

No. 706,099.

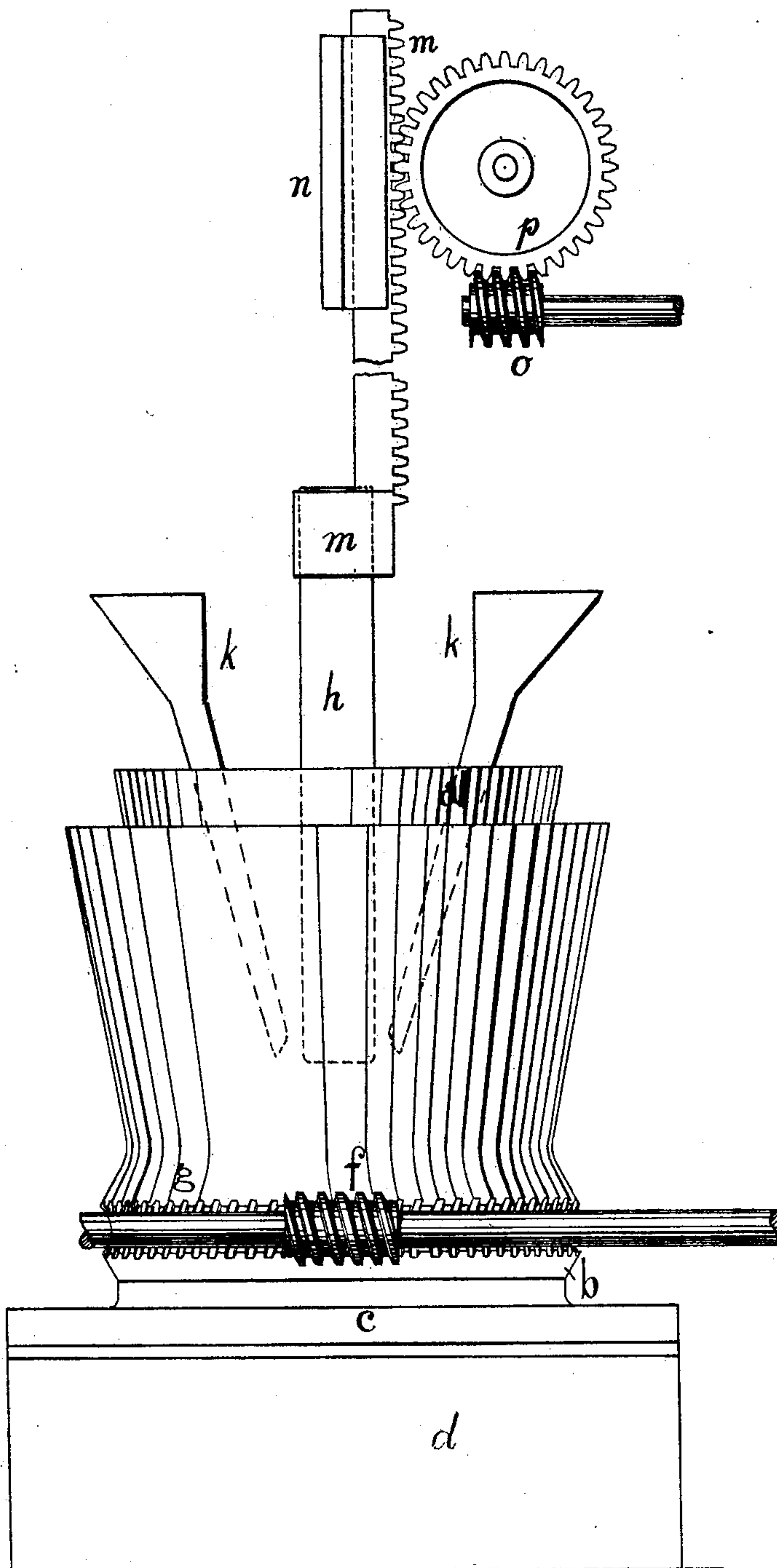
Patented Aug. 5, 1902.

A. PARKER.
ELECTRIC FURNACE.

(Application filed May 8, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES.

Joseph Bates.
C. W. Alexander.

FIG. 1.

INVENTOR.

Arthur Parker
By J. C. O'Connell
att'y

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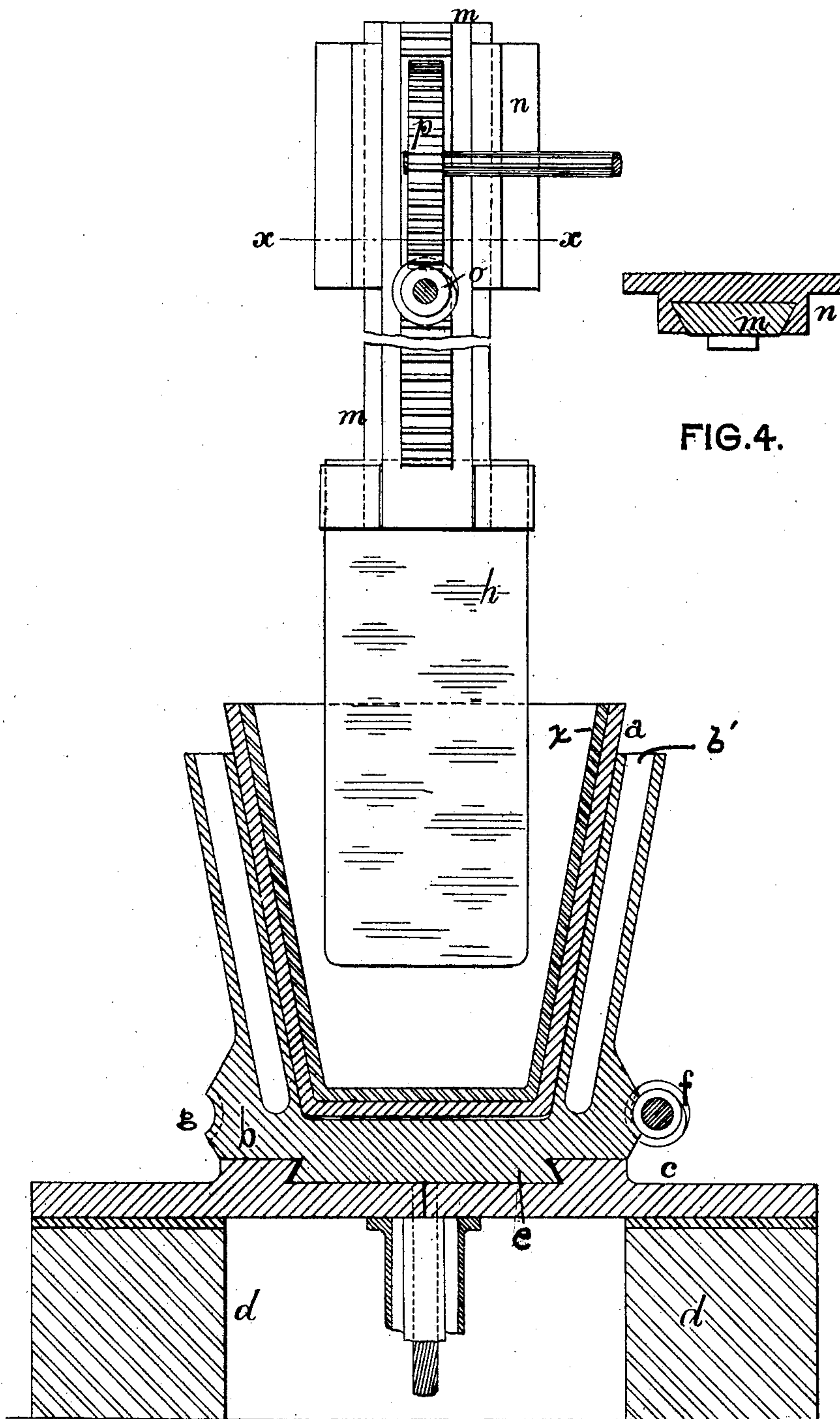


FIG. 4.

FIG. 2.

WITNESSES.

Joseph Bates.
C. W. Alexander.

INVENTOR.

Arthur Parker
by C. W. Alexander
att.

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3 Sheets—Sheet 3.

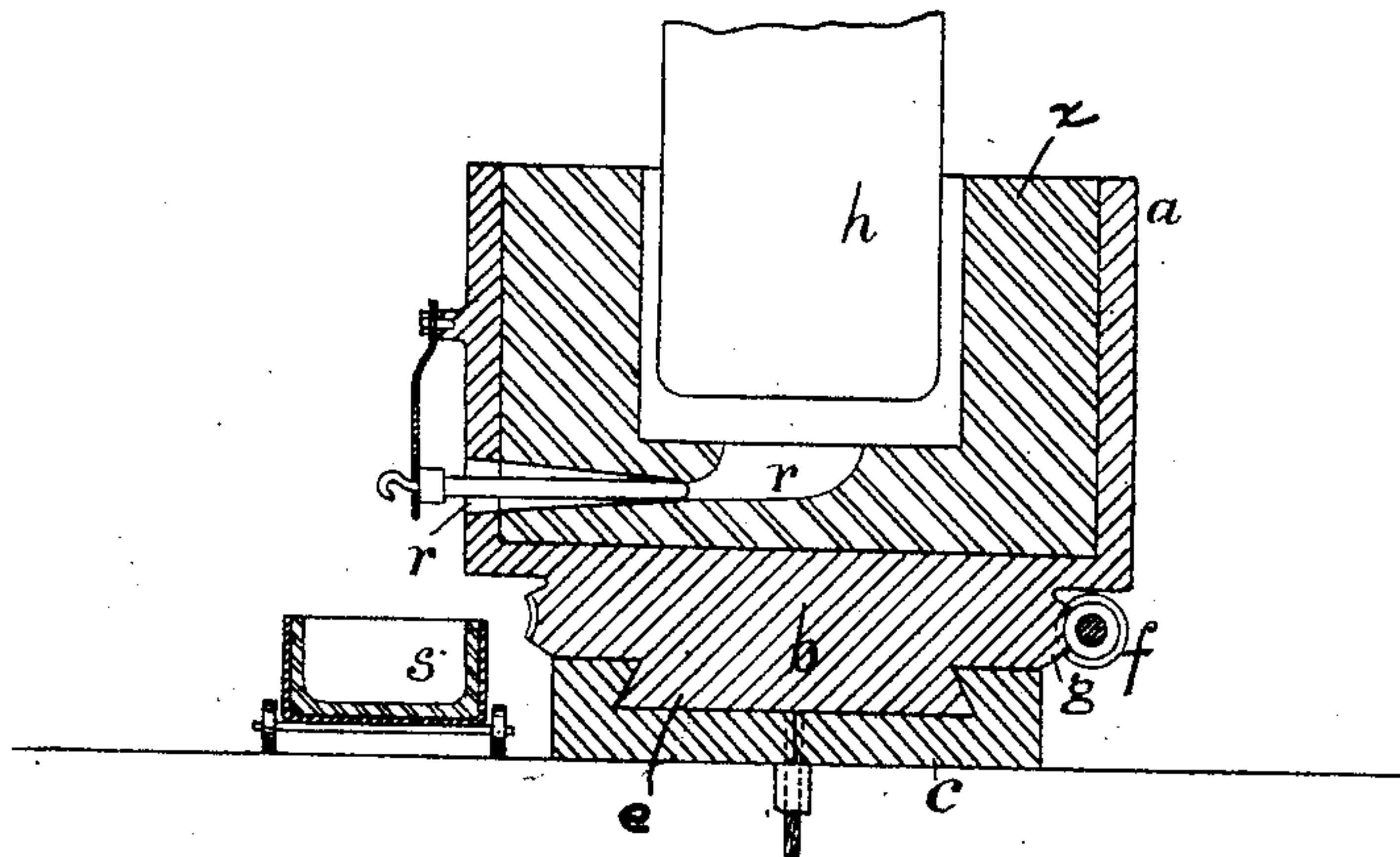


FIG. 3.

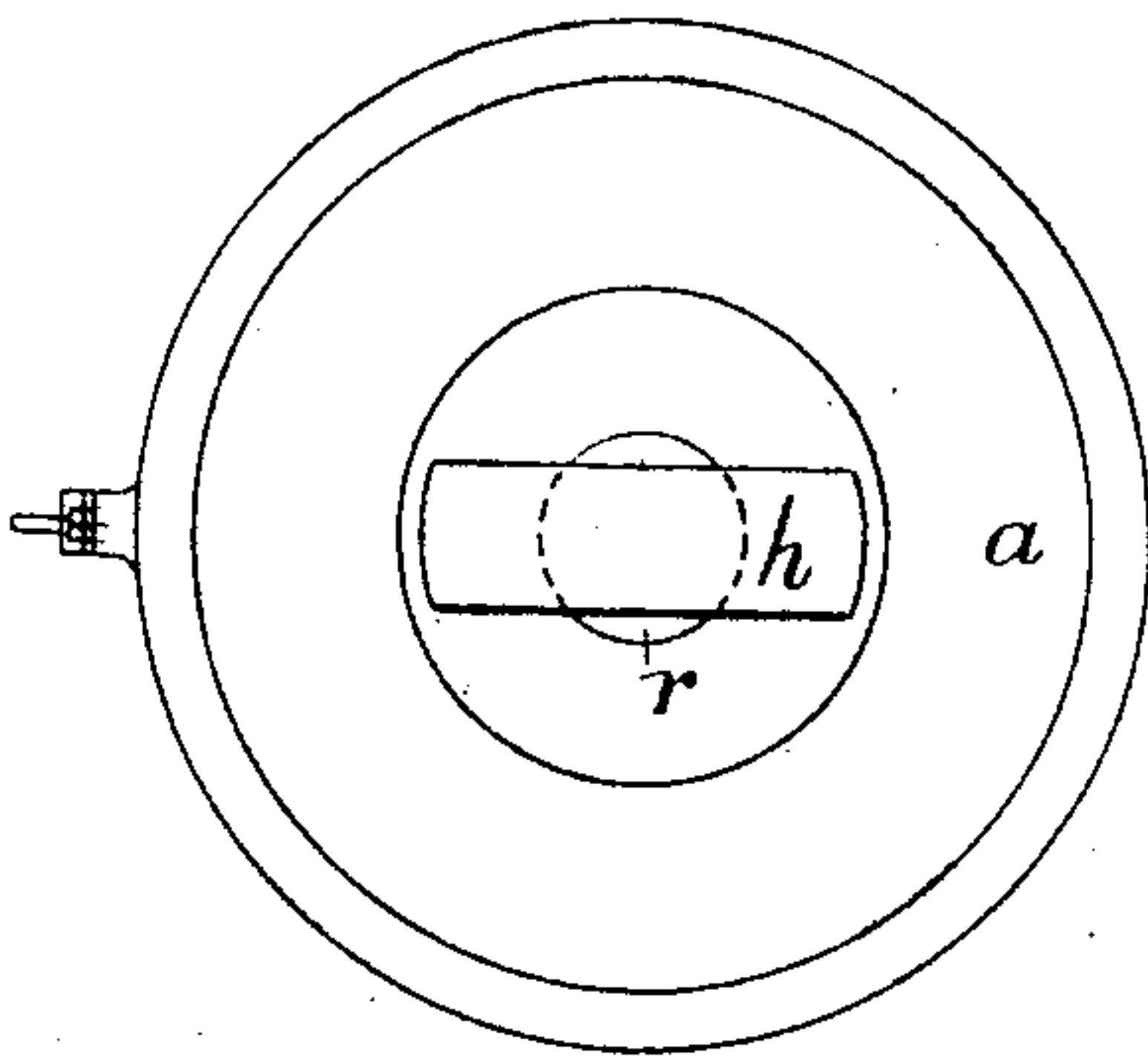


FIG. 5.

WITNESSES.

Joseph Prates.

C. W. Alexander.

INVENTOR.

Arthur Parker
By J. Oswald Smith
att'y.

UNITED STATES PATENT OFFICE.

ARTHUR PARKER, OF CHORLEY, ENGLAND.

ELECTRIC FURNACE.

SPECIFICATION forming part of Letters Patent No. 706,099, dated August 5, 1902.

Application filed May 8, 1901. Serial No. 59,321. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR PARKER, a British subject, and a resident of Chorley, in the county of Lancaster, England, have invented certain new and useful Improvements in Electric Furnaces, of which the following is a specification.

This invention relates to electric furnaces for smelting or other purposes, more particularly for producing carbids of the alkaline-earth metals, such as calcium carbid, and is designed to secure a more complete, perfect, and continuous fusion of the raw material, that the fused mass in the crucible shall be brought continually within the arc, and to avoid the clogging at present so frequent between the positive carbon and the mass in the crucible.

It consists, essentially, in a special construction of the furnace or crucible with a rotary or revolving movement, so as to bring every part of the bottom in turn under the positive carbon, which is preferably made of rectangular oblong shape in cross-section.

The invention will be fully described with reference to the accompanying drawings.

Figure 1 is a front elevation. Fig. 2 is a transverse sectional elevation. Fig. 3 is a transverse sectional elevation of a modified form of the crucible. Fig. 4 is a section of the carbon-holder on line *xx*; Fig. 5, a plan of modification shown in Fig. 3.

The crucible *a* is mounted or supported upon a platform or structure *b*, capable of rotating about its vertical axis on the fixed or stationary bed or foundation plates *c*, which are firmly secured to and suitably insulated upon the supporting blocks or pillars *d*. The platform *b*, which supports the crucible *a*, is held in position by the recessed base *e*, the foundation-plate *c* being made in two or more parts or sections and secured in position around the base *e*, and it is rotated by a worm *f*, gearing with the toothed wheel *g*, formed around or attached to the base. By this or other mechanism the crucible *a* is slowly rotated about its vertical axis. The platform *b* is formed with hollow sides *b'*, forming a water-jacket for the purpose of keeping the platform cool.

The carbon *h* is oblong in cross-section, either rectangular or oval, so as to extend

across the crucible *a* in one direction and leave sufficient room at the sides for the material to fall in from the hoppers or chutes *k*.

The carbon *h* is fitted to a sliding rack or frame *m*, capable of moving up and down in a slide *n*. When in operation, it is slowly moved upward by the worm *o* and worm-toothed wheel *p* as the material fills up the crucible.

The powdered material to be fused is fed into the crucible *a* from the hoppers or chutes *k* in a thin stream through mica or other suitable tubes arranged to direct the material so that it shall fall into or through the arc, and thus become fused before reaching the crucible itself. In addition to this the rotation of the crucible *a* brings all the material in it successively over and over again into the range of the arc. It is, however, to be understood that the arc is struck between the positive carbon and whatever material may be in the crucible and not between the positive carbon and the crucible through the material. The carbon *h* does not, therefore, come into contact with the material throughout the whole operation. This is made possible owing to the fact that the calcium-carbid charge becomes conductive in operation, owing to the fact of its high temperature.

The furnace or crucible *a* is preferably constructed with a lining *x* of carbon on the bottom and around the sides, the whole of which can be removed with each charge as it is complete.

The invention is also applicable to smelting-furnaces, such as shown in Fig. 3, with a tap-hole *r* for running off the molten mass. A truck or vessel *s* may be provided to receive it. In other respects the furnace is constructed as described above.

I am well aware that a rectilinear reciprocating movement has been given to an electric furnace, and such does not constitute any part of my invention.

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

In an electric furnace the combination with the crucible *a* and positive-carbon electrode *h* placed diametrically across the crucible, of the rotatable supporting-platform *b*, the recessed base *e*, the supporting-plate *c* in two parts with recess into which the platform-base

fits, the worm-wheel *g* around its periphery,
the worm *f* gearing with the wheel *g*, the
chutes *k* to deliver the material direct into
the arc, and mechanism for raising the carbon
5 electrode *h* as the crucible fills substantially
as described.

In witness whereof I have hereunto signed

my name in the presence of two subscribing
witnesses.

ARTHUR PARKER.

Witnesses:

J. OWDEN O'BRIEN,

B. TATHAM WOODHEAD.