J. A. CALANTARIENTS.

Water-Pipes.

No. 157,190. Patented Nov. 24, 1874.

Fig. 1.

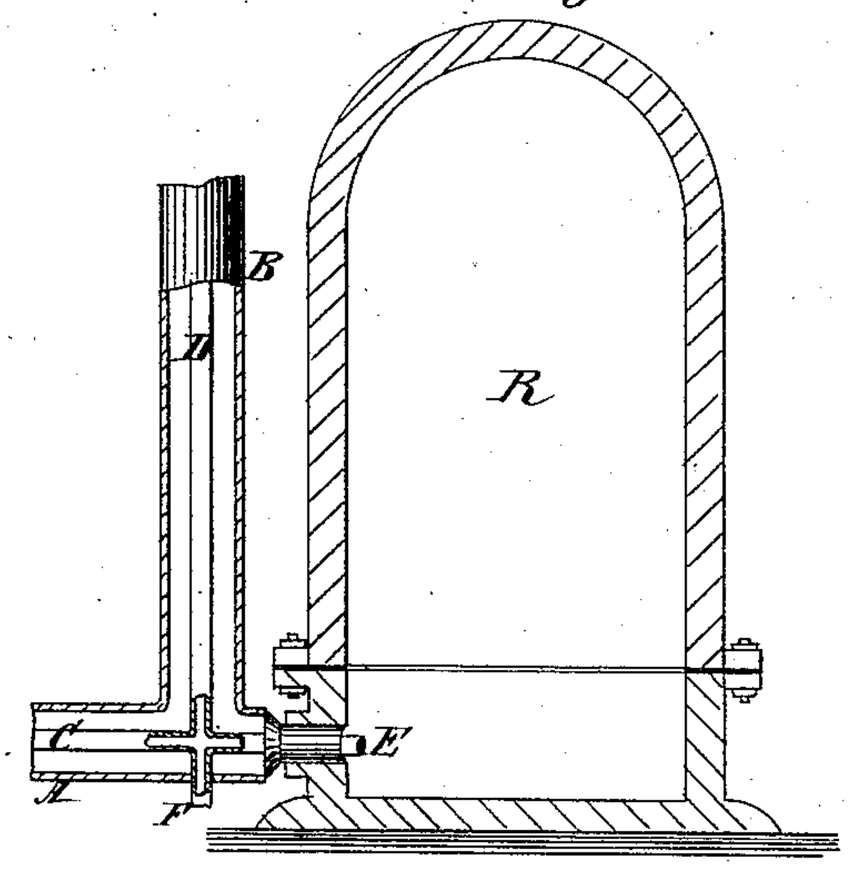
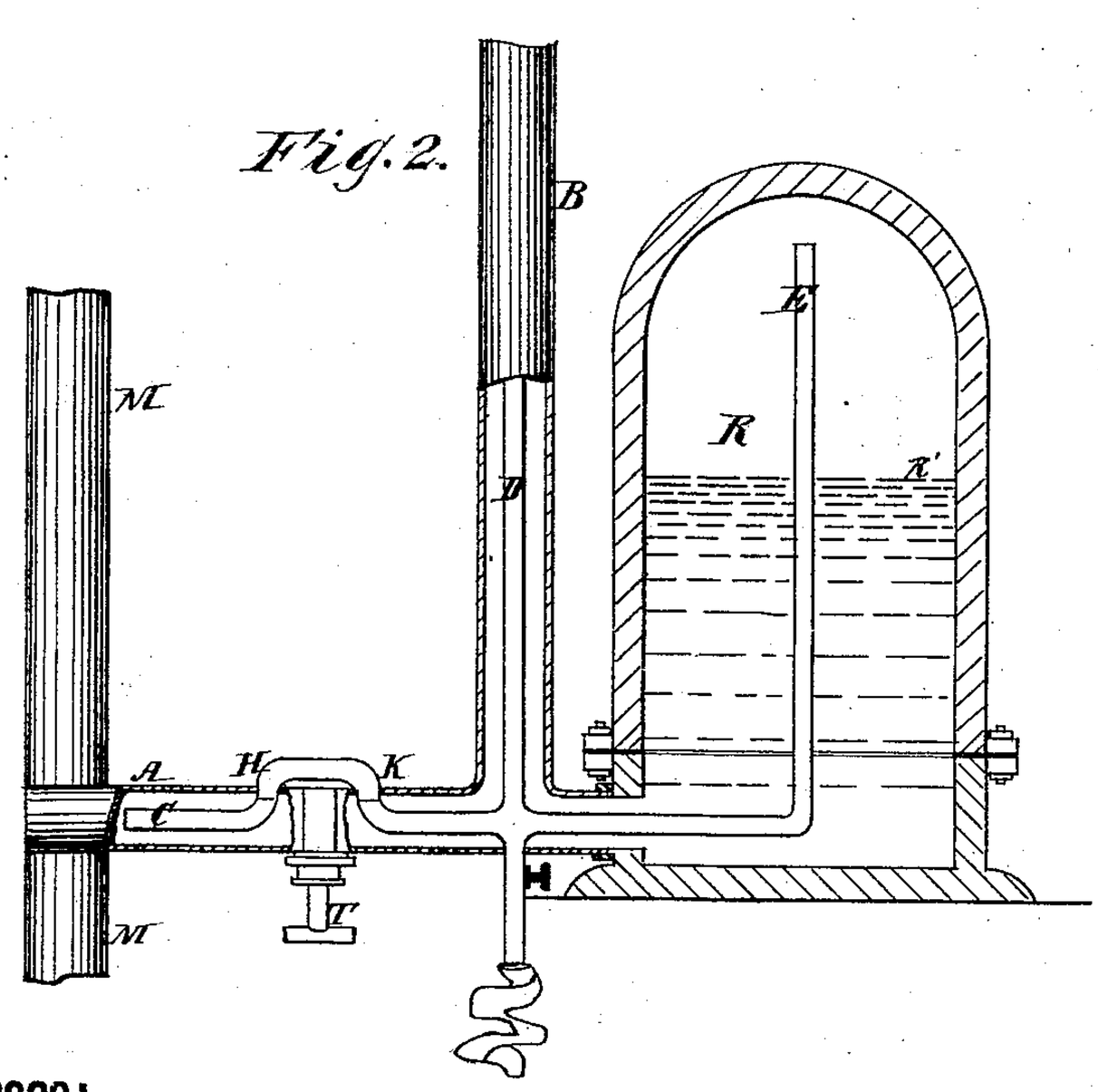


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHANNES A. CALANTARIENTS, OF SCARBOROUGH, ENGLAND.

IMPROVEMENT IN WATER-PIPES.

Specification forming part of Letters Patent No. **157,190**, dated November 24, 1874; application filed October 10, 1873.

To all whom it may concern:

Be it known that I, JOHANNES AVETICIAN CALANTARIENTS, of Scarborough, in the county of York, England, have invented a new and useful Improvement in Water-Pipes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification.

The invention consists in arranging a collapsible pipe of rubber or equivalent material inside the water-service pipes of a building, and filling them with air at a sufficient pressure to balance the water-pressure, the expansion of ice being thus allowed to compress the air in the flexible pipe, and condense or expel a portion of it into a reservoir prepared to receive it, thus preventing any fracture of the metallic pipes.

The figures of drawing are sectional elevations.

A B represent the water-pipe of a house; C D, the air-tube, closed at all its other ends, but opening into the air-tight air-reservoir R at E.

The resisting power of any given air-tube being known, in proportion as the water-pressure is greater, in the same proportion (as measured by a pressure-gage) I force air into the air tube and reservoir through F until equilibrium is established, and so the air-tube is kept open. When the water in the pipes freezes, it forces the air out into the air-reservoir; when it melts, the air (by its own elasticity) returns again to its former position and distends the air-tube, ready to be acted on again.

The only difference between the devices shown in Figs. 1 and 2 is, that in the latter I use instead of air another fluid, (water,) and that with this I can make use of as thin an air-tube as I like with perfect efficiency, and I do not require any pumping of air into R, or the trouble of using pressure-gages for this purpose, for it is entirely self-acting. All I require to know is the length of air-tubing required in a house, its capacity, and the degree of water-pressure. I then attach to it an air-reservoir of proportionate size. Supposing it is just fitted up and every part full of air, as soon as the water is turned on it rushes into the air-reservoir as well as into the water-pipes. In the same proportion as the water presses on the outside of the air-tube, in the same proportion, by rising in the air-chamber, it forces the air through E into the air-tube, and so the pressures within and outside are kept constantly equal. However much the water-pressure may fluctuate, there is not the slightest tension in the air-tube.

Suppose the water rises up to R′. If any part of the water freezes the air would be compressed into R through E, as in No. 2, and return again in the same manner.

Of course I place the air-reservoir in a convenient well-protected corner of the house, so that there may be no possibility of its freezing.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with metallic water-pipes, of an internal flexible air-tube connected with an air-reservoir, and kept open by the water-pressure, as and for the purpose described.

The above specification signed by me this 13th day of June, 1872.

J. A. CALANTARIENTS. [L. S.]

Witnesses:

J. W. H. CATLEY,

THOS. FUTTY,

Of Scarborough, Clerks to Messrs. Moody, Turnbull & Graham, of the same place, Solicitors.