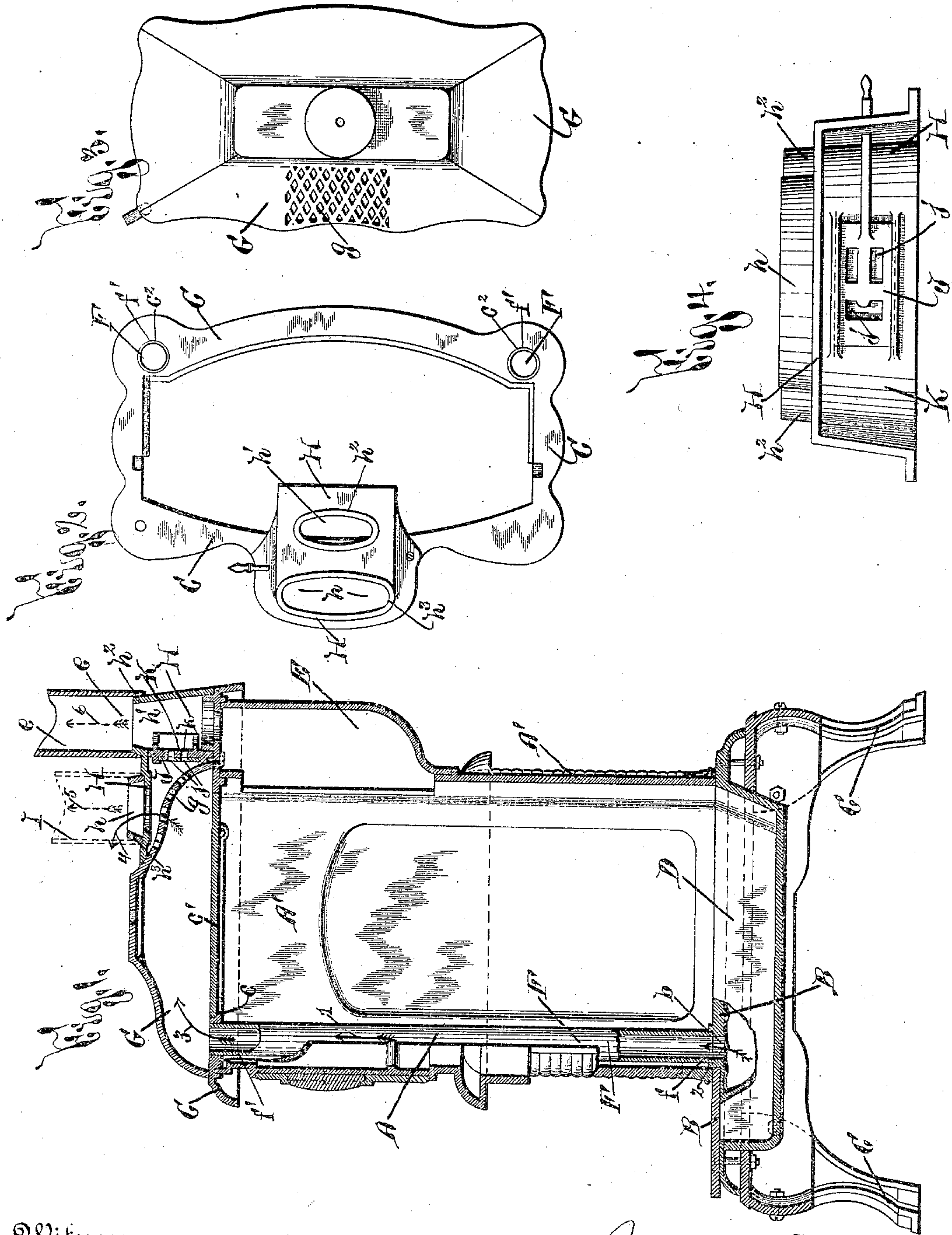


(No Model.)

W. H. LANDERS & F. KERNAN, Jr.
HEATER.

No. 442,901.

Patented Dec. 16, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

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HEATER.

SPECIFICATION forming part of Letters Patent No. 442,901, dated December 16, 1890.

Application filed June 28, 1890. Serial No. 357,086. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. LANDERS, of Syracuse, in the county of Onondaga, in the State of New York, and FRANCIS KERNAN, Jr., of Utica, in the county of Oneida, in the State of New York, have invented new and useful Improvements in Heaters, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to that class of heaters or stoves in which the air is drawn from the bottom of the room and then returned as heated air or discharged into the chimney; and it has for its object the production of a cheap, simple, and effective construction in which the movable cover at the top of the heater or stove is utilized as a heat-radiating chamber; and to this end the invention consists, essentially, in a heater-frame, a heating-passage within said frame having its lower extremity opening to the outside air and its upper extremity opening within the top cover, and a connecting-chamber between said cover and smoke-passage, whereby the air is passed to the outside or to the smoke-passage.

The invention also consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part thereof, in which like letters indicate corresponding parts in all the views.

Figure 1 represents a vertical sectional view of our improved heater, with a portion of the circulating-air passage broken away to better illustrate its construction and operation. Fig. 2 is a top plan view, taken on line *x x*, of the top plate of the stove with its cover removed. Fig. 3 is a top plan view of the heating-chamber or swinging cover mounted above the top plate shown at Fig. 2, and Fig. 4 is an enlarged elevation of the connection from the heating-chamber to the outside air and to the smoke-passage.

A represents the heater or stove, which may be of any desirable form, size, and construction, although here shown as that illustrated in our application of even date herewith for a design patent.

As illustrated, the heater or stove consists of the shell or frame *A'*, preferably substantially rectangular in cross-section and provided with the bottom plate *B* and top plate *C*, both of which are of desirable form, size, and construction. Beneath the bottom plate *B* are any suitable construction and style of supporting standards or legs *C* and ash-box *D*; and above said plate is any suitable construction of grate or fire-box, not necessary to illustrate or describe in my present invention.

E represents a suitable form of smoke-passage opening from any desired portion of the frame *A'*, and preferably the upper part thereof, and adapted to be connected to a suitable pipe, flue, or chimney *e* for discharging the products of combustion.

F represents the air-passage of our improved invention, having one extremity *f* connected to the outside of the lower part of the heater and the other extremity *f'* connected to the outside of the upper part of the heater, whereby the air is drawn upward, as shown by arrow 1 at Fig. 1, and a circulation produced within the room.

As illustrated, the connection from the pipe *F* to the outside of the lower part of the stove consists of an opening *b* in the lower plate *B*, which opening receives air from the outside of the heater or stove frame, as shown by the arrow 2 at Fig. 1. The connection from the air-passage *F* to the outside of the upper part of the heater or stove preferably consists of the heating-chamber *G* and a connection *H*, having an opening *h*, discharging into the room, and a passage *h'*, forming a continuation of the smoke-passage *E*, and having its upper extremity *h²* adapted to receive the discharge-pipe *e*.

Upon reference to the drawings it will readily be noted that the air-passage *F* consists of a pipe, the lower extremity of which is supported in a seat surrounding the opening *b*, and that this pipe can be readily removed from the frame in order to permit replacement when broken or otherwise injured.

In the construction of heater or stove illustrated the top plate *C* is provided with an opening *c*, closed by a suitable cover *c'*, whereby fuel may be inserted into the combustion-

box, and it will be understood that, as preferably constructed, this air-passage *F* extends through an opening *c*² in said plate and discharges above the same and said cover, as shown by arrow 3 at Fig. 1, in order that the air within the heating-chamber or upper swinging cover *G* may be uncontaminated by the products of combustion.

As illustrated, the heating-chamber *G* consists of the ordinary swinging cover, since a very simple construction is effected thereby without any additional cost of expense, addition to the weight, or material change in the form of the stove.

Formed in the cover *G* are openings *g*, which discharge the heated air into the connection *II*, whence, as shown by arrow 4 at Fig. 1, it passes through the opening *h* to the outside of the room. If desired, a suitable pipe *I* (shown in dotted lines at Fig. 1) may be placed upon the upwardly-extending shoulder *h*³ surrounding the openings *h*, and the heated air be conducted, as shown by the dotted arrow 5, to an upper room or register, as may be desired, thereby producing a very desirable form of heating apparatus.

Provided between the passages *h* and *h'* of the connection *II* is a suitable gate *J*, having openings *j*, adapted to be moved into or out of registration with openings *k* in a partition *K* between said openings *h* and *h'*.

When not desired to pass the heated air within the chamber *G* into the room, it will be understood that the gate *J* is actuated so that the passages *j* register with the passages *k*, whereupon, as shown by the dotted arrow 6, the heated air passes upward through the passage *h'* into the smoke-passage and thence to the chimney. On the contrary, when said openings *j* and *k* are out of registration the heated air does not pass into the smoke-passage, but escapes into the room or is conducted to an upper room or register, as previously described.

Upon reference to the drawings and the foregoing description it will be noted that the connecting-passage *II* is stationary, and is of such a form as to readily enable the cover *G* to be swung out of operative position to permit the entrance of fuel.

The parts of our invention are very simple in construction and operation, and with the exception of the air-passages *F*, which are preferably formed of wrought-iron, are cast as readily and quickly as the parts of a heater of ordinary construction, and when operatively assembled the entire heater is but imperceptibly more expensive than the ordinary construction thereof, although the same is far more efficient and desirable, owing to the increased circulation or ventilation of air within the room and the increased amount of its heating capacity.

The operation of our invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be understood that we do not limit the

same to any particular construction of frame, air-passage, or connection of said air-passage to the outside of the frame, since, without departing from the spirit of our invention, said parts may be somewhat varied from the described construction.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a heater, the combination, with a frame having a top plate *C*, a heating-passage opening from the outside of said frame and above said plate *C*, a movable cover above said plate *C* and heating-passage, a smoke-passage at one side of said cover, and a stationary connecting-chamber between said movable cover and smoke-passage, substantially as described.

2. In a heater, the combination, with the frame and its smoke-passage, of a heating-chamber at the upper extremity of said frame, a heating-passage having one extremity connected to the outside of said frame and the other extremity discharging into said heating-chamber for producing a circulation, a connecting-chamber between said heating-chamber and smoke-passage, an opening in the latter chamber leading to the outside air, a second opening in the latter chamber leading to the smoke-passage, and a gate for opening and closing said latter opening, substantially as and for the purpose set forth.

3. In a heater, the combination, with the frame, the top plate *C*, having an opening therethrough, and cover *c'*, of a heating-passage having its lower extremity connected to the outside of said frame and its upper extremity discharging above said plate, a cover *G*, having a concaving recess above said plate *C*, and cover *c'* for forming a heating-chamber, openings in said cover and smoke-passage, and a connecting-passage between said smoke-passage and cover.

4. In a heater, the combination, with the frame and its smoke-passage, of the top plate *C*, its cover *c'*, a heating-passage having its lower extremity opening to the outside of said frame and its upper extremity discharging above said plate, a hollow cover *G* above the plate *C* and cover *c'*, a connecting-chamber between said heating-chamber and smoke-passage, an opening in the latter chamber leading to the outside air, a second opening in the latter chamber leading to the smoke-passage, and a gate for opening and closing said latter opening, substantially as specified.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 20th day of June, 1890.

WILLIAM H. LANDERS.
FRANCIS KERNAN, JR.

Witnesses:

CLARK H. NORTON,
M. BAXTER.