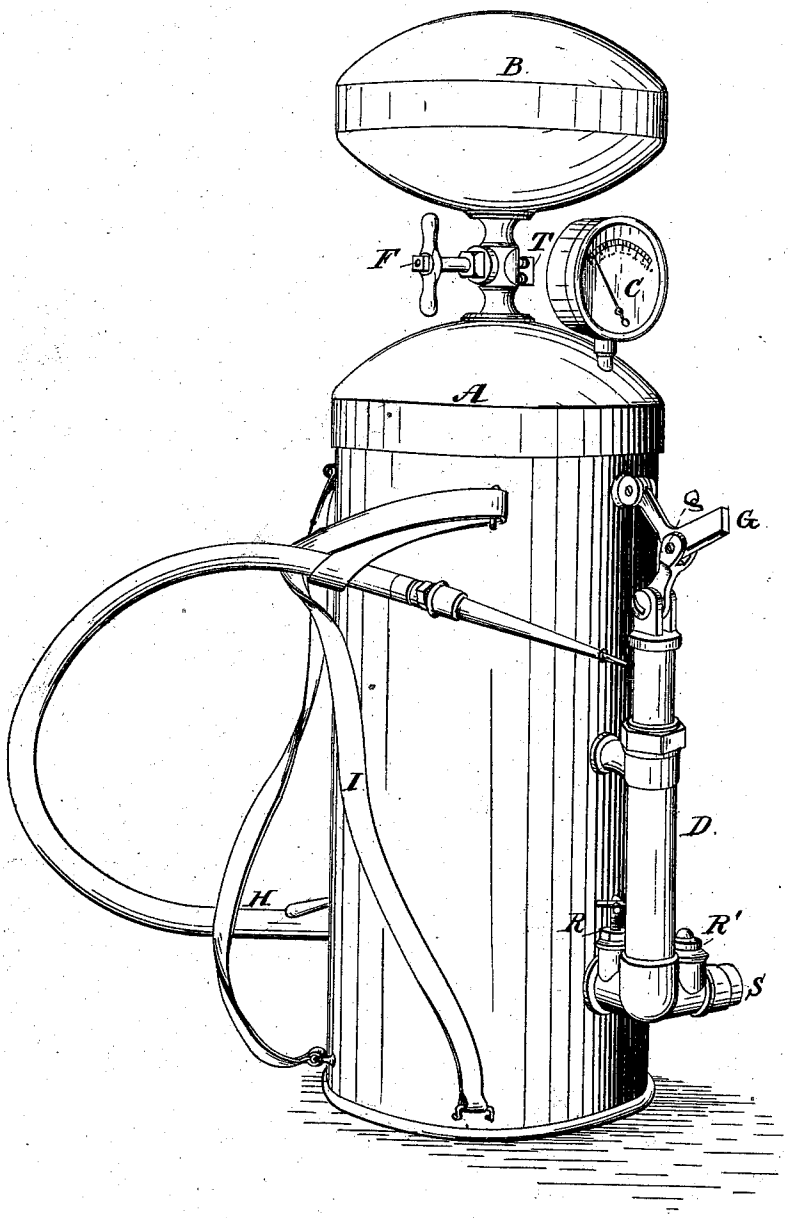
T. A. MARTIN.

2 Sheets—Sheet 1.

Hydro-Pneumatic Apparatus.

No. 225,293. Patented Mar. 9, 1880.

FIG. 1.



WITNESSES

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2 Sheets—Sheet 2.

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FIG. 3.

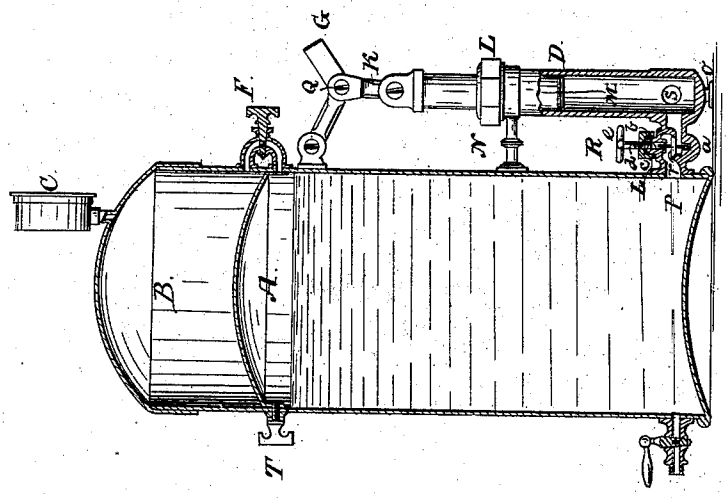
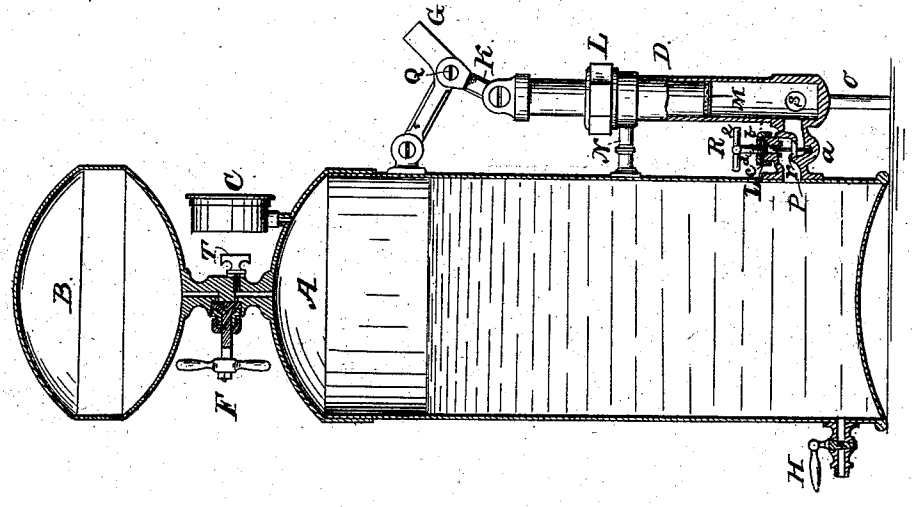


FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

TIMOTHY A. MARTIN, OF NEW YORK, ASSIGNOR TO WILLIAM A. COLLINGWOOD, OF POUGHKEEPSIE, N. Y.

HYDROPNEUMATIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 225,293, dated March 9, 1880.

Application filed June 28, 1879.

To all whom it may concern:

Be it known that I, TIMOTHY AUGUSTINE MARTIN, of the city, county, and State of New York, have invented a new and useful Improvement in Hydropneumatic Apparatus, which improvement is fully set forth in the following specification and drawings, in which—

Figure 1 is a perspective view of the apparatus with the pump attached. Fig. 2 is a sectional drawing of the pump with the check-valve attached.

The object of my invention is to provide a system of protection against fire, or a means of conveying water when scarce in mining districts and throwing it with great force; for raising and keeping water at a high service-pressure in houses remote from water-works, for service in case of fire, and for other purposes; to convey water to and sprinkle lawns, gardens, &c.; for throwing chemical and other compounds on diseased trees and shrubbery; for creating a fine spray of disinfecting compounds when needed; for use in laundries, tobacco-factories, and the manufactures; for expelling liquids from receptacles, such as beer-barrels, &c., and for all other purposes for which a small powerful stream of liquid is required, by means of a portable, mounted, or stationary apparatus.

In the drawings, Fig. 1, A represents a metallic tank to contain water or water impregnated with fire-extinguishing or other compounds.

B is an air-chamber communicating with tank A by means of a cock, F, which opens or closes the communication.

C is a pressure-gage to indicate the amount of pressure in the tank A and air-chamber B.

D is a force-pump attached to the body of the tank A, as shown, by means of which water, air, or chemical compound may be pumped into the tank A. A detachable handle for pumping is fastened by a pin on the end of the lever G, and when not in use is hung to the side of the pump by the pin Q on the lever G.

H is a discharge-pipe running into the tank A, and to which a hose is attached.

I is a strap attached to the body of the tank A, by means of which the machine can be carried on the back.

Fig. 2 represents a sectional view of the machine, and Fig. 3 shows a modification.

M is the solid plunger; D, the pump-cylinder; P, the inlet-pipe into the tank A; L, the screw-cap containing the packing-washer; N, a brace fastened to the tank A and the pump-cylinder D; O, a resting-foot attached to the bottom of the pump to steady the apparatus; K, the connecting-link attached to the pump-cylinder and lever G. This latter is fastened at one end on the tank A and pivoted at Q.

R and R′ are two valves attached to the pump—R′ in the suction-pipe and R in the inlet-pipe. The valve R is free to play up and down into the recesses *a* and *b*. A screw-cap, *c*, fits over the valve, and by means of the stem *d* and hand-wheel *e* valve R can be fastened upon its seat, and thereby prevent any leakage.

S is the feed-pipe, on which the suction-hose fastens; T, small cock to admit air into A.

The operation of this apparatus is as follows: A hose is attached to the feed-pipe S and made to dip into water. The handle E is fastened onto the lever G, and, by working the pump, water is forced into the tank A and the air into the chamber B. When a sufficient quantity of water has been pumped into the tank A to force all the air from it into the chamber B, the cock F is closed to confine the air in the chamber B, the discharge-cock H is opened to permit the escape of the water, and also the small cock T, to permit the ingress of air and aid in expelling the water by filling the space occupied by it.

When the tank A is again empty the discharge-cock H and the small cock T are closed, the air-cock F opened, and the tank A again filled with water by the pump, when the air will be again compressed into the upper chamber, B, and the gage C will indicate the increased pressure. This is the first time charging.

Should the apparatus not be required for immediate use, a hose with a nozzle is fastened on the outlet-pipe H, and the valve R may be, if necessary, fastened upon the seat by means of the hand-wheel *e* and stem *d*, and the machine set away for future use.

Let us now suppose the machine to be needed.

The carrier slips his arms through the shoulder-straps I, and opens the cock on pipe H and directs the stream wherever it is needed.

When the fluid is exhausted the operator may put the apparatus on the floor, fasten the suction-hose onto the pipe S, place the other end in a receptacle containing the fluid desired to be thrown, and continue to throw a steady stream by use of the pump; or, in case it is desirable to recharge the apparatus, once filling it with the pump does so, as a reserve of fifteen (15) pounds pressure, or one atmosphere, remains in the apparatus after the fluid contents are discharged.

I do not confine my invention to the particular style shown in the drawings, but may, for convenience and cheapness of manufacture, do away with the air-chamber B and use the top of the tank A for the same purpose, varying my process of charging to pumping in fifteen (15) pounds pressure of air before forcing in the liquid.

I am aware that a fire-extinguisher provided with a hose and with an air-pump for forcing air into the main tank is not new, the same having been shown in the patent of Barker and Mack, granted December 30, 1873.

What I claim as my invention is—

1. In combination with the tank A, provided with a discharge-pipe, H, the force-pump D, fixed to said tank and connected with the interior thereof by a pipe with a stop-cock, R, said force-pump being also provided with a pipe, S, and stop-cock R′, for connection with the hose, as and for the purposes described.

2. The combination of the tank A, discharge-pipe H, connected to said tank, as described, and adapted also to be connected to a hose, and of the air-chamber B and cocks F and T, as and for the purposes set forth.

TIMOTHY A. MARTIN.

Witnesses:
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D. P. COWL.