

(No Model.)

W. F. RICHARDS.  
CAR COUPLING.

No. 537,936.

Patented Apr. 23, 1895.

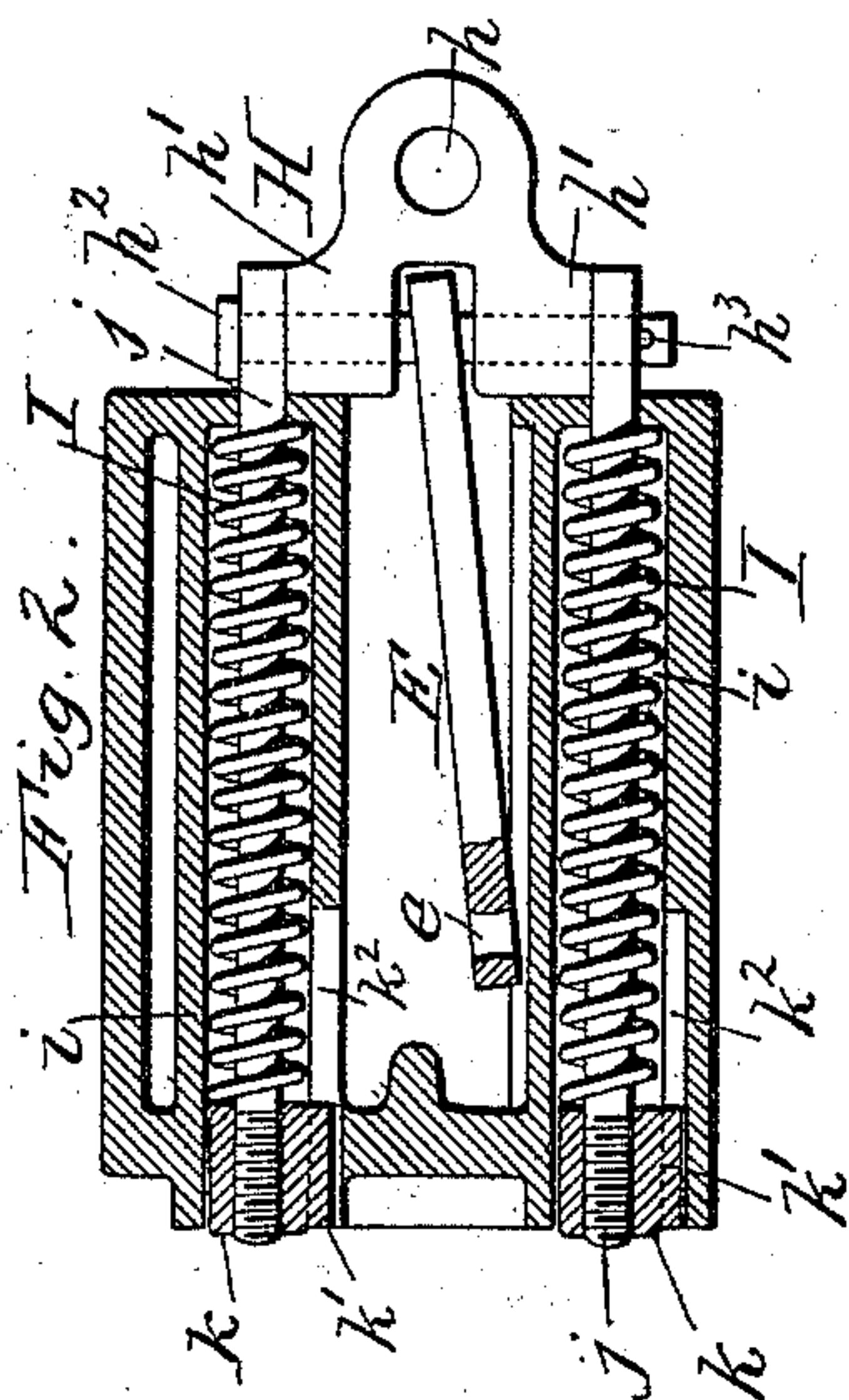


Fig. 4.

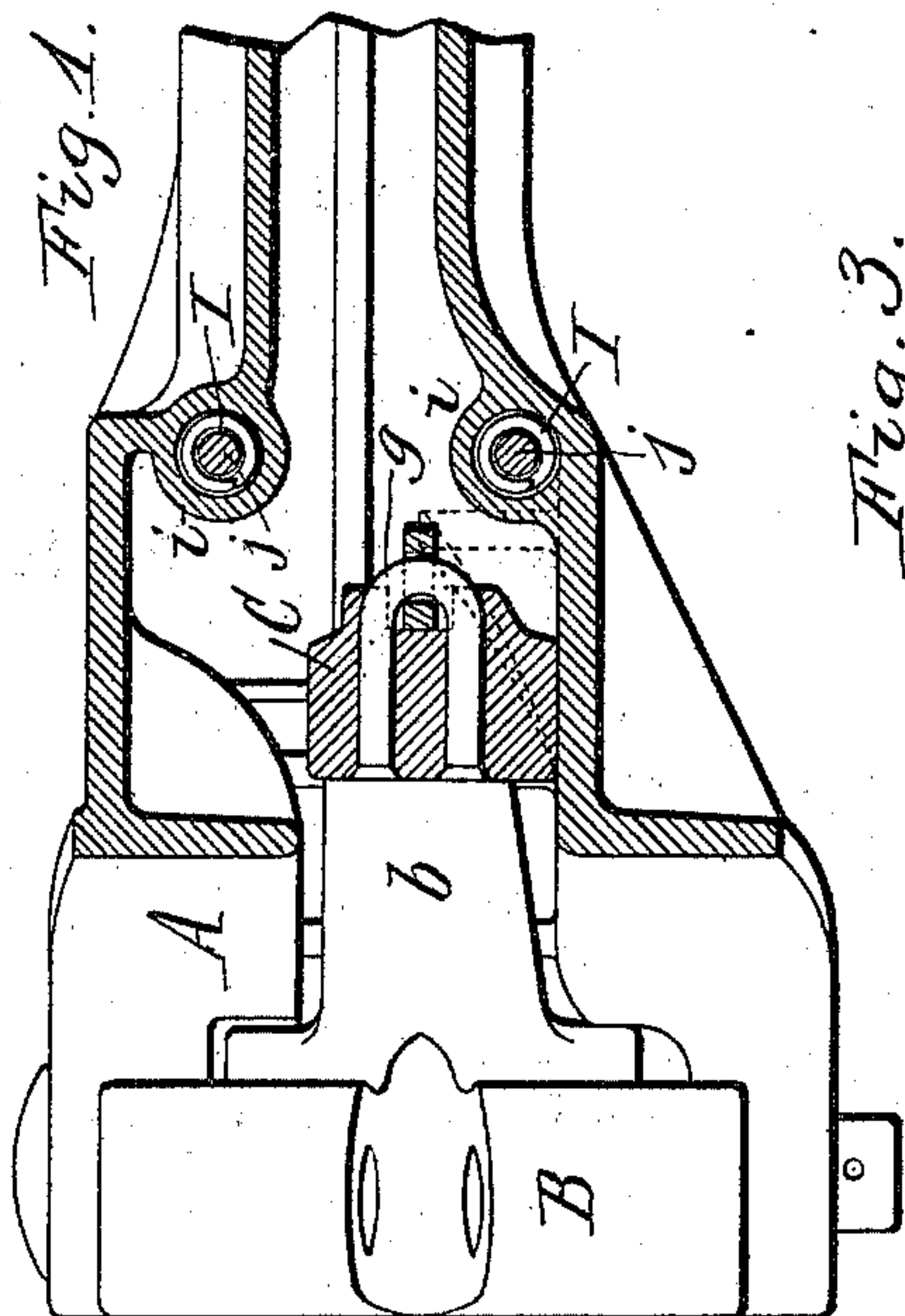
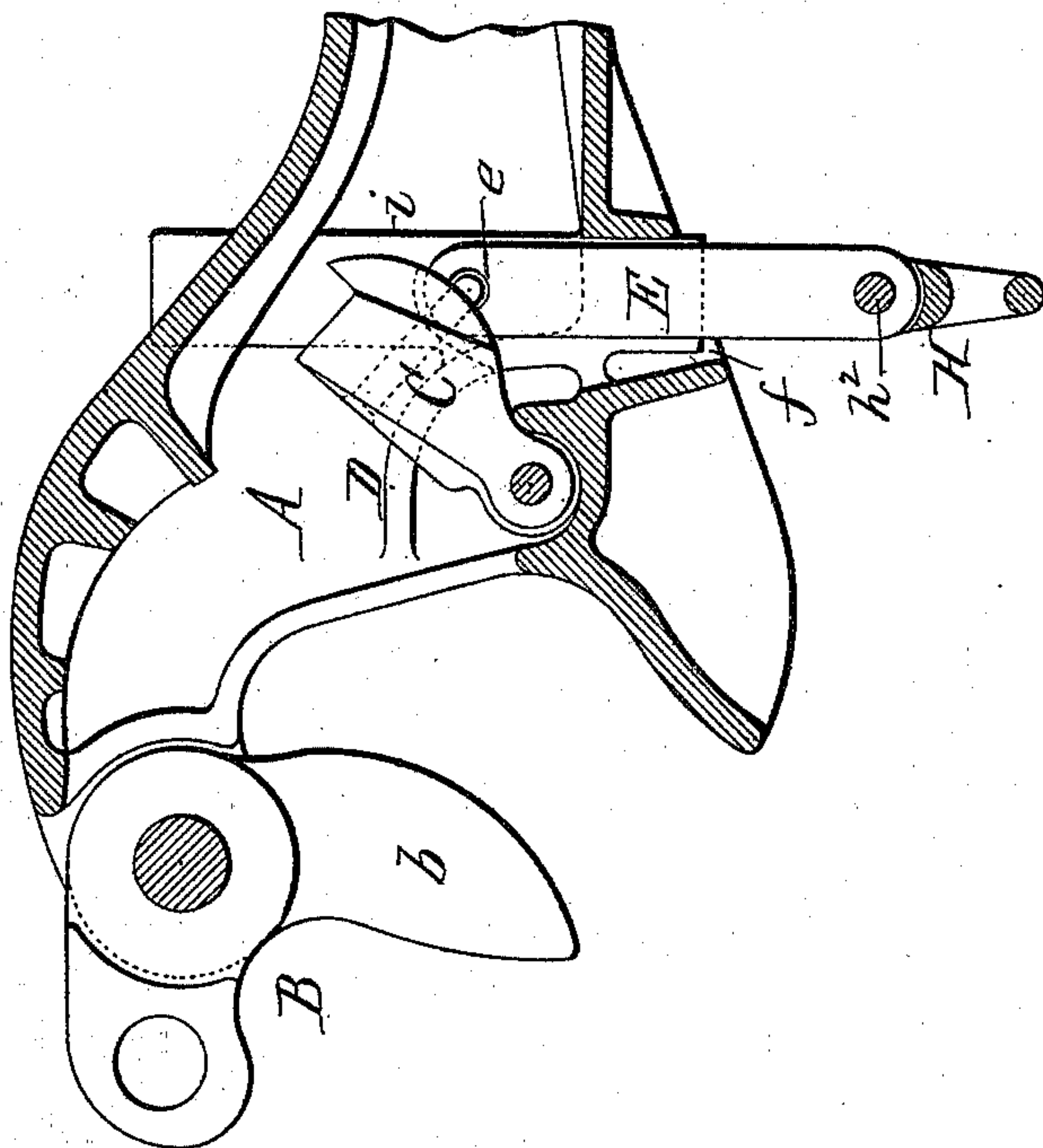
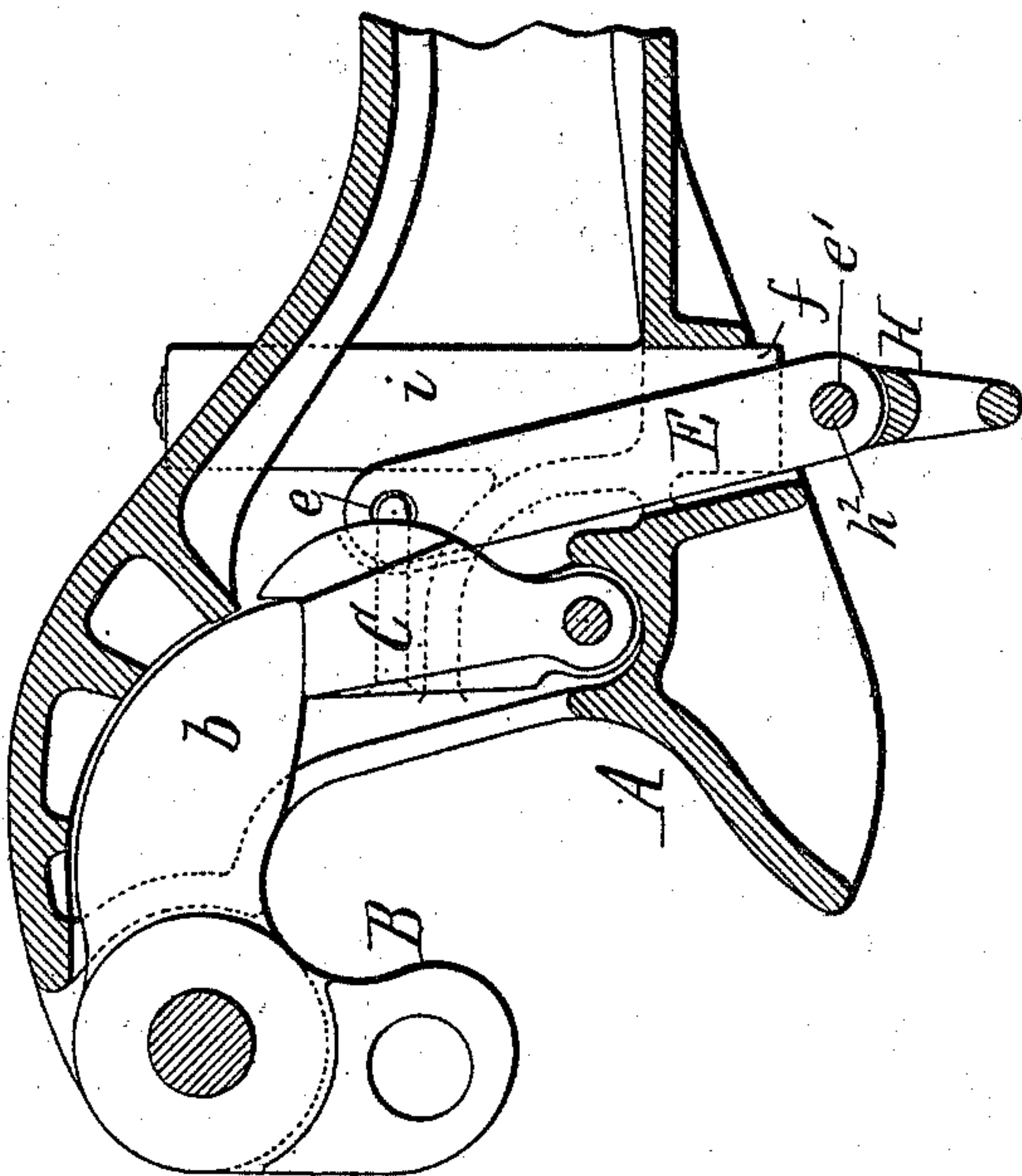


Fig. 3.



WITNESSES:

Chas. F. Burkhardt.  
F. Gustav Wilhelm.

W. F. Richards INVENTOR  
By Wilhelm H. Formel ATTORNEYS.



# UNITED STATES PATENT OFFICE.

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

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 537,936, dated April 23, 1895.

Application filed December 26, 1894. Serial No. 532,917. (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 a new and useful Improvement in Car-Couplings, of which the following is a specification.

This invention relates more particularly to that class of twin jaw car couplings which comprise a horizontally-swinging jaw or knuckle and a horizontally-swinging lock engaging with the coupling jaw and having means for operating it from the side of the drawhead.

My invention has for its object to improve the construction of the operating device, so as to render the lock more reliable in its action.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a car coupling containing my improvement. Fig. 2 is a transverse section thereof in line 2—2, Fig. 1, with the connecting link detached from the lock. Fig. 3 is a horizontal section of the coupling, showing the position of the parts when the jaw is locked. Fig. 4 is a similar view showing the position of the parts when the jaw is unlocked.

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

A represents the drawhead which is preferably constructed in accordance with the well known standard lines and which is chambered in the usual manner for receiving the movable parts of the coupler.

B is the pivoted coupling jaw or knuckle, and C the usual horizontally swinging lock which engages with the locking arm *b* of the jaw, for holding the same in its closed or coupled position.

D is the customary incline on which the lock rises when swung rearward for releasing the coupling jaw and whereby the lock is automatically interlocked with the arm of the jaw.

E is a transverse operating bar or link connected with the outer portion of the lock and extending laterally through an opening *f* formed in that side-wall of the coupling located on the same side as the pivot of the lock. This operating link is connected with

the lock, preferably by a staple *g* having its legs secured in openings cast in the lock and passing with its projecting bow through an aperture *e* formed in the adjacent end of the link, the staple being arranged at right angles to the link and the rear side of the lock being recessed to receive the inner end of the link. The outer portion of the operating link is connected with the usual actuating chain by means of a clevis or coupling H. This chain, which is not shown in the drawings, may be operated by the well known upright shaft or spindle or the hand lever by which the lock is usually retracted, or by any other suitable means.

The coupling H preferably consists of a horizontal eye *h* to which the actuating chain is connected, a pair of vertical eyes *h'* formed integrally with the horizontal eye and separated by a space which receives the outer end of the operating link, and a vertical pin or bolt *h<sup>2</sup>* which passes through the vertical eyes *h'* and an opening *e'* formed in the adjacent portion of the operating link.

I represents springs which tend to retain the operating link in its inner position in which the lock is engaged with the arm of the coupling jaw, as shown in Fig. 3, and which counteract the weight of the actuating chain when the lock swings forward in engagement with the arm of the coupling jaw. These springs are arranged respectively above and below the plane of the operating link and are inclosed in transverse pockets or sockets *i* formed in the adjacent portions of the drawhead.

*j* represents transverse tension rods passing through the springs I and connected at their outer ends to the coupling H by means of the upright bolt *h<sup>2</sup>* which passes through openings formed in the outer portions of the rods. The upper tension rod is held on this bolt by the head of the latter, while the lower rod is retained on the bolt by a transverse pin *h<sup>3</sup>* passing through the bolt below the lower rod.

*k* represents followers or enlargements arranged on the rear portions of the tension rods *j*, respectively, and bearing against the inner ends of the springs I, whereby the latter are



compressed between said followers and the closed front ends of their sockets when the tension rods are pulled outward by the chain attached to the coupling H. Each follower  $k$  preferably consists of a cylindrical screw nut applied to the externally screw-threaded inner portion of its tension rod and having a spline or feather  $k'$  which engages in a corresponding recess  $k^2$  formed in the pocket  $i$ , as shown in Fig. 2, whereby the follower is held against turning.

When the lock is engaged with the arm of the coupling jaw, as shown in Fig. 3, the tension rods and the operating link are drawn into their innermost position by the springs I, thus retaining the lock in that position. Upon pulling the link outward by means of the actuating chain, the lock is swung rearward out of engagement with the arm of the coupling jaw, as shown in Fig. 4, allowing the jaw to swing into its open or uncoupled position. By this movement, the transverse rods are also pulled outward, thus compressing the springs I. Upon releasing or slackening the actuating chain, the operating link is drawn inward by the reaction of the springs I, causing the link to aid the incline D in swinging the lock forward to its locking position. When the lock is in this position, and the coupling jaw is swung from its open to its closed position, the lock is deflected backward against the resistance of the incline and the springs until the nose or shoulder at its outer end clears the rear end of the locking arm of the jaw, when it is interlocked with said arm and held in engagement therewith by the springs and the incline.

The operating link is arranged to move at a sufficient angle to the lock to draw the same backward upon pulling the link outward.

By providing the operating link with two tension rods, arranged on opposite sides of the plane of the link, a straight draft is exerted upon the link whereby binding of the tension rods is prevented.

The springs I, by overbalancing the weight of the actuating chain and taking up the slack thereof, prevent the chain from retarding the forward movement of the lock, thus insuring

the reliable operation of the latter. In addition to this function, the springs also serve to supplement the action of the usual incline.

My improved lock-operating mechanism, being arranged within the drawhead and on one side thereof, avoids the necessity of forming apertures in the upper side of the drawhead, thus excluding snow, ice, cinders, &c., from the interior of the head.

I claim as my invention—

1. The combination with the drawhead, the coupling jaw and the pivoted lock, of an operating link connected with said lock and passing through the side wall of the drawhead, a transverse rod, connected with said link, and a spring applied to said rod, substantially as set forth.

2. The combination with the drawhead, the coupling jaw and the pivoted lock, of an operating link connected with the lock and extending through the side wall of the drawhead, and springs arranged respectively above and below the plane of said link and connected with the latter, substantially as set forth.

3. The combination with the drawhead, the coupling jaw and the pivoted lock, of an operating link connected with the lock and extending through the side wall of the drawhead, transverse follower-rods arranged respectively above and below the plane of said link and connected at their outer ends therewith, and springs applied to said rods, substantially as set forth.

4. The combination with the drawhead, the coupling jaw and the pivoted lock, of an operating link connected with the lock and extending through the side wall of the drawhead, transverse follower rods arranged respectively above and below the plane of said link and connected at their outer ends therewith, a swivel or coupling connecting the outer ends of said rods, and springs applied to the rods, substantially as set forth.

Witness my hand this 15th day of December, 1894.

WILLARD F. RICHARDS.

Witnesses:

JNO. J. BONNER,

ELLA R. DEAN.