No. 737,273. PATENTED AUG. 25, 1903.

F. A. REYNOLDS.

VALVE FOR BOILER AND PUMP CONNECTIONS.

APPLICATION FILED JULY 11, 1902.

NO MODEL.

Fig. 1

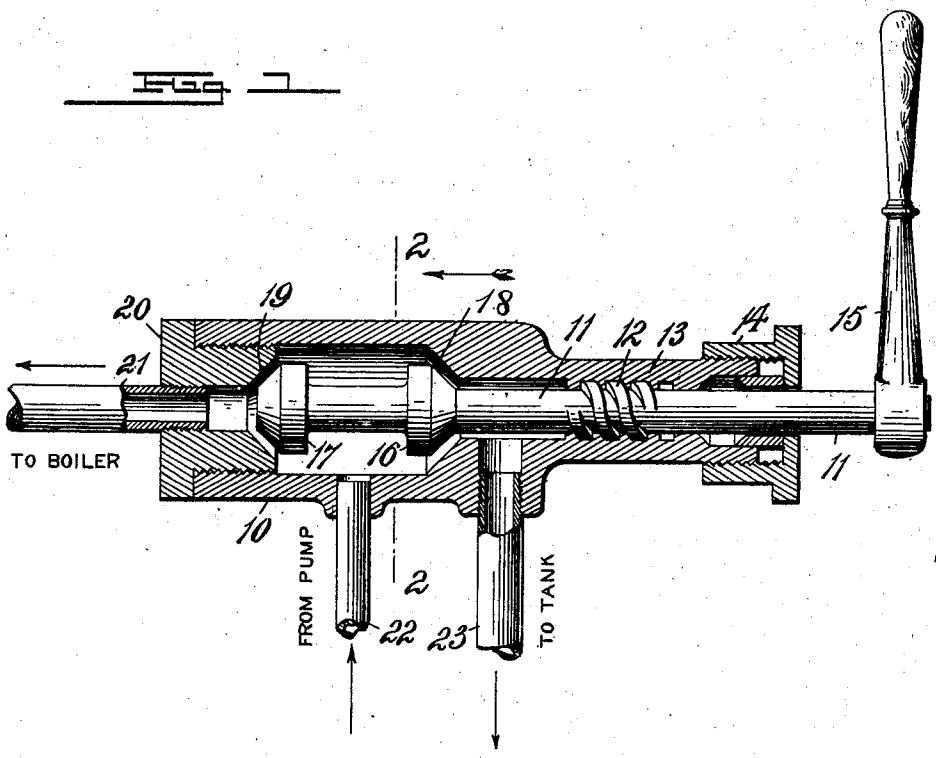
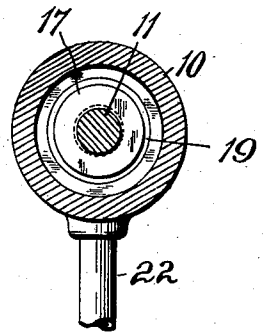


Fig. 2



WITNESSES:

Wm. H. Campfield.

J. G. Dunbar

INVENTOR

Frank A. Reynolds.

BY

W. B. Hutchinson.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 737,273. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

FRANK ARTHUR REYNOLDS, OF LEWISTON, MAINE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO F. A. THOMSON, TRUSTEE, OF NEW YORK, N. Y.

VALVE FOR BOILER AND PUMP CONNECTIONS.

SPECIFICATION forming part of Letters Patent No. 737,273, dated August 25, 1903.

Application filed July 11, 1902. Serial No. 115,120. (No model.)

To all whom it may concern:

Be it known that I, FRANK ARTHUR REYNOLDS, of Lewiston, Androscoggin county, Maine, have invented certain new and useful Improvements in Valves for Boiler and Pump Connections, of which the following is a full, clear, and exact description.

My invention relates to improvements in valves such as are adapted for use in boiler and pump connections; and the object of my invention is to produce a very simple device which is especially adapted for use in connection with the pumps and boilers of automobiles, although it can of course be used for analogous purposes.

In the construction of motor-vehicles it is the practice to use a small boiler. The water-supply is also necessarily limited, and it is desirable to save water and fuel as much as possible. As generally used, however, I have found in practice that the water in the boiler influenced by the high steam-pressure will leak back to a considerable extent through the check of the water-feed pipe, so that the water goes down quickly in the boiler and has to be pumped over and over, and therefore there is a waste of both water and fuel.

My improved device is especially intended for use with that class of boilers and pumps in which the pump is kept constantly operating while the vehicle is in motion and is automatically cut out from supplying the boiler when a certain pressure is reached or else supplies faster or slower, according as the steam is used faster or slower.

My improved device has means for absolutely sealing the water-supply pipe to the boiler, and by accomplishing this result I automatically open the delivery-pipe of the pump to the supply-tank, so that the water is simply circulated by the pump from the tank through the improved valve and back again to the tank. By closing the pipe back to the tank the supply-pipe to the boiler is automatically opened.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar figures of reference refer to similar parts throughout both views.

Figure 1 is a longitudinal section of my improved valve. Fig. 2 is a cross-section on the line 2 2 of Fig. 1.

The valve has an elongated casing 10, the exterior shape of which is of course immaterial, and extending longitudinally within this casing and projecting from one end thereof is a valve-stem 11, having a threaded portion 12, which fits in a correspondingly-threaded part 13 of the valve-casing. The valve-stem extends through an ordinary stuffing-box 14 and has a suitable handle 15.

The valve-stem 11 carries two valves 16 and 17, which are rigidly formed on or fastened to the valve-stem and which are preferably ordinary cone-valves, although they may be of any approved kind. The valve 16 fits a seat 18, near one end of the casing, and the valve 17 fits a similar seat 19 in the bushing 20, which is screwed into one end of the casing, and it will be seen that by adjusting this bushing the throw of the valves and the opening by them can be nicely regulated. The pipe 22 from the pump delivers into the casing 10 at a point between the two valves 16 and 17, and the return-pipe to the tank connects with the casing 10 at a point behind the valve 16. If it is desired to have the pump deliver to the boiler, the handle 15 is turned slightly so as to close the valve 16 and open the valve 17. Thus the water comes in through the pipe 22 and passes out through the pipe 21 to the boiler. When the boiler has sufficient water, the handle 15 is turned in the opposite direction, the valve 17 is closed, and the valve 16 open. When this is done, the boiler-pipe is wholly sealed, and the circulation is from the pipe 22, through the casing 10, back through the pipe 23, to the tank. Thus it will be seen that I provide a very simple means for directing the constant circulation either to the boiler or back to the tank, as desired, and for preventing any loss of water by leakage from the boiler.

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

1. An apparatus of the kind described com-

prising a valve-casing having opposed valve-seats therein, a pair of valves movable in unison between the valve-seats so that when one valve is opened the other is closed, a pipe connection through the casing between the two valves, and a pipe connection through the casing behind each valve.

2. An apparatus of the kind described comprising a valve-casing having opposed valve-seats therein, the seats being adjustable back and forth in relation to each other, a pair of valves movable in unison to fit the seats so that when one valve is open the other is closed, pipe connections through the casing behind each valve, and a pipe connection through the casing between the two valves.

3. An apparatus of the kind described comprising a valve-casing having opposed valve-seats therein, a valve-stem movable longitudinally in the casing, a pair of valves carried rigidly on the stem and fitting the valve-seats, pipe connections through the casing behind each valve, and a pipe connection through the casing between the two valves.

4. An apparatus of the kind described comprising a valve-casing having a stationary valve-seat therein, a bushing adjustable in the casing and provided with a second valve-seat, a longitudinally-movable valve-stem in the casing, a pair of valves carried rigidly on the stem and fitting the two valve-seats, a pipe connection through the bushing, a pipe connection through the casing behind the stationary valve-seat, and a pipe connection through the casing between the two valves.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK ARTHUR REYNOLDS.

Witnesses:

T. J. MURPHY,

JOHN L. READE.