W. J. INNIS.

Throttle-Valve for Steam-Engines.

No. 210,854. Patented Dec. 17, 1878.

Fig. 1.

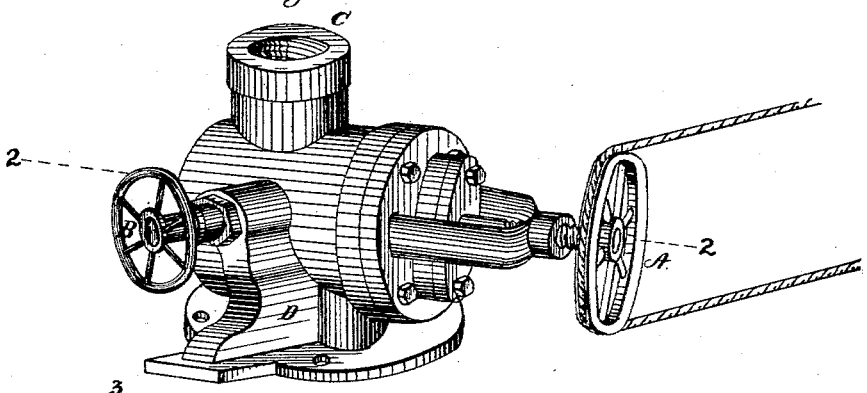


Fig. 2.

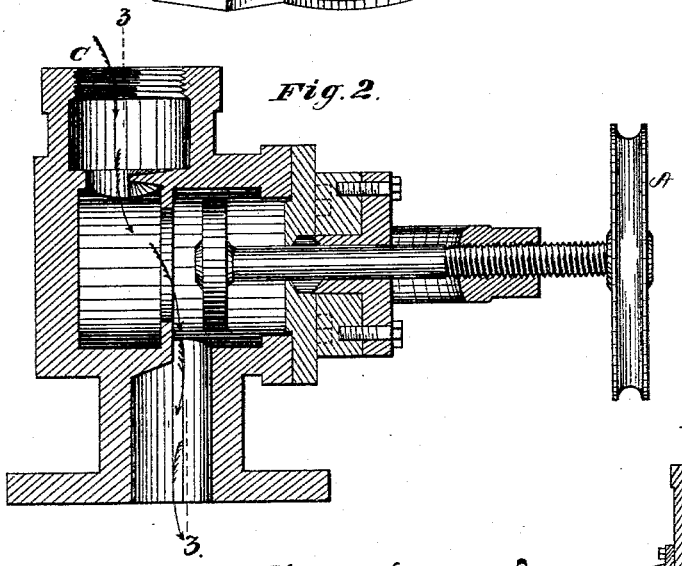


Fig. 4.

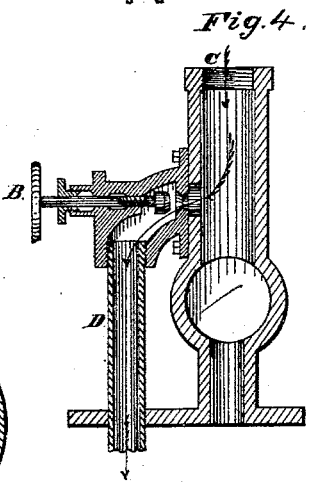
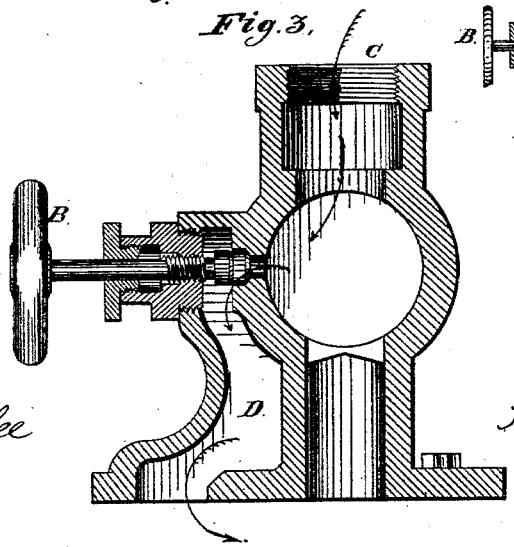


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM J. INNIS, OF OIL CITY, PENNSYLVANIA.

IMPROVEMENT IN THROTTLE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **210,854**, dated December 17, 1878; application filed April 10, 1878.

To all whom it may concern:

Be it known that I, WILLIAM J. INNIS, of Oil City, in the county of Venango and State of Pennsylvania, have invented a new and useful Improvement in Throttle-Valves for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description thereof.

In the drawing, Figure 1 is a perspective view. Fig. 2 is a longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a longitudinal section on the line 3 3 of Fig. 2, and Fig. 4 is a modification of the arrangement of the exit-pipe from the secondary valve.

Although this throttle-valve can be used in other positions, it is intended to be principally applied to those horizontal engines in which the steam-pipe descends in a perpendicular line to the point of connection with the steam-chest.

When the engine is at rest steam will condense above the throttle-valve in the steam-pipe. As throttle-valves are ordinarily constructed, such condensed water will pass into the steam-chest and through the cylinder when the throttle is opened. To obviate this is one object of my invention.

My improved throttle-valve has two cocks, one of which is shown in section in Fig. 2, the hand-wheel of which is designated by the letter A. As this answers the usual purpose of a throttle-valve it needs no description.

At right angles with the main valve I insert a secondary valve, the hand-wheel of which is designated B, and is shown in section in Figs. 3 and 4. The construction of this valve is any approved style. It is designed to be opened before the main throttle A is opened, and thus all the condensed water from the steam-pipe above the throttle will be drained out of such pipe into the channel D, and may be passed into the air, or, if suitable connection is made, into the exhaust-chamber or into the heater.

Suitable connections with the exit D can also be made to the jacket of the cylinder, or to any other part of the engine, and after the condensed water is drained off live steam may be permitted to blow into such jackets, and thus the working parts of the engine can be warmed up and properly expanded before steam is admitted to the cylinder—a matter of considerable importance at all times with some engines, and with all engines in cold weather.

I do not limit myself to the two valves in one casting, as the same objects can be gained by putting the secondary valve in the steam-pipe above its junction with the main throttle, and connecting such secondary valve with the heater or jacket by suitable pipes; or a secondary steam-pipe may be led from the main pipe opposite to or above the throttle to the heater or jacket, and the secondary valve can be inserted in any part of such secondary pipe.

What I claim as my invention is—

1. The combination, with the throttle-valve of a steam-engine, of a secondary valve, constructed substantially as shown, and for the uses and purposes mentioned.

2. In combination with the throttle-valve of a steam-engine, a pipe or other suitable means of communication or conduct from the main steam-pipe of an engine to the heater thereof, or to the jacket of the working parts thereof, provided with a suitable cock or valve, substantially as and for the purpose described.

WILLIAM J. INNIS.

Witnesses:

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