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J. McKEOWN.

INJECTOR CONNECTION FOR LOCOMOTIVE BOILERS.

APPLICATION FILED NOV. 25, 1904.

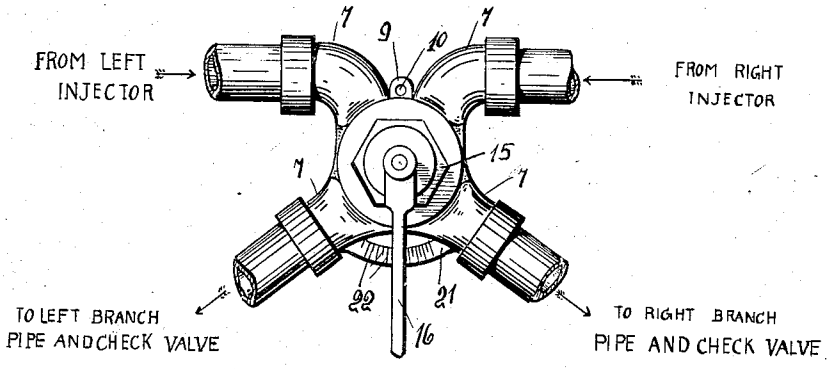


Fig. 1.

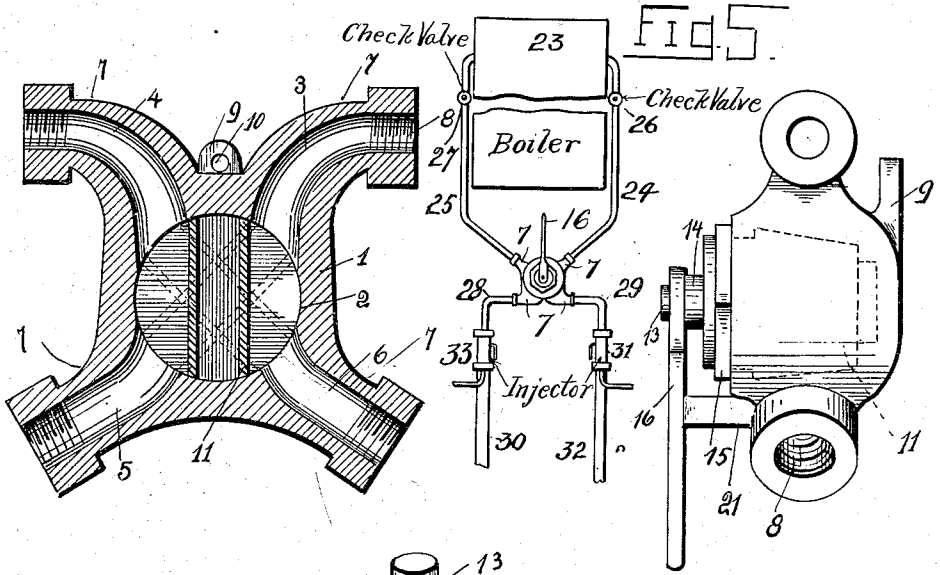


Fig. 5.

Fig. 2.

Fig. 3.

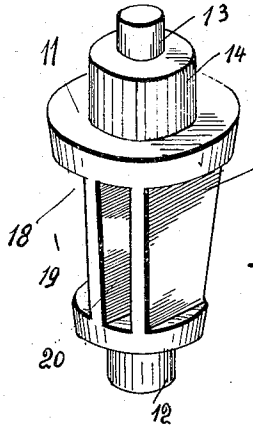


Fig. 4.

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UNITED STATES PATENT OFFICE.

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INJECTOR CONNECTION FOR LOCOMOTIVE-BOILERS.

No. 810,877. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed November 25, 1904. Serial No. 234,288.

To all whom it may concern:

Be it known that I, JAMES McKEOWN, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Injector Connections for Locomotive-Boilers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in injector connections for locomotive-boilers.

The invention has for its object to provide an injector connection for locomotives which will be extremely simple in construction, strong and durable, and highly efficient when used, and in constructing my improved connection I have embodied certain novel features of construction whereby the same will be particularly adapted for use upon locomotives for controlling the water which passes from the injectors to the check-valves.

Heretofore it has been the practice to employ a separate valve for controlling the water passing to each one of the check-valves, these valves being located upon the locomotive-boiler within the locomotive-cab. My invention contemplates dispensing with these valves and employing a four-way valve which may be operated to control the passage of water from the injector to either the right or left check-valves.

With the above objects in view the invention finally consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described and then specifically pointed out in the claims, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a front view of my improved valve. Fig. 2 is a vertical transverse sectional view of the same. Fig. 3 is an edge view of the valve as constructed in accordance with my invention. Fig. 4 is a detail perspective view of the plug of my improved injector connections for locomotive-boilers. Fig. 5 is a diagrammatical view illustrating my improvement as applied to a locomotive.

In order that my improved valve may be fully understood, I will describe the same as being used in connection with a locomotive; but I do not care to confine myself to this specific use, as the same may be readily employed in connection with stationary boilers and in any places where it is desired to control a plurality of inlet and outlet ports. As heretofore stated, two valves are commonly employed for controlling the water-supply being fed to the locomotive-boiler, it being the common practice to employ a check-valve upon each side of the boiler near the forward end, which is connected by a branch pipe to the injector commonly located in the cab of the locomotive, and this injector is connected to the tender from where the water-supply is obtained. The branch pipes leading from the injector to the check-valves are generally placed along the running-board of the locomotive, and should the locomotive meet with an accident and should be "side-swiped" one of these branch pipes is generally stripped from the locomotive, rendering the check-valve upon this side of the locomotive inoperative. I have therefore constructed my improved valve whereby should anything happen to one of the check-valves and branch pipes the water-supply from the injector can be directed into the sound and uninjured branch pipe and check-valve.

Reference will now be had to the accompanying drawings, wherein I have illustrated the preferred manner of constructing my improved valve.

The reference-numeral 1 designates the valve-casing, which is provided with a central recess or plug-seat 2, and communicating with said recess are the tangential curved ports 3, 4, 5, and 6, each of said ports extending into curved portions 7 of the valve-body, and each curved portion is threaded, as indicated at 8, to receive their respective pipes. The valve-body is provided on its rear face with a lug 9, having an aperture 10 formed therein, whereby the valve in its entirety may be secured to the boiler of a locomotive in such a position as to be conveniently operated by the engineer. In the recess 2 is mounted a plug 11, which is clearly illustrated in Figs. 2 and 4 of the drawings. The plug is preferably tapering in form and is provided upon its small end with a contracted portion 12, which seats within the recess 2 of the valve-body, and the upper end of the plug is provided with the contracted portions 13 and 14, the plug being retained within the

valve-body by a nut 15, which surrounds the contracted portion 14, while upon the contracted portion 13 is secured the operating-handle 16. The sides of the plug are cut away, as indicated at 17 and 18, forming a neck portion 19, which is provided with a central passage 20. The valve-body is provided with a substantially segment-shaped bar 21, that is graduated, as indicated at 22, this bar lying in close proximity to the operating-lever 16, whereby the position of the plug within the valve-body may be determined by referring to the graduations.

In Fig. 5 of the drawings I have shown my improvement as applied in position on a boiler, and in this figure the boiler is designated 23, and from the two opposite sides of the boiler are the pipes 24 25 leading, respectively, to the two curved inlet-ports 3 4 of the valve. The pipe 24 is provided with a check-valve 26, and the pipe 25 is provided with a similar check-valve 27. Two pipes 28 and 29 lead, respectively, from the ports 5 and 6 of the valve, and the pipe 28 is connected with an injector 33, which is in turn connected by a pipe 30 with the water-supply, (not shown,) while the pipe 29 is connected to an injector 31, which is likewise connected by a pipe 32 with the water-supply.

The operation of my improved valve is as follows: By referring to Fig. 2 of the drawings it will be observed that the plug is in position to provide a clear passage for the water from the ports 5 and 6 to the ports 4 and 3, respectively, and to assist those not skilled in the art of handling locomotives I have designated upon the drawings (see Fig. 5) the connections that are to be made with my improved valve. It will be observed that the right and left pipes from the injector are connected with the ports 3 and 4 of my improved valve and that the ports 5 and 6 are connected to the left and right pipes, which pass along the boiler of the locomotive to the check-valves. The position of the plug, as illustrated in Fig. 2 of the drawings, will permit of water passing from the injector to both branch pipes, and should it be desired to only inject water into the left branch pipe the plug is partially rotated until the central passage 20, as illustrated by dotted lines, Fig. 2, is in alinement with the ports 3 and 5, at which time the right injector-pipe will supply water to the left branch pipe and the left injector-pipe will be closed simultaneously with that of the right branch pipe. To place the left injector in communication with the right branch pipe, the plug is rotated to the position shown in dash-and-dot lines of Fig. 2, at which time the left branch pipe and the right injector will be closed. It will thus be seen by the construction of my improved valve that should anything happen to either one of the branch pipes and check-valves water may be injected into the uninjured branch pipe, and should it be desired at any time to entirely cut off the supply of water to the locomotive-boiler the plug is rotated until the neck portion 19 lies transverse of the valve-body, this operation placing the ports 3 and 4 of the injector-pipes in communication with one another and preventing any water from entering the branch pipes.

It will be noted that various changes may be made in the details of construction without departing from the general spirit and scope of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a locomotive-boiler, two injectors carried on the boiler and connected therewith, two branch pipes arranged one on each side of the boiler and leading from the water-supply to the boiler, a four-way valve connected to both said branch pipes, and to both said injectors, said four-way valve being constructed and adapted to simultaneously connect the injectors each with the branch pipe on the same side of the boiler, or to connect the injector on either side with the branch pipe on the opposite side or to cut off communication between both injectors and both branch pipes.

2. The combination with a boiler, two injectors carried on the boiler, two branch pipes arranged one on each side of the boiler and means arranged intermediate of the branch pipes and the injectors whereby both injectors may be simultaneously placed in communication with the boiler through the branch pipes or either one of the injectors may be placed in communication with the branch pipe on the opposite side.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES McKEOWN.

Witnesses:
H. C. EVERT,
K. H. BUTLER.