

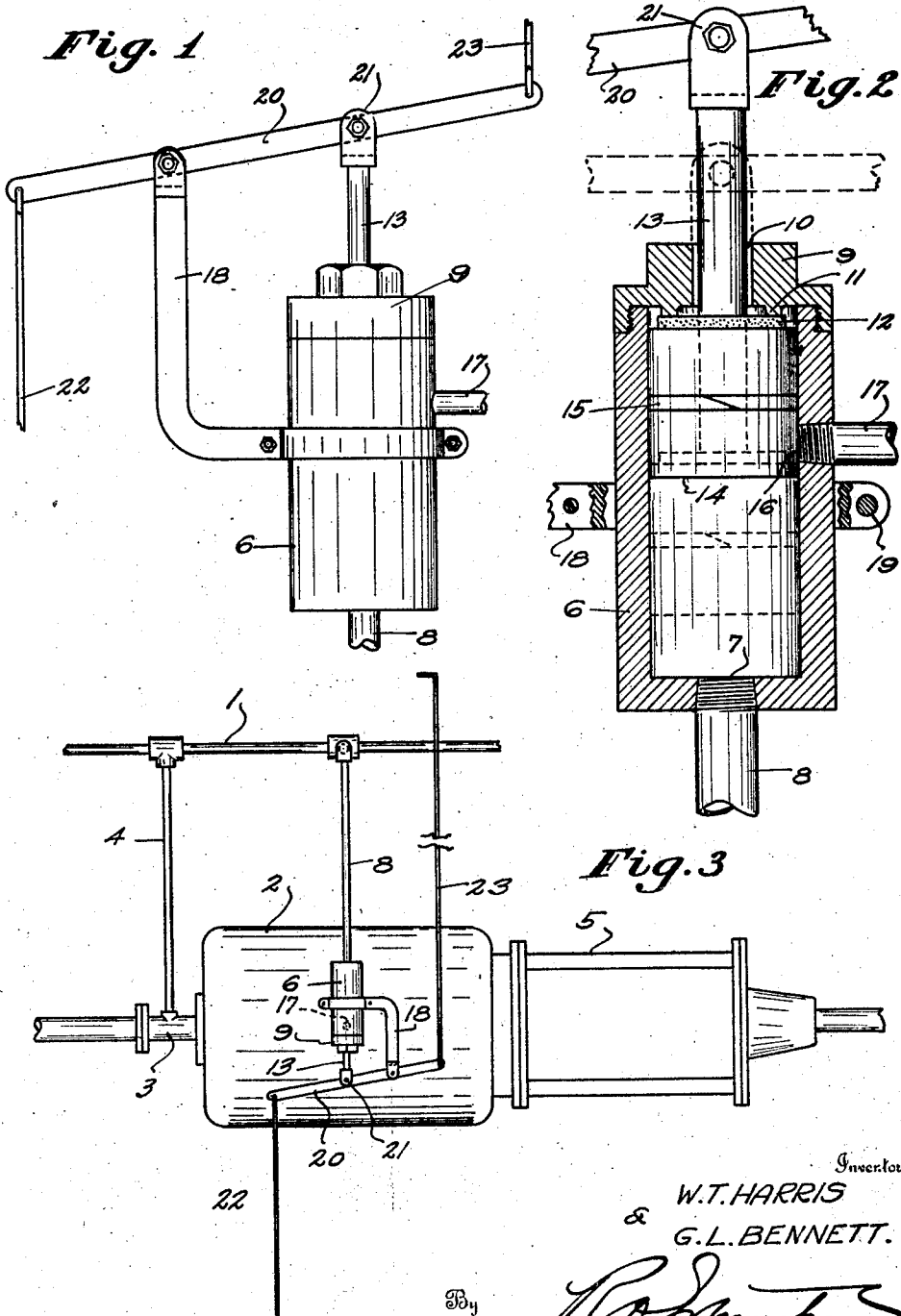
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BLEEDER VALVE FOR THE AUXILIARY RESERVOIR OF AIR BRAKE SYSTEMS

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BLEEDER VALVE FOR THE AUXILIARY RESERVOIR OF AIR-BRAKE SYSTEMS.

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Our invention relates to a bleeder valve for the auxiliary reservoir of air brake systems.

The object of our invention is to devise a very simple, inexpensive, readily applied and durable valve mechanism which will operate without the use of springs or other means constantly tending to close the valve and will thus leave the valve free to be set in open position for bleeding the auxiliary reservoir without requiring it to be held in open position. Our invention contemplates that the cutting in again of the train line pressure will automatically close the bleeder valve.

The chief object of our invention is to reduce the valve design to the maximum simplicity to the end that it will be practical and simple of operation; that it will be durable; and that it will avoid delicate parts liable to get out of operation, such as springs and the like, and to this end our invention contemplates the utilization of a cylinder having a suitable end connection with the train line pressure and a side connection to the auxiliary reservoir with a manually shiftable plunger valve therein adapted to control the air escape port and the port in communication with the auxiliary reservoir.

Our invention further contemplates the provision of packing rings about the cylinder to seal the train line against the leakage of auxiliary reservoir pressure thereinto when the valve is open and to provide an additional seal against the leakage of air from the auxiliary reservoir through the air escape port of the valve when the valve is closed.

Our invention further contemplates combining a packing ring with a positive acting valve to prevent leakage of pressure through the bleeder port of the valve.

Our invention further comprises the novel details of construction and arrangements of parts, which are hereinafter more particularly described and pointed out in the appended claims, reference being had to the accompanying drawings which illustrate only the preferred embodiment of our invention, and in which:—

Fig. 1 is a side elevation of our improved bleeder valve.

Fig. 2 is an enlarged detail cross-sectional view of the bleeder valve.

Fig. 3 is a plan view of a portion of the

air brake system of a railway car showing an auxiliary reservoir equipped with our improved type of bleeder valve.

Similar reference numerals refer to similar parts throughout the drawings.

According to the embodiment of our invention illustrated in the drawings, 1 designates the train line of the air brake system of a railroad car, and 2 indicates the auxiliary reservoir having a triple valve 3 connected by the pipe 4 with the train line 1. The auxiliary reservoir is associated with an air brake cylinder 5 in the usual manner and the parts as thus far described, being of standard construction, form no part of our present invention which is concerned with the mechanism for bleeding or relieving the pressure of the auxiliary reservoir after the train line has been cut.

The bleeder valve, in the preferred form illustrated, comprises a valve body in the form of a cylinder 6 having a port 7 at one end which is connected by a branch pipe 8 with the train line 1. The other end of the cylinder is closed by a cap 9 having a central port 10 provided at its inner end with a raised valve seat 11 which is adapted to be engaged by a washer 12 surrounding the stem 13 of a plunger valve 14 which carries at least one packing ring 15 that will establish a pressure tight joint with the inner walls of the cylinder 6. The washer, when the plunger is in its outermost or valve closed position, will positively engage the seat 11 and seal the air exhaust or bleeder port 10. At the same time the packing ring 15 will be interposed between this port 10 and the port 16 opening at an intermediate point in the side of the cylinder and connected to the auxiliary reservoir by a pipe 17 which is adapted to be screwed into the existing tapped hole in the side of the reservoir provided for the present bleeder valves. When the piston is in inner or valve open position its packing ring 15 will seal the connection between the ports 16 and 7 and valve off the auxiliary reservoir pressure from the train line.

We mount a clamp bracket 18 about the cylinder 6, utilizing clamp bolts 19 to hold the bracket in the desired position on the cylinder. On this bracket we pivotally mount a lever 20 having a pivotal connection with a clevis 21 at the outer end of the plunger rod 13. We provide valve operating handles 22 and 23 which are so connected

to the lever 20 that by pulling the rod that projects at either side of the car the plunger valve can be forced inwardly to open the bleeder port.

5 In operation, assuming that the train line has been cut and that the bleeder valve is in its outermost or closed position, to open this valve and bleed the auxiliary reservoir it is only necessary for the trainman to pull
10 the operating rod 22 or 23 which happens to be on the side of the car on which he stands, and this will set the valve in open position with the plunger in dotted line position at the inner end of the cylinder.
15 Since the plunger will remain in this position as long as the train line pressure is off, it is unnecessary for the trainman to hold the valve open and thus he can operate the valves of a train of cars as fast as he
20 can get to them and leave them set in open position, in which position they will permit the gradual reduction of the pressure in the auxiliary reservoirs until the car brakes are released. When a car is again coupled in
25 and the train line connected up, the train line pressure will establish itself at the inner end of the cylinder 6 and will move the plunger 14 outwardly, forcing the washer 12 against the seat 11 and interposing the
30 packing ring 15 between the ports 16 and 10, thus doubly sealing the valve against the leakage of pressure through the bleeder port 10. At the same time the piston assumes position in which it will blank off
35 the port 16 leading to the auxiliary reservoir.

By shifting the clamp bracket about the cylinder the lever 20 can be set so that its operating rods will clear the air brake
40 mechanism and since the cylinder 6 can be very simply and cheaply connected up to the auxiliary reservoir and to the train line pipe 4, it follows that our device can be installed with but little expense and when
45 installed should, due to its extreme simplicity, be capable of rendering long and effective service. Any dust or foreign matter gaining access to the cylinder through the bleeder port 10 about the plunger rod
50 13 will be largely blown out with the escape of air when the valve is opened, and obviously it is a very simple matter to unscrew the valve cap 9 and clean out the cylinder 6 whenever this is necessary.

55 Though we have described with great particularity the details of the embodiment of the invention herein shown, it is not to be construed that we are limited thereto, as changes in arrangement and substitution of
60 equivalents may be made by those skilled in the art without departing from the in-

vention as defined in the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

65 1. In an air brake system comprising an auxiliary reservoir and a train line, a bleeder valve which comprises a cylindrical chamber connected at its inner end to the train line and at its side to the auxiliary reservoir and at its outer end to the atmosphere, and a plunger valve therein adapted to
70 blank off the side connection and close the outlet from the cylinder to the atmosphere when in its outermost position and when
75 moved to its innermost position to establish communication between the auxiliary reservoir connection and the outlet to the atmosphere, and mechanism to move the valve to its innermost or open position.

80 2. A bleeder valve according to claim 1, in which the plunger valve is provided with a packing ring disposed to assume position between the connections to said reservoir and the atmosphere when the valve is in its
85 outermost or closed position, and to assume position between the connections to said reservoir and train line when the valve is in its innermost or open position.

90 3. A bleeder valve according to claim 1, in which the connection to the atmosphere is a port in the outer end of the cylinder, and the plunger valve has a stem which passes loosely through said port.

95 4. In an air brake system comprising an auxiliary reservoir and a train line, a bleeder valve comprising a cylinder connected at its inner end to the train line and at its side to the auxiliary reservoir, a cap for the outer
100 end of the cylinder having a central bleeder port, a plunger valve in the cylinder having a stem passing loosely through said port, a raised valve seat surrounding the inner end of said port, a washer on the plunger adapted to engage said seat and close said port,
105 a packing ring surrounding the piston valve and adapted to assume position between the auxiliary reservoir connection and said port when the valve is in its outer or closed position and to assume position between the
110 connections to the train line and auxiliary reservoir when the valve is in its inner or open position, and leverage means acting on said stem to move the valve to open position, the train line pressure being adapted to automatically close the valve, substantially as described.

In testimony whereof we affix our signatures.

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