(No Model.)

P. J. McMAHON.

AMMONIACAL GAS ENGINE.

No. 343,599. Patented June 15, 1886.

Fig. 1.

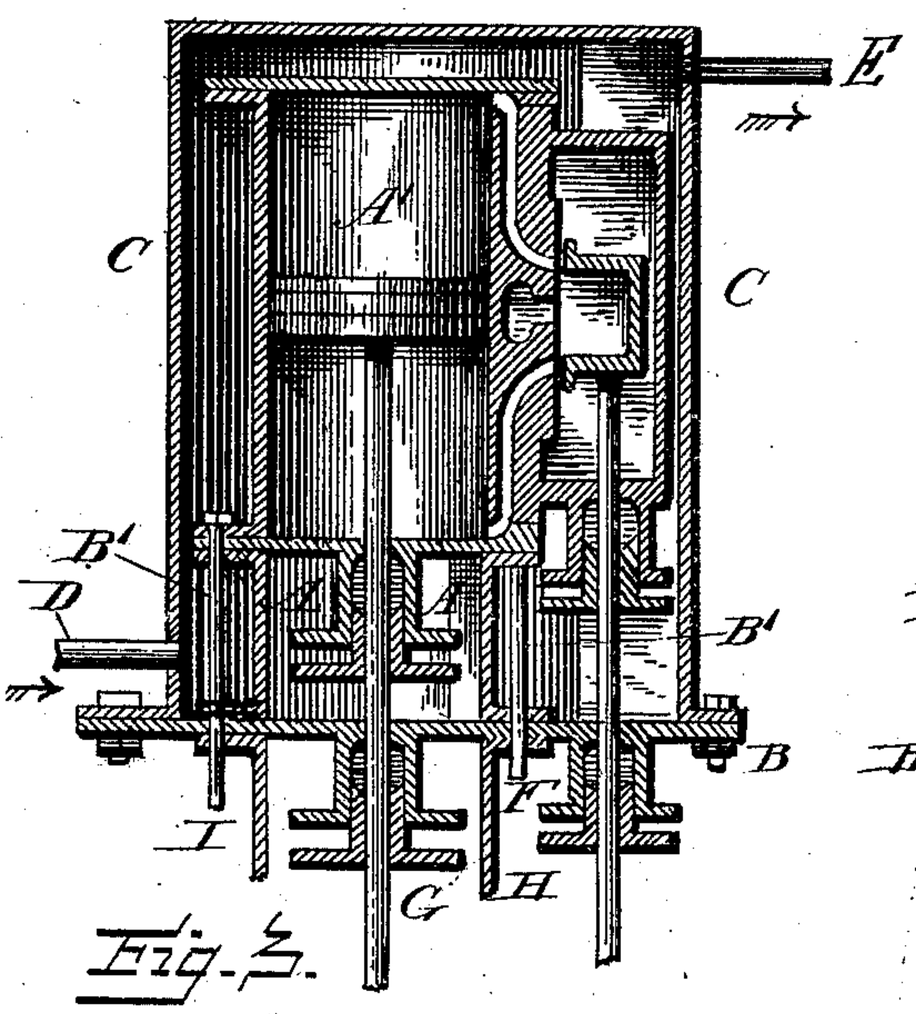


Fig. 3.

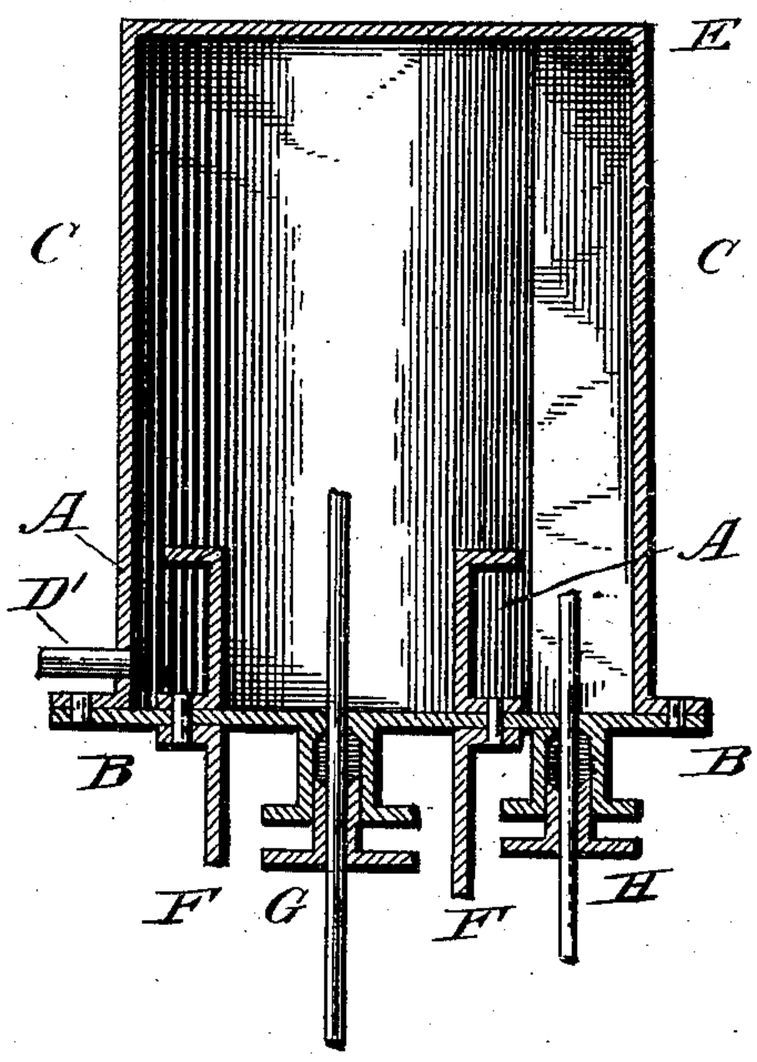


Fig. 2.

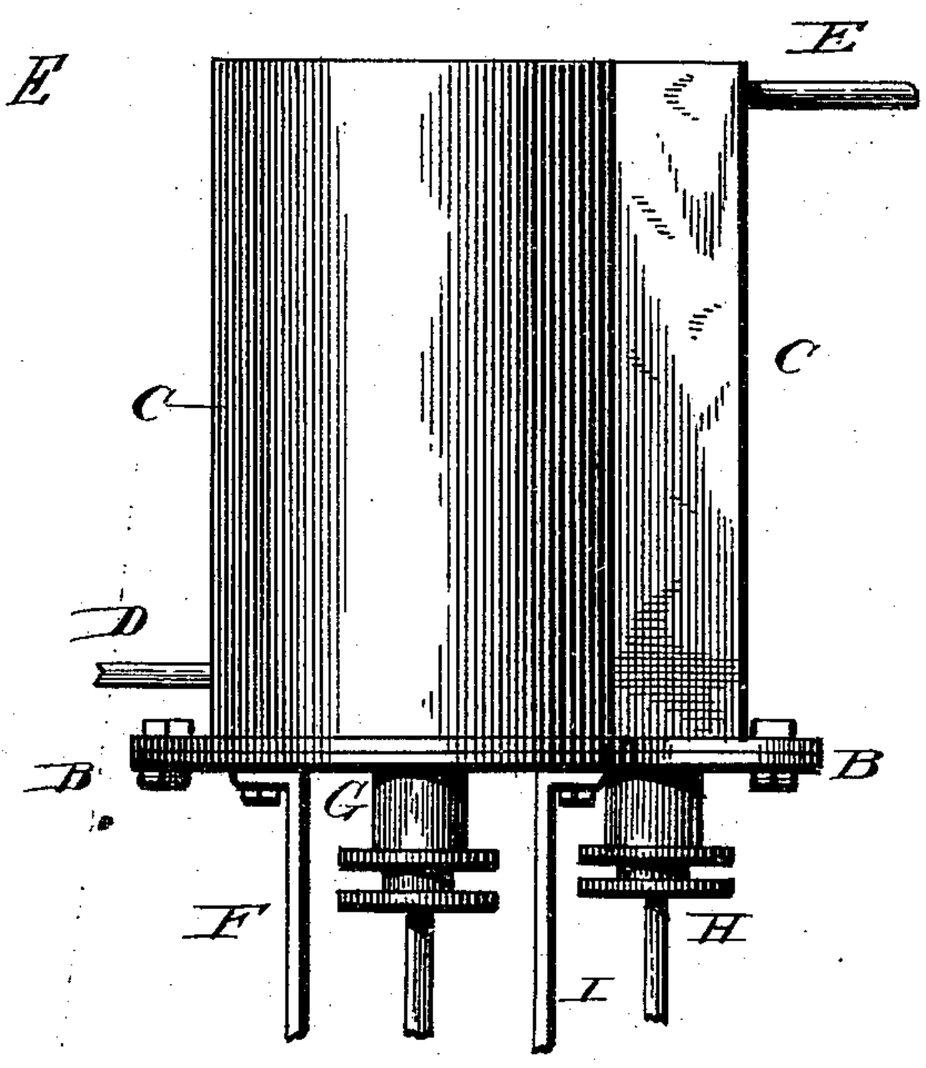
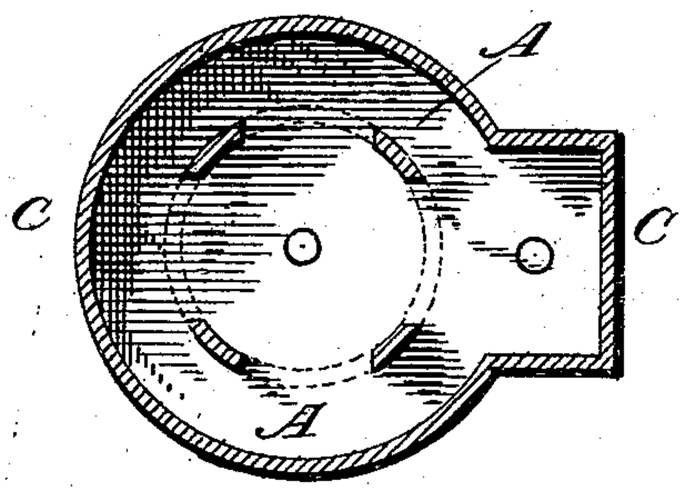


Fig. 4.



WITNESSES:

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PATRICK J. McMAHON, OF TANGIPAHOA, LOUISIANA.

AMMONIACAL-GAS ENGINE.

SPECIFICATION forming part of Letters Patent No. 343,599, dated June 15, 1886.

Application filed February 9, 1885. Serial No. 155,424. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. McMAHON, a citizen of the United States, residing at Tangipahoa, in the parish of Tangipahoa and State of Louisiana, have invented a new and useful Improvement in Ammoniacal-Gas Engines, which invention is fully set forth in the annexed specification and drawings.

The object of my invention is to entirely inclose the engine-cylinder, valve-chest, &c., in a covering or jacket, through which the solution of reabsorption is made to circulate by pumping while the engine is in operation, for the purpose of superheating the gas during expansion or while throttling, as well as to absorb any gas that may leak out around any of the joints of the engine or valve-chest.

Referring to the drawings, Figure 1 is a sectional view of an engine-cylinder with my improvements attached and inclosing-cylinder, valve-chest, and packing-boxes. Fig. 2 is an elevation of cylinder and improvements when so inclosed. Fig. 3 is a sectional view of the jacket and other improvements without the cylinder, and Fig. 4 is a section through Fig. 3 on the line 1 2.

Like letters indicate like parts in all the figures.

In the drawings. A A is a cylindrical ring (or bracket, if preferred) with flanges on each end, and made to fit on the cylinder-head A′, and adjacent to the valve A^2, and bolted to the cylinder with it.

B B is a sheet or plate secured by bolts B′ B′ to A A and to the frame that carries the engine. (Shown at F F.) This plate has separate or outside stuffing-boxes for piston-rod and valve-stem, as shown at G and H. The plate B B is a cap or cover for the jacket C C, and extends out far enough all around for the flange of this jacket to be bolted to it when it is slipped over the engine, completely inclos- the cylinder and valve-chest.

D is the inlet to and E the outlet from the jacket C C, for the passage of the solution of reabsorption.

It will be seen from the foregoing that when the engine is running, and the liquid which absorbs the gas as it is exhausted from the engine is forced in the jacket C C at D and allowed to flow out at E into a receiver, the cylinder and valve-chest would be at all times surrounded with the liquid and the liquid constantly changing. The temperature of the cylinder would be prevented from falling too low while working with a high grade of expansion, as would be the case with an exposed cylinder; also, that the elastic forces of the gas would be greatly increased by superheating, and that any leakage of gas occurring in any of the joints around the engine-cylinder and valve-chest will be absorbed by the liquid of reabsorption surrounding the same.

As before stated, this invention has relation to ammoniacal-gas engines in which the gas is used over and over by condensing and regenerating the same through change of temperature, and in its application unlike the passage of live steam about the cylinder of a steam-engine in that it has facilities and features of construction for condensing, regenerating, and reusing the motive agent, as in this case; nor are the constructions hitherto employed of such use of steam to practically serve the object in view in this instance, so that while I do not broadly claim the steam-jacketing, the cylinder, or superheating the same by live steam—

What I do claim is—

1. The combination of the cylinder A′ and valve-chest A^2, the jacket C, and supporting-plate B, mounted upon the frame F, and the interposed cylinder-supports A A, substantially as specified.

2. The cylinder A′ and valve-chest A^2 and their stuffing-boxes, in combination with the inclosing-jacket C, having inlet D, arranged beyond one end of the cylinder, and outlet E, arranged beyond the opposite end of the cylinder, and independent stuffing-boxes G H, substantially as specified.

3. The combination of the frame F, plate B, supports A, cylinder A′, valve-chest A^2, jacket C, and bolts B′ B′, passing through said plates and through flanges on the cylinder and support, substantially as specified.

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Witnesses:

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