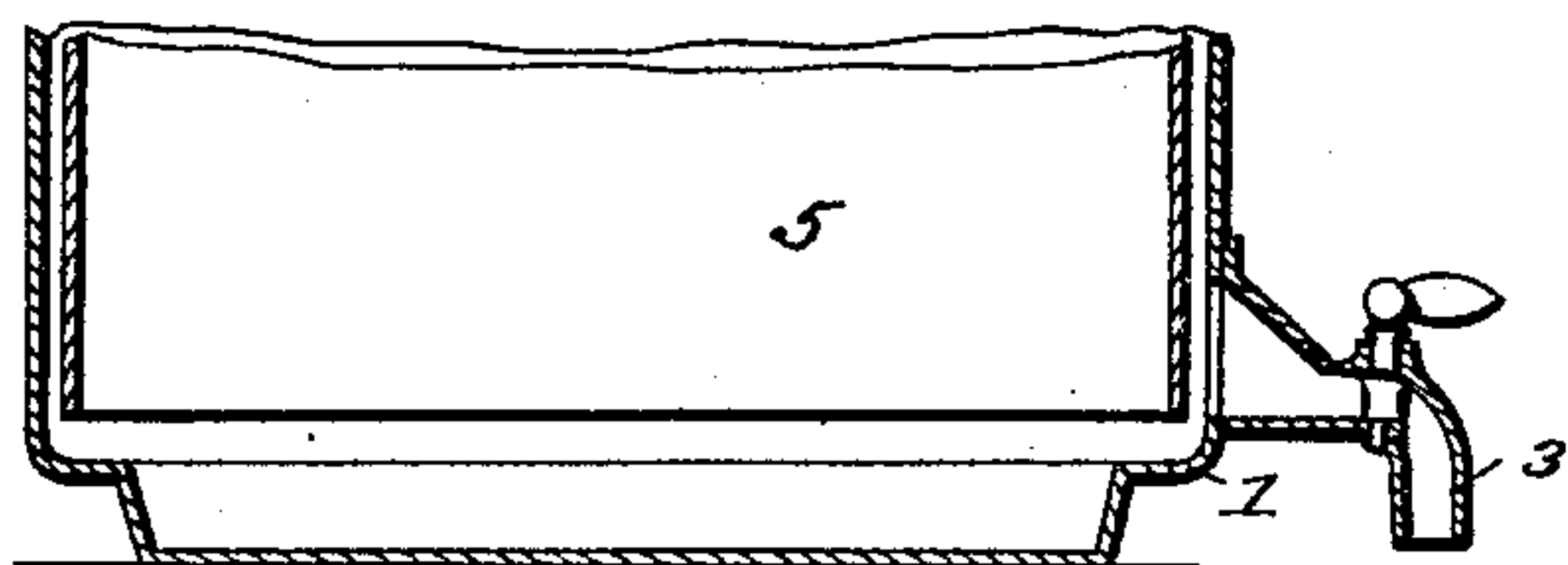
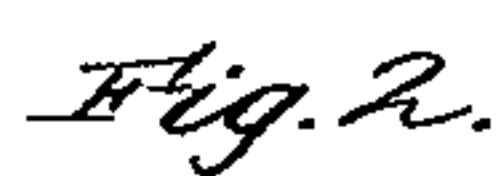
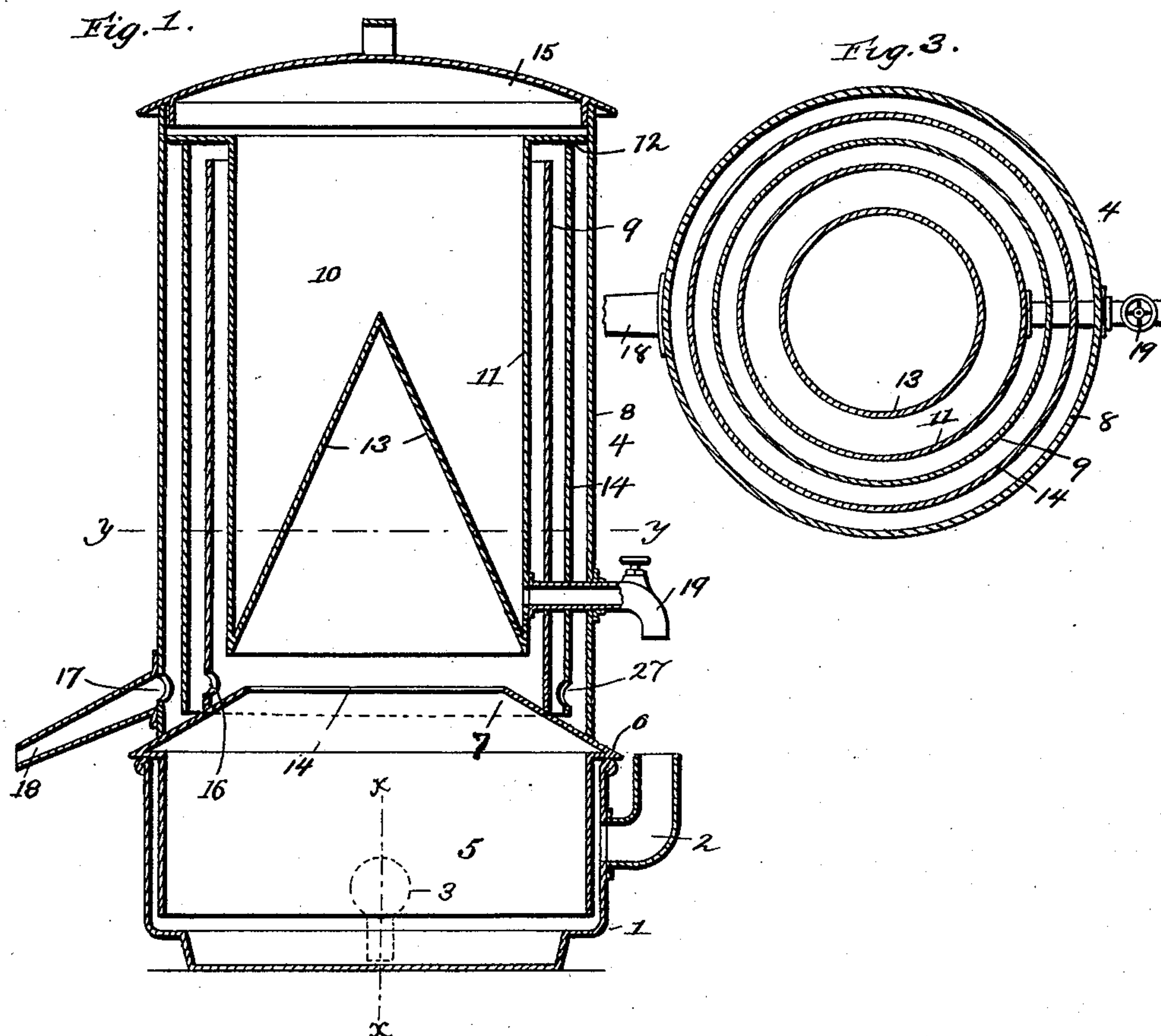


(No Model.)

W. O. PIERCE & B. F. BIGELOW.  
WATER DISTILLING APPARATUS.

No. 587,506.

Patented Aug. 3, 1897.



*Witnesses:*

~~Chas. Ruder~~  
W. A. James

*Inventors*

B. F. Bigelow &  
W. O. Pierce  
By James Shuey  
Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM O. PIERCE AND BENJAMIN F. BIGELOW, OF GRIDLEY,  
CALIFORNIA.

## WATER-DISTILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 587,506, dated August 3, 1897.

Application filed May 21, 1896. Serial No. 592,464. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM O. PIERCE and BENJAMIN F. BIGELOW, citizens of the United States, residing at Gridley, in the county of Butte and State of California, have invented certain new and useful Improvements in Water-Distilling Apparatus; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in water-distilling apparatus, and its novelty and many advantages will be fully understood from the following description and claim, when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a vertical diametrical section of our improved apparatus. Fig. 2 is a detail diametrical section taken in the plane indicated by the line  $xx$  of Fig. 1, and Fig. 3 is a horizontal section taken in the plane indicated by the line  $yy$  of Fig. 1.

In the said drawings similar numerals designate corresponding parts in all of the several views, referring to which—

1 indicates the kettle of our improved apparatus, which is designed to be placed in a stove-hole or upon a gas or gasoline stove, and is provided with an upwardly-extending filling-tube 2 and with a draw-off cock or faucet 3, and 4 indicates the distilling-drum, which is arranged upon the kettle 1, as shown. This distilling-drum may be formed of any suitable material, but we prefer to form it of sheet metal and have it comprise the base-section 5, which depends into the kettle 1, so as to form a water seal, and has the flange 6, which bears on the kettle 1, and also has the inwardly and upwardly directed annular wall 7; the outer wall 8, which is connected by solder or otherwise to the section 5; the partition-wall 9, which is connected to and rises from the wall 7 and is of a less height than the outer wall 8; the cool-water receptacle or condenser 10, which has the side wall 11, connected at its upper end by a flange 12 with the outer wall 8, and also has the cone-shaped bottom 13; the outer partition-wall 14, which is connected to and depends from the flange or annular horizontal wall 12 to a point adja-

cent to the inclined or canted wall 7, and the removable cover 15, which is preferably provided with a flange to take within the wall 8, upon which it rests.

The partition-wall 9 is provided adjacent to the wall 7 with an aperture 16, and at a diametrically opposite point the outer partition-wall 14 is provided in its lower edge with a notch 27. This notch 27, which is of the proportional height illustrated, is arranged at a diametrically opposite point with respect to a spout 18, connected to the outer wall 8 and communicating with an opening 17 therein, and said spout is arranged at about the proportional height shown, so as to enable the water of condensation to form a seal and thereby prevent steam from passing between the wall 14 and the wall 7, except through the notch or opening 27.

In the practical operation of our improved apparatus the kettle 1 is filled with water and placed upon a stove and the distilling-drum 4 is placed on the kettle, the section 5 depending into the kettle, as shown in Fig 1, so as to form a water seal and thereby effectually prevent the escape of steam between the kettle and the distilling drum. The condenser 10 is also filled with cold water, and consequently it will be seen that when the water in the kettle is converted into steam and such steam rises against the cone-shaped bottom 13 of the condenser it will in virtue of the large condensing-surface formed by said bottom be quickly condensed. The distilled water or water of condensation thus formed will drip from the lower edge of the condenser-bottom 13 onto the inclined or canted wall 7, and passing through the aperture 16 of the said wall 9 and the wall 7, the partition-wall 14, and through the aperture 27 of said wall 14 will enter the spout 18 and will be discharged therefrom into a receptacle placed to receive it. A portion of the steam rising from the kettle 1 passes up between the partition-wall 9 and the condenser-wall 11, and being quickly converted into water of condensation passes down the wall 11 and drips upon the wall 7, after which it takes the course before described to the discharge-spout 18. The remainder of the steam from the kettle 1 takes a tortuous course upwardly between



the partition-wall 9 and condenser-wall 11 and downwardly between the partition-wall 9 and the outer partition-wall 14, and by the time it reaches the canted wall 7 it also is condensed or converted into water of condensation and passes to and out through the aperture 17 and spout 18. Some of the steam from the kettle may pass through the aperture 16 of wall 9, but it is prevented from passing between the lower edge of the wall 14 and the wall 7 by the water, which, as before described, collects on the wall 7 and forms a seal and is consequently compelled to pass around between the wall 14 and the wall 8 before reaching the spout 18, so as to insure its being condensed before reaching said spout.

As the water in the condenser becomes warm, it may be readily drawn from the same through the draw-off cock or faucet 19, which communicates with the condenser and extends through the walls 9, 14, and 8 of the distilling-drum, as shown, and fresh cool water may then be placed in the condenser by simply removing the cover 15 and pouring the water from a pail into the condenser.

It will be observed from the foregoing that our improved apparatus, while capable of distilling a considerable quantity of water in a short space of time, is very simple and compact in construction, and it will also be observed that the apparatus takes up no more room than an ordinary kettle and may therefore be used upon a kitchen-stove in lieu of the ordinary kettle. When so used, it will be appreciated that the apparatus will not only afford a plentiful supply of pure distilled water, but also a supply of boiling water and a supply of warm water, it being simply necessary when boiling water is wanted to draw it from the kettle 1, through the faucet 3, and when warm water is wanted to draw it from the condenser 10, through the faucet 19.

When necessary, the supply of water in the kettle 1 may be replenished without removing the distilling-drum from the kettle, it being simply necessary to pour the fresh supply into the filling-tube 2.

From the foregoing description it will be seen that we have provided a highly efficient distilling apparatus and one that is very simple and compact in construction, and also that we have provided a distilling apparatus which is designed for family use, as it takes up no more room on a stove than an ordinary kettle and serves the purpose of a kettle.

Having described our invention, what we claim is—

A distilling-drum for use upon a kettle comprising essentially the inwardly and upwardly inclined, annular walls 7, the outer wall 8, connected to and rising from the wall 7, and having the discharge-aperture 17, adjacent to the wall 7, the central condenser 10, arranged above the annular wall 7, and having its upper end open and also having the cone-shaped bottom of larger diameter than the inner edge of the wall 7, the horizontal, annular wall 12, connecting the upper end of the condenser 10, and the outer wall 8, the inner partition-wall 9, surrounding the condenser 10, and connected to the wall 7, and extending up to a point adjacent to the wall 12, and having the aperture 16, adjacent to its lower end and also adjacent to the discharge-aperture 17, in wall 8, and the outer partition-wall 14, connected to the wall 12, and extending down to a point adjacent to the wall 7, and having the notch 27, in its lower end and at the point farthest from the aperture 16, in wall 9, and the discharge-aperture 17, in outer wall 8, whereby water of condensation collecting upon the annular wall 7, will prevent the passage of steam between the lower end of wall 14, and the wall 7, and compel the steam to take passage through the notch 27, all substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM O. PIERCE.

BENJAMIN F. BIGELOW.

Witnesses:

T. R. SLIGAR,

J. W. LONG.