

No. 754,706.

PATENTED MAR. 15, 1904.

W. F. RICHARDS.
CAR COUPLING.

APPLICATION FILED JAN. 7, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

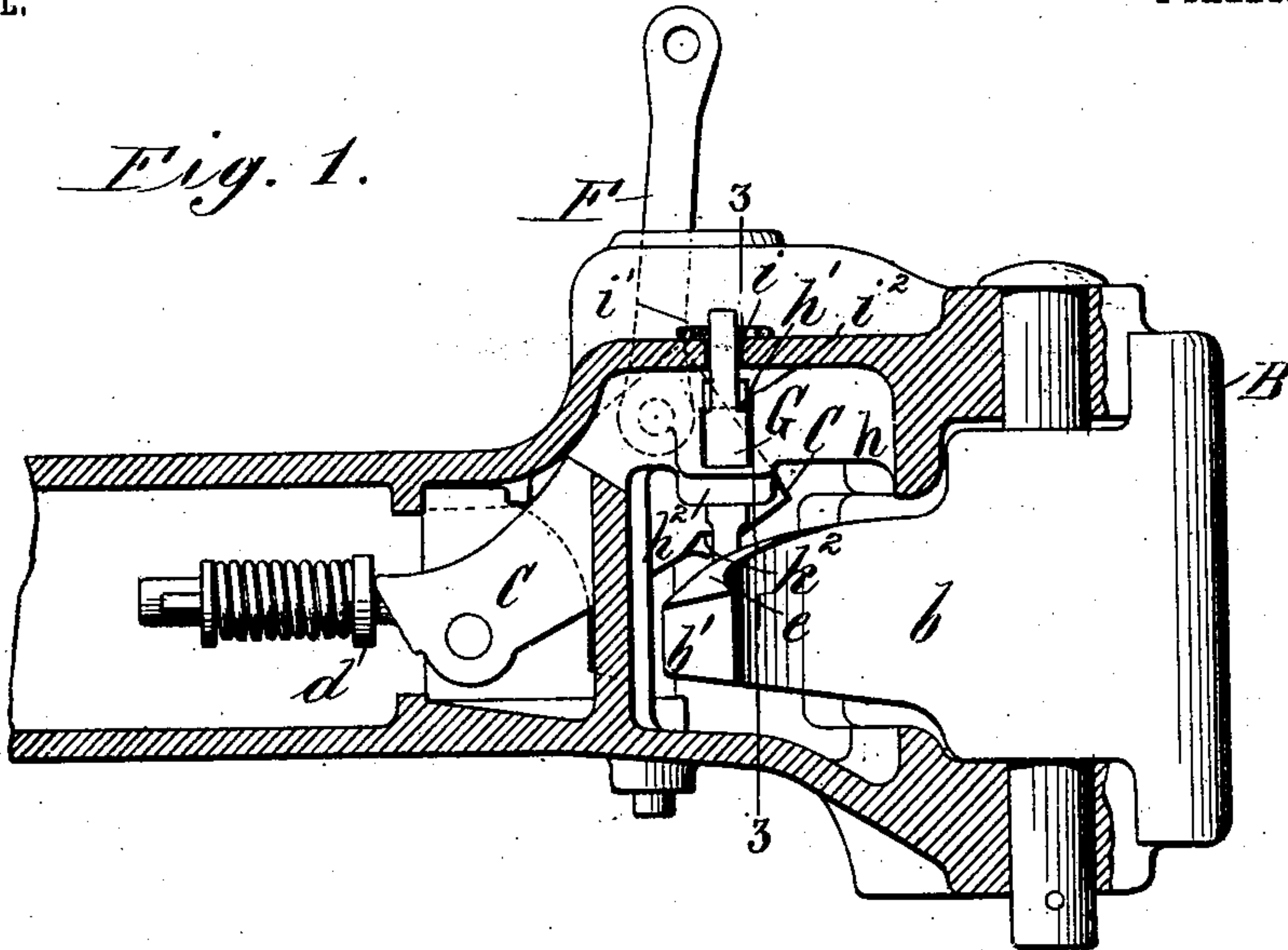
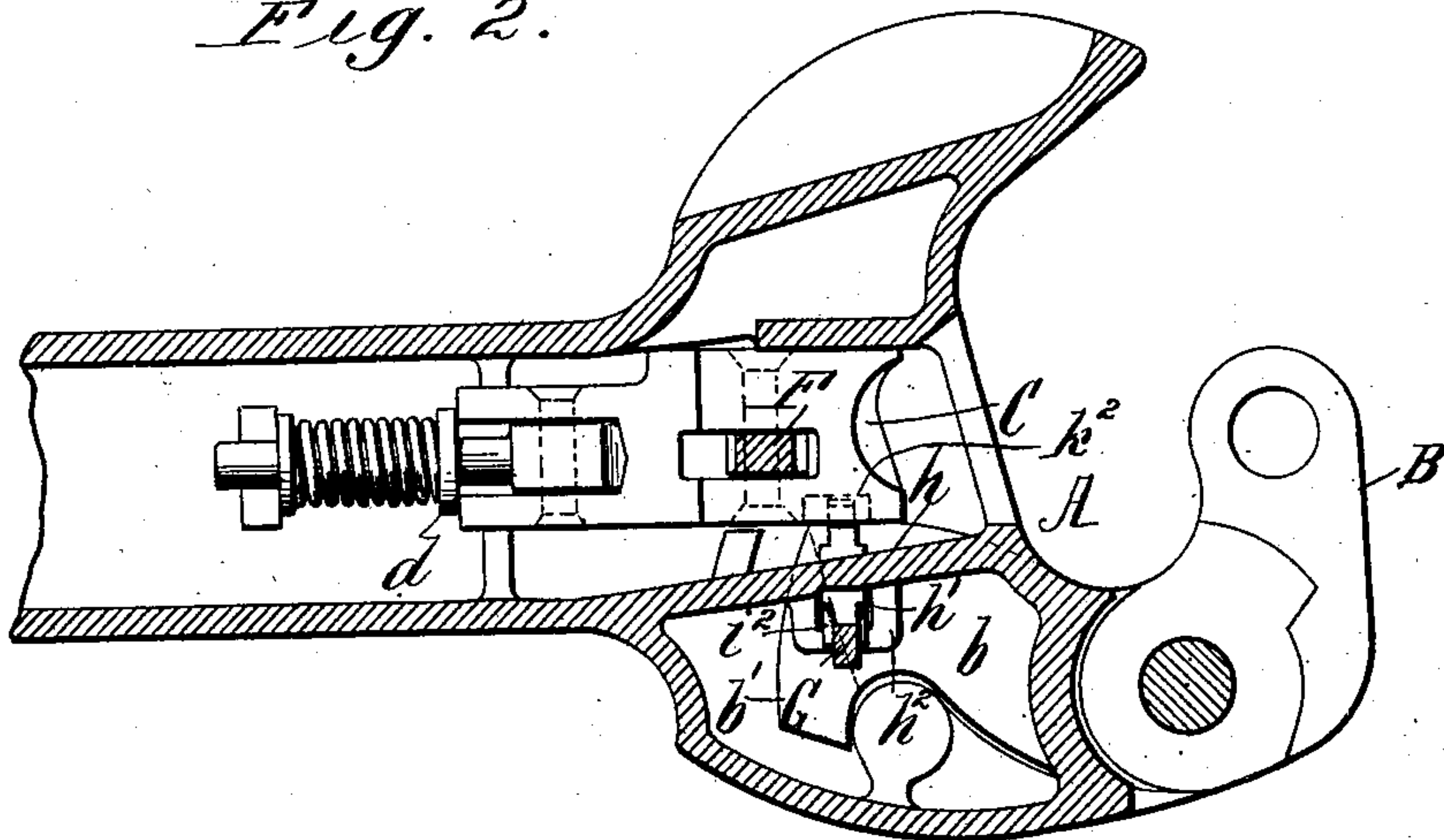


Fig. 2.



Witnesses:-

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J. M. Snyder, Jr.

By W. F. Richards Inventor.
Wilhelm Parkhurst & Hard, Attorneys.

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2 SHEETS—SHEET 2.

Fig. 3.

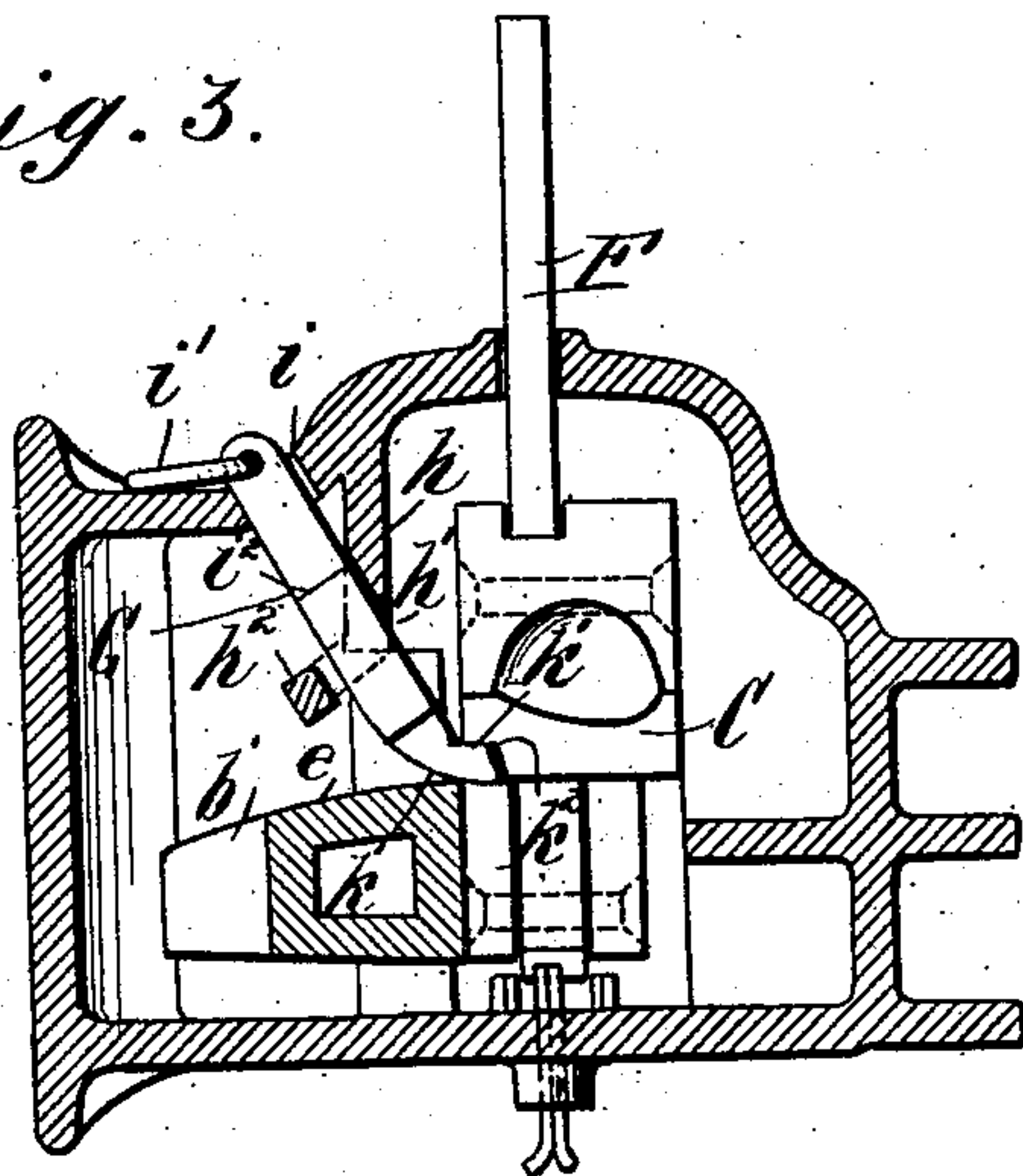
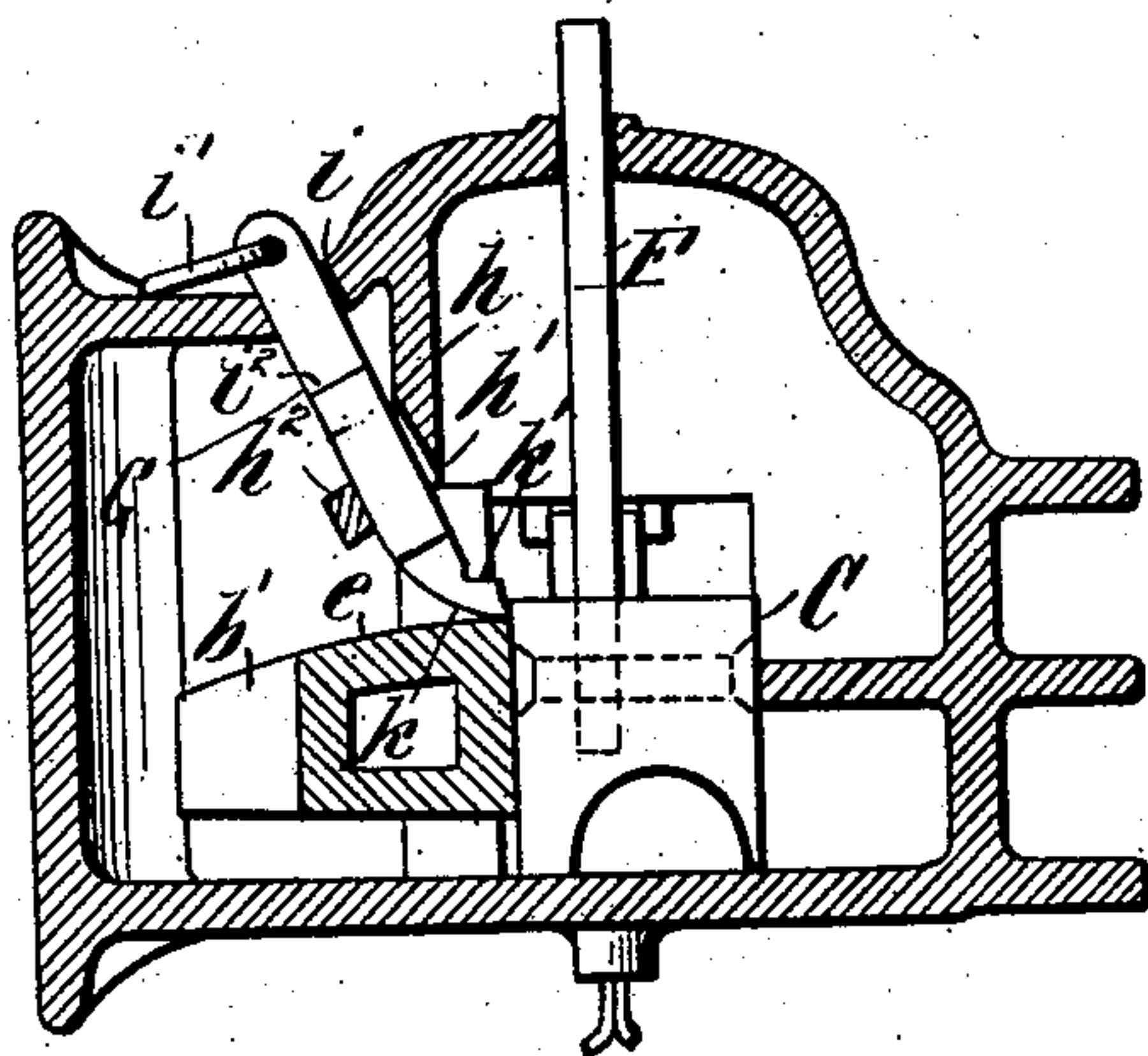


Fig. 4.



Witnesses:-

R. W. Rumer.
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By Wilhelm Parker Had, Attorneys.

UNITED STATES PATENT OFFICE.

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

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 754,706, dated March 15, 1904.

Application filed January 7, 1904. Serial No. 188,084. (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-Couplers, of which the following is a specification.

This invention relates to car-couplers of the Master Car-Builders' type, and more particularly to an automatic lock-set or latch for couplers of the kind disclosed in United States Letters Patent No. 618,073, granted to me September 18, 1900, in which a pivoted spring-pressed lock for the swinging knuckle is employed.

A lock-set or latch should operate automatically when the lock is lifted and the knuckle freed for uncoupling the cars to hold the lock in its raised or released position until the knuckle is swung open and to then release the lock and permit the same to move to its operative position, so that when the knuckle is again closed in coupling the cars the lock will act automatically to lock the knuckle. The lock-set or latch should also be capable of being independently operated from outside of the coupler, so that in case it is desired to again lock the knuckle without opening it after the lock has been lifted this can be done by operating the lock-set or latch to release the lock.

The object of this invention is to provide a lock-set or latch which is of simple, strong, and inexpensive construction and efficient and reliable in action and which can be applied to a coupler of the kind specified with but slight changes or alterations in the latter.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal vertical section, partly in elevation, of a car-coupler provided with an automatic lock-set or latch embodying the invention. Fig. 2 is a horizontal section, partly in plan, thereof. Fig. 3 is a transverse vertical section thereof, partly in elevation, in line 3-3, Fig. 1, showing the lock held in released position by the lock-set or latch. Fig. 4 is a similar view showing the locked position of the parts.

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

A represents the chambered draw-head, which is constructed upon standard lines; B, the usual knuckle, which is hinged to swing horizontally on a vertical pivot-pin and is provided with a tailpiece *b* and tail extension *b'*, which extend into the chamber of the draw-head when the knuckle is in closed or coupling position, and C the vertically-swinging lock, which is pivoted in the rear portion of the chamber of the draw-head and is adapted to engage the knuckle-tail to lock the knuckle in closed position. The front end of the pivoted lock is held down in locking position by gravity aided by a spring-pressed plunger *d*, which engages the rear end of the lock, and the tail extension of the knuckle is provided with an upper inclined face *e*, which coöperates with a beveled or inclined face on the lower front portion of the lock to lift the latter when the tail of the knuckle is swung inwardly in coupling.

F is the usual lifting-link, which is connected to the lock and extends through an opening in the top of the draw-head and is connected with the customary operating shaft or device (not shown) for lifting the lock in uncoupling.

The features of the coupler thus far described are all well known and operate in a well-known manner. A more detailed description of the same will be found in the patent above mentioned.

G represents the automatic lock-set or latch, which is in the form of a bolt or pin arranged in an inclined position in the chamber of the draw-head at one side of the vertically-swinging lock and above the tail extension of the knuckle when the latter is in closed or coupling position. The latch passes loosely through an opening in the vertical partition *h* of the draw-head and is guided in an opening *h'* in a lug *h²*, formed on the said partition, and the upper end of the lock-set or latch is preferably reduced and passes out through a hole *i* in the top of the draw-head. The latch is provided outside of the coupler with a link *i'* or other device, serving as a handle for operating the latch and to prevent the lock-set or latch from falling out of place into the draw-head. The shoulders *i²*, formed at the lower

end of the reduced upper end of the lock-set or latch, are adapted to strike the top of the draw-head and prevent the latch from being pulled out of the draw-head and lost or stolen.

5 The latch is provided on the outer side of its lower end with an inclined or convex face k , which engages and rests on the inclined face of the knuckle-tail extension when the knuckle is closed, and on the inner side of its lower

10 end with a shoulder or seat k' to engage under a cooperating shoulder k'' on the lower portion of the lock to hold the latter in its lifted or released position. When the knuckle is closed and the lock is down in locking posi-

15 tion, the lock-set or latch occupies the position indicated in Fig. 4, resting with its lower end upon the inclined upper face of the tail extension of the knuckle and against the vertical side face of the lock. When it is de-

20 sired to open the knuckle, the lock is lifted, thereby moving its vertical face above the lower end of the lock-set or latch, and as the latter is supported only by its inclined face k it drops by gravity, said inclined face caus-

25 ing its lower end to move inwardly, thereby projecting its shoulder or seat k' beneath the shoulder on the lower portion of the lock, as indicated in Fig. 3. When the lock is now released, its weight rests on the lower end of

30 the lock-set or latch and holds the latter down against the tail of the knuckle, whereby the lock-set or latch is held against displacement. The lock is thus held up in its released position until the knuckle is opened. When the

35 knuckle is swung open, its tail extension moves from beneath the lock-set or latch and the latter drops by gravity and releases the lock, allowing it to drop into position to automatically lock the knuckle when the same

40 is again closed or swung into coupling position. If after the lock has been raised to releasing position and held by the latch or lock-set it is desired to again drop the lock to prevent the opening of the knuckle, it is only

45 necessary to pull up on the upper end of the latch, which lifts the lower end of the latch off of the tail extension of the knuckle, when the weight of the lock-set or latch and lock supported thereby causes the lower end of

50 the lock-set or latch to swing downwardly and away from the lock, thereby releasing the latter and permitting it to drop into locking position.

The lock-set or latch above described is entirely automatic in the performance of all of its functions. It is exceedingly simple in

construction, involving only a single part, and only very slight changes are required in the coupler to apply the lock-set or latch thereto. The only required changes in the coupler are 60 the provision of the guide-lug and hole in the top of the draw-head and the shoulder on the knuckle-lock for the engagement of the seat or shoulder on the lower end of the lock-set or latch. 65

I claim as my invention—

1. In a coupler, the combination with the knuckle, and movable lock, of a lock-set slidably arranged in the draw-head with its lower portion supported by the knuckle and engaging 70 the lock, and which when the lock is moved to release the knuckle moves downwardly into a position between the knuckle and lock to support the latter, substantially as set forth. 75

2. In a coupler, the combination with the horizontally-swinging knuckle having a tail-piece, and a vertically-movable lock, of a lock-set slidably mounted in the draw-head with its lower end resting on the tailpiece of the knuc- 80 kle and against one face of the lock when the knuckle is closed, and which when the lock is lifted moves downwardly and laterally into a position with its lower end between the knuckle and the lock to support the latter, substan- 85 tially as set forth.

3. In a coupler, the combination with the knuckle, and movable lock, of a lock-set slidably mounted in the draw-head with its lower end resting on the knuckle and against the 90 lock when the knuckle is closed, and having an inclined face engaging the knuckle and a seat for the lock, said inclined face acting to move the lower end of the lock-set laterally to place its seat below the lock when the latter 95 is lifted, substantially as set forth.

4. In a coupler, the combination with the knuckle, and movable lock, of a lock-set slidably arranged in the draw-head with its upper end projecting out of the coupler and its lower 100 end supported by the knuckle and engaging the lock when the knuckle is closed and which, when the lock is moved to release the knuckle moves to a position between the knuckle and lock to support the latter, substantially as set 105 forth.

Witness my hand this 19th day of December, 1903.

WILLARD F. RICHARDS.

Witnesses:

CHAS. W. PARKER,
C. M. BENTLEY.