T. F. HEMMICH.

HOT-AIR FURNACE.

No. 171,281. Patented Dec. 21, 1875.

Fig. 1.

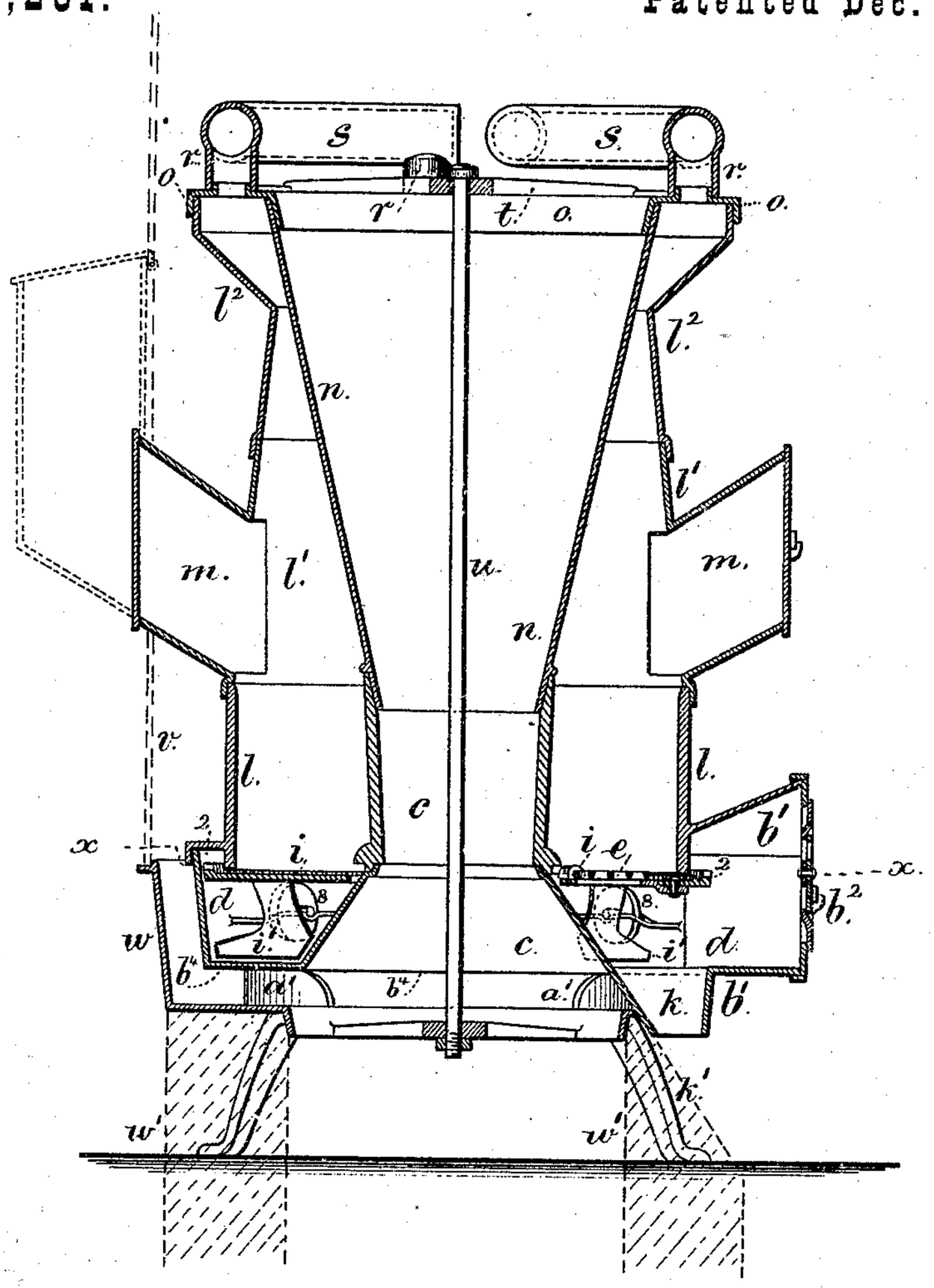
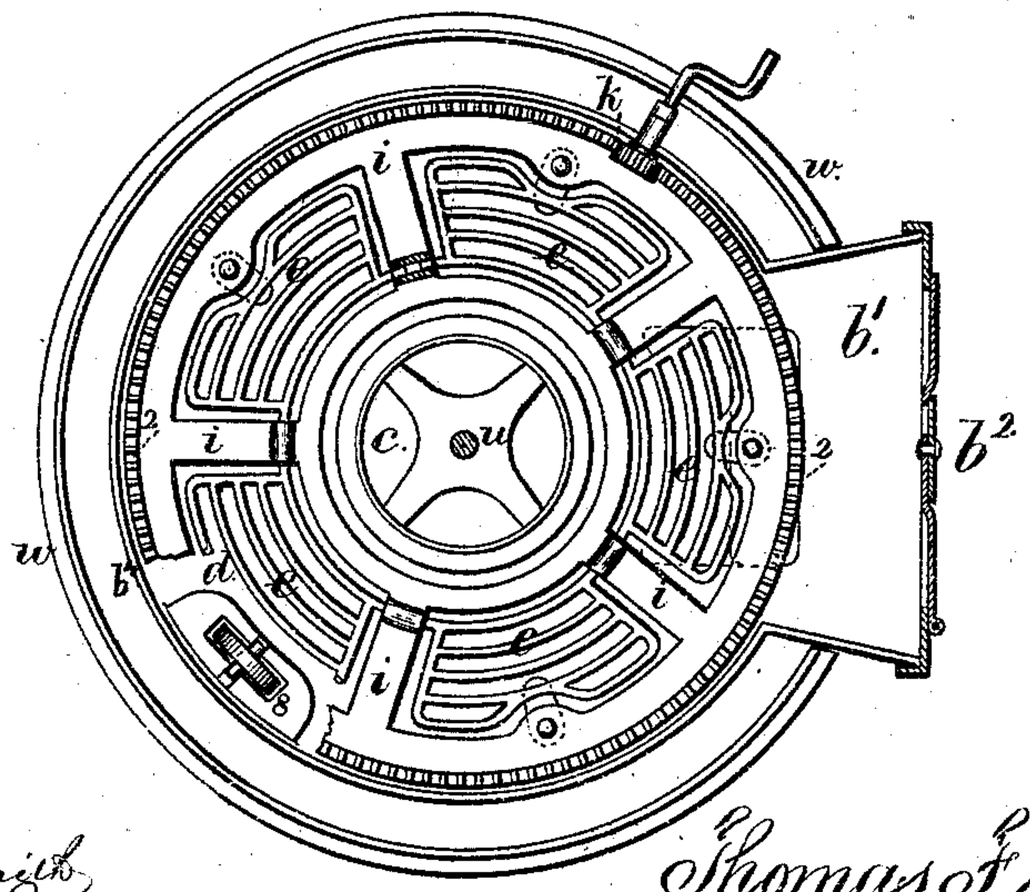


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS F. HEMMICH, OF READING, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND ELIAS FRITZ, SR., OF SAME PLACE.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **171,281**, dated December 21, 1875; application filed October 25, 1875.

To all whom it may concern:

Be it known that I, THOMAS F. HEMMICH, of Reading, in the county of Berks and State of Pennsylvania, have invented an Improvement in Heating-Furnaces, of which the following is a specification:

The object of this invention is to introduce the air to be heated through a trunk or case that is central within the fire, whereby the fire forms a ring around such air-tube, and exerts a great influence upon the same, to heat the atmospheric air passing through the same.

In the drawing, Figure 1 is a vertical section of the said furnace. Fig. 2 is a plan of the same at the line *x x*.

The base b^4 is made as an annular channel, *d*, above which are the grates *e e*, formed as sections, set in a ring-frame, *i*, and this ring-frame *i* and grates can be revolved by the crank and pinion *k* acting upon the teeth 2 upon the said ring-frame. The frame *i* rests upon rollers 8, and each grate may be hinged so as to be dropped by moving a button. There is also a case, b^1, and door at b^2, that give access to the space below the grates, and regulate the supply of air to the fire. This means of moving the grate is employed in stirring the fire, and freeing the same from ashes.

The ashes that fall into the annular trough or channel *d* are scraped around by scrapers *i'*, upon the circular frame *i*, and fall away, through the opening or trunk *k*, into any suitable ash-pit, at *k'*.

The outer casing or fire-pot *l* is extended up, preferably, with two other casings or cylinders, l^1 l^2, and in the casing l^1 there are the supply-chutes *m*, with doors, or with coal feeders or magazines, as indicated by dotted lines. The center air-tube or cylinder *c* is continued upwardly with an inverted conical casing, *n*, so that the space over the ring of fire is contracted, and thereby the products of combustion are made to impinge upon the metal casings, and heat them and the atmosphere that is in contact with their exterior surfaces.

A ring, *o*, closes the space between the outer and inner casings at the top; but there are vertical pipes *r* through the same, opening into the circular pipe *s* that leads to the smoke flue or chimney. In this manner the products of combustion are confined sufficiently to compel the heat to be given out through the casings, but at the same time the draft is direct. The pipe *s* may, however, open into a descending flue.

At the upper end of the furnace there is a clamping-bar, *t*, with arms resting upon the ring-plate *o*, and a single tie-bolt, *u*, passing through the same, and to the base of the furnace, serves to hold the entire furnace together.

When this furnace is set upon a foundation of masonry, as illustrated by dotted lines at *w'*, the cylindrical base-plate *w* rests directly upon such masonry, and there is a central opening in such plate, and the masonry is hollow, so as to allow the atmosphere from an underground flue to reach this opening freely.

When the mason-work is not employed the base-plate *w* is to be sustained upon legs, and the atmosphere preferably admitted through an opening in the floor, and passes through a sheet-metal cylinder to the opening in the said base-plate *w*. In either instance a portion of the atmosphere passes beneath the annular base b^4, and ascends between the flanges *a'* that support the furnace, and in close contact with the outside of the furnace, and another portion passes up the inside central air-flue *c*, and, coming in contact with the conical heated fire-pot and central flue-cylinders, the atmosphere not only becomes highly heated, but also tends to cool both the inside and outside portions of the furnace at the places most exposed to the intense action of the fire.

An outer sheet-metal case, *v*, raised sufficiently from the floor, serves to inclose the warm air around the furnace, and make it circulate to the air pipes or tubes that convey the heat to the portions of the building to be warmed.

I do not claim a stove or heater in which there is a central air-flue passing through the fire, as this has been employed. My invention relates to the mode of constructing the heater, whereby this central air-flue and the

other parts of the stove are combined, and rendered more effective and less liable to injury in use.

I claim as my invention—

1. The annular channel *d* and ring-frame *i*, in combination with the grates *e*, scrapers *i'*, and means for revolving the grate, substantially as set forth.

2. The ring *o*, tubes *r*, and circular flue-pipe *s*, in combination with the central air-casings *c n*, and external casings *l* l^1 l^2, as set forth.

3. The base *w*, with a central opening for atmospheric air, and provided with flanges or supports *a'* for the furnace, in combination with the annular fire space and pots, substantially as set forth.

Signed by me this 21st day of October, 1875.

THOS. F. HEMMICH.

Witnesses:

GEO. T. PINCKNEY,

HAROLD SERRELL.