

No. 694,268.

Patented Feb. 25, 1902.

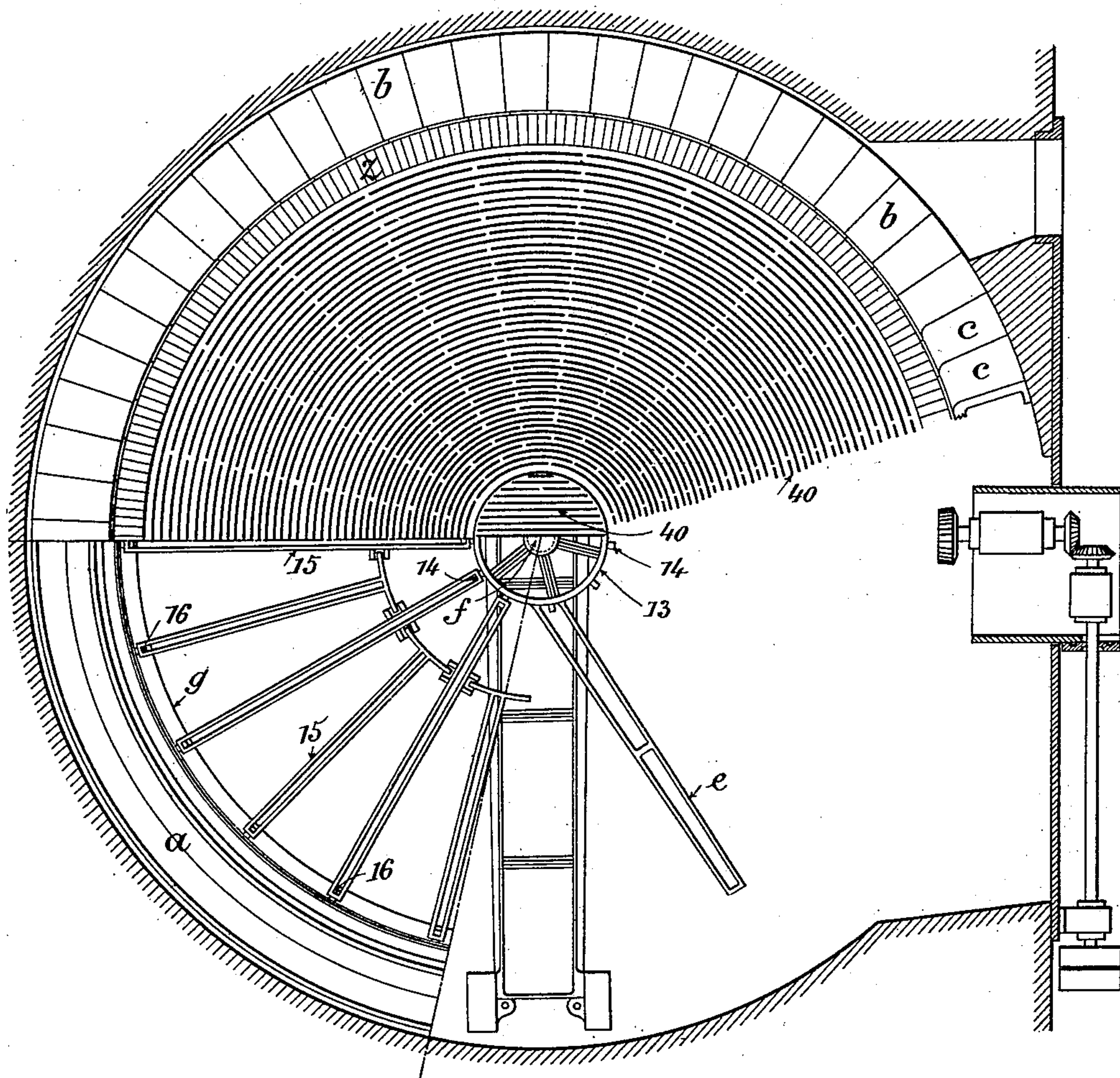
C. GROLL.
ROTARY FURNACE.

(Application filed May 11, 1901.)

(No Model.)

3 Sheets—Sheet 2.

FIG. 2.



Witnesses:

Charles Groll
Alfred C. Harrison

Inventor

Charles Groll

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3 Sheets—Sheet 3.

FIG. 3.

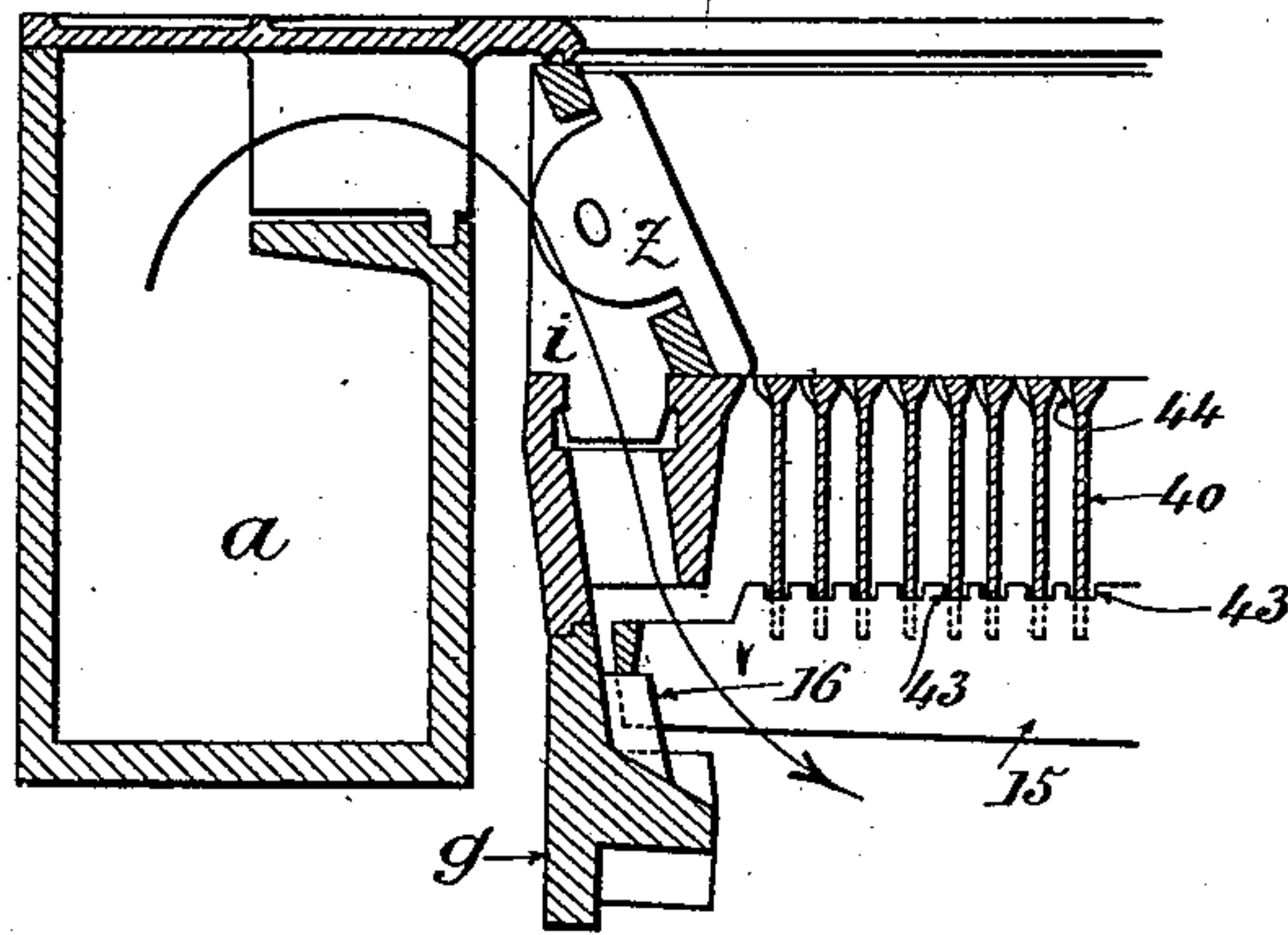


FIG. 4.

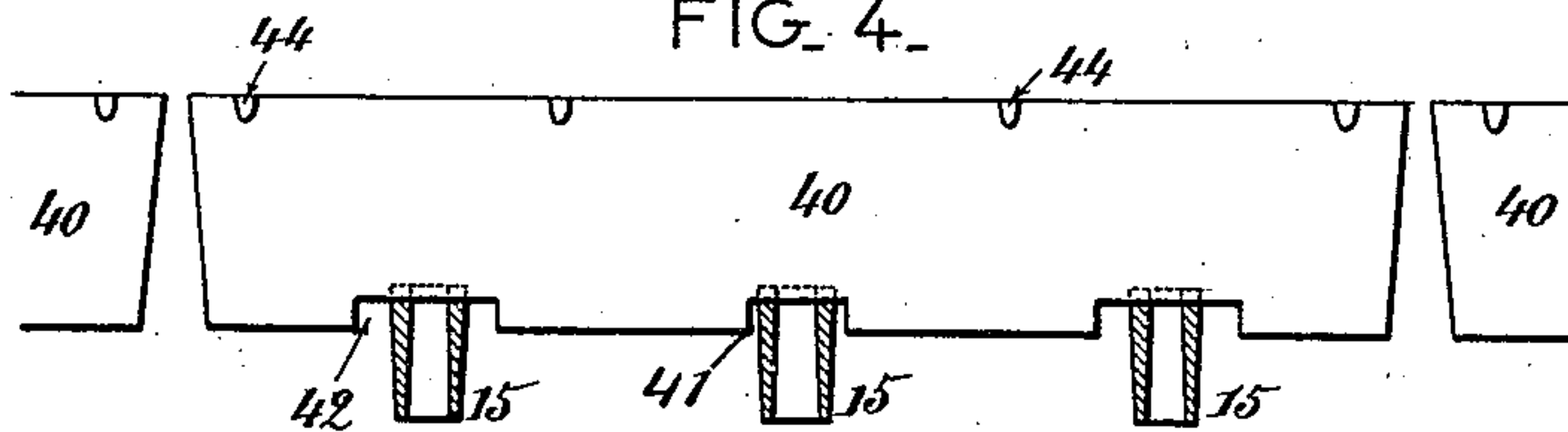


FIG. 5.

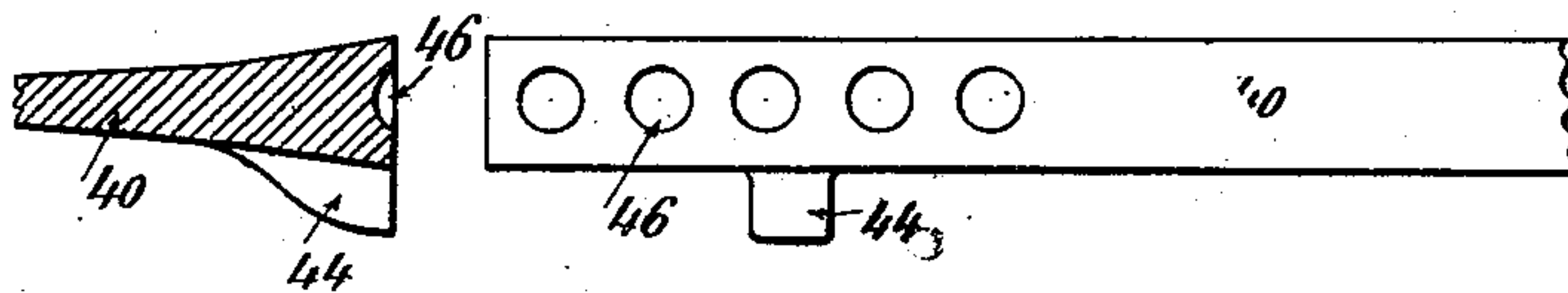
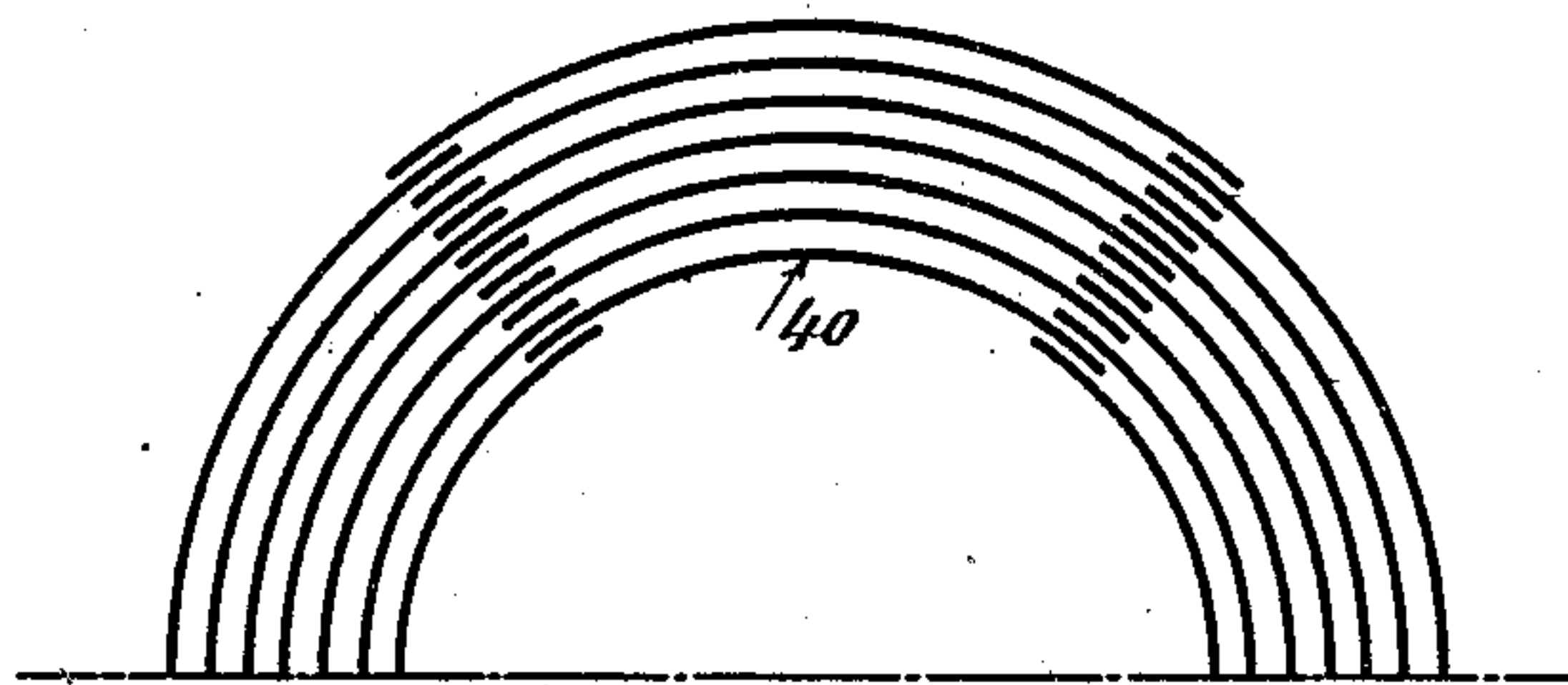


FIG. 6.



Witnesses:
Charles Groll
Arthur C. Harrison

Inventor
Charles Groll

UNITED STATES PATENT OFFICE.

CHARLES GROLL, OF ROUBAIX, FRANCE.

ROTARY FURNACE.

SPECIFICATION forming part of Letters Patent No. 694,268, dated February 25, 1902.

Application filed May 11, 1901. Serial No. 59,824. (No model.)

To all whom it may concern:

Be it known that I, CHARLES GROLL, engineer, a citizen of the Republic of France, residing at 126 Rue du Grand Chemin, Roubaix, department du Nord, in the Republic of France, have invented certain new and useful Improvements in Rotary Furnaces, of which the following is a specification.

My invention relates to improvements in rotary grates, and particularly to improvements in grates such as shown and described in my Patent No. 666,577, dated January 22, 1901. To make such an arrangement efficient, it is necessary that the border-pieces of the grate shall not be liable to become displaced or deformed by the expansions to which are subjected the bars forming the horizontal surface of the grate.

With the arrangement of grate shown in the hereinbefore-mentioned Letters Patent and in which the bars are rigidly connected together in the form of cast-iron panels it may happen that the border-pieces be displaced through the effect of the expansions of the said panels, which are rigid and in the intervals of which hard bodies may become housed, and thus prevent the play which was expected to take place in the said construction.

My present invention consists, for the purpose of avoiding this inconveniency, in using curved bars independent one of another and which are also arranged concentrically.

In the accompanying drawings I have shown the details of the new rotary grate as improved by my invention, and I have used letters of reference which correspond to those already used in my said prior patent.

Figure 1 is a vertical section through the axis of the grate. Fig. 2 is a plan view of the grate with different parts broken away. Fig. 3 is a vertical section showing a portion of the grate and the air-collector. Fig. 4 is an elevation, on a larger scale, of one of the curved bars. Fig. 5 is a detail view in plan and section. Fig. 6 shows in diagram another arrangement of the grate-bars.

The improved rotary grate is formed by a series of independent bars 40, curved in the form of the arc of a circle and arranged concentrically. The said bars rest on a series of radial bars 15, which are supported at one

end by heel-pieces 16, formed on the circular toothed rack *g*, and at the other end by heel-pieces 14, formed on a crown 13, carried by the center piece of a star-shaped frame *e*, which is supported at the ends of its radial arms on the said rack *g* and which is centered by means of the fixed column *f*. The radial bars 15 are anchored on heel-pieces 14, while they are free to expand on the heel-pieces 16. The toothed rack *g* is carried by rolls *h*, revolving on studs fixed to the bottom of the air-collector *a*.

Each of the curved bars 40 is provided with a narrow notch 41, which receives one of the radial bars 15, and thus prevents the bar from moving circumferentially. It is also provided with wide notches 42, which receive, in a manner to give play, the other radial bars 15 and which allows the free expansion of the said curved bar 40. The regular and proper space between the bars of the grate is obtained by means of notches 43, formed on the radial bars 15 and into which the said bars 40 take, and also by means of projections 44, formed on the upper part of the said grate-bars.

The grate-bars 40 may be placed end to end, with their joints arranged alternatively, as shown in Fig. 2, or they may be arranged with their ends overlapping each other, as shown in Fig. 6, according to the thickness of the bars and the desired intervals between the same. The bars which cover the center of the grate are straight and rest on the crown 13.

I have given to all the grate-bars the same height in order to thus obtain a large cooling-surface. I may also provide in the upper face of each bar a series of cavities 46, Fig. 5, intended to reduce the amount of heat transmitted to the metal through the medium of the ashes which become deposited on the same.

Arranged above the rack *g* is an annular flange or crown formed by a series of small independent bars *z*, arranged side by side and designed to be held in place by a wire, as described in the patent above mentioned. These parts *z* have heel portions, which engage in openings formed in border-pieces *i*.

I claim—

1. A rotary-furnace grate, comprising curved segmental bars independent one of another and arranged concentrically, radial

bars supporting said curved bars, each segmental bar being provided with a narrow notch to receive one of the radial bars and wide notches to receive other radial bars, a
5 star-shaped frame, a toothed circular rack on which the frame rest, a crown on said rack and to which said radial bars are fixed border-pieces resting on said rack and rollers supporting the said circular rack.
10 2. A grate, comprising a series of independent segmental bars and radial bars for supporting the segmental bars, each segmental bar being provided with a narrow notch to receive one of the radial bars and wide notches
15 to receive other radial bars.

3. A grate, comprising a series of independent segmental bars, the ends of one bar overlapping the ends of other bars, and radial bars for supporting the segmental bars, each segmental bar being provided with a narrow notch to receive one of the radial bars, and wide notches to receive other radial bars, substantially as specified. 20

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 25

CHARLES GROLL.

Witnesses:

CAMILLE GROLL,
ALFRED C. HARRISON.