Sprogle & Dickson.

Ventilator.

No. 112,190. Patented Feb. 28, 1871.

Sheet 2.

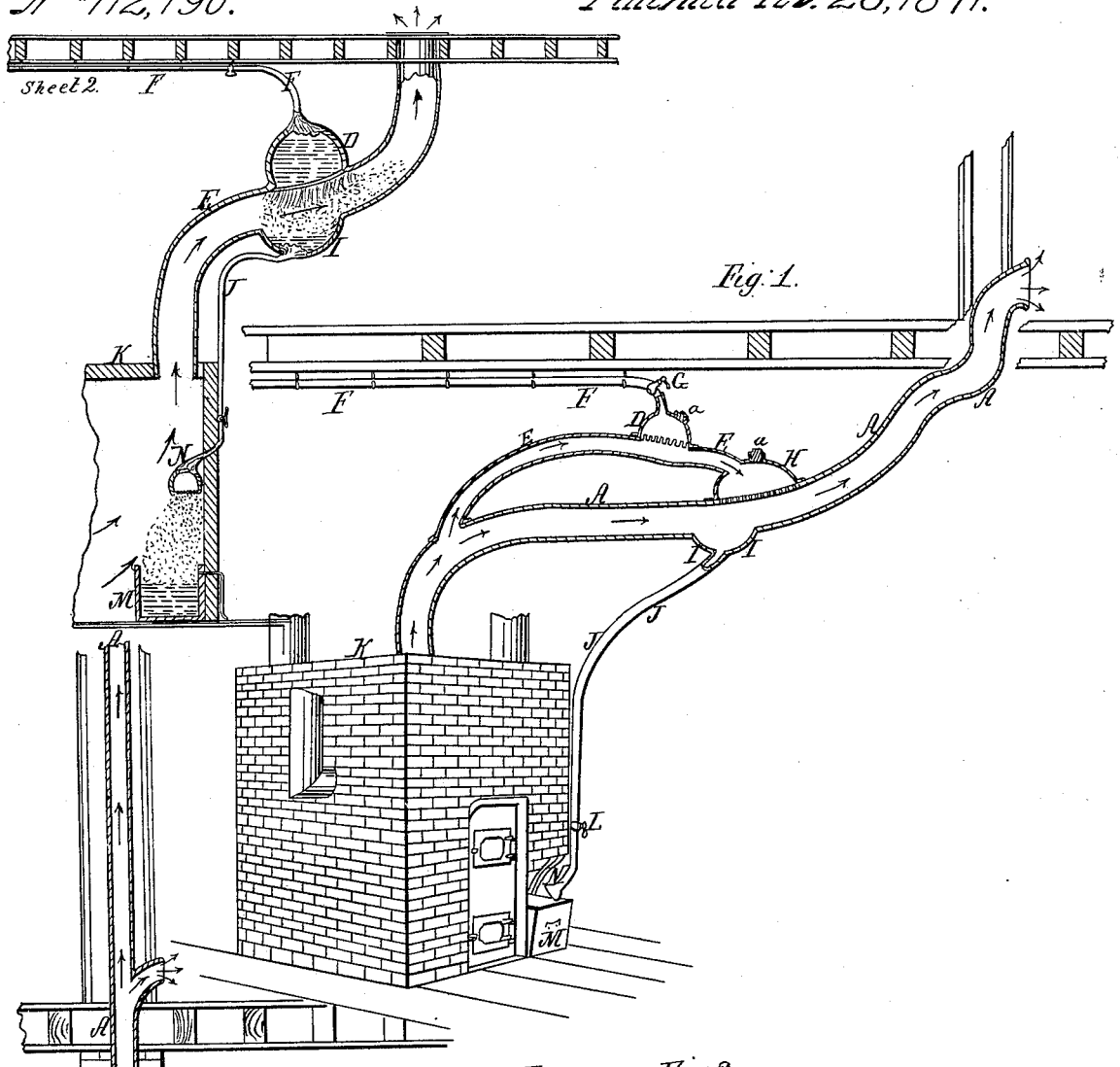

Fig. 1.

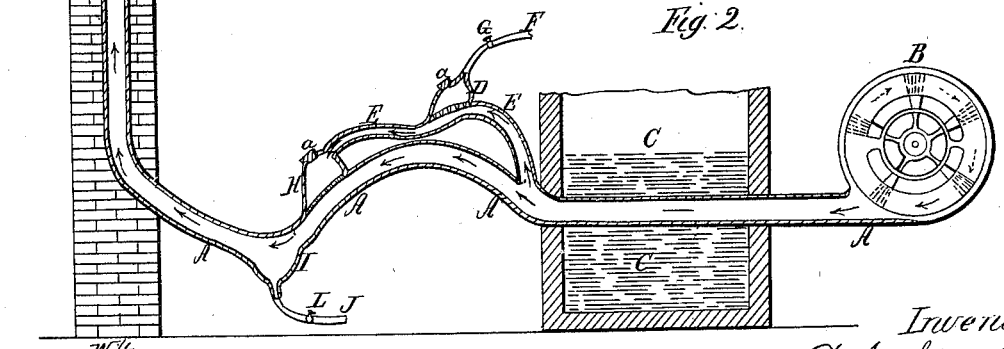

Fig. 2.

Witnesses;
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UNITED STATES PATENT OFFICE.

DANIEL M. SPROGLE AND JOSEPH E. DICKSON, OF ANNAPOLIS, MD.

IMPROVEMENT IN VENTILATORS.

Specification forming part of Letters Patent No. **112,190**, dated February 28, 1871.

To all whom it may concern:

Be it known that we, DANIEL M. SPROGLE and JOSEPH E. DICKSON, both of Annapolis, in the county of Anne Arundel and State of Maryland, have jointly invented an Improvement in Ventilation and Warming, being a new, improved, and useful mode of producing pure moist air, either warm or hot moist air, or cool moist air, for ventilating, supplying hot-air chambers, warming, and other purposes; and we do hereby declare that the following is a full and exact description of the same, sufficient to enable others skilled in the art or science to which our joint invention appertains to understand, apply, and use our joint invention, reference being had to the accompanying drawing, which makes part of this specification.

Like letters of reference indicate like parts in the several figures.

The nature of our joint invention consist in, first, the production of pure warm or hot moist air for ventilating, warming, and other purposes by combining, in the manner hereinafter described, the mode of passing air, heated artificially or otherwise, through pipes or flues from hot-air chambers or from other sources of heat, with the method of rendering air moist by means of exposing a current of air to the moisture supplied by minute jets of water or spray, which combination is effected in the following new, improved, and useful mode.

Figure 1, A represents a pipe or flue of any suitable materials, through which a current of warm or hot air is caused to pass from the hot-air chamber K, or from any other source of warm or hot air. D represents a tank or chamber, of any suitable material or shape, and so constructed that an aperture may be formed for the purpose of cleaning it out by removing the cap or cover *a*, which tank or chamber D is connected with the pipe or flue E in such a manner that when filled with water in any convenient way, either directly from another vessel or by means of the water-pipe F, which is made of any suitable material and furnished with the regulating-cock G, it will gradually discharge the water into the pipe or flue E, either through holes alone perforated in that which forms the bottom of the tank or chamber D or through holes in which small tubes are inserted at the proper angle or angles, in the form of many minute jets of water or spray, which spray is brought into immediate contact with a current of warm or hot air, which is conducted by the pipe or flue E either directly from the same air-chamber as the current of warm or hot air conducted by the main pipe or flue A, or from the main pipe or flue A itself, the pipe or flue E being for this purpose connected with the main pipe or flue A at the proper angle, and at any convenient or advantageous point, or from any other source of heat.

The current of warm or hot air, becoming charged or saturated with moisture by being thus brought into contact with the many jets of water or spray proceeding in the manner described from the tank or chamber D, rushes onward through the pipe or flue E to the similar tank or chamber H, in which the excess of moisture is collected, and by the current of air is forced through either holes alone perforated in that which forms the bottom of the tank or chamber H, or through holes in which tubes are inserted at the proper angle or angles, and discharged into the main pipe or flue A at that point which is most convenient or advantageous, where the moisture in the form of spray is again brought, together with the air surcharged with moisture, into immediate contact with a current of warm or hot air—viz., the current which is passing through the main pipe or flue A, and by which the moisture is still further and more thoroughly taken up by absorption or evaporation, or is otherwise diffused.

The excess of moisture is collected in the tank, chamber, or pocket I, connected in the proper manner with the main pipe or flue A on the under side, and at any point in the main pipe or flue A most convenient or advantageous, and is discharged through the water-pipe J, which is made of any suitable material and furnished with the cock L, into the chamber N, in which the water-pipe J terminates within the hot-air chamber K.

The chamber N, being similar in material, shape, and construction to the tank or chamber D, discharges the moisture within the hot-air chamber K in the form of jets of water or spray, to which jets of water or spray the warm or hot air in the hot-air chamber K is exposed, and thereby in some degree rendered moist.

The excess of moisture from the jets of water or spray proceeding in the manner described from the chamber N is collected in the open vessel, tank, or reservoir M, placed within the hot-air chamber K, and in the proper location with reference to the chamber N.

And the nature of our invention consists, secondly, in the production of pure, cool, moist air for ventilating, supplying hot-air chambers, and for other purposes by combining, in the mode hereafter described, the method of obtaining cool air by means of passing a pipe or flue, through which a current of air is caused to pass by the use of a blowing-fan or by other means, into and through a well, tank, cistern, or chamber, in which the current of air, as it passes through the pipe or flue, is subjected to the cooling agency of cold water either in a body or in the form of jets, or streams, or ice, or both water and ice contained in the well, tank, cistern, or chamber, and to which the surface of the pipe or flue conducting the current of air is therein exposed, with the method of rendering air moist by means of exposing a current of air to the moisture supplied by minute jets of water or spray, which combination is effected in the following new, improved, and useful mode:

Fig. 2, A represents a pipe or flue of any suitable material, through which a current of air is caused to pass by the use of the blowing-fan B or by other means, which pipe or flue A is passed into and through the well, tank, cistern, or chamber C, in which the surface of the pipe or flue A conducting the current of air is exposed to the cooling agency of cold water either in a body or in the form of jets, or streams, or ice, or both water and ice, thus rendering the air cool as it passes through the pipe or flue A.

D represents a tank or chamber of any suitable material and shape, and so constructed that an aperture may be formed, for the purpose of cleaning it out, by removing the cap or cover *d*, which tank or chamber D is connected with the pipe or flue E in such a manner that when filled with water in any convenient way, either directly from another vessel or by means of the water-pipe F, which is made of any suitable material and furnished with the regulating-cock G, it will gradually discharge the water into the pipe or flue E, either through holes alone perforated in that which forms the bottom of the tank or chamber D, or through holes in which small tubes are inserted at the proper angle or angles, in the form of many minute jets of water or spray, which spray is brought into immediate contact with a current of air, which is conducted by the pipe or flue E either directly from the same air-chamber as the current of air conducted by the main pipe or flue A, or from the main pipe or flue itself, the pipe or flue E being for this purpose connected with the main pipe or flue A at the proper angle, and at any convenient or advantageous point, or from any other source.

The current of air, becoming charged or saturated with moisture by being thus brought into contact with the many jets of water or spray proceeding in the manner described from the tank or chamber D, rushes onward through the pipe or flue E to the similar tank or chamber H, in which the excess of moisture is collected, and by the current of air is forced through either holes alone perforated in that which forms the bottom of the tank or chamber H, or through holes in which tubes are inserted at the proper angle or angles, and discharged into the main pipe or flue A at that point which is most convenient or advantageous, where the moisture in the form of spray is again brought together with the air surcharged with moisture into immediate contact with a current of air—viz., the current which is passing through the main pipe or flue A—and by which the moisture is still further and more thoroughly taken up by absorption, or is otherwise diffused.

The excess of moisture is collected in the tank, chamber, or pocket I, connected in the proper manner with the main pipe or flue A on the under side, and at any point in the main pipe or flue A most convenient or advantageous, and discharged through the water-pipe J, which is made of any suitable material and furnished with the cock L, into the well, tank, cistern, or chamber, or elsewhere, as may be desired.

What we claim as our joint invention, and desire to secure by Letters Patent, is—

1. The chamber D, constructed as described, and combined with a pipe or flue used for introducing air into buildings, chambers, or apartments, substantially as and for the purposes set forth.

2. The chamber D, constructed as described, and combined with the pipe or flue A by means of the pipe or flue E, either alone or in connection with the tank or chamber H, substantially as and for the purposes set forth.

3. The pocket I, combined, as described, with the pipe or flue A and the water-pipe J, substantially as and for the purposes set forth.

4. The system of pipes, flues, and chambers consisting of the water-pipe F, the chamber D, the flue E, the tank or chamber H, the flue A, the pocket I, the water-pipe J, and the tank or reservoir M, for the purpose of producing pure warm or hot moist air, or pure cool moist air, for ventilating, warming, and supplying hot-air chambers, substantially as herein set forth.

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JOSEPH E. DICKSON.

Witnesses:
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G. H. RICHMOND.