

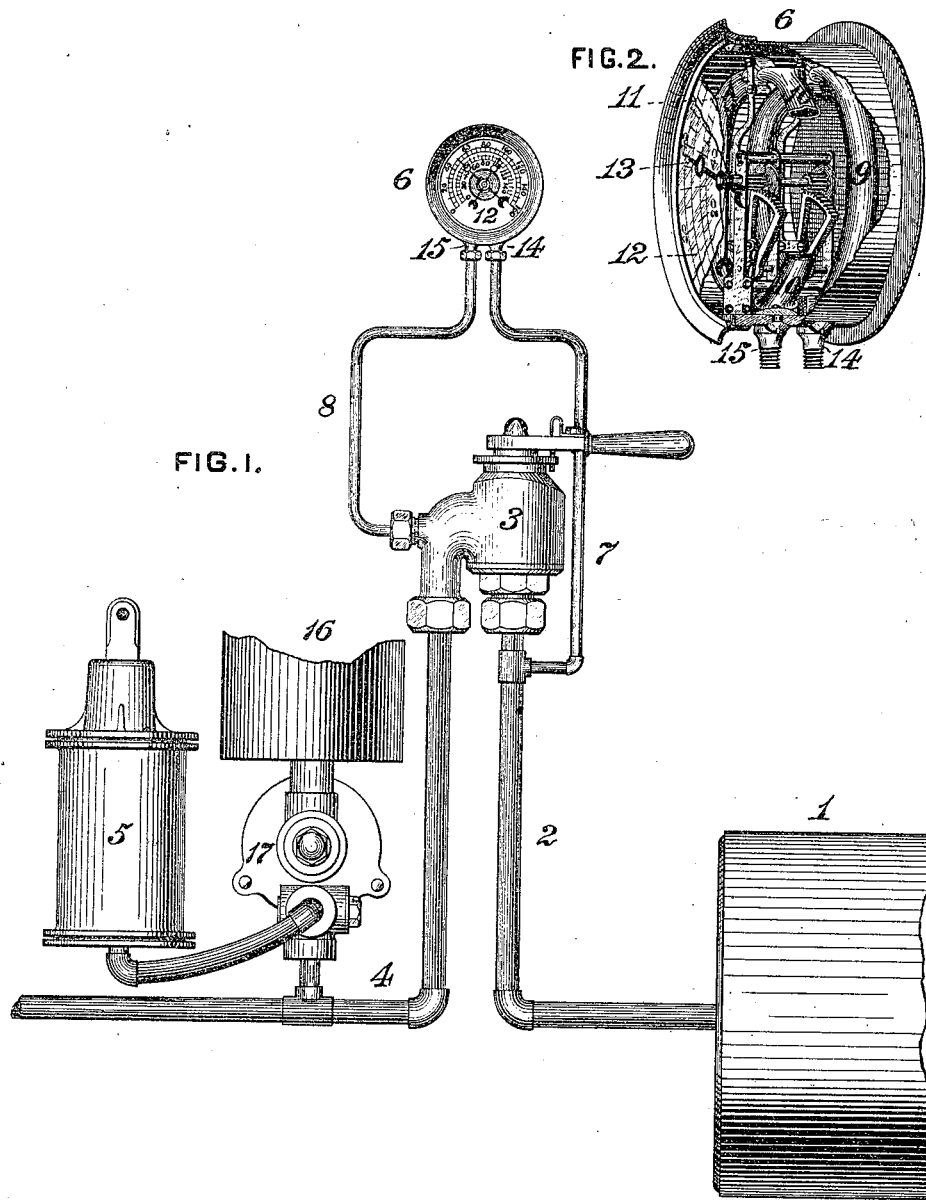
(No Model.)

H. H. WESTINGHOUSE.

PRESSURE INDICATOR FOR AIR BRAKE APPARATUS.

No. 421,641.

Patented Feb. 18, 1890.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY HERMAN WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

PRESSURE-INDICATOR FOR AIR-BRAKE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 421,641, dated February 18, 1890.

Application filed August 29, 1889. Serial No. 322,359. (No model.)

To all whom it may concern:

Be it known that I, HENRY HERMAN WESTINGHOUSE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Pressure-Indicators for Air-Brake Apparatus, of which improvement the following is a specification.

10 In the operation of air-brake apparatus of the "automatic" type it is desirable and usual in practice to constantly maintain a higher pressure in the main reservoir, in which air is compressed by the pump, than in the train
15 or brake pipe, from which the compressed air is delivered to the brake-cylinders for actuating the brakes, such difference of pressure being increased during their application, and it is important that the engineer should at all
20 times be in position to immediately ascertain the varying pressures in the reservoir and brake-pipe and readily determine whether the same are normal in degree and relation.

The object of my invention is to provide
25 simple and convenient means for such ascertainment; and to this end my invention, generally stated, consists in the combination, with a main air-reservoir and brake-pipe, of an engineer's valve adapted to regulate a difference of pressures in said reservoir and
30 pipe, and a pressure-indicator connected to said reservoir and pipe, respectively, and adapted to indicate upon a dial the difference of pressures therein.

35 The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a view in elevation of so much of an air-brake apparatus as is necessary to illustrate
40 the application of my invention; and Fig. 2, a perspective view, partly in section and on an enlarged scale, of the indicator detached.

My invention is herein shown as applied in connection with an automatic air-brake apparatus of the standard construction, in which
45 air under pressure is applied from a main air-reservoir 1 to a train or brake pipe 4, and thence to an auxiliary reservoir 16 through a triple valve 17, the application of the brakes
50 being effected by a reduction of pressure in the brake-pipe 4 by the engineer's valve 3, which controls communication between the

main reservoir and the brake-pipe and between the brake-pipe and the atmosphere, such reduction of pressure causing a movement
55 of the triple valve, which admits air through the same from the auxiliary reservoir to the brake-cylinder 5, and thereby applies the brakes connected to the piston of said cylinder.

60 My improvement, while specially designed for use in an apparatus of such type, is likewise applicable in a "straight-air" apparatus, in which air is admitted directly from the brake-pipe to the brake-cylinder, although
65 from the character of such apparatus its advantage is not to an equal degree available.

In the practice of my invention I provide a pressure-indicator 6, consisting of a suitable casing, in which are inclosed two separate and independent pressure-gage mechanisms 9 and 10, the registrations of which are indicated upon a single-dial plate 12. In the instance illustrated said mechanisms are curved-tube gages of the Bourdon type provided with supply-nozzles 14 and 15, which
75 are connected, respectively, with the main reservoir 1 and with the brake-pipe 4 by pipes 7 and 8. As shown in the drawings, the pipe 7 leads into the pipe 2, which connects the
80 engineer's brake-valve 3 with the main reservoir, and the pipe 8 into the brake-pipe passage of the engineer's valve; but such or any special location of the supply ends of the pipes 7 and 8 is not material, as both may be
85 led into the casing of the engineer's valve on opposite sides of the valve or into the main reservoir and brake-pipe connections thereof, respectively, as convenience or the discretion of the constructor may dictate. The
90 hands or indexes 13 and 11, which are actuated through suitable gearing by the movable ends of the gages 9 and 10, respectively, are fitted to traverse concentrically and independently over the outside of the dial 12,
95 upon which is marked a segmental series of figures, which serve to indicate by the position relatively thereto of the indexes 13 and 11, respectively, the respective pressures which are maintained in the main reservoir
100 and in the brake-pipe. The indexes 13 and 11 are preferably of different colors or are differently shaped, in order to enable them to be plainly distinguished one from the other.

The registration of both reservoir and brake-pipe pressure upon a single dial, as above described, enables the engineer to observe both pressures as from time to time varied with greater quickness and accuracy than is possible where separate gages are employed, and to discern at a glance whether their normal relation of difference is maintained or is varied to any substantial degree.

10 I claim as my invention and desire to secure by Letters Patent—

In an air-brake apparatus, the combination of a main air-reservoir, a brake-pipe, an

engineer's valve connected to said reservoir and brake-pipe and adapted to regulate a difference of pressures therein, and a pressure-indicator communicating with the main air-reservoir and the brake-pipe and adapted to register upon a single dial the difference of pressures therein, substantially as set forth. 15 20

In testimony whereof I have hereunto set my hand.

HENRY HERMAN WESTINGHOUSE.

Witnesses:

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