

(No Model.)

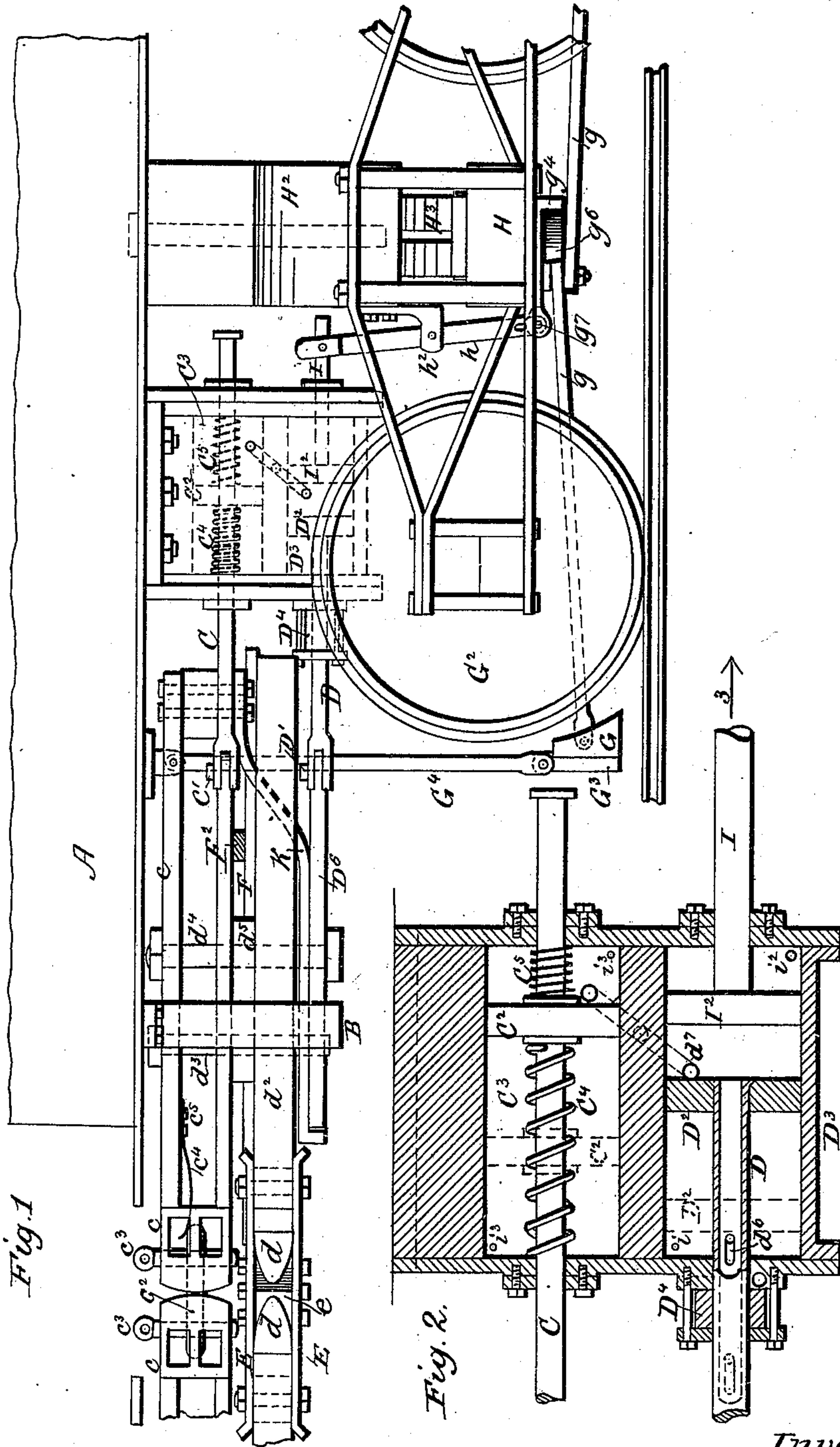
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J. P. SEAWELL & J. H. O'HARA.

AUTOMATIC CAR BRAKE.

No. 447,207.

Patented Feb. 24, 1891.



Witnesses:
C. Schiller, Jr.
J. J. Masson

Inventors:
Jesse P. Seawell
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att'y.

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3 Sheets—Sheet 3.

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Fig. 4.

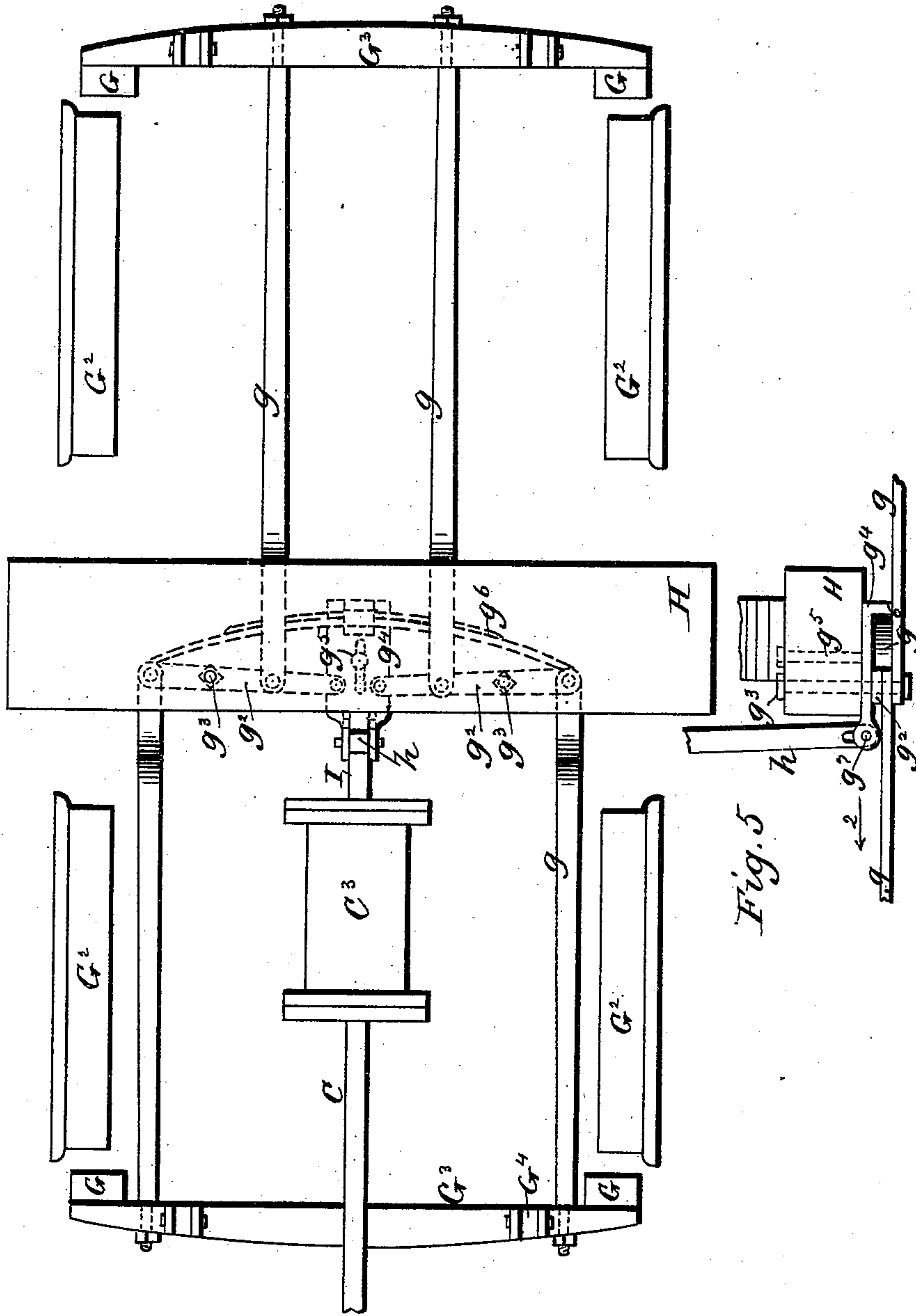


Fig. 5

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UNITED STATES PATENT OFFICE.

JESSE P. SEAWELL, OF CLARKSBURG, MISSOURI, AND JOHN H. O'HARA, OF
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AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 447,207, dated February 24, 1891.

Application filed July 5, 1890. Serial No. 357,863. (No model.)

To all whom it may concern:

Be it known that we, JESSE P. SEAWELL, residing at Clarksburg, in the county of Moniteau, State of Missouri, and JOHN H. O'HARA, residing at New York city, in the county of New York, State of New York, citizens of the United States, have invented certain new and useful Improvements in Automatic Car-Coupling Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to devices for automatically applying the brakes of railway-cars when they are crowding against each other or against the locomotive while running down hill or at a greater speed than said locomotive; and the objects of our invention are to combine with the car-bumper one or more air-cylinders provided with air-escape openings and pistons and piston-rods connected with said bumpers and with the brake mechanism. We attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a portion of the car provided with an ordinary draw-head and an improved draw-head, both draw-heads being in this case united together and provided with piston-rods and pistons in the air-cylinder constructed in accordance with our invention. Fig. 2 is a longitudinal vertical section of the air-cylinders with one of the pistons and its piston-rod in section. Fig. 3 is a top view of the lower draw-head, showing its jaw-closing springs and uncoupling-levers. Fig. 4 is a top view of the brake-operating levers connected to the transom of a truck and to the piston-rod of the lower air-cylinder. Fig. 5 is an end view of the lower transom and a side view of the levers connected thereto.

In said drawings, A represents the body of a car, to the bottom of which is secured adjacent to its end a strap B, that supports the outer ends of the draw-heads. To the inner end of said draw-heads are secured by pivot-pins C' D' the piston-rods C D, that have pistons C² D² in the air-cylinders C³ D³. The upper draw-head c carries a link c² and link-pin c³ of ordinary construction; but said link c² is retained in horizontal position by means of a flat spring c⁴, which has one end secured

at c⁵ to the draw-head and the opposite end pressing upon the inner end of the link c². The lower draw-head consists of two levers d², pivoted together upon a vertical bolt d³, which also in this case connects said draw-head d to the draw-head c. Said two draw-heads are furthermore united together by a bolt d⁴, that passes through the flattened extended portion D⁶ of the piston-rod D, through the draw-head c, and through a parting-block d⁵ between them.

The lower coupling-link consists of upper and lower rectangular plates E, having their ends slightly flaring. They are united at the center by a diamond-shaped block e, bolted to said plates, and adjacent to their ends by triangular blocks e², also bolted to said plates, with one of their points facing toward the end of the coupling to facilitate their engagement with the beveled hooked ends d of the levers d², and with one of their faces toward the central block e for engagement with the inner flat face of the hooks of the levers d².

To retain the jaws of the levers d² normally closed, springs f are made to press the uncoupling-levers F of said jaws, as shown in Fig. 3. The levers F are pivoted at a point about one-third of their length to any suitable stationary support—as, for example, to a flat bar F²—retained in a horizontal position at a suitable height below the bottom of the car and secured to said bottom. The inner end of each lever F carries a vertical pin that passes through a slot d⁵, made lengthwise of the inner end of the levers d², and the outer end of each lever F extends to a point in easy reach of the brakemen, either at the end or side of the car. The springs f have also one end secured to a stationary support—as, for example, to a bar or brace f², secured to the supporting-strap B of the draw-heads—and bear about the middle of their length against fulcrum-pins f³, while their inner ends bear against the inner end of the levers F.

The brake-shoes G are preferably located so as to bear, as shown, against the front side of one of the wheels G² and against the rear side of the other wheel of a car-truck and are mounted upon brake-beams G³, that are suspended from the bottom of the car by

straps G^4 in the usual manner. To operate the brake-shoes their brake-beams are connected by means of rods g with levers g^2 , Fig. 4, at points equidistant from the pivot-bolt g^3 of said levers, and said pivot-bolt is secured to the under side of the bottom transom H of the car. The inner ends of the levers g^2 are pivoted to a plate g^4 , that is retained loosely connected to the under side of the bottom transom H by means of a bolt g^5 , passing through a longitudinal slot in said plate g^4 , so that when the plate g^4 is reciprocated in the direction of the arrow 2, Fig. 5, the brake-shoes will be applied against the periphery of the wheels; but to normally retain the shoes from the wheels the plate g^4 has secured thereto a leaf-spring g^6 , the ends of which bear against the outer ends of the levers g^2 . To reciprocate the plate g^4 one end thereof has lugs carrying a pin g^7 , to which is pivoted the lower end of a lever h , that is pivoted about the middle of its length to a bearing h^2 , secured to the side of the upper transom H^2 of the car, and as springs H^3 are placed between the upper and the lower transoms the lower end of the lever h is longitudinally slotted where it receives the pin g^7 of the plate g^4 . To force the upper end of the lever h automatically toward the transom H^2 , and thus apply the brakes when the cars are crowding against each other, the upper end of the lever h is pivoted to the outer end of the piston-rod I of the piston I^2 , which is placed in one end of the cylinder D^3 , so that when this piston and the piston-rod I are moved in the direction of the arrow 3, Fig. 2, the brake is applied to the wheels of the car.

The cylinders C^3 D^3 are firmly secured to the bottom of the car. Upon the piston-rod C is placed a strong coiled spring C^4 between the piston C^2 in the cylinder C^3 and one head of said cylinder, said spring acting as a draw-head spring for the device. Upon the piston-rod C is also placed on the opposite side of the piston C^2 a lighter coil-spring C^5 to keep the piston C^2 about half-way of the length of the cylinder, as shown in Fig. 1. Said piston is then in its normal position with the car standing still and brake-shoes away from the wheels. When the car is pulled, the piston C^2 occupies the position shown by dotted lines in Fig. 2, and the piston D^2 occupies the position shown by dotted lines in said figure. Air is then free to pass from the atmosphere into the cylinder D^3 between the pistons D^2 and I^2 , as the piston-rod D is tubular for a portion of its length and has an opening d^6 across it, and when in the dotted position said opening d^6 is beyond the outer end of the packing-box D^4 of said piston-rod; but when the draw-heads of two cars are pressed together the piston D^2 is forced toward the middle of the cylinder D^3 , and while this action is taking place the opening d^6 in the piston-rod is tightly closed by the packing in the packing-box D^4 , and the air in the cylinder D^3 between the pistons D^2 and I^2 , having no way to escape,

forces the piston I^2 and its rod I in the direction of the arrow 3 and applies the brakes. The air between the pistons D^2 I^2 is not compressed only by the advance of the piston D^2 , but also by an additional supply compressed and expelled by the piston C^2 from the cylinder C^3 into the space between the pistons D^2 and I^2 . The interior of the cylinders C^3 and D^3 are placed in communication by a pipe d^7 , placed on the outside thereof, and said pipe has a three-way cock d^9 , controlled by a horizontal branch or hollow rod d^8 , that extends under the car to a suitable point near the sides thereof, where it is provided with a handle h^4 , by which it can be opened to admit or to release air between the pistons D^2 I^2 and render the brakes inoperative, as when it is desired to back one or more cars. When the piston D^2 has about reached the middle of the length of the cylinder D^3 , the pressure of air between the pistons D^2 I^2 will gradually diminish as it escapes through the hollow piston-rod D and its opening d^6 into the chamber back of the piston D^2 , and thence to the atmosphere through a small vent-opening i in the end of the cylinder. The opposite end of the cylinder D^3 has a larger vent-opening i^2 for the escape of air from in front of the piston I^2 . The cylinder C^3 has also small air-vents i^3 . The length of time that the compressed air will act upon the pistons D^2 I^2 can be regulated by the length given to the packing-box D^4 , as while the opening d^6 in the piston-rod D is within the packing the air between said pistons remains under full pressure, and the brakes remain applied against the wheels.

Although the car is shown provided with an ordinary draw-head in connection with the lower improved draw-head, and that said draw-heads are connected together by the bolts d^3 d^4 , the upper draw-head may be dispensed with after a sufficient number of cars have been provided with the improved draw-head, and the upper piston-rod C can be connected to the flat bar D^6 of the lower piston-rod D , as shown, by means of a flat metal bar or plate K , that has one end secured to the piston-rod C and the other end to the flat extension D^6 of the piston-rod D . The outer end of the bar K is bent down in a hooked form or head that abuts against the end of the flat extension D^6 ; but said hooked head is also adapted to receive the downwardly-flanged end of the coupling-plate E and transfer any pressure that may be brought to bear upon it to the two piston-rods and into the air-cylinders forming the main feature of my improvement. By this construction the locomotive can back quickly against the cars without danger of damaging them, as the draw-heads are attached to the pistons of the air-cylinders, and the air in the air-cylinders will act as a cushion for the cars. Said air-cylinders are not under the control of the engineer on the engine, but their pistons are operated automatically. In downgrades the pressure of each car against the

forward one will act against the piston in the air-cylinders and set the brakes on the cars.

Having now fully described our invention, we claim—

5 1. In combination with the draw-head and brakes of a car, an air-holding cylinder secured to said car and within said cylinder, a piston and a piston-rod connected to the draw-head, and a second piston and piston-rod connected with the brakes.

15 2. In combination with the draw-head and brakes of a car, an air-holding cylinder secured to said car and having pistons therein and a second cylinder and piston therein automatically operated by the draw-head and by the air within said cylinders.

20 3. In combination with the draw-head and brakes of a car, an air-holding cylinder secured to said car and a packing-box attached to one end of said cylinder, a piston having a laterally-perforated hollow piston-rod pass-

ing through said packing-box and automatically operated by the draw-head, and a second piston and piston-rod connected with the brakes.

25 4. The combination of a draw-head and brakes of a car, air-holding cylinders secured to said car, pistons in said cylinders and having their piston-rods connected to said draw-head, a tubular connection between said cylinders, and a piston and piston-rod connected with the brakes. 30

In testimony whereof we affix our signatures in presence of two witnesses.

JESSE P. SEAWELL.

JOHN H. O'HARA.

Witnesses to signature of Jesse P. Seawell:

GEORGE J. RHODES,

JOHN M. RHODES.

Witnesses to signature of John H. O'Hara:

JAMES E. PURNELL,

A. T. MARIX.