(No Model.)

J. STRETCH.

APPARATUS FOR DISTILLING WATER.

No. 604,550 Patented May 24, 1898.

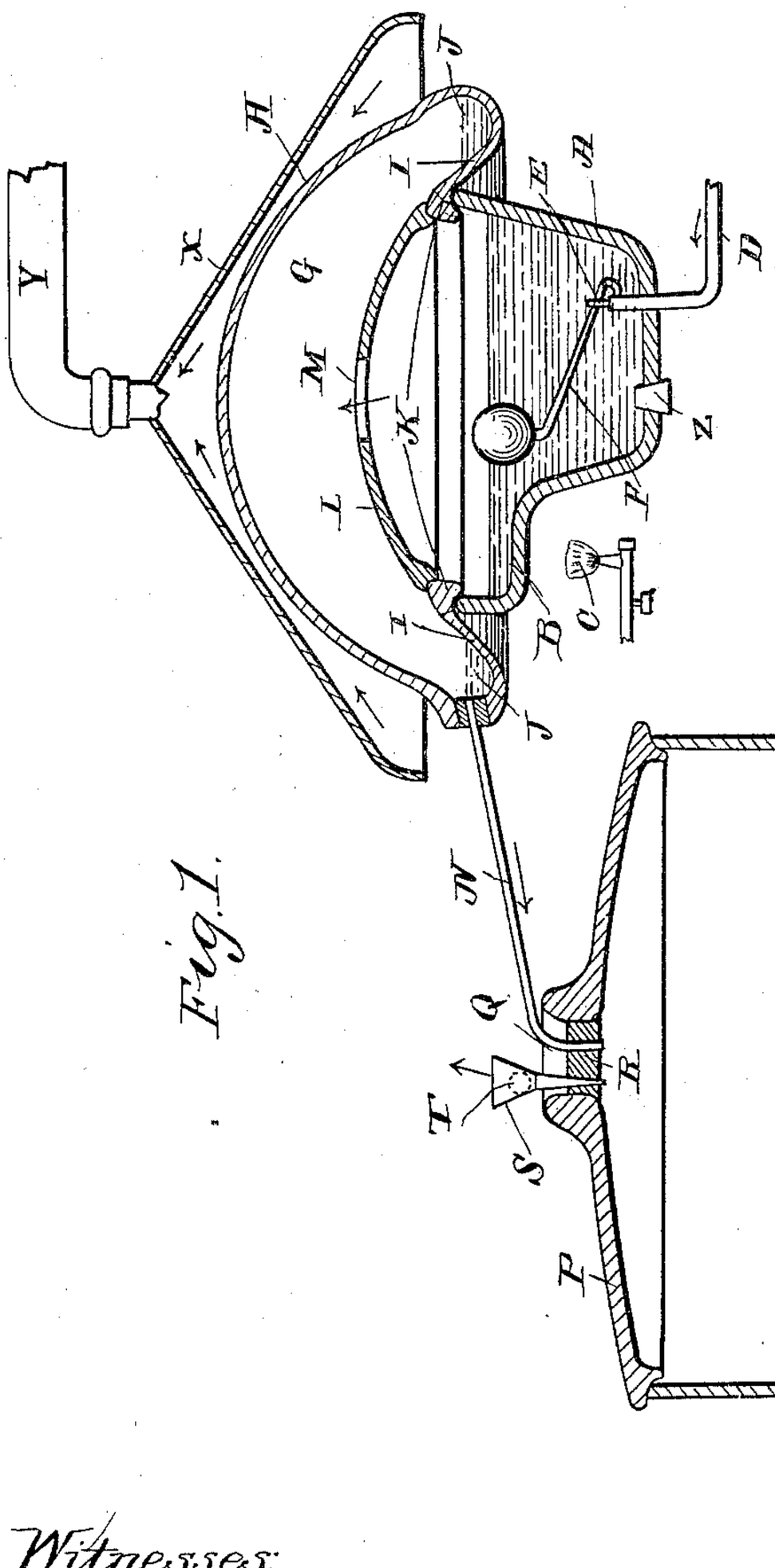

Fig. 1.

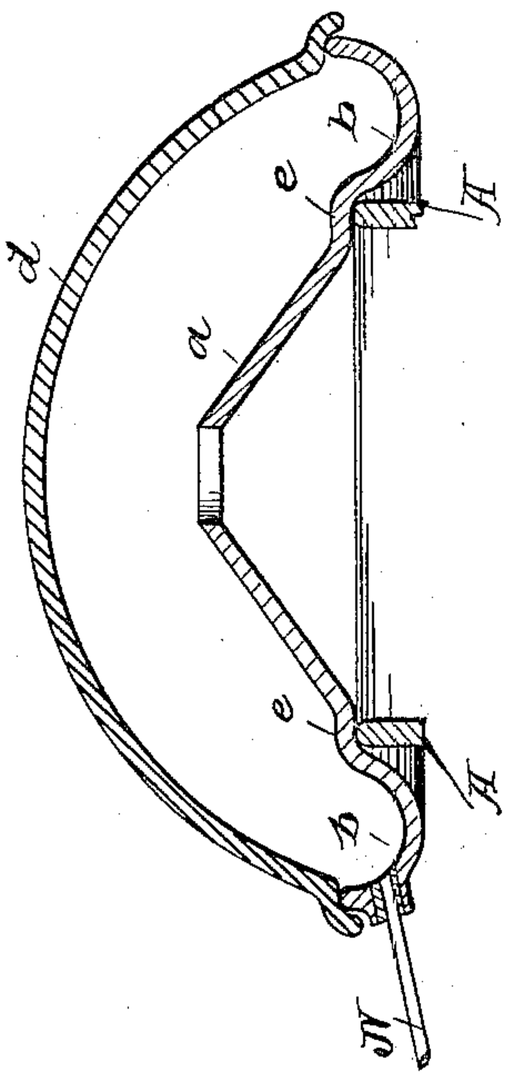

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH STRETCH, OF EAST ORANGE, NEW JERSEY.

APPARATUS FOR DISTILLING WATER.

SPECIFICATION forming part of Letters Patent No. 604,550, dated May 24, 1898.

Application filed June 29, 1897. Serial No. 642,874. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH STRETCH, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Apparatus for Distilling Water, of which the following is a specification.

My invention relates to a new and useful improvement in apparatus for distilling water, and has for its object to provide a simple, cheap, and effective apparatus by means of which water may be purified by being distilled or vaporized and condensed and conveyed to a suitable receptacle, from whence it may be withdrawn and, if desired, previously cooled for drinking purposes.

A further object of my invention is to bring about the operations thereof automatically, so as to require but little or no attention.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a section of an apparatus made in accordance with my improvement, and Fig. 2 a slightly-modified form of the condensing-dome.

In carrying out my invention as here embodied I provide a vaporizing-receptacle A, which is preferably oval in plan view upon its upper edge, while in cross-section a portion thereof is of greater depth than the offset B, the object of the latter being to provide a suitable surface for imparting heat to the water contained within this receptacle by a flame C of gas or other combustible. A supply-pipe D leads to the receptacle from a suitable water source. An automatic valve E is adapted to the inner end of the pipe D and is connected with a suitable float F, so that when the proper level of water is reached the valve will close by the upward movement of the float; but when this water-level has unduly fallen the valve will be again opened and a fresh supply of water admitted to the receptacle.

G represents the condensing-dome, which in Fig. 1 is shown as being composed of a semispherical casing H, having in and up turned portions I, whereby an annular catch-basin J is formed, and the portions I of this casing terminate in a flange or ledge K, adapted to fit upon the upper edge of the receptacle A, as clearly shown. A crown-plate L is adapted to fit and close the central opening to the dome and has therein a passage-way M, through which the vapors formed by the transmission of heat to the water pass to the dome, and, there being condensed, these vapors will be deposited within the catch-basin J.

Now I prefer that the receptacle A shall be of earthenware or such like material, while the dome-casing and crown-plate are of glass; but of course any other suitable material might be used for this purpose.

A glass or other suitable pipe N leads from the catch-basin to the reservoir or jar O, and this jar may also be closed, having a cover P tightly fitted thereto, through which is an opening Q, having a cork R fitted therein, and through this cork passes the lower end of the tube N and also the lower end of the valve-funnel S. This valve-funnel has passed therein a suitable valve T, so that should a pressure be created within the reservoir by the inflowing thereto of the vapors before being thoroughly condensed this valve will be lifted and said pressure thereby be relieved.

The reservoir-jar may be placed upon an ice-box U, having a drip-pipe V leading therefrom and suitable means of access in order that the water accumulating within said reservoir may be sufficiently lowered in temperature to serve for drinking purposes. A draw-off cock W leads from the reservoir for convenience in drawing the water therefrom.

To facilitate the condensation of the vapor reaching the dome G, a hood X, of metal or suitable material, is arranged thereover, leaving a space therebetween and the dome, and the top of this hood is connected by a pipe Y to the open atmosphere or chimney-flue, thereby creating a draft within the hood from the top of the dome for the purpose of carrying away the surplus heat from the dome, thereby facilitating the condensation therein. This

hood may be either entirely supported by the pipe Y or it may be partially supported by the dome through the intervention of other suitable contact devices.

From this description the operation of my improvement will be obviously as follows: Water having been first admitted through the pipe D to the vaporizing-receptacle A, the float will move upward until the proper water-level has been reached, whereupon the valve will be closed against further ingress of water, when then by igniting the gas, so as to produce the flame C, heat will be imparted to the water within the receptacle, vaporizing the latter, and said vapors will pass upward through the passage M, and when reaching the dome be greatly condensed and precipitated within the catch-basin, whence they will flow downward through the pipe N to the reservoir. When the vaporizing of the water has been carried on to such an extent as to unduly lower the level thereof, the downward movements of the float will again open the valve and permit a fresh supply of water to flow into the receptacle, and when the proper level is again established the automatic valve will shut off this flow, from which it will be seen that a continuous vaporizing condensation will be carried on so long as the flame is maintained with no care upon the part of any one.

The apparatus is easily cleaned by simply removing the dome from the vaporizing-receptacle, withdrawing the plug Z, and flushing out said receptacle.

It is to be noted that the water from the time it reaches the apparatus throughout its travel in vapor or waters of condensation comes in contact only with earthenware, glass, or cork, and therefore is in no way contaminated, but will be absolutely and chemically pure when reaching the reservoir, since no impurities can pass over in the process of distillation, and this is especially true if the flame C be maintained at a comparatively low degree, as the water need only reach the point of vaporization to bring about the desired results.

My improvement is especially adapted for household use; but it is also obvious that it may be used in hospitals and by druggists and chemists for providing distilled water.

One of the principal advantages of my improvement is its exceeding simplicity and the fact that but little or no care is required for its operation, and the further fact that the water gained for use thereby will be absolutely pure, since it has not only been heated to a degree to destroy animalcular life therein to produce sterilization, but is also freed from impurities held in mechanical suspension by the distillation.

In Fig. 2 I have shown a convenient way of manufacturing the dome, which consists in forming with the crown-plate *a* the catch-basin *b*, while the remainder of the dome-casing is formed of a single piece *d*, which fits upon the upturned edges of the catch-basin. The device is supported by the flat ledge *e*, which is formed between the crown-plate *a* and the catch-basin in such a shape as to be adapted to rest on the upper edge of the receptacle A.

Other slight modifications might be made herein without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In combination, a vaporizing-receptacle, a condensing-dome having a hemispherical top, an annular catch-basin around the inside of the top, a flange or ledge surrounding the basin, a crown-plate having a central opening, said plate being so arranged that a space is formed between it and the top, said top and plate being separable, as and for the purpose set forth.

2. In combination, a hemispherical dome of earthenware, an annular catch-basin formed around the inside of the base of the dome, a flange or ledge projecting around the edge of the basin, a crown-plate having a central opening, said plate resting on the edge of the catch-basin and a vaporizing-receptacle on the upper edge of which the flange or ledge of the catch-basin is adapted to rest, substantially as set forth.

3. In combination, a vaporizing-receptacle oval in cross-section, a hemispherical dome of earthenware, an annular catch-basin formed with said dome around the inside lower edge thereof, a downwardly-projecting flange or ledge around the edge of the catch-basin which is adapted to rest on the upper edge of said receptacle, a crown-plate having a central opening, said crown-plate being adapted to rest on the edge of the catch-basin, a draft-hood arranged to inclose the dome so that a space is left therebetween and the dome, and means for automatically supplying water to said receptacle, as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOSEPH STRETCH.

Witnesses:
FRANK H. TAYLOR,
S. S. WILLIAMSON.