

G. E. SAVAGE & J. W. CHAPMAN.

VAPOR STOVE.

APPLICATION FILED APR. 29, 1907.

913,649.

Patented Feb. 23, 1909.

4 SHEETS—SHEET 1.

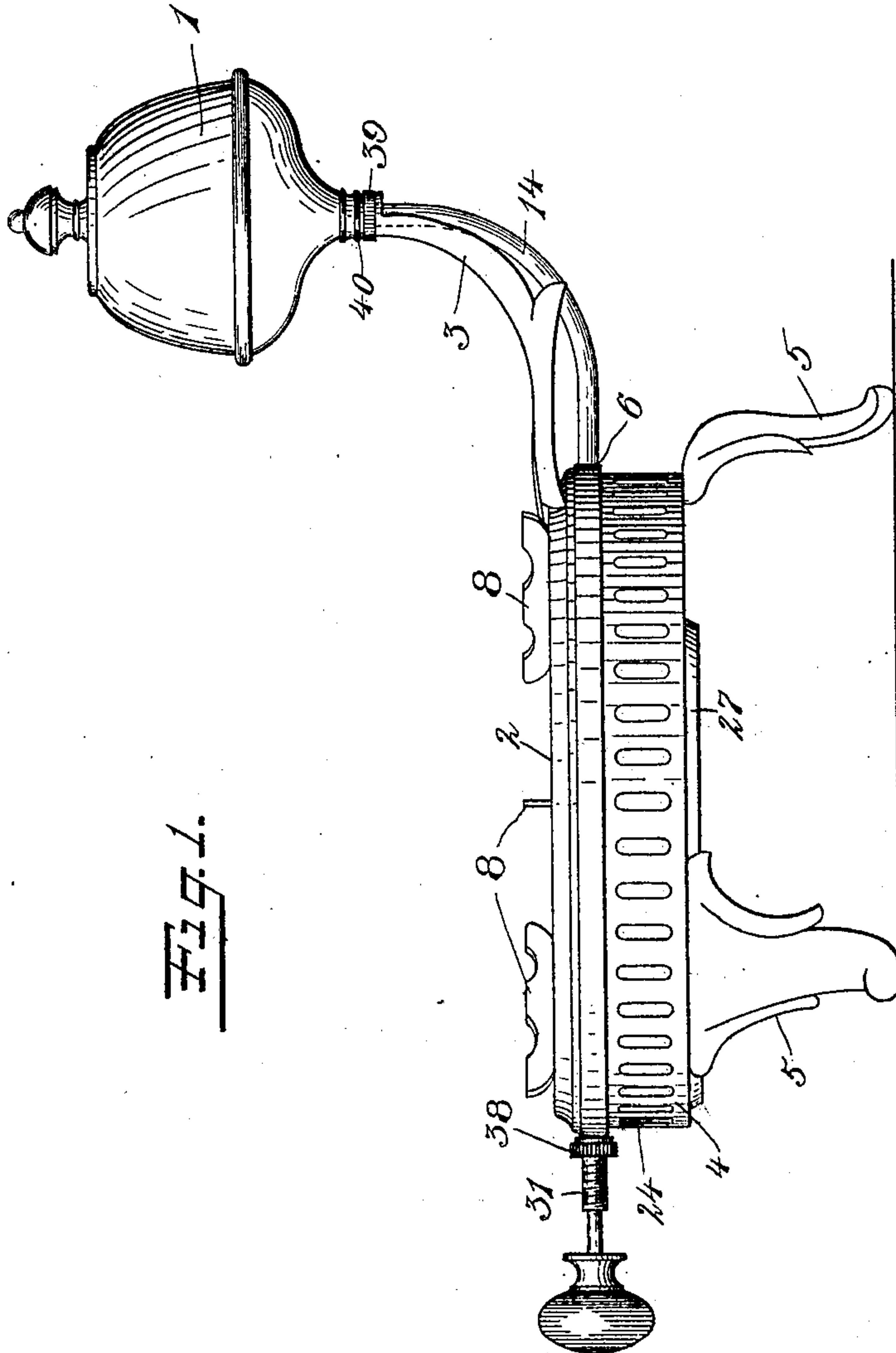


Fig. 1.

Witnesses:
Chas. M. Reed
Langdon Moore

G. E. SAVAGE Inventors
J. W. CHAPMAN
By their Attorneys
Paul & O'Brien

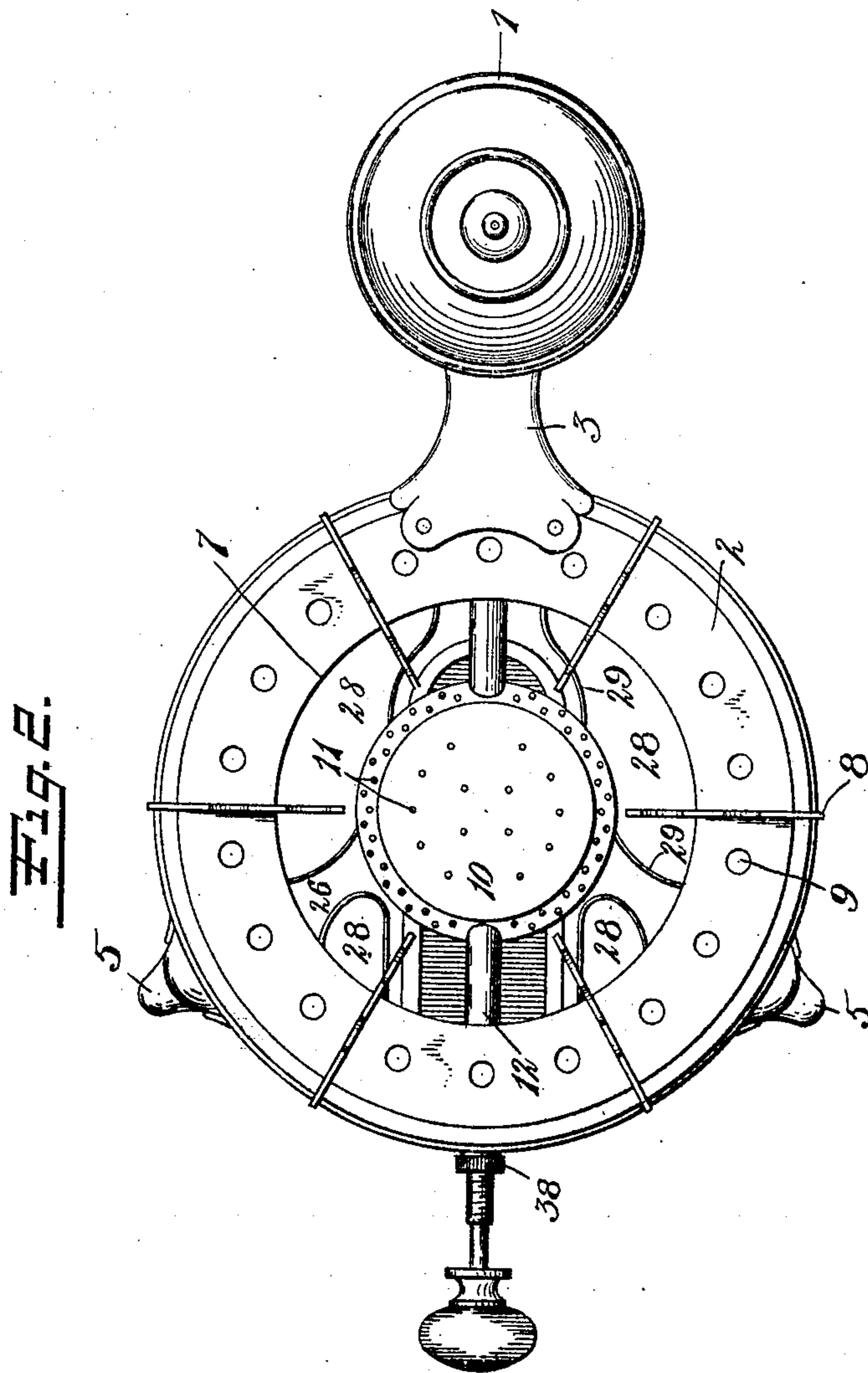
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4 SHEETS—SHEET 2.



Witnesses:
Charles R. ...
Langdon Moore

G. E. SAVAGE Inventors
J. W. CHAPMAN
By their Attorneys
Paul B. ...

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4 SHEETS—SHEET 3.



G. E. SAVAGE Inventors

J. W. CHAPMAN
By *John J. Thorneys*
Samuel Amos Sturges

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4 SHEETS—SHEET 4.

Fig. 5.

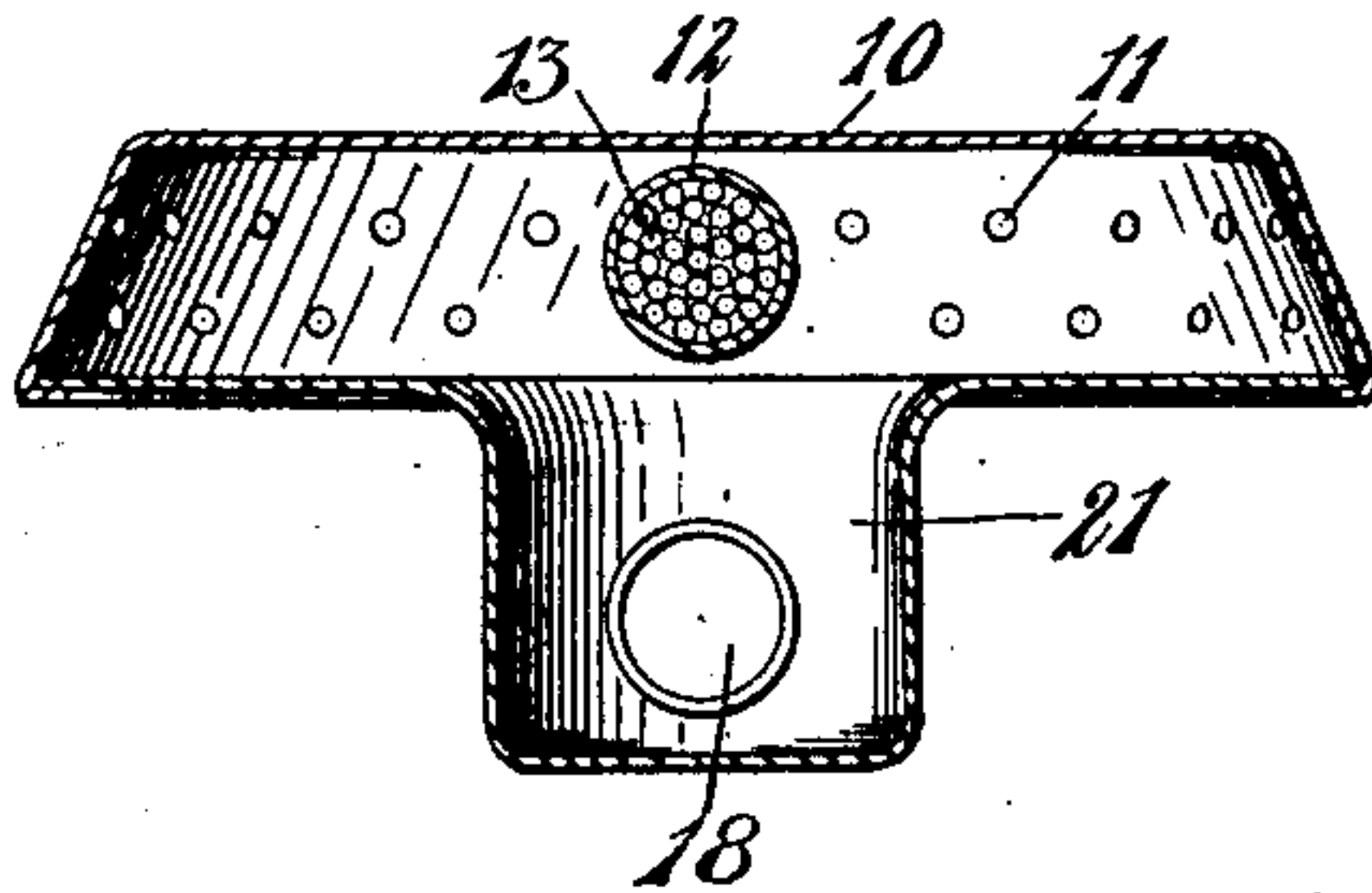


Fig. 6.



Fig. 9.

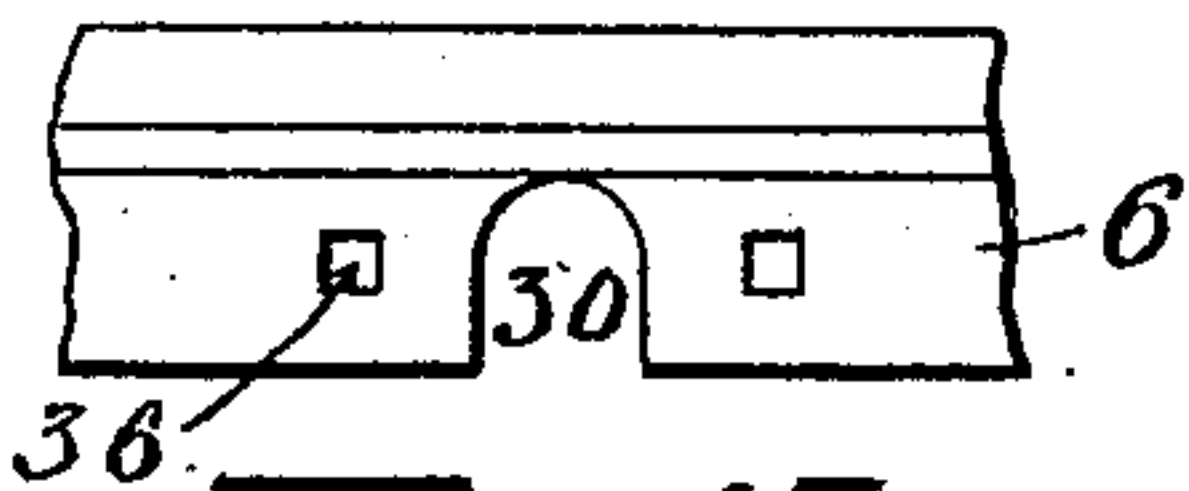


Fig. 7.

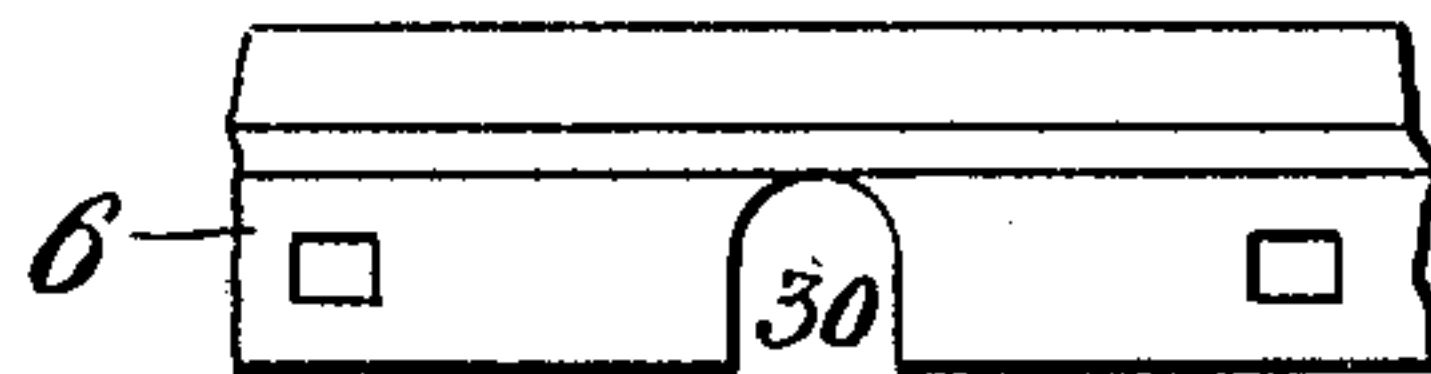


Fig. 10.

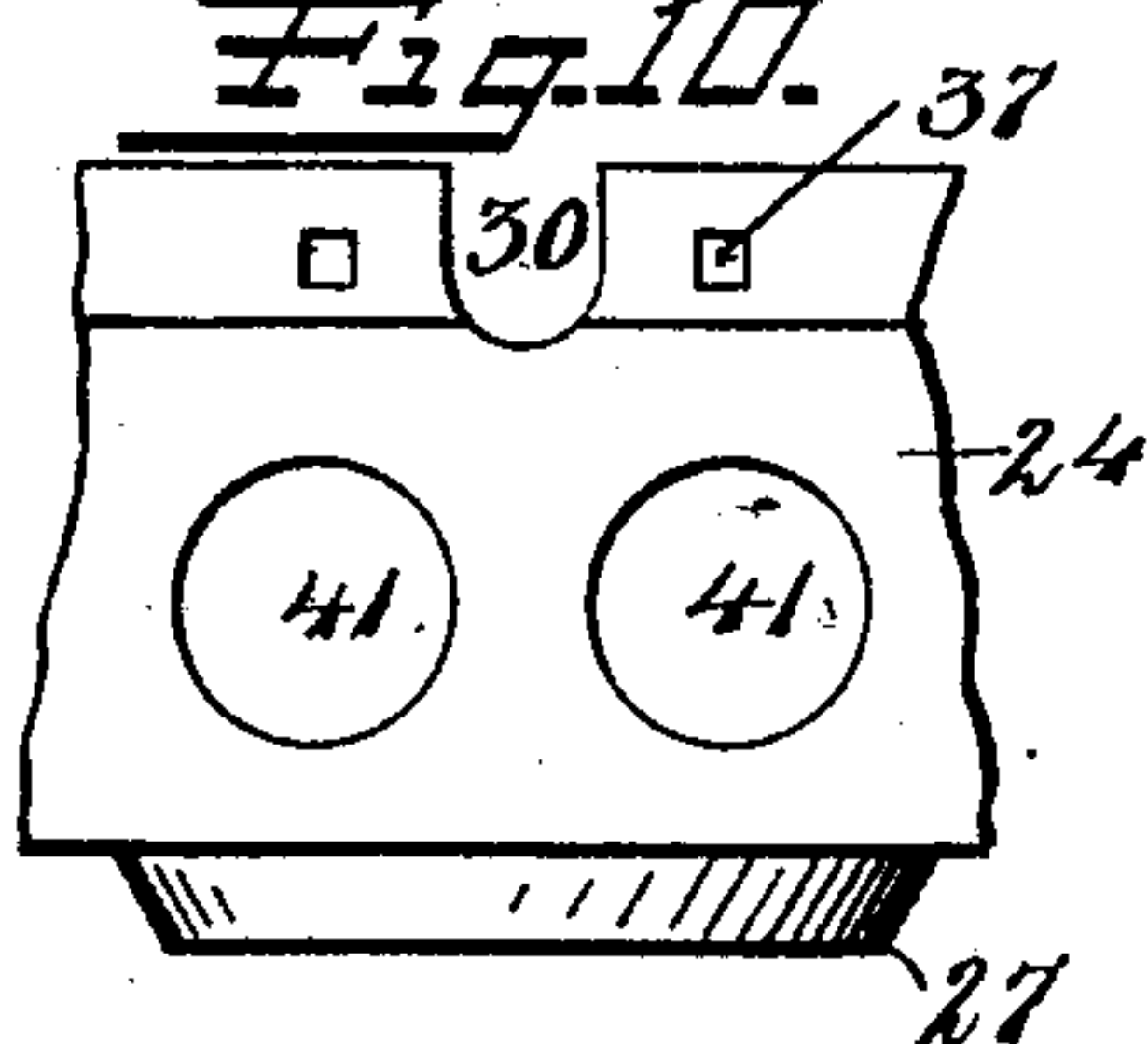


Fig. 8.

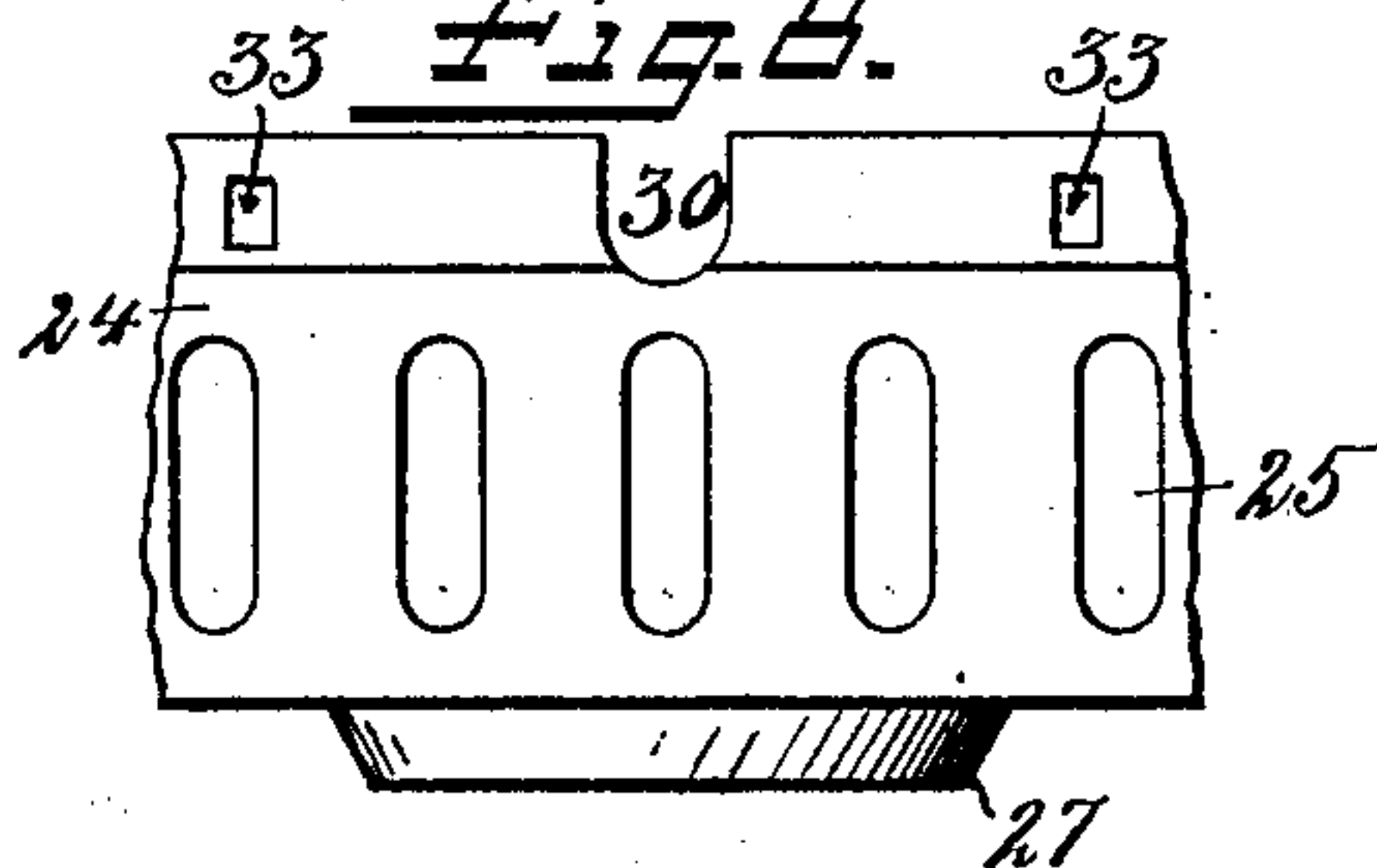
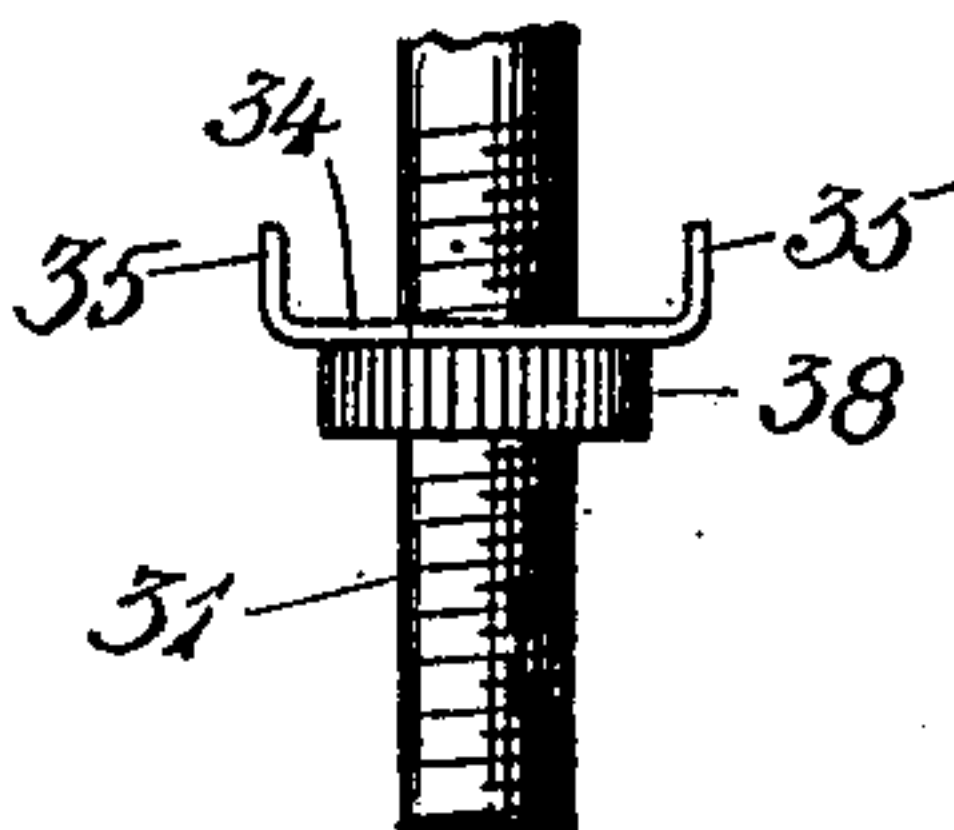


Fig. 11.



Witnesses:

Chas. A. Rand
Raughan Moore

G. E. SAVAGE Inventors
J. W. CHAPMAN

By their Attorneys
Barrett, Bonnell & Mulholland

UNITED STATES PATENT OFFICE.

GEORGE E. SAVAGE AND JAMES W. CHAPMAN, OF MERIDEN, CONNECTICUT, ASSIGNORS TO
MANNING, BOWMAN & COMPANY, OF MERIDEN, CONNECTICUT, A CORPORATION OF CON-
NECTICUT.

VAPOR-STOVE.

No. 913,649.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed April 29, 1907. Serial No. 370,952.

To all whom it may concern:

Be it known that we, GEORGE E. SAVAGE and JAMES W. CHAPMAN, both citizens of the United States, residing at Meriden, New Haven county, Connecticut, have invented certain new and useful Improvements in Vapor-Stoves, of which the following is a full, clear, and exact description.

This invention relates to vapor stoves of that class in which liquid fuel is vaporized and mixed with air before burning.

The objects of this invention are to construct a device of this character in which the parts are of simple construction and are readily assembled or taken apart, and in which there is sufficient circulation of air to secure the proper mixture in the mixing chamber, and to prevent the other parts from becoming overheated.

In the drawings Figure 1 is a side elevation of one form of our invention. Fig. 2 is a top plan view of the same. Fig. 3 is an enlarged plan view partly in section of the burner. Fig. 4 is a side elevation of the same partly in section. Fig. 5 is a transverse sectional view taken through the burner. Figs. 6, 7 and 8 are enlarged detail views showing the rear connection between the plate ring and base. Figs. 9, 10 and 11 are enlarged detail views showing the front connections between the same.

In the construction illustrated in the drawings, 1 represents a font adapted to contain liquid fuel.

2 is a plate-ring.

3 is a bracket secured to the plate-ring, which supports the font.

4 is a base provided with legs 5—5—5.

6 is a flange depending from the outer edge of the plate-ring 2 and is adapted to engage the top of the base 4.

7 is a large central aperture in the plate-ring above the burner.

8—8 represents a series of plate supports, and 9 is series of heat radiating apertures.

10 is a vapor burner provided with a series of gas vents 11. 12 is a vaporizing chamber passing therethrough. 13 is a series of wires in said chamber 12.

14 is a pipe leading from the font 1 to the chamber 12.

15 is a needle valve of the usual construction to regulate the opening 16 in the chamber 12, and operated by the usual handle.

17 is a bracket secured to the end of chamber 12 and supporting the open end 19 of the mixing chamber 18, the other end of which is supported by the depending inclosed central chamber 21 of the burner 10.

22 is a vapor discharge tube connected to the vaporizing chamber 12 through the passage 16 and has the discharge opening 23 opposite the end 19 of the mixing chamber 18.

24 is the side member of the base 4 and is provided with a series of ventilating openings 25.

26 is the bottom member of the base 4.

27 is a pan formed in or made separate from and secured to the bottom member 26 under the burner 10.

28 is a series of large vent openings in the bottom member. The edges of the bottom 26 around these openings 28 have up-turned flanges 29 to prevent any overflow of the liquid fuel should same escape from pan 27.

The depending flange 6 of the plate-ring 2 and the side member 24 are provided with corresponding cut-away parts 30—30 to receive the pipe 14 at the rear and the externally screw-threaded sleeve 31 of the needle valve 15 in front.

32—32 are locking members extending inward from the flange 6 at the rear adapted to engage in the openings 33—33 in the member 24 on each side of the openings 30.

34 is a washer mounted on the externally screw-threaded sleeve 31 of the needle valve 15 and is provided on each side with a locking member 35 adapted to enter through the corresponding openings 36—37 in the flange 6 and the member 24.

38 is a nut to secure the locking washer in place.

39 is a nut securing the pipe 14 to the bracket and 40 is a heat insulating washer at this point.

The operation is as follows: The font is filled with liquid fuel, the needle valve opened, and as the stopper in the font is perforated the liquid passes down through the pipe 14 through the chamber 12 and aperture 16 into the discharge tube 22 and through the discharge aperture into the pan 27. The flow is then shut off and the liquid in the pan ignited through one of the apertures 41 provided for this purpose in the side member 24, or elsewhere. As soon as the heat in the vaporizing chamber becomes suf-

efficient to vaporize the liquid, the needle valve is opened and properly regulated and the vapor passes therethrough into the mixing chamber 18, where it mixes with the air, and
 5 thence through the gas vents 11 in the vapor burner 10. If the vapor does not ignite from the flame in the pan, combustion may be started by applying a match.

One of the advantages of this construction
 10 is the simplicity and ease of assembling the parts. The needle valve, burner, vaporizing chamber and mixing chamber are readily secured to the tube 14. The bracket 3 is made fast to the plate-ring 2. The tube 14 is se-
 15 cured in place in the bracket 3 by the nut 39, while the other end of the sleeve 31 of the needle valve lies within the recess 30 and the flange 6. The font 1 is secured to the end of the tube, and the washer 40, of asbestos or
 20 other heat insulating material, is inserted therebetween. The plate-ring with said parts attached is placed upon the side member 24 of the base with the projections 32 engaging the recesses 33 at the rear thereof,
 25 and the openings 36 and 37 coinciding at the front thereof. It is only necessary now to move the locking washer 34 into engagement with said openings and secure the same by the nut 38 to complete the apparatus, which
 30 will then be ready for use. The free space between the bracket 3 and the tube 14 allows complete circulation of air about said tube, and together with the heat insulating washer 40, tends to prevent the heating of the
 35 liquid in the font. The openings in the side and bottom of the base allow a free circulation of air for the mixing chamber and insure a good mixture therein, while the openings in the plate-ring secure the radiation of heat
 40 in the proper direction. As the plate supports 8 are flat on top, any sized receptacle may be placed over the burner.

This device is especially adapted for the use of alcohol of either the commercial or
 45 denaturized form, however we do not limit ourselves to this form of liquid fuel, nor do we limit ourselves to the construction herein shown as minor changes may be effected without departing from the scope of this in-
 50 vention.

What we claim is—

1. In a two-part vapor stove, a plate ring, a font, a vapor burner and vapor generating
 55 separable base and locking connections arranged to secure said separable members to

each other and to secure said vapor generating parts to said members.

2. In a two-part vapor stove, a plate-ring, a font, a vapor burner and vapor generating
 60 parts therefor carried by said plate-ring, a separable base having a perforated bottom, and a pan in said bottom under said vapor generating parts, and means for connecting
 65 said plate-ring and base, comprising engaging members on opposite sides thereof.

3. In a two-part vapor stove, a plate-ring, a font, a vapor burner and vapor generating
 70 parts therefor, including a projecting sleeve, all mounted upon said plate-ring, a separable base, a plurality of locking members to secure the separable members, some of which
 75 are carried on opposite sides thereof, and an engaging washer mounted upon said projecting sleeve, adapted to engage both of said
 80 members, and means to secure said washer in position.

4. In a two-part vapor stove, a plate-ring, a font, a vapor burner and vapor generating
 85 parts therefor mounted on said plate-ring, a separable base comprising side and bottom members, engaging means for said plate-ring and side member, a pan in said bottom member under said vapor generating parts, said
 90 bottom member having a plurality of vent openings with up-turned edges to prevent overflow from said pan.

5. In a two-part vapor stove, a plate-ring, having an exterior flange, a vapor burner, a
 95 vaporizing chamber passing therethrough, a font connected to one end thereof by a pipe and supported upon said plate-ring, a mixing chamber in communication with said burner and vaporizing chamber, a regulating valve
 100 between said chambers having a sleeve passing through said flange, a base having a side member adapted to be engaged by said flange and provided with recesses to receive said pipe and sleeve, said flange and side member provided with interlocking means
 on opposite parts thereof, locking means carried by said sleeve to engage both said flange and side member, and means on said sleeve to secure said locking means in place.

GEORGE E. SAVAGE.

JAMES W. CHAPMAN.

Witnesses for Savage:

A. L. STETSON,

GEO. R. DINOCK.

Witnesses for Chapman:

E. J. POOLEY,

W. E. GRAHAM.