C. W. CLAPP.

FIRE-ENGINE.

No. 174,720. Patented March 14, 1876.

Fig. 1

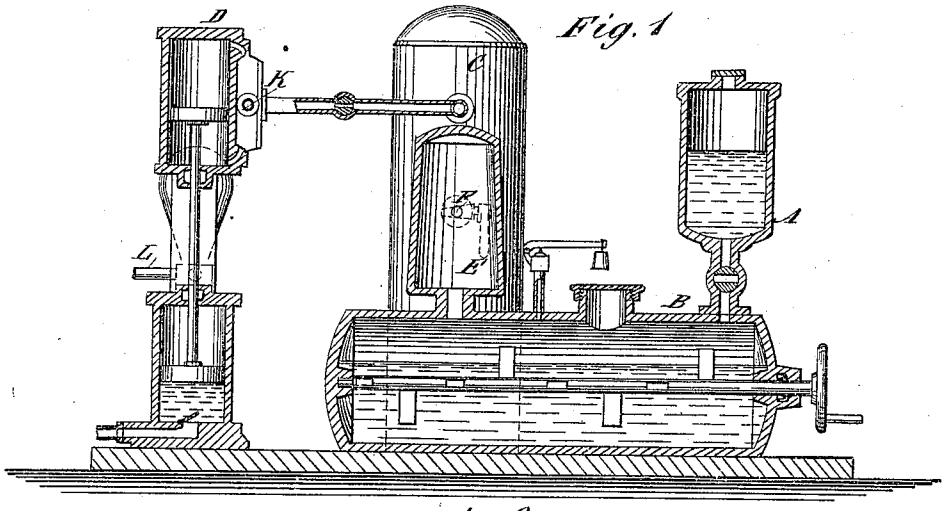


Fig. 2

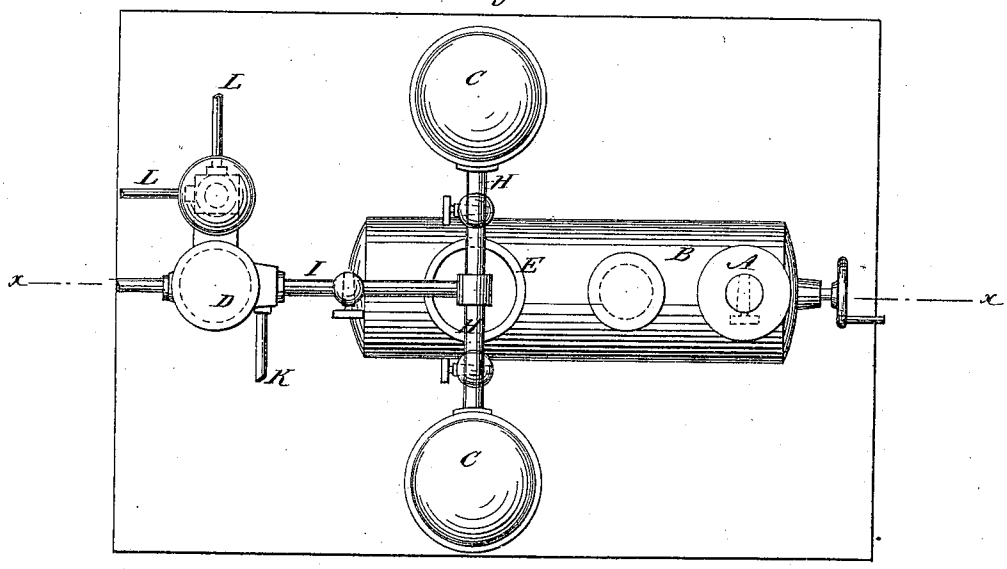
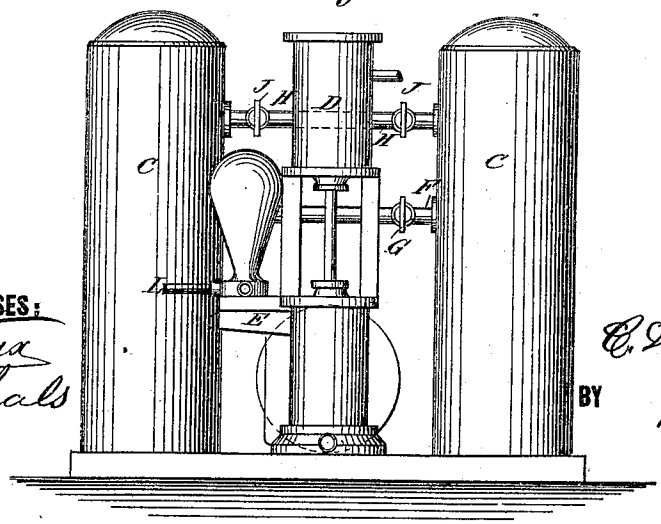


Fig. 3



WITNESSES:

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CLINTON W. CLAPP, OF WAPPINGER'S FALLS, NEW YORK.

IMPROVEMENT IN FIRE-ENGINES.

Specification forming part of Letters Patent No. **174,720**, dated March 14, 1876; application filed February 28, 1876.

To all whom it may concern:

Be it known that I, CLINTON W. CLAPP, of Wappinger's Falls, in the county of Dutchess and State of New York, have invented a new and Improved Fire-Engine, of which the following is a specification:

My invention consists of a couple of receivers for carbonic-acid gas and a steam-pump, so combined and fitted with hose and nozzle for discharging the water and the gas that, by alternately charging the receiver and working off the gas through the pump, the gas can be employed as the motive agent for the pump, and, at the same time, the exhausting gas can be used separately or together with the water for extinguishing the fire.

Figure 1 is a longitudinal sectional elevation of my improved fire-engine, taken on line *x x*. Fig. 2 is a plan view, and Fig. 3 is a front elevation.

A represents the charger; B, the gas-generator; C, the receivers; and D, the pump. The generator is connected by gas-chamber E and pipes F, having cocks G, so that one can be shut off while the other is filling, and the receivers are connected with the pump by pipes H and I, having cocks J to shut off one while the other is communicative with the pump. K is the exhaust from the steam or gas cylinder, to which a hose and nozzle can be attached for applying the gas to the fire; and L represents connections for the water-hose.

The gas is to be generated in the usual manner from carbonate of lime (or any of the carbonates) and sulphuric acid, by the use of strong cylinders as receivers, to be filled with this elastic gas to the pressure of two hundred to four hundred pounds per square inch, more or less. This gas is to be used to operate the engine and pump, which are of no prescribed form or kind, but are like any efficient steam-pump. The water from the pump is to be conducted and applied in the usual way for the extinguishing of flames.

The exhaust of the carbonic-acid gas from the engine is to be conducted in suitable hose, to be used in a judicious and efficient manner for the extinguishing of flames, as it can be applied in buildings, partitions, under the floors, in cellars, in attics, or in any difficult place of access, and thus confining the fires to the limits in which they originate.

The great advantage of this fire-engine over all others is its efficiency. It will throw as much, and probably more, water than any other, because of the great pressure of gas to operate the pump. But the carbonic-acid gas exhausted from the engine, properly conducted and applied, would put out more fire than the water can. It will not freeze at 100° below zero, will be instantaneous in its work, as the cylinders are always to be charged with the gas up to their proper capacity at all times; therefore the engine will always be ready to work at its greatest capacity. As one cylinder is exhausted the generator can be set in operation to replenish it, and thus a steady supply is attained. These cylinders can be made of any number or capacity, as the demand may require.

These engines are safer than steam, as they are not subject to the dangers that boilers are exposed to from low water and other causes. A well-constructed safety-valve will be a sure guard against explosion.

These engines will be lighter, consequently more portable, for manufactories, warehouses, public buildings, and ships. They may be made either stationary or portable in every and all cases, and will be efficacious and instant in their work and operation.

The carbonic gas can be conducted into the holds of ships, and, if entirely filled, would do no damage other than extinguishing any active or smoldering fires.

The carbonic-acid gas is easily generated, in retorts or generators lined with lead, in vast quantities, at a trifling cost, from marble-dust and sulphuric acid. Though it costs more than steam, yet its efficiency and promptness more than compensate for the extra cost.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An improved fire-engine, consisting of gas-generators A B, two or more receivers C, and steam-pump, combined and arranged to afford a continuous supply of gas for working the pump by charging and exhausting the receivers alternately, substantially as set forth.

CLINTON W. CLAPP.

Witnesses:

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