

J. C. FR. SALOMON.
ARRANGEMENT OF GAS ENGINES.

No. 20,172.

PATENTED MAY 4, 1858.

fig. 1

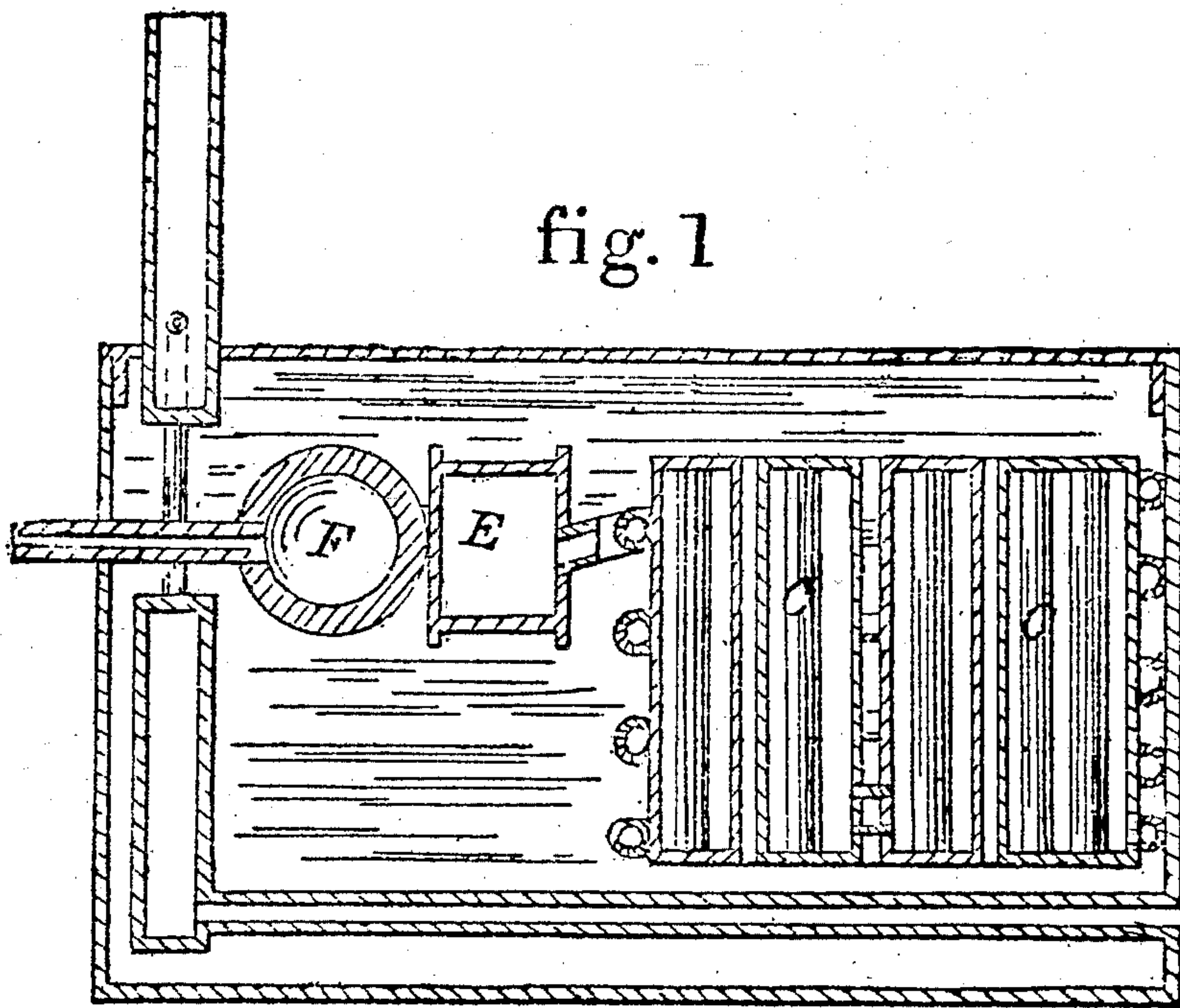
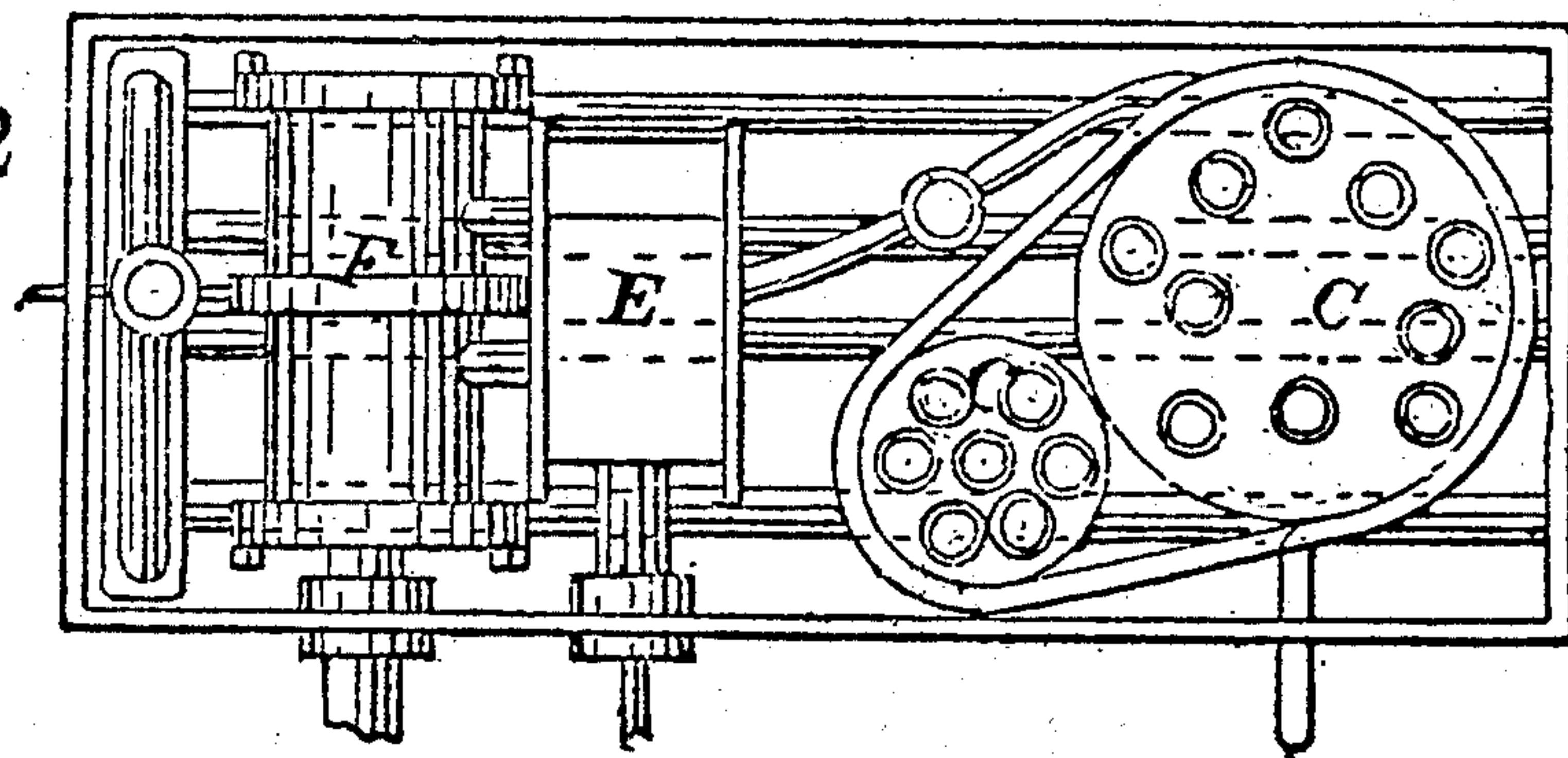


fig. 2



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UNITED STATES PATENT OFFICE.

JOHN C. FR. SALOMON, OF BALTIMORE, MARYLAND.

IMPROVED ARRANGEMENT OF GAS-ENGINES.

Specification forming part of Letters Patent No. 20,172, dated May 4, 1858.

To all whom it may concern:

Be it known that I, JOHN C. FR. SALOMON, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Gas-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan or top view of a gas-engine constructed with my improvements. Fig. 2 is a vertical longitudinal section of the same in the line *x x* of Fig. 1.

Similar letters of reference in each of the several figures indicate corresponding parts.

In the using of the vapors of gaseous liquids as a motor it is found, owing to the vapor being so rapidly generated or thrown off by the action of heat, and as readily condensed by contact with the surfaces of less temperature than themselves over which they circulate, that unless a uniformity of temperature is maintained throughout the whole heating and working arrangement great loss of effective power, as well as an irregular and unsteady working of the engine, will be experienced.

The object of my invention is to avoid this loss of power and to maintain a uniform pressure of vapor, and consequently effect a regular and steady working of the engine.

The nature of my invention consists, first, in arranging all the parts necessarily employed for generating and working gaseous vapor within a tight chamber, which is supplied with oil, hot air, or other suitable heating medium, as presently set forth.

It consists, second, in the employment, in combination with the above-named tight chamber, of the combined arrangement of fire-flues, smoke stacks, circulating coil, boilers, vapor-chest, and cylinder for accomplishing the objects above specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A in the accompanying drawings represents a tight chamber. This chamber is arranged intermediate between a condenser and the driving-connections of an engine, and is filled with oil, hot air, or other suitable heating medium, as and for the purpose presently described. At the bottom of this chamber I construct a series of flues, B B B B, and have the same run into the lower end or box, *d*, of the smoke-stack B', said end or box being inclosed within the heating or equalizing chamber.

The front end of the flues communicate with the throat of a suitable heating-furnace.

Over the flues B B B B two or more vertical tubular boilers, C C, are placed, as shown, said boilers being allowed to communicate with one another, as at *a*, and being surrounded by a tubular worm, D D, which receives the gaseous liquid at *b* and introduces it into the boilers, as shown at *c*.

E represents the vapor-chest, and F the piston-cylinder. These are likewise inclosed within the heating or equalizing chamber. The connection between the valve and rod and the connecting-rod and piston is formed as illustrated at G H, and the connection of the cylinder with the condenser is accomplished by pipe I, (see Fig. 2,) and the connection between the boilers and the vapor-chest is formed by means of the pipe J, which is furnished with a throttle-valve, K.

From the above description of parts it may be evident, if the heating-chamber A is filled with oil or other heating medium and the fire started so as to heat through the flues and smoke-stack, the medium to the proper temperature, that all the parts incased will be heated to a uniform temperature and kept so continuously by the medium. It may also be evident that if the gaseous liquid be introduced at *b* it will circulate through the worm until it arrives at the bottom of the boiler and then escape into the boiler or boilers, and from thence will rush into the steam-chest and cylinder; and, owing to passing through the worm and all the parts surrounded by the heating medium, when it enters the cylinder it will have become perfectly vaporized and its full effective force brought into action.

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

1. Arranging all the parts necessarily employed for generating and working gaseous vapor within a tight chamber, which is supplied with oil, hot-air, or other suitable heating medium, substantially as and for the purposes set forth.

2. The employment, in combination with the above-named tight chamber, of the combined arrangement of fire-flues, smoke-stack, circulating-coil, boilers, vapor-chest, and cylinder for accomplishing the objects above specified, substantially as set forth.

JOHN C. FR. SALOMON.

Witnesses:

G. YORKE ATLEE,
L. BLOSSOM.