

No. 658,073.

Patented Sept. 18, 1900.

W. F. RICHARDS.
CAR COUPLING.

(Application filed June 20, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

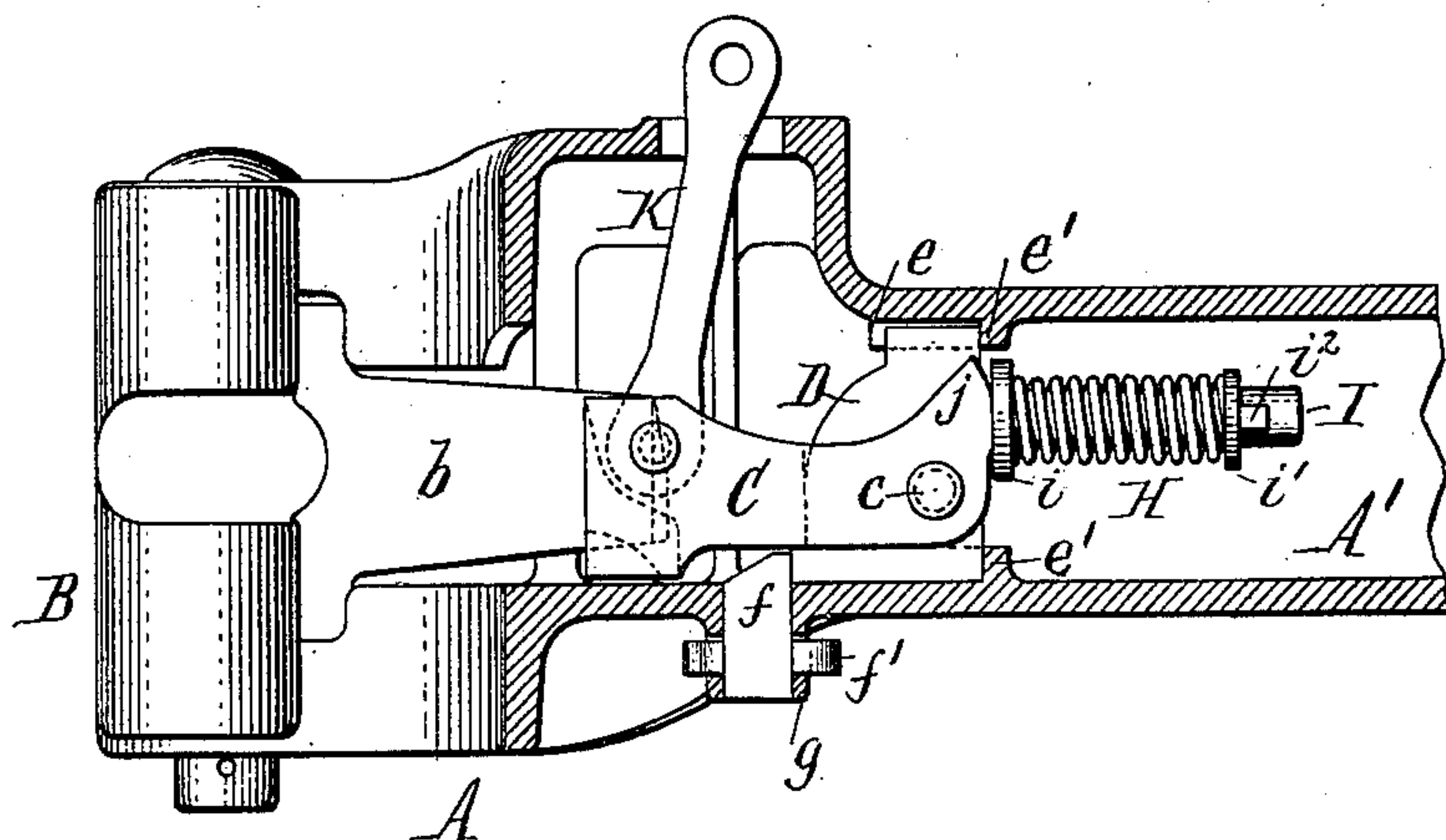
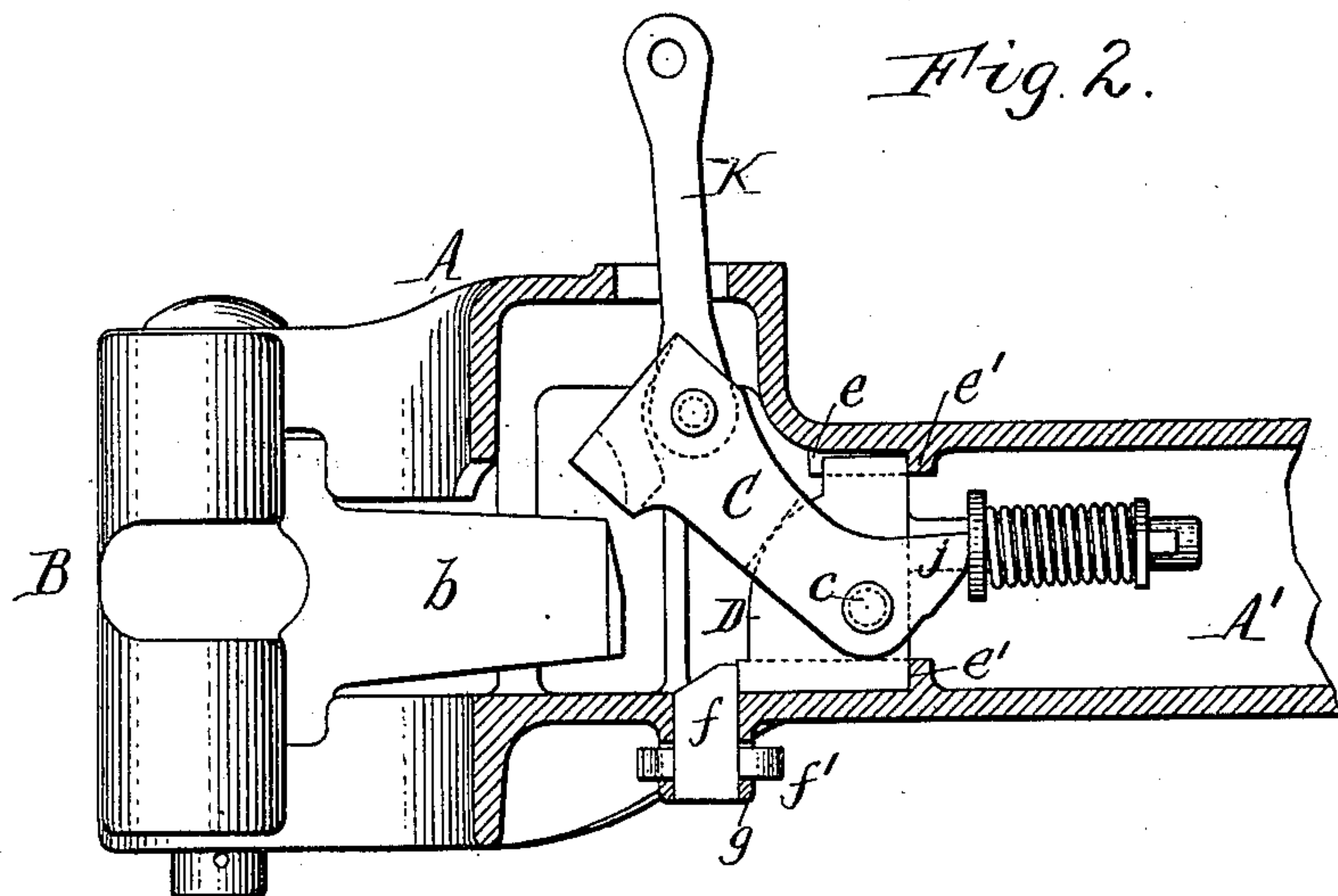


Fig. 2.



Witnesses:

Henry L. Deck.
F. F. Schuyler.

W. F. Richards Inventor.
By Wilhelm P. Pomeroy
Attorneys.

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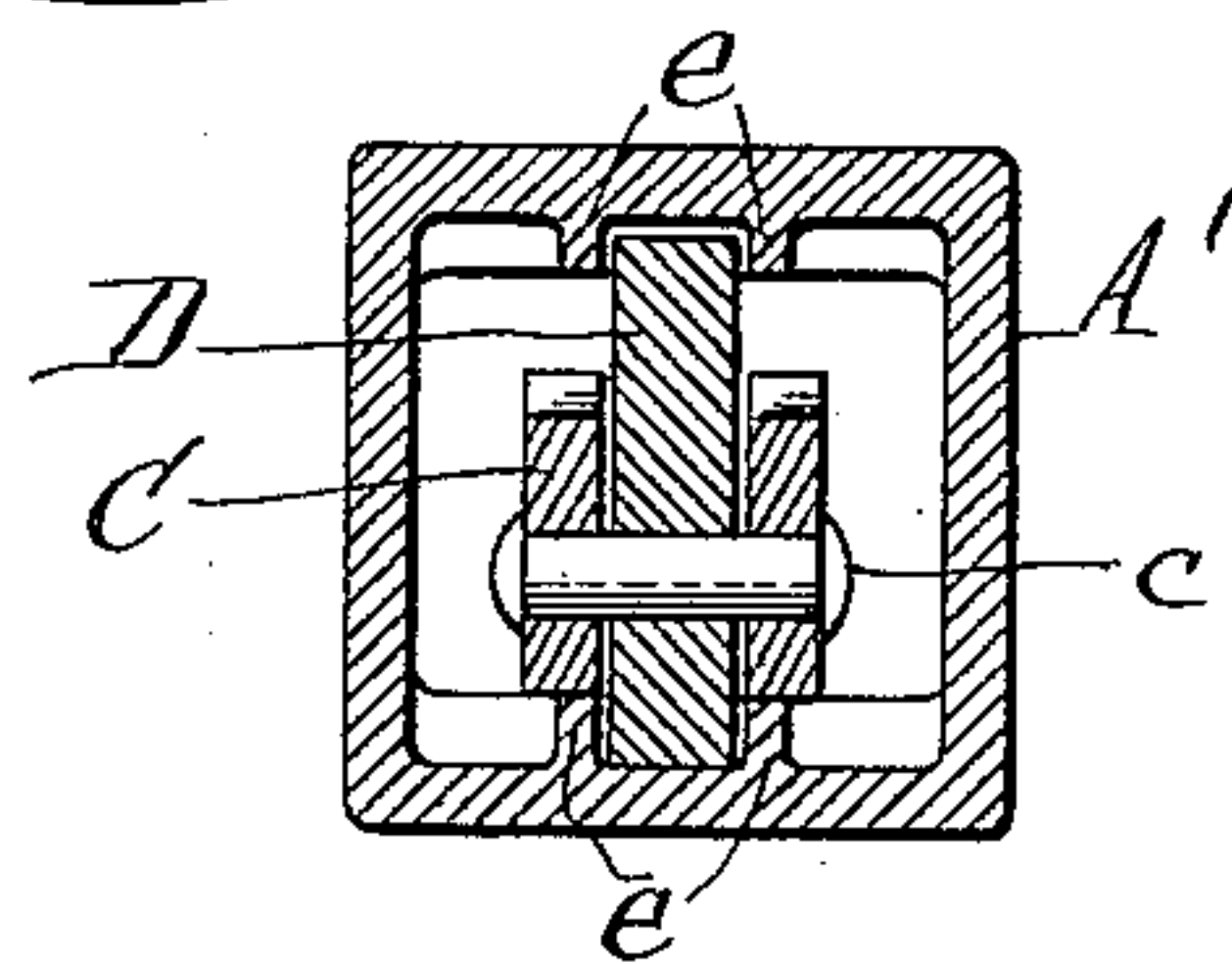
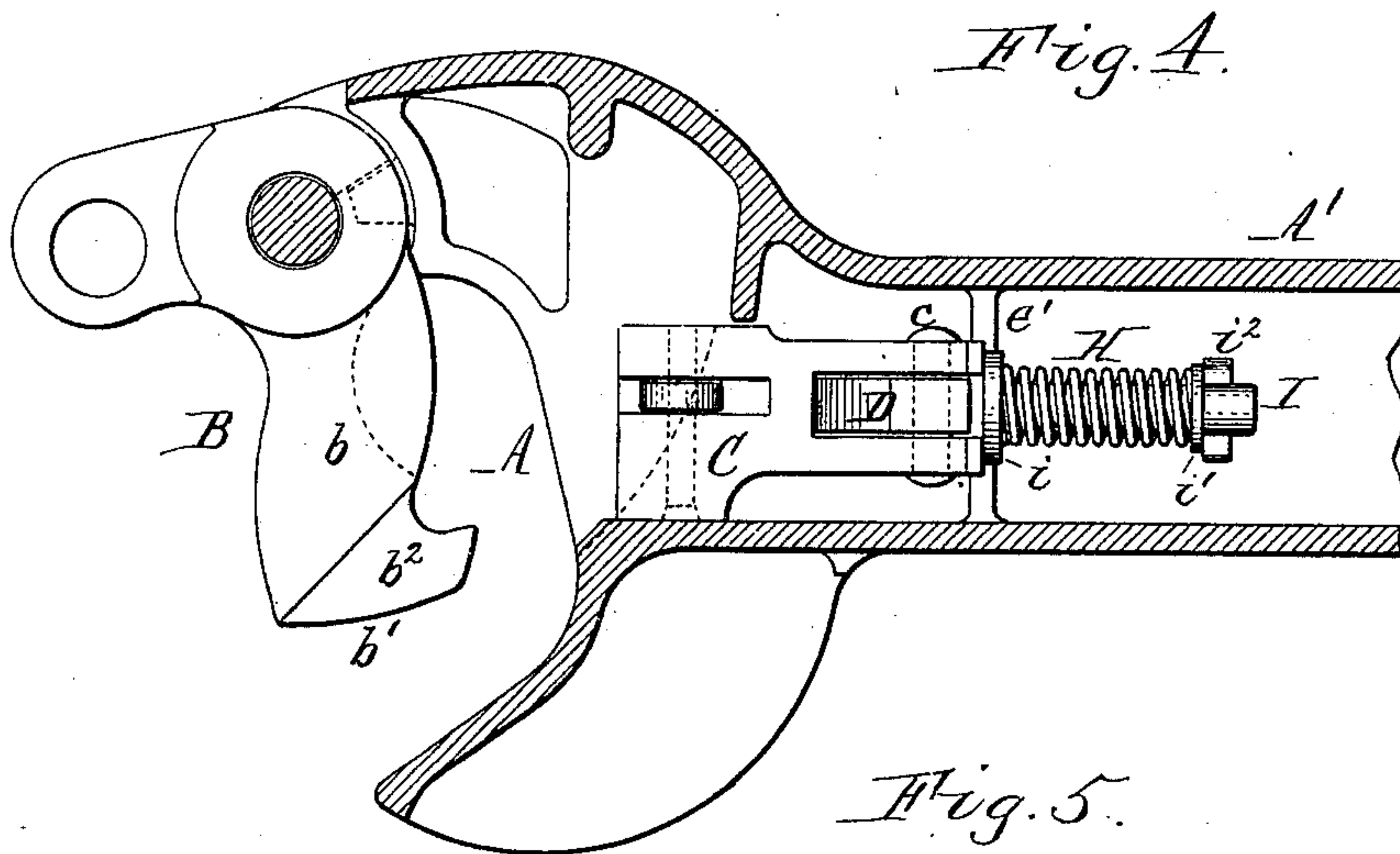
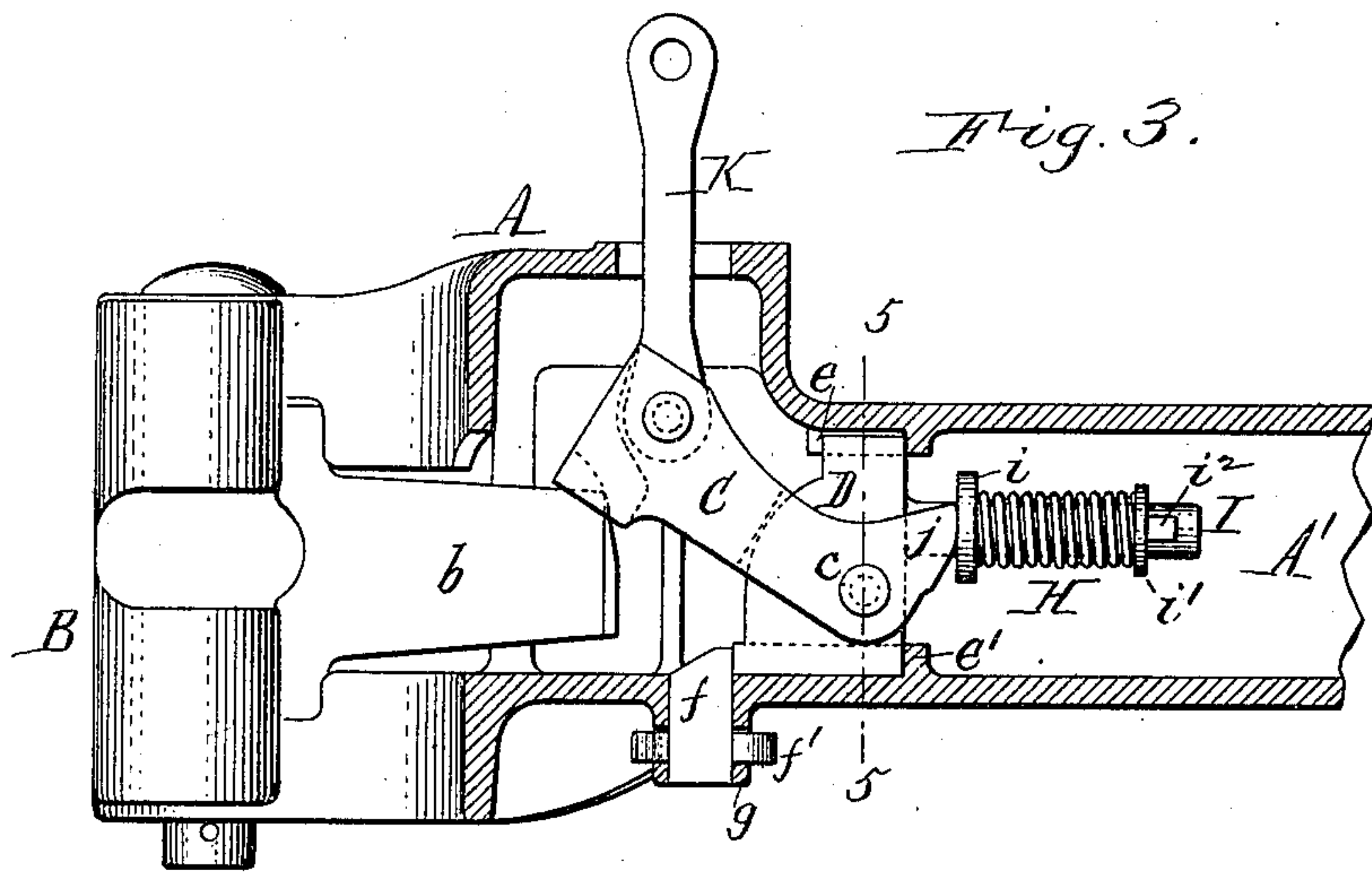
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3 Sheets—Sheet 2.



Witnesses:

Henry L. Deck.

F. F. Scherzinger.

W. F. Richards, Inventor.

By Wilhelm H. Bomer.

Attorneys.

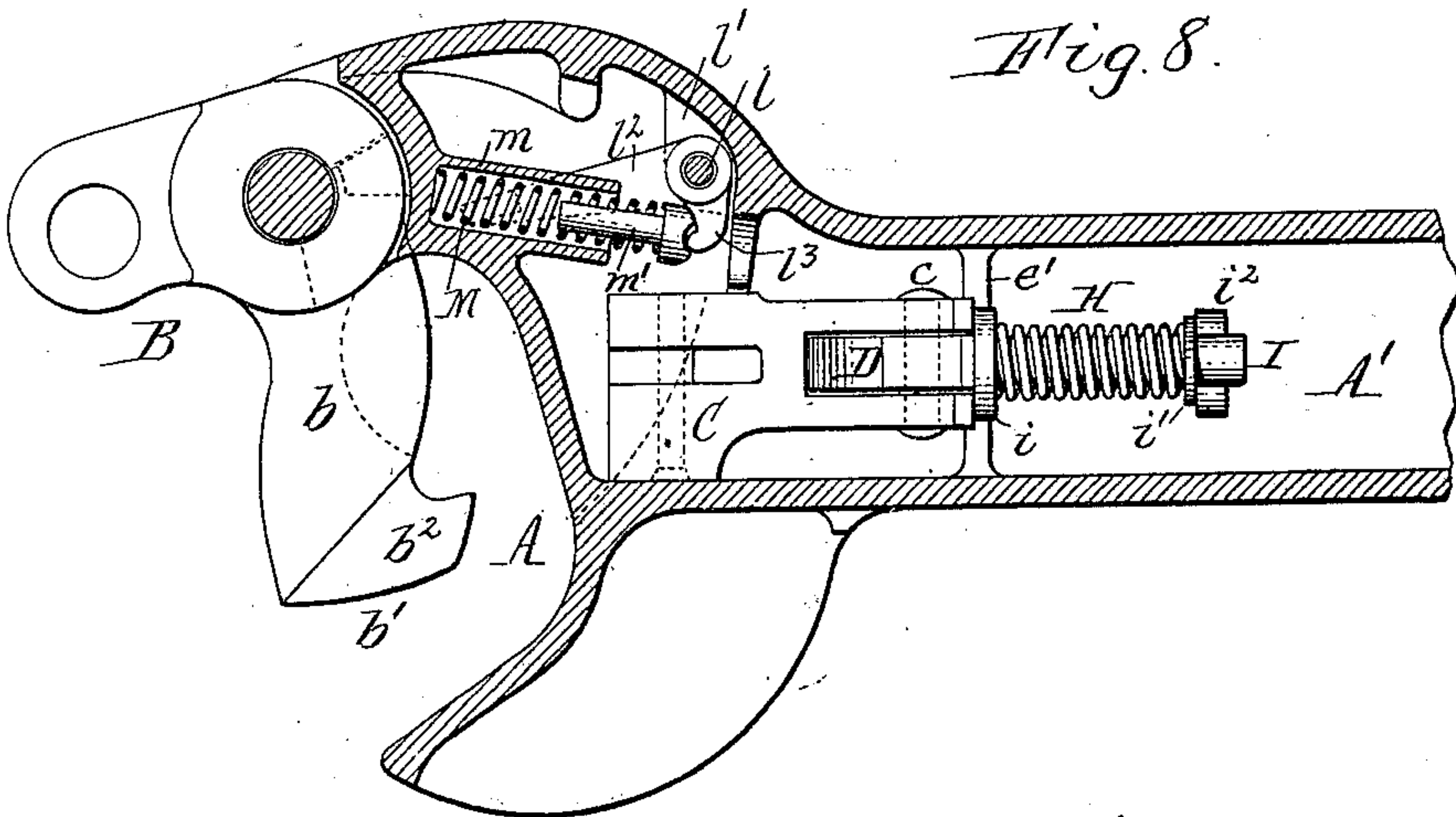
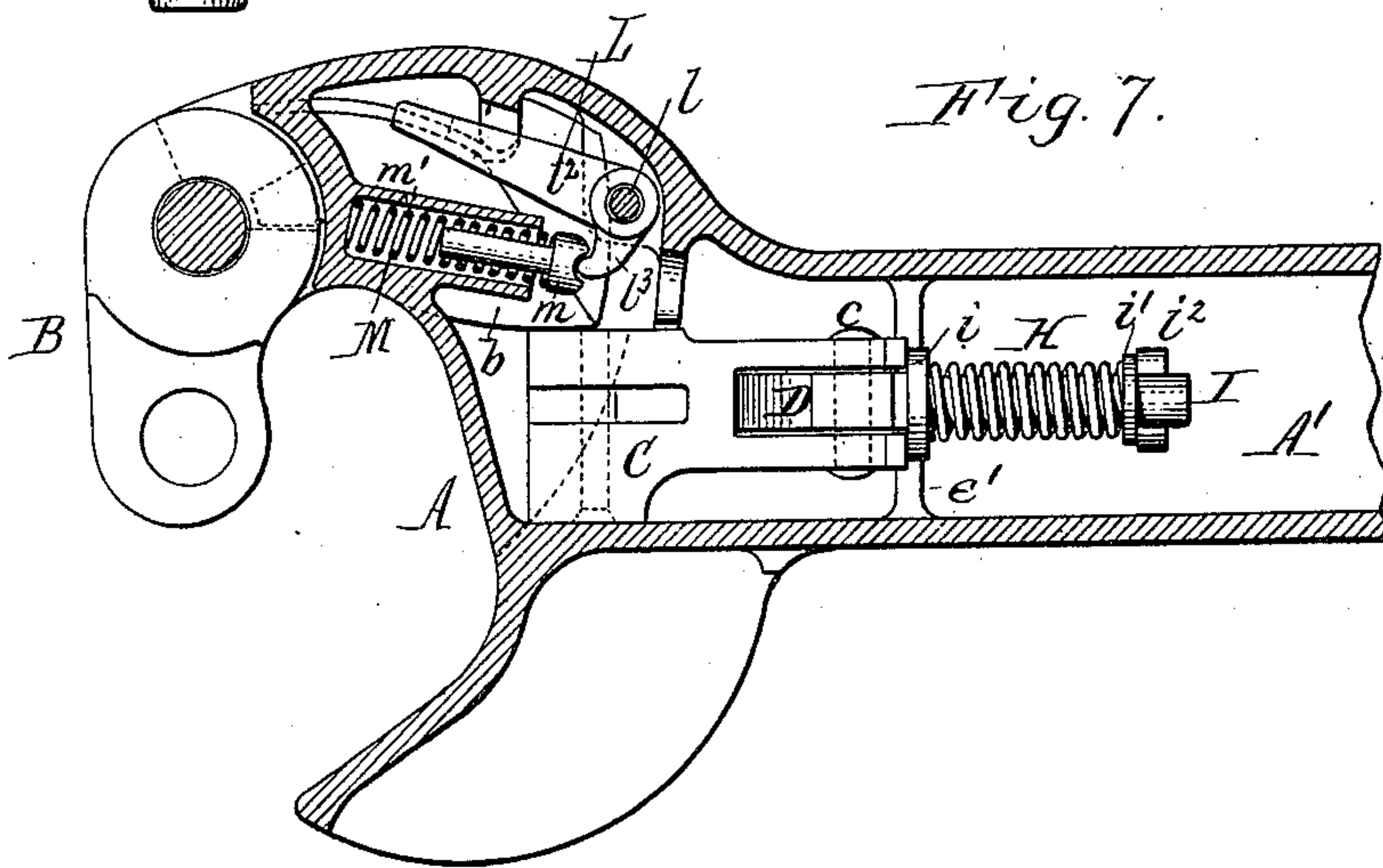
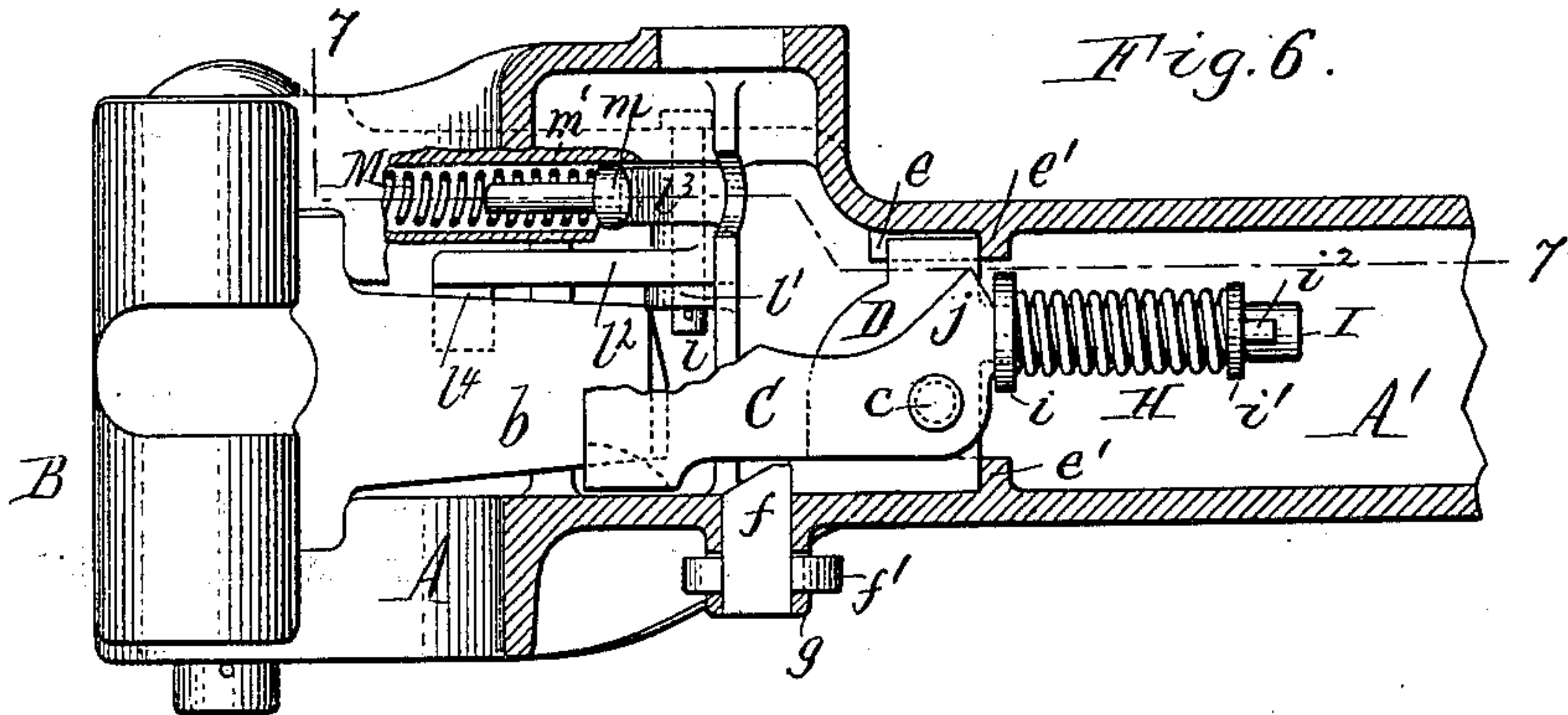
W. F. RICHARDS.

CAR COUPLING.

(Application filed June 20, 1900.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:

Henry L. Deck.

F. F. Schuymer.

W. F. Richards Inventor.

By Wilhelm Hornet
Attorneys.

UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, NEW YORK, ASSIGNOR TO THE
GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 658,073, dated September 18, 1900.

Application filed June 20, 1900. Serial No. 20,996. (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 the twin-jaw car-couplings of the Master Car-Builders' type, in which the coupling-knuckle is locked by a vertically-swinging lock arranged lengthwise in the draw-head, and more particularly to a coupler of this kind in which the tailpiece of the knuckle is provided on its upper side with an incline which automatically raises the free end of the lock when the knuckle is closed, the lock dropping in front of the tailpiece and locking the knuckle as soon as the tailpiece clears the lock.

One of the objects of my invention is to hold the lock in reliable engagement with the knuckle and to support the lock in the draw-bar in such manner that it can be readily placed in the same and removed therefrom. The invention has the further object to provide the coupler with a simple and compact kicker for automatically opening the knuckle when unlocked.

In the accompanying drawings, consisting of three sheets, Figure 1 is a longitudinal sectional elevation of my improved car-coupling, showing the knuckle locked. Fig. 2 is a similar view showing the knuckle unlocked. Fig. 3 is a similar view showing the lock raised by the tailpiece of the knuckle. Fig. 4 is a horizontal section showing the knuckle swung to its open position. Fig. 5 is a transverse section in line 5 5, Fig. 3. Fig. 6 is a longitudinal sectional elevation of the coupling, showing the kicker. Fig. 7 is a horizontal section in line 7 7, Fig. 6, showing the position of the kicker when the knuckle is locked. Fig. 8 is a similar view showing the position of the kicker after having thrown the knuckle to its open position.

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

A is the chambered draw-head, constructed upon the well-known standard lines, and A' is the hollow draw-bar.

B is the usual pivoted knuckle, and *b* its

tailpiece, having the lateral extension *b'*, provided with an inclined upper face *b²*.

C is the vertically-swinging lock, arranged lengthwise in the rear portion of the draw-head and the front portion of the draw-bar and having its rear end pivoted by a transverse pin *c* to a block or carrier D, so that the front portion of the lock is free to swing vertically for clearing the tailpiece of the knuckle or interlocking therewith. The block D is removably seated in the draw-bar, and its upper and lower ends are confined between interior longitudinal ribs *e*, formed on the top and bottom of the draw-head. The block bears at its rear side against a shoulder or abutment *e'*, formed in the interior of the draw-bar, whereby the block and the lock pivoted thereto are held against backward displacement. The block is held against forward displacement by a removable stop-pin *f*, which projects upwardly into the draw-bar through an opening formed in the bottom thereof and which is held in place by a cotter *f'*, passing through the same and through a collar *g*, depending from the under side of the draw-bar. The rear end of the lock is preferably bifurcated and straddles the block D.

H is a spring which tends to swing the lock downwardly, so as to prevent its accidental disengagement from the tailpiece of the knuckle by the jars or vibrations of the car. The spring H is mounted on a horizontal stem I, which extends rearwardly from the block D and is interposed between front and rear washers *i i'*, mounted on the stem I. The front washer is free to slide on this stem and bears against the rear end of the lock, while the rear washer bears against a pin or cotter *i²*, passing through the rear end of the stem. The lock is preferably provided, at its rear end with an upwardly-extending heel or nose *j*, against which the pressure of the spring H is exerted. This increases the leverage of the spring upon the lock and renders the spring more effective.

K is the usual lifting-link of the lock, which extends through an opening in the top of the draw-head and which is connected with the customary operating or unlocking devices, which are not shown in the drawings.

The spring H normally holds the lock in its

depressed position. When the knuckle is closed by contact with the coupler of an opposing car, the incline b^2 of its tailpiece raises the free front end of the lock until the extension b' of the tailpiece clears the lock, when the lock is depressed by the reaction of the spring H, thereby locking the knuckle. Upon removing the knuckle and the stop-pin f and detaching the link K from the lock, the lock, with its carrying-block and the spring H, can be conveniently withdrawn from the draw-head or replaced therein. As the block D is positively held against backward displacement in the draw-bar by the stop-shoulder e , it remains in its operative position, even in the event of the spring H being broken or becoming set, the lock in that case engaging with the knuckle by gravity alone.

L is the kicker, which consists of an elbow-shaped lever arranged horizontally in the upper portion of the draw-head, on the knuckle side thereof, and mounted on a vertical pivot-pin l , which is supported in horizontal lugs or ribs l' , formed on the adjacent wall of the draw-head. The lower long arm l^2 of the kicker is arranged below the plane of the short arm l^3 and extends forwardly from its pivot and is provided at its front end with a depending finger l^4 , which bears against the rear side of the tailpiece of the knuckle when the knuckle is closed.

M is a spring which acts upon the short arm l^3 of the kicker, preferably through the medium of a plunger-rod m , the headed rear end of which bears against said arm. This spring is arranged horizontally on the knuckle side of the draw-head, and its rear end bears against the head of the rod m , while its front end bears against the bottom of a socket or tubular pocket m' , which incloses the spring and extends rearwardly from the front wall of the draw-head. The kicker-spring M tends to swing the long arm of the kicker into the path of the tailpiece of the knuckle, as shown in Fig. 8, and when the knuckle is closed its tailpiece moves said arm outwardly to the position shown in Fig. 7, thereby moving the short arm forwardly and compressing the kicker-spring. As soon as the knuckle is unlocked the kicker-spring reacts and swings the kicker to the position shown in Fig. 8, thereby causing its long arm to throw the knuckle to its open position.

I claim as my invention—

1. The combination with the draw-head, the draw-bar and the knuckle, the draw-bar being provided with an internal shoulder or abutment, of a block or carrier arranged in

the draw-bar and held against rearward displacement by said abutment, a vertically-swinging lock arranged lengthwise of the draw-head and pivoted to said block, and a spring bearing against the rear portion of the lock and operating to hold the same in its depressed position, substantially as set forth.

2. The combination with the draw-head, the draw-bar and the knuckle, the draw-bar being provided with an internal shoulder or abutment, of a block or carrier arranged in the draw-bar and held against rearward displacement by said abutment and provided with a rearwardly-extending stem, a vertically-swinging lock arranged lengthwise of the draw-head and pivoted to said block, and provided in rear of its pivot with an upwardly-projecting heel, and a spring mounted on said stem and operating against said heel, substantially as set forth.

3. The combination with the draw-head, the knuckle and its lock, of a kicking-lever arranged to operate against the tailpiece of the knuckle and pivoted to swing horizontally in the draw-head, and an operating-spring for the kicking-lever arranged horizontally on the knuckle side of the draw-head and on the front side of the pivot of the kicking-lever, substantially as set forth.

4. The combination with the draw-head, the knuckle and its lock, of a horizontal kicking-lever arranged in the upper portion of the draw-head and having a forwardly-extending front arm provided with a depending finger which engages against the rear side of the knuckle, and a knuckle-opening spring arranged on the knuckle side of the draw-head in front of the rear arm of the kicking-lever and bearing at its rear end against said arm and at its front end against the draw-head, substantially as set forth.

5. The combination with the draw-head having its front wall provided with a rearwardly-extending pocket, of the knuckle and its lock, a horizontal kicking-lever arranged in the upper portion of the draw-head and having a forwardly-extending front arm provided with a depending finger which engages against the rear side of the knuckle, and a knuckle-opening spring arranged in said pocket and bearing at its rear end against the rear arm of the kicking-lever, substantially as set forth.

Witness my hand this 2d day of June, 1900.

WILLARD F. RICHARDS.

Witnesses:

JNO. J. BONNER,

CYESTA HORNBECK.