

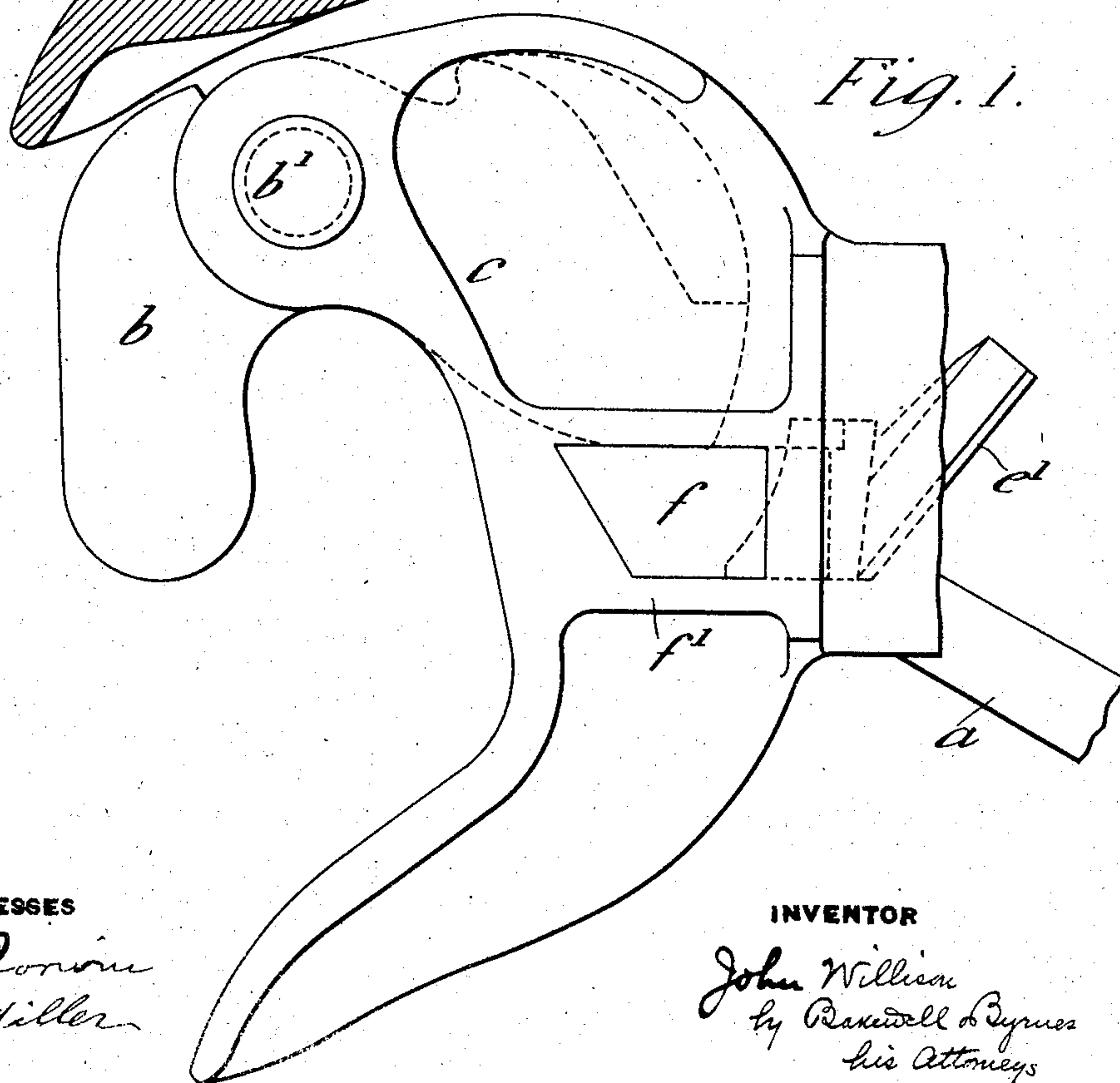
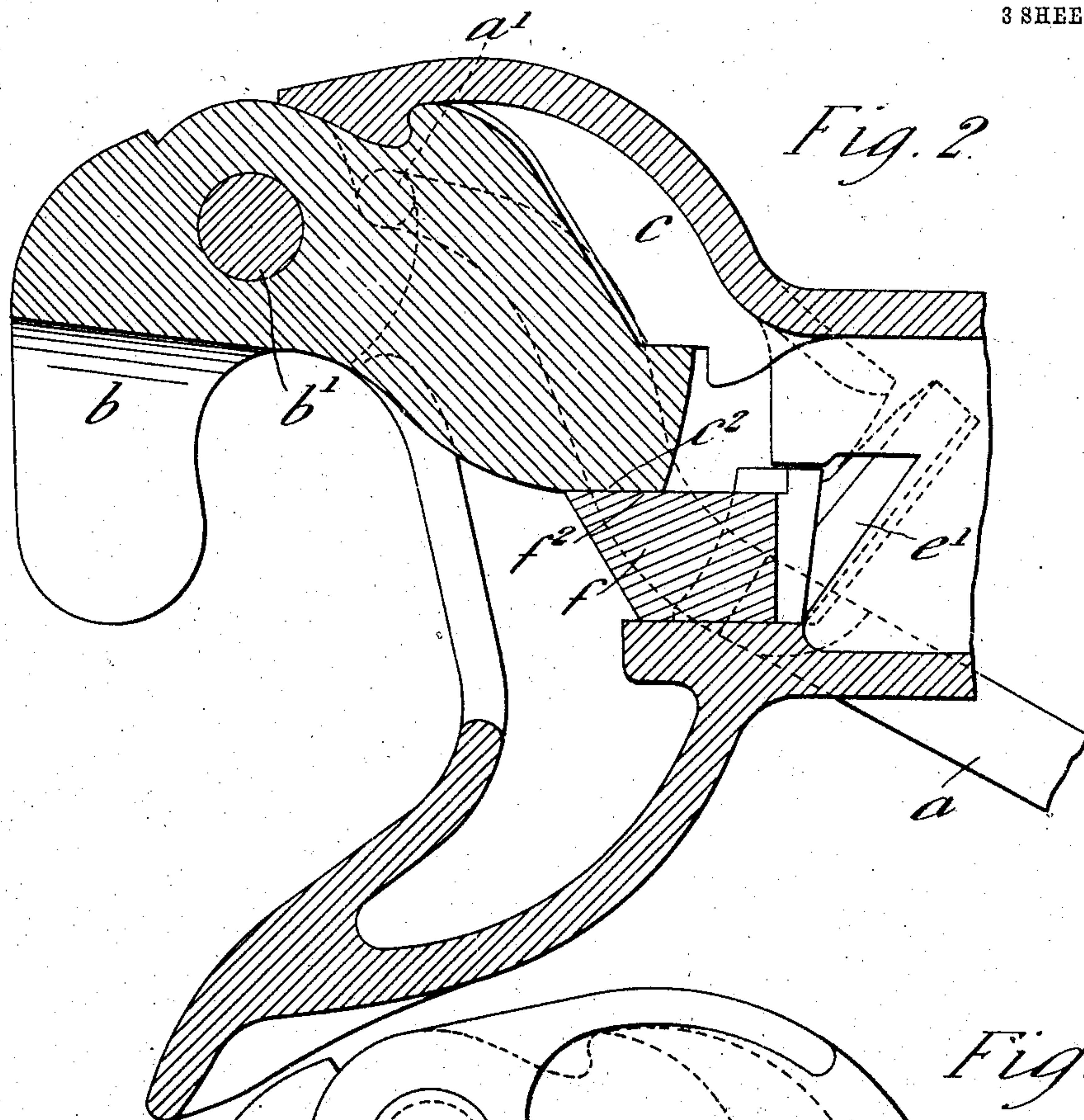
No. 786,868.

PATENTED APR. 11, 1905.

J. WILLISON.
AUTOMATIC COUPLING FOR RAILWAY CARRIAGES.

APPLICATION FILED DEC. 29, 1903.

3 SHEETS—SHEET 1.



WITNESSES

John Corning
John Miller

INVENTOR

John Willison
by *Russell & Byrnes*
his Attorneys

No. 786,868.

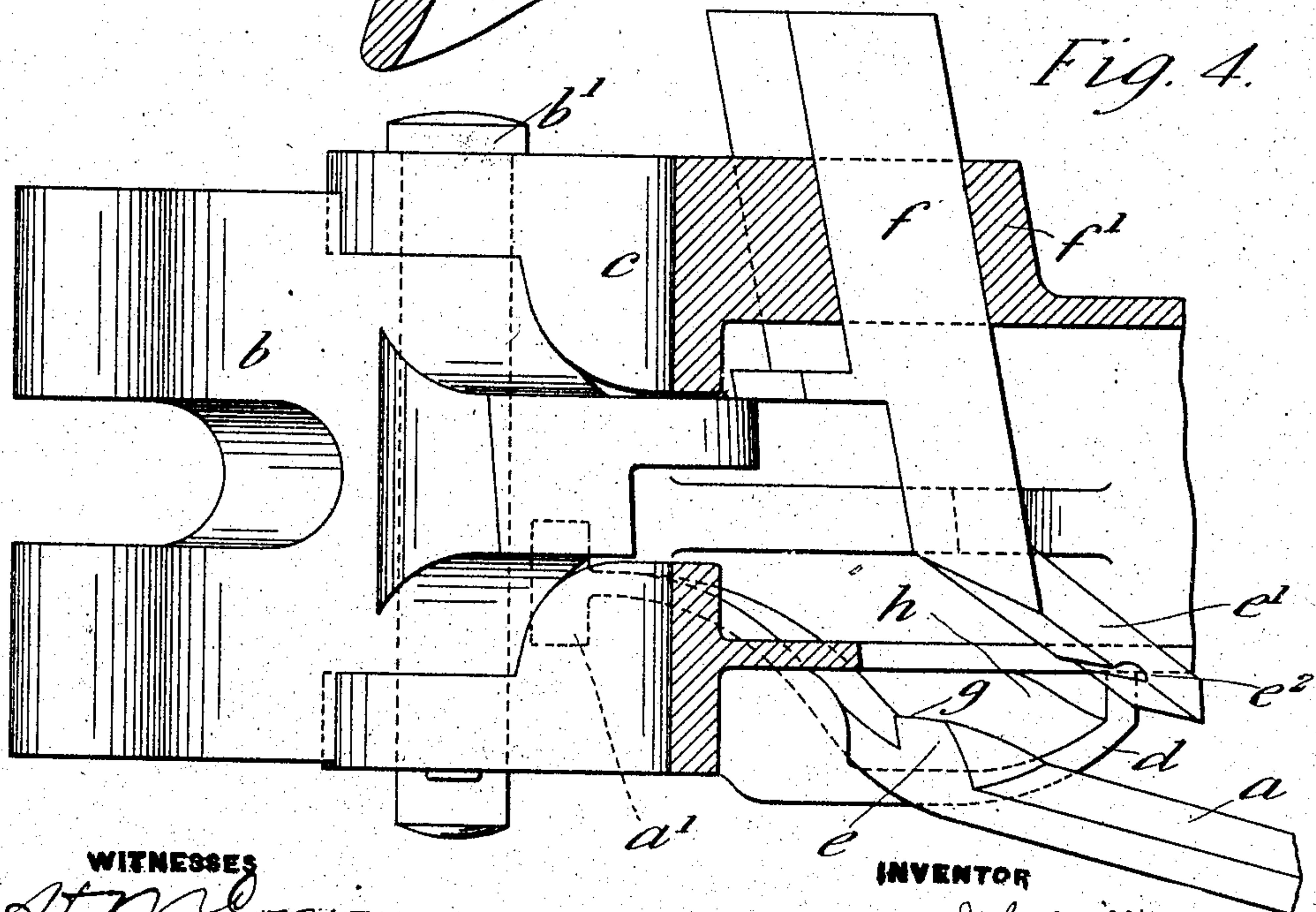
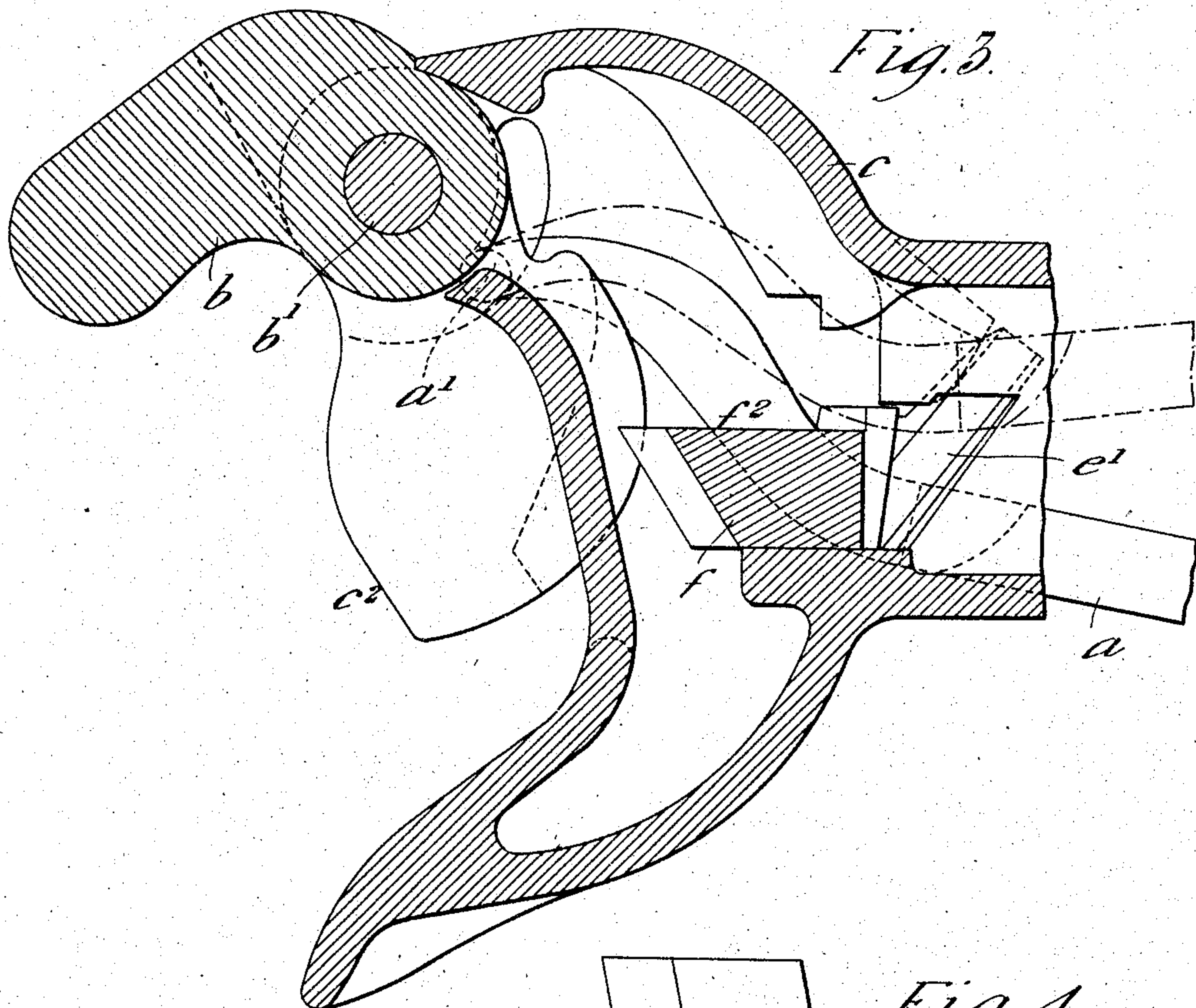
PATENTED APR. 11, 1905.

J. WILLISON.

AUTOMATIC COUPLING FOR RAILWAY CARRIAGES.

APPLICATION FILED DEC. 29, 1903.

3 SHEETS—SHEET 2.



WITNESSES
St. M. Corwin
John Miller

INVENTOR
John Willison
by *Bakewell & Byrnes*
his Attorneys

No. 786,868.

PATENTED APR. 11, 1905.

J. WILLISON.

AUTOMATIC COUPLING FOR RAILWAY CARRIAGES.

APPLICATION FILED DEC. 29, 1903.

3 SHEETS—SHEET 3.

Fig. 5.

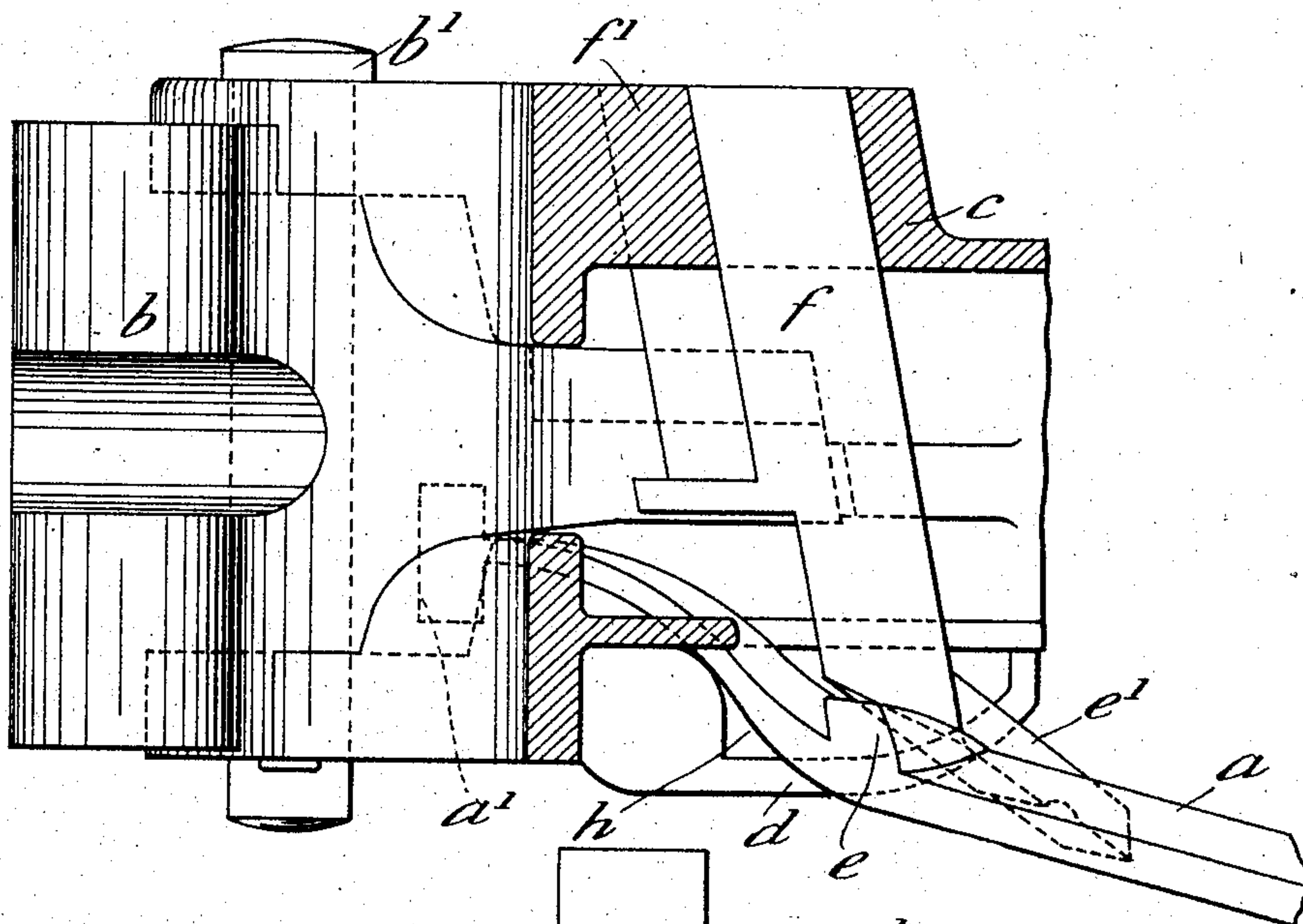
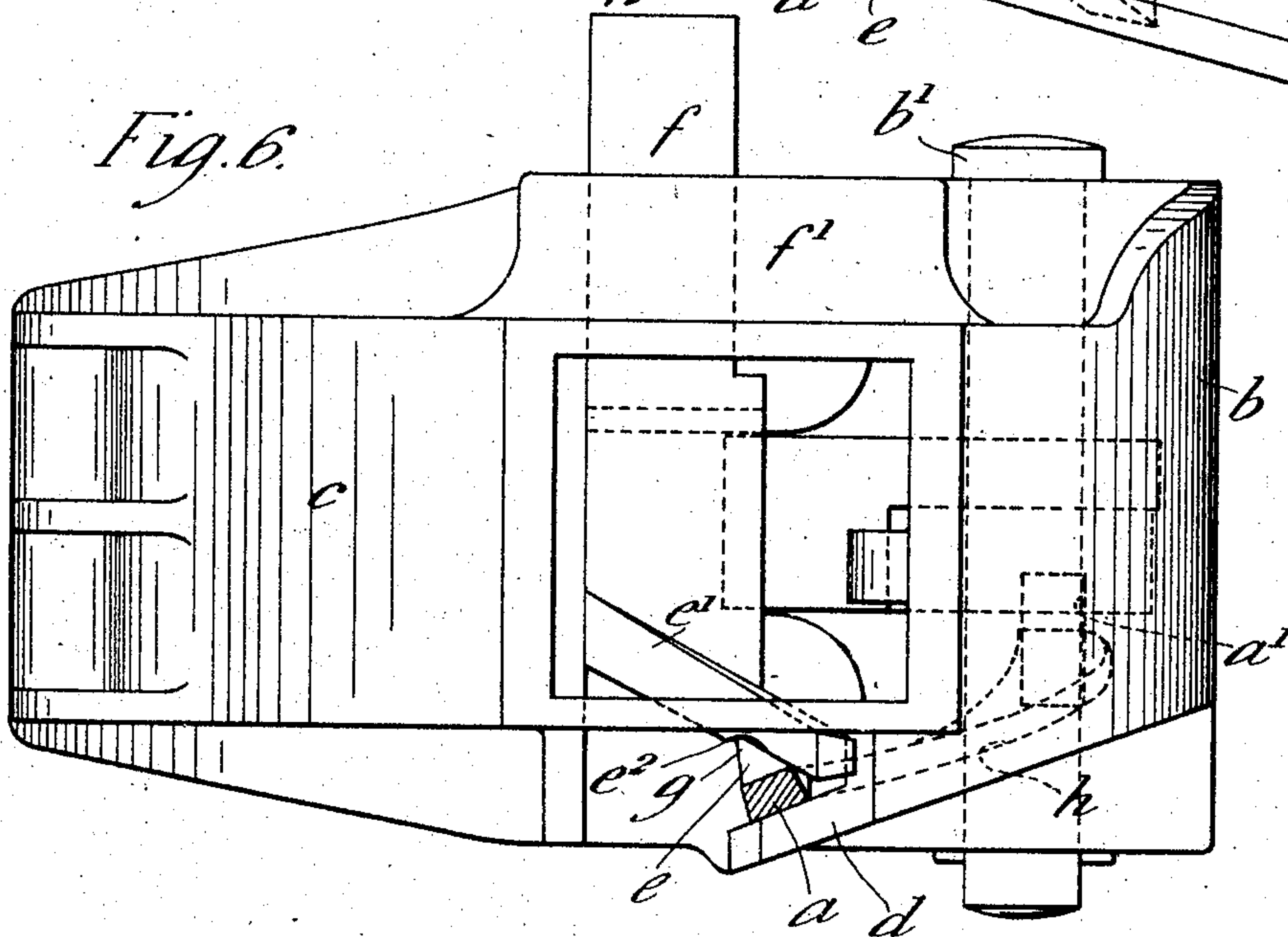


Fig. 6.



WITNESSES

H. M. Convin
John Miller

INVENTOR

John Willison
by Baxendell & Lyman
his Attorneys

UNITED STATES PATENT OFFICE.

JOHN WILLISON, OF DERBY, ENGLAND, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

AUTOMATIC COUPLING FOR RAILWAY-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 786,868, dated April 11, 1905.

Application filed December 29, 1903. Serial No. 186,937.

To all whom it may concern:

Be it known that I, JOHN WILLISON, of 158 Clarence road, Derby, in the county of Derby, England, have invented a new and useful Automatic Coupler for Railway-Carriages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a plan of an automatic coupler constructed according to this invention; Fig. 2, a sectional plan; Fig. 3, a sectional plan showing the coupler-knuckle open, the lever being shown in its returned position and in dotted lines in the position in which it opens the coupler; Fig. 4, a vertical longitudinal section, partly in elevation, of Fig. 1, but showing the coupler-knuckle open and the lock in its raised or unlocking position; Fig. 20 5, a similar view, but with the knuckle closed and locked; and Fig. 6, an elevation of the rear of the coupler, showing the lock held in the raised position by engagement of the lock and lever.

25 This invention relates to automatic couplers for railway-carriages in which, by means of a lever operated through a suitable link or links, the knuckle of the coupler is unlocked, so that the carriages may be uncoupled and the lock is held in that position until the knuckle is again returned to the position for coupling. The lever may also be used to turn the coupler to the open or coupling position, and provision is also made for the release and return of the lock from the unlocking to the locking position without moving the coupler or carriages.

Referring to the figures, the forward end of a lever *a* has a pin *a'* pivotally engaging in a recess in the rear part of the coupler-knuckle *b*, which is hung on a vertical pivot *b'* in the jaws of the coupler-head *c*. The lever *a* extends through the coupler-head to the rear of the latter, leaving the end of the lever clear, so that it may be connected by suitable links to an operating-rod at the side of the carriage. The under side of the lever *a* rests on an inclined surface *d* in the

coupler-head, and a projecting piece *e* on the upper side of the lever has its surface oppositely inclined to engage with a correspondingly-inclined surface *e'*, attached to or formed integrally with the locking-piece *f*. The coöperation of these two pairs of inclined surfaces when the lever is turned about its pivot *a'* results in a considerable translational movement of the locking-piece *f* for a comparatively small angular movement of the lever *a*. The lock is constrained to slide vertically, or approximately so, in guides *f''*, formed in the coupler-head, and when in its lower or locking position the locking-face *f²* abuts against the tail *C²* of the coupler-knuckle, which is thereby held locked in the coupled position. The vertical displacement of the lock *f* by means of the lever *a* is continued until the lock is raised clear of the knuckle and the coupler can be opened. In this position the edge *g* of the piece *e* on the lever or another suitable attachment thereto engages in a notch *e²* in the inclined surface *e'*, so preventing the lever, and consequently the locking-piece, from returning gravitationally to their lower positions. If, however, the lever *a* is now given a backward thrust, there is sufficient vertical freedom of motion of the lock to enable the parts *e² g* to disengage if suitably shaped, as shown in Fig. 6, thereby allowing both lock and lever to return to their lower position. By this arrangement should the coupler become inadvertently unlocked it can be relocked without separating the carriages.

A forward movement of the lever from the position in which the piece *g* engages with the lock-set *e²* results in rotary movement of the coupler-knuckle about its pivot and a resulting backward displacement of the lever, the fulcrum of which is in this case transferred to the point of contact between the lever and the surface *h* inside the coupler-head. The lever therefore slides down the inclined surface on the coupler-head; but the outward movement of the knuckle *b* brings the tail of the latter or an attachment thereto under the

locking-piece *f* and holds it in its upper or unlocking position until the coupler-knuckle has been returned to its coupling position, whereupon the locking-piece, being no longer supported either by the knuckle or the lever, returns gravitationally to its lower position and locks the coupler.

It will be understood that any outward swing of the coupler-knuckle, whether produced by the action of the lever or by the act of separating the carriages, holds the lock in its unlocking position by engagement with the tail of the knuckle.

Since in the unlocking position the lock projects considerably above the coupler-head and is flush therewith in the locking position, the lock itself serves as an indicator by which the state of the coupler can be seen at a glance.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A car-coupler having a knuckle, a lock, and a lever independent of said lock and adapted to move along an inclined surface on the coupler to raise the lock; substantially as described.

2. A car-coupler having a knuckle, a lock, and a lever independent of said lock and adapted to move along an inclined surface on the coupler to raise the lock, said lock being adapted to engage the lever and to be held thereby in unlocked position; substantially as described.

3. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to raise the lock, said lock having a notch adapted to en-

gage the lever when the lock is in unlocked position; substantially as described.

4. A car-coupler having a knuckle, a lock, and a lever adapted to move along an inclined surface on the coupler to raise the lock, said lever being adapted to engage a fulcrum on the coupler-head to move the knuckle open; substantially as described.

5. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to raise the lock, said lock having a notch adapted to engage the lever when the lock is in unlocked position, and the lever being adapted to be freed from the notch by a rearward motion of the lever; substantially as described.

6. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to engage an inclined surface on the lock; substantially as described.

7. A car-coupler having a knuckle, a lock and a lever adapted to move between inclined surfaces on the coupler and lock respectively, to raise the lock; substantially as described.

8. A car-coupler having a knuckle, a lock and a lever pivoted in said knuckle, said lever being adapted to move between inclined surfaces on the coupler and lock respectively, to raise the lock and thereafter throw open the knuckle; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN WILLISON.

Witnesses:

OLIVER IMRAY,
C. S. HOPKINS.