899. Serial No. 710,747. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to a car-coupling of the Master Car-Builders' type in which the coupling-knuckle is locked by a vertically-movable lock which is arranged transversely in the draw-head and connected by a longitudinal horizontal pivot to the knuckle side of the draw-head, while the free end or head of the lock is arranged on the opposite or guard-arm side of the draw-head. A coupling of this kind is described and shown in my application for Letters Patent filed February 21, 1899, Serial No. 706,327, to which reference is made for a more complete description of such coupling.

The object of this invention is to provide the lock of this coupling with an actuating device which renders the coupling suitable for use on passenger and other cars, in which the draw-head is arranged underneath a platform, which prevents the use of actuating devices which project from the draw-head either upwardly or laterally toward the knuckle side of the latter.

In the accompanying drawings, consisting of three sheets, Figure 1 is a horizontal longitudinal section of a car-coupling provided with my improvements, showing the knuckle closed and locked. Fig. 2 is a similar view showing the knuckle opened. Fig. 3 is a perspective view of the kicking-lever. Fig. 4 is a perspective view of the lock. Fig. 5 is a horizontal longitudinal section, with the knuckle removed, in line 5 5, Fig. 10. Fig. 6 is a longitudinal vertical section in line 6 6, Fig. 5. Fig. 7 is a bottom plan view of the lock. Fig. 8 is an end elevation of the same. Fig. 9 is a front elevation of the draw-head with the front part of the knuckle removed and the tail of the knuckle shown in section. Fig. 10 is a vertical cross-section through the draw-head in line 10 10, Fig. 5.

Like letters of reference refer to like parts in the several figures.

A represents the chambered draw-head,

which conforms to the well-known contour lines adopted by the Master Car-Builders' Association and which has at one side the usual guard-arm *a*.

B represents the coupling-knuckle, which is pivoted to the opposite side of the draw-head and which is composed, as usual, of the coupling-ears *b*, hub *b'*, and tailpiece *b<sup>2</sup>*.

C represents the lock, which engages with the tailpiece *b<sup>2</sup>* of the knuckle for retaining the latter in its closed position. The lock is arranged transversely in the draw-head and pivoted in the chamber thereof on the knuckle side by a longitudinal horizontal bolt D, so that the head *c* of the lock, which hooks over the tailpiece of the knuckle, reaches over to the guard-arm side of the chamber and is capable of swinging vertically in the same.

E represents the kicking-lever or kicker, whereby the knuckle is automatically thrown into its open position when released by the lock. This kicking-lever may be operated in various ways. As shown in the drawings, it is arranged horizontally above the tailpiece of the knuckle and is pivoted on a vertical pin *e*, which is arranged behind the knuckle in an upper lug *e'* and a lower lug *e<sup>2</sup>*, formed in the draw-head, on the knuckle side thereof, Figs. 5 and 6. The kicking-lever is pivoted on the pin *e* between these lugs and has its front arm provided with a depending finger *e<sup>3</sup>*, Figs. 1, 2, 3, and 9, which engages behind the tailpiece of the knuckle. The rear arm of the kicking-lever is bifurcated and carries a pivoted stem *e<sup>4</sup>*, which extends rearwardly into a spiral spring *e<sup>5</sup>*. The latter tends to swing the lever forwardly and is seated in a socket *e<sup>6</sup>*, formed on the inner side of the draw-head above the pivoted portion of the lock, Figs. 1, 2, and 10.

The hub of the lock is arranged in rear of the lower lug *e<sup>2</sup>*, and the longitudinal pivot pin or bolt D of the lock is arranged with its front portion in said lug outside of the vertical pin *e* of the kicking-lever, Fig. 5, while the rear end of the pivot D is supported in the rear wall of the draw-head.

The top portion *g* of the lock is nearly as wide as its hub and is provided on its under side with a stiffening web or rib *g'*, which extends along the rear side of the lock and down-



wardly from the top portion *g* and the hub *g*<sup>2</sup> and connects with the rear side of the head. This web is provided below the lock-pivot with a downwardly-projecting actuating-arm *h*.

5 I represents a horizontal actuating-rod which has at its inner end a bifurcated head *i*, which is connected by a pivot *i'* with the arm *h*. This rod extends from the latter to and through the draw-head on the guard-arm  
10 side of the latter. For facilitating the assembling of the parts the inner end of the rod is screw-threaded and engages in a threaded opening in the bifurcated head *i*.

K represents a spiral spring which surrounds the rod I and which abuts with its inner end against the head *i* and with its outer end against a lateral extension or socket *l*, formed in the lower part of the draw-head. The outer end of this rod is connected by a  
20 chain (not shown) with an actuating lever or staff of ordinary construction and arrangement, whereby the rod is pulled outwardly, thereby raising the lock, as shown in Fig. 10, and releasing the knuckle. The overhanging  
25 weight of the head of the lock tends to return the lock to its lower position when released, and the action of this overhanging weight is supplemented by the action of the spring which is employed more particularly to overcome the resistance or inertia of the actuating  
30 lever or staff and connecting parts.

The head of the lock is recessed on its under side where it overlies the spring K, as indicated at *m*, Figs. 7 and 8, in order to clear  
35 the spring when the lock is in its lower position.

M represents a friction-shoe which may be used in the lock for holding the same more securely against accidental upward movement. The shoe is pivoted in a recess in the  
40 head of the lock and bears against the adjacent inner side of the draw-head when the lock is in its lower position.

I claim as my invention—

1. The combination with the draw-head and its coupling-knuckle, of a transverse vertically-swinging lock pivoted by a longitudinal pivot on the knuckle side of the draw-head and provided with a downwardly-projecting actuating-arm, and an actuating device extending from said arm to and through the opposite side of the draw-head, substantially as set forth.

2. The combination with the draw-head and its coupling-knuckle, of a vertically-swinging lock pivoted by a longitudinal pivot on the knuckle side of the draw-head and provided with a downwardly-projecting actuating-arm, an actuating-rod which is arranged below said lock and extends from said arm through the opposite side of the draw-head, and a spring applied to said rod on the inner side of the draw-head and tending to close the lock, substantially as set forth.

3. The combination with the draw-head, the knuckle, the transverse, vertically-swinging lock and the kicking-lever, of a lug formed on the inner side of the draw-head, a longitudinal lock-pivot supported with its front portion in said lug, and a vertical kicker-pivot arranged within its lower portion in said lug, substantially as set forth.

4. The combination with the draw-head and its coupling-knuckle, of a horizontal kicking-lever arranged above the tailpiece of the knuckle and having its front arm provided with a depending finger which engages the knuckle, and a knuckle-opening spring arranged on the knuckle side of the draw-head behind the rear arm of the kicking-lever and bearing against the latter, substantially as set forth.

Witness my hand this 24th day of March, 1899.

WILLARD F. RICHARDS.

Witnesses:

JNO. J. BONNER,  
ELLA R. DEAN.