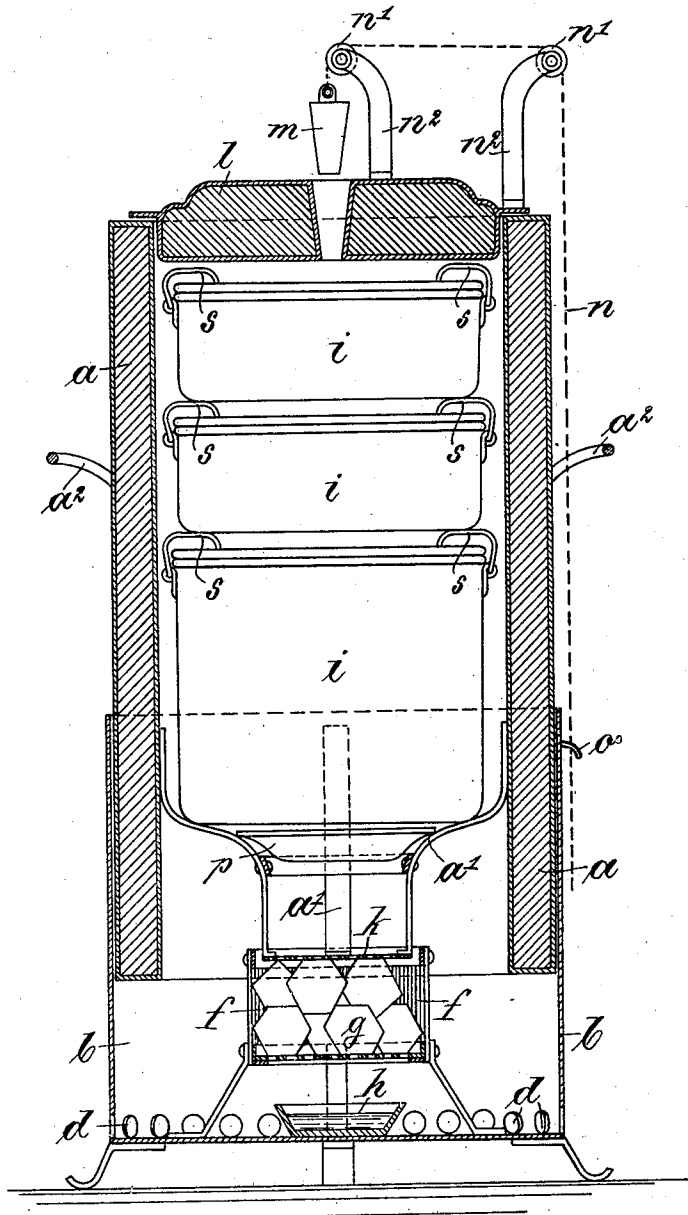


E. C. A. HELLMIG.
FOOD HEATER.
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929,089.

Patented July 27, 1909.



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UNITED STATES PATENT OFFICE.

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FOOD-HEATER.

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To all whom it may concern:

Be it known that I, EMIL CARL AUGUST HELLMIG, a subject of the King of Prussia, and resident of 40 Tharandterstrasse, Dresden-Löbtau, Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Food-Heaters, of which the following is a specification.

This invention relates to apparatus used for cooking and heating food stuffs. In such apparatus it has been proposed to stop the heating action by closing off the air supply. This arrangement has many disadvantages specially when liquid fuel is employed for heating. The liquid fuel in such a case is vaporized by the heat of the parts of the apparatus and this vapor in time finds its way to the food materials and gives these food materials an unpleasant flavor. When solid fuel is used it has been found that the combustion is not regular because ash collects in the grate or fuel basket and thereby blocks the passage of air. Also the ash has the tendency to form an isolating layer on the upper surface of the solid fuel.

The object of the present invention is to avoid these disadvantages and this result is effected by arranging a grate for the solid fuel within the lower part of the apparatus which is provided with perforations. These perforations remain always open so that the combustible is always in communication with the outer air.

The apparatus comprises a lower part having perforated walls, a grate within said lower part and adapted to receive solid fuel, and an upper part resting on said solid fuel and slidable relatively to said lower part to press the ash from the grate, said parts forming a closed receptacle. The said upper part is connected to a perforated plate which acts as a pressing plate and rests on the top of the solid fuel. When the upper part sinks owing to the combustion of the solid fuel a damper is automatically operated to close off the outlet for the hot gases from the apparatus.

The invention is illustrated in the accompanying drawing which is a vertical sectional elevation through an apparatus according to the present invention.

According to the form shown the apparatus is composed of an upper part *a* having heat insulating walls and adapted to slide within a lower part *b*. The lower part *b* is

provided with perforations *d* at its lower end and within this lower part there is supported a grate or fuel basket *f*. The fuel basket *f* is preferably cylindrical in form and is composed of side bars, which admit air to the fuel (briquets or the like) *g* inserted in the grate or fuel basket. To the inner walls of the upper part *a* there are fixed arms *a'* which connect to a perforated plate *k*. The plate *k* rests on the top of the solid fuel *g* in the grate *f*. On the arms *a'* there are supported the receptacle or receptacles *i i i*; these receptacles are dimensioned so that they leave an annular space between their outer walls and the inner wall of the upper part *a*. Through this annular space the hot gases from the fire *f* ascend. The receptacles *i* are preferably also held apart from one another in any suitable manner for instance by shaping the handles *s* in the manner illustrated, so that the upper receptacles rest on said handles and thereby allow the hot gases to circulate all around the receptacles *i*.

The upper end of the casing *a* is closed by means of a cover *l* which is also constructed so as to act as a heat insulating wall. The cover *l* has an opening in its center and over this opening there is suspended a valve or damper *m*. The damper *m* is supported by means of a flexible connection *n*, such as a chain, which is anchored to a hook *o* fixed on the lower guiding part *b*. The chain or other flexible connection *n* passes over two pulleys *n'* which are carried by brackets *n²* fixed to the cover *l*. In this way when the upper part of the apparatus sinks as the fuel in the grate *f* is burned, the valve or damper *m* gradually approaches the opening in the cover *l* and eventually closes this opening. When the opening in the cover *l* is closed the draft through the perforations *d* in the lower guiding part *b* is to a certain extent shut off. The heating action thereby is stopped but the fuel continues to burn slowly till it is all reduced to ash.

Owing to the weight of the upper part of the receptacles acting through the perforated pressing plate *k* on the solid fuel the ash formed in the grate *f* is not permitted to collect but is pressed through the side walls or the perforated bottom of the grate. In this way the air supply to the grate always finds an open passage and no ash is allowed to collect on the upper part of the fuel which

hitherto reduced the heating action of the fuel by forming a kind of insulating layer.

The fuel is introduced to the grate *f* from above after the upper part of the apparatus 5 is removed by the handles *a*². When removing the upper part the chain *n* of course will be detached from the hook *o*.

The fuel combustion may be started by means of alcohol or the like ignited in a pan 10 *h* which may be placed below the grate. A pan *p* is preferably also provided below the receptacles *i* and supported on the arms *a'* so as to collect any moisture dropping from the receptacles, and prevent such moisture fall- 15 ing on the fuel.

The apparatus may be transported by handles *a*².

It will be understood that the time of the heating may be regulated by regulating the 20 height at which the valve or damper *m* is supported above the opening in the cover *l*. It is also of importance that the plate *k* be perforated so that the fuel is supported in a basket which is open on all its sides.

25 I claim:—

1. In an apparatus of the kind described, a lower part having perforated walls, a grate within said lower part and adapted to receive solid fuel, and an upper part resting on 30 said solid fuel and slidable relatively to said lower part to press the ash from the grate, said parts forming a closed receptacle.

2. In an apparatus of the kind described, 35 a lower part having perforated walls, a grate within said lower part and adapted to receive solid fuel, an upper part resting on said solid fuel, and slidable relatively to said lower part to press the ash from the grate, said parts forming a closed receptacle, 40 an outlet for the hot gases formed in the top of the upper part, and a damper adapted to gradually close said outlet as the upper part sinks.

3. In an apparatus of the kind described, 45 a lower guiding part having perforated walls, a grate for solid fuel within said part, an upper part slidable with said lower part, receptacles for containing food in said upper part and a perforated plate support- 50 ing said upper part and receptacles, and

adapted to rest on the fuel in the grate for the purpose set forth.

4. In an apparatus of the kind described, a lower guiding part having perforated walls, a grate for solid fuel within said part, 55 an upper part slidable within said lower part, receptacles for containing food in said upper part, a perforated plate supporting said upper part and receptacles, and adapted to rest on the fuel in the grate, an outlet for 60 the hot gases formed in the top of the upper part, and a damper adapted to gradually close said outlet as the upper part and receptacles sink.

5. In an apparatus of the kind described, 65 a lower part having perforated walls, a grate for solid fuel within said lower part, an upper part slidable in said lower part and resting on the fuel within the grate, a cover on said upper part, said cover having 70 an opening therein, a valve suspended over said opening, brackets movable with said upper part, pulleys supported on said brackets and a flexible connection anchored at one end to the lower part passing over the 75 pulleys on said brackets and supporting the valve.

6. In an apparatus of the kind described, a lower part having perforated side walls, a cylindrical fuel basket for solid fuel within 80 said lower part, an upper part with heat insulating walls slidable in said lower part, food receptacles within said upper part, a perforated pressing plate over the fuel in the grate which plate supports the weight of 85 said upper part and the receptacles, a cover on said upper part over the food receptacles, said cover having an outlet therein, brackets on said cover, pulleys on said brackets, a flexible connection anchored at one end to 90 the above mentioned lower part and passing over said pulleys, and a valve supported on the other end of said cord above the opening in the cover, substantially as described.

In witness whereof I have hereunto set my 95 hand in the presence of two witnesses.

EMIL CARL AUGUST HELLMIG.

Witnesses:

ULYSSES J. BYWATER,
HARRY A. McBRICK.