

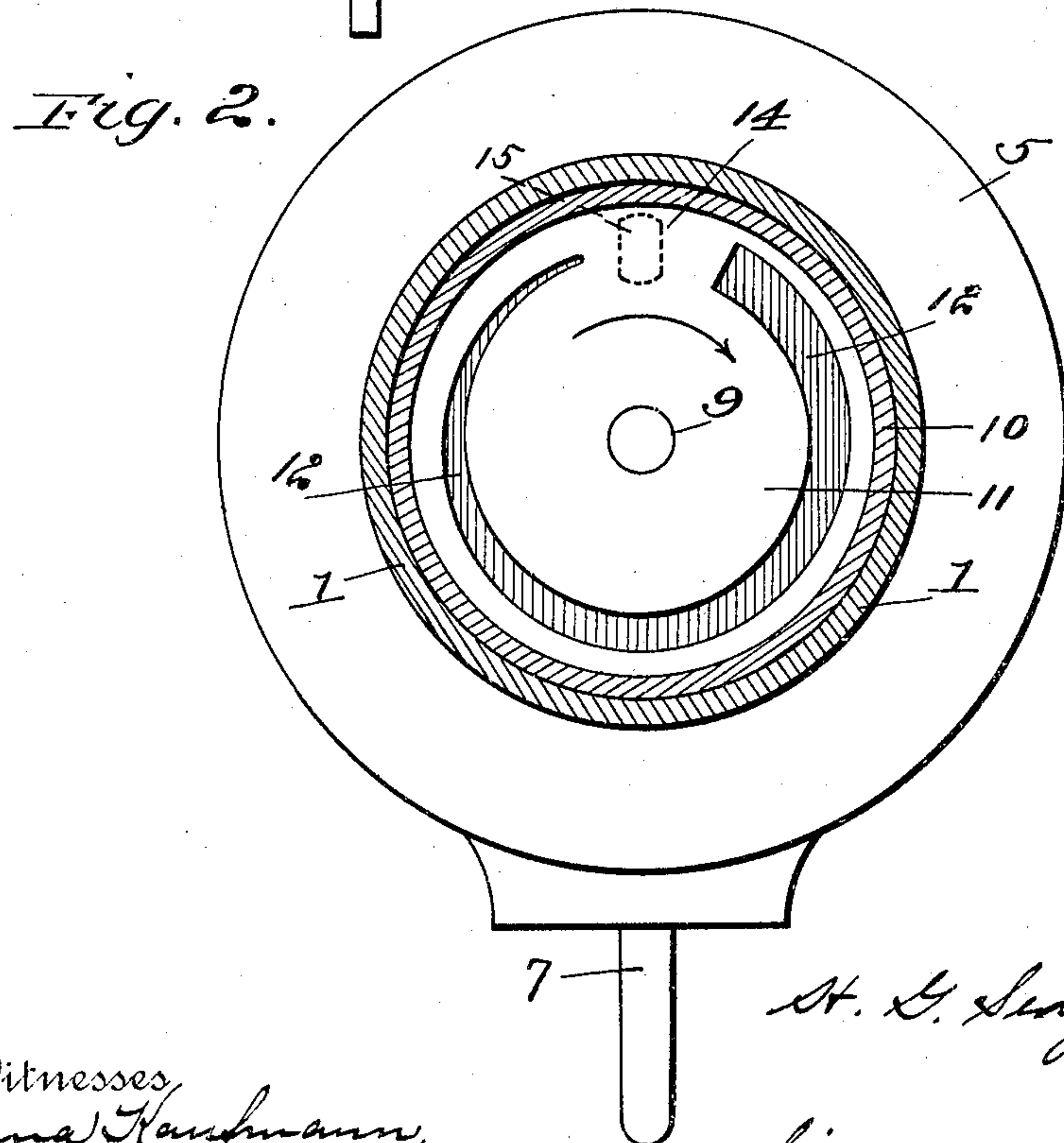
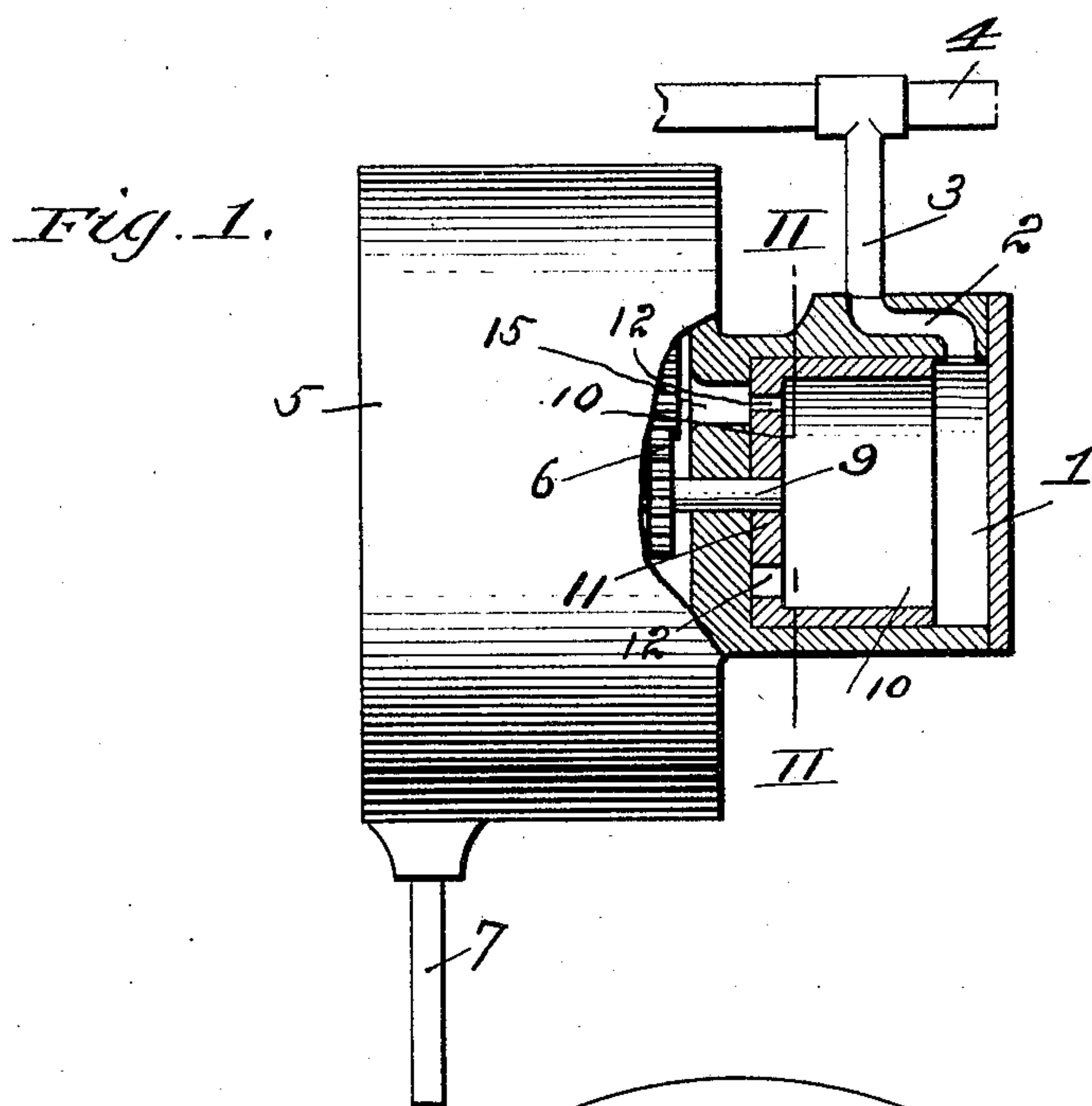
No. 794,320.

PATENTED JULY 11, 1905.

H. G. SEDGWICK.
AIR VALVE FOR SAFETY TRAIN STOPS.

APPLICATION FILED DEC. 17, 1904.

2 SHEETS—SHEET 1.



Witnesses
Emma Kaufmann,
Mr Babbitt

H. G. Sedgwick
Inventor
By *his Attorneys Davis & Davis*

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Fig. 3.

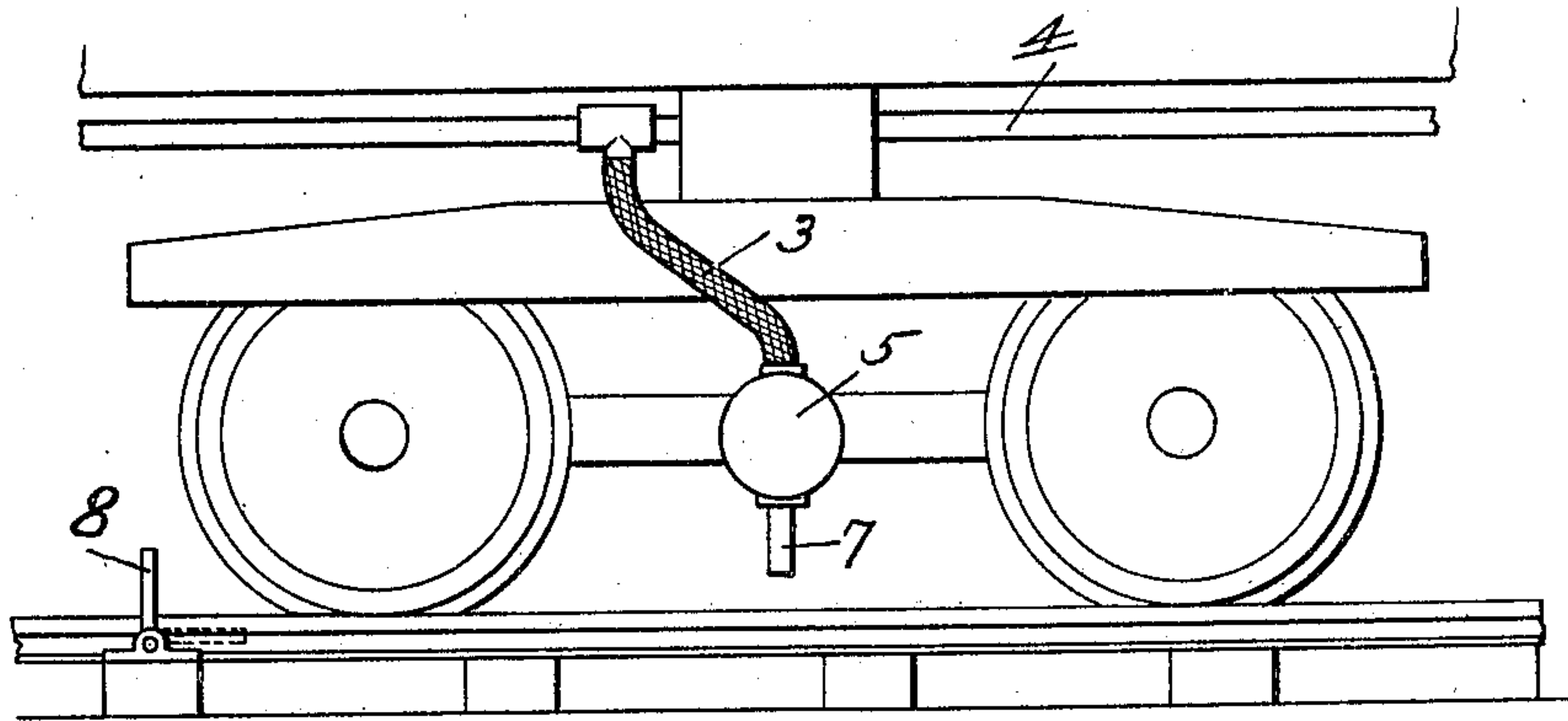
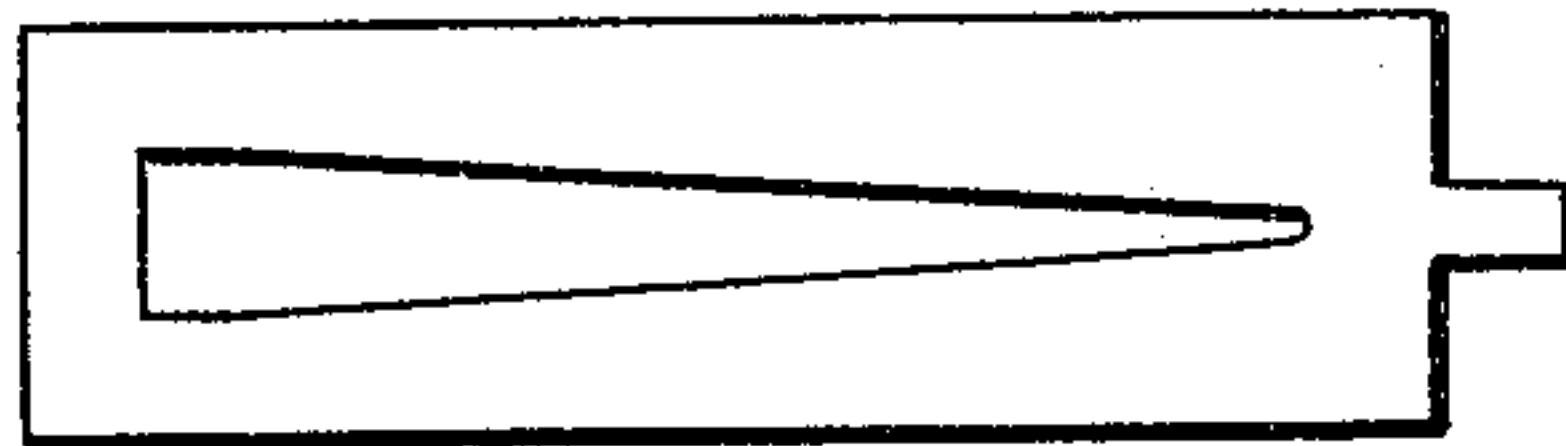


Fig. 4.



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UNITED STATES PATENT OFFICE.

HIRAM G. SEDGWICK, OF NEW YORK, N. Y.

AIR-VALVE FOR SAFETY TRAIN-STOPPS.

SPECIFICATION forming part of Letters Patent No. 794,320, dated July 11, 1905.

Application filed December 17, 1904. Serial No. 237,215.

To all whom it may concern:

Be it known that I, HIRAM G. SEDGWICK, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Air-Valves for Safety Train-Stops, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a side elevation of the motor-casing, showing the valve in section; Fig. 2, a sectional view on the line II II of Fig. 1; Fig. 3, a side elevation of a railroad-car truck, showing the valve in position thereon and connected to the train-pipe of an ordinary air-brake system of the Westinghouse type; and Fig. 4, a detail view of a different form of valve.

This invention relates to improvements in that class of apparatus shown in my Patent No. 757,571 of April 19, 1904, and relates particularly to a new form of venting-valve for use in such apparatus. The patent referred to relates to an apparatus in which an automatically-operating air-valve is used in connection with an automatic train-stopping apparatus and provides a single valve which when set in motion by means usually arranged on the road-bed, will automatically vent the train-pipe of the air-brake system at successive intervals to gradually apply the brakes and bring the train to a stop without sudden shocks and jars.

The object of the present invention is to provide a valve by means of which the venting of the train-pipe will be continuous, but in varying quantities, beginning with an almost imperceptible amount and gradually increasing until the desired reduction is obtained and then ceasing, the valve closing the vent-port and maintaining it closed until the next operation.

In the usual operation of air-brake systems it is well known that a sudden material reduction of pressure in the train-pipe will so move the triple valves in said brake systems as to put the auxiliary reservoir-pipes directly in communication with the brake-cylinder, and thereby bring about what is

termed an "emergency stop." In applying the brakes in this class of air-brake apparatus the engineer's valve is carefully manipulated to very gradually reduce the train-pipe pressure to obtain a "service stop"—that is, to apply the brakes gradually—and it is the object of this invention to so vent the train-pipe as to obtain this service stop and to avoid the sudden venting of the train-pipe which would bring about the emergency stop.

Referring to the various parts by numerals, 1 designates the cylindrical valve-casing, which is provided with the inlet-port 2, said inlet-port being connected by a pipe 3 to the train-pipe 4 of the air-brake system. This valve-casing is rigidly secured to the inner side of the motor box or casing 5, in which is placed the valve-operating mechanism 6. This mechanism is preferably an ordinary clock-movement, which is adapted to be set in motion by the lever 7, which extends downward from the casing 5 and is adapted to contact with an operating-arm 8, pivoted at the side of the road-bed. This operating-arm is adapted to be raised to a vertical position, as shown in Fig. 3, whenever it is desired to operate the safety-stop. It will of course be understood that this operating-arm is to be placed in its vertical position by an employee of the road or otherwise automatically whenever it is desired to stop a train, and it is to be used only in cases of emergency. The operating-lever 7 when it is swung in either direction releases the valve-moving mechanism, as shown and described in my Patent No. 757,571, and permits said valve mechanism to give the valve-shaft 9 one complete revolution, suitable checking devices being provided, as shown in said patent, to arrest the clock-movement and the valve at the proper point.

Rigidly secured to the valve-shaft and within the valve chamber or casing is the valve 10, which is preferably cylindrical and fits closely within the valve-chamber. One end of this cylindrical valve is closed by a wall 11, the other end being open and in free communication with the inlet 2. In the closed end of the valve is formed an annular

vent-port 12, which extends almost entirely around the valve-head, a solid portion 14 being left between the two ends of the port said solid portion normally closing the outlet 5 15 from the valve-chamber. The vent-port 12 is of special and peculiar shape, beginning in a very narrow opening and gradually enlarging throughout its length to the end thereof. This port is so located in the head of the 10 valve that during the rotation of said valve it will pass throughout its length over the outlet-port 15. As the valve rotates in the direction indicated by the arrow in Fig. 2 the narrow end of the port will be first brought 15 into register with said outlet-port and the venting of the train-pipe begun by permitting a very slight amount of air to escape through said narrow portion of the port and through the outlet 15. As the valve rotates 20 the amount of air passing through the port 12 will gradually increase as the larger portions of the port are brought into register with the outlet, gradually increasing the reduction of pressure in the train-pipe, and 25 thereby securing the gradual application of the brakes. The size of this port is so arranged that the reduction of the train-pipe pressure will be sufficient to secure a full service stop with one rotation of the valve. 30 It will thus be seen that by the use of this form of venting-port a sudden material reduction sufficient to bring about an emergency stop will be impossible and that the brakes will be applied so gradually as to 35 bring the train to a stop without any shock.

While I prefer to employ a rotatable valve, it will of course be understood that a slide-valve might be employed having the same shape of venting-port, except of course that 40 the longitudinal line of the port should be straight instead of annular, as shown in Fig. 4.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

45 1. An air-valve for automatic train-stopping apparatus comprising a valve-chamber adapted to be connected to the train-pipe of an air-brake system, a valve therein, mechanism connected to and adapted to auto- 50 matically move said valve to vent the train-pipe, said valve being formed with a port gradually increasing in size from its beginning toward its end, and means adapted to be engaged by a road-bed device to set said 55 valve-moving mechanism in operation.

2. An air-valve for automatic train-stopping apparatus comprising a valve-chamber adapted to be connected to the train-pipe of an air-brake system, a valve in said chamber,

mechanism connected to and adapted to 60 move said valve to vent the train-pipe said valve being provided with a port gradually increasing in dimensions from one end toward its other end whereby the air from the train-pipe will be vented in increasing vol- 65 ume during the venting operation.

3. An air-valve for automatic train-stopping apparatus comprising a valve-chamber, a rotary valve therein having an annular port gradually increasing in size from one end to- 70 ward its other end, mechanism for rotating said valve to vent the pipe, said valve being rotated in such manner that the smaller end of the port will begin the venting operation, and mechanism adapted to be actuated by a 75 road-bed device to set the valve-rotating mechanism in operation.

4. An air-valve for automatic train-stopping apparatus comprising a valve-chamber adapted to be connected to the train-pipe of 80 an air-brake system, a valve in said chamber provided with a venting-port smaller at one end than at its other end and means for moving said valve to cause the smaller end of the venting-port to begin the venting operation. 85

5. In combination a train equipped with a fluid-pressure brake system, means connected to the system for automatically gradually venting the system in increasing volume to gradually apply the brakes, and to abruptly 90 stop the venting operation when the exhaust is at its maximum volume, and actuating means on the road-bed.

6. An automatic air-venting valve for air-brake systems comprising a valve-chamber 95 adapted to be connected to the system, a valve in said chamber provided with a venting-port smaller at one end than at its other end, and means for moving said valve to cause the smaller end of the port to begin the 100 venting operation.

7. In combination a train equipped with a fluid-pressure brake system, an air-exhausting means connected to the train-pipe of the brake system and formed with an exhaust- 105 port, and means for automatically and gradually increasing the effective area of the exhaust-port to gradually apply the brakes, and to abruptly stop the venting operation when the exhaust is at its maximum volume, 110 and actuating means on the road-bed.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 7th day of December, 1904.

HIRAM G. SEDGWICK.

Witnesses:

P. J. KENNEDY,
J. H. WYLIN.