O. JOHNSON.

AIR BRAKE SYSTEM.

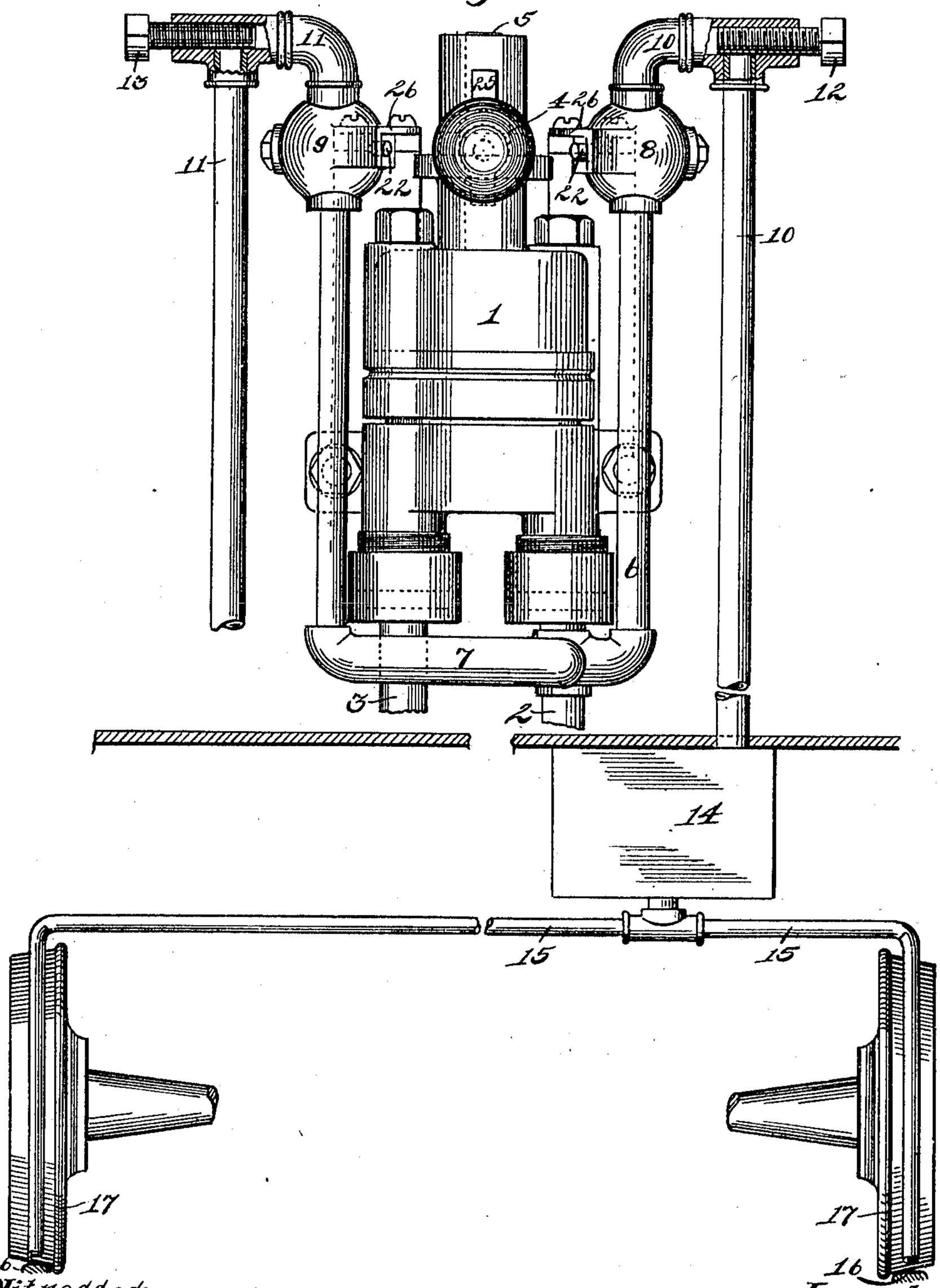
APPLICATION FILED APR. 4, 1910.

969,877.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 1.




Witnesses:

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B. J. Richards

Inventor:

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2 SHEETS—SHEET 2.

Fig. 2.

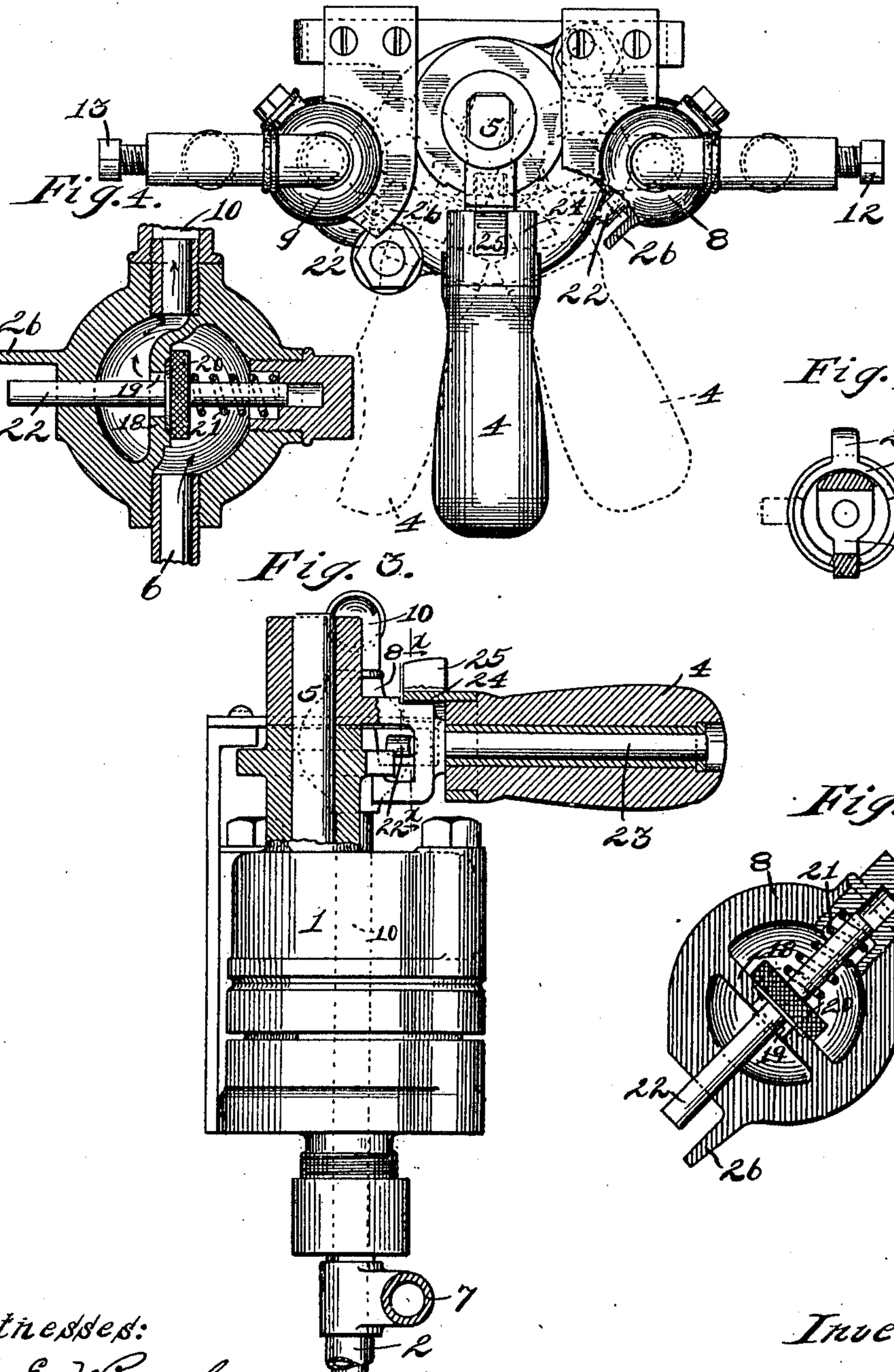


Fig. 4.

Fig. 6.




Fig. 3.




Fig. 5.




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# UNITED STATES PATENT OFFICE.

OSCAR JOHNSON, OF CHICAGO, ILLINOIS.

## AIR-BRAKE SYSTEM.

969,877. Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed April 4, 1910. Serial No. 553,421.

*To all whom it may concern:*

Be it known that I, OSCAR JOHNSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Air-Brake Systems, of which the following is a specification.

My invention relates to improvements in air brake systems and has for its object the provision of a system in which sand will be deposited upon the track when the air brakes are applied.

A further object is to provide a system in which other useful operations may be performed at the same time that the air brakes are removed.

The invention consists in the combination and arrangement of parts which will be hereinafter fully described and particularly pointed out in the appended claims.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a sectional elevation of a system embodying my invention, Fig. 2, a top plan vew of the main and supplemental air valves, Fig. 3, a sectional elevation of the brake valve, Fig. 4, an enlarged vertical section of one of the supplemental valves, Fig. 5, a horizontal section of one of the supplemental valves, and Fig. 6, a section on line *x*—*x* of Fig. 3.

The preferred form of construction as illustrated in the drawings comprises the usual brake valve 1 provided with the usual supply pipe 2 and the usual discharge pipe 3 for operating the brakes, as will be readily understood by those skilled in the art. The brake valve 1 is operated by means of a handle lever 4 secured to the valve stem 5, the relation being such that when handle 4 is moved to the dotted line position at the right of Fig. 2 the brakes are applied and when moved to the dotted line position shown at the left of Fig. 2 the brakes are moved, as will be readily understood by those skilled in the art. Before entering the brake valve 1 supply pipe 2 is provided with two branch supply pipes 6 and 7 leading to supplemental valve casings 8 and 9 secured in operative relation with handle 4 at either end of its stroke. Valve casings 8 and 9 are provided with discharge pipe connections 10 and 11 equipped with screws 12 and 13 by means of which said discharge connections may be opened or closed. Discharge pipe 10 leads to a sand box 14 which is provided with branch pipes 15 adapted to deposit sand on tracks 16 in front of wheels 17 when air is supplied to said sand box. Discharge pipe 11 leads to a gong or other mechanism which it may be desired to operate when the brakes are moved.

Each of the valve casings 8 and 9 are divided by means of a vertical partition 18 into two separate chambers, one in communication with the supply pipe leading thereto and the other with the discharge pipe therefor. Each of the partitions 18 is provided with an air passage 19 adapted to be closed by a valve 20 yieldingly held to its seat by means of a spring 21. Each of the valves 20 is carried by a valve stem 22 projecting from its corresponding casing into operative relation with handle 4 at the end of the latter's movement in either direction. Handle 4 is rotatably mounted upon a lever 23 which is rigidly connected to the valve stem 5. At its inner end handle 4 carries an inwardly projecting segmental flange 24 provided with an outwardly projecting lug 25 adapted to contact with the ends of valve stems 22 when properly positioned on lever 23. A guard flange 26 is also provided on each of the casings 8 and 9 and serves to prevent accidental or unauthorized manipulations of said valve stems.

In use when it is desired to supply sand to the tracks at the same time that the brakes are applied handle 4 is rotated upon lever 23 clock-hand-wise until flange 24 stops against lever 23, in which position, upon operation of handle 4 to apply the brakes, the lug 25 will contact with the valve stem 22 upon the right, thus lifting the corresponding valve 20 from its seat and supplying air to sand box 14 and sand to the tracks. The relations are such that the lug 25 contacts with said valve stem just before the brakes are applied so that the tracks will be supplied with sand before the application of the brakes which tends to prevent sliding of the wheels on the track, a result which would not only tend to flatten the wheels but would also tend to push the sand off of the track in front of the wheels and thus destroy its effectiveness. By rotating the handle 4 in an opposite direction the valve in valve casing 9 may be similarly operated to cause operation of a gong or other desired mech-

anism in which pipe 11 may be connected. The spring for the valve in casing 9 is made somewhat stronger than the spring for the valve in casing 8 so that there shall be less likelihood of the accidental operation thereof by the operator, inasmuch as it is intended that the projection 25 shall ordinarily be held in position for operation of the valve of the casing 9.

While I have illustrated and described the preferred form of construction for carrying my invention into effect this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the exact details of construction set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In an air brake system, the combination with an air valve having an operating lever, of a supplemental valve located in operative relation with said handle; a sand box; operative connections between said supplemental valve and said sand box; a rotatable handle on said lever; and a lug on said handle adapted to cause operation of said supplemental valve upon operation of said lever, substantially as described.

2. In an air brake system, the combination with an air valve having an operating lever, of a supplemental valve located in operative relation with said handle; a sand box; operative connections between said supplemental valve and said sand box; a rotatable handle on said lever; a lug on said handle adapted to cause operation of said supplemental valve upon operation of said lever; and a stop on said lever adapted to limit the rotation of said handle at operative position, substantially as described.

3. In an air brake system, the combination with an air valve having an operating lever, of a supplemental valve located in operative relation with said lever at either end of its stroke; a sand box; operative connections between one of said supplemental valves and said sand box; an operative connection for the other supplemental valve; a rotatable handle on said lever; and a lug on said handle adapted to cause operation of one of said supplemental valves upon operation of said lever in either direction, substantially as described.

4. In an air brake system, the combination with an air valve having an operating lever, of a supplemental valve located in operative relation with said lever at either end of its stroke; a sand box; operative connections between one of said supplemental valves and said sand box; an operative connection for the other supplemental valve; a rotatable handle on said lever; a lug on said handle adapted to cause operation of one of said supplemental valves upon operation of said lever in either direction; and a stop on said lever adapted to limit the rotation of said handle at operative position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OSCAR JOHNSON.

Witnesses:
HELEN F. LILLIS,
JOSHUA R. H. POTTS.