P. D. HIBNER.

THROTTLE VALVE.

APPLICATION FILED JAN. 28, 1919.

1,345,772. Patented July 6, 1920.

Fig. 1.

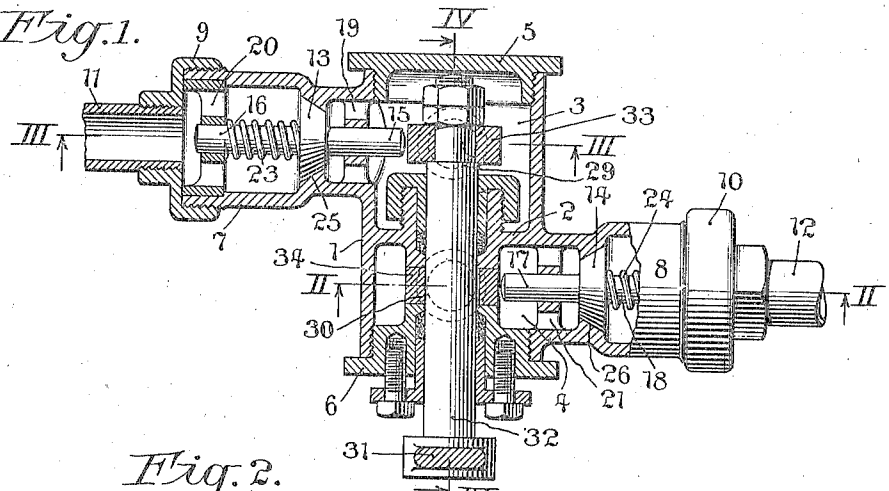



Fig. 2.

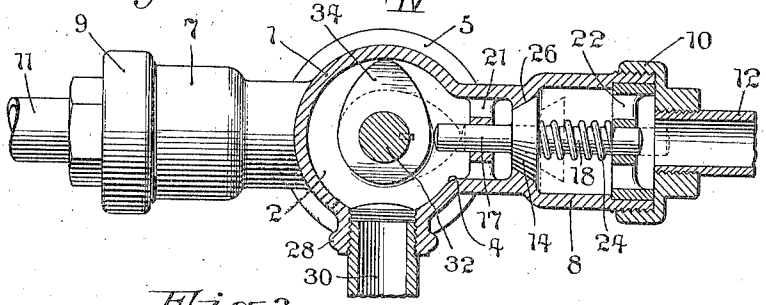



Fig. 3.

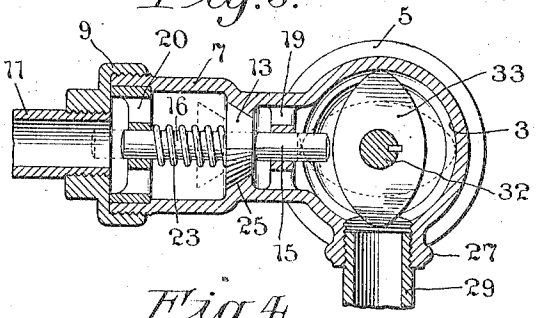
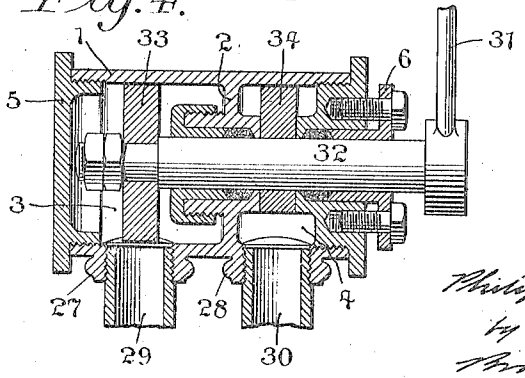



Fig. 4.




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# UNITED STATES PATENT OFFICE.

PHILIP D. HIBNER, OF SEATTLE, WASHINGTON.

## THROTTLE-VALVE.

1,345,772. Specification of Letters Patent. Patented July 6, 1920.

Application filed January 23, 1919. Serial No. 273,627.

*To all whom it may concern:*

Be it known that I, PHILIP D. HIBNER, a citizen of the United States, and resident of the city of Seattle, county of King, and State of Washington, have invented a new and useful Improvement in Throttle-Valves, of which the following is a specification.

The object of my invention is to provide a throttle valve of novel construction and operation for controlling two separate fluid supply lines such for instance as a gas supply line for supplying combustible gas to an internal combustion engine and an air supply line for supplying compressed air to the engine for scavenging the engine cylinders and also if desired for supplying compressed air for use in starting the engine.

My invention consists in certain improvements in the construction, form, arrangement and operation of the several parts of a throttle valve whereby the above object may be successfully and easily carried out.

A practical embodiment of my invention is represented in the accompanying drawings, in which,

Figure 1 represents a throttle valve partly in longitudinal central section and partly in plan.

Fig. 2 represents a section taken in the plane of the line II—II of Fig. 1.

Fig. 3 represents a section taken in the plane of the line III—III of Fig. 1.

Fig. 4 is a section taken in the plane of the line IV—IV of Fig. 1.

The hollow casing 1 is divided by a cross partition 2 into two fluid chambers 3, 4, the outer ends of which are closed by removable heads 5, 6, screw threaded into ends of the casing.

The casing is provided with hollow extensions 7, 8 forming inlet ports for their respective fluid chambers 3, 4 which extensions are arranged in different transverse planes. Couplings 9, 10, serve to connect the extensions to the tubes 11, 12 of two separate fluid supply lines.

Inlet valves 13, 14 are provided within the hollow extensions 7, 8 the inwardly and outwardly extending valve stems 15, 17 and 16, 18 being equipped with their respective spiders 19, 21 and 20, 22. Springs 23, 24 surrounding the outwardly extending valve stems 17, 18 serve to normally hold the inlet valves 13, 14 closed against their seats 25, 26 with the valve stem 15, 16 projecting into their respective fluid chambers 3, 4.

The valve casing 1 is further provided with two hollow extensions 27, 28 forming outlet parts for the fluid chambers 3, 4 to which extensions the tubes 29, 30 of the two separate fluid supply lines are secured.

A throttle lever 31 has its shaft 32 rotatably mounted in suitable packed bearings in the head 6 and cross partition 2. Cams 33, 34 are keyed or otherwise fixed to the shaft 32 within the chambers 3, 4, in alinement with their respective inlet valves 13, 14 in position to engage the valve stems 15, 16 and open the valves 13, 14 outwardly against the tension of their springs 23, 24 as the lever is moved. Preferably one cam is a double cam and the other is a single cam so that when the lever is moved in one direction one surface of the double cam will open only one of the inlet valves to a greater or lesser extent according to the position of the lever, thereby opening one of the fluid supply lines without opening the other supply line. When the lever is moved in the other direction the corresponding surface on both cams will simultaneously open both valves to a greater or lesser extent according to the position of the throttle lever, thereby opening both of the fluid supply lines.

One important use of my improved throttle valve is in connection with the compressed air and combustible gas supply lines of an internal combustion engine, where the throttle lever may be first moved in position to admit compressed air only to the engine for starting the engine and the lever may then be moved into position to admit both the compressed air and the combustible gas simultaneously to the engine valves for use alternately to charge and scavenge the engine cylinders.

It will be seen that by moving the lever to different positions the valves may be opened to a greater or lesser extent to accurately control the fluid supply line.

It will also be seen that by changing the shape and position of the cams on the throttle lever shaft, I may open either fluid supply lines to a greater or lesser extent without opening the other line.

What I claim is;

1. A throttle valve casing having separate pairs of fluid inlet and outlet ports, valves normally closing said inlet ports, valve stems, a throttle lever having a shaft rotatably mounted in the casing, cams on said

shaft opposite their respective valve stems for engaging the valve stems and shaped to simultaneously open the said valves as the shaft is rocked to a certain position, one of said cams being also shaped to open one of said valves only, when the shaft is rocked to another position.

2. A throttle valve casing having separate fluid chambers with their respective inlet and outlet ports, valves normally closing the inlet ports, valve stems, a throttle lever having a shaft rotatably mounted in the casing and cams on said shaft within said fluid chambers opposite their respective valve stems for engaging the valve stems, the shaft when rocked to a certain position causing the cams to open both inlet valves and when rocked to another position causing one of the cams to open one of the inlet valves only.

In testimony, that I claim the foregoing as my invention, I have signed my name this 24th day of January, 1919.

PHILIP D. HIBNER.