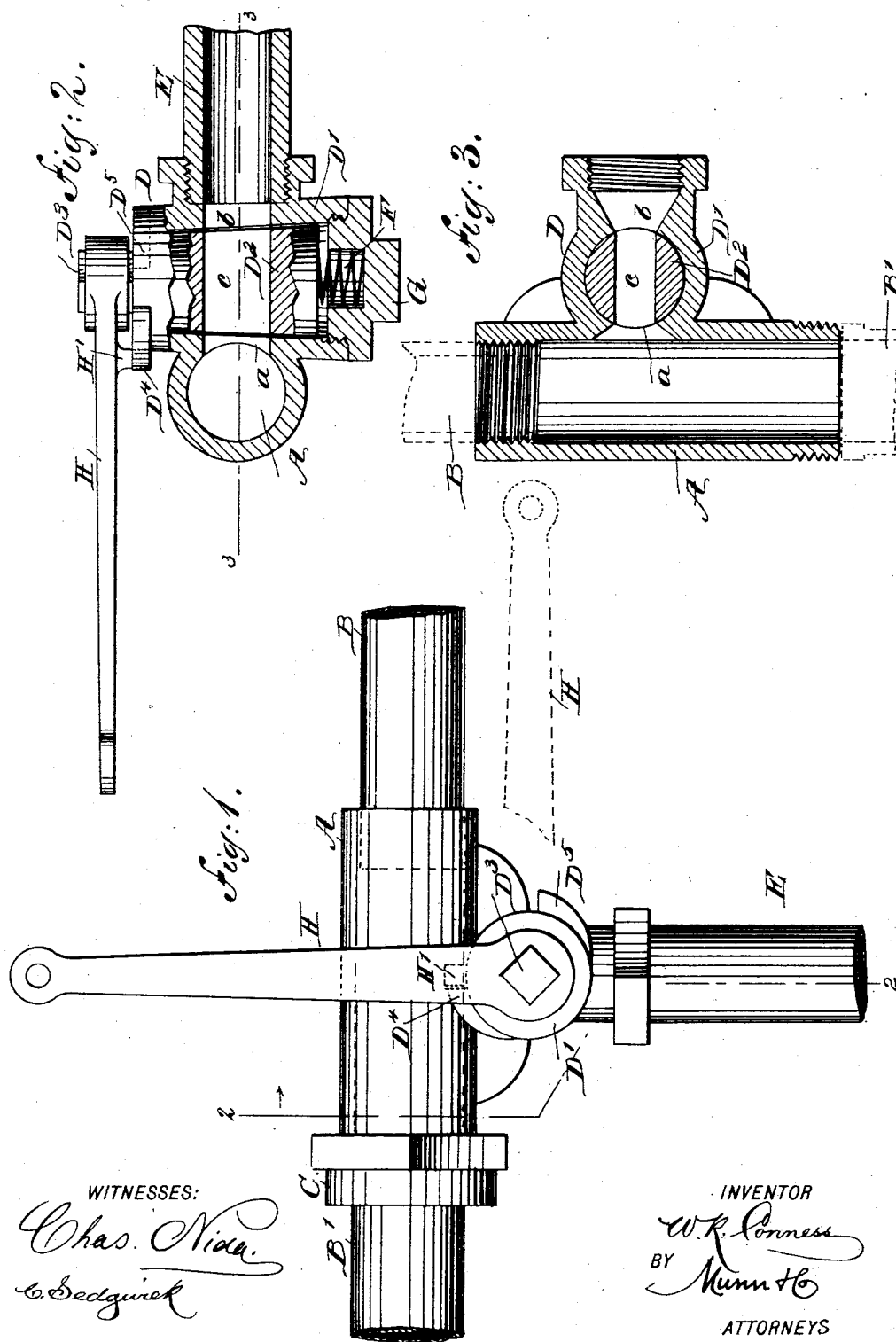


(No Model.)

W. K. CONNESS.
VALVE DRAIN CUP.

No. 525,535.

Patented Sept. 4, 1894.



WITNESSES:

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WALTER KNOX CONNESS, OF SACRAMENTO, CALIFORNIA.

VALVE DRAIN-CUP.

SPECIFICATION forming part of Letters Patent No. 525,535, dated September 4, 1894.

Application filed December 6, 1893. Serial No. 492,936. (No model.)

To all whom it may concern:

Be it known that I, WALTER KNOX CONNESS, of Sacramento, in the county of Sacramento and State of California, have invented a new and Improved Dust-Protecting Device for Air-Brake Valves, of which the following is a full, clear, and exact description.

My invention relates to a means for protecting air brake triple valve mechanisms from the effects of dust and foreign substances, and more perfectly preventing the entry of such substances into the delicate mechanism of the valve.

It consists in the employment of cocks placed at one side of the line of the train pipe at points where the branch pipes lead to the triple valve to form a part of the pipe wall when closed, and to make a continuous passage therethrough, and in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is an exterior plan view showing my device. Fig. 2 is a transverse section on the line 2—2 of Fig. 1. Fig. 3 is a sectional plan view on the line 3—3 of Fig. 2.

In the construction of air brake valve mechanism, a train pipe extends throughout the train with suitable couplings between the cars and is supplied with air under pressure from a reservoir upon the engine. From this pipe air is supplied to auxiliary car reservoirs and to the automatically operating valves known as triple valves, by which the brakes are applied or released. These valves are of very delicate construction and somewhat expensive to repair when out of order.

The train pipe always collects more or less of dust, dirt, and rust, that accumulate in the pipe, coal dust and particles, which sometimes find entrance when the couplings between the cars have been separated, and afterward put together, and in order to prevent these substances from finding their way to the triple valve mechanism, it has been customary to insert at the junction of the train pipe and the branch pipe leading to the triple valve, a screen of fine wire mesh which is also sometimes surrounded with sponge or other material to act as a strainer and prevent the dust from entering this pipe. This is technically called a "drain cup." In addition to

this, another small screen is placed at the entrance to the triple valve.

In the usual construction of the branch pipe it is connected with the train pipe at the point where the first named screen or drain-cup, so-called, is introduced, and the branch pipe descends perpendicularly below the drain cup, thence changes direction and eventually connects with the triple valve casing, and auxiliary reservoir.

At a point within its length and some distance from the train pipe is placed a cut out valve or cock which may be opened to form communication between the triple valve and train pipe, or closed to cut it off. The space between the train pipe and this cock receives and retains any dust or dirt which may pass the screen in the drain cup. If the cock be closed, this dust and dirt will collect behind it, and when it is opened and air again passes, it will all be blown in so as either to clog the screen at the triple valve or to pass it and get into the valve mechanism itself.

Experience has shown that the preliminary screens in the train pipe are totally inadequate to check the dust and dirt, that they either become clogged so as to prevent a rapid movement of the air through the pipes, which is necessary in the quick action brakes, or they become broken and destroyed so that they fail to protect the valves from dust.

My invention consists in fitting a cock or valve at a point so close to the line of the train pipe at the point where it connects with the branch pipe that when this cock is closed it will practically form part of the wall of the pipe and make an approximately smooth passage in the interior of the train pipe and all connecting cars of the train having the same construction, there follows an uninterrupted continuity of train pipe throughout the train, so that when charged with air at brake service pressure, all foreign substances can be blown out at the rear of the train, or sectional part of same, and the pipe is left clear and clean, so that the drain cup, so-called, with its screen and sponge, may be dispensed with, as the small screen at the triple valve is sufficient to retain any small quantity of dust that may be collected from time to time. In addition to this I have so constructed my valve that the branch pipe leads out either

horizontally or upwardly from the train pipe so that the travel of the foreign material during its expulsion will be along the smooth bottom of the pipe where it cannot fall into the branch pipe opening, as it would do if said pipe was placed below the train pipe. It also prevents the cutting of the surface of the cock when closed.

Various forms of cut off, angle, or stop cocks, may be used in carrying out my invention. In the present case I have shown a cylindrical casing A interposed into the train pipe, one end B of which is screwed into one end of the casing while the other end B' is connected by a union nut C.

The cock consists of the outer casing D' and the tapering plug D² which is ground or otherwise fitted into the correspondingly shaped opening in which it turns. The opening in which the plug is fitted is made as close to the line of the interior of the train pipe as is possible so that when the plug is turned to close the passage to the branch pipe, it is so nearly in line with the interior of the train pipe that it practically leaves no chamber or space for collection of dust or dirt, and the train pipe is thus continuous from end to end.

a is the port or passage which opens into the train pipe and which is made divergent, as shown in Fig. 3, for the purpose above described.

b is the port upon the opposite side of the plug which connects with the branch pipe E leading to the triple valve mechanism.

c is the transverse port made through the plug and which may be turned to stand in line with the ports a b, thus connecting the branch pipe with the train pipe A, or it may be turned to stand transversely and close this communication.

In order to operate the cock, I have shown the small end of the plug having a square projection D³ upon which is fixed a handle H, by which the plug is turned to open or close it. Lugs D³ and D⁴ are fixed upon the casing A, and the handle is provided with a projecting stop H' which is arrested against either of these lugs, so as to stop the movement of the handle when the cock is either open or closed as the case may be. In the present case, the lever or handle H extends horizontally above the train pipe, and is turned in a horizontal plane, the cock standing vertically at one side of the train pipe, but if an angle cock be used in which the cock stands trans-

versely above the train pipe and the branch pipe leads out from this angle cock, the lever would then turn in a vertical plane. In order to keep the plug D² closely to its seat at all times, I have shown a spring F pressing against the larger end of the block and held in place by a chambered screw cap G within which it fits. By this construction I am enabled to cut off all communication with the branch pipe by closing the cock, and when the cock is so closed there is a perfect continuity of the train pipe without leaving any chamber or space for the collection of dust or dirt, and any such material which may have collected at any point in the pipe can be blown out after the train is coupled up, so that the pipes will be perfectly clean when the train is ready to start, and I am thus enabled to dispense with what is known as the "drain cup" with its screens which soon become so clogged or broken as to be useless for the purpose for which they were designed, beside retaining the foreign matter in the train pipe instead of expelling it.

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

1. A device for protecting the air brake valves from dust, consisting of a cock or valve, the casing of which is connected with the branch pipe leading to the valve mechanism upon one side and upon the other side forms a connection between the adjacent ends of the train pipe which meet therein so that when the cock is closed, the train pipe and casing form a continuous smooth passage.

2. A device for protecting air brake valves from the entrance of dust, consisting of a valve casing connecting with the branch pipe leading to the valve mechanism upon one side while its opposite side forms a connection between the adjacent ends of the train pipe which meet therein, and a cock or valve in said casing in close proximity to the passage in the casing which is in line with the train pipe passage, whereby when said cock or valve is closed its exterior wall forms approximately a portion of the wall of said passage and makes the passage continuous and practically unbroken, so that dust or dirt is prevented from lodgment therein.

WALTER KNOX CONNESS.

Witnesses:

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