UNITED STATES PATENT OFFICE.

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VAULT-HEATER.


To all whom it may concern:

Be it known that I, ADOLF G. STAPEL, a citizen of the United States, residing at Walhalla, in the county of Oconee and State of South Carolina, have invented a new and useful Vault-Heater, of which the following is a specification.

This invention relates to vault-heaters, and is designed to be used in connection with any of the existing dry-closet systems and to be located at one end of the vault, where the excrements are dropping on a platform; and it has for its object to provide a vault-heater in which the fire and the direction of the currents of heat thereof are under perfect control for either passing the heat directly over and upon the excrements or beneath the same, and thus to provide a heater which has for its main object the drying out of the excrements in a very short space of time, and thus rendering them capable of being readily consumed, and also by its construction to provide means whereby the accumulations of matter may be readily and easily scraped into the fire of the heater, where they will burn green or dry, as desired; and with these objects in view the invention consists in a revolving grate and hood located in a direct line with the ordinary brick platforms of the dry-closet systems and so arranged as to direct the courses of heat in the manner above set forth, and which is provided with special details of construction and operation hereinafter more fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a vault-heating apparatus constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same, the grate and hood being in position to direct the heat beneath the excrement-floor. Fig. 3 is a similar view, the position of the hood and grate being reversed to direct the flame over the floor. Fig. 4 is a detail in perspective of the revolving hood and grate, one end thereof being removed to illustrate the interior construction thereof.

Referring to the accompanying drawings, A designates the front or face plate of the vault furnace or heater, and is constructed of suitable material and is located and supported in the ordinary manner at one end of the ordinary dry-closet vault. Suitably bolted or otherwise secured to the inner face or back of said face-plate and extending inwardly are the sides parallel frame-pieces a, between the outer ends of which is secured the transverse plate or platform a', bolted or otherwise secured to said side pieces and designed to be on a level with the brick platform in the close-vault when the heater is set in position at the end thereof. A semicircular hood B is hinged upon the pivots b in the side frame-pieces a, a, the inner end of which is secured to the hood and grate, and the back of the front or face plate A. Integally formed with said hood or supplemental secured thereto and revolving therewith is the sector C, forming the basket-grate or fire-box, within which the fire is placed, as will be presently described. The said sector or basket-grate contains, with the semicircular hood of which it forms a continuation, three-quarters of a complete circle and is provided with a wall or plate c, inclosing the fire space therein, by means of which the fire is inclosed within the grate, and which also serves as a platform when the position of the hood and grate is reversed, by means of which the excrements can be scraped thereover and into the fire within the heater. A rod D projects through the front face-plate A and terminates in an operating-handle d, while its inner end pivotally connects with one side, forming the semicircular hood, and by means of which connection by operating the rod the whole device may be turned at will in one position, as shown in Fig. 2 of the drawings, where the free end of the hood snugly abuts against the inner end of said transverse plate or platform, and the wall or plate c of the basket-grate being in a vertical position the heat coming from the fire within the same is deflected by the curved hood in a downward direction and beneath the platform, by means of which the excrements are dried from beneath the vault. The other position (shown in Fig. 3 of the drawings) is obtained by withdrawing the operating-rod D and securing the same in this position by means of the notched c' therein engaging the slot or hole in the front plate, through which it works, and in which position the said wall or plate inclosing the grate is...
on a level with both the platform of the vault
and that of the heater, and thus the hood, or,
at least, the opening therein, is in a direct line
to throw the heat across and over the top of
the matter upon the vault-floor or platform,
while at the same time the device is in a posi-
tion which allows the matter to be scraped
within the heater and consumed by the fire
therein. The said sector or fire-box C is pro-
vided with a dumping pan or grate c' of
the ordinary construction, and which is eccen-
trically journalled upon the pivots c' near one
end thereof and in the sides of said fire-box
or sector adjacent to the inclosing wall or
plate, while the opposite ends of the grate or
ends of the grate-bars forming the same ex-
 tended around and follow the curve of the hood
and fire-box and take behind the end of the
top of the hood, and thus is prevented from
dumping, and is always securely and firmly
held in its normal position, forming a continu-
ation of the periphery of the hood, inasmuch
as being eccentrically pivoted within the fire-
box its own weight normally closes the same,
and with the engaging end of the grate is
pushed in to allow the ashes or accumulations
to be dumped from the opposite end adjacent
to the point of pivot when released the grate
will readily fall back, as can be easily seen.

The inner side or top of the hood facing the
front plate A is provided with an opening E,
which is designed for the reception of the fuel
to kindle the fire within the grate, and is
closed and unclosed, when desired, by means
of the curved sliding cover F, that is adapted
to work and slide within the opposite guides
or cleats f, located on either side of said opening
and secured upon the top of said hood. When
it is desired to place the fire within the
grate, the said slide is thrown back to un-
cover the opening in the hood, and access is
had to the interior of the heater through the
swinging door G, hinged to the front face-
plate A and inclosing the opening formed
therein.

Above the door G in the front face-plate is
horizontally hinged the air-door H, which
opens an opening in said front plate, and
which may be thrown open and held in its
open position by means of the hook h, se-
cured to the free edge thereof, engaging the
eye h', secured in the facing of the heater
above said door, and besides allowing a free
circulation of air, when it is desired, over the
brick platform upon which excrement falls
it also provides means whereby the green or
dry matter may be scraped with a suitable
article into the revolving heater located back
of said face-plate. A similar door I, similarly
hinged and provided with a hook I', adapted
to engage the supporting-eye i', is located
beneath the central fire-door G referred to,
and is designed to inclose the opening through
which the dumping-grate may be operated
and the ashes and accumulation may be re-
moved.

The construction and operation of my im-
proved vault-heater is now thought to be ap-
parent without further description.

Having thus described my invention, what
I claim, and desire to secure by Letters Paten-
t, is—

1. In a vault-heater, a frame, a revolving
grate and hood journalled in said frame, and
means for operating said revolving grate and
hood, substantially as set forth.

2. In a vault-heater, a frame, a hood jour-
nelled in said frame, a basket-grate secured
to one end of said hood and forming a con-
tinuation thereof, and means for operating 80
said hood and grate, substantially as set forth.

3. In a vault-heater, a front plate, side
frame-pieces secured to the inner face there-
of, a transverse plate or platform secured be-
tween the outer ends of said side pieces, a re-
volving grate and hood journalled in said side
pieces between said platform and front plate,
and means for revolving said hood and grate,
substantially as set forth.

4. In a vault-heater, a front plate, side
frame-pieces secured to the inner face there-
of, a transverse plate or platform secured be-
tween said side pieces, a semicircular hood jour-
nelled in said side pieces, a sector fire-box se-
cured to or projecting from one end of said
hood and provided with an inclosing wall or
plate and a dumping-grate in the bottom ther-
of, and an operating-rod pivoted to one
side of said hood and projecting through said
front plate, substantially as set forth.

5. In a vault-heater, a frame, a transverse
plate or platform, a semicircular hood jour-
nelled in said frame and provided with an
opening located at one end in the top ther-
of, guides or side cleats secured to the top of
the hood on either side of said opening and a
curved sliding cover working within said
cleats, a sector fire-box secured to or project-
ing from one end of said hood and provided
with an inclosing wall or plate and a grate
eccentrically pivoted within the bottom of
the same, and an operating-rod pivoted to one
side of said hood and projecting through the
frame, substantially as set forth.

6. In a vault-heater, a front plate provided
with inclosed fuel, ash, and air openings, side
frame-pieces secured to the inner face there-
of, a transverse platform secured between the
outer ends of said side pieces, a semicircular
hood journalled in said side pieces, a sector
fire-box and grate secured to or projecting
from one end of said hood and forming a con-
tinuation of said hood, a sliding cover inclos-
ing a fuel-opening in said hood, and an op-
erating-rod pivoted to one side of said hood
and projecting through said front plate, sub-
stantially as set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
presence of two witnesses.

ADOLF G. STAPEL.

Witnesses:
J. C. MICKLER,
HENRY G. REED.