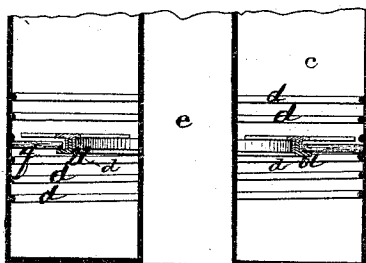
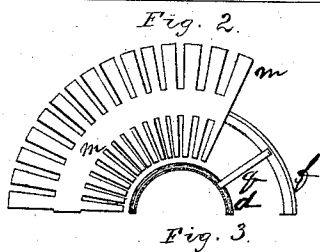
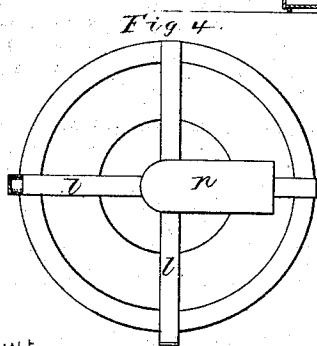
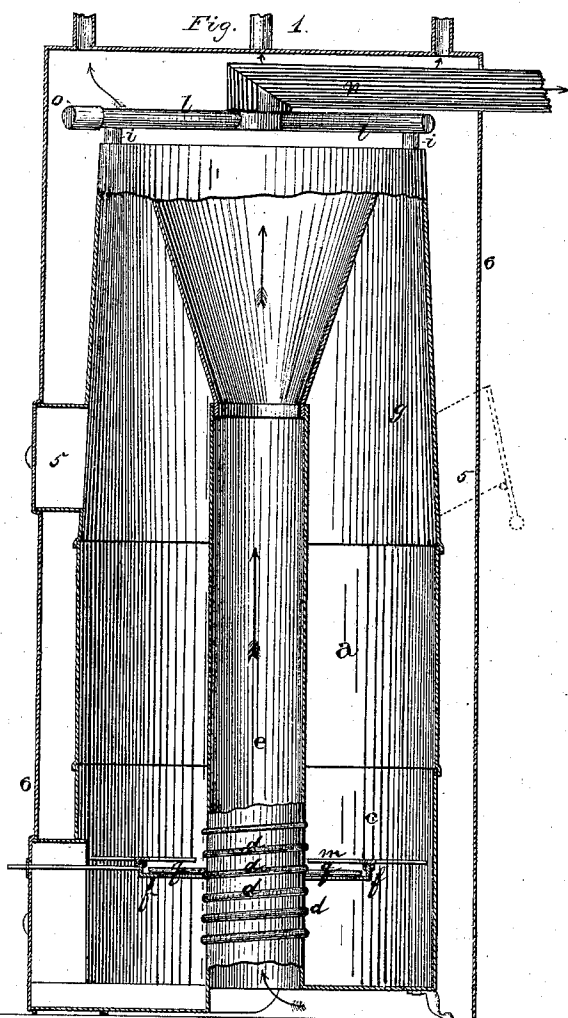


O. BELLMAN & W. H. ARMSTRONG.
Hot-Air Furnaces.

No. 147,812.

Patented Feb. 24, 1874.



WITNESSES:
Wm. L. Hendig.
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Atty.

UNITED STATES PATENT OFFICE.

OSCAR BELLMAN AND WILLIAM H. ARMSTRONG, OF HAGERSTOWN, MD.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **147,812**, dated February 24, 1874; application filed May 22, 1873.

To all whom it may concern:

Be it known that we, OSCAR BELLMAN and WM. H. ARMSTRONG, of Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Stoves and Furnaces; and we 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.

The nature of our invention relates to an improvement in stoves and furnaces; and it consists in a spiral rib upon the periphery of the central tube, or upon the inside of the ash-pot, in combination with other devices.

Figure 1 is a part section view of our invention. Fig. 2 is a plan view of a section of the grate and table. Fig. 3 is a modification of Fig. 1, showing the rib upon the side of the ash-pot. Fig. 4 is a plan view of the smoke-pipes as arranged upon the top of the furnace.

a represents the body of the furnace, made in three or more sections, and so constructed that one can be fitted upon the other without the use of screws or bolts, thereby not only simplifying the construction, but saving time in putting the furnace together and taking it down. Extending up through the central part of the fire-pot *c* is one or more air-tubes, *e*, having a funnel-shaped top, through which the air passes to be heated, and which serve not only as heating-surfaces for the air, but which also serve to modify the intense heat in the center of the fire. By means of these tubes not only is a greater heating-surface obtained, but the burning and melting of the grate and fire-pot prevented. The top section *g* of the frame has an inverted cone-shaped opening through its top, which fits in or over the top of the air-passage, and any desired number of pipes, *i*, arranged around at different points, so as to convey the smoke and products of combustion to the intersecting-pipes *l*, from whence they escape into the main smoke-pipe

n. These intersecting-pipes are each provided with a suitable cap, *o*, fitting over or in one end, so that the pipes can be readily cleaned when so desired. Around the air-tube, or around the inside of the ash-pot, is arranged a spiral rib, *d*, upon which a table, *f*, provided with any suitable number of arms, *q*, is supported, and which, by being revolved, can be raised or lowered the full length of the rib. Where a single air-tube is used, it may be preferable to have the rib cast upon it; but, should more than one be desired, then the rib can be cast with the fire-pot, as shown in Fig. 3. The grate *m*, Fig. 2, is cast in sections, and supported upon the top of the table, and by means of the revolving adjustable table can be raised and lowered so as to suit the amount of fire desired, or to clean out the clinkers. The top section *g* is provided with any desired number of doors, *5*, through which the fuel is fed to the fire, and which may be arranged or constructed in any desired manner.

Over the whole furnace, when used for heating different parts of the house, is placed a hood or wall, *6*, having suitable pipes leading from its top to convey the heat away to any desired part of the house.

These improvements are equally applicable to stoves, or portable or stationary furnaces.

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

The above-described arrangement and combination of the funnel-shaped central tube *e*, having a spiral rib, *d*, the fire-pot *c*, table *f*, grate *m*, and furnace-wall *6*, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 19th day of May, 1873.

OSCAR BELLMAN.
WM. H. ARMSTRONG.

Witnesses:

M. L. BYERS,
C. F. BIKLE.