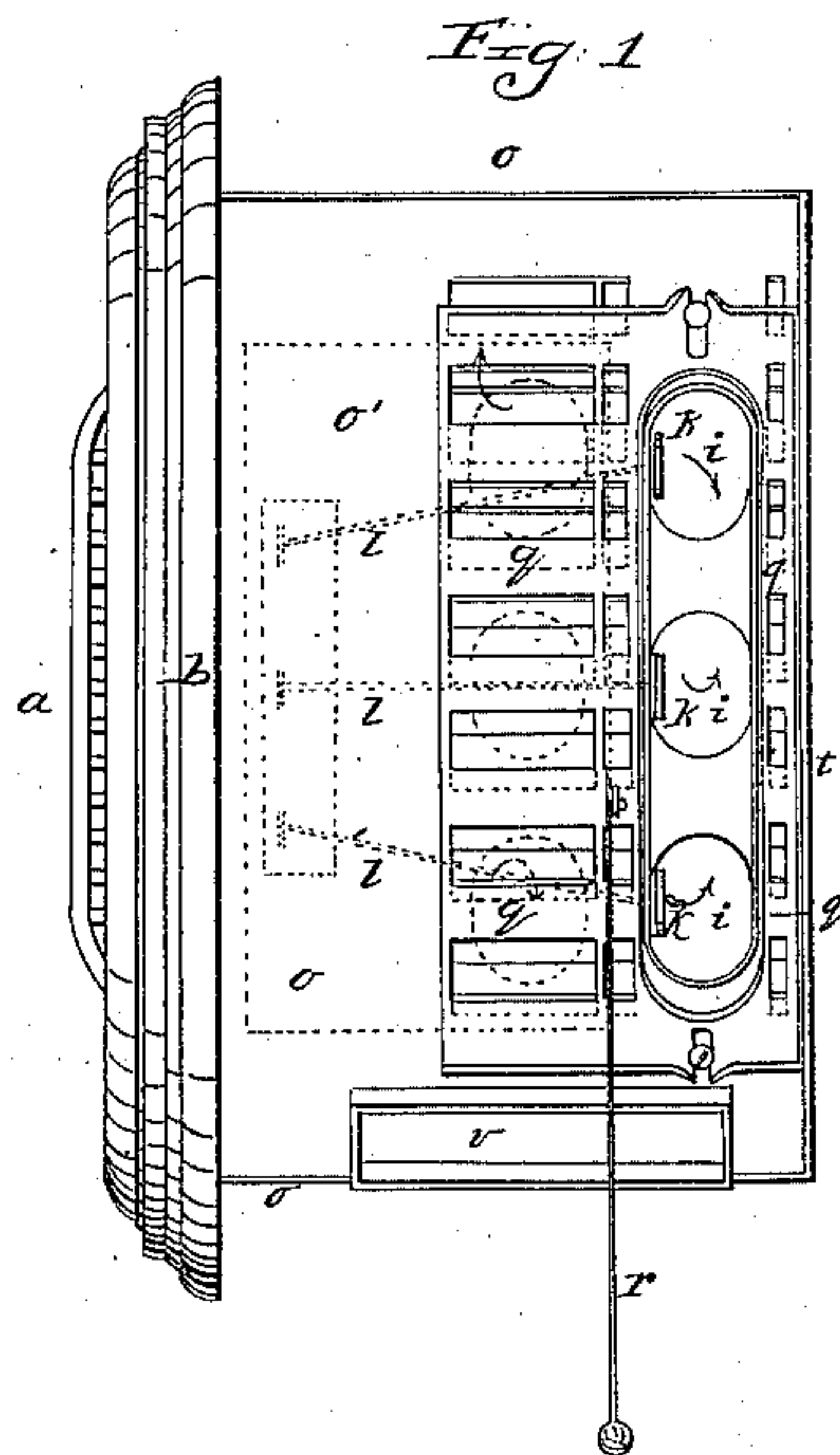
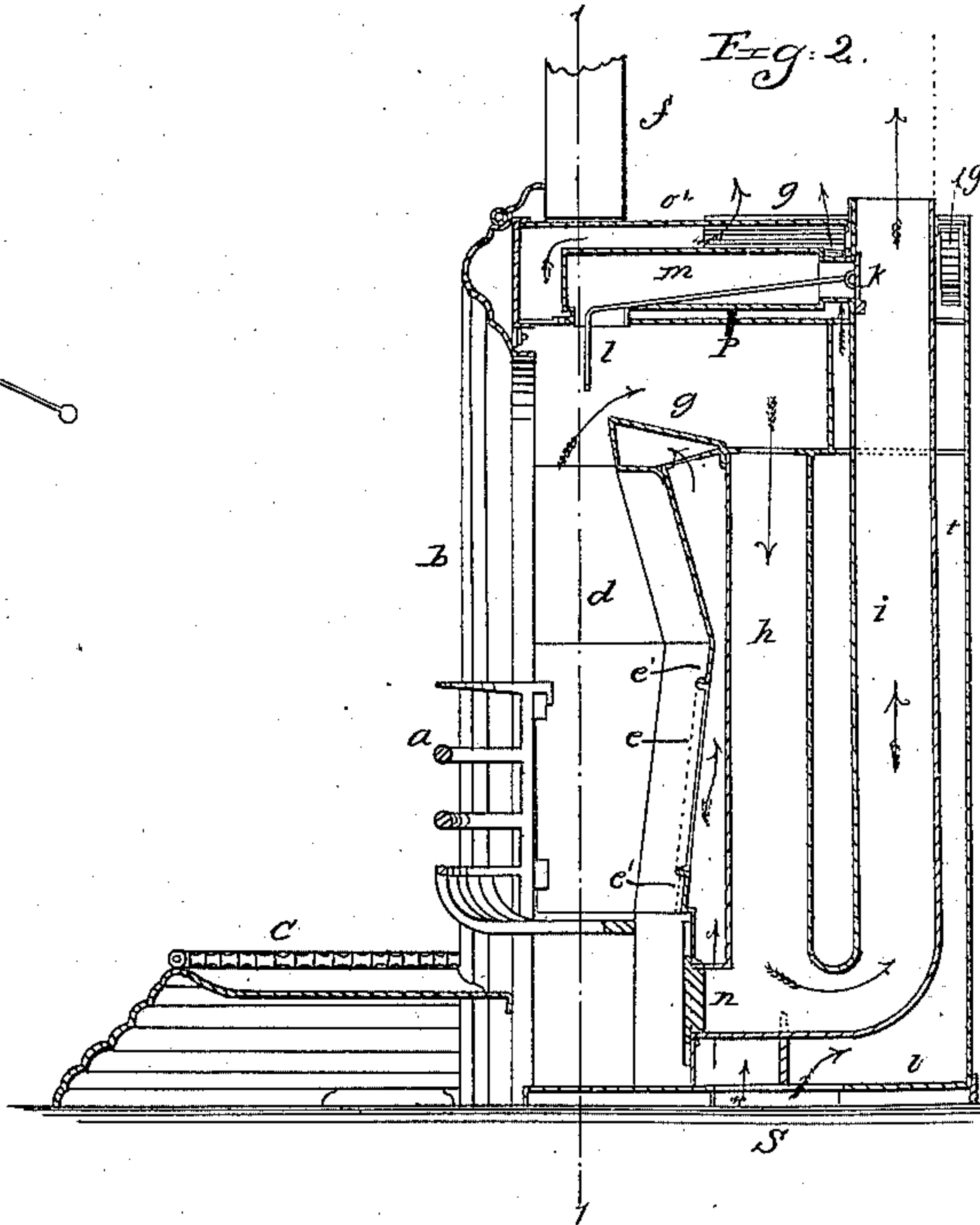
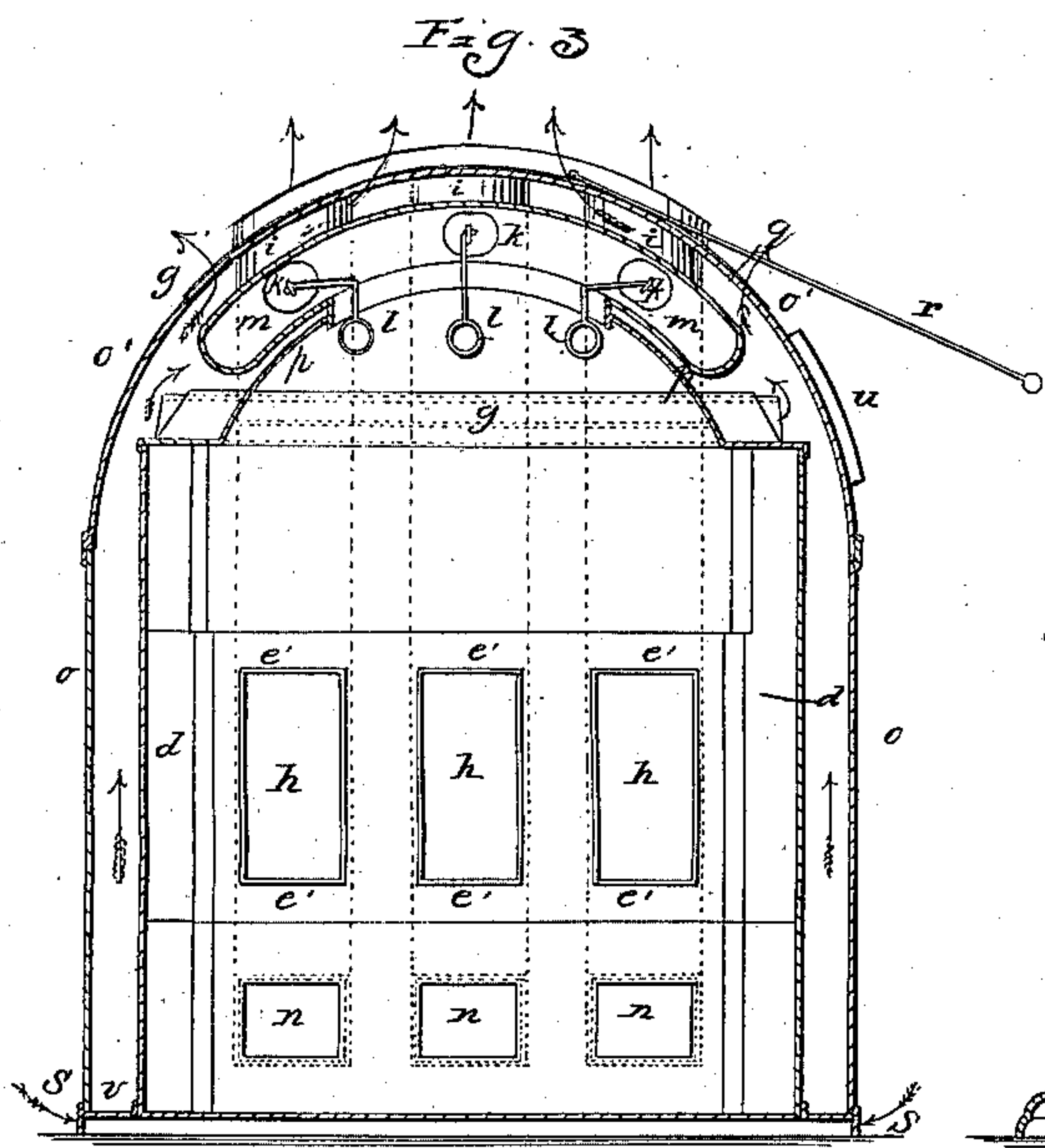


S.S. Bent,

Fire Place.

No.
33,412.

Patented Oct. 1. 1861.



WITNESSES:

Geo. Harold
Chas H. Smith

INVENTOR:

Samuel S Bent

UNITED STATES PATENT OFFICE.

SAMUEL S. BENT, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
THOMAS BENT, OF SAME PLACE.

IMPROVEMENT IN FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. 33,412, dated October 1, 1861.

To all whom it may concern:

Be it known that I, SAMUEL S. BENT, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Fire-Place Heaters; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of my said heater. Fig. 2 is a vertical section, and Fig. 3 is a front view, the upper parts being in section at the line 1 1 of Fig. 2.

Similar marks of reference denote the same parts.

Several heaters have heretofore been constructed to occupy the place of an open grate and serve not only for warming the room in which they are located, but also rooms above through the agency of hot-air flues. In many of these instances the open grate is entirely removed and a stove takes its place, besides which the heater is very seldom adapted to occupy the place of the grate without changing the mantel or modifying the mode of setting of the mantel or the parts behind it.

The nature of my said invention consists in heating-pipes applied in a chamber, from which air passes to rooms above, in combination with a grate set in such a manner that the same could scarcely be distinguished externally from any ordinary grate, and while the heat is not diminished in the room the otherwise waste heat acts to warm up another room or rooms. I am aware that air-spaces have been used with an open grate; but by my device I am enabled to convey the hot air from the chamber behind the grate to the room or rooms above in a regulated quantity.

In the drawings, *a* is a grate of any ordinary construction. *c* is the fender. *b* is the frame surrounding the grate. *d d* is the lining of fire-brick or soapstone at the sides of the grate, and *e* is the lining at the back. *f* represents the position of the mantel-face surrounding the grate-frame. These parts may be of any usual size or shape.

g is the breast-wall, formed as a hollow triangular metal box that opens at the under side and at the ends into the air-chamber formed at the rear of the fire-place, so that

air will circulate in at the bottom and out at the ends of said box to keep it comparatively cool and impart warmth to the circulating air. The red arrows represent the air that circulates in the chambers, while the black arrows show the direction of the fire-draft. To the rear of this box *g* is a plate connecting to the arch-plate *p* above. *h h* are descending-flue pipes uniting at the lower ends with the ascending-flue pipes *i i*. These flues *i i* may proceed separately or unite at their upper ends in one pipe passing off to a suitable chimney, and *n n* are doors at the lower ends of the flues *h h* and *i i* for the purposes of cleaning.

Above the arch-plate *p* and united therewith are curved plates forming a chamber *m*, the rear side of which chamber comes against the upper parts of the pipes *i i*, and at this point dampers *k k* are introduced with rods *l l*, by means of which the direction of the draft may be regulated—that is to say, when these dampers *k k* are open the draft from the fire passes up through the chamber *m* directly to the chimney for the purposes of kindling, and when closed it descends through the pipes *h h*, thence by the pipes *i i*. It will be seen that the heat ascending from the fire at all times enters this chamber *m* and increases the surface, acting to heat the air in the chamber at the rear of the fire-place. The number of pipes *h* and *i* may be varied, and one damper *k* may be so introduced as to perform all that is required.

The fire-brick or soapstone *e* sets against a metal back in which are openings *e'*, (see Figs. 2 and 3,) and hence considerable heat is communicated to the air in the chamber at the rear of the fire-place through these bricks or soapstones *e*.

The chamber at the back of the fire-place is formed by the side plates *o o*, curved top plate *o'*, back plate *t*, and bottom plate *v*, and in the top plate *o'* are openings with a register-slide *q* and rod *r*, extending off through the side of the chimney or otherwise.

u is an opening in the side of the casing of the chamber, which may communicate to the room in which the grate is located through an opening or register at the side of the chimney or otherwise.

The cold air is admitted into the chamber

at each side through openings in the lower edges of the side plates *o o*. The air hence is taken from near the floor at each side of the chimney, which prevents the opening now usual into the cellar below or to a cold-air pipe, and allows for the introduction of these heaters into rooms on the second floor, where the introduction of cold-air pipes from below would be impossible. I, however, do not limit myself in this particular, as the air may be brought directly up through the hearth from below. The cold air passes through the openings in the bottom plate *v* and ascends among the pipes *h i*, passes against the fire-brick or soapstone *e*, some circulating through the box *g*, and rising beneath and around the chamber *m* goes off through the register *q*.

Having thus described my said invention, what I claim, and desire to secure by Letters Patent, is—

1. The metallic case *o*, provided with the

register *q* or openings upon its upper surface and containing the heating-pipes, as set forth, when the same is introduced in the chimney behind and combined with the grate *a* in the manner and for the purposes specified.

2. The openings *e'* in the metallic back of the grate, protected by and covered with soapstone or fire-brick lining *e* in contact with the fire when the air to be heated is allowed to circulate in contact with the back of said lining *e*, whereby said lining does not become so excessively hot and the circulating and warming air is increased in temperature, as set forth.

In witness whereof I have hereunto set my signature this 18th day of April, 1861.

SAMUEL S. BENT.

Witnesses:

LEMUEL W. SERRELL,
CHAS. H. SMITH.