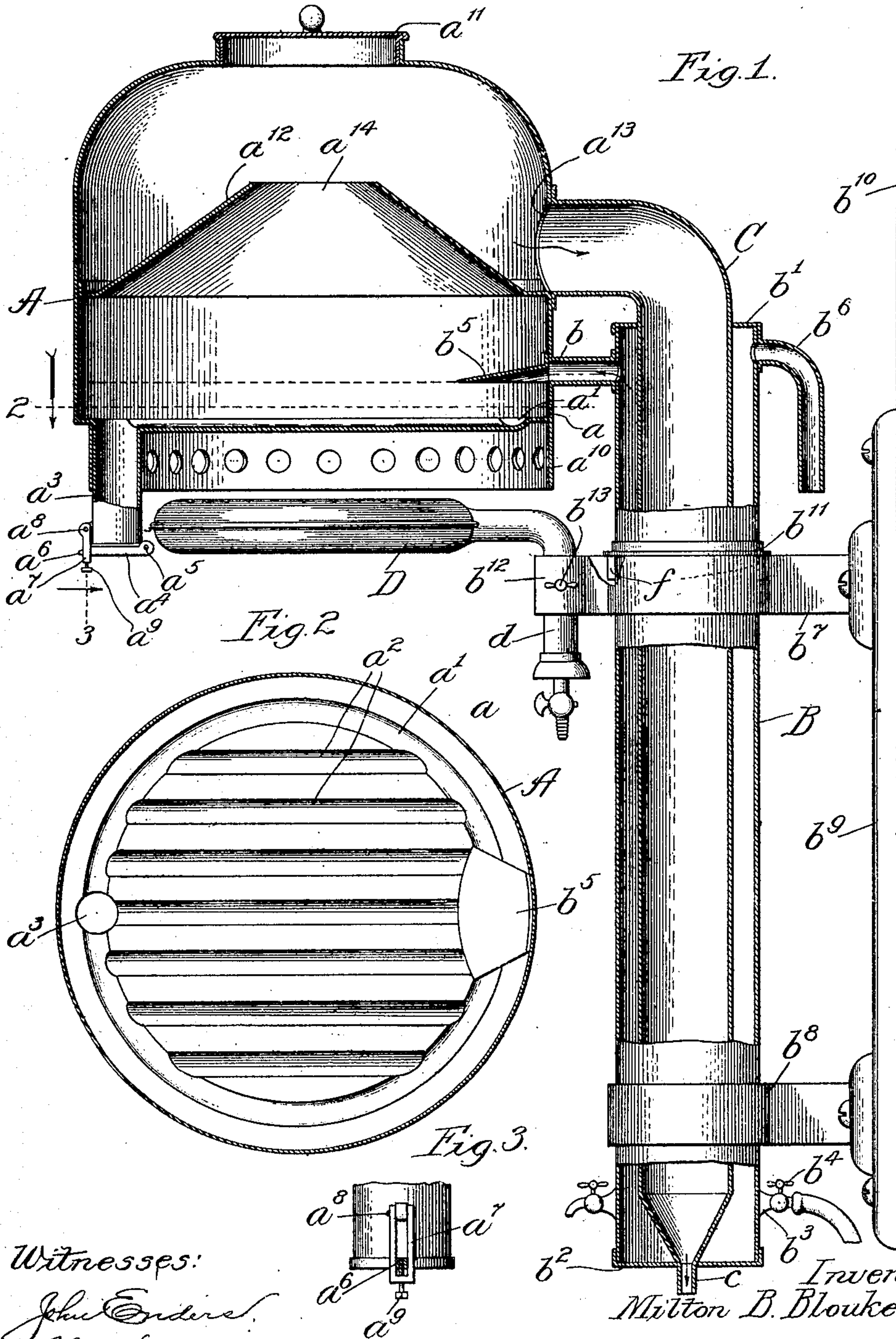


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DISTILLING APPARATUS.  
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919,685.

Patented Apr. 27, 1909.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## DISTILLING APPARATUS.

No. 919,685.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed September 12, 1907. Serial No. 392,438.

*To all whom it may concern:*

Be it known that I, MILTON B. BLOUKE, a citizen of the United States, residing at 1222 Washington Boulevard, Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Distilling Apparatus, of which the following is a specification.

My invention relates particularly to water-distilling apparatus for domestic purposes; and my primary object is to provide improved apparatus of the character indicated of simple and inexpensive construction and having features of improvement providing for economical operation and for readily cleansing or flushing the boiler of the apparatus.

The invention is illustrated in its preferred embodiment in the accompanying drawing, in which—

Figure 1 represents a sectional view of a water-distilling apparatus constructed in accordance with my improvements; Fig. 2, a section of the boiler of the apparatus taken as indicated at line 2 of Fig. 1; and Fig. 3, a sectional view taken as indicated at line 3 of Fig. 1 and showing the detail of the means employed for securing the closure of the flush-pipe with which the boiler is provided.

In the construction illustrated, A represents a boiler; B, a vertically-disposed pipe which constitutes a water-jacket and inlet-conduit which is in communication at its upper end, through a tube *b*, with the lower portion of the boiler; C, a condensing-pipe having connection with the upper portion of the boiler; and D, a burner or heater located beneath the boiler and adjustable with relation thereto.

The boiler may be of any approved shape and construction. It is provided with a corrugated bottom *a* which is provided near its periphery with a circumferential channel *a*<sup>1</sup> which is intersected by parallel corrugations *a*<sup>2</sup>. The bottom is equipped with a flush-pipe *a*<sup>3</sup> which is located opposite the inlet *b* and opens into the circumferential channel *a*<sup>1</sup>. The lower end of the pipe *a*<sup>3</sup> is equipped with a cap *a*<sup>4</sup> supported on a pivot *a*<sup>5</sup>. The cap *a*<sup>4</sup> is provided at its edge opposite the pivot *a*<sup>5</sup> with a lug *a*<sup>6</sup> engaged by a yoke *a*<sup>7</sup> whose upper end is supported by a pivot *a*<sup>8</sup>. The lower end of the yoke *a*<sup>7</sup> is provided with a screw *a*<sup>9</sup> which enables the cap *a*<sup>4</sup> to be securely clamped over or against the lower end of the flush-pipe *a*<sup>3</sup>. A wind-shield *a*<sup>10</sup> de-

pends from the bottom of the boiler and serves to shield the flame from the burner D. The boiler is equipped with a removable top *a*<sup>11</sup> and is provided internally with a hollow frusto-conical member *a*<sup>12</sup> whose base-portion is joined by a water-tight connection to the inner surface of the cylindrical wall of the boiler beneath the steam and water outlet *a*<sup>13</sup>. The apex of the member *a*<sup>12</sup> is cut away to provide a central opening *a*<sup>14</sup> which is located beneath the movable top *a*<sup>11</sup>, thus providing for access to the bottom of the boiler.

The pipe or cylinder B is provided with an apertured upper cap *b*<sup>1</sup> through which the pipe C extends and has water-tight connection. Said pipe B is provided with a lower cap *b*<sup>2</sup> through which extends the reduced lower end *c* of the pipe C. A water-inlet *b*<sup>3</sup> is provided at the lower end of the pipe B, and this inlet is controlled by a valve *b*<sup>4</sup>. Within the boiler at the orifice of the tube *b* is a water-deflector *b*<sup>5</sup> which is located above said orifice and is of concave fan-tail shape, adapted to spread the water and deflect it against the bottom of the boiler when water is admitted under full pressure for flushing purposes. The pipe B is provided with an over-flow tube *b*<sup>6</sup>, which determines the height of the water in the boiler.

The boiler is supported by the pipe C and tube *b* through the medium of the pipe or jacket B. The pipe B is supported by brackets *b*<sup>7</sup>, *b*<sup>8</sup>, which encircle it and are supported by a plate *b*<sup>9</sup> which is shown connected with a vertical wall *b*<sup>10</sup>, which may constitute a wall of a kitchen sink. The pipe B is provided with a collar *b*<sup>11</sup> which rests upon the upper bracket *b*<sup>7</sup>. The bracket *b*<sup>7</sup> has a forward extension *b*<sup>12</sup> which has a vertical passage or socket which receives the stem of the burner D. A thumb-screw *b*<sup>13</sup> serves for vertical adjustment of said burner.

The burner or heater D may be of any desired type, being preferably either a gas burner or an electric heater.

The operation will be readily understood from the foregoing detailed description. Water is admitted to the pipe B from the inlet *b*<sup>3</sup>, the admission being regulated by the valve *b*<sup>4</sup>, according to the evaporating capacity of the boiler. Steam passes through the opening *a*<sup>14</sup> of the cone *a*<sup>12</sup>, and a portion of the steam is condensed in that chamber of the boiler which is located above said cone, the water thus formed running off through



the pipe C. The remainder of the steam is condensed as it passes off through the pipe C. The water entering the boiler is preliminarily warmed as it wells up through the jacket B.

5 When it is necessary to flush the boiler, which is advisably done after each distilling operation, the closure  $a^4$  of the flush-pipe is thrown open and water is admitted under full force through the inlet  $b$  of the boiler, being spread by the deflector  $b^5$  over the bottom and running through the corrugations into the circumferential channel  $a^1$ , whence it escapes through the flush-pipe. The bottom of the boiler is usually of copper, which tends

15 by its properties of contraction and expansion to prevent the formation of scale, and the provision for complete flushing which is made in the apparatus insures cleanliness of the bottom of the boiler, thereby tending to economy of operation. The corrugations of the bottom provide for contact of a larger area of heated surface with the water, also. The cone  $a^{12}$  serves to prevent such portion of the steam as may condense, owing to contact with the upper walls of the boiler, from

25 flowing back to the bottom of the boiler, thereby obviating such loss as might arise from re-evaporation of the water. The adjustability of the burner D enables the hottest part of the flame to be brought into contact with the bottom of the boiler, regardless of the variation in gas pressure which is encountered in different localities. The flush-pipe  $a^3$  preferably extends beneath the lever

30 of the burner, so as to be readily accessible.

From the foregoing it will be understood that my improved apparatus is very economical in operation, simple of construction and is readily cleansed, which tends to

40 greater durability.

In order to prevent the apparatus from turning about the axis of the pipe B, which might result in bringing the flame in dangerous proximity to the wall which supports the

apparatus, I provide the pipe B with lugs  $f$  45 which enter internal recesses or grooves with which the ring-portion of the bracket  $b^7$  is provided.

The foregoing detailed description has been given for clearness of understanding 50 only, and no undue limitation is to be understood therefrom.

What I regard as new, and desire to secure by Letters Patent, is—

1. In distilling-apparatus, the combination of a boiler having a bottom provided adjacent to one side of the boiler with a flushing discharge-port, a water-inlet conduit connected with the opposite side of the boiler near the bottom thereof, and a deflector at 60 the orifice of the water-inlet serving to deflect the water against the bottom of the boiler in the flushing operation.

2. In distilling-apparatus, the combination of a boiler provided with a corrugated 65 bottom and a flushing discharge-port, a water-inlet conduit connected with the boiler opposite the flushing discharge-port, and a deflector at the orifice of the water-inlet serving to direct the water through the corrugations of the boiler-bottom in the flushing operation. 70

3. In distilling-apparatus, the combination of a boiler, a flush-pipe depending from the bottom of the boiler near one side of the boiler and equipped at its lower end with a withdrawable closure, a water-pipe or jacket having its upper end connected with the opposite side of the boiler near the bottom thereof, and a burner located beneath the boiler-bottom and extending to near said flush-pipe, said water-pipe and flush-pipe extending beneath said burner. 80

MILTON B. BLOUKE.

In presence of—

RALPH SCHAEFER,  
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