No. 790,901. PATENTED MAY 30, 1905.

E. B. KEITH.

WATER STILL.

APPLICATION FILED NOV. 5, 1902.

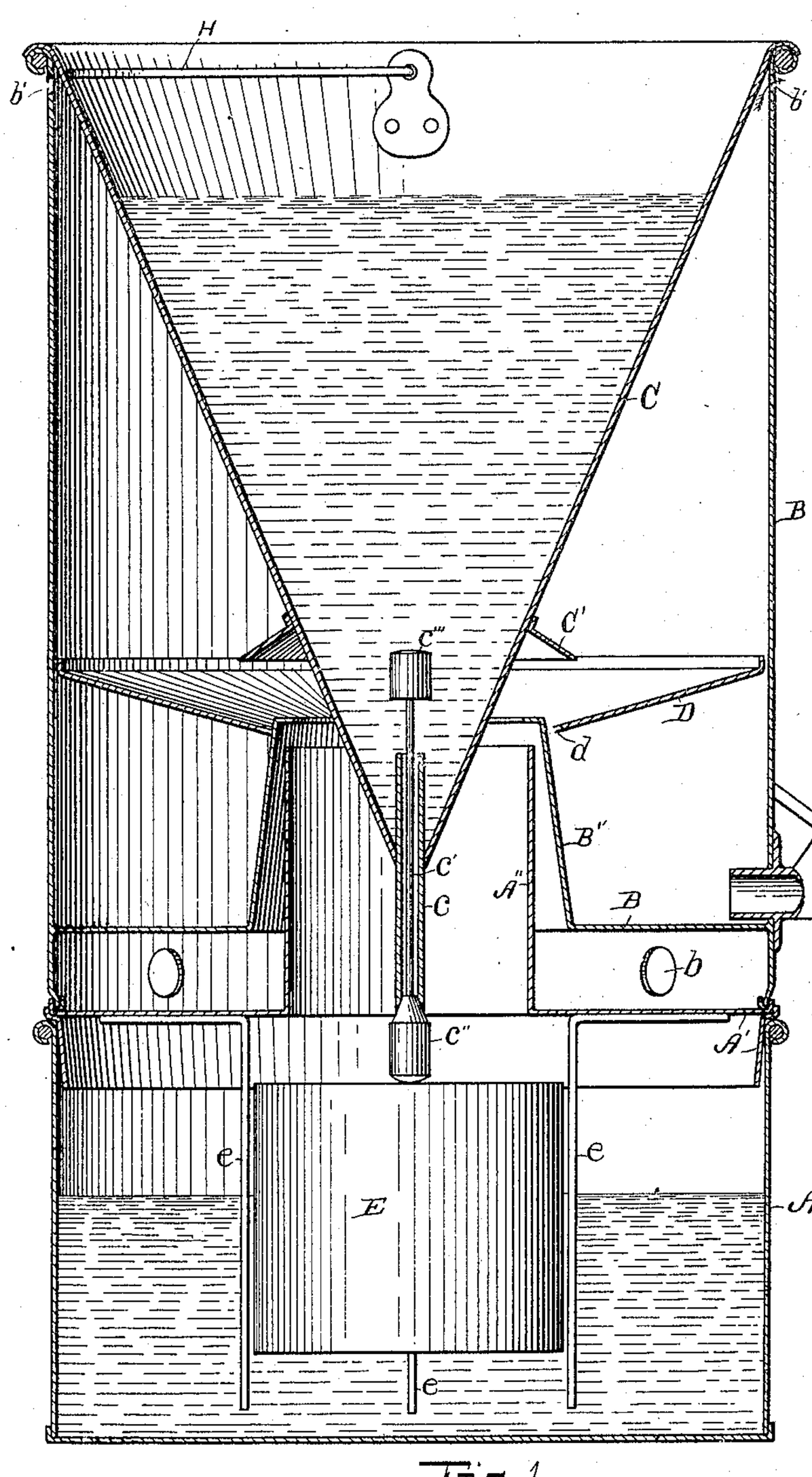

Fig. 1.

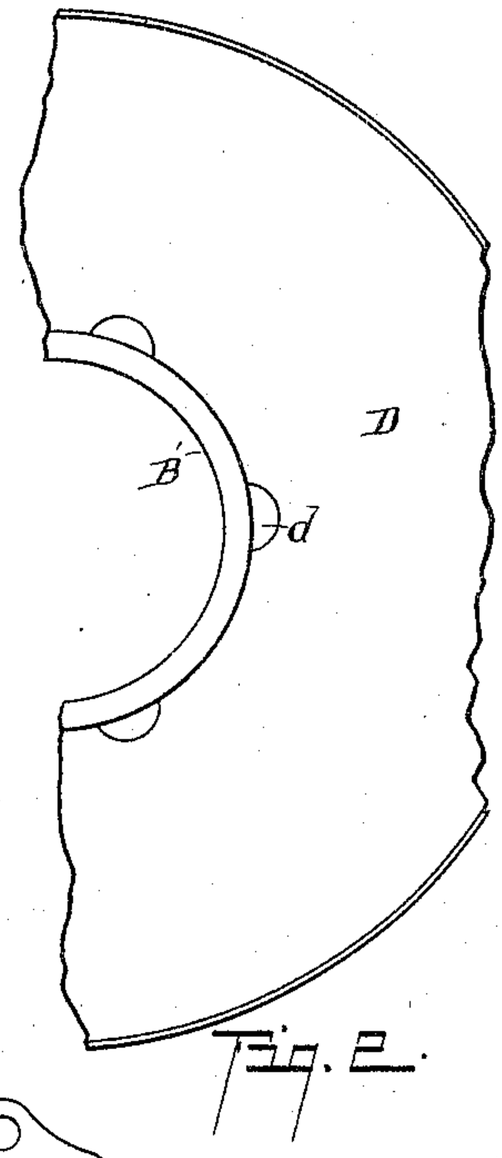

Fig. 2.

Witnesses:

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Att'y.

No. 790,901. Patented May 30, 1905.

UNITED STATES PATENT OFFICE.

ETHAN B. KEITH, OF GALESBURG, MICHIGAN.

WATER-STILL.

SPECIFICATION forming part of Letters Patent No. 790,901, dated May 30, 1905.

Application filed November 5, 1902. Serial No. 130,206.

To all whom it may concern:

Be it known that I, ETHAN B. KEITH, a citizen of the United States, residing at the village of Galesburg, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Water-Stills, of which the following is a specification.

This invention relates to improvements in water-stills.

The objects of this invention will clearly appear from the following specification and description of the structure.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail central sectional view through a structure embodying the features of my invention. Fig. 2 is a detail plan view of the partition-plate D between the condensing-chamber and the distilled-water reservoir and adjacent parts.

In the drawings similar letters of reference refer to similar parts throughout both views.

Referring to the drawings, A is the retort or water-evaporating receptacle. The retort A is provided with a cover A′, provided with an upwardly-extending centrally-located tube A″ for delivering the vapor or steam to the condensing-chamber above. Above the retort A is a receptacle B, which is divided by the partition-plate D into a condensing-chamber and a distilled-water reservoir. The bottom B′ of the receptacle B is provided with an upwardly-extending tubular part B″, open at the top and adapted to surround the vapor-conducting tube A″. This forms an air-space between the retort and the distilled-water reservoir and prevents to a large extent the heat of the retort affecting the reservoir. This feature is of great value. Air is supplied to this air chamber or space through perforations *b* in the walls of the receptacle B, and the air is delivered upwardly by the air-tube B″ into the condensing-chamber to aerate the vapor.

Supported within the receptacle B is the condensing-water reservoir C. The condensing-water reservoir is arranged to automatically supply the retort with water. This reservoir is funnel-shaped, and its lower end extends into the vapor-tube A″. In the lower end of the reservoir C is a delivery-pipe *c*. A valve *c*″ is provided to control the delivery of water therefrom. The valve *c*″ is secured to a rod *c*′, which extends through the pipe and has a head *c*‴ to retain it. The valve rests on and is controlled by the float E in the retort. The float is retained in position under the valve by guides *e*, which project downwardly from the cover of the retort. When the water is lowered in the retort, the falling of the float permits the valve *c*″ to open and water flows in from the condensing-water reservoir until the retort is again filled to the desired point. It is therefore only necessary to supply water to the condensing-reservoir C, and the retort is automatically supplied.

The partition-plate D between the condensing-chamber and the distilled-water chamber is concaved in form and embraces and is supported by the air-conducting tube B″. The plate D is perforated at *d* to admit the water to the distilled-water reservoir below. A suitable faucet, as F′, is provided for the distilled-water reservoir.

In operation vapor or steam is generated in the retort and passes up through the tube A″ into the condensing-chamber above, where it is condensed, principally upon the sides of the condensing-water reservoir C, where it flows down onto the plate D and into the distilled-water reservoir. A deflector C′ is provided on the condensing-water receptacle to deflect the water from the air and vapor tubes. The partition-plate D keeps the vapor from coming in contact with the distilled water and prevents the heating of the same and the undesirable effects of the vapor or steam. The air-chamber between the retort and water-reservoir prevents the heat of the retort from materially affecting the distilled-water reservoir. Should the distilled-water reservoir overflow, it will empty into the retort. The openings *b*′ at the top of the condensing-water reservoir allow the gases generated in the retort to escape. This makes the circulation complete. By this arrangement of the parts my improved still can be quickly taken apart for cleansing, as the condensing-water reservoir C can be lifted out, a bail H being pro-

vided for that purpose, the partition-plate D removed, the receptacle removed from the retort, and the cover of the retort and the float E removed. It is apparent that this can be quickly done and that the parts can be readily reassembled by an inexperienced person.

The capacity of my improved still is very great in proportion to its size. It is also light and convenient to handle and operate. It is only necessary for the user to supply the water-condensing reservoir with water, and the retort will be automatically supplied. The distilled-water reservoir is separated from the condensing-chamber, so that the same is kept comparatively cool and free from contact with the vapor or steam. The condensing-chamber is also supplied with air, so that the distilled water is thoroughly aerated. The air-chamber between the retort and the distilled-water reservoir prevents heating of the distilled water from the retort.

I have illustrated and described my improved water-still in the form preferred by me on account of its simplicity and economy in manufacture and convenience in use. I am aware, however, that it is capable of considerable variation in its structural details without departing from my invention.

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

1. In a still, the combination of a retort A; a cover A′ therefor having an upwardly-extending vapor-conducting tube A″ thereon; a receptacle B above said retort having a bottom B′ provided with an upwardly-projecting tubular portion B″ surrounding said vapor-conducting tube A″; an air-chamber between said bottom B′ and said retort; openings *b* in said receptacle below said bottom for supplying air to said air-chamber; a concaved partition-plate D having perforations *d* therein for separating said receptacle B into a condensing-chamber and a distilled-water reservoir carried by the tubular portion B″ of the bottom of said receptacle; suitable ventilating-openings toward the top of said condensing-chamber; a funnel-shaped condensing-water reservoir C supported within said condensing-chamber and projecting into said vapor-conducting tube A″; a delivery-tube *c* for said condensing-water reservoir; a valve *c*″ for said tube; a float E in said retort on which said valve rests for controlling the same; and downwardly-projecting guides *e* for said float carried by the cover of said retort, all coacting for the purpose specified.

2. In a still, the combination of a retort A; a cover A′ therefor having an upwardly-extending vapor-conducting tube A″ thereon; a receptacle B above said retort having a bottom B′ provided with an upwardly-projecting tubular portion B″ surrounding said vapor-conducting tube A″; an air-chamber between said bottom B′ and said retort; openings *b* in said receptacle B below said bottom for supplying air to said air-chamber; a concaved partition-plate D having perforations *d* therein for separating said receptacle B into a condensing-chamber and a distilled-water reservoir carried by the tubular portion B″ of the bottom of said receptacle; suitable ventilating-openings toward the top of said condensing-chamber; a funnel-shaped condensing-water reservoir C supported within said condensing-chamber and projecting into said vapor-conducting tube A″; a valve for controlling the delivery of water from said reservoir to said retort; and a float in said retort for controlling said valve, for the purpose specified.

3. In a still, the combination of a retort A; a cover A′ therefor having an upwardly-extending vapor-conducting tube A″ thereon; a receptacle B above said retort having a bottom B′ provided with an upwardly-projecting tubular portion B″ surrounding said vapor-conducting tube A″; an air-chamber between said bottom B′ and said retort; openings *b* in said receptacle below said bottom for supplying air to said air-chamber; a concaved partition-plate D having perforations *d* therein for separating said receptacle B into a condensing-chamber and a distilled-water reservoir, carried by the tubular portion B″ of the bottom of said receptacle; suitable ventilating-openings toward the top of said condensing-chamber; a funnel-shaped condensing-water reservoir C supported within said condensing-chamber and projecting into said vapor-conducting tube A″; a valve at the apex of said cone for controlling the delivery of water to said retort, for the purpose specified.

4. In a still, the combination of a retort A; a cover A′ therefor having an upwardly-extending vapor-conducting tube A″ thereon; a receptacle B above said retort having a bottom B′ provided with an upwardly-projecting tubular portion B″ surrounding said vapor-tube A″; an air-chamber between said bottom B′ and said retort; openings *b* in said receptacle B below said bottom for supplying air to said air-chamber; a concaved partition-plate D having perforations *d* therein for separating said receptacle B into a condensing-chamber and a distilled-water reservoir, carried by the tubular portion B″ of the bottom of said receptacle; suitable ventilating-openings toward the top of said condensing-chamber; a funnel-shaped condensing-water reservoir C supported within said condensing-chamber and projecting into said vapor-conducting tube A″; a valve for controlling the delivery of water from said reservoir to said retort, for the purpose specified.

In witness whereof I hereunto set my hand and seal in the presence of two witnesses.

ETHAN B. KEITH. [L. S.]

Witnesses:

ETHEL A. TELLER,

OTIS A. EARL.