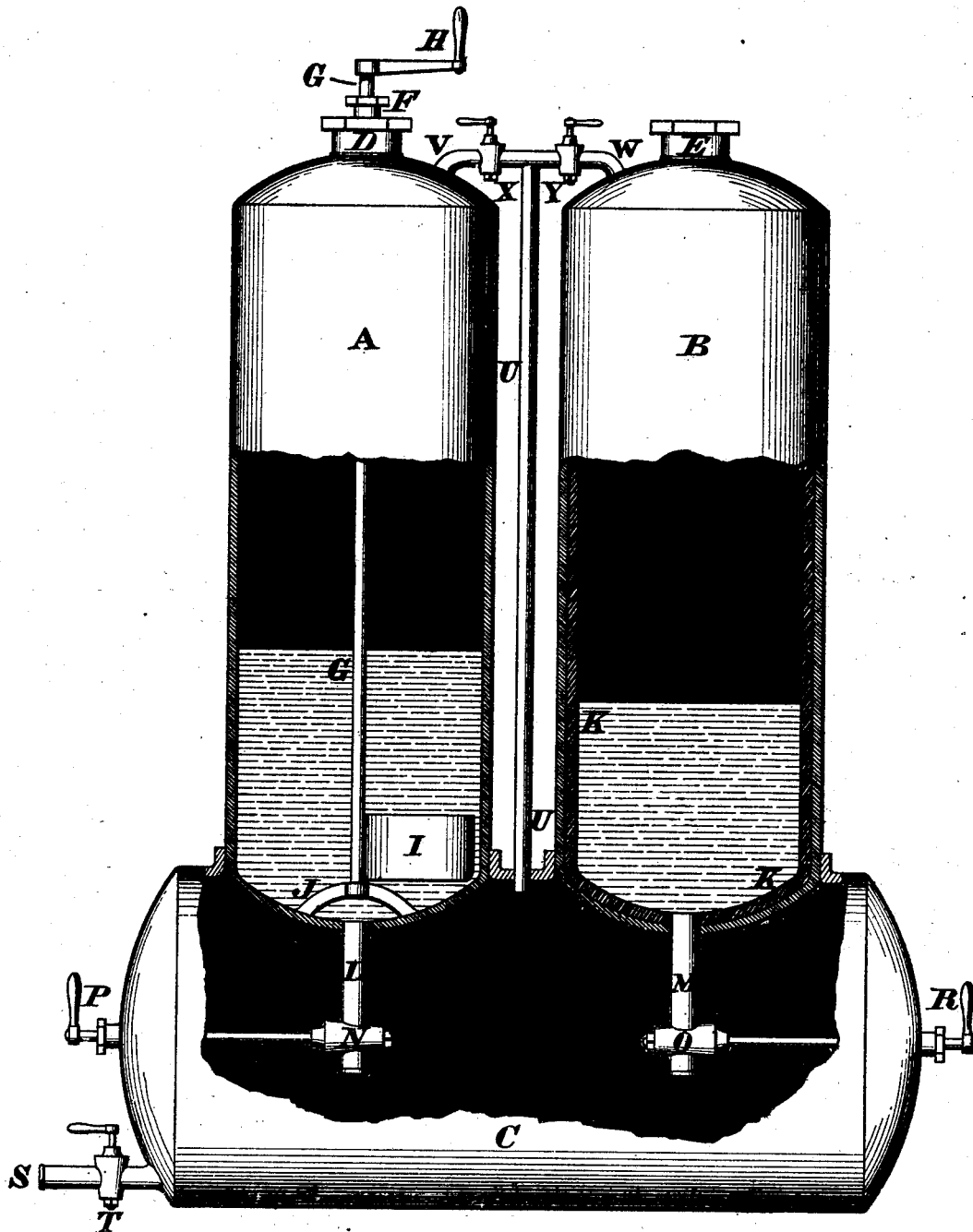


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PATENTED FEB. 14, 1871.

J. GARDNER.
FIRE EXTINGUISHER.



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Letters Patent No. 111,836, dated February 14, 1871.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOSEPH GARDNER, of Bedford, in the county of Lawrence and State of Indiana, have invented a new and Useful "Fire-Extinguisher," of which the following is a specification.

Nature and Objects of the Invention.

This invention relates to that class of portable apparatus in which a fire-extinguishing gas is generated by the combination of a suitable acid solution with an alkaline one; and

My improvement consists in constructing such an apparatus with three separate chambers or reservoirs, the first one being for the reception of the acid solution, the second one for containing the alkaline solution, and the third one being a mixing chamber, into which the contents of the other two are discharged whenever required, so as to combine and generate the gas; and in combining therewith an "equalizing pipe" for the purpose of insuring a uniform pressure within the chambers as soon as the generation of gas takes place.

Description of the Accompanying Drawing.

The accompanying drawing is a partially sectioned side elevation of a fire-extinguisher embodying my improvements.

General Description.

A, B, and C represent, respectively, the alkaline chamber, the acid chamber, and the mixing or gas-generating chamber.

These three chambers may be of any desired shape or size, and constructed either of brass, iron, copper, or any other suitable material, care being taken to make them strong enough to stand the necessary pressure.

The upper ends of the chambers A and B are provided with screw-threaded caps, D and E, which, when removed, permit said chambers being charged with their appropriate compounds or solutions.

The cap D of chamber A is furnished with a stuffing-box, F, through which projects a rod or shaft, G, whose upper end has attached to it a handle or crank, H, while its lower end carries a blade, wing, or agitator, I.

The lower end of shaft G may, if preferred, be journaled in a spider, J, or it may simply rest upon the bottom of the chamber.

The vessel B, being designed for containing the acid solution, is lined on the inside with a leaden jacket or casing, K, which effectually prevents the acid injuring the metal of which said chamber is composed.

The lower portions of the chambers A and B are united to the reservoir C, either by solder or rivets,

so as to form a gas-tight joint between them, and the extreme lower ends of said chambers are provided with downwardly-projecting pipes, L M, having cocks or valves, N O, which are operated by handles, P R, on the outside of reservoir C.

Projecting from any convenient part of reservoir C is a discharge-pipe, S, to which the hose is attached, and the flow of gas through said pipe is controlled by the cock T.

Attached to reservoir C, and communicating with the interior of the same, is an equalizing pipe, U, whose upper end is united to branch-pipes V and W, which latter are connected respectively with chambers A and B.

The branch-pipes V and W are furnished with valves or cocks, X and Y, so as to open and close communication between the chambers A B and reservoir C.

Operation.

The operation of my fire-extinguisher is as follows: The caps D and E are first removed, the valves N O T X Y closed, and the chambers A B filled with their appropriate compounds, the alkaline solution being put into chamber A and the acid solution into chamber B, after which the caps D E are secured in their original positions.

The machine is now ready for use, and the moment a fire occurs the attendant gives the handle H a few turns, so as to rotate the agitator I, and thereby stir up the contents of the alkaline chamber A, after which the cocks N and O are opened, so as to permit the contents of chambers A and B mixing together in reservoir C, and by combining to generate the fire-extinguishing gas.

As soon as the gas begins to generate the cocks X and Y are opened, so as to establish a uniform pressure throughout the entire apparatus.

By turning the cock T the gas is discharged through the conducting-hose and nozzle upon the fire.

The cocks X and Y should be constantly closed, except when the apparatus is put in action, so as to prevent any commingling of the contents of the two chambers A and B in case the extinguisher should be accidentally overturned.

In the illustration the chambers for containing the alkaline and acid solutions are represented as attached to the upper side of the mixing chamber, but it is evident that the same result can be obtained by placing all three of the receptacles side by side, or, if preferred, the alkaline, the acid, and the mixing-chambers can all be arranged within a single vessel, having partitions or diaphragms in it, for the purpose of separating the different solutions.

The machine may be small and light enough to be

borne upon a man's back, so as to be carried to any part of a house, or it can be made on a larger scale, so as to be mounted upon wheels and drawn along by men or horses.

Claim.

I claim as my invention—
The combined arrangement of the alkali chamber A, acid chamber B, mixing chamber C, equalizing

pipe U, branches V W, discharge-pipe S, and cocks N, O, T, X, and Y, as and for the purposes stated.

In testimony of which invention I hereunto set my hand.

JOSEPH GALDNER.

Witnesses:

E. R. MURPHY,
ISAAC RECTER.