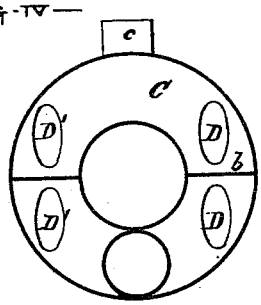
W. E. WOOD.

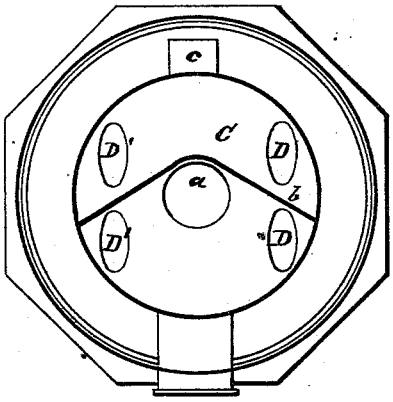
Heating-Furnace.

No. 162,135. Patented April 13, 1875.

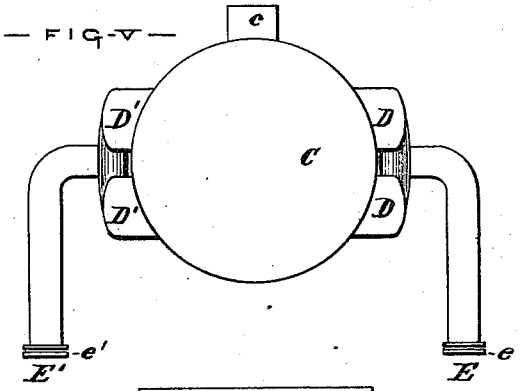
— FIG-IV —



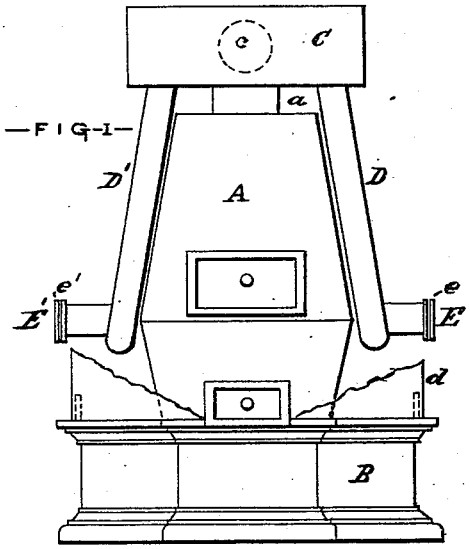
— FIG-III —



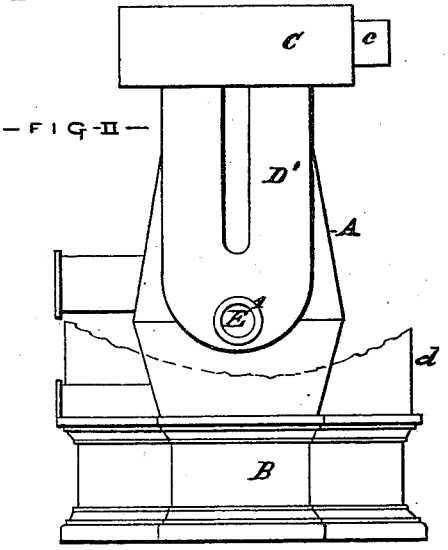
— FIG-V —



— FIG-I —



— FIG-II —



WITNESSES.

Edwin H. Howard.

W. W. Wharton

INVENTOR.

William E. Wood,

by G. H. & W. J. Howard,

his Attys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

WILLIAM E. WOOD, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN HEATING-FURNACES.

Specification forming part of Letters Patent No. **162,135**, dated April 13, 1875; application filed February 26, 1875.

To all whom it may concern:

Be it known that I, WILLIAM E. WOOD, of Baltimore, State of Maryland, have invented certain new and useful Improvements in Heating-Furnaces, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates specifically to the parts of a heating-furnace designed for the conveyance of the gases and other products of combustion from the fire-cylinder to the smoke-pipe; and consists in the combination of a peculiarly-constructed heating-drum, adapted to receive the gases and other products of combustion directly from the fire-cylinder, with a return draft-pipe provided with suitable means for the cleaning of the same.

In the description of my invention which follows, due reference must be had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a front view, partly in section, of a portable heating-furnace embodying my improvements. Fig. 2 is a side view of the same, also partly in section. Fig. 3 is a sectional plan of the furnace. Figs. 4 and 5 are views of portions of the same modified in form.

Similar letters of reference indicate similar parts in all the figures.

A represents the fire-cylinder, resting upon the hollow base B, and provided with the usual doors for feeding and other purposes. C is a drum, connected to the fire-cylinder by the pipe *a*, and is divided by a partition, *b*, into two compartments, one of which is in direct communication with the fire-cylinder by means of the pipe *a* aforesaid, and the other connected to the smoke-pipe *c*. D D′ are return draft-pipes extending from the drum in an inclined direction, and form the only means of communication between the two compartments of the drum C. E E′ are nozzles projecting from the return-pipes D D′ near the lower end thereof, and are designed as means whereby the accumulation of soot and dust in the said pipes may be removed. The nozzles are accessible from the exterior of the casing *d* around the furnace, and are fitted with caps *e e′*, hinged or otherwise secured thereto. In order to prevent the accumulated soot and dust from impeding or obstructing the draft in the return-pipes at the elbow or turn therein, the said pipes at this point are constructed of an increased area of cross-section, as will be seen upon reference to the drawing. The gases, ascending from the fire-cylinder through the pipe *a* to the front compartment in the drum C, enter the return draft-pipes D D′, and are conveyed thence to the second compartment, from which they escape by way of the smoke-pipe. In the conveyance of the gases, as described, they are deprived of the greater portion of their heat, and enter the smoke-pipe in a comparatively cool condition.

In Fig. 4 the drum is shown as of an annular form, but divided by a partition, as hereinbefore described.

In Fig. 5 the nozzle E is elongated and turned at a right angle, in order to bring the opening and cap over the same to the front of the furnace.

I find that in heating-furnaces constructed in accordance with the improvements herein described, the heat radiated from the several heating parts is economically utilized, and that the said parts are adapted to be cleaned without interference with, or removal of, the casing or other stationary portions of the furnace, and that in the utilization of the gases the draft through the various passages is not checked, but rather accelerated.

It is to be understood that my invention contemplates the use of a single return-pipe instead of two, if desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a portable or stationary heating-furnace, the drum C, divided by the partition *b* into two compartments, as shown, in combination with the return draft pipe or pipes, substantially as specified.

In testimony whereof I have hereunto subscribed my name this 16th day of January, in the year of our Lord 1875.

WILLIAM E. WOOD.

Witnesses:

EDWIN H. HOWARD,

LEONARD D. MILLER.