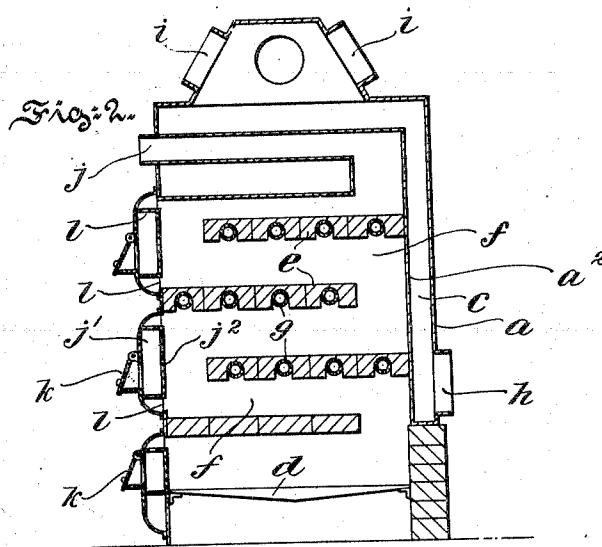
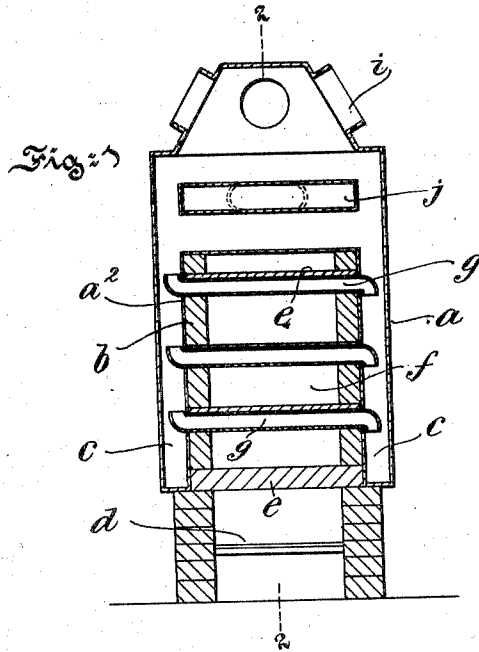


No. 820,931.

PATENTED MAY 15, 1906.

H. K. KRIEBEL.
FURNACE FOR BURNING COMMINUTED MATERIAL.
APPLICATION FILED DEC. 29, 1904



WITNESSES:

Warren F. Martin
Frank Osborne

INVENTOR.

Henri Kriebel
BY
William S. Jackson,
ATTORNEY.

UNITED STATES PATENT OFFICE.

HOSEA K. KRIEBEL, OF PHILADELPHIA, PENNSYLVANIA.

FURNACE FOR BURNING COMMINUTED MATERIAL.

No. 820,931.

Specification of Letters Patent.

Patented May 15, 1906.

Application filed December 29, 1904. Serial No. 238,756.

To all whom it may concern:

Be it known that I, HOSEA K. KRIEBEL, a citizen of the United States, residing in the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Furnaces for Burning Comminuted Materials, whereof the following is a specification.

It is one object of the present invention to provide a furnace of the type commonly known as "hot-air furnaces" with suitable shelves or supports for the materials to be burned.

A further object is to so construct the air chambers or compartments that the furnace proper is surrounded by the same.

A still further object is to provide passages parallel with the shelves or supports so arranged as to connect the air-chambers by passing through the furnace proper.

Another object is to provide simple, efficient, and comparatively inexpensive apparatus for attaining those ends.

Other objects will appear hereinafter.

The invention consists of the improvements hereinafter described and finally claimed.

The nature, characteristic features, and scope of the invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a sectional view of a hot-air furnace embodying the invention, and Fig. 2 is a sectional view taken on the line 2 2 of Fig. 1.

The furnace may be constructed of any suitable material, such as is well known in the manufacture of such apparatus. As shown in the drawings, the housing or casing *a* is metallic and the part *b* fire-brick, surrounded by a second casing *a*². Between the said casings is an air chamber or compartment *c*, which may partially encircle the fire-brick construction. *d* is a fire-grate, and *e* represents a series of shelves or supports between which are passages for the circulation of gases *f*.

As shown in the drawings, the shelves *e* are formed of fire-brick and have embedded in them pipes *g*, which communicate with the air-chamber *c*. However, this construction is not material to the invention, and the pipes may be omitted, although when present a better circulation of air is maintained with an increased presentation of heating-surface. By constructing the pipes as shown—that is,

having the opposite ends turned in a reverse direction—air is caused to circulate more freely.

h is the fresh-air inlet, and *i* represents the outlets for distributing the heated air to the place to be heated.

j is the outlet or exhaust for the products of combustion. At the front of the furnace and hinged thereto are means for obtaining access to the furnace. They are provided with air-compartments *j*¹ and baffle-plates *j*² and suitable ventilators or draft-doors *k*, having communication with the furnace by means of ports or openings *l*. It will be seen by reference to Fig. 2 that these openings are arranged immediately above the shelves or supports and also above the grate-bars.

In practice it has been demonstrated that the draft produced by the arrangement is all that is necessary to the successful operation of the furnace and does away with forced drafts and drafts operating through the bottom of the furnace.

The above-described apparatus is calculated to burn materials such as culm, peat, coal-screenings, &c., and a description will now be given of the manner of burning same. The fire is started upon the grate-bars, and when the shelf immediately above the said bars has become sufficiently heated to ignite the materials to be burned the same are introduced through the door opposite to said shelf, and when the shelf above has in turn become duly heated the operation is repeated, and so on until the entire furnace is in operation.

In practice it has been shown that a long interval (approximately twenty-four hours) elapses before the furnace will need attention other than perhaps regulating of the air-ports through the parts *k*. After this long run of the furnace the ashes on the shelf immediately above the grate-bars are raked or pushed into the ash-pit and the contents of the shelf immediately above are raked onto the shelf thus emptied, and so on upward until the top shelf is reached, when a new charge of material is introduced to said shelf. This construction of furnace is at once economical and efficient and by virtue of the heated gases coming in contact with the numerous air compartments and passages increased heating facilities are provided.

It will be obvious to those skilled in the art to which the invention appertains that modifications may be made in details without de-

parting from the spirit thereof. Hence the invention is not limited further than the prior state of the art may require; but,

Having thus described the nature and objects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

5 A furnace for burning comminuted materials provided with a series of superposed communicating hearths that overlap to form
10 a tortuous flue, an air-chamber almost wholly surrounding the furnace, a series of pipes horizontally arranged across the furnace and partially embedded in said hearths that communicate with the air-chamber, means lo-

cated beneath the lowest hearth for heating 15 the same to initially start the furnace and means opposite the hearths for introducing the materials to be burned provided with doors equipped with ports for the admission of air arranged above the level of the respec- 20 tive hearths, substantially as described.

In testimony whereof I have hereunto set my hand and seal this 28th day of December, A. D. 1904.

HOSEA K. KRIEBEL. [L. s.]

Witnesses:

WARREN F. MARTIN,
W. J. JACKSON.