No. 844,483. PATENTED FEB. 19, 1907.

W. H. SUTHERLAND & R. N. VAN HORNE.

AUTOMATIC AIR COUPLING DEVICE.

APPLICATION FILED JUNE 16, 1906.

2 SHEETS—SHEET 1.

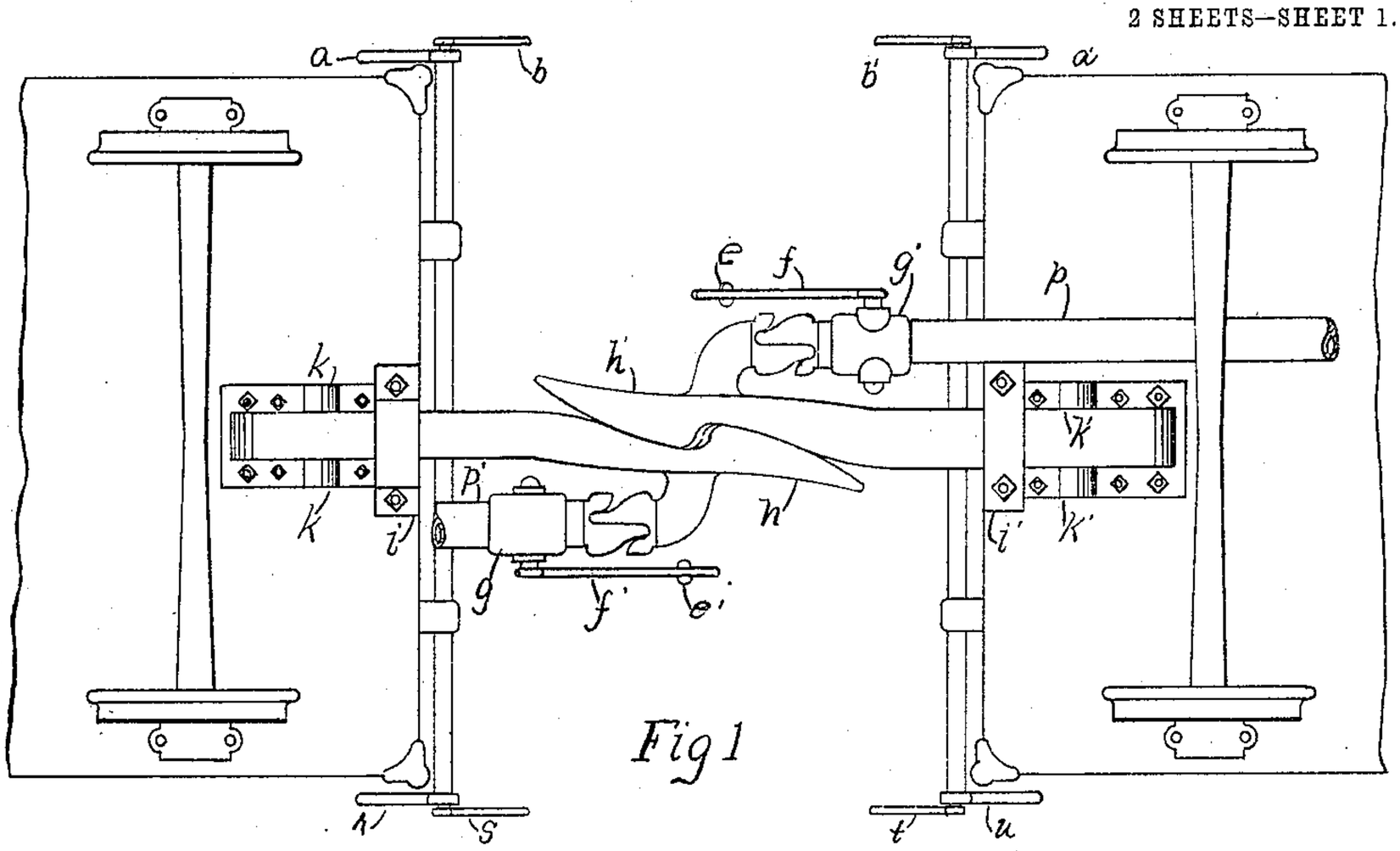

Fig 1

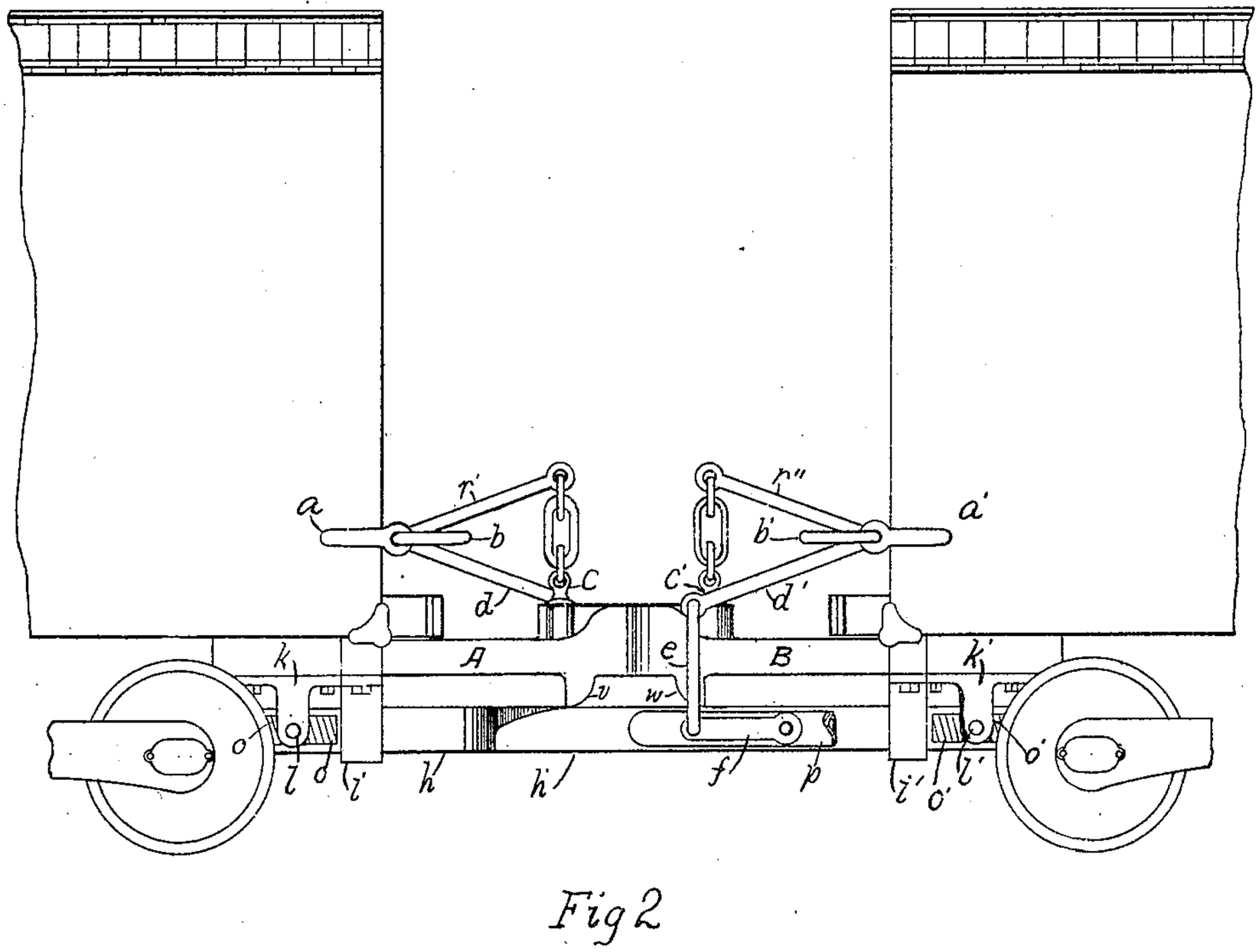

Fig 2

WITNESSES:

Thos. B. Chubb

Fred. C. Smith.

INVENTORS

Robert N. Van Horne

Wm. H. Sutherland

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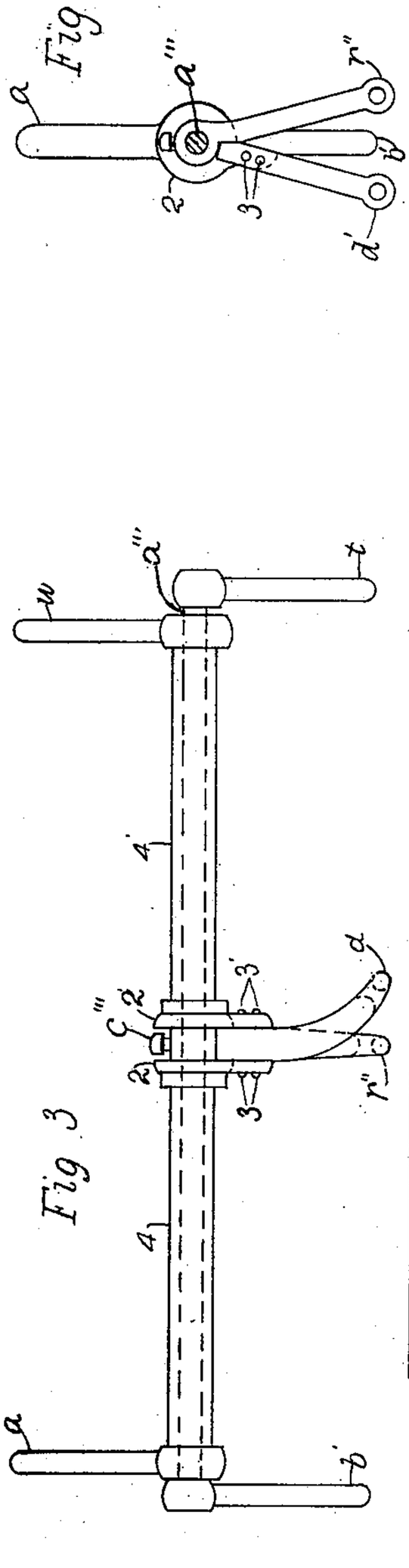

Fig 3

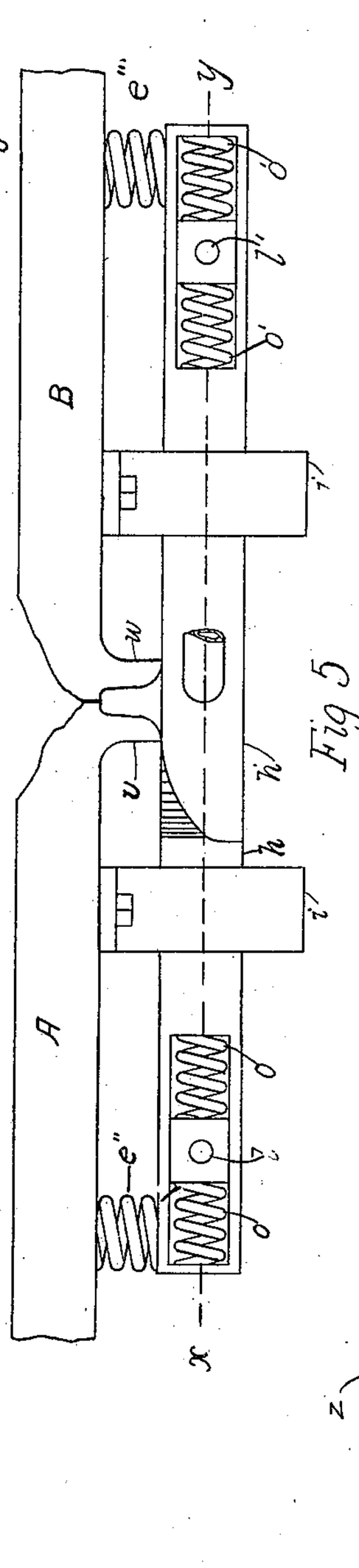

Fig 5

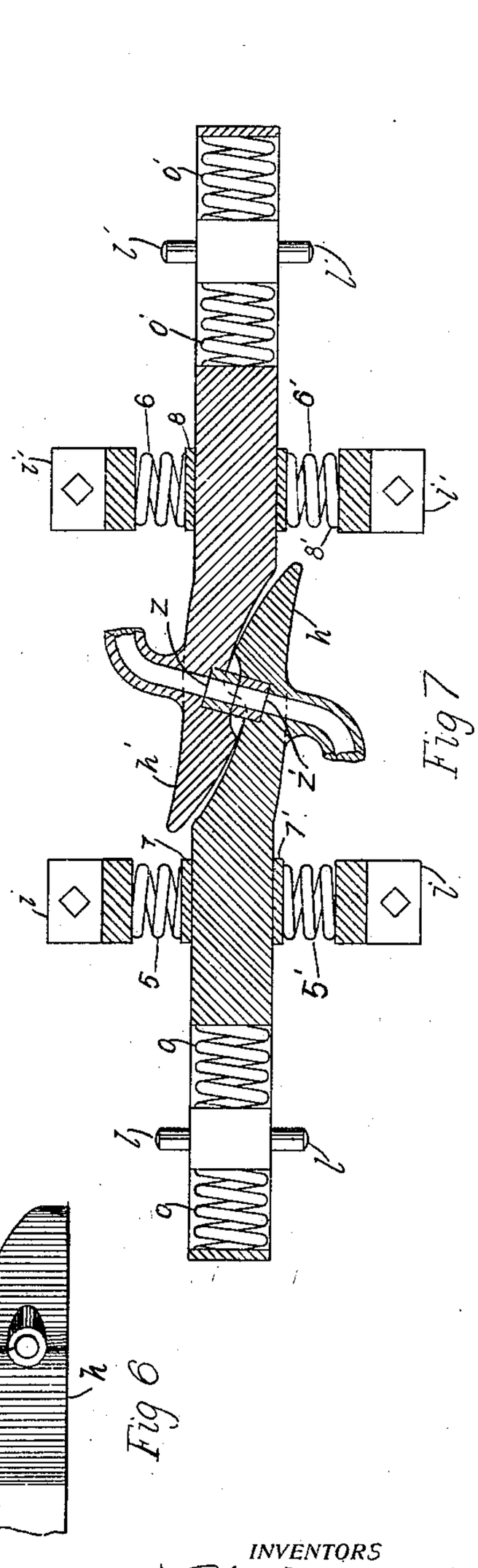

Fig 7

Fig 6

WITNESSES:

Thos. B. Clubb

Fred. C. Smith.

INVENTORS

Robert N. Van Horn

Wm. H. Sutherland

UNITED STATES PATENT OFFICE.

WILLIAM H. SUTHERLAND AND ROBERT N. VAN HORNE, OF SIOUX CITY, IOWA.

AUTOMATIC AIR-COUPLING DEVICE.

No. 844,483. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed June 16, 1906. Serial No. 322,117.

To all whom it may concern:

Be it known that we, WILLIAM H. SUTHERLAND and ROBERT N. VAN HORNE, citizens of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented a new Automatic Air-Coupling Device, of which the following is a specification.

Our invention is an automatic air-coupler in which two vertical shoes operate in conjunction with each other on the principle of right and left, which shoes contain two gaskets, forming air-tight joint, shoes held in place by springs, air-supply through shoes being controlled by levers from side of car, which levers act in conjunction with present coupling-lever; and the objects of our invention are, first, to provide an automatic air-coupler; second, to afford facilities for control of air from side of car. We attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure I is a view from the under side of the coupling. Fig. II is a side view of the entire device. Fig. III is a top view as indicated in the short description of Fig. IV. Fig. IV is a side view of lifting-arms, of which we leave a top view in Fig. III. Fig. V is a side view of shoes. Fig. VI is a side view of single shoe. Fig. VII is a view of upper side of shoes, showing a horizontal cross-section view on line $x y$ in Fig. V.

Similar letters refer to similar parts throughout the several views.

Train-line pipes $p\ p'$ conduct air to shoes $h\ h'$, which will be referred to hereinafter. The air-supply through pipe $p\ p'$ is controlled by means of cut-out valves $g\ g'$, to which are attached levers $f\ f'$, which are in turn connected to lifting-arms $d\ d'$ by means of rods $e\ e'$. Lifting-arms $d\ d'$ work in conjunction with lifting-arms $r'\ r''$ as follows: Levers $a'\ a$, Fig. III, situated on sides of car, are connected to tubu ar tumbing shafts 4 4'. Levers $b'\ t$ are connected to a shaft a''', which fits into the tubular shafts 4 4'. Shafts 4 4' are connected to lifting-arm d' by means of collars 2 2', which are fastened to arm d' by means of rivets 3 3'. Lifting-arms $r'\ r''$, which raise coupling-pins $c\ c'$, are attached to shaft a''' by means of set-screw c'''. Lifting-arms $d\ d'$ being placed above arms $r'\ r''$ makes it possible to cut off or connect air independent of coupling or simultaneous therewith.

The shoes $h\ h'$ contain gaskets $z\ z'$ and are directly underneath draw-bars A B. The outer end of shoes $h\ h'$ project slightly beyond end of draw-bars. Shoes $h\ h'$ are attached to draw-bars A B by means of iron straps $i'\ i'$, which in turn are held to draw-bars A B by studs. Shoes $h\ h'$ are also attached to draw-bars A B by means of dowel-blocks 1 1', which in turn are held in place by trunnions $k\ k'$, which in turn are held to draw-bars A B by studs.

Two bumpers V W are attached to under side of draw-bars A B.

Shoes $h\ h'$ are held against bumpers V W by means of springs $e''\ e'''$, which are situated between draw-bars A B and shoes $h\ h'$ and at the rear end. Shoes $h\ h'$ play longitudinally upon dowel-blocks $e\ e'$, which are cushioned by springs $o\ o'\ o\ o'$. Shoes $h\ h'$ are pressed together by means of springs 5' 6 and are cushioned by springs 5 6'. Springs 5 5' 6 6' are held in place by straps $i\ i'$ and also by blocks 7 7' 8 8'. Blocks 7 7' 8 8' press against shoes $h\ h'$, which in turn press gaskets $z\ z'$ together, forming an air-tight joint.

In coupling, shoes $h\ h'$ come in contact and press against each other because of springs 5' 6. Shoes $h\ h'$ move on each other until gaskets $z\ z'$ are in conjunction, when the process of air-coupling is completed. This process is reversed in uncoupling. The air-supply is turned on or off at the will of operator from side of car independent of or in conjunction with the process of coupling.

We are aware that prior to our invention automatic air-couplers have been made. We therefore do not claim such a device broadly; but

We claim—

1. In an automatic air-coupling device the combination of a non-interlocking pair of shoes attached to draw-bars each shoe having one toe-piece, which is inclined horizontally and which also contains but one air-passage, air-passage in shoes being entirely free from valves.

2. In an automatic air-coupling device the combination of a pair of non-interlocking shoes attached to draw-bars each shoe provided with one horizontally-inclined toe-piece, and which also contains but one air-passage, which air-passage in shoes being

free from valves, the air-passage in shoes being connected to train line-pipe.

3. In an automatic air-coupling device the combination of a pair of non-interlocking shoes attached to draw-bars and acting in conjunction therewith and whose horizontal movement is governed by springs and whose longitudinal movement is governed by dowel-blocks and springs and whose vertical movement is governed by springs trunnions and draw-heads.

4. In an automatic air-coupling device the combination of a pair of non-interlocking shoes attached to draw-bars the upper edge of shoe coming in contact with the lower edge of the opposite draw-head during coupling.

5. In an automatic air-coupling device attached to draw-bars and connected to pipes leading to train-line the supply of air through which is controlled by cut-out valves, the combination of above-mentioned valves being operated by levers on sides of car, and either independent of or simultaneously with uncoupling lever.

6. In an automatic air-coupling device the combination of a pair of shoes attached to draw-bars and which shoes are connected to train line-pipes the supply of air through which is controlled by valve-levers which levers are connected to lifting-arms which in turn are operated from either side of car by means of levers tubular in form and broken in the middle, the middle ends being attached at right angles to the opposite sides of lifting-arm by means of iron strap without closing ends of tubes and holding them in a straight line, tubular lever also contains rod within it, to which is attached lifting-arm by means of set-screw, to which lifting-arm is attached coupling-pin, coupling-pin lifting-arm working through above-mentioned break in tubular lever and lifting-arm working at right angles thereto, lifting-arms thus allowing air to be handled independently or simultaneously with uncoupling-lever.

7. In an automatic air-coupling device the combination of a pair of non-interlocking shoes attached to draw-bars each shoe having but one toe-piece horizontally inclined, which shoes come in contact longitudinally being pressed together by springs, which shoes contain but one air-passage, air-passage in shoes being free from valves, air-passage being provided with gasket.

8. In an automatic air-coupling device the combination of trunnions attached to draw-bars, which hold dowel-blocks, which in turn hold shoes and yet allow for longitudinal movement and as much horizontal movement as desired.

WILLIAM H. SUTHERLAND.
ROBERT N. VAN HORNE.

Witnesses:
T. H. JOHNSON,
FRED. C. SMITH