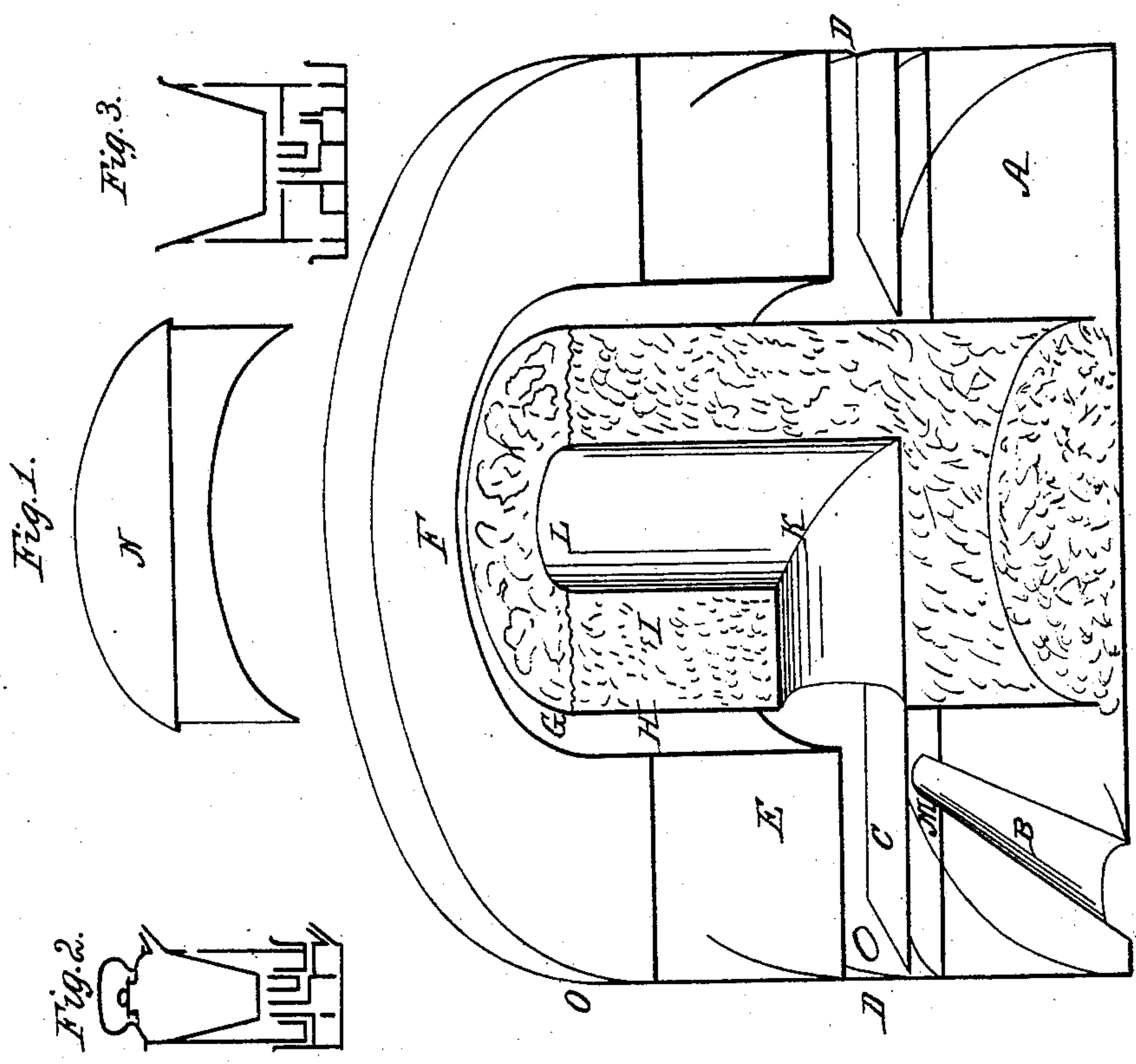


T. G. CLINTON.
Alcohol Burner.

No. 16,112.

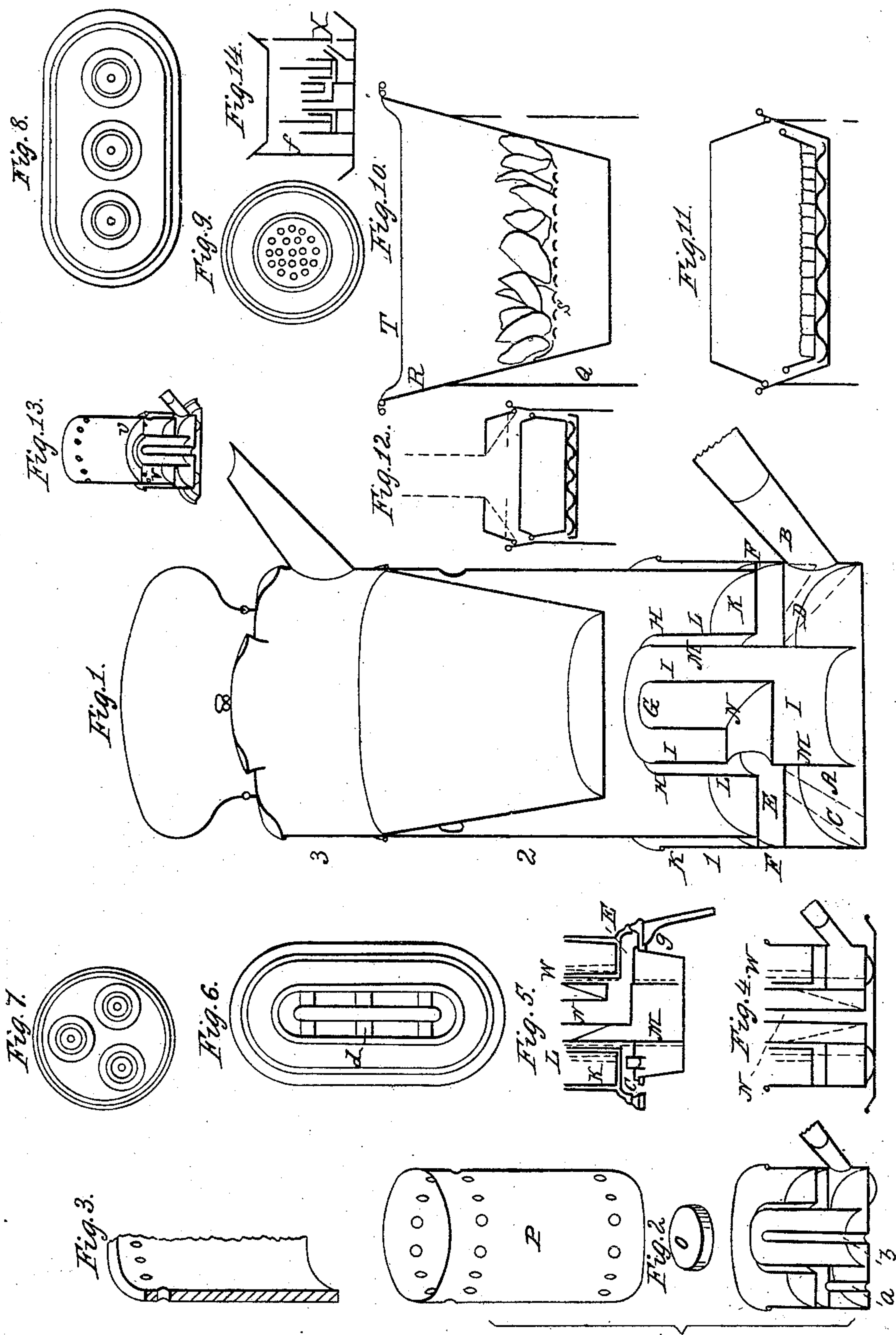
Patented Nov. 25, 1856.



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UNITED STATES PATENT OFFICE.

THOS. G. CLINTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

ALCOHOL COOKING APPARATUS.

Specification of Letters Patent No. 16,112, dated November 25, 1856.

To all whom it may concern:

Be it known that I, THOMAS G. CLINTON, M. D., of Washington, District of Columbia, have invented a new and useful article
5 called an "Alcohol-Burner;" and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, made part of this specification, and lettered to
10 correspond therewith, the Figure 1 representing one-half of the alcohol-burner, cut (frontwise) in vertical and central section, the Fig. 2 representing the same, on a reduced scale, with the flue and kettle set in
15 place, and the Fig. 3 representing, on a similar scale, an equivalent arrangement, both Figs. 2 and 3 being in central and vertical section.

I give the wick-chamber great capacity
20 both above and within the alcohol-chamber, and merge the two into one another through a narrow space near the bottom of the latter. I do this to obtain a flat and determinate burning surface for the wick (which
25 is best made of raw cotton) and is compactly stuffed in and made level with the top of the wick-chamber and thus have an ascertained flame-power. I do this also to afford great
30 bulk to the wick, so that it can hold a large quantity of alcohol and consequently yield a more regular flow to the flame, yet be a non-conducting barrier between the flame
35 and the alcohol-chamber; and, in case the burner should be upset, retard the oozing of the alcohol which the wick-chamber itself cannot hold back. I do this also to be enabled to modify the range and area, or both
40 range and area, of the burning surface of the wick and yet retain its bulk. I furthermore do this so that I can use the wick with a central-draft introduced by means of an elbow-pipe through that part of the wick-chamber above the alcohol chamber, so as to
45 leave all the other advantages due to my construction of these chambers in full force.

Upon this basis I construct a neat and handy vessel with an annular trough for cold water and with air-channels conducting
50 the draft to the flame, so that the alcohol and wick chambers can be kept thoroughly chilled thereby. The air-currents in themselves are a protection against sudden heating if the cold-water be omitted when the wick is lighted. The trough can be supplied
55 with cold water at any time without disturbing the alcohol-burner in its heating op-

eration and the water can be made to drench the alcohol chamber or flow over it according as the water-trough is arranged above or below the air-openings. In either case
60 the wick is protected from any splashing of the water. I have also devised to supply the alcohol chamber with its fluid, by an internal feed-pipe, although an external feeder can be used, but in case of travel or
65 great exposure not with the same security, because arranged with the internal feeder, my alcohol-burner is proof against anything but violence and satisfactory in use for domestic industrial, traveling, medical
70 or other purposes.

(O) is a large cup, in the lowest, and central portions of which I locate an alcohol-chamber (A) and a wick-chamber (I) with a central draft (L) which is formed by the
75 elbow-pipe (K) opening by its horizontal arm, to the air, through the tube (H) which forms the wick-chamber both above and within the alcohol-chamber. In the cup (O) on a level line above the alcohol chamber I
80 make holes (D) for the passage of air to the flame. I effect this by constructing above the level of these holes a trough (E) which is made annular by a tube (F) which being of greater diameter than and concentric
85 with tube (H) leaves an annular air-space (G) between them. An air-space (C) is thus left between the trough (E) and alcohol chamber (A), and is connected with spaces (G) and (L). By setting the cup
90 (O) in water till the holes (D) are more or less closed, the power of the flame is correspondingly graduated. By pouring in water till the holes are closed, the flame is
95 extinguished. A piece of tape will effect the same purpose, but where long service is required continuously the cold water is the best, as it can be supplied to the extent only of a cold-water bath for the alcohol chamber, until reduction or extinction of the flame is
100 desired.

For the purpose of drenching the alcohol-burner with water so as to cool and keep it cool when in use, the rim of the cup (O) is higher than that of the tube (F) and the
105 rim of the tube (H) higher than that of cup (O). This arrangement prevents also the splashing of the wick. When not in use a cover (N) is put over the tube (H) to prevent evaporation.

The best proportions for the burning surface of the wick result from an air-passage
110

(L) of one inch diameter, occupying the central portion of a wick-chamber (I) three inches in diameter. Yet the range and area, or both range and area can be modified by giving the air-passage (L) a funnel mouth and accommodating the tubes (H) and (F) thereto.

Where the alcohol-burner assumes an oblong or other shape for restaurant or other use, the burning surface can be occupied at intervals by blocks, or continuously by strips, of wood set down about an inch deep in the wick, so that the burning surface will be in sections or continuously narrowed. An oblong air-passage (L) would require several horizontal arms to the upright portion forming it.

When an external feeder is not used I insert a pipe (B) in the bottom of cup (O) near the joint thereof. This pipe (made slightly conical) ascends to within an eighth of an inch of the top of alcohol chamber (A) and leans at an angle (say 60 degrees) toward the tube (H). When pipe (B) is held, mouth uppermost, perpendicularly, it will allow about two-thirds of the chamber (A) to be filled with fluid. Therefore the pipe (B) must always protrude above the level (M) of the surface of the alcohol. A cork is not a necessity to this pipe (B) unless the alcohol-burner be rolled on its side or held purposely on its bottom edge near pipe (B).

It will be recollected that the tube (H) passes down to within an eighth of an inch of the bottom of the chamber (A). Therefore the alcohol can only escape by these spaces between the tubes and the top or bottom of the chamber (A). The wick prevents any escape by the tube (H) (unless the burner lies on its side for some length of time) even when the chamber (A) is filled to the greatest amount the tube (B) as arranged will permit; and from tube (B) it can only escape by holding the alcohol burner in one particular position, viz, with the tube (B) at the lowest point. But so long as the chamber (A) is bottom or top uppermost, no alcohol can escape.

This alcohol burner, that is to say, the parts necessary to produce a flame, can be set under any vessel supported in any usual way; but that would not exhaust the scope of the invention nor give effect to the arrangement for concentrating, graduating or extinguishing the flame nor exhaust the duties which the cold water is intended to per-

form. There must be an unbroken connection between the alcohol-burner and the vessel to be heated thereby and this is effected by a sheet metal cylinder set down into the cold water. This cylinder, flue, or pipe (similar to a short piece of stove pipe) has holes around and near its top for the exit of the draft. Thus arranged the cold water not only absorbs the heat radiated downward from the flame spread about the vessel to be heated, but also absorbs the heat conducted downward by the flue. It will therefore be readily understood that it is immaterial whether the cold water is in the trough (E) as in Fig. 1, or whether as in Fig. 3 it is made to submerge the alcohol chamber (A) and rise up around the chamber (I) till it reaches the level of pipe (K), because the water thus arranged accomplishes the same functions and can be as readily changed or drenched out; and the flue set down therein can be furnished with holes to do the duty of the holes (D) and can be supplied with a disk to conduct the air to the flame, the duty performed by the bottom and inner side of the trough (E) in Fig. 1.

In Fig. 1, when it is required to graduate or extinguish the flame, the alcohol burner must be set down in a pan and water poured in till the holes (D) are reduced or submerged thereby, so that Fig. 3, other things being equal, is only doing that or being ready to do so at once.

Having thus fully described my alcohol burner, I do not confine myself to the arrangement of the parts (E), (D) (C) (G) as seen in Figs. 1 and 2 because these parts may be arranged as in Fig. 3 to do the very same duties.

What I claim therefore and desire to secure by Letters Patent is—

1. An alcohol burner arranged in its several parts substantially as described and represented, or in any equivalent manner for the purposes and effects set forth, irrespective of the method by which alcohol is supplied to the chambers (A) and (I).

2. I also claim the internal pipe (B), or its equivalent, arranged as described in relation to the tube (H) and for the purpose and effect set forth.

THOS. G. CLINTON.

Attest:

C. McINTIRE,
A. LAMMOND.