

I. H. Clark
Fire Annihilator,
No 84,613, Patented Dec. 1, 1868.

Fig: 1

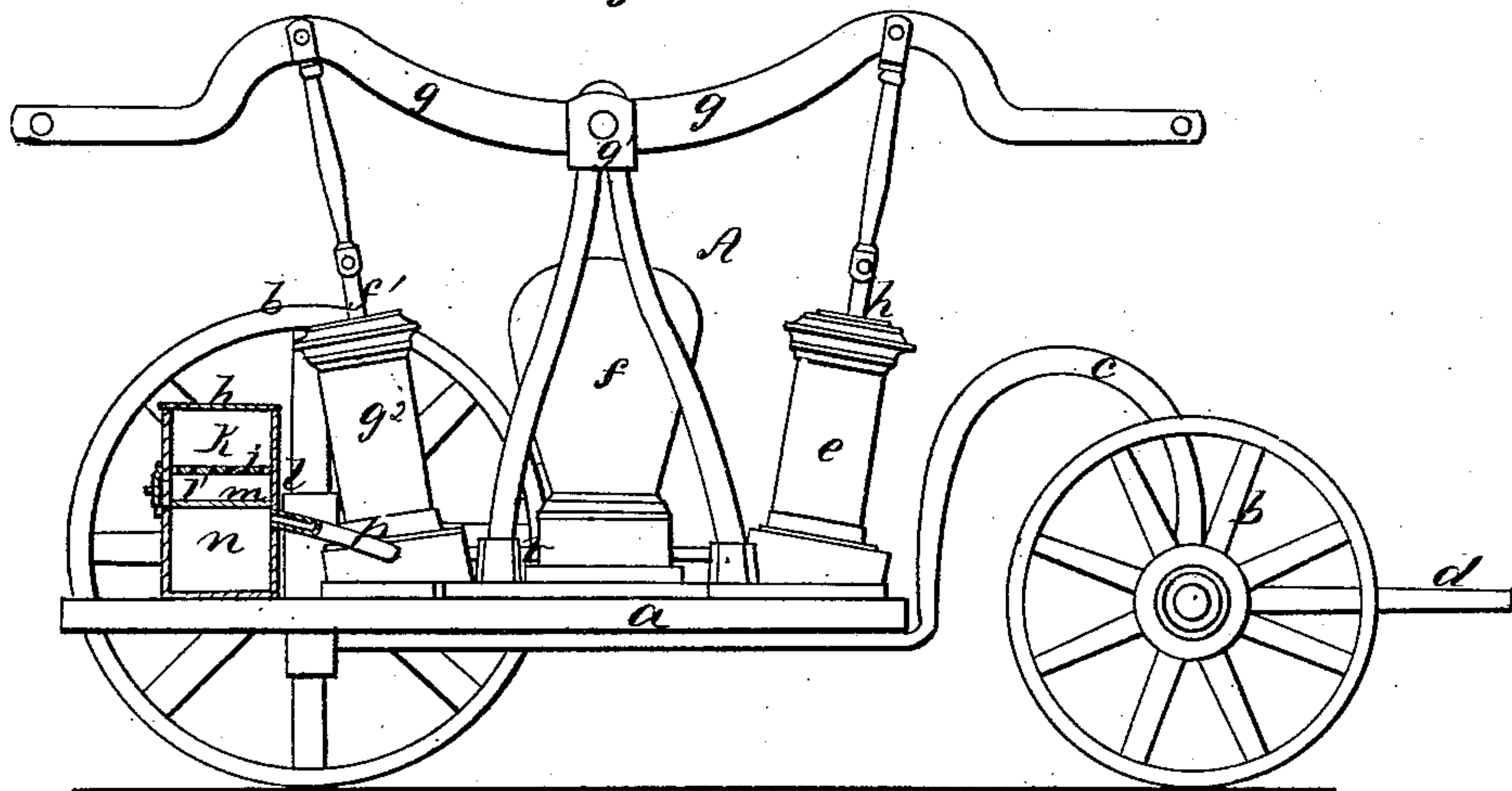


Fig: 3.

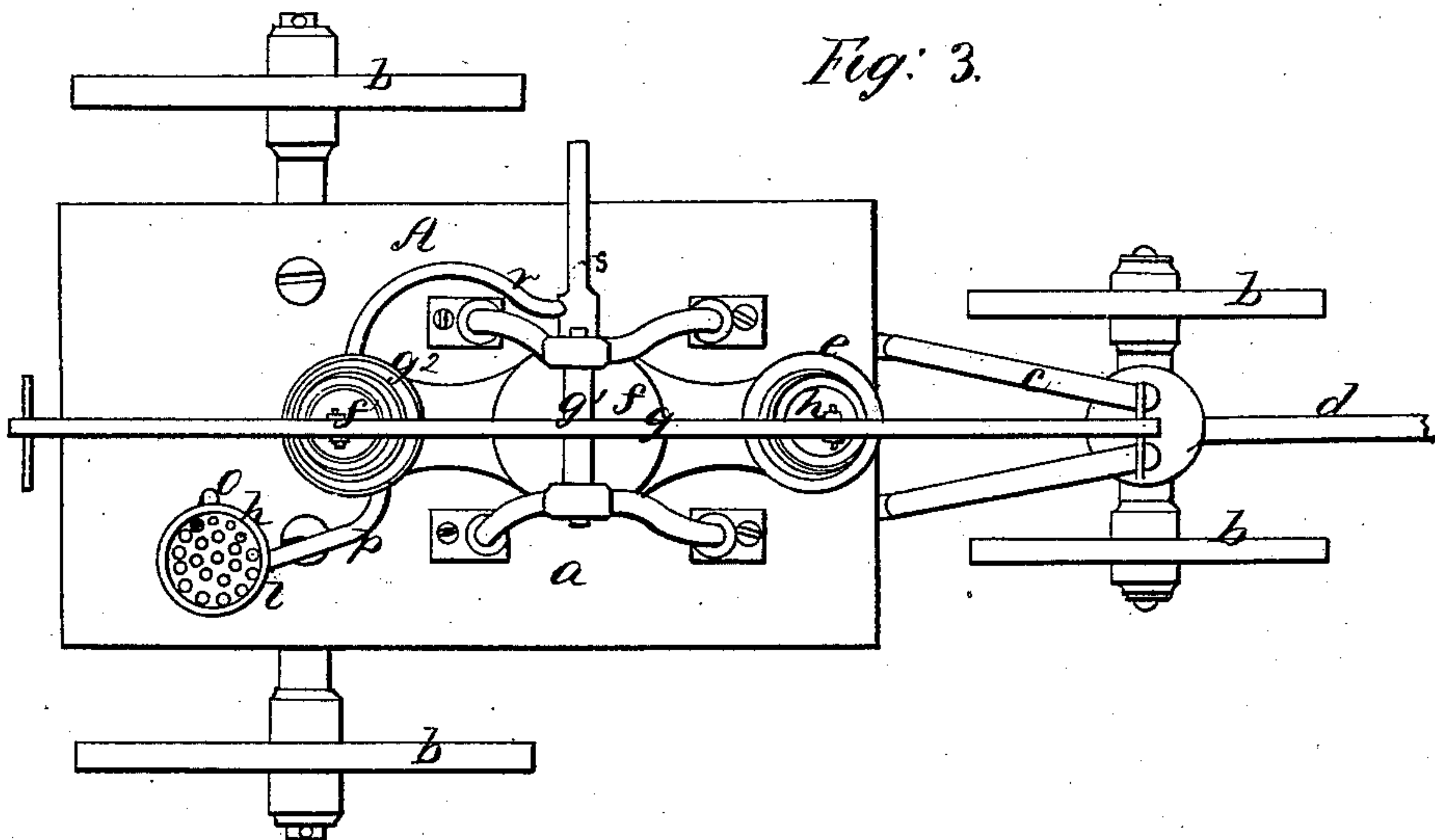
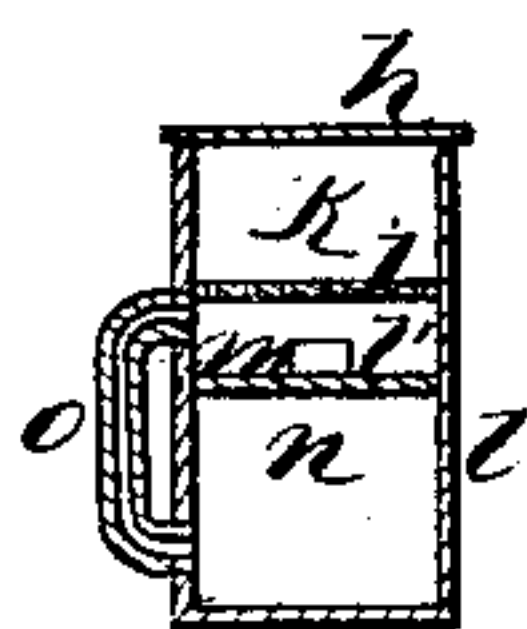


Fig: 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

ISAAC H. CLARK, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THE APPLICATION OF CARBONIC ACID IN FIRE-ENGINES.

Specification forming part of Letters Patent No. **84,613**, dated December 1, 1868; antedated November 27, 1868.

To all whom it may concern:

Be it known that I, ISAAC H. CLARK, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have made a new and useful Invention of Application of Carbonic-Acid Gas to Force-Pumps or Engines; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawings making part of this specification, and in which—

Figure 1 is a section of a fire-engine or force-pump constructed in accordance with my invention. Fig. 2 is a vertical section of the furnace or retort for producing the carbonic-acid gas, the same to be hereinafter referred to and explained; Fig. 3 being a plan of the invention.

The object sought in making this invention is to provide an attachment or an addition to force-pumps or fire-engines, otherwise of ordinary construction, whereby to effect the more instantaneous and thorough extinction of a fire in any locality.

The invention consists in combining, with the water of an ordinary force-pump or engine, either in the air-chamber of the same or in the stream issuing from such chamber or pump, a stream, jet, or current of carbonic-acid gas, which, mingling with the stream of water, has powerful effect in subduing and extinguishing the flame upon which it is thrown.

In the drawings accompanying this specification, and which illustrate my invention, A denotes a force-pump or fire-engine, of ordinary construction, in which *a* is the platform, *b b b b* the wheels, *c* the goose-neck, and *d* the pole. The cylinder in this case is a double-acting one, is represented at *e*, and the air-chamber or dome at *f*. The walking-beam is shown at *g* as supported upon a standard, *g*¹, and pivoted at one end to the piston-rod *h* of the pump-cylinder *e*, and at its opposite end to the piston-rod *f*' of an air-forcing-pump cylinder, *g*², which is disposed upon the platform of the engine, and opposite the pump-cylinder *e*. In carrying out my invention, I apply to the platform *a*, or to any other convenient part of the engine, a furnace, *l*, composed, in this instance, of an upright cylinder

or vessel, *l*, having a grate or foraminous shelf, *j*, near its upper part, which divides a portion of it into a fire-pot, *k*, and ash-pit *l'*, a horizontal partition, *m*, converting the lower part of the cylinder or vessel *l* into a closed reservoir, *n*, containing water or other liquid. A bent pipe, *o*, connects the ash-pit *l'* with the water-space *n*, as represented in the drawings. A second bent pipe, *p*, leads from the upper part of the water-space *n* to the air-pump *g*², while from such air-pump a pipe or conduit, *r*, is connected to and communicates with the air-chamber *f* or its discharging-pipe *s*.

In preparing the apparatus for use, a quantity of charcoal is placed within the fire-pot or retort *k* of the furnace, and ignited, the top of such fire-pot being closed in a suitable manner, it being understood that the air and water pumps *e g*² are in action. By the agency of the air-pump, a strong draft is induced through the furnace, and the fumes, or carbonic-acid gas, resulting from the combustion of the charcoal in the fire-pot are drawn thence downward, through the water, by which means the said gas is purified or separated from any ashes or deleterious matter, while from the upper part of the water-chamber *n* of the furnace the gas is drawn into the air-pump, and thence discharged, through the pipe *r*, into the water contained in the air-chamber, or into the stream of water issuing from the discharge-pipe, with the results and effects before stated.

It will, of course, be apparent that a variety of materials or chemicals, as well as devices, may be employed in the production and application of the gas, and I do not, of course, intend to confine myself to any details of this nature, as my invention consists, as before stated, in combining with, or introducing into, the discharging water of a force-pump or engine a jet or stream of carbonic-acid gas.

I would remark that in case of a steam fire-engine charcoal may be employed, both as a means of feeding the fire below the boiler thereof, and of producing the gas necessary in carrying out my invention.

I claim as my invention, and desire to secure by Letters Patent of the United States—

1. Combining with the discharge water of a force-pump or fire-engine a stream, jet, or flow-

age of carbonic-acid gas, for the purpose and to produce results before stated.

2. As one mode of producing and applying the said gas, the employment of the furnace constructed as before explained, and combined with the air-pump and discharge-water of the engine, essentially as herein shown and described.

3. The combination, with a force-pump or engine, otherwise of ordinary or well-known

construction, of an air-pump, for introducing or ejecting carbonic-acid gas into the discharge-water of such engine after such water may have left the pump-cylinders, for the purposes substantially as before explained.

ISAAC H. CLARK.

Witnesses:

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FRED. CURTIS.