

(No Model.)

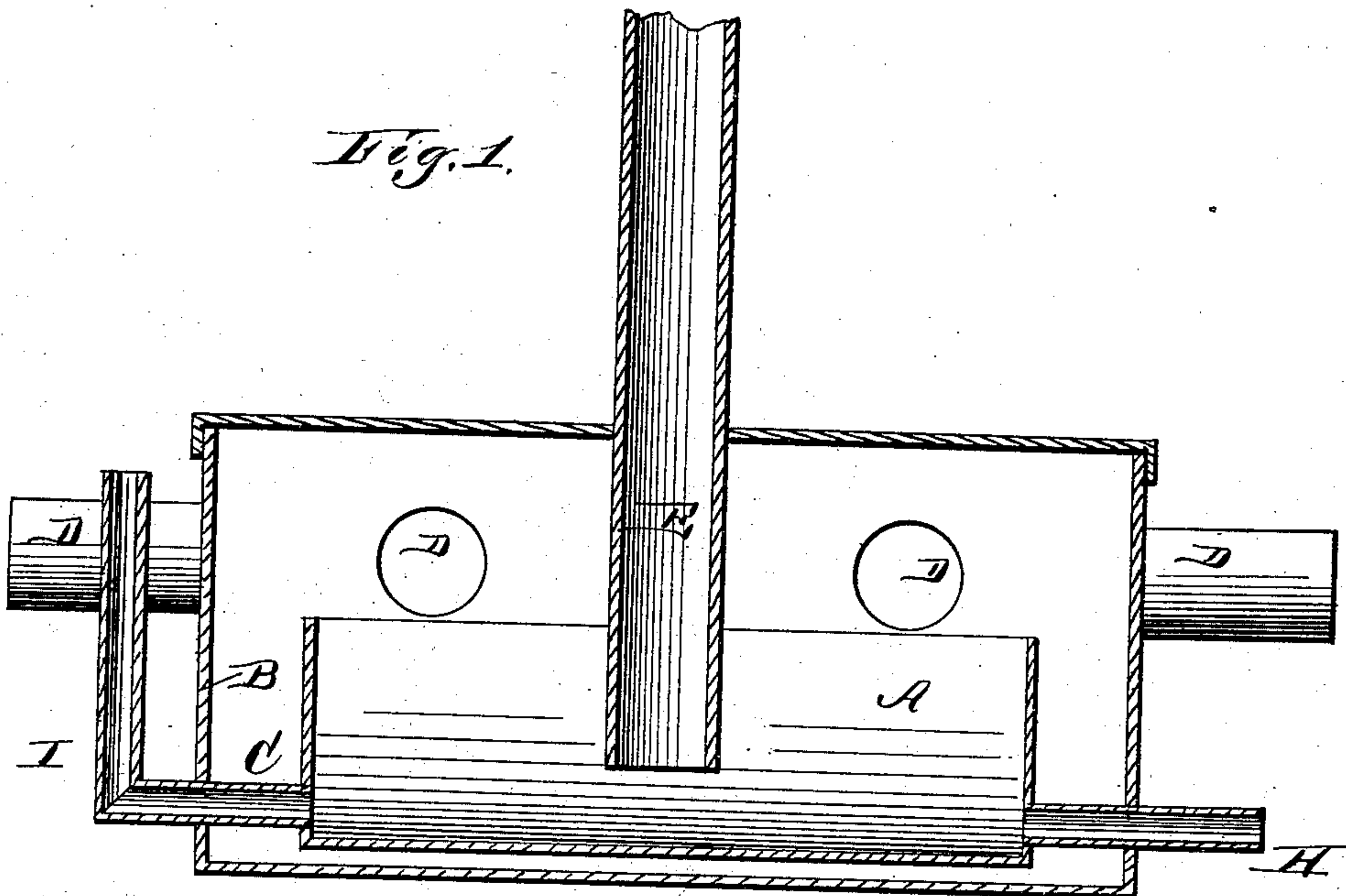
S. WHITNUM.

AIR COOLING AND PURIFYING APPARATUS.

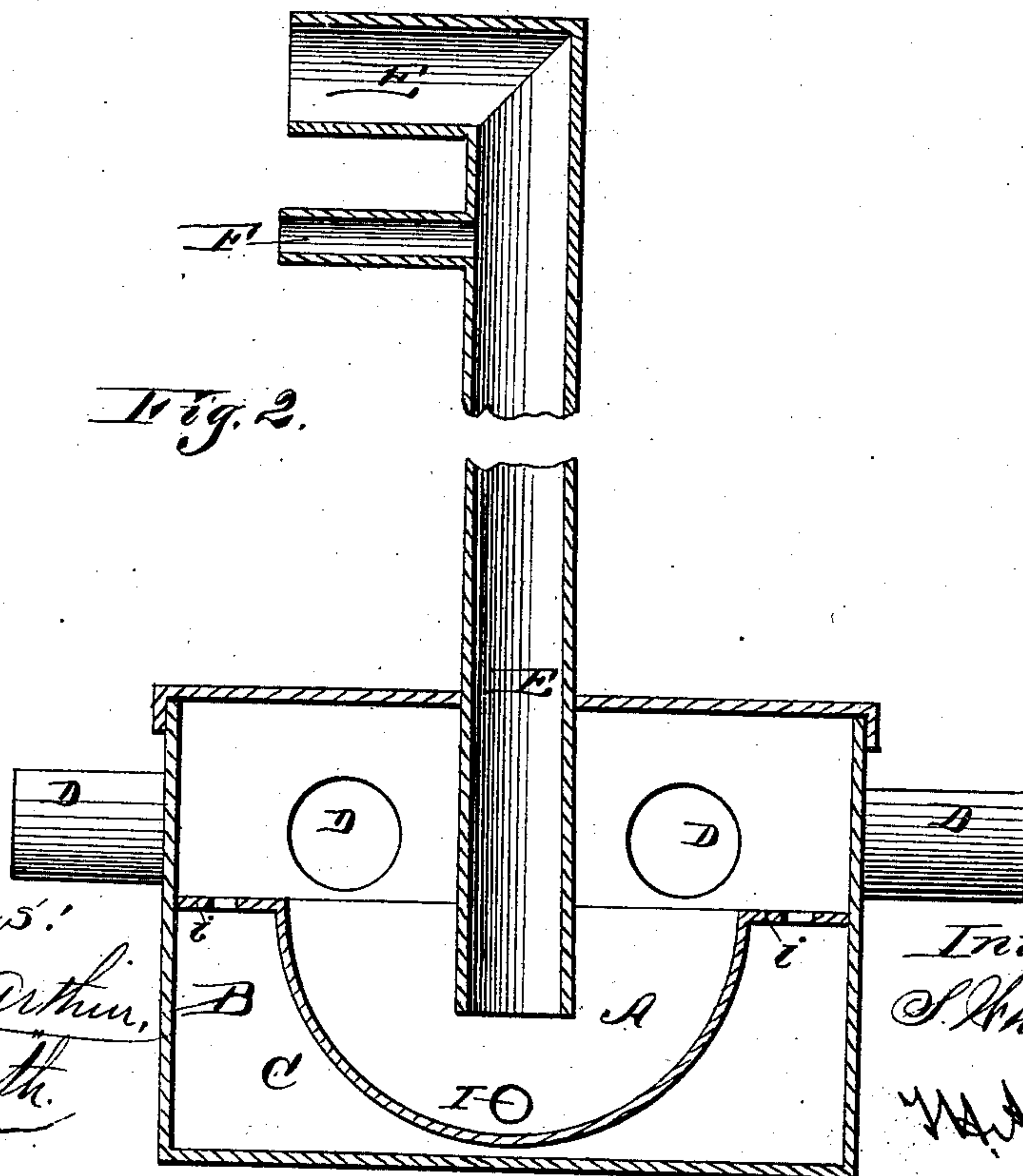
No. 254,081.

Patented Feb. 21, 1882.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*A. C. McArthur,*

*W. R. Keyworth.*

*Inventor:*  
*S. Whitnum.*

*W. H. Alexander*  
*Attorney.*

# UNITED STATES PATENT OFFICE.

SAMUEL WHITNUM, OF BROOKLYN, NEW YORK.

## AIR COOLING AND PURIFYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 254,081, dated February 21, 1882.

Application filed September 23, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL WHITNUM, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ventilating; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to certain novel means which are especially designed for ventilating mines, extinguishing fires, and neutralizing the poisonous effects on human life of the fire-damp and other noxious gases.

While this invention is more particularly designed for the above-named purposes, I do not desire to be understood as limiting myself thereto, for the reason that I contemplate employing it for the purpose of condensing saccharine, metallic, and other vapors which can be condensed by the application of cold, also for refrigerating apartments, and for refrigerating substances generally.

My invention is an improvement on my mode of cooling and ventilating set forth in my Letters Patent numbered 150,920, and dated May 12, 1874.

In the drawings, Figures 1 and 2 are central sections taken on vertical planes at right angles to each other.

A indicates a trough or reservoir for containing the fluid through which air is to be passed. This reservoir is arranged within a larger receptacle, B, the space between the two constituting an air-chamber, C, through which the air will circulate and pass out through the pipes D, arranged to conduct the same to the desired locality. The air-chamber C is closed at the top by means of a suitable cover to the outer receptacle, and an air-inlet pipe, E, arranged to extend down through said cover into the reservoir A, whereby, when an air-blast forced by a fan or other suitable device passes down the pipe into the fluid contained within the reservoir, it will pass up through the fluid into the air-chamber, and thence out into the conducting pipe or pipes.

F is a water-inlet leading from the main or

a pump into the vertical air-tube, so that the reservoir can be supplied, as may be required.

A waste-pipe, H, is arranged to lead from the reservoir, for the purpose of drawing off the fluid or sediment therefrom, if needed, and a second pipe, I, is arranged to pass out from the reservoir, and then bent to form an elbow, so that it can be used as a gage for indicating the height of fluid within the reservoir. This pipe can of course be provided with a transparent panel and a graduated scale when preferred. The flanges *i* at the sides of the reservoir are perforated, so that air can circulate freely through the same, said flanges serving to secure the reservoir in place within the air-compartment.

For the purpose of still further reducing the temperature of the air passed through the chamber C, I may use any suitable refrigerating substance or compound of substances in solution in the reservoir A, supplied thereto by the pipe F, above described. This pipe, it will be seen, is located below the elbow of the blast-pipe E, and is arranged at right angles to said elbow. The object of thus locating the feed-pipe is that none of the fluid fed through it shall flow back through the angular section of the blast-pipe, and also to cause the inflowing fluid, on its way to the reservoir A, to strike against the vertical pipe E, opposite the pipe F, and be converted into a shower. The air descending through the vertical pipe E will lose much of its heat while passing through the falling drops of water before it enters the cooling-fluid in tank A. For the purpose of ventilating mines, and for extinguishing fires in mines and other places, I charge the water which is supplied to the tank or reservoir A with a soluble muriate. When the air is forcibly injected through a solution of either of these substances it will not only be cooled, but it will also be charged with the vapor thereof, which vapor will be found efficient for extinguishing fire, and also for neutralizing the fire-damp and other gases destructive of life.

What I claim is—

1. The combination of the fluid-reservoir A, the air-chamber C, the blast-pipe E, leading down into the reservoir, the feed-pipe F, lo-



cated below the elbow of the blast-pipe, the waste and gage pipes, and the pipes for conducting the cooled or charged air out of said air-chamber, substantially as described.

- 5 2. Means, substantially as described, for cooling air and charging it with a watery vapor containing any of the well-known soluble muriates, for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two 10 witnesses.

SAMUEL WHITNUM.

Witnesses:

ALEX. WIRTH,  
THEODORE R. JONES.