2 Sheets—Sheet 1.

A. GÜETTERMANN.

Heating Furnace.

No. 197,121. Patented Nov. 13, 1877.

Fig. 1.

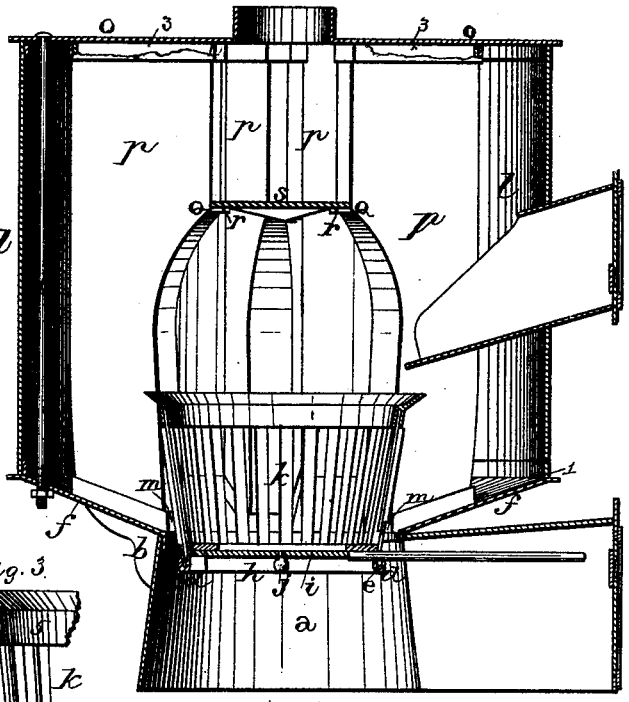


Fig. 3.

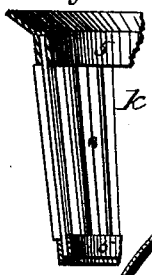
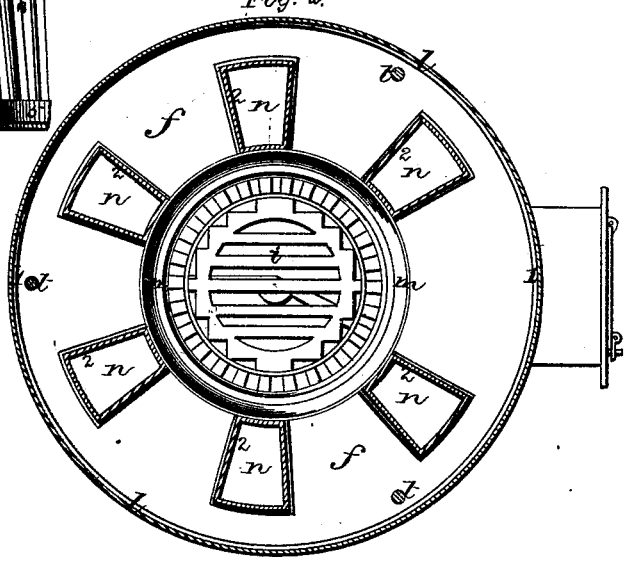


Fig. 2.



WITNESSES.

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2 Sheets—Sheet 2.

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Fig. 4.

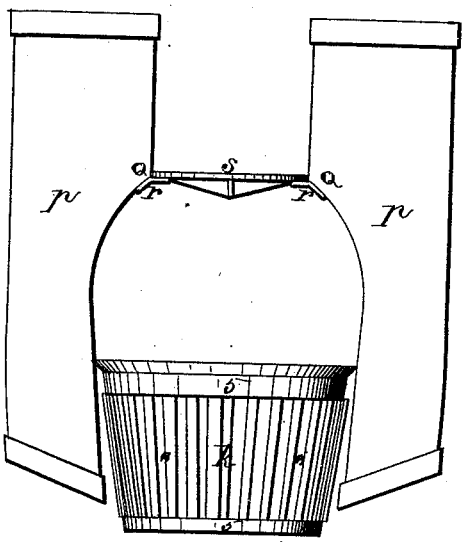
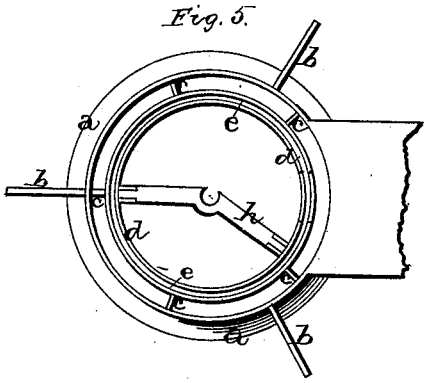


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADAM GÜETTERMANN, OF BELLEVILLE, ILLINOIS.

IMPROVEMENT IN HEATING-FURNACES.

Specification forming part of Letters Patent No. **197,121**, dated November 13, 1877; application filed September 10, 1877.

To all whom it may concern:

Be it known that I, ADAM GÜETTERMANN, of Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Heating-Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in heating-furnaces; and it consists in the arrangement and combination of parts, that will be more fully described hereinafter, whereby a greater amount of heat can be obtained from the same or a less amount of fuel, and whereby the construction of the furnace itself is simplified and cheapened.

Figure 1 is a vertical section of my invention. Fig. 2 is a horizontal cross-section. Figs. 3 and 4 are detail views. Fig. 5 is a plan view of the base.

a represents the base of the furnace, which is made, preferably, in the shape here shown, or in any other that may be desired. Upon the outer side of the circular portion of this base are formed the supports *b*, which assist in supporting the body and bracing it securely in position. On the inside of this circular piece are also formed the supports *c*, which have the grooved ring *d* either formed with them or otherwise secured to their inner ends. The groove *e* in this ring *d* receives the lower edge or flange of the fire-pot of the furnace, so as to hold the parts of the furnace as securely in position as possible. Upon the inside of this ring *d* are formed two grooved supports, which receive the ends and support in position the bar *h*, that supports the grate *i* in position. Upon one side of this bar *h* is formed a socket, to receive the ball *j* on the under side of the grate *i*. One side of the socket is cut partially away, so as to allow the stem of the ball to pass down in this cut-away portion when the grate is turned or tilted over, for the purpose of emptying the contents of the fire-pot *k*. The outer edge of the grate *i* is formed into sharp, abrupt corners, as shown, so as to readily break and crush the cinders and clinkers that may be in the fire-pot, and thus prevent the necessity of having to take them out from above. Upon the under side of the grate *i* are formed two or more flanges, which serve as stops to hold the grate in position.

The base-plate *f* of the furnace has a flange formed around its lower edge, so as to catch in the inside of the base *a*, and has another flange, 1, upon the upper side of its outer edge, so as to catch inside of the drum or cylinder *l*. Through the center of this plate is made a large circular opening, *m*, for the fire-pot to pass through, and around this large circular opening are a number of smaller openings, *n*, around each one of which is formed a flange, 2. Over the top of each one of the openings *n* is placed a flue, *p*, which are long enough to pass up through the drum *l*, and have their upper ends held by flanges 3, formed on the under side of the top plate *o*. These flues are straight, or nearly so, upon their outer edges, and are widest at their outer and narrowest at their inner edges, as shown. The narrower or inner edges are curved from their bottoms up to the point *q*, as shown, so as to form a bell-shaped chamber above the top of the fire-pot. Owing to the peculiar shape of these flues, the fire-pot is not allowed to pass down through the hole *m*, so as to be supported by the base-plate, but has its upper edges supported against the inclined sides of the flues, thereby leaving a space all around the fire-pot between the base-plate. Through this space around the fire-pot air is constantly admitted, not only so as to promote combustion, but to prevent the base-plate from becoming too much heated and being burned away. At the point *q* on the inner edge of each flue is formed a support, *r*, upon which rests the small plate *s*, which just fills the space between the inner edges of these flues, and prevents the heat and products of combustion from passing directly up the chimney. By thus preventing the products of combustion from passing up the chimney the heat is made to pass around the sides of the flues, so as to still more heat the air that is passing through them.

It will be noticed that there is an air-space all around each one of the flues, and that the drum or cylinder does not come in contact with any one of them. By thus leaving a

space around each one the heat circulates freely about them, and thus they are heated more thoroughly, and the whole surface of the cylinder is used for radiating heat out into the room.

The top plate *o* is fastened securely down upon the tops of the flues and to the other parts of the furnace by means of the screw-rods *t*, or other suitable fastening devices.

The fire-pot *k* is formed of the two rings 5, each of which has its inner edge grooved, so as to receive the ends of the bars 6. These bars may have one or both of their ends made T-shaped; or they may be separated in any suitable manner, so as to leave a sufficient air-space between them, as shown. Should any one of them be burned out, it can be readily renewed at a very small expense.

Having thus described my invention, I claim—

1. The combination of the base *a*, having the grooved ring *d e* and the supports *b*, with the flanged base-plate *f*, substantially as shown.

2. The flues *p*, having their inner sides inclined to form a support for the fire-pot, and thus leave an air-space between the fire-pot and base-plate *f*, substantially as specified.

3. The combination of the deflecting-plate *s* and hot-air flues *p*, the plate being arranged between the flues, to deflect the heat outward around the sides of the flues, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of August, 1877.

ADAM GÜETTERMANN.

Witnesses:
JOS. TROLL,
F. BECHTOLD.