

No. 813,783.

PATENTED FEB. 27, 1906.

J. H. ERNST.
ALCOHOL BURNER.

APPLICATION FILED JUNE 14, 1905.

Fig. 1.

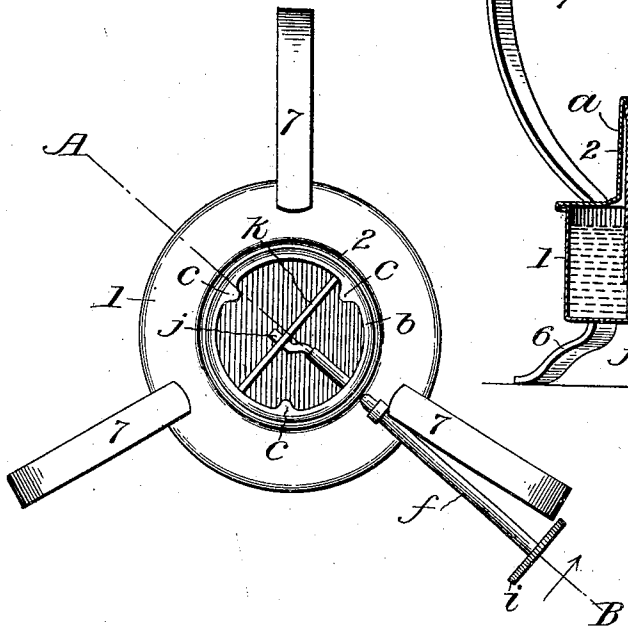


Fig. 4.

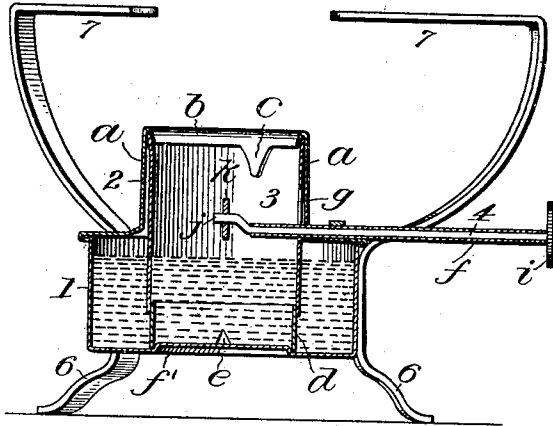


Fig. 2.

Fig. 3.

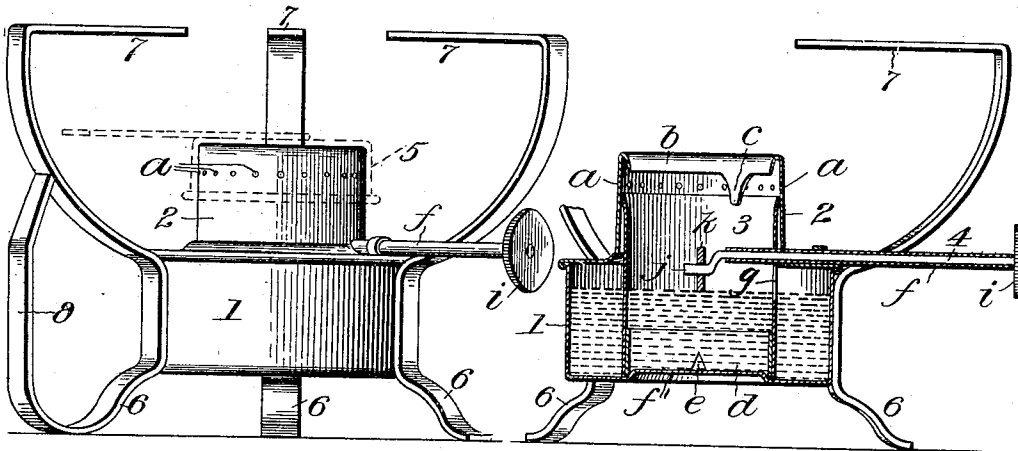
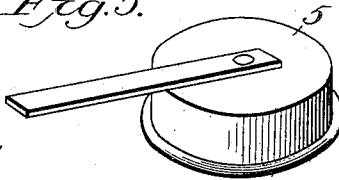


Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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ALCOHOL-BURNER.

No. 813,783.

Specification of Letters Patent.

Patented Feb. 27, 1906.

Application filed June 14, 1905. Serial No. 265,203.

To all whom it may concern:

Be it known that I, JOHN H. ERNST, a citizen of the United States of America, and a resident of the borough of Brooklyn, New York city, in the State of New York, have invented a new and useful Improvement in Alcohol-Burners, of which the following is a specification.

This invention relates to the burners of those simple forms of alcohol-stoves designed and adapted for heating chafing-dishes and the like; and it consists in certain novel combinations of parts hereinafter set forth and claimed.

The objects of the present invention are to provide for supplying the surface of the alcohol with oxygen while the flame is burning directly therefrom and for converting the burner from a surface burner to a jet-burner after the alcohol and metal become sufficiently heated and by the same means to facilitate extinguishing the flame. A simple cap-shaped extinguisher provides for instantaneously extinguishing the flame after the conditions of surface burning are restored.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 is a top view of a simple portable alcohol-stove embodying the improved burner. Fig. 2 is a side elevation projected from Fig. 1 and showing in dotted lines the extinguisher in position. Figs. 3 and 4 represent vertical sections on the line A B, Fig. 1, showing the burner respectively in condition for surface burning and in condition for jet-burning; and Fig. 5 is a perspective view of the extinguisher detached.

Like reference characters refer to like parts in all the figures.

The stove represented by the drawings includes a burner-bowl 1, the top of which is contracted and terminates in a substantially cylindrical neck portion 2, provided circumferentially with jet-orifices *a* and further provided with an overhanging flange *b* and fingers *c*, depending from the lower edge of said flange within the open upper end of said neck portion.

Within the burner-bowl 1 a central crown-flange *d*, Figs. 3 and 4, having openings *e* therethrough, is attached to the bottom *f*' of the bowl, and an open-ended cylindrical flame-regulator 3 is vertically movable within the body of the bowl and its said neck por-

tion, the lower end of this flame-regulator 55 surrounding said crown-flange *d* and its upper end surrounding said depending flange *b* or said depending fingers *c* at the top of the burner.

A radial tubular bearing *f* is fixedly attached to the top of the body portion of said burner-bowl 1 and projects inwardly through an opening at the intersection of the body and neck portions and through a vertical slot *g* in said flame-regulator 3. Within this 65 bearing a rotatable crank-shaft 4, of suitable wire, is arranged, having at its outer end a finger-wheel *i*, by which to turn it, and at its inner end a crank *j*, which interacts with a horizontally-slotted cross-bar or bridge *k*, 70 fixedly attached to said flame-regulator 3 within the same, so that the two are movable together. With said flame-regulator 3 in its lowered position, as in Fig. 3, the burner-bowl 1 is partly filled with alcohol, 75 the surface of which is ignited through the open upper end of the neck portion 2 and within the flame-regulator 3. Oxygen is freely supplied to the surface by the air entering the jet-orifices *a* and descending by 80 reason of its relatively low temperature, so as to mingle with the vapor of the alcohol immediately above the surface of the liquid. The free surface combustion of the alcohol 85 thus provided for quickly results in heating the burner and its contents sufficiently to permit of burning the vapor in the form of vapor-jets, and the burner is converted for this mode of operation by a partial turn of the finger-wheel *i*, resulting in the elevation 90 of the flame-regulator 3, as in Fig. 4, and the interaction of its upper end with the depending flange *b* at the top of the neck portion 2. Jets of vapor will then immediately issue from the jet-orifices *a* and, becoming ignited, 95 will form an annular flame at the top of the neck portion of the burner and immediately beneath the cooking vessel, so as to heat the latter in the most effective way. The flame is instantaneously extinguished by lowering 100 the flame-regulator 3, as in Fig. 3, and then, applying the cap-shaped extinguisher 5, shown attached by Fig. 5, which at once closes the upper end of the neck portion 2 and its jet-orifices *a*. (See dotted lines in 105 Fig. 2.)

It will be observed that the improved burner is wholly without wick or any ab-

sorbent, so that any unconsumed alcohol may be poured therefrom and saved.

Around the outside of said burner-bowl 1, which is or may be made of suitable sheet metal, combined legs and arms 6 7, of bent bar metal, are fixedly attached, one of the same having also in one part therewith a handle portion 8. The upper ends of the arm portions 7 project radially inward in an elevated horizontal plane and form the supports for the chafing-dish or other cooking vessel.

The improved burner may obviously be incorporated in alcohol-stoves of other patterns, and other like modifications will suggest themselves to those skilled in the art.

Having thus described said improvements, I claim as my invention and desire to patent under this specification—

1. The combination in an alcohol-burner, of a burner-bowl having above its body a relatively contracted neck portion provided circumferentially with jet-orifices, a perforated crown-flange fixed to the bottom of the bowl in axial alinement with the neck portion, a vertically-movable flame-regulator consisting of an open-ended cylinder guided

by the neck portion and the crown-flange, and means operating at the axis of the flame-regulator for raising and lowering it.

2. The combination in an alcohol-burner, of a burner-bowl having above its body a relatively contracted neck portion provided circumferentially with jet-orifices, a perforated crown-flange fixed to the bottom of the bowl in axial alinement with the neck portion, a vertically-movable flame-regulator consisting of an open-ended cylinder guided by the neck portion and the crown-flange and having a vertical slot therein, a radial tube fixed to the top of said body portion and projecting inwardly through said neck portion and said slot to the axis of said cylinder, a crank-shaft journaled in said tube with the crank at its inner end, and a slotted cross-bar fixed diametrically in said cylinder to interact with said crank for moving said flame-regulator.

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Witnesses:

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