M. HELBLING.

Heating-Stove.

No. 215,742. Patented May 27, 1879.

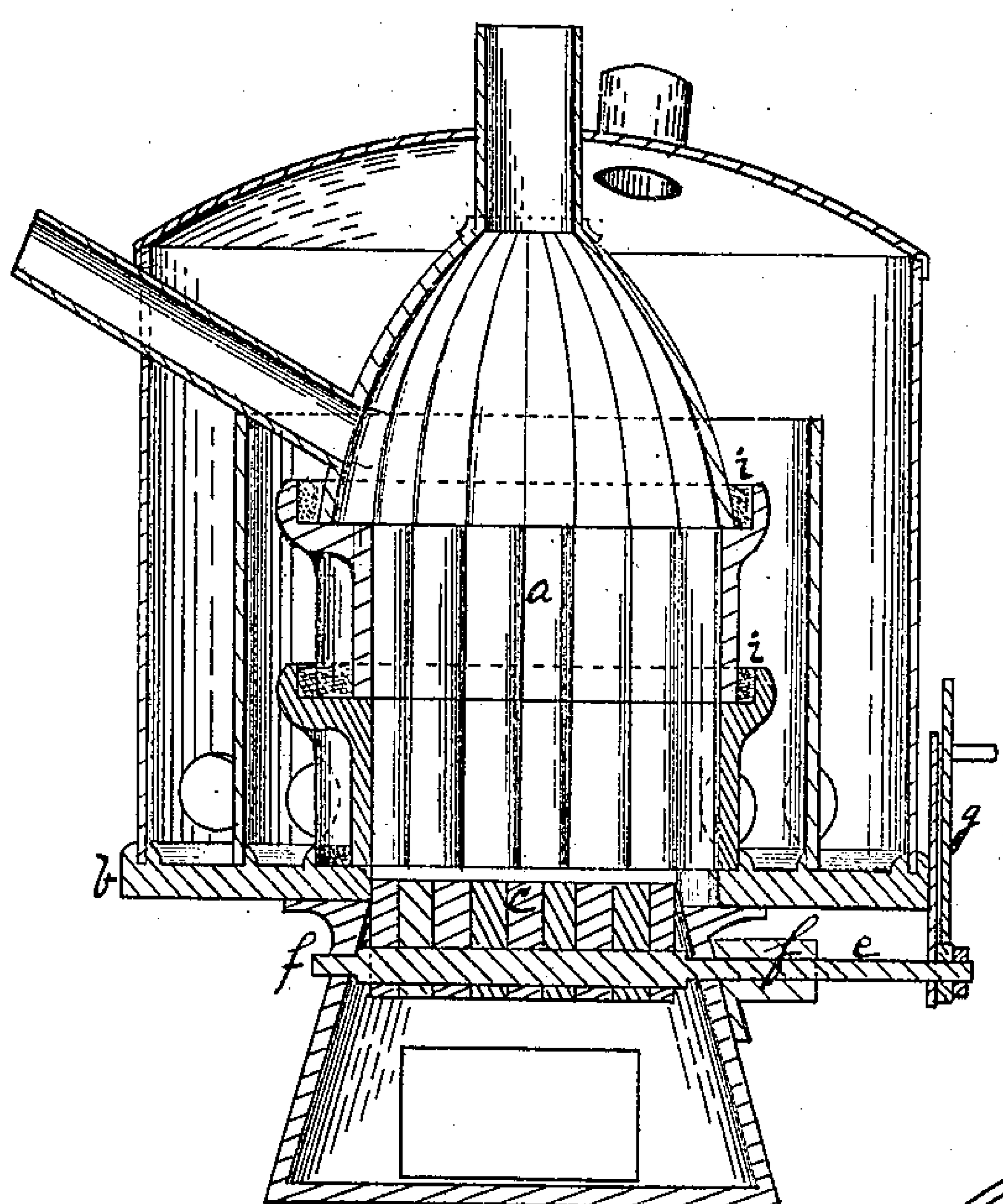

Fig. 1.

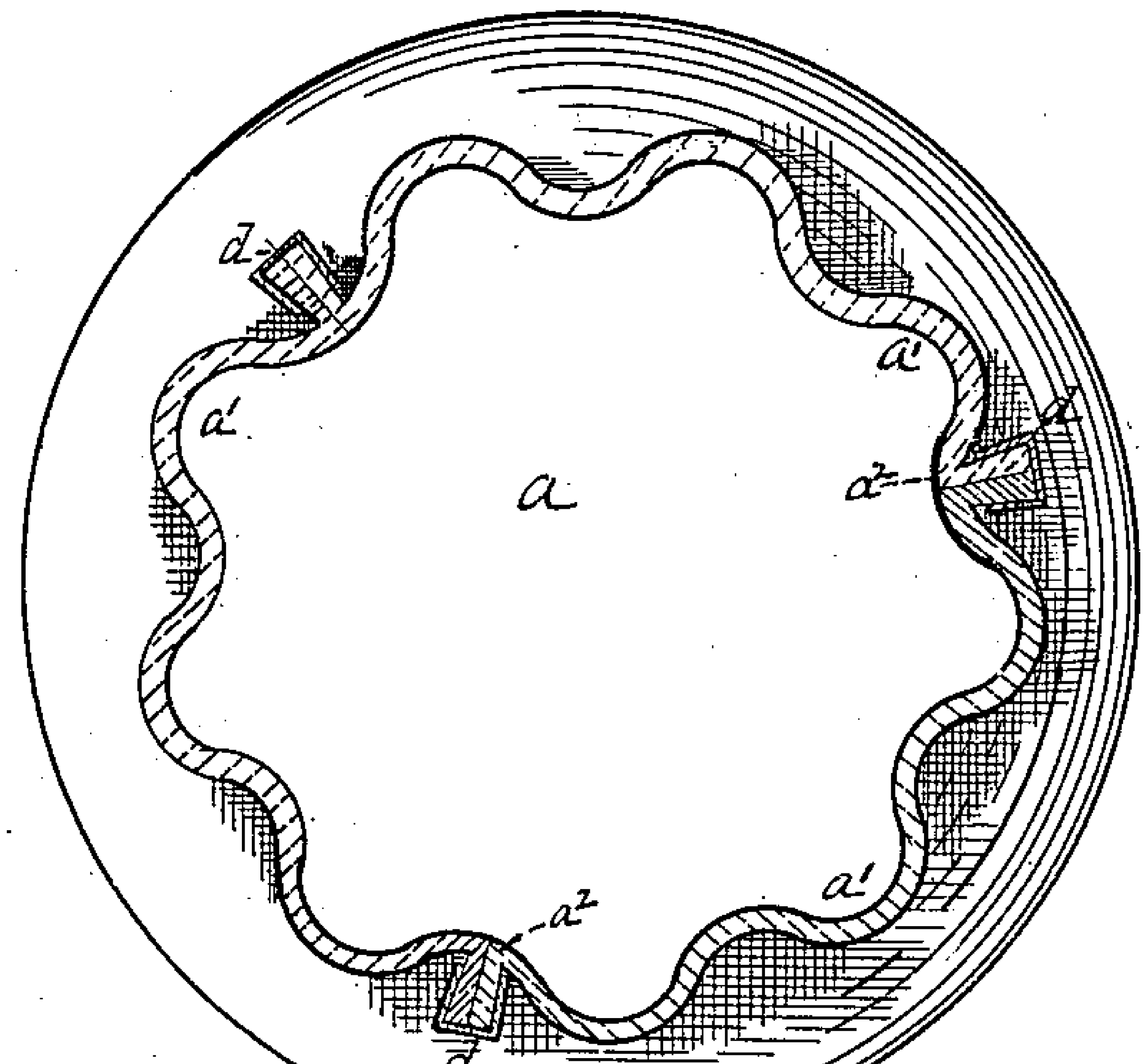

Fig. 3.

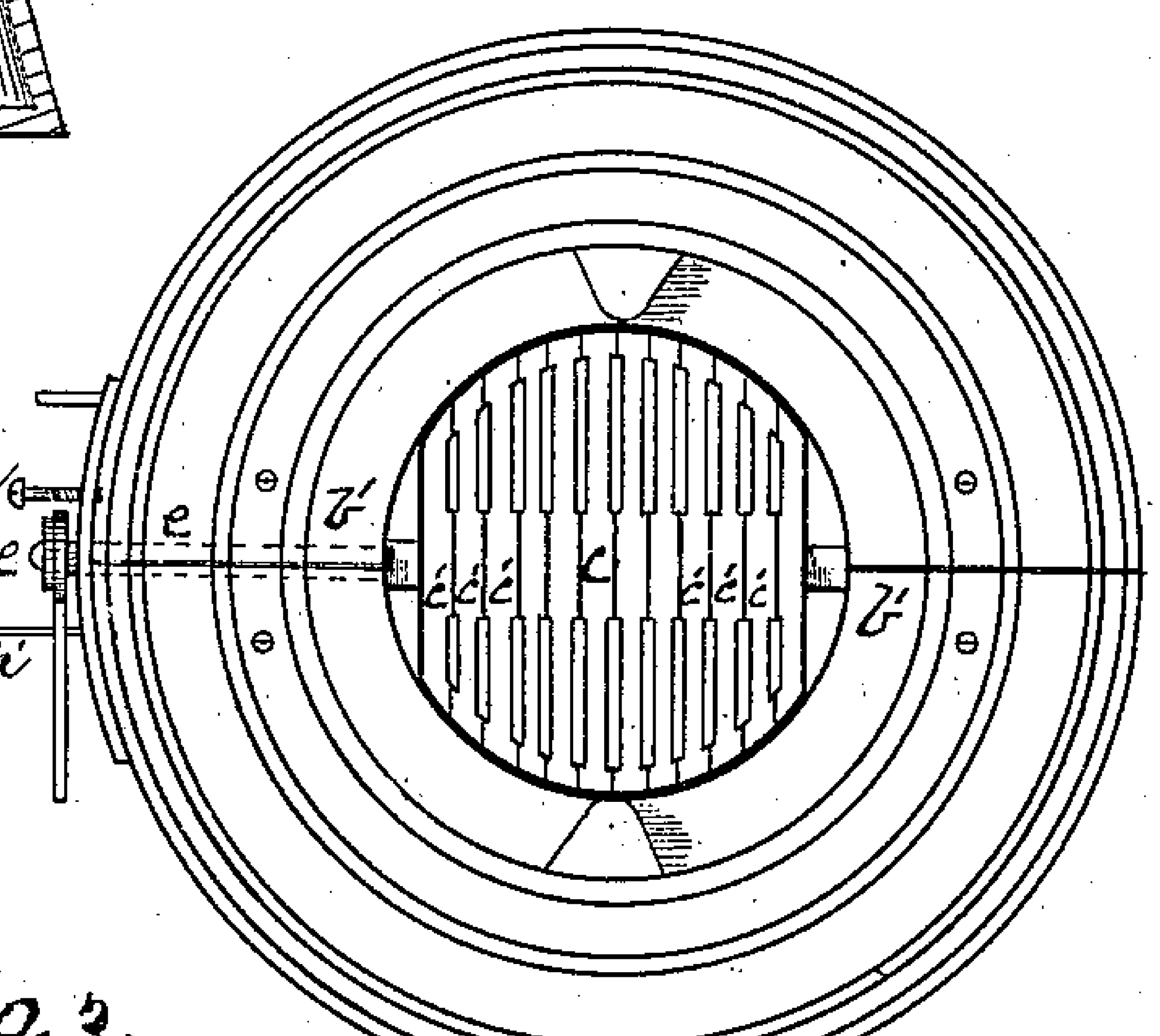

Fig. 2.

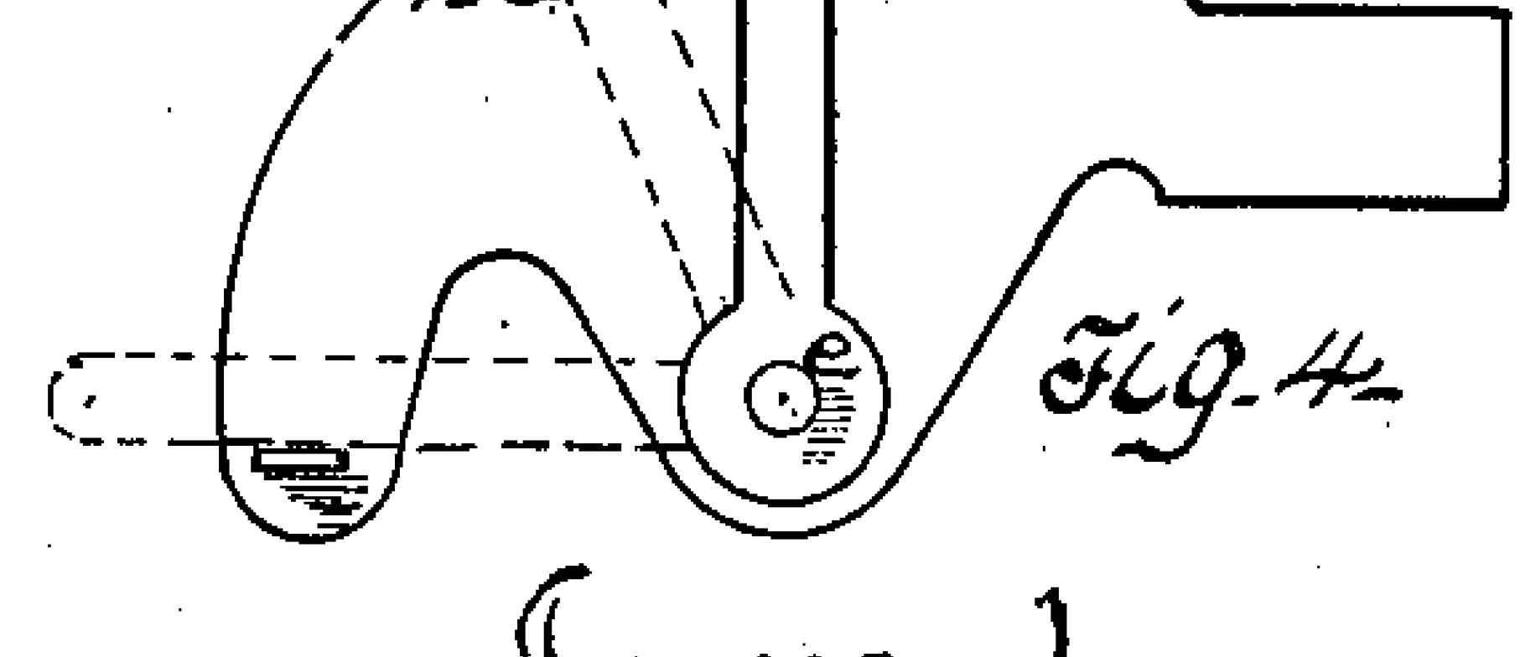

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

MICHAEL HELBLING, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **215,742**, dated May 27, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, MICHAEL HELBLING, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Stoves for Heating Purposes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view of my improved furnace. Fig. 2 is a plan view of base-plate and grate. Fig. 3 is a horizontal section of the cylinder, and Fig. 4 is a detached view of the crank for agitating the grate-bar.

Like letters of reference indicate like parts in each.

It is a well-known principle in physics that when iron is exposed to variations of temperature it expands and contracts as the temperature rises or falls. This expansion and contraction is in time productive of serious injury, weakening and rupturing the joints of rigidly-united parts and fracturing solid parts.

The purpose of my invention is to remedy this difficulty in the construction of hot-air furnaces and stoves; and it consists in making the fire-pot and like parts, which are most exposed to the heat, in sections—horizontal and vertical—and so uniting them that the expansion and contraction will not injure the stove, nor the joints between the sections.

The parts of the hot-air stove illustrated which are most exposed to the heat are the cylinder *a*, the base-plate *b*, and the grate *c*. It will be noticed that I have made each of these parts in sections, the cylinder being formed of two or more sections, a^1, the base-plate of sections b', and the grate of separate bars c'. The sections a^1 are provided with flanges a^2 along their edges, and are united to form the cylinder by clamps *d*, sprung over each two adjacent flanges.

This construction may be varied by the use of compensating-bolts in place of the clamps.

The sections of the base-plate *b* are each fastened independently to the frame of the ash-box, and the grate-bars c' are mounted independently upon the shaft *e*, which passes through a suitable opening in the web of each bar.

The result of this construction is, that the expansion and contraction of each separate piece is independent of that of the others, and thereby all straining of one part on another is prevented, and as each piece is comparatively small, so also is the expansion and contraction of each.

The clamps which fasten the cylinder-sections a^1 together have a slight spring action to accommodate the expansion and contraction of the sections. If bolts are used for fastening the sections, they should be adapted for the same purpose.

The grate *c* is mounted on the shaft *e*, which rests in bearings *f*, and is provided with a crank, *g*, for shaking the grate. The movement of the crank is limited by the stops *h h'*.

When it is desired to empty the grate of clinkers, cinders, &c., the stop h' is removed and the grate is turned over by throwing the crank forward.

The grate may be removed by drawing out the shaft *e* and then taking it out through the ash-pit door.

The stove is put together, in the usual way, with cemented joints *i*, and is surrounded with the usual casings and flues of a hot-air furnace. The same construction is of great utility in common cylinder and egg stoves.

It is often the case that one part of the stove is injured by the expansion and contraction, while the other parts remain sound. With my construction the injured portion may be removed and replaced by a sound piece with but little trouble. This is especially useful in connection with the grate, the bars of which very frequently burn out. Whenever this happens the defective bar may be removed by drawing out the shaft *e*. A new bar may then be slipped on in place of the one removed.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a stove, a fire-pot or like part composed of a series of vertical and horizontal sections, the vertical sections held together by clamps or their equivalents, substantially as and for the purpose specified.

In testimony whereof I, the said MICHAEL HELBLING, have hereunto set my hand this 22d day of March, A. D. 1879.

MICHAEL HELBLING.

Witnesses:

R. H. WHITTLESEY,

T. B. KERR.