

(No Model.)

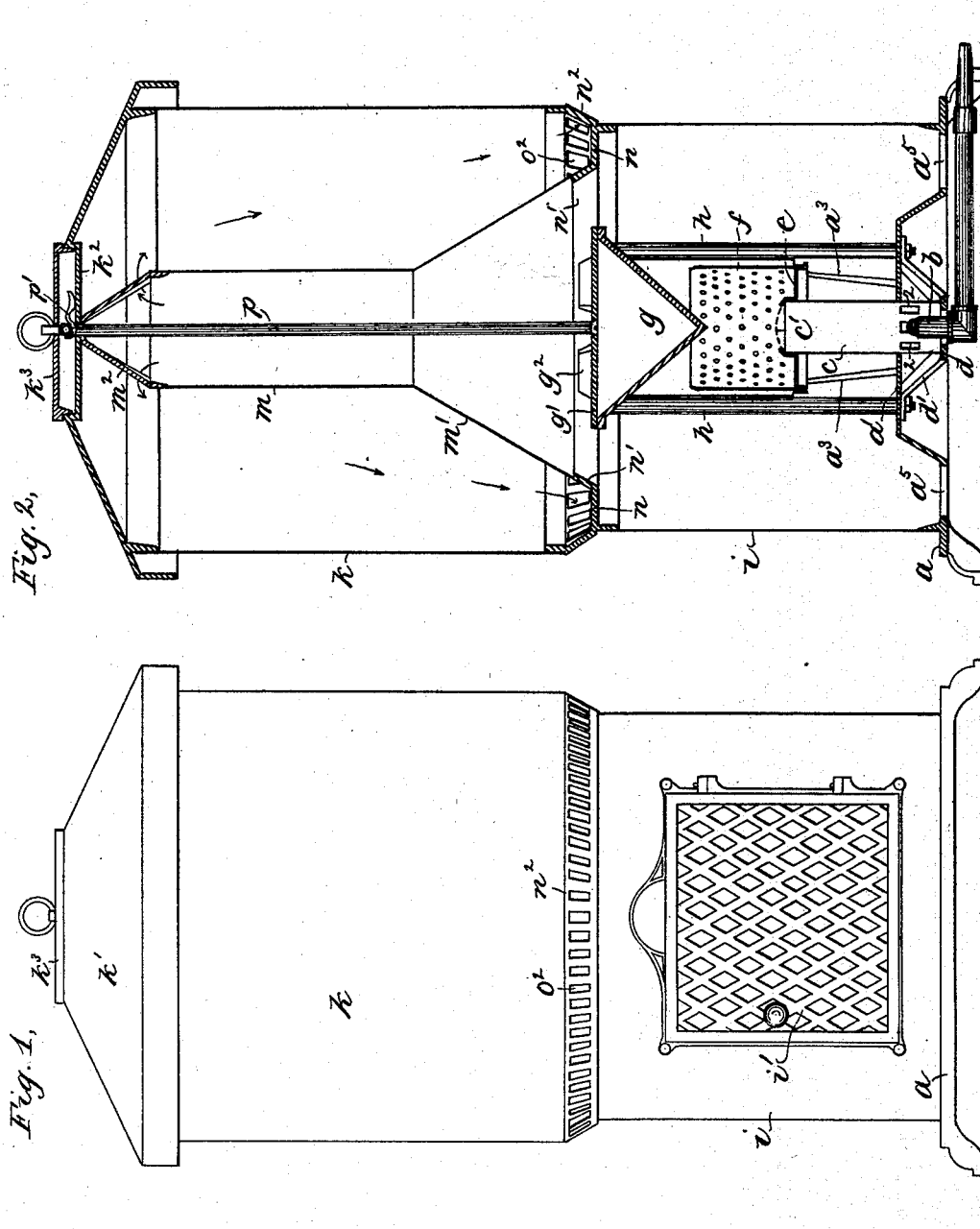
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A. S. DINSMORE.

GAS STOVE.

No. 384,683.

Patented June 19, 1888.



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UNITED STATES PATENT OFFICE.

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GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 384,683, dated June 19, 1888.

Application filed May 23, 1887. Serial No. 239,092. (No model.)

To all whom it may concern:

Be it known that I, ALFRED S. DINSMORE, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Gas-Stoves, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention, relating to gas-stoves, is embodied in a stove of the kind shown in Letters Patent No. 285,311, dated September 18, 1883.

The object of the present invention is to facilitate the manipulation of the parts of the stove or burner and prevent possibility of said parts being improperly placed with relation to one another, as sometimes occurs in the construction shown in the said patent.

The operative parts of the burner are substantially the same as shown in the patent referred to. The burner proper comprises a tube which receives a mixture of air and gas at its lower end, and is surrounded at its upper end by a perforated screen or chimney, in which the said mixture is consumed, and has above the said burner and chimney a cone or flaring deflector having its apex project down into the chimney over the center of the burner.

It is essential that the burner, tube, and chimney should be removable for the purpose of cleaning, and in the construction shown in the patent referred to the cone also has to be detachable and removable from the framework of the stove, as the burner can only be removed by lifting it up through the space normally occupied by the cone. From this construction it sometimes happens that the cone will be replaced in the wrong position, or with its apex upward, by persons who do not understand the principle of operation of the stove. This construction also necessitates that any device used above the stove proper—such, for example, as an oven or heating-drum—should be detachable from the stove proper, in order to afford access to the cone and burner.

The present invention consists, partly, in the combination of a cone fixed or permanently attached to the frame-work, with the burner and support therefor constructed to admit of the said burner being removed laterally from beneath the cone.

The invention also consists in various details

of construction of the stove, which will be hereinafter pointed out.

Figure 1 is a front elevation of a heating-stove embodying this invention; Fig. 2, a vertical section thereof; Fig. 3, a vertical section showing a modified construction; Fig. 4, a plan view of the stove proper, represented in Fig. 3 as seen with the drum *k* and flue *m m'* removed; and Fig. 5, a plan view of the base portion of the stove with the drum, cone, and burner removed.

The operative parts of a stove are supported on a base, *a*, having a platform, *a'*, provided with an opening or recess, *a''*, (see Fig. 5,) to receive the lower end of the burner-tube *c*, which extends down through the said opening, as shown in Fig. 2, and rests on a foot-piece, *d*, connected by arms *d'* with the platform *a'*.

The burner proper is of substantially the same construction as shown in the patent before referred to, the tube *c* surrounding the gas-jet *b* and being provided at its lower end with inlet-openings 2 for the air to enter and mix with the gas, and being provided at its upper end with a foraminous covering or cap, *c'*, through which the mixed air and gas passes, and above which it burns. The upper end of the tube *c* is provided with a wide flange, *e*, that supports the perforated chimney *f*, which contributes to the combustion of the gases, as described in the said former patent.

Instead of supporting the burner by a collar surrounding the upper end of the tube *c*, as shown in said patent, a construction that necessitates raising the burner the entire length of the tube before it can be removed, the base is in the present invention provided with three or more supporting-posts, *a''*, having shouldered seats at their upper ends that receive the flange *e* at the base of the chimney and thus support and center the said flange and burner, which can, however, be disengaged from its support by merely lifting it far enough to disengage the lower end of the tube from the opening *a''* in the platform *a'*, an amount of movement that can be made without encountering the cone *g*, which stands over the burner with its apex projecting down into the chimney *f*, substantially as in the patent referred to.

The platform *a'* surrounds the burner-tube

c above the inlet-openings 2, and thus prevents possibility of igniting the gas at the said openings, as may sometimes occur in the construction shown in the said patent referred to.

- 5 By this construction of the burner-support the burner may be removed without disturbing the cone *g*, and in order to prevent displacement of the latter it is permanently secured to or fixed upon the frame-work of the stove,
10 being shown in this instance as fastened upon posts *h*, that project up from the base *a*, said posts being shown as made tubular, and the cone *g* and arms *d'* of the foot-piece *d* for the burner being all securely held together and
15 rigidly fixed with relation to the base by bolts passing through the said tubular posts *h*.

The base portion of the cone *g* is provided with a cover or cap-plate, *g'*, preferably also permanently attached by the bolts, and provided at its upper face with projections *g''*, that serve to hold a vessel or cooking utensil above the plate *g'*, so as to be more thoroughly affected by the heat radiating from said plate.

The parts thus far described, and shown in the lower portion of Figs. 2 and 3, are complete in themselves and constitute a gas lamp or burner which may be used to heat water or anything that may be required in a suitable vessel or utensil placed upon the plate *g'*.

- 25 It is desirable, however, and gives a better finish to have the said burner inclosed in a casing, *i*, which may be of sheet metal supported at its lower end on the base *a*, and is provided with a door or opening, *i'*, through
30 which the burner may be removed and replaced when required.

It is necessary to admit large quantities of air around the burner, and for this purpose the casing surrounding the burner has heretofore usually been made perforated, as shown
40 in said former patent. This perforation of sheet metal is a somewhat expensive operation, and by making the door *i'*, which is usually a casting, with a large number of openings, as shown in Fig. 1, and also providing
45 the base *a* with openings *a''*, sufficient air may be admitted without perforating or stamping out the sheet-metal casing *i*.

When the stove is to be used for heating purposes or warming the air of an apartment, it is preferable to have the heating-drum a permanent part of the structure, instead of a separate removable piece, such as must necessarily be used with the construction of stove
50 shown in the patent referred to.

The heating-drum comprises an outer shell or case, *k*, surmounted by a top, *k'*, preferably of cast metal, and containing a flue or chimney, *m*, having a flaring base, *m'*, around the top of the burner, into which the flame and heated gases arise. The said flue *m* is opened at its top and is provided with a skeleton frame or spider, *m''*, interposed between its upper end and a cross-piece or bridge, *k''*, in
60 the top *k'*, which bridge spans an opening or stove-hole in the top *k'*, provided with a remov-

able cover, *k'''*. The space between the lower end of the flue and the drum *k* is closed by a ring, *n*, which prevents air or gases from passing directly from the burner or stove proper
70 into the drum *k*, and consequently all such heated air or gases must pass up through the flue *m* and be discharged into the top of the drum *k*. It is desirable, however, to deliver the heated air as low down as possible in the
75 room to be heated, and for this purpose outlets are provided near the lower end of the drum *k*. These outlets may be perforations in the drum, as shown at *o*, Fig. 3, or preferably, in order to avoid the necessity of perforating the sheet
80 metal, the construction shown in Figs. 1 and 2 is adopted. In this latter construction the ring *n*, made of cast metal, is supported on the drum *i*, and is provided with a flange, *n'*, that supports the flue *m m'*, and with a ring, *n''*,
85 that supports the drum *k*, and is provided with openings *o''*, through which the heated air may escape.

The bridge-piece *k''* of the top *k* rests on the frame *m''* at the upper end of the flue *m*, and the parts *i*, *k*, *k'*, *m*, and *n* are all held in place
90 by a bolt, *p*, secured at its lower end in the plate *g'* and fastened by any suitable clamping device, as *p'*, bearing on the cross-piece *k''*.

If desired, the ring *n* might be made integral with the plate *g'*, being connected therewith by arms *g''*, as shown in Figs. 3 and 4.

In the modification shown in Fig. 3, a single drum, *i k*, extends from the base *a* to the top *k'*, and in this construction the ring *n*, that separates the stove-chamber below from the heating-chamber above, is connected with the plate
95 *g'* by arms *g''*, as shown in Fig. 4, so as to support the flue *m m'*, the said drum *i k* and flue *m m'* being held in place by the bolt *p*, as in the construction previously described.

The operation of the stove is the same in both constructions, the heated gases passing up through the space between the outer edge of the cone *g* and the inner edge of the ring *n*
110 and up through the flue *m*, as indicated by the arrows, and then descending through the interior of the heating-drum *k*, and being delivered through the outlet-openings *o* or *o''*.

If the stove is to be used for cooking purposes, the heating-drum *k* and its inclosed flue *m* will not be used, and the top plate, *g'*, over the cone, either with or without such an extension as produced by the arms *g''* and ring
120 *n* in Fig. 4, will be properly constructed to receive any cooking apparatus that may be required.

The drum *i* need not necessarily be used, as it does not form an essential part of the supporting frame-work of the stove, as is the case
125 in the construction shown in Patent No. 285,311, herein before referred to.

While the device *g* has been spoken of as a cone, it is obvious that it is not necessarily conical in shape, its function being to spread
130 and distribute the flame, as described in the patent referred to, and such distributing de-

vice *g* is also found to greatly facilitate and improve the combustion of the gases, probably owing to the fact that the said gases have a much larger surface exposed to the air.

5 I claim—

1. In a gas-stove, the main frame consisting of a base and uprights supported thereon, combined with a flame spreading and distributing device of substantially conical shape, 10 having its base tightly held upon said uprights with its apex projecting down between them, and a burner consisting of a tube that receives gas and air at its lower end and is provided with a lateral flange near its upper 15 end, and a perforated chimney of larger diameter than said tube supported on said flange, the said burner being held in supports that engage the lower end of the burner-tube and the flange thereof, whereby the said burner-tube is removable laterally from between the 20 base and spreading device, substantially as and for the purpose set forth.

2. The combination of the main frame composed of a base provided with uprights, with 25 a burner composed of a tube that receives air and gas near its lower end, a lateral flange near the upper end of the said tube, and a perforated chimney on said flange, the said burner

being held in a socket near its lower end, and the flange at the upper end of the said tube 30 being seated on uprights supported from the base, and an inverted cone tightly fastened on uprights connected with said base and having its apex extend downward into the said chimney, substantially as described.

3. The main frame composed of a base provided with standards or uprights, combined with an inverted cone tightly fastened upon said uprights and provided with a plate attached to its base portion for supporting cooking 40 utensils, and a burner composed of a tube provided with a flange near its upper end, and a perforated chimney of larger diameter than said tube connected with said flange, the said burner being supported in the frame beneath 45 the inverted cone and being laterally removable from between the cone and base of the frame-work, substantially as and for the purpose set forth.

In testimony whereof I have signed my name 50 to this specification in the presence of two subscribing witnesses.

ALFRED S. DINSMORE.

Witnesses:

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JAS. J. MALONEY.