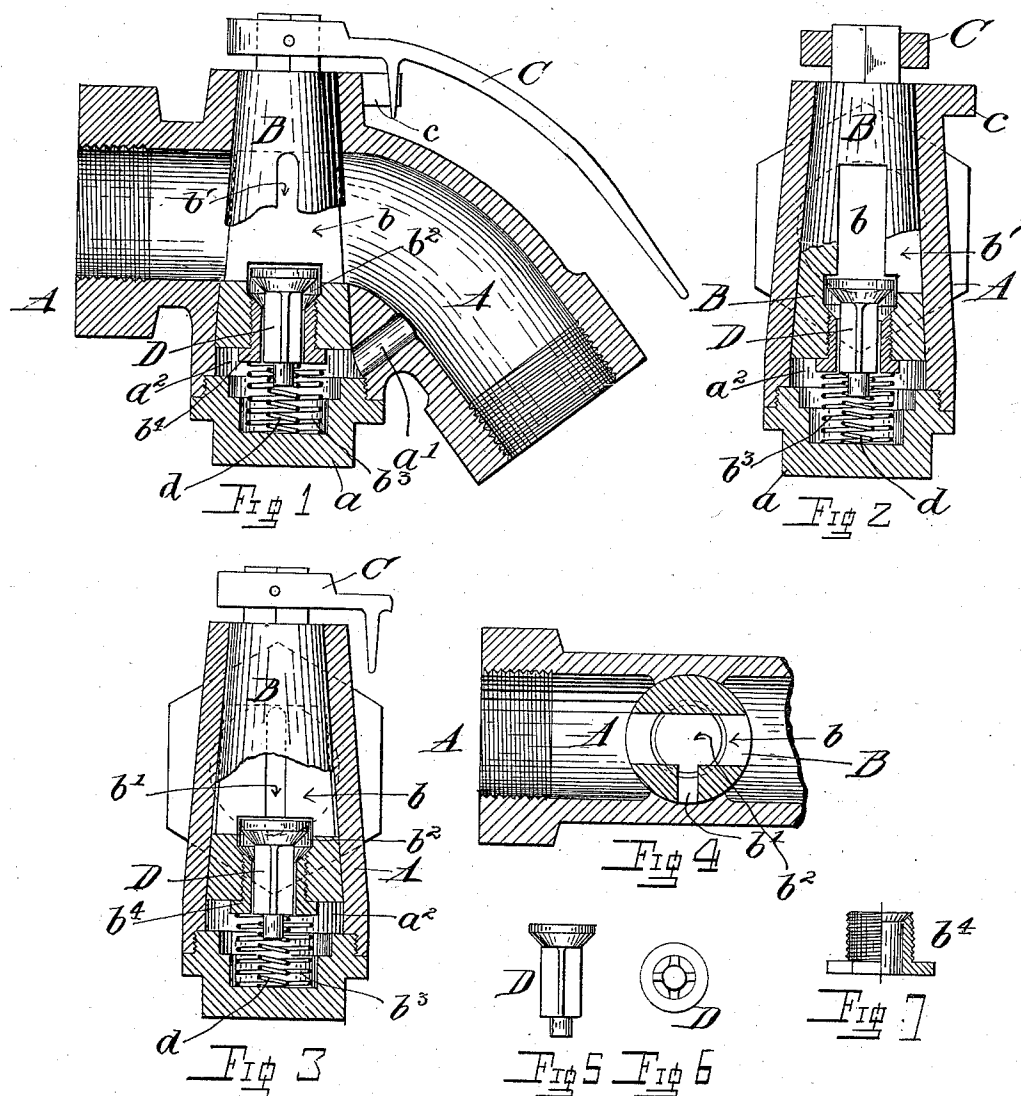


W. R. HOWDON.
ANGLE COCK.

Patented Sept. 3, 1895.



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ANGLE-COCK.

SPECIFICATION forming part of Letters Patent No. 545,865, dated September 3, 1895.

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To all whom it may concern:

Be it known that I, WILLIAM R. HOWDON, a citizen of the United States of America, and a resident of Anniston, in the county of Calhoun and State of Alabama, have made a certain new and useful Improvement in Angle-Cocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a longitudinal vertical section of the valve-seat and casing, showing the entire device assembled and the cock open. Fig. 2 is a transverse section of the device with the parts in the same position as in Fig. 1. Fig. 3 is a section of the device like Fig. 2, with the exception that the valve is turned into the position where air may pass from the train-pipe of that car forward to the engineer's valve-vent. Fig. 4 shows a horizontal section through the valve and casing, showing said valve in the position in which it is shown in Figs. 1 and 2. Figs. 5 and 6 are respectively a side elevation and an inverted plan of the valve in the lower end of the main valve. Fig. 7 is a side elevation, partly in section, of the valve-seat in the lower end of the main valve.

In these figures like reference-characters are uniformly employed in the designation of corresponding elements of construction.

A is the casing, which may obviously be of any form adequate to receiving the operative parts. This casing A is perforated vertically for the plug-valve B, said valve being preferably tapered and inserted from the bottom, the hole a^2 in the casing therefor being correspondingly formed. A cap a closes the bottom end of said perforation a^2 . A passage a' enters the said perforation a^2 from the air-passage through the casing, the embouchure of said passage being below the lower end of the plug-valve. A lever C is secured to said plug-valve, whereby it is operated, stops c , Figs. 1 and 2, limiting the motion thereof.

Extending completely through the plug-

valve is a passage b , registering with the air-passage through the casing, and leading from one side of said plug-valve into the passage b is a passage b' , at right angles to the passage b . A concentric passage b^2 leads from the lower end of said plug-valve into the passage b , and a sleeve b^4 , having its upper end concaved, is screwed into the said passage b^2 , whereby a seat is formed for the valve D, which opens upwardly, being assisted in opening by a spring d interposed between said valve and the upper side of the cap a . The spring b^3 acts to keep the plug-valve B seated.

The operation of this device is as follows: The plug-valve B being turned as shown in Fig. 1, the air-brakes may be applied by drawing air from the train-pipe, and the reservoirs may be stored as usual in fluid-pressure brake-systems. When the valve is turned as shown in Fig. 3, whether it is accidentally or maliciously so turned, the air may, when the engineer's valve is turned to service or emergency stop, pass from the train-pipe through the passage b' to the passage b , thence downwardly through the passage b^2 past the valve D into the chamber in the perforation a^2 under the plug-valve, and by way of the passage a' to the air-passage in the cock, thus passing, as it were, around the plug-valve B. This will cause the brakes to apply throughout the system back of this particular angle-cock.

While the car is standing unattached, the train-pipe pressure will be applied to the upper side of the valve D and close it against the spring d , there being no pressure of air below said valve, but as soon as the air pressure shall be applied to said under side thereof, it will, with the assistance of the spring d , open said valve, and the device will then operate as just above described. Before charging the train-pipe with air, the back hose-coupling should be coupled to the dummy-coupling at the back end of the last car of the train, in order to prevent loss of air when first charging.

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

1. In an angle-cock, the valve-casing, a valve therein, a passage in said casing around said valve, and a check valve governing said pas-

sage and held normally open and adapted to be closed by a preponderance of pressure on top of the said valve.

2. In an angle-cock, a valve-casing, and a
5 plug-valve therein, provided with a passage adapted to register with the passage in the casing, a second passage in said valve one end of which may be brought into registry with the passage in said casing and extending
10 through said valve, a by-pass in the casing extending from the said last named passage in the valve to a point where it will enter the passage in the casing ahead of the plug-valve, and a check-valve adapted to be closed on a
15 preponderance of air pressure on top of said plug-valve.

3. In an angle-cock, a casing perforated

longitudinally, a plug-valve governing said perforation, and provided with a transverse passage, a second passage opening from said 20 first named passage outwardly through the side of said plug-valve, a third passage opening downwardly from the first-named passage through the end of the plug valve, a check-valve seated therein normally pressed up- 25 wardly to an open position and a passage in the casing leading from the embouchure of said third passage into the perforation in the casing at a point ahead of said plug-valve.

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Witnesses:

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