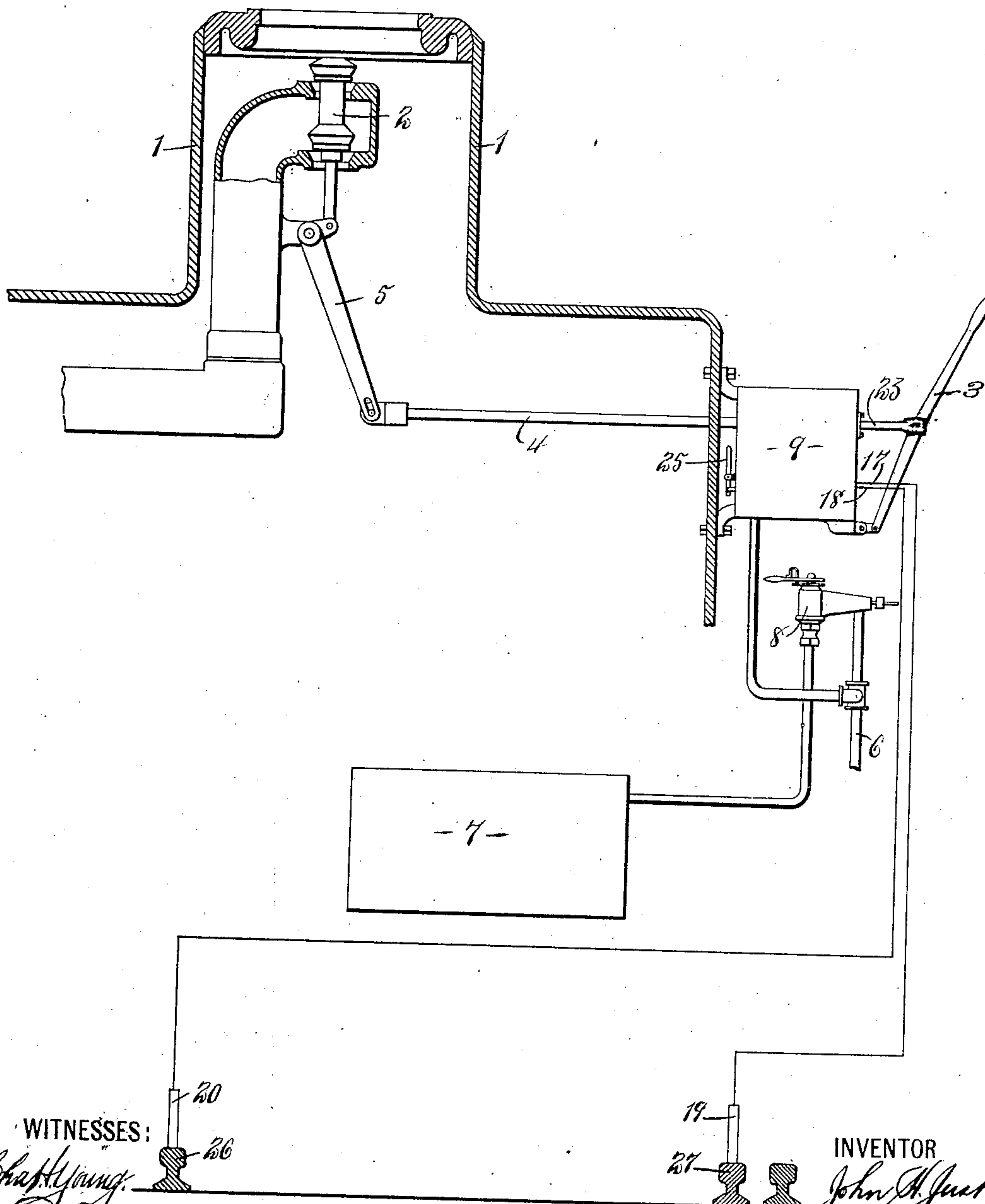


J. H. JUST.  
 MEANS FOR CONTROLLING THE MOVEMENT OF RAILWAY VEHICLES.  
 APPLICATION FILED FEB. 3, 1908.

936,325.

Patented Oct. 12, 1909.  
 2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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INVENTOR

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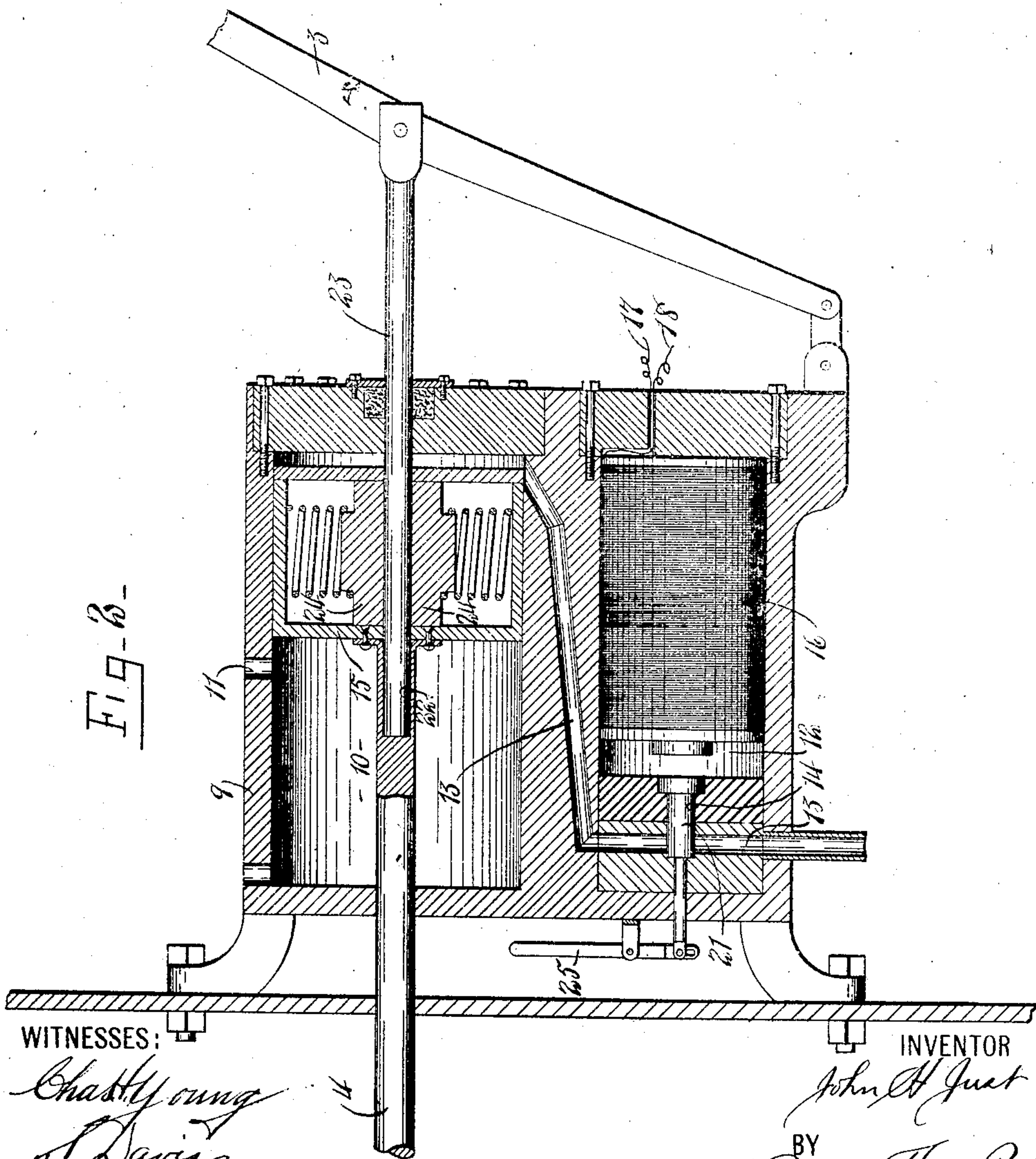
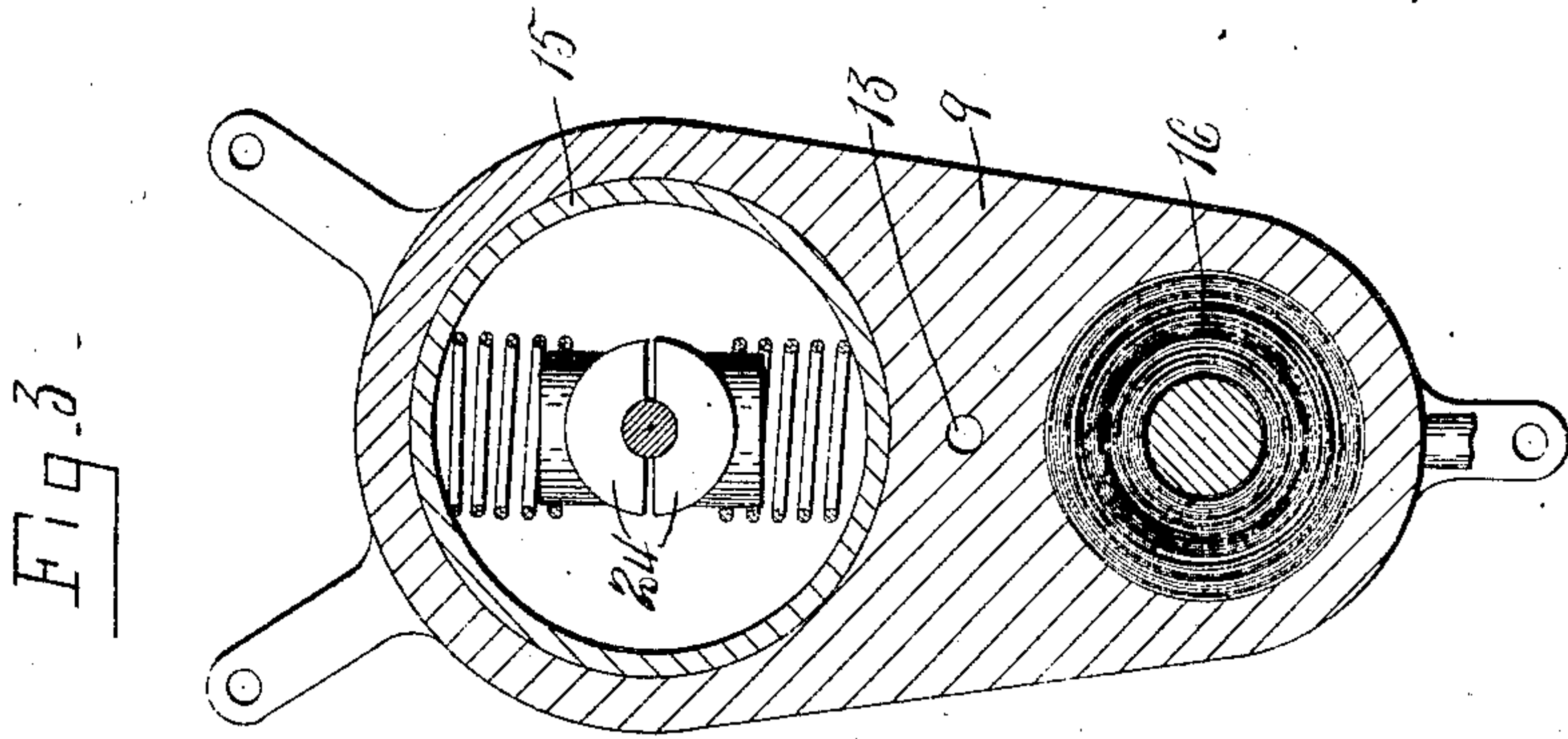
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# UNITED STATES PATENT OFFICE.

JOHN H. JUST, OF SYRACUSE, NEW YORK.

MEANS FOR CONTROLLING THE MOVEMENT OF RAILWAY-VEHICLES.

936,325.

Specification of Letters Patent. Patented Oct. 12, 1909.

Application filed February 3, 1908. Serial No. 413,959.

*To all whom it may concern:*

Be it known that I, JOHN H. JUST, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Means for Controlling the Movement of Railway-Vehicles, of which the following is a specification.

My invention has for its object the production of a particularly simple and efficient means for controlling the movement of railway vehicles, and to this end, it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing, in which like characters designate corresponding parts in all the views.

Figure 1 is a partial sectional view showing my apparatus adapted to a locomotive. Figs. 2 and 3 are, respectively, longitudinal and vertical sectional views of this apparatus.

This invention comprises means, operated by the motive fluid from the train pipe of an automatic brake system of a railway vehicle, for automatically shutting off the motive power of the vehicle, and also for controlling the application of the brakes, and electromagnetic means for controlling the flow of the motive fluid from the train pipe, to the former means, the latter means being governed in its operation from the road-bed.

As here illustrated, I have shown my invention as applied to a locomotive.

1 is the steam dome; 2 the throttle valve, and 3 the throttle lever. Said lever is connected to the valve 2 by suitable means as a rectilinearly movable power-transmitting link or member 4, and a bell-crank lever 5.

6 is the train pipe of an automatic brake system, in which the brakes are applied when the motive fluid, as compressed air is free to escape. In addition to the train pipe, said brake system includes a main reservoir 7 for supplying motive fluid through the train pipe to the auxiliary reservoir, and also the usual triple valve and the brake cylinder of each car. As the auxiliary reservoir, triple valve and brake cylinder may be of any suitable construction, and form no part of this invention, illustration or description thereof is deemed unnecessary.

8 is the engineer's valve for controlling the flow of the motive fluid through the train pipe 6 to the auxiliary reservoirs, not illus-

trated, and also for controlling by hand, the setting of the brakes.

As here illustrated, my apparatus comprises a body 9 formed with a piston chamber 10 having an outlet passage 11 intermediate of its ends, and opening directly into the outer air, a second chamber 12 arranged parallel to the first chamber, an inlet passage 13 opening into one end of the piston chamber 10 and extending crosswise of one end of the chamber 12 and connected to the train pipe 6, a guide 14 extending axially from the chamber 12, and opening into the inlet passage 13, a piston 15 movable in the chamber 10 and connected to the throttle valve 2, an electromagnet 16 arranged in the chamber 12, the terminals 17 and 18 of the magnet being in circuit with contact pieces 19 and 20 adapted to engage conductors along the road-bed, and an armature 21 slidable in the guide 14, and serving as a valve for the inlet passage 13, the armature being normally in position to close said passage. The piston 15 is connected directly to one end of the member 4 of the throttle valve mechanism, and is normally arranged between the outlet and inlet passages 11 and 13, so that after it has traveled a sufficient distance under the pressure of the motive fluid to close the throttle valve 2, such fluid can escape through the outlet passage. Said member 4 usually extends axially into the piston chamber 10 and is formed with a socket 22 in its inner end in which projects a rod 23 extending axially of the piston and the piston chamber, and connected to the throttle lever 3. This rod 23 abuts against the inner wall of the socket 22 of the member 4 when the throttle lever 3 is operated to close the throttle valve 2, but the member 4 and the piston 15 are capable of movement relatively to said rod 23, as when moving under the pressure of the motive fluid flowing from the train pipe through the passage 13, it being understood that the throttle lever 3 is provided with the usual pawl and rack for holding it in its adjusted position.

Friction means are provided for clutching the piston 15 to the rod 23, in order that after the piston has been moved by the motive fluid, the throttle lever 3 may be pushed inwardly and again pulled out to bring the piston with it for the purpose of releasing the brakes and opening the throttle valve. As shown, the piston 15 is formed hollow, and spring-pressed friction shoes 24 are



located within the piston and engage the rod 23.

After the armature 21 has been attracted by the magnet 16, it may be returned to its original position by means of the hand-lever 25. As here illustrated, the conductors with which the contact pieces 19 and 20 engage, are preferably an insulated section 26 of the track, and a third rail 27 extending along the track. These conductors are thrown into connection with a suitable source of supply of electric energy by the movement of a switch, semaphore, or other signal.

My apparatus is particularly advantageous in that it is made up of a minimum number of parts compactly arranged.

What I claim is:—

1. The combination with a motive power-controlling member of a railway vehicle and the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive fluid and the application of the brakes, the apparatus being a unitary structure and comprising a body formed with a piston chamber having an outlet passage and an inlet passage for a motive fluid, a second chamber, the inlet passage extending near the second chamber and being connected to the train pipe, a piston movable in the first-mentioned chamber and being connected to the motive power-controlling member, an electromagnet located in the second chamber, and a valve in the inlet passage controlled in its operation by the electromagnet, the valve normally closing the inlet passage, and the electromagnet being controlled in its operation from the road-bed, substantially as and for the purpose described.

2. The combination with a motive power-controlling member of a railway vehicle and the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive power and the application of the brakes, the apparatus being a unitary structure and comprising a body formed with a piston chamber having an outlet passage and an inlet passage for conducting the motive fluid thereto; a second chamber, the inlet passage extending crosswise of and being disconnected from the second chamber and connected to the train pipe, a piston movable in the first-mentioned chamber and connected to the motive power-controlling member, an electromagnet located in the second chamber, and a valve for controlling the flow of motive fluid through the inlet passage, the valve being normally in its closed position and controlled in its operation by the electromagnet and the electromagnet being controlled in its operation from the road-bed, substantially as and for the purpose specified.

3. The combination with a motive power-controlling member of a railway vehicle and

the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive power and the application of the brakes, the apparatus being a unitary structure and comprising a body formed with a piston chamber, a second chamber extending parallel to the piston chamber, an inlet passage opening into the piston chamber and extending crosswise of one end of the second chamber, a piston movable in the first-mentioned chamber and connected to the motive power-controlling member, an electromagnet located in the second chamber, and a valve located in that portion of the inlet passage extending crosswise of one end of the second chamber, the valve being normally in its closed position and controlled in its operation by the electromagnet, and the electromagnet being controlled in its operation from the road-bed, substantially as and for the purpose set forth.

4. The combination with a motive power-controlling member of a railway vehicle and the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive power and the application of the brakes, the apparatus being a unitary structure and comprising a body formed with a piston chamber having an outlet passage intermediate in its ends, a second chamber, an inlet passage opening into one end of the piston chamber for conducting a motive fluid thereto, said passage extending crosswise of the second chamber and being connected to the train pipe, a piston movable in the first-mentioned chamber and normally interposed between the outlet and inlet passages, the piston being connected directly to the motive power-controlling member and being movable by the motive fluid from its normal position to the other side of the outlet passage to actuate said member in order to shut off the motive power and permit the motive fluid to escape through the outlet passage and thereby effect the setting of the brakes, an electromagnet located in the second chamber, and a valve for controlling the flow of motive fluid through the inlet passage, the valve being located in that portion of the inlet passage extending crosswise of the second chamber and being normally in its closed position and controlled in its operation by the electromagnet, and the electromagnet being controlled in its operation from the road-bed, substantially as and for the purpose described.

5. The combination with the motive power-controlling member of a railway vehicle, and the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive power, and the application of the brakes, the apparatus comprising a body formed with a



piston chamber having an outlet passage intermediate of its ends, a second chamber, an inlet passage opening into one end of the piston chamber for conducting a motive fluid thereto, said passage extending across the end of the second chamber and being connected to the train pipe, a piston movable in the first-mentioned chamber and normally interposed between the outlet and inlet passages, the piston being connected directly to the motive power-controlling member, and being movable by the motive fluid from its normal position to the other side of the outlet passage to actuate said member, in order to shut off the motive power, and to permit the motive fluid to escape through the outlet passage and thereby effect the setting of the brakes, an electromagnet located in the second chamber, and an armature for the magnet extending crosswise of the inlet passage, and normally closing the same, the magnet being controlled in its operation from the road-bed, substantially as and for the purpose set forth.

6. The combination with the motive power-controlling member of a railway vehicle, and the train pipe of a brake system of said vehicle; of an apparatus for automatically controlling the shutting off of the motive power, and the application of the brakes, the apparatus comprising a body formed with a piston chamber having an outlet passage intermediate of its ends, a second chamber arranged parallel to the piston chamber, an inlet passage opening into one end of the piston chamber for conducting a motive fluid thereto, said passage extending across the end of the second chamber and being connected to the train pipe; a piston movable in the first-mentioned chamber and normally interposed between the outlet and inlet passages, the piston being connected directly to the motive power-controlling member, and being movable by the motive fluid from its normal position to the other side of the outlet passage to actuate said member, in order to shut off the motive power, and to permit the motive fluid to escape through the outlet passage and thereby effect the setting of the brakes, an electromagnet located in the second chamber, and an armature for the magnet extending crosswise of the inlet passage, and normally closing the same, the magnet being controlled in its operation from the road-bed, substantially as and for the purpose specified.

7. The combination with the motive power-controlling mechanism of a railway vehicle, and the train pipe of a brake system of said vehicle, said mechanism comprising a rectilinearly movable member, a lever for operating said member, and a rod interposed between the lever and said member, the rod being arranged in axial alinement with said member and being movable relatively thereto in one direction and abutting against said member for moving the same therewith in the opposite direction; of an apparatus for automatically controlling the shutting off of the motive power, and the application of the brakes, the apparatus comprising a body formed with a piston chamber having an outlet passage intermediate of its ends, a second chamber arranged parallel to the piston chamber, an inlet passage opening into one end of the piston chamber for conducting a motive fluid thereto, said passage extending across the end of the second chamber and being connected directly to the train pipe, a piston movable in the first-mentioned chamber and normally interposed between the outlet and inlet passages, said rectilinearly movable member and the rod coacting therewith extending axially into the piston chamber, the rectilinearly movable member being connected directly to the piston, and the rod extending through the piston into said member, said piston being movable by the motive fluid from its normal position to the other side of the outlet passage to actuate said member in order to shut off the motive power and to permit the motive fluid to escape through said outlet passage and thereby effect the setting of the brakes, friction means for connecting the piston and the rod, an electromagnet located in the second chamber, and an armature for the magnet extending crosswise of the inlet passage and serving as a valve for normally closing the same, the magnet being governed in its operation from the road-bed, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 23rd day of August, 1907.

JOHN H. JUST.

Witnesses:

S. DAVIS,  
E. K. SEEMILLER.