

No. 830,857.

PATENTED SEPT. 11, 1906.

W. S. SCHROEDER.

CAR COUPLING.

APPLICATION FILED APR. 30, 1906.

2 SHEETS—SHEET 1.

Fig. 1

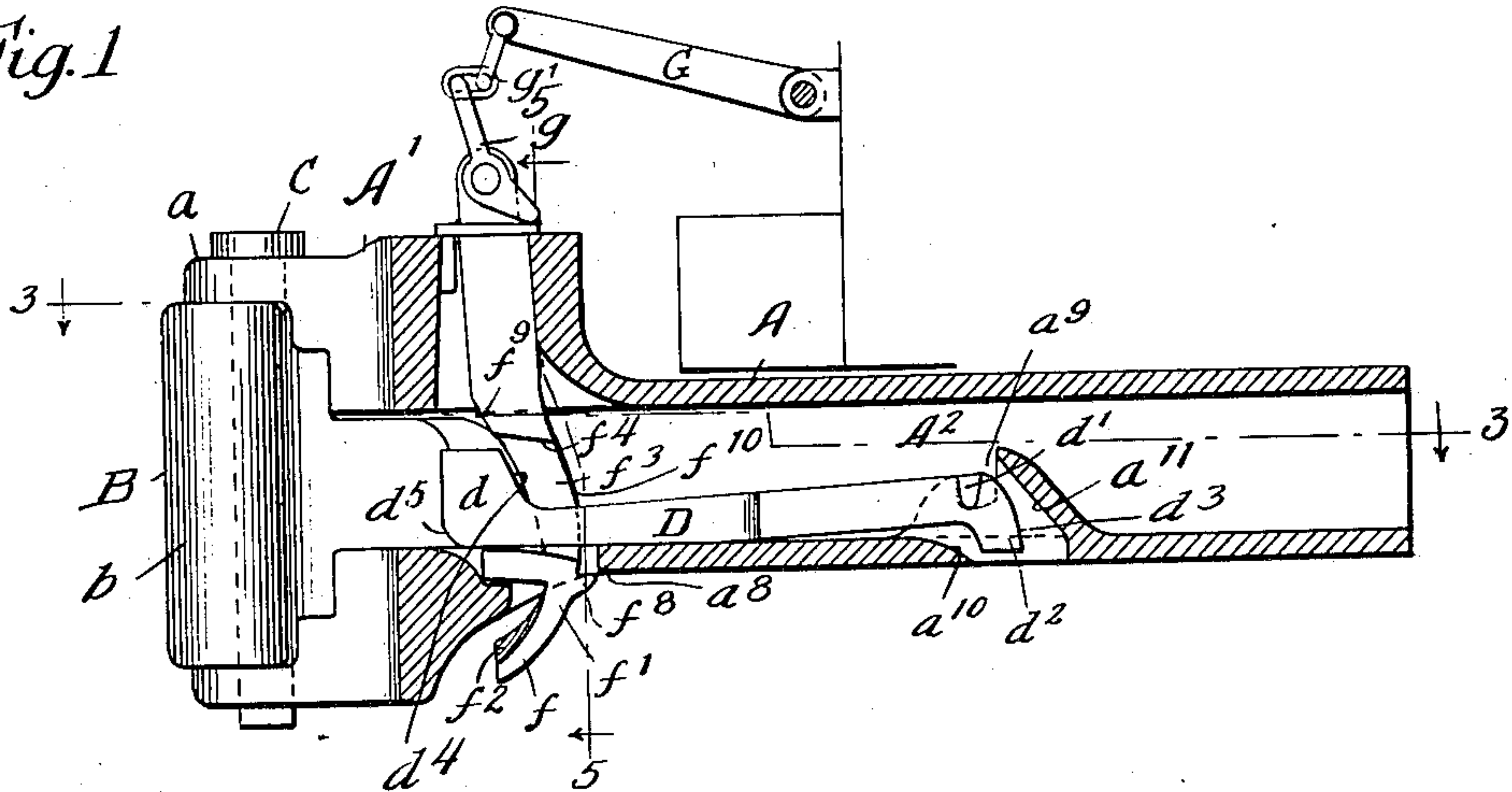


Fig. 2

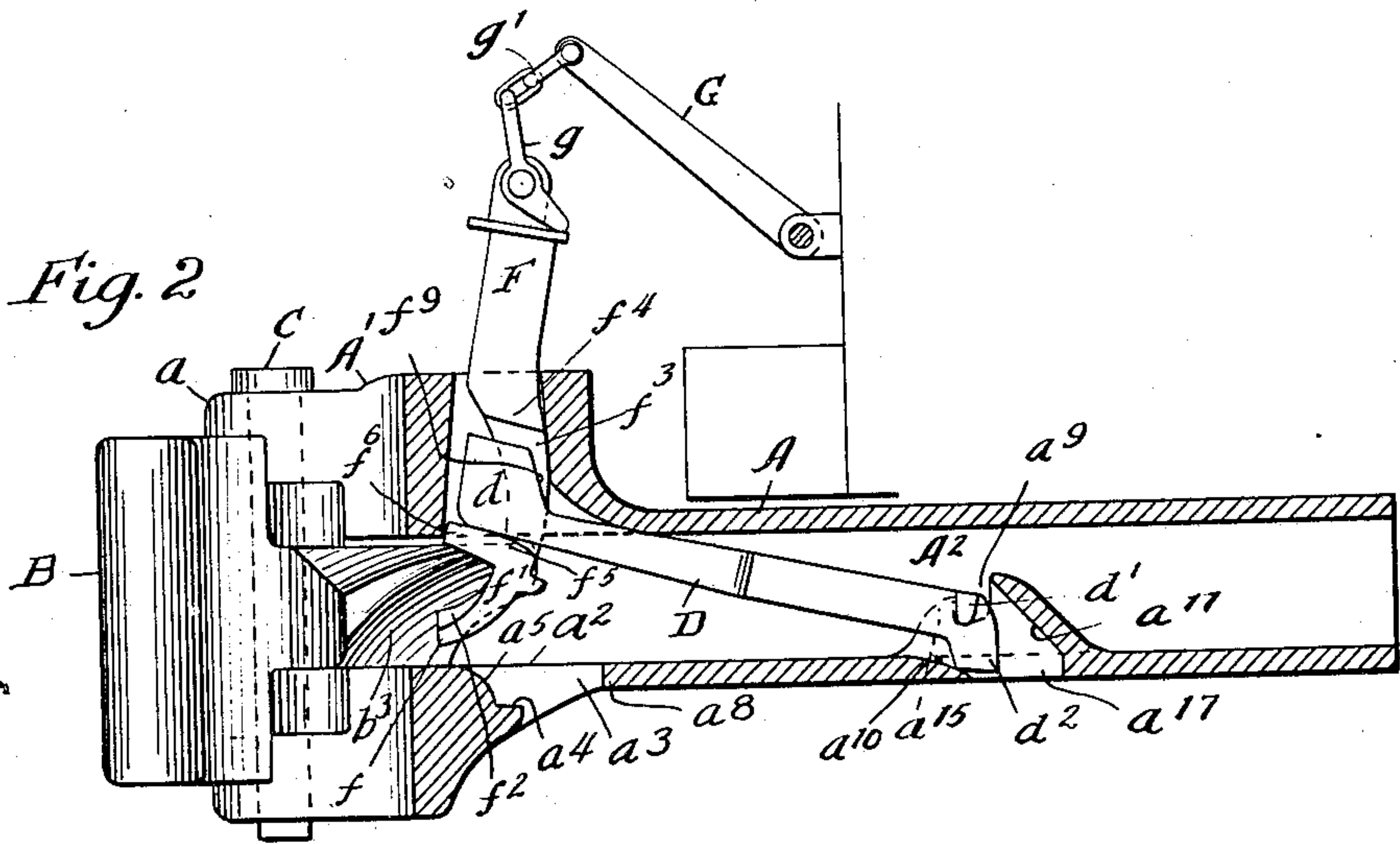
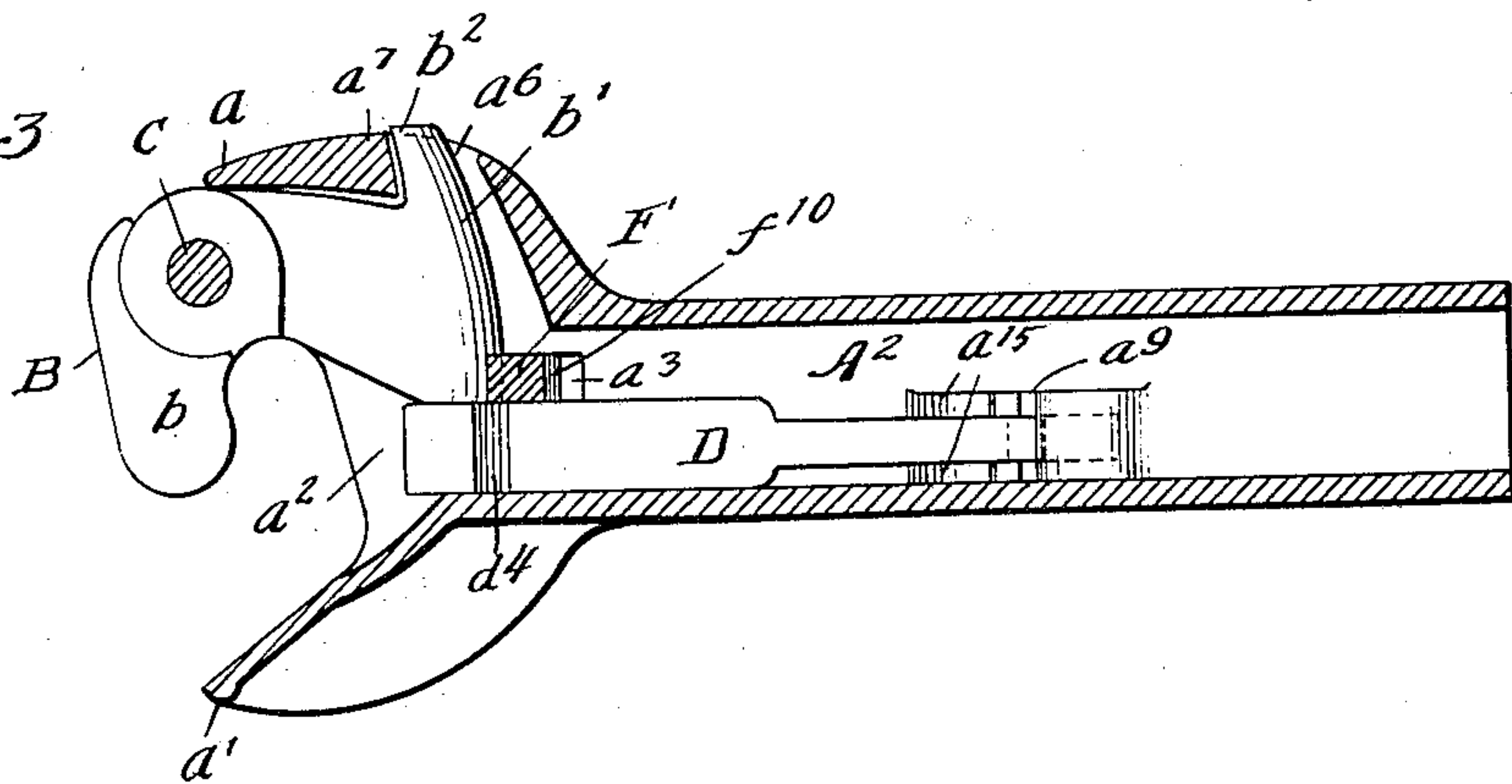


Fig. 3



No. 830,857.

PATENTED SEPT. 11, 1906.

W. S. SCHROEDER.  
CAR COUPLING.

APPLICATION FILED APR. 30, 1906.

2 SHEETS—SHEET 2.

Fig. 4

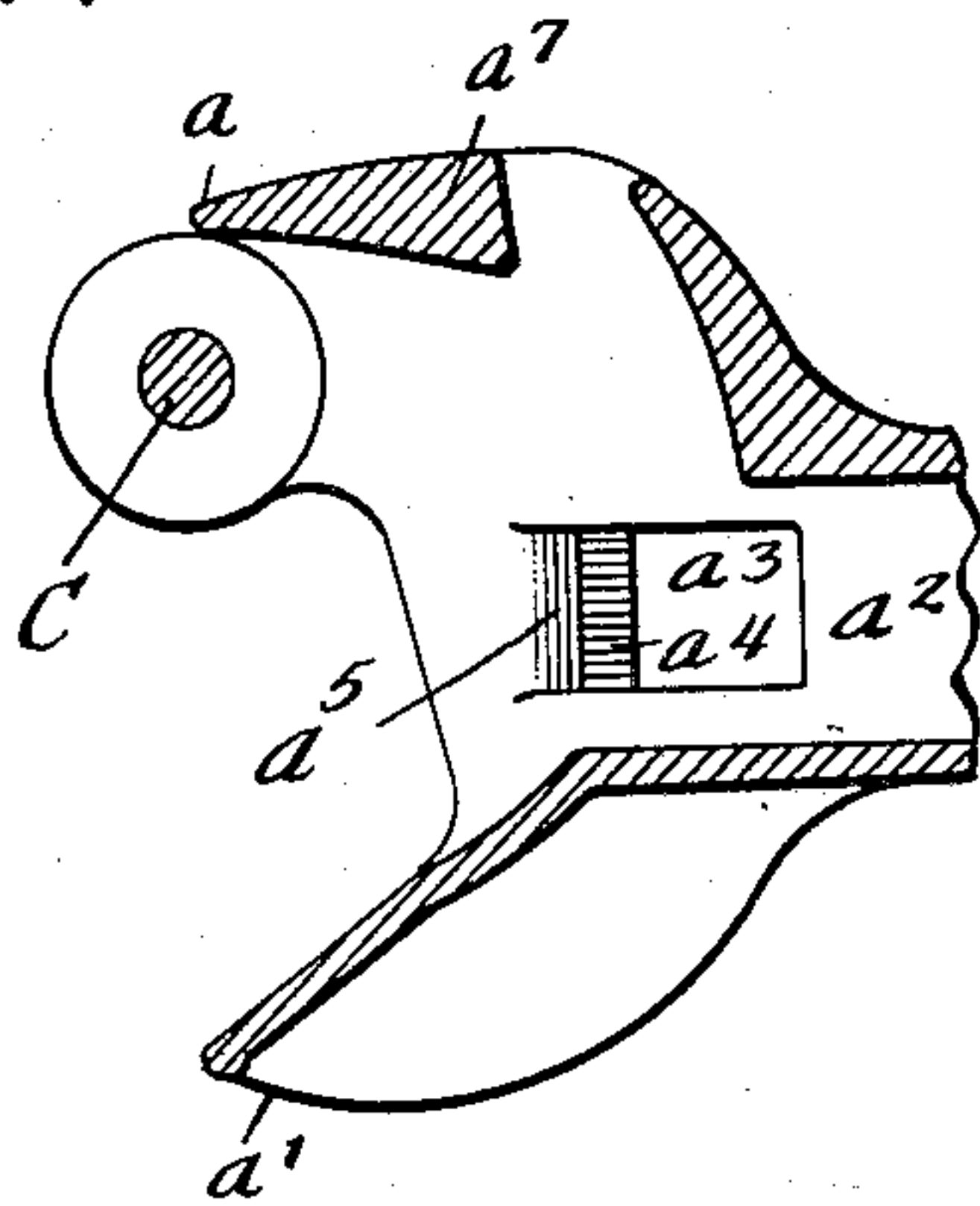


Fig. 6

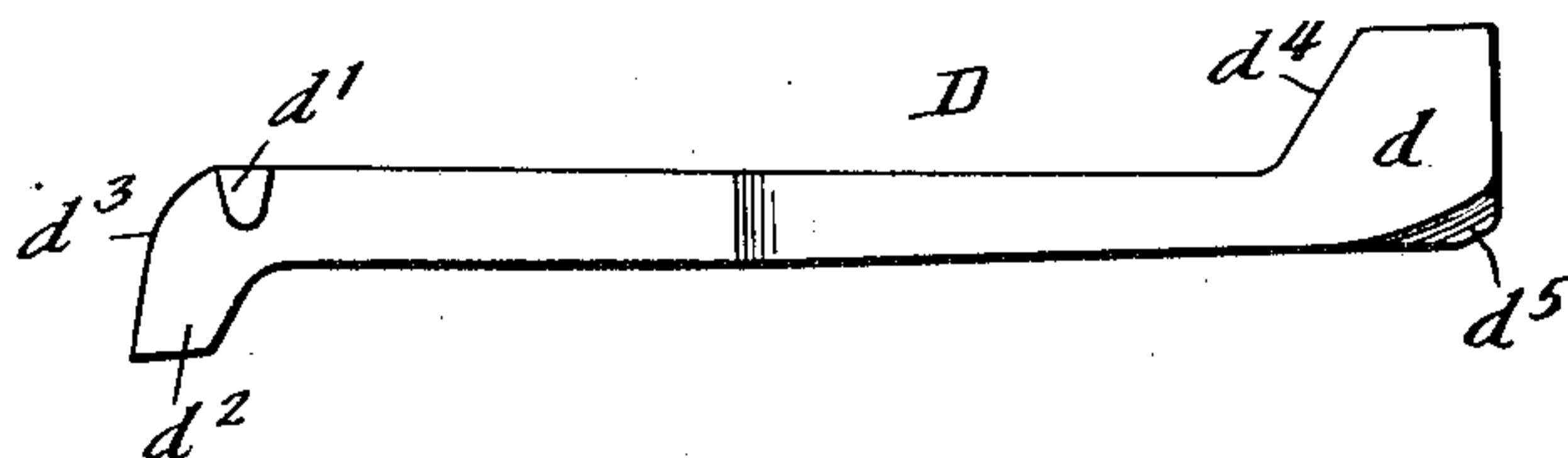


Fig. 5

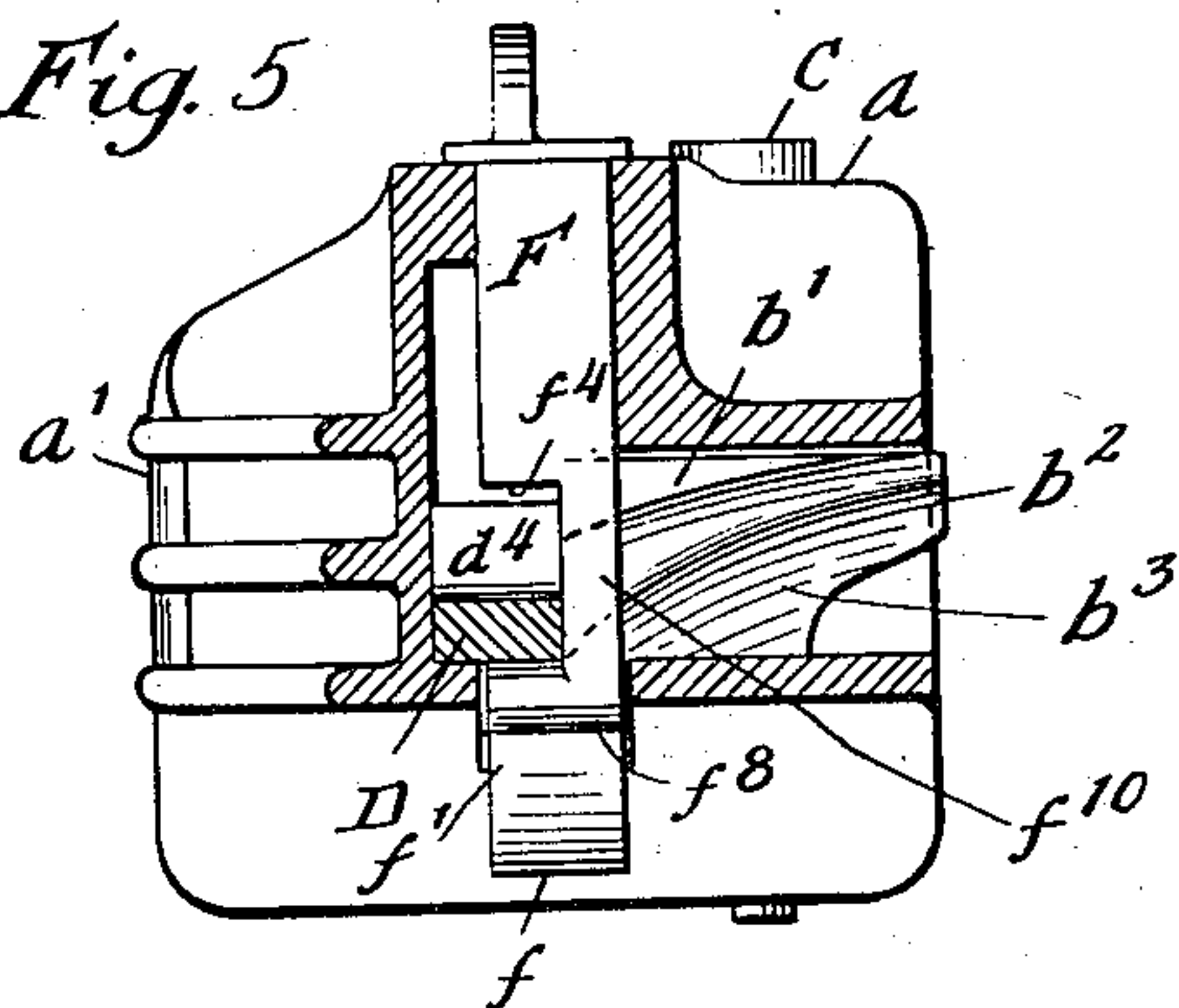


Fig. 7

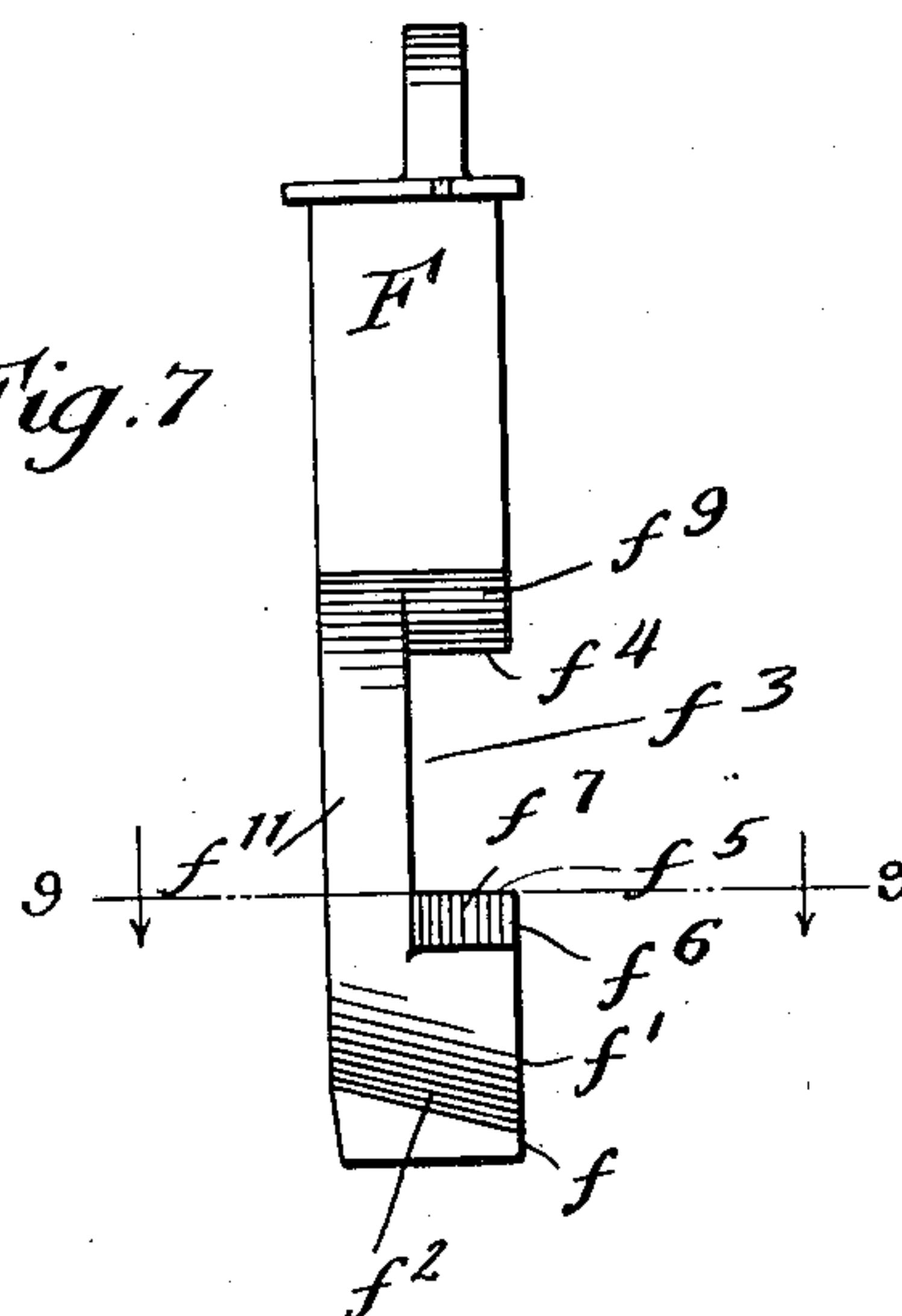


Fig. 8

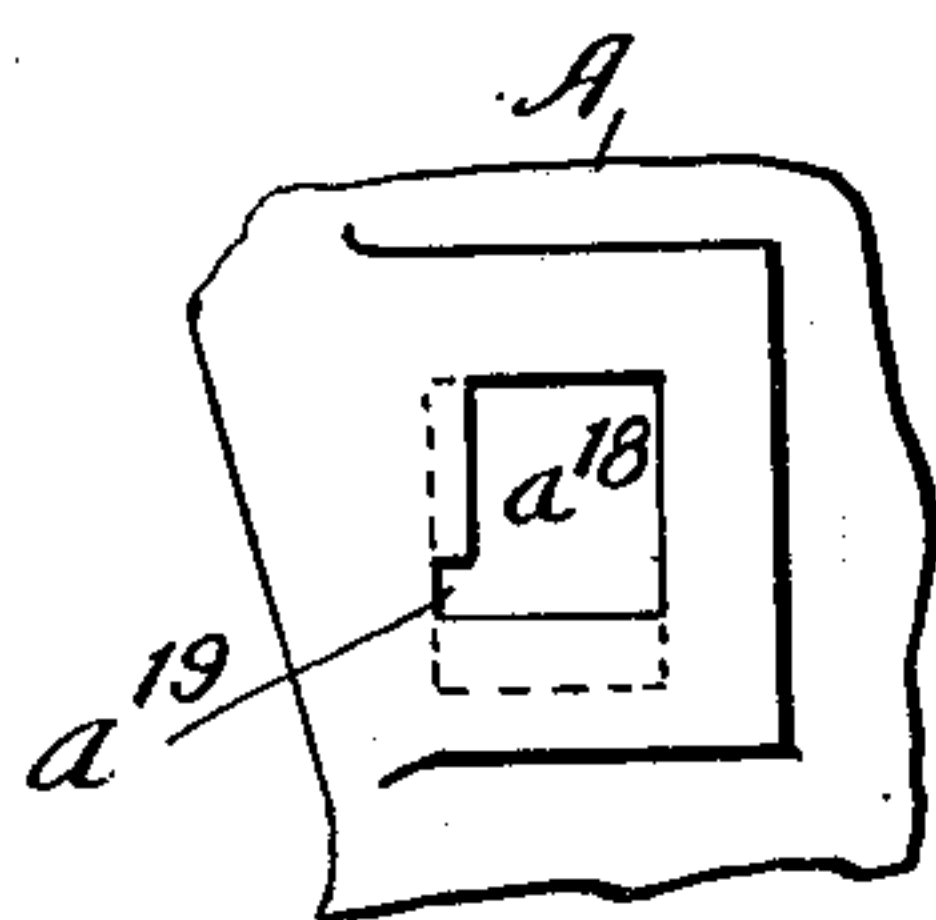
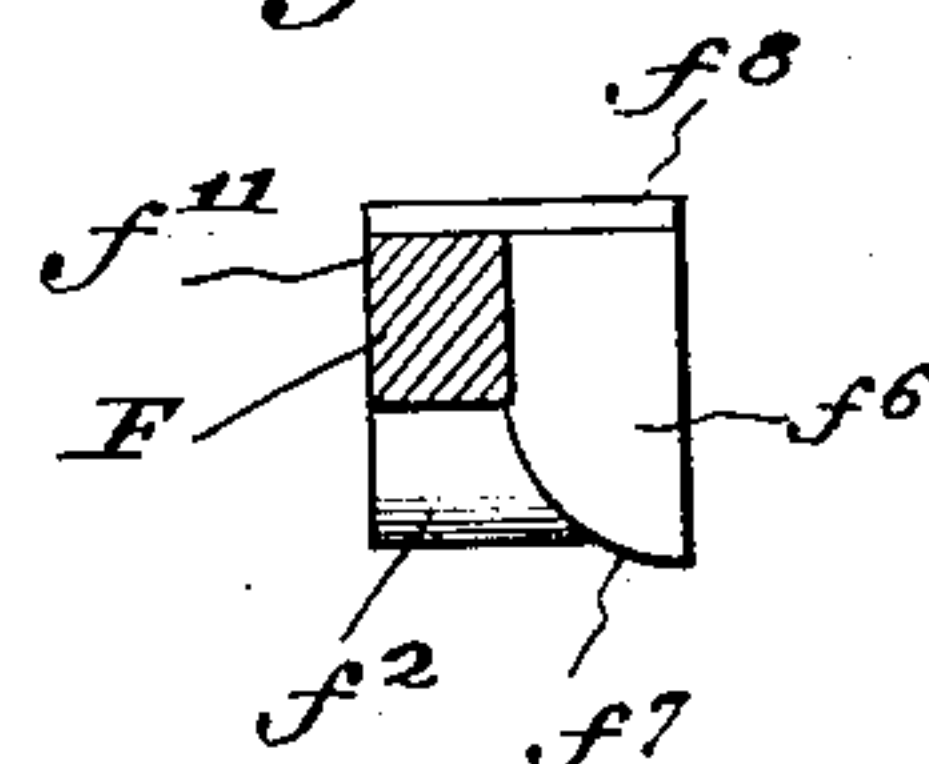


Fig. 9



Witnesses:

Wm. Geiger  
A. W. Munday,

Inventor:  
William S. Schroeder

By Munday, Carter & Adair  
Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM S. SCHROEDER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES H. FERRY, OF CHICAGO, ILLINOIS.

## CAR-COUPLING.

No. 830,857.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed April 30, 1906. Serial No. 314,368.

*To all whom it may concern:*

Be it known that I, WILLIAM S. SCHROEDER, 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 Car-Couplers, of which the following is a specification.

My invention relates to improvements in car-couplers, and more particularly to improvements in car-couplers of the kind employing a longitudinal locking-bar lying lengthwise in the chamber of the draw-bar and pivotally mounted at its rear end therein and provided with a lifting-pin for raising the front end of the locking-bar.

The object of my invention is to provide a car-coupler of this kind or class which will be of a strong, simple, efficient, and durable construction and at the same time have means for setting the lock in position for coupling and also for uncoupling and also means for throwing the knuckle automatically open and in which these functions may be performed or results accomplished without increasing the number of parts or pieces composing the coupler.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists, in connection with the draw-bar, pivoted knuckle, longitudinal locking-bar, and lifting-pin, in providing the rear arm or tail of the knuckle with an upwardly-extending knuckle-throwing incline or cam-surface and in providing the lifting-pin, which has a notch on its right side to receive the front end of the locking-bar, with a lock-set extension at its lower end adapted to engage a lock-set shoulder on the floor of the draw-head and support the lock in position for uncoupling, said lock-set extension projecting downwardly and forwardly and having an upwardly and backwardly extending knuckle-throwing incline or cam-surface adapted to engage the cooperating knuckle-throwing incline or cam-surface on the rear arm or tail of the knuckle, and thus throw the knuckle open when the lifting-pin is raised to the required extent.

My invention further consists in providing the lifting-pin at its back near its lower end with a shoulder or projection adapted to en-

gage the lower web or floor of the draw-head, and thus, in cooperation with the other parts, prevent the lock from creeping or moving upward excepting when the lock is lifted by the lifting-pin.

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.

In the accompanying drawings, forming a part of this specification, Figure 1 is a central vertical longitudinal section of a car-coupler embodying my invention. Fig. 2 is a similar view showing the lock and lifting-pin in the lock-set position with the knuckle thrown open ready for coupling. Fig. 3 is a horizontal section on line 3 3 of Fig. 1. Fig. 4 is a detail horizontal section of the draw-head with the knuckle, lock, and locking-pin removed. Fig. 5 is a cross-section on line 5 5 of Fig. 1. Fig. 6 is a detail side elevation of the locking-pin. Fig. 7 is a detail front elevation of the lifting-pin; and Fig. 8 is a detail partial plan view of the draw-head, showing the opening therein for the lifting-pin. Fig. 9 is a section on line 9 9 of Fig. 7.

In the drawings, A represents the draw-bar; A', the draw-head, having the customary pivot-arm *a* and guard-arm *a'*; B, the knuckle; C, the pivot-pin; D, the longitudinal locking-bar lying lengthwise in the hollow chamber A<sup>2</sup> of the draw-bar; F, the lifting-pin, and G the lifting-lever.

The bottom web or floor *a*<sup>2</sup> of the draw-head has an opening *a*<sup>3</sup> therein for the lower end of the lifting-pin to project through, and at the front side of this opening there is provided a lock-set ledge or shoulder *a*<sup>4</sup>, adapted to engage the lock-set toe or edge *f* of the lock-set extension *f'* of the lifting-pin F, and thus set or hold the lock in position for uncoupling. The front side of the opening *a*<sup>3</sup> in the bottom wall or floor of the draw-head is also furnished with an upwardly and forwardly extending inclined or curved face *a*<sup>5</sup> to enable the lock-set extension *f'* of the lifting-pin F to project forward when the lifting-pin is lifted above its lock-set position.

The knuckle B has the customary front arm or nose *b* and rear arm or tail *b'*, furnished with the customary hook or projec-



tion  $b^2$ , fitting in a recess or opening  $a^6$  in the draw-head and engaging a corresponding shoulder  $a^7$  on the draw-head to afford an additional anchorage for the knuckle in the draw-head when the knuckle is closed and partially relieve the pivot-pin C from strain. The rear arm or tail  $b'$  of the knuckle is also provided on its under side with upwardly-extending knuckle-throwing incline or cam-surface  $b^3$ , adapted to be engaged by the cooperating upwardly and rearwardly extending knuckle-throwing incline or cam-surface  $f^2$ , and thus throw the knuckle open when the lifting-pin is lifted by the lifting-lever G above the lock-set position and its lower end tilted forward and its upper end backward, as is done when the lifting-pin is thus raised to the required extent. The lifting-pin F is provided with a notch, recess, or cut-away portion  $f^3$  in its right side to receive the front end  $d$  of the longitudinal locking-bar D, and thus cause the front end of the locking-bar to be raised by the lifting-pin. This notch or recess  $f^3$  in the lock forms an upper shoulder  $f^4$ , which fits above the locking-bar and a lower shoulder  $f^5$ , which fits below the locking-bar and engages it to raise it. The lower shoulder  $f^5$  has a forwardly-projecting lip  $f^6$ , which is provided with a curved, beveled, or inclined face  $f^7$ , adapted to be engaged by the rear arm or tail  $b'$  of the knuckle when the knuckle swings open, and thus dislodge the lifting-pin or its lock-set toe  $f$  from the lock-set ledge or shoulder  $a^4$  on the draw-head, and thus cause the lock itself to rest directly upon the rear arm or tail of the knuckle and be set or supported in position for coupling when the knuckle again swings shut. The lifting-pin F is also provided near its lower end at its back with a lock-creeping-prevention shoulder or projection  $f^8$ , which is adapted to engage the edge  $a^8$  of the draw-head at the rear side of the lifting-pin opening therein when the lifting-pin is in its lowermost position, and thus hold the lock in its lowermost position and prevent its accidentally moving upward. The lip  $f^6$  on the lifting-pin by its engagement with the lock-set ledge  $a^4$  of the draw-head holds this creeping-prevention shoulder in engagement with the cooperating leg or shoulder of the draw-head.

The longitudinal locking-bar D has an integral pivot-lug  $d'$  at its rear end fitting in a cooperating notch or bearing  $a^9$  in the lock pivot-lugs  $a^{15}$  of the draw-head. The locking-bar D is also provided with a curved foot or dog  $d^2$  at its extreme rear end, furnished with a cam or curved surface  $d^3$ , the foot or dog  $d^2$  fitting in a corresponding opening or recess  $a^{17}$  in the bottom wall of the draw-bar, which is furnished with curved or inclined faces  $a^{10}$  and  $a^{11}$ , so that the locking-bar D may have the necessary slight longitudinal or forward and backward movement as re-

quired to enable it to properly cooperate with the other parts. The front end of the locking-bar fits loosely in the notch or recess  $f^3$  of the lifting-pin F, so that the lifting-pin may move forward at its lower end in respect to the locking-bar and so that the locking-bar may also have a slight longitudinal movement lengthwise of the draw-bar independent of the locking-pin. The front end  $d$  of the locking-bar D is furnished with an inclined or beveled shoulder  $d^4$ , which engages a cooperating beveled shoulder  $f^9$  on the lifting-pin F to aid in throwing the lower end of the lifting-pin backward when the lock and lifting-pin move to their lowermost position, and thus cause the lock-creeping-prevention shoulder on the lifting-pin to properly engage the cooperating shoulder on the draw-head and to keep or hold these parts in proper engagement. The front end  $d$  of the lock D is also provided with a curved, beveled, or inclined face  $d^5$  at its extreme front corner, which engages or rides upon the upper face of the rear arm or tail of the knuckle and facilitates the dropping of the lock into position when the knuckle closes.

The opening  $a^{18}$  in the upper face of the draw-head is provided with a notch  $a^{19}$  to accommodate the forwardly-projecting inclined lip  $f^8$  at the lower end of the lifting-pin F, and thus enable the lifting-pin to be removed from the draw-head.

The lifting-lever G is connected to the lifting-pin F by a clevis  $g$  and link  $g'$ .

The rear face of the lifting-pin F is backwardly curved or inclined, as shown at  $f^{10}$ , and its front face at  $f^{11}$  correspondingly curved or inclined, the former curve or incline  $f^{10}$  serving to throw the lower end of the lifting-pin forward as it is raised and the latter-mentioned curve or incline  $f^{11}$  serving to give more room for the rear arm or tail of the knuckle as it swings open.

I claim—

1. In a car-coupler, the combination with the draw-bar and draw-head, of a knuckle having a rear arm or tail furnished with a knuckle-throwing cam or incline on its under face, a longitudinally-extending locking-bar in the chamber of the draw-bar, and a vertically-movable lifting-pin having a notch or recess on one side to receive and engage the front end of the locking-bar, and provided with a downwardly and forwardly projecting lock-set extension furnished with a knuckle-throwing cam or incline engaging said knuckle-throwing cam or incline on the rear arm or tail of the knuckle, substantially as specified.

2. In a car-coupler, the combination with the draw-bar and draw-head, of a knuckle having a rear arm or tail furnished with a knuckle-throwing cam or incline on its under face, a longitudinally-extending locking-bar



in the chamber of the draw-bar, and a vertically-movable lifting-pin having a notch or recess on one side to receive and engage the front end of the locking-bar, and provided  
 5 with a downwardly and forwardly projecting lock-set extension furnished with a knuckle-throwing cam or incline engaging said  
 10 knuckle-throwing cam or incline on the rear arm or tail of the knuckle, said lifting-pin having also at its back near its lower end a shoulder engaging the bottom web or floor of the draw-head to prevent the lock from creeping, substantially as specified.

3. In a car-coupler, the combination with  
 15 the draw-bar and draw-head, of a knuckle having a rear arm or tail furnished with a knuckle-throwing cam or incline on its under face; a longitudinally-extending locking-bar in the chamber of the draw-bar, and a vertically-movable lifting-pin having a notch or  
 20 recess on one side to receive and engage the front end of the locking-bar, and provided with a downwardly and forwardly projecting lock-set extension furnished with a knuckle-throwing cam or incline engaging said knuckle-throwing cam or incline on the rear arm  
 25 or tail of the knuckle, the bottom web or floor of the draw-head having a lock-set ledge or shoulder adapted to be engaged by the toe or edge of said lock-set extension of the lifting-pin, substantially as specified.

4. In a car-coupler, the combination with the draw-bar and draw-head, of a knuckle having a rear arm or tail furnished with a  
 35 knuckle-throwing cam or incline on its under face, a longitudinally-extending locking-bar in the chamber of the draw-bar, and a vertically-movable lifting-pin having a notch or recess on one side to receive and engage the  
 40 front end of the locking-bar, and provided with a downwardly and forwardly projecting lock-set extension furnished with a knuckle-throwing cam or incline engaging said knuckle-throwing cam or incline on the rear arm  
 45 or tail of the knuckle, the bottom web or floor of the draw-head having a lock-set ledge or shoulder adapted to be engaged by the toe or edge of said lock-set extension of the lifting-pin, said lifting-pin having also a  
 50 forwardly-projecting lip furnished with an inclined face adapted to be engaged by the knuckle-tail when the knuckle swings open and thus dislodge the lifting-pin from its lock-set position, substantially as specified.

5. In a car-coupler, the combination of a  
 55 draw-head and draw-bar, with a knuckle, a longitudinally-movable locking-bar lying lengthwise in the hollow or chamber of the draw-bar and having a pivotal connection therewith at its rear end, and a lifting-pin  
 60 having a notch or recess on one side to receive the front end of the locking-bar and provided with an extension at its lower end having a curved or inclined face to engage

the knuckle-tail and throw the knuckle open, 65 substantially as specified.

6. In a car-coupler, the combination of a draw-head and draw-bar, with a knuckle, a longitudinally-movable locking-bar lying  
 70 lengthwise in the hollow or chamber of the draw-bar and having a pivotal connection therewith at its rear end, and a lifting-pin having a notch or recess on one side to receive the front end of the locking-bar and  
 75 provided with an extension at its lower end having a curved or inclined face to engage the knuckle-tail and throw the knuckle open, the knuckle-tail having a cooperating incline or cam, substantially as specified.

7. In a car-coupler, the combination of a  
 80 draw-head and draw-bar, with a knuckle, a longitudinally-movable locking-bar lying lengthwise in the hollow or chamber of the draw-bar and having a pivotal connection therewith at its rear end, and a lifting-pin  
 85 having a notch or recess on one side to receive the front end of the locking-bar and provided with an extension at its lower end having a curved or inclined face to engage the knuckle-tail and throw the knuckle open, 90  
 the knuckle-tail having a cooperating incline or cam, the lower shoulder of the lifting-pin formed by the notch or recess therein having a forwardly-projecting lip provided with an inclined face, substantially as specified. 95

8. In a car-coupler, the combination of a draw-head and draw-bar, with a knuckle, a longitudinally-movable locking-bar lying  
 100 lengthwise in the hollow or chamber of the draw-bar and having a pivotal connection therewith at its rear end, and a lifting-pin having a notch or recess on one side to receive the front end of the locking-bar and  
 105 provided with an extension at its lower end having a curved or inclined face to engage the knuckle-tail and throw the knuckle open, the lifting-pin being also provided with a shoulder to prevent creeping of the lock, substantially as specified.

9. In a car-coupler, the combination of a  
 110 draw-head and draw-bar, with a knuckle, a longitudinally-movable locking-bar lying lengthwise in the hollow or chamber of the draw-bar and having a pivotal connection therewith at its rear end, and a lifting-pin  
 115 having a notch or recess on one side to receive the front end of the locking-bar and provided with a projecting lip and an extension at its lower end having a curved or inclined face to engage the knuckle-tail and  
 120 throw the knuckle open, the knuckle-tail having a cooperating incline or cam, the lifting-pin being also provided with a shoulder to prevent creeping of the lock and said lip on the lifting-pin cooperating with the draw-  
 125 head to hold said creeping-prevention shoulder in engagement with the draw-head, substantially as specified.



10. In a car-coupler, the combination with  
a draw-head, a draw-bar, of a knuckle, a lon-  
gitudinally-extending locking-bar, and a ver-  
tically-movable lifting-pin adapted to tilt  
5 forward at its lower end and backward at its  
upper end, and provided with a knuckle-  
throwing extension at its lower end, said ex-

tension of the lifting-pin having an inclined  
or curved face to engage the rear arm or tail  
of the knuckle, substantially as specified.

WILLIAM S. SCHROEDER.

Witnesses:

H. M. MUNDAY,

PEARL ABRAMS.