W. W. CROCKER.

FIRE-EXTINGUISHER.

No. 192,862. Patented July 10, 1877.

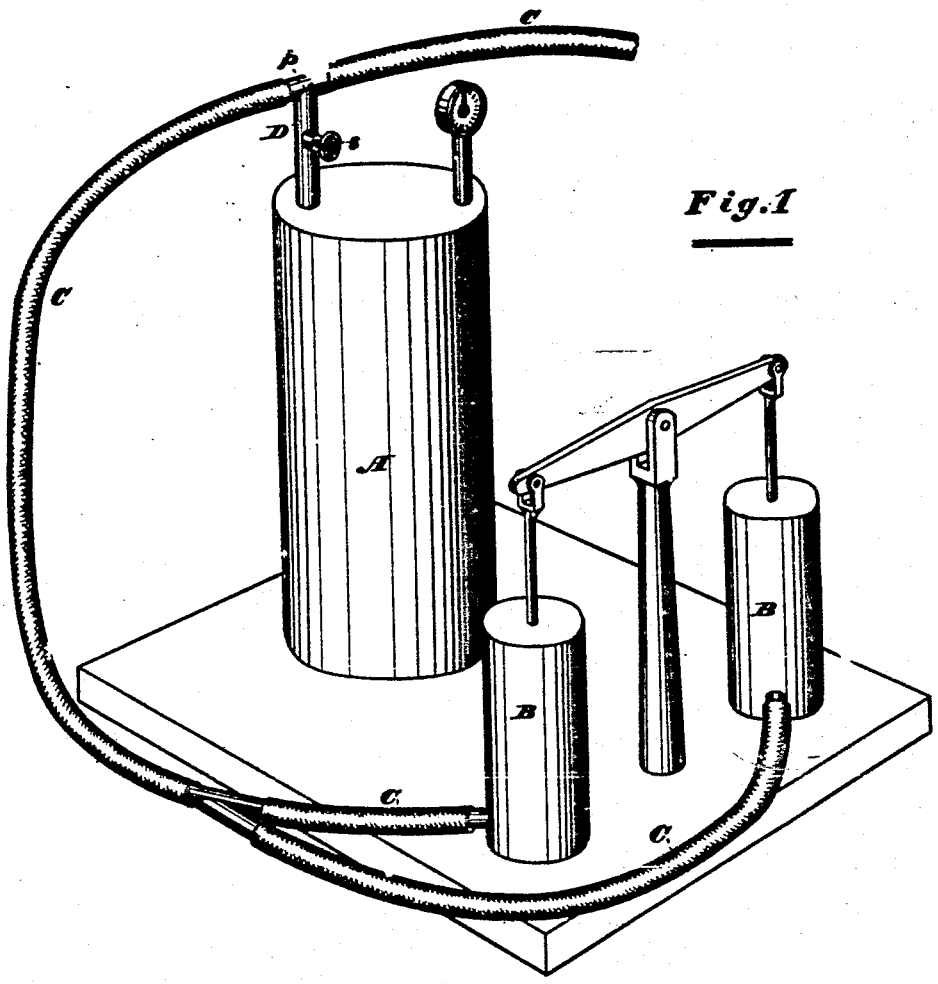

Fig. 1

Attest:

W. F. Brobst

A. R. O'Imann

INVENTOR:

William W. Crocker,

By P. C. Dyrenforth,

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM W. CROOKER, OF WAUKEGAN, ILLINOIS.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. **192,862**, dated July 10, 1877; application filed June 16, 1877.

To all whom it may concern:

Be it known that I WILLIAM W. CROOKER, of the city of Waukegan, in the county of Lake and State of Illinois, have invented a new and improved method of applying carbonic-acid or other extinguishing gas to fires for the purpose of putting them out; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, of which—

Figure 1 is a perspective view of a form of apparatus designed to carry my method into effect.

It is well known that much of the damage resulting from fires is caused by the water employed in extinguishing them. Sometimes this is almost the only damage done, and is very serious, even where the liquid is used in comparatively small quantities, as in many chemical fire-extinguishers.

The object of my invention is to overcome this difficulty by extinguishing fires without the employment of liquids of any sort, but by means of aeriform fluids only, and these in a perfectly dry state.

My invention consists in making ordinary atmospheric air the vehicle for conveying the extinguishing gas to the desired point; and this is done by having a tube from the gas-reservoir enter a hose-pipe, or any other conduit, through which a strong current of air is forced by means of a suitable fan, blower, or air-pump, preferably driven by steam.

Referring to the drawing, A is a carbonic-acid gas holder, provided in the ordinary manner with a gage, to indicate the pressure. A suitable number of such gas-holders, previously charged, should be held in readiness, in order that as soon as one is exhausted another may immediately be substituted. B is an air-pump, adapted to force a powerful blast through the pipe C. At the point *p* a pipe, D, from the gas-reservoir enters the pipe C, which latter is analogous to the hose-pipe in all extinguishers.

Experience may suggest other and better forms of apparatus than that shown, and which I have just described, for the carrying out of my invention; but this form answers its purpose satisfactorily, and is as good as any other at present known to me. Of course, if any extinguishing-gas other than carbonic acid is used, certain parts may have to be modified accordingly; but this does not affect my invention, which relates only to the method of applying the gas to the fire.

The operation is as follows: Carbonic-acid gas is allowed, by opening a suitable stop-cock, *s*, to escape from the reservoir through the pipe D, whence it passes into the pipe C, which may be of any required length, and to the end of which a suitable nozzle may be attached. At the same time the air-pump is set in action, causing a blast of air to pass through the pipe C. At the point *p* the air and gas commingle, and thenceforward pass along together, the pressure of the carbonic-acid gas (which is, of course, greatest when the gas is first released) being so regulated by the stop-cock as to be subordinate in force to the current of air. This current of diluted carbonic-acid gas is directed upon the fire, when the latter is speedily extinguished.

It is true the oxygen of the current of air has a tendency to support combustion; and the very general knowledge of this fact, no doubt, has prevented my method from ever being hitherto attempted by others; but, in reality, the volume of oxygen is so small compared with the united volumes of the nitrogen and carbonic-acid gas that it becomes insignificant, and its powers are wholly neutralized.

It is also true that carbonic-acid gas might serve even more effectively alone; but it is well known that to produce it in requisite quantities to give the necessary pressure for a sufficient length of time is both too difficult and too expensive to be practicable. This has led to its dilution, ordinarily with water, productive of the undesirable results above referred to. By employing a blast of air as the carrying-power, in the manner I have described, a strong, steady, and uniform flow may be created and maintained indefinitely without any needless expenditure of gas.

I make no claim to the apparatus which I have described, for I am aware that it is old, and is used for many purposes analogous to this; but

What I do claim, and desire to secure by Letters Patent, is—

The method herein described of applying carbonic-acid or other extinguishing gas to fires for the purpose of annihilating the same, which consists in conveying such gas to the desired point by means of a current of air forced through a suitable conduit, substantially as specified.

WILLIAM W. CROCKER.

In presence of—
H. V. TOBEY,
WM. MILLER.