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F. PEULECKE.

WATER JACKETED CONTROLLING AND CHECK VALVE.

APPLICATION FILED MAR. 14, 1907.

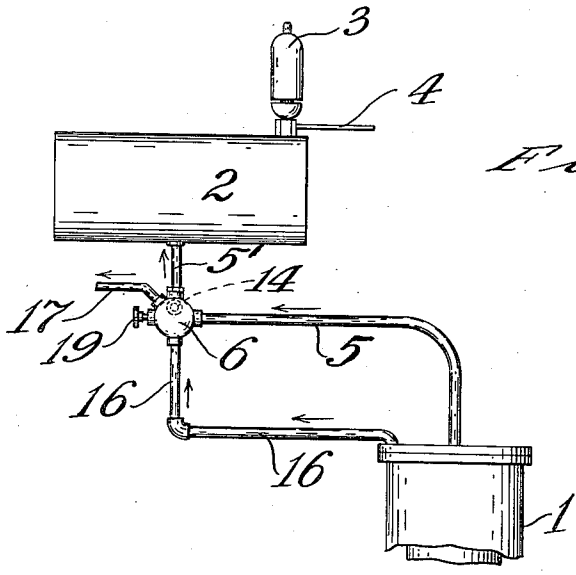


Fig. 1.

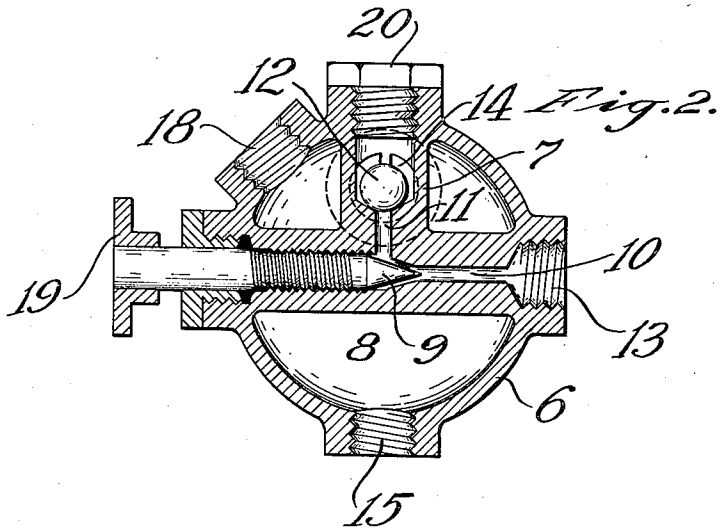


Fig. 2.

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UNITED STATES PATENT OFFICE.

FRED PEULECKE, OF CHICAGO, ILLINOIS.

WATER-JACKETED CONTROLLING AND CHECK VALVE.

No. 880,569. Specification of Letters Patent. Patented March 3, 1908.

Application filed March 14, 1907. Serial No. 362,321.

To all whom it may concern:

Be it known that I, FRED PEULECKE, a citizen of the United States of America, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Water-Jacketed Controlling and Check Valves, of which the following is a specification.

The main objects of this invention are to provide an improved form of regulating check valves particularly adapted to control the flow of heated gases which would rapidly destroy valves of ordinary construction; to provide a valve which will be durable when used in the connection between the cylinder of an internal combustion engine and a pressure tank which receives its charge from such cylinder and provides gas under pressure for operating a whistle, emergency brake, or other fluid pressure driven apparatus which is auxiliary to the engine. These objects are accomplished by the devices shown in the accompanying drawing in which:

Figure 1 is a diagram view showing a typical embodiment of the invention as applied to a whistle. Fig. 2 is a sectional detail showing the construction of the water jacketed valve.

In the drawings 1 designates the cylinder of an internal combustion engine; 2 is a pressure receiver or storage chamber adapted to hold a quantity of gas under pressure and communicating with the engine cylinder; 3 is a whistle representing a device auxiliary to the engine and having normally closed communication with the tank 2. The whistle is controlled by a suitable valve whose lever is indicated at 4.

The chamber 2 is connected with the clearance space at the top of the cylinder 1 by the pipe 5 and 5′, provided with a combined regulating and check valve 6 adapted to permit gas to flow from the cylinder to the chamber 2 and prevent the return flow of the gas from the chamber to the engine cylinder.

The valve 6 comprises a valve casing and an outer globular shell which entirely surrounds the valve casing and provides a suitable water chamber 8 having large capacity as compared with that of the casing 7. The casing 7 has branch passages 10 and 11 disposed at right angles to each other, and communication between them is controlled by a needle valve 9. A ball check valve 12, seated within an enlargement of the passage 11 prevents a return flow of gas through the passage 11. The gas inlet 13 is connected with the pipe 5 and the outlet 14 is connected with the chamber 2 by a section of pipe 5′. Water is admitted to the jacket chamber 8 at the inlet 15 which is connected to the water jacket of the engine cylinder 1 by a pipe 16. A waste pipe 17 is connected to the outlet 18. By adjusting the needle valve 9 the passage between it and its seat may be contracted to sufficient extent to insure that the gases become cooled to the desired degree, by contact with the comparatively cold seat, before reaching the check valve.

The needle valve 9 is provided with a handle 19. The plug 20 permits of access to the check valve 12 and its seat.

The operation of the device shown is as follows: Upon each ignition of a charge in the engine cylinder, the violent expansion of the gases will force a portion thereof through pipe 5, past the check valve 12, and through pipe 5′ to the reservoir. The check valve prevents the return flow of gas when the pressure in the cylinder falls below that of the chamber 2. In this manner the pressure of the gas within the chamber 2 will be increased until the explosive pressure in the cylinder is no longer sufficient to open the check valve. Upon a decrease of pressure within the tank 2 following the operation of the whistle or other device, the check valve will again admit an additional charge of gas.

The engine cylinder is provided with the usual exhaust port (not shown) and exhausts therethrough.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In apparatus of the kind described, a valve casing having a gas passage provided with inlet and outlet connections, a regulating valve controlling the flow of gas through said passage, a check valve for preventing the backward flow of gas, said casing being formed with a water space surrounding both of said valves and having inlet and outlet connections for circulating water around said valves.

2. The combination with the cylinder of an internal combustion engine, of a fluid storage chamber, a connection between said cylinder and storage chamber, a contracted passage in said connection, the length of said passage being considerably greater than its width, a casing surrounding the walls of said contracted passage, and means for circulating water through said casing for cooling said

walls and thereby reducing the temperature of fluid flowing through said contracted passage, and a check valve between said contracted passage and storage receptacle.

3. The combination with the cylinder of an internal combustion engine, of a fluid storage chamber, a connection between said cylinder and storage chamber, a contracted passage in said connection, a casing surrounding the walls of said contracted passage, means for circulating water through said casing for cooling said walls and thereby reducing the temperature of fluid flowing through said contracted passage, and a check valve between said contracted passage and storage receptacle, and a regulating valve for adjusting the flow of fluid through said contracted passage.

4. The combination with the cylinder of an internal combustion engine, of a fluid storage chamber, a connection between said cylinder and storage chamber, a contracted passage in said connection, the length of said passage being considerably greater than its width, a casing surrounding the walls of said contracted passage, and means for circulating water through said casing for cooling said walls and thereby reducing the temperature of fluid flowing through said contracted passage, and a check valve within said casing and located between said contracted passage and said storage chamber.

5. The combination of a casing having a gas inlet and a gas outlet, the walls of said casing being spaced away from the walls of said passage and forming a jacket surrounding the walls of said passage, a needle valve extending into said passage and adapted to control the flow of gas therethrough, and a check valve located between said needle valve and said outlet and adapted to prevent a return flow of gas through said passage, said casing having connections for circulating water around the walls of said passage.

6. The combination with the cylinder of an internal combustion engine, of a storage chamber for fluid under pressure, a connection between said chamber and the interior of said engine cylinder, said connection including a water jacketed needle valve for regulating the flow of gas through said connections and a water jacketed check valve adapted to prevent a return flow of gas toward said engine cylinder and located between said needle valve and said chamber.

7. The combination with the cylinder of an internal combustion engine, of a storage chamber for fluid under pressure, a connection between said chamber and the interior of said engine cylinder, said connection comprising a water jacketed needle valve for regulating the flow of gas through said connection, a water jacketed check valve adapted to prevent a return flow of gas toward said engine cylinder and located between said needle valve and said chamber.

Signed at Chicago this 12th day of March 1907.

FRED PEULECKE.

Witnesses:
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