

No. 646,173.

Patented Mar. 27, 1900.

G. A. HERMANSON.

AUTOMATIC COUPLING FOR RAILWAY CARS.

(Application filed May 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

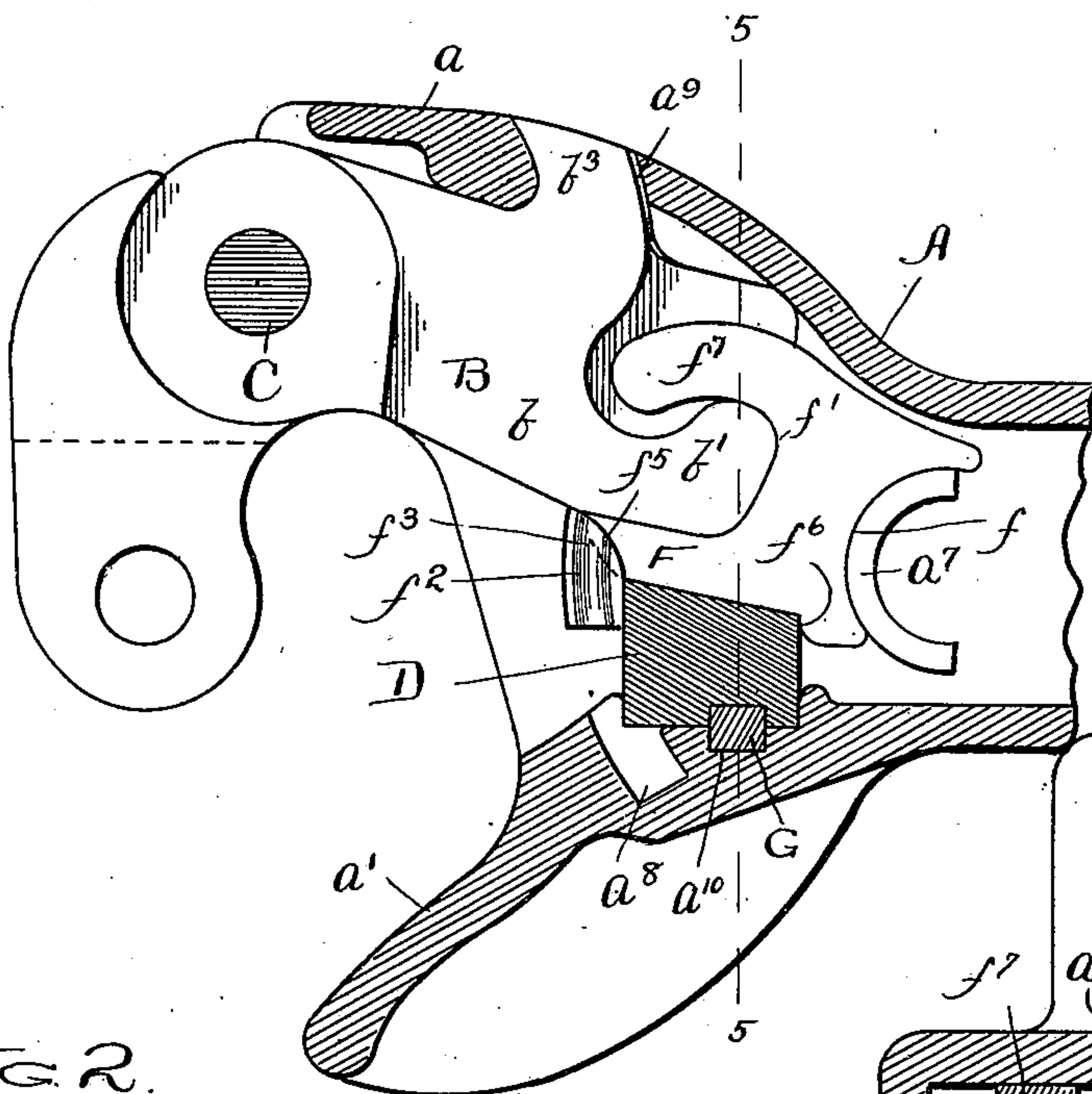


FIG. 5.

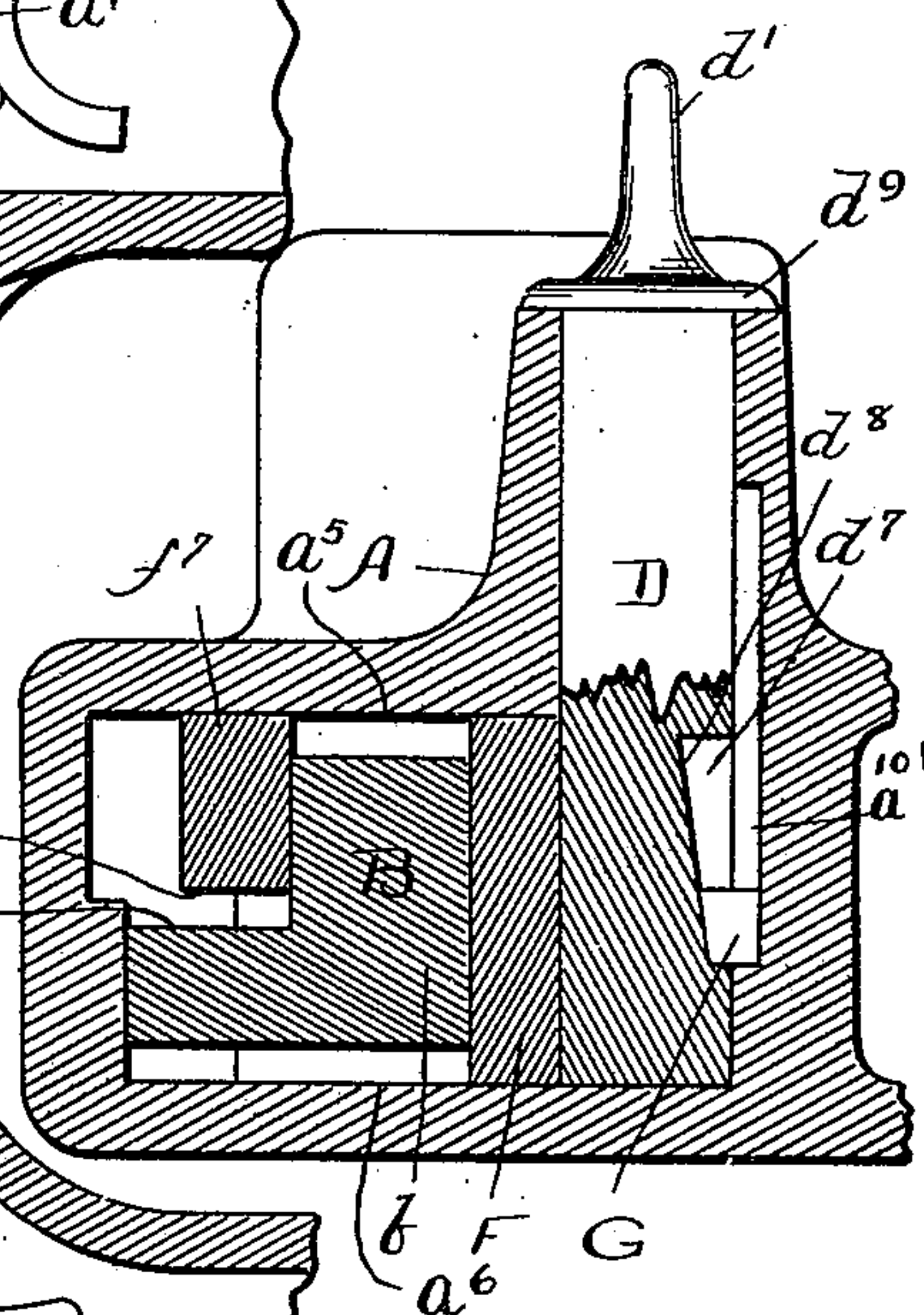
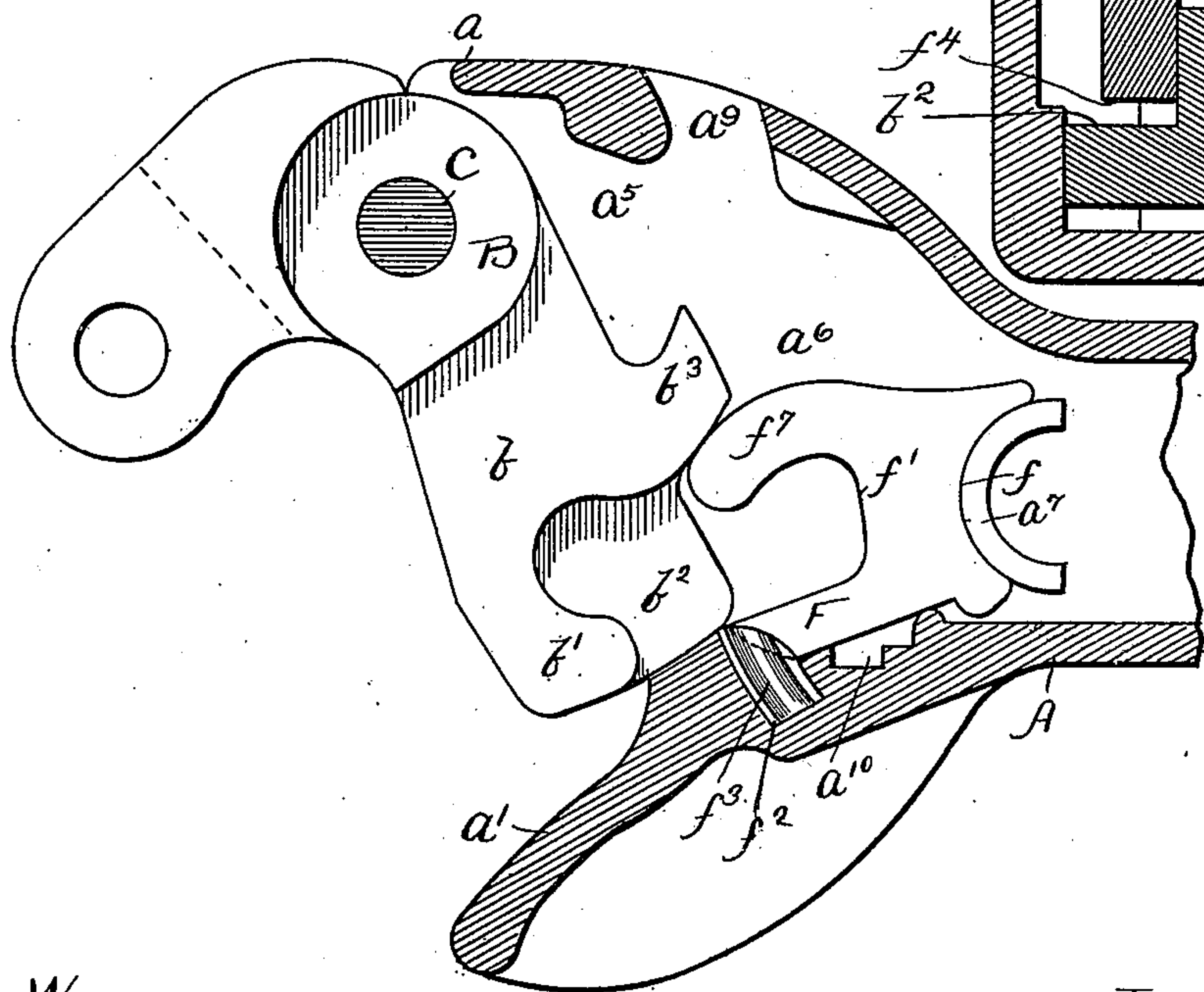


FIG. 2.



WITNESSES:  
Lew. C. Curtis  
H. W. Monday

INVENTOR:  
GUSTAF A. HERMANSON.

BY Monday, Curtis & Adecock,  
HIS ATTORNEYS.

**No. 646,173.**

**Patented Mar. 27, 1900.**

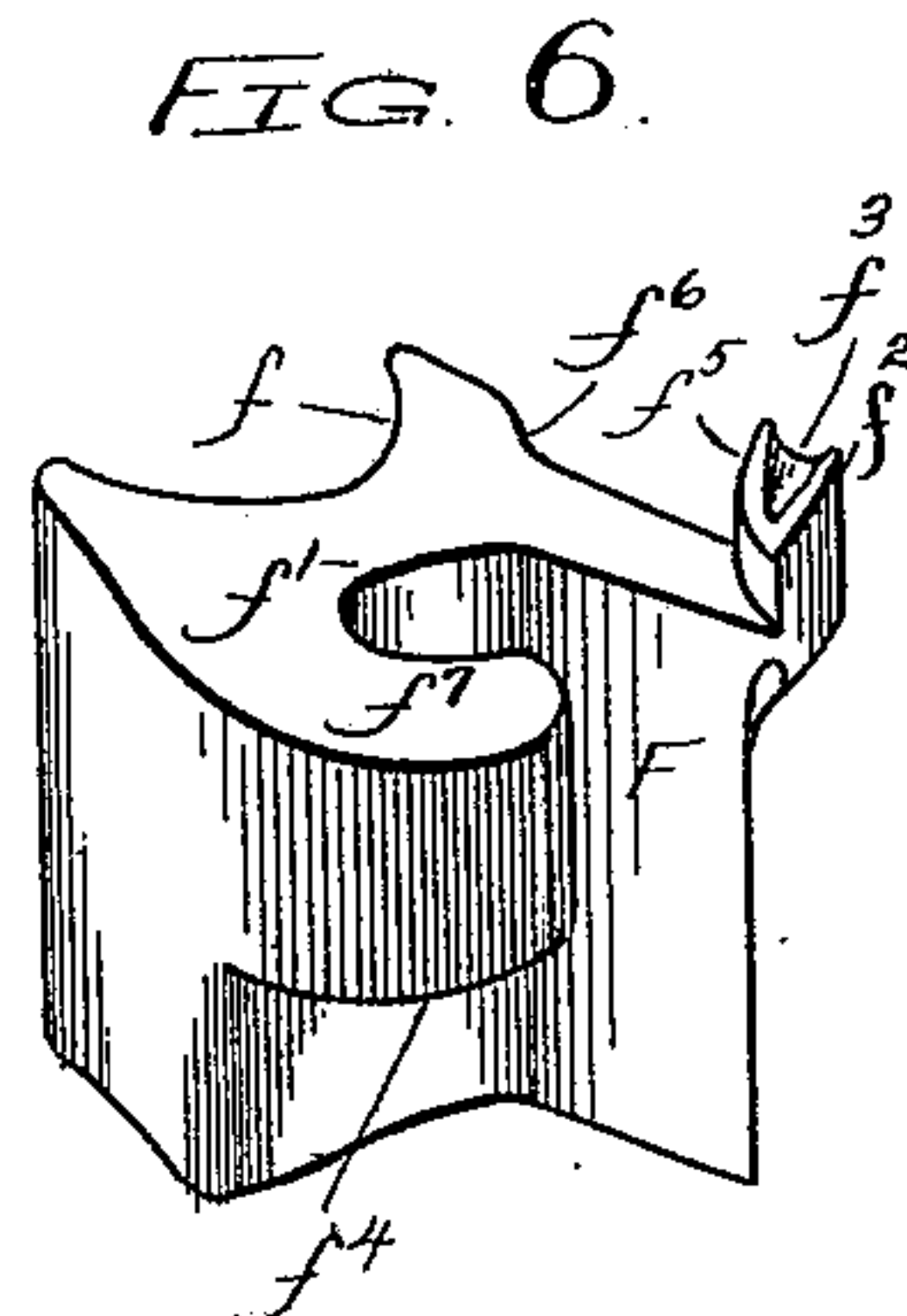
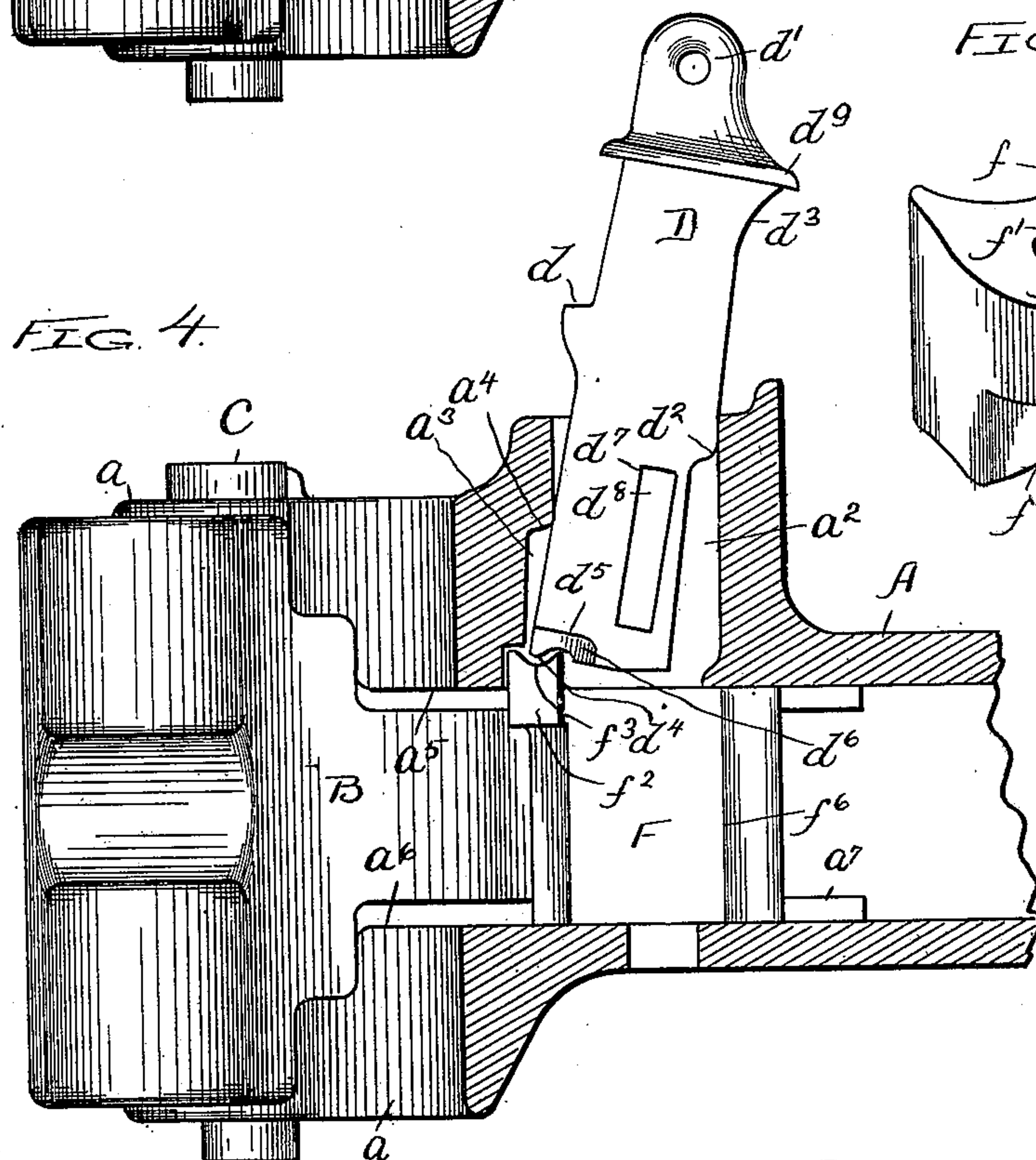
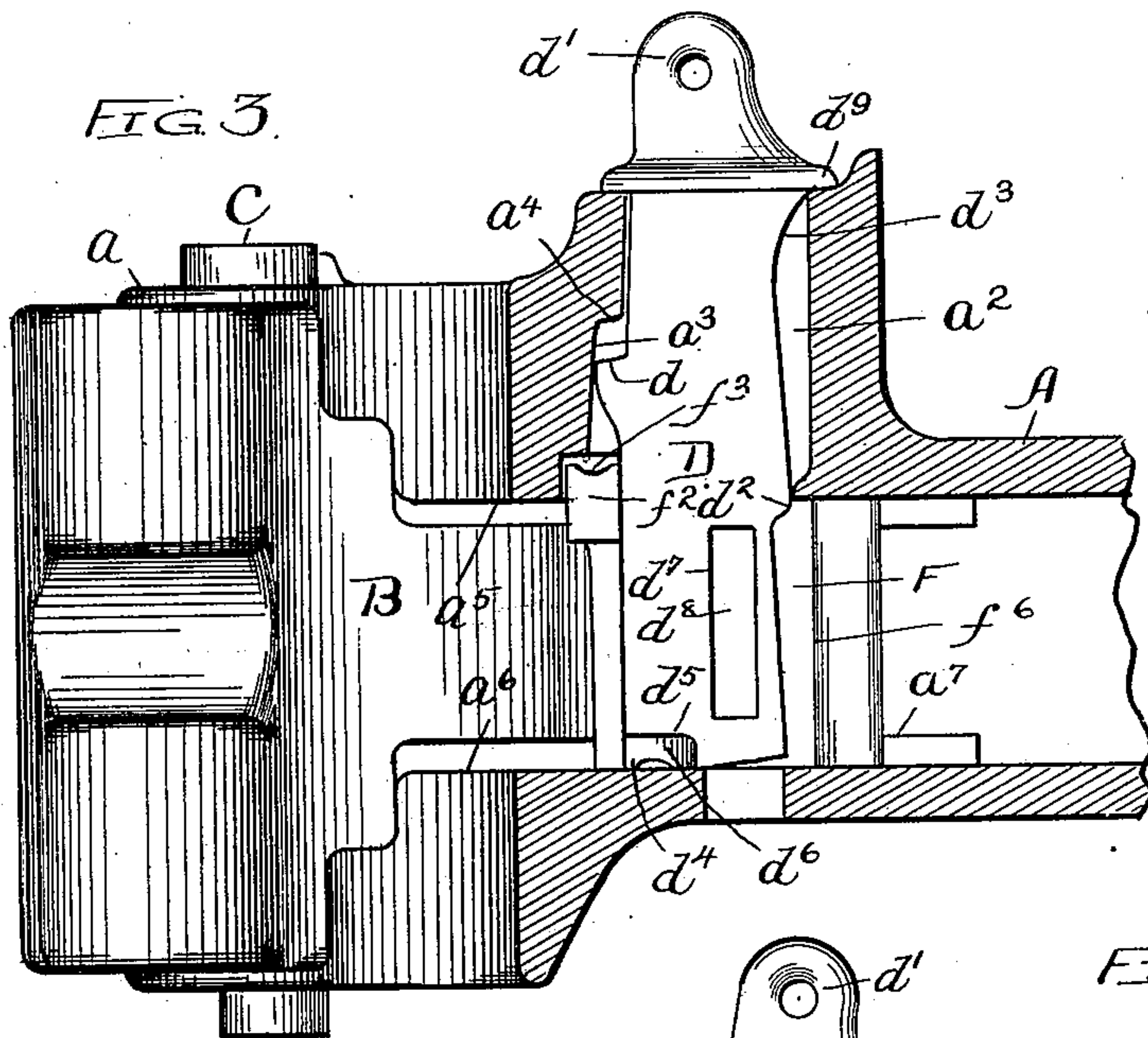
**G. A. HERMANSON.**

# AUTOMATIC COUPLING FOR RAILWAY CARS.

(Application filed May 10, 1899.)

(No Model.)

**2 Sheets—Sheet 2.**



WITNESSES:

Low. C. Custer  
H. W. Munday.

INVENTOR:  
GUSTAF A. HERMANSON

BY Munday, Ewart & Adeock.

HIS ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GUSTAF A. HERMANSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES MUNTON, OF MAYWOOD, ILLINOIS.

## AUTOMATIC COUPLING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 646,173, dated March 27, 1900.

Application filed May 10, 1899. Serial No. 716,190. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAF A. HERMANSON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Automatic Couplers for Railway-Cars, of which the following is a specification.

My invention relates to automatic car-couplers, and more particularly to certain improvements upon the car-coupler heretofore patented to me in Letters Patent of the United States No. 623,471, of April 18, 1899.

The object of my present improvement is to perfect the construction and operation of the coupler of my said former patent and provide means for positively preventing the lock from "jumping" upward by jolting of the cars when the train is under rapid motion, while also effectually overcoming any tendency of the lock to "climb" or "creep" upward.

My invention primarily consists, in connection with the forked draw-head, pivoted knuckle, and gravity locking pin or block, in providing the locking pin or block with a shoulder which is adapted to engage a corresponding shoulder on the draw-head, and thus prevent all possibility of the lock jumping.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, forming a part of this specification and in which similar letters of reference indicate like parts throughout the several views, Figures 1 and 2 are horizontal sections of a car-coupler embodying my invention. Figs. 3 and 4 are longitudinal vertical sections. Fig. 5 is a vertical cross-section on line 5 5 of Fig. 1, and Fig. 6 is a detail perspective view of the shield or protecting-plate.

In the drawings, A is the forked draw-head, having pivot-arm  $a$  and guard-arm  $a'$ ; B, the knuckle; C, the pivot-pin, and D the gravity-lock, locking-pin, or locking-block. The passage-way or opening  $a^2$  for the locking pin or block is provided with an offset or enlargement  $a^3$ , forming a shoulder or projection  $a^4$  on the front side of said passage, and the

locking pin or block D is provided with a corresponding shoulder or projection  $d$  on its front side to engage said shoulder  $a^4$  on the draw-head to prevent the lock from jumping and also from creeping or climbing.

To enable the lock D to be readily lifted from above by the customary lifting-chain attached to the eye  $d'$  of the lock, the lock is provided on its back or rear side from the shoulder  $d$  with an offset  $d^2$  and a curved rear face  $d^3$ . The offset or enlargement  $a^3$  in the lock passage-way in the draw-head, in connection with the curved or cam-shaped rear face  $d^3$  of the lock, permits the lock to tilt backward sufficiently at its upper end to cause the shoulder or projection  $d$  on the lock to clear the shoulder  $a^4$  on the draw-head. To facilitate this mode of operation, the shoulder  $a^4$  on the draw-head is so combined or arranged in respect to the shoulder  $d$  on the lock that the shoulder  $d$  is slightly below the shoulder  $a^4$  when the lock is in its lowermost position, so that the lock can move upward a limited extent before the shoulders  $d$   $a^4$  engage, and the eye  $d'$  of the lock for the same purpose is also preferably located slightly forward of the middle of the lock to increase the ordinary slight backward upward pull of the lifting-chain on the lock.

To increase the practical operative bearing-surface of the tail  $b$  of the knuckle against the lock D and prevent the knuckle-tail from exerting any upward "climbing" or "creeping" tendency on the lock, I interpose between the lock D and the rear arm or tail  $b$  of the knuckle, which would otherwise bear directly against the lock when the knuckle is closed, a movable arm, shield, or protecting-plate F, which fits snugly between the upper and lower walls  $a^5$   $a^6$  of the draw-head, so that it can have no vertical movement and is adapted to move or swing horizontally on a center or pivot  $a^7$ , preferably consisting of a circular ledge on the lower wall of the draw-head, against which the curved end  $f$  of the arm, shield, or protecting-plate F fits. This shield or protecting-plate F fits flat against the lock D, and thus gives an extended bearing against the lock, thereby adding materially to the strength, durability, and wearing qualities of the coupler. The movable or piv-



oted shield or protecting-plate F is provided  
 with a fork or socket  $f'$  to receive the extreme  
 rear end or projection  $b'$  of the tail or rear  
 arm of the knuckle, said projection  $b'$  being  
 5 preferably rounded to fit in said socket or  
 fork  $f'$ . This connection  $b'f'$  between the  
 shield or protecting-plate F and the knuckle  
 causes the protecting-plate to be swung un-  
 10 der the lock D by the tail of the knuckle  
 when the knuckle is opened and to be swung  
 back into position to permit the lock D to  
 drop when the knuckle is closed. The mov-  
 able arm, shield, or protecting-plate F is also  
 15 preferably provided with a grooved projec-  
 tion  $f^2$  at the inner end of its fork for the  
 lock D to rest upon, the lock having a grooved  
 edge  $d^4$  to fit in the groove  $f^3$  of the projec-  
 tion  $f^2$ . The tail of the knuckle is also pro-  
 20 vided with an offset or shelf  $b^2$  at its rear edge  
 and the shield or protecting-plate F with a  
 notch  $f^4$  to fit on said shelf. In order, also,  
 that the lock D may be held in its lifted po-  
 sition while the knuckle is closed, so that the  
 knuckle may open when the cars are subse-  
 25 quently pulled apart, the hole or passage-way  
 $\alpha^2$  in the draw-head, through which the lock  
 D is inserted, is provided with the enlarge-  
 ment  $\alpha^3$ , before mentioned, to permit the lock  
 to be tilted, as illustrated in Fig. 4, suffi-  
 30 ciently to cause its edge  $d^4$  to project over the  
 grooved projection  $f^2$ , and thus hold the lock  
 in this position. This raised part or projec-  
 tion  $f^2$  is provided with a curved or cam face  
 $f^5$ , and the lock D is provided with a notch  $d^5$   
 35 and a curved or cam face  $d^6$ , which is engaged  
 by the curved or cam face  $f^5$  of the projec-  
 tion  $f^2$  and serves to push the lock back into  
 a vertical position when the lock by reason  
 of its notch  $d^5$  drops off the raised part or  
 40 projection  $f^2$ . To guide the descent of the  
 lock D, the shield F is provided with a guide  
 or ledge  $f^6$ . The raised projection  $f^2$  also  
 serves as a guide for the lock. The wall of  
 the draw-head is provided with a notch or  
 45 recess  $\alpha^8$  to receive the projection or ledge  $f^2$   
 on the shield or protecting-plate. The tail  
 or rear arm  $b$  of the knuckle is provided with  
 a hook or projection  $b^3$ , which fits in a recess  
 $\alpha^9$  in the pivot-arm of the draw-head, and this  
 50 hook, by engaging the shoulder of said recess,  
 serves to relieve the pivot-pin from strain and  
 also to prevent the cars from becoming un-  
 coupled in case the pivot-pin should be ac-  
 cidentally removed or become broken. The  
 55 hook or projection  $b^3$  on the tail or rear arm  
 of the knuckle overlapping the curved limb  
 $f^7$  of the fork  $f'$  also prevents the pivoted  
 shield or protecting-plate F from acciden-  
 tally swinging back when the knuckle is open,  
 60 and thus getting in the way of the closing of  
 the knuckle. The locking block or pin D is  
 made wedging in cross-section—that is to say,  
 its front face is thicker than its rear face—  
 and this wedging or inclined cross-sectional  
 65 shape of the locking-pin serves in operation to  
 crowd the hook or projection  $b^3$  on the tail of  
 the knuckle into proper engagement with the

shoulder of the recess  $\alpha^9$ , and thus to take up  
 any play or lost motion. When the knuckle  
 opens, the pivoted shield or protecting-plate 70  
 F is swung under the lock, so that the lock  
 will rest upon and be supported by it. To  
 prevent the lock D from being lifted entirely  
 out of the draw-head, I provide the draw-head  
 with a vertical slot or recess  $\alpha^{10}$  and the lock 75  
 with a vertical slot or recess  $d^7$  to receive the  
 block G, one side of which is preferably in-  
 clined or wedging, and which in connection  
 with said slots serves to limit the upward  
 movement of the lock D. The back wall  $d^8$  80  
 of the recess or slot  $d^7$  in the lock D is in-  
 clined to permit the stop-block G to fit flush  
 with the face of the lock to enable the stop-  
 block G and lock D to be thus inserted in  
 place. 85

The lock D is provided with the customary  
 stop-flange  $d^9$  at its upper end.

I claim—

1. The combination with a draw-head, knuc- 90  
 kle and gravity-lock, of a pivoted shield or  
 protecting-plate interposed between the lock  
 and the tail of the knuckle and bearing  
 against the upper wall of the draw-head, said  
 draw-head having a projection or shoulder  $\alpha^4$   
 on the front wall and said lock having a pro- 95  
 jection on its front side adapted to fit under  
 and engage said shoulder on the draw-head  
 to prevent the lock from jumping, substan-  
 tially as specified.

2. The combination with a pivoted knuckle 100  
 of a draw-head having a lock passage-way  
 furnished with a shoulder or projection on  
 the front wall, of a gravity-lock having a  
 shoulder or projection on its front side adapt-  
 ed to engage said shoulder on the draw-head 105  
 to prevent the lock from jumping upward,  
 said gravity-lock being made tapering in  
 cross-section with its largest part toward the  
 shoulder to aid in holding said shoulders in  
 engagement, substantially as specified. 110

3. The combination with a pivoted knuckle,  
 of a draw-head having a lock passage-way  
 furnished with a shoulder or projection and  
 an enlargement below the shoulder, of a grav-  
 ity-lock having a shoulder or projection 115  
 adapted to engage said shoulder in the draw-  
 head to prevent the lock from jumping up-  
 ward, the rear side of said lock having an off-  
 set and a curved or cam-shaped face, sub-  
 stantially as specified. 120

4. The combination with a pivoted knuckle,  
 of a draw-head having a lock passage-way  
 furnished with a shoulder or projection and  
 an enlargement below the shoulder, of a grav-  
 ity-lock having a shoulder or projection 125  
 adapted to engage said shoulder in the draw-  
 head to prevent the lock from jumping up-  
 ward, the rear side of said lock having an off-  
 set and a curved or cam-shaped face, and a  
 movable shield or protecting-plate interposed 130  
 between the lock and the tail of the knuckle  
 and bearing against the upper wall of the  
 draw-head, substantially as specified.

5. In an automatic car-coupler, the combi-



- 5 nation with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end  $f$  fitting and abutting against a curved boss  $a^7$  on the lower wall of the draw-head as a pivot, said shield or protecting-plate F having a fork or socket  $f'$  embracing a projection  $b'$  on the tail or rear arm of the knuckle, substantially as specified.
- 10 6. In an automatic car-coupler, the combination with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end  $f$  fitting and abutting against a curved boss  $a^7$  on the lower wall of the draw-head as a pivot, said shield or protecting-plate F having a fork or socket  $f'$  embracing a projection  $b'$  on the tail or rear arm of the knuckle, the tail or rear arm of the knuckle having a hook or projection  $b^3$  for the limb  $f'$  of said fork  $f'$  to fit against and thus prevent said shield or protecting-plate F from turning on its pivot when the knuckle is open, substantially as specified.

GUSTAF A. HERMANSON.

Witnesses:

H. M. MUNDAY,  
L. E. CURTIS.