(No Model.)

M. VINNING.

FIRE EXTINGUISHING APPARATUS.

No. 513,351. Patented Jan. 23, 1894.

Fig. 1.

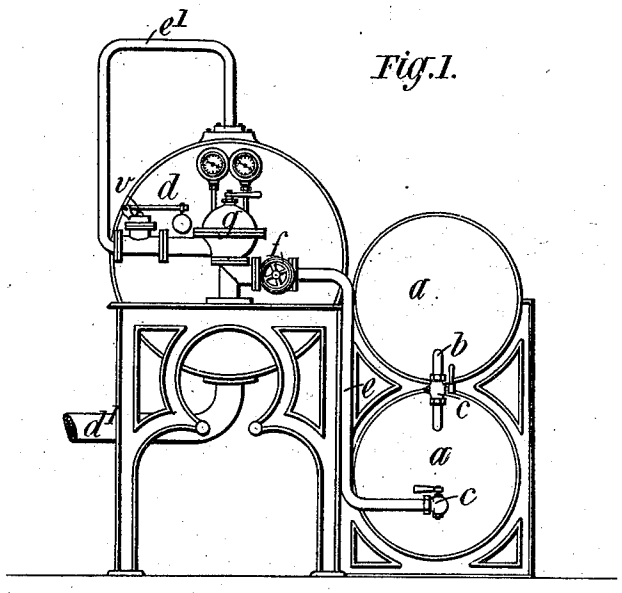
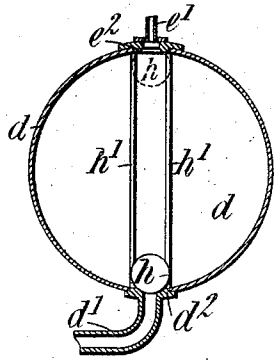


Fig. 2.



Witnesses:
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J. Frank Meyers Jr.

Inventor:
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By James L. Norris. Atty.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MOZART VINNING, OF LONDON, ENGLAND, ASSIGNOR TO THE HIGH PRESSURE FIRE-MAIN COMPANY, LIMITED, OF SAME PLACE.

FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 513,351, dated January 23, 1894.

Application filed August 25, 1892. Serial No. 444,137. (No model.) Patented in England November 26, 1886, No. 15,479.

To all whom it may concern:

Be it known that I, MOZART VINNING, retired assistant paymaster royal navy, a subject of the Queen of Great Britain, and a resident of London, England, have invented certain new and useful improvements relating to apparatus for facilitating the use of compressed air or other gases or vapors for imparting pressure to water for extinguishing fires and for other purposes, (for which I have obtained a patent in Great Britain, No. 15,479, dated November 26, 1886,) of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to apparatus chiefly designed to facilitate the use of compressed air or other gases for imparting pressure to water in mains or pipes for extinguishing fire. My improved apparatus is, however, applicable for other purposes.

The main object of my said invention is to improve the construction and increase the efficiency of fire-extinguishing apparatus of the kind or class described in the specification of British Letters Patent granted to me and dated December 15, 1884, No. 16,481.

In the accompanying drawings, Figure 1 is a diagram illustrating the general arrangement of my improved fire-extinguishing apparatus. Fig. 2 is a vertical section of the water tank showing the float valve.

Like letters indicate corresponding parts throughout the drawings.

a a are hollow cylindrical chambers or bottles which are formed of metal, preferably steel or iron, and which must be of great strength. These cylinders or chambers are to be charged with compressed air or gas at a high pressure. The said cylinders or chambers are connected by pipes *b*, so as to form practically one vessel or chamber. Stop cocks or valves, are, by preference, placed at the outlets of the several cylinders or chambers, as at *c* so that either cylinder or chamber can be detached and removed, for repair in case of damage or leakage, or for the purpose of being recharged with compressed air, without affecting the other cylinders or chambers, which may remain charged and interconnected. By this arrangement, the separate cylinders or chambers, if made light and portable, can be dispatched to a distance to be recharged, should an air or gas compressing pump and suitable power not be at hand. The cylinders may, if desired, be connected to form practically one vessel without the stop cocks or valves.

d is the water tank or reservoir and *d'* is the main for conducting the water therefrom.

e e' are pipes for conducting the compressed air from the cylinders or chambers *a* to the tank *d*.

f is the stop-valve for shutting off the air from the water tank.

When I use air or gas at a higher pressure than the water-mains are adapted to withstand, I find it necessary to employ a reducing valve or valves, in order to diminish the pressure in the mains and thus avoid liability to leakage or bursting of the mains. By this means, moreover, I am enabled to maintain a constant or nearly constant, though diminished working pressure in the mains notwithstanding the continuous decrease of pressure in the cylinders or chambers *a*. I arrange the said valve at any suitable point between the cylinders or chambers *a*, and the tank *d*, for example at *g*, as shown in the drawings. I may employ any ordinary reducing valve for this purpose.

I provide a float valve in the water tank which not only prevents the escape of the air or gas through the pipe *d'* when the tank *d* is emptied of water but also operates to close the pipe *e'* as soon as the tank *d* is full of water. This valve is clearly shown in Fig. 2. The pipes *e' d'* enter the tank *d* at top and bottom their openings e^2 d^2 being adapted to form seats for a ball *h* which floats in the water in the tank. The said ball is confined between suitable guides *b'*, and is free to move up and down as the tank fills and empties. When the tank is full the ball *h* closes the opening to the pipe *e'* until the pressure from the air vessel is allowed to operate opening the valve and expelling the water from the tank. When all the water has been driven out the ball *h* falls to its seat d^2 and closes

the entrance to pipe d' thus preventing the escape of air through the said pipe.

Suitable cocks and gages are provided to permit the proper regulation or control of the apparatus.

Although I have described my improvements as arranged in connection with the mains of a system of fire-extinguishing apparatus, it is to be understood that the said apparatus may be used for storing and regulating or controlling the flow of gases or fluids for other purposes. Also that other gases than air may be compressed into the cylinders or chambers a.

Having described the various improvements in my system of applying immediate high pressure to firemains I will now briefly describe the operation of the system as a whole. The cylinders, bottles or chambers a (Fig. 1) are charged with compressed air to say three hundred and fifty pounds pressure per square inch by means of small steel bottles charged to fifteen hundred pounds or two thousand pounds per square inch. On an emergency the valve f is opened by means of a lever or hand-wheel and the compressed air passes into the reducing valve g which reduces the pressure of the air to the point (say ninety-eight pounds) at which the valve has been regulated to work. The air under the reduced pressure passes through the pipe e' into the water vessel opening the float valve h and operates on the water expelling it at any fire-cock that may be opened. An ordinary safety-valve is arranged at v so that in case the pressure in the pipe e' becomes too great from failure of the reducing valve to act or from any other cause, the air or gas will blow off so as to reduce the pressure on the water in the water-tank.

What I claim is—

1. The combination with a water tank or reservoir d, having an outlet pipe or main d', of air or gas chambers a, pipes e, e' that connect said air chambers with the water tank or reservoir, a stop valve f and reducing valve g through which the pipes e, e' communicate, and a float valve h arranged within the water tank and serving to prevent escape of air or gas through the said outlet pipe or main and to close the pipe connection between the water tank and the gas chambers, substantially as and for the purpose specified.

2. The combination with a water tank or reservoir d, having an outlet pipe or main d', of air or gas chambers a, pipes e e' that connect said air chambers with the water tank or reservoir, a stop valve f and reducing valve g through which the pipes e, e' communicate, a safety valve v on said pipe e', and a float valve h arranged within the water tank and serving to prevent escape of air or gas through the said outlet pipe or main and to close the pipe connection between the water tank and the gas chambers, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

MOZART VINNING.

Witnesses:

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