

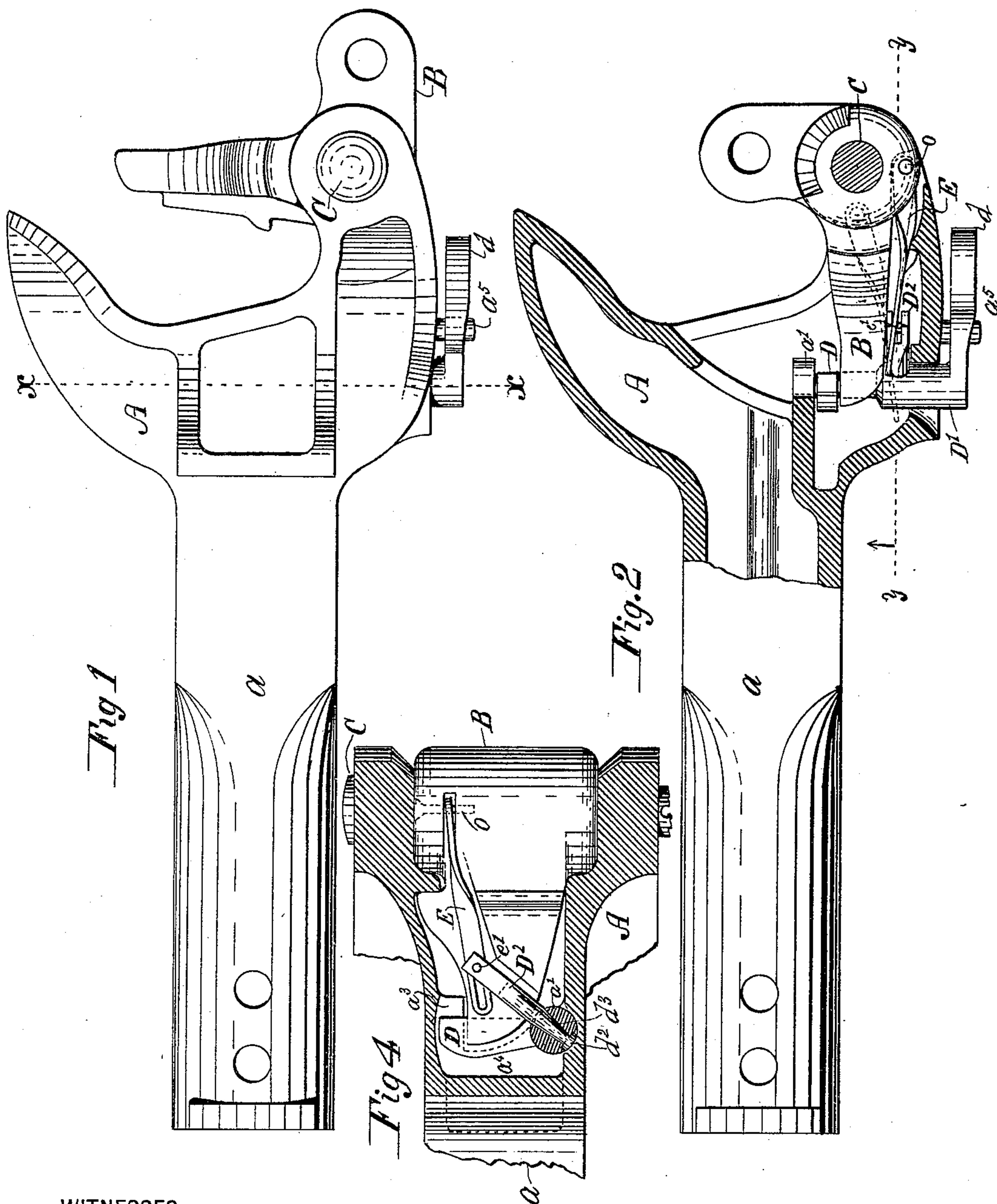
(No Model.)

2 Sheets—Sheet 1.

C. H. DALE.  
CAR COUPLING.

No. 481,930.

Patented Sept. 6, 1892.



WITNESSES:

*C. R. Ferguson*  
*Walter Smith*

INVENTOR

*Charles H. Dale*

BY *Edwin H. Brown*

HIS ATTORNEY

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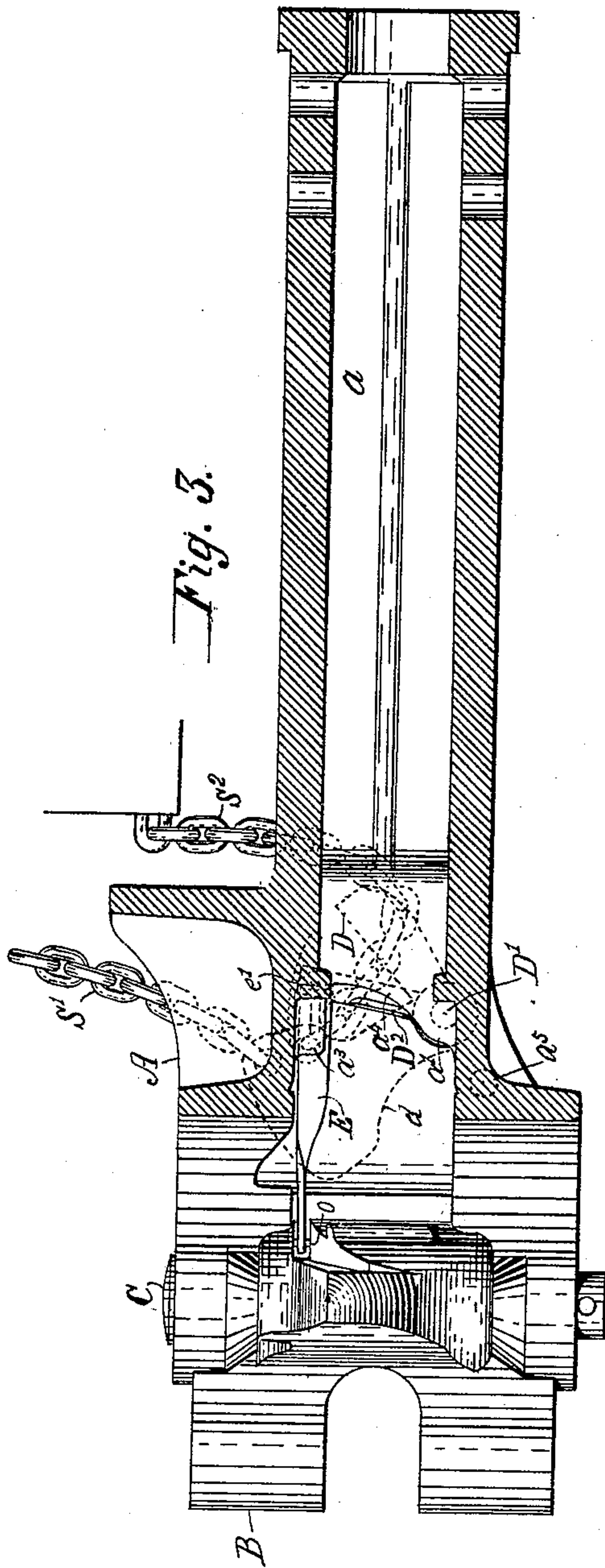


Fig. 3.

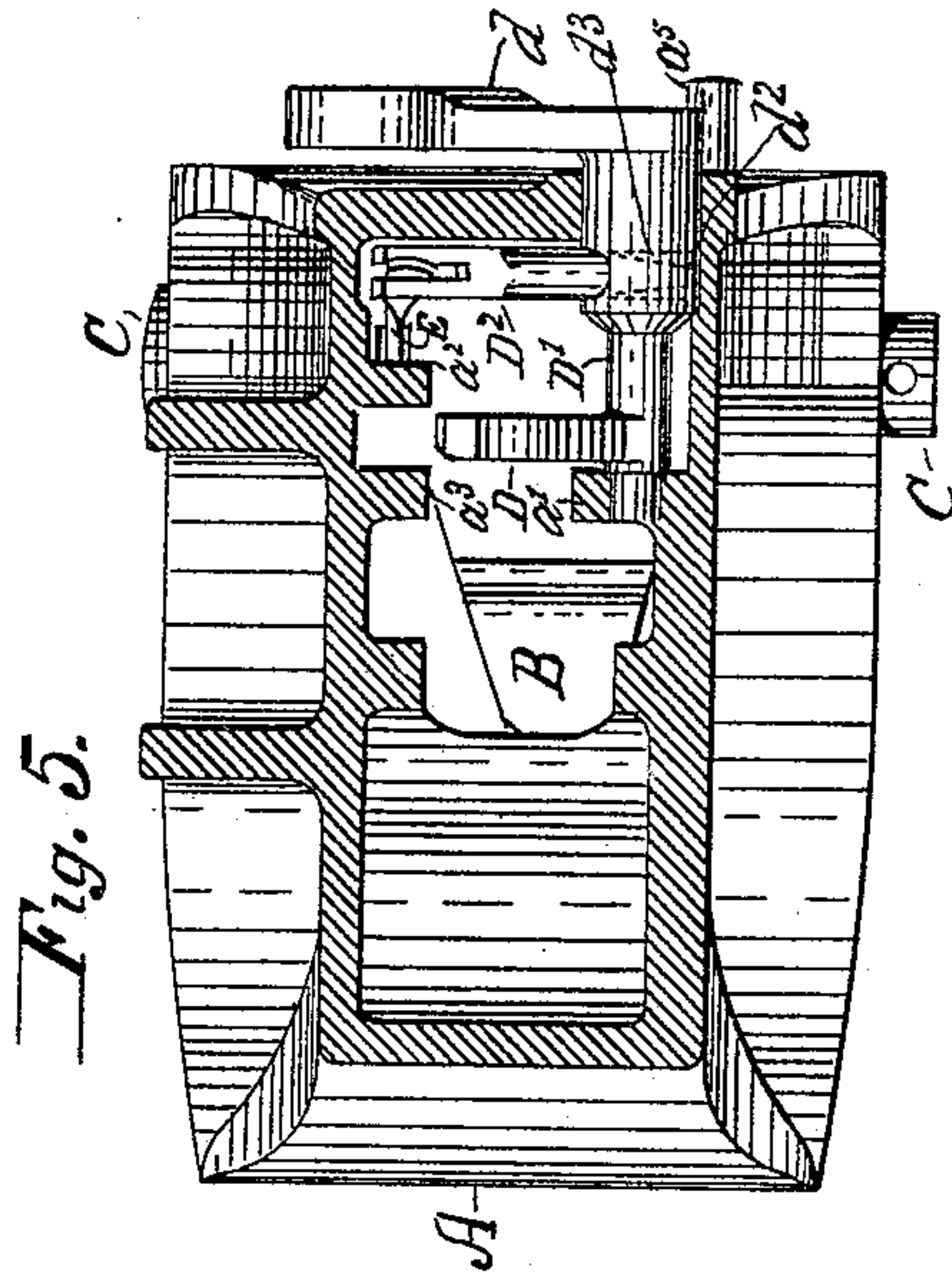


Fig. 5.

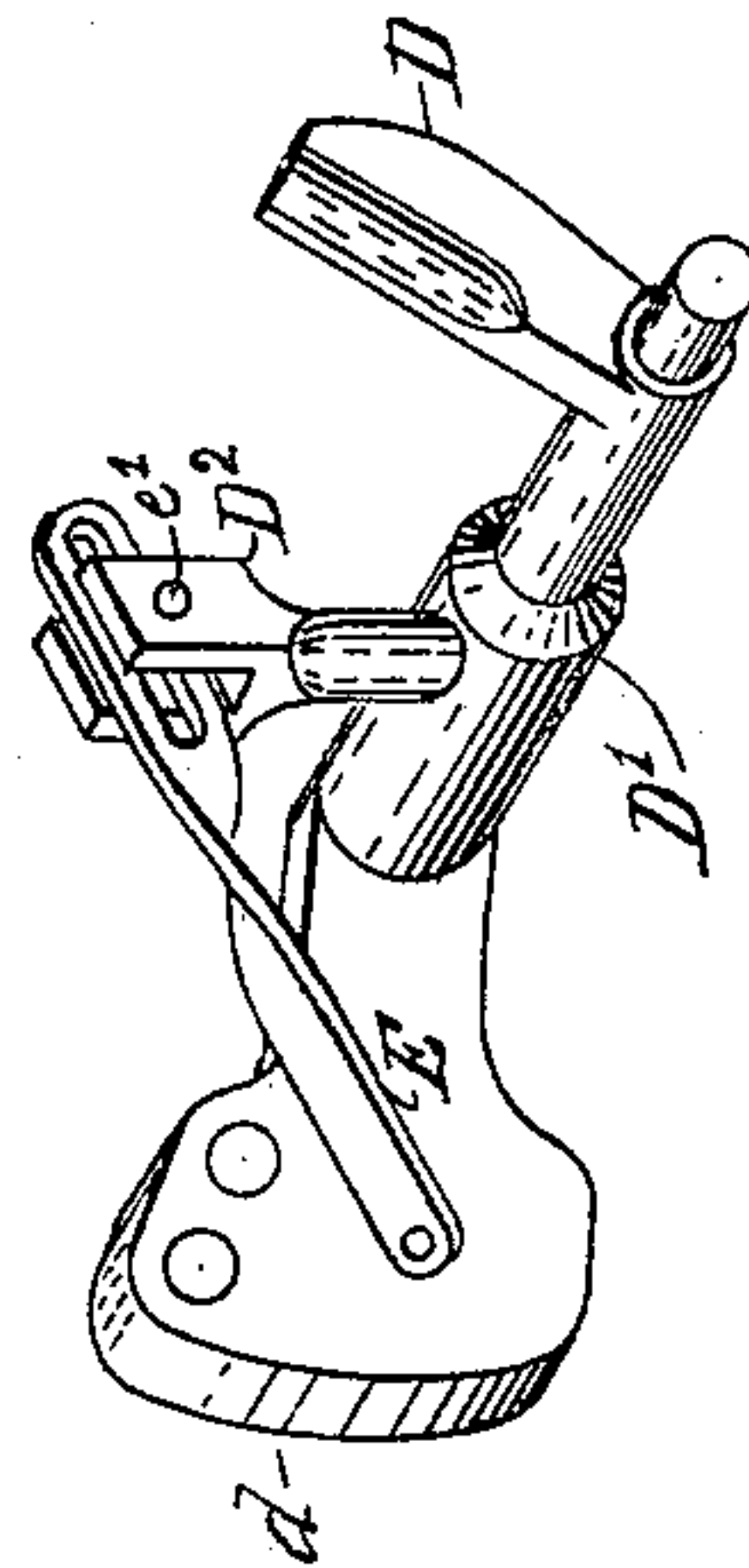


Fig. 6.

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# UNITED STATES PATENT OFFICE.

CHARLES H. DALE, OF NEW YORK, N. Y., ASSIGNOR TO THE EMPIRE CAR COUPLER COMPANY, OF WEEHAWKEN, NEW JERSEY.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 481,930, dated September 6, 1892.

Application filed March 24, 1892. Serial No. 426,276. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. DALE, of the city, county, and State of New York, have invented a certain new and useful Improvement in Car-Couplers, of which the following is a specification.

I will describe a car-coupler embodying my improvement and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a top view of a draw-head embodying my improvement. Fig. 2 is a horizontal section of the same. Fig. 3 is a central longitudinal section. Fig. 4 is a longitudinal section taken at the plane of the dotted line  $yy$ , Fig. 2. Fig. 5 is a transverse section taken at the plane of the dotted line  $xx$ , Fig. 1. Fig. 6 is a perspective view of a dog or block and appurtenances.

Similar letters of reference designate corresponding parts in all the figures.

A designates a draw-head. As shown, it is bifurcated at its forward extremity. It has a shank or bar  $a$ , which may be fastened to a car in the ordinary manner.

B designates a knuckle of the draw-head. It consists of an elbow-lever fulcrumed between its ends by a pin C to the bifurcate extremities of the draw-head. The outer portion of the knuckle B is forked, so that an ordinary coupling-link may be inserted within it and is provided with holes for the reception of an ordinary coupling-pin. The inner part of the knuckle is shown as tapering toward its extremity, and at the extremity is rounded on its under side and also on that side which is foremost when this end of the coupler swings into the draw-head, the object of thus rounding the extremity being to enable it to automatically force back a dog or block D, by which it is to be retained when in use. The dog or block D extends upwardly from a rock-shaft D'. This rock-shaft D' has a bearing at one end in a projection  $a'$ , formed in the draw-head, and is supported at the other end by passing through and fitting a hole in the side of the draw-head. Its outer end is provided with an arm  $d$ , whereby it may be rocked. The upper end of the dog or block when in an operative position fits between two projections  $a^2a^3$ , whereby it is sus-

tained against lateral strain. A bridge  $a^4$  may extend between the projection  $a'$  and the projection  $a^3$  to aid in sustaining the dog or block laterally. It will be seen that the forward corner of the dog or block is rounded, so that when the inner end of the knuckle contacts with it the dog or block will be forced rearwardly to allow the passage of the knuckle beyond it. The arm  $d$  forms a counter-weight which will always bring the dog or block to its operative position when permitted to do so. A pin  $a^5$  on the exterior of the draw-head prevents the arm  $d$  from dropping too far down. If the opening in the side of the draw-head through which the rock-shaft D' passes be suitably shaped and the rock-shaft and its appurtenances are made of malleable metal, the latter may be introduced into place, and afterward the arm  $d$  may be bent into the position in which it is illustrated in the drawings to prevent it from assuming a position which will permit of the removal of the rock-shaft with the dog or block. From the rock-shaft D' an arm D<sup>2</sup> also extends. This may be formed separately and inserted after the rock-shaft and its other appurtenances are in place. It may be made with a T head  $d^2$ , fitted into a cavity  $d^3$  in the rock-shaft, and afterward twisted into a position at right angles to that in which it entered the cavity, so as to prevent its withdrawal so long as it is maintained in the position into which it has been adjusted. In this case the cavity in the rock-shaft will have a mouth or opening corresponding to the head of the arm and will be formed inward of this mouth, so that the head after being inserted may be turned around behind the mouth or opening. It will be seen that the arm D<sup>2</sup> projects farther forward than the arm  $d$ . From the upper end of the arm D<sup>2</sup> to a point on the knuckle adjacent to the pin C a link E extends. This link enters a recess in the knuckle and is pivotally connected to the knuckle by a pin  $e$ , passing through the knuckle and link. The end of the link E, which connects with the arm D<sup>2</sup>, is longitudinally slotted and receives through it a pin  $e'$ , which is fastened to said arm. This connection is to provide for lost motion.

Owing to the lost motion provided between the arm D<sup>2</sup> and the knuckle it is possible by



raising the arm  $d$  to unlock the knuckle and leave it unlocked so that it may be swung aside at any subsequent time by a forward movement of one of two cars, which it contributes to couple or otherwise. The arm  $d$  may also be moved far enough to not only unlock the knuckle but to swing it into a position to uncouple two cars which it contributes to couple.

10 The forward end of the arm  $d$  may have connected to it a chain  $s'$  or analogous contrivance for enabling the attendant of a car to release the coupling. A chain or analogous contrivance  $s^2$  may also be connected between  
15 this arm and a portion of the car, so that in the event of the detachment of the draw-bar through any accident its first forward movement will cause the dog or block  $D$  to release the knuckle and will also cause the knuckle  
20 to swing open.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a draw-head and a knuckle pivotally connected thereto, of a  
25 retaining dog or block, mechanism comprising an arm movable in a vertical plane for operating the dog or block, and means for swinging said knuckle open after it is released from the dog or block by the vertical move-  
30 ment of the dog or block operating arm, substantially as specified.

2. The combination, with a draw-head and a knuckle pivotally connected thereto, of the retaining dog or block, operating mechanism  
35 therefor, and means extending from the dog or block operating mechanism and having a

lost-motion action with the knuckle for swinging the knuckle open, substantially as specified.

3. The combination, with a draw-head and  
40 a knuckle pivotally connected thereto, of a dog or block for locking the knuckle, an arm having an oscillating movement relatively to the draw-head, and a rod connected pivotally with the knuckle and also connected with  
45 said arm for swinging said knuckle open after it is unlocked, substantially as specified.

4. The combination, with a draw-head and a knuckle pivotally connected thereto, of a movable dog or block for locking the knuckle  
50 when closed, a rock-shaft supported in the draw-head, an arm extending from the rock-shaft, and a rod pivotally connected with the knuckle and having a loose connection with the arm extending from the rock-shaft, sub-  
55 stantially as specified.

5. The combination, with a draw-head and a knuckle pivotally connected thereto, of a dog or block consisting of an arm, a rock-shaft supported in the draw-head and having  
60 the said arm connected with it, a second arm extending from said rock-shaft, and a rod pivotally connected with the knuckle and having a loose connection with the second-mentioned arm, substantially as specified.  
65

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. DALE.

Witnesses:

C. R. FERGUSON,  
ANTHONY GREF.