

No. 668,370.

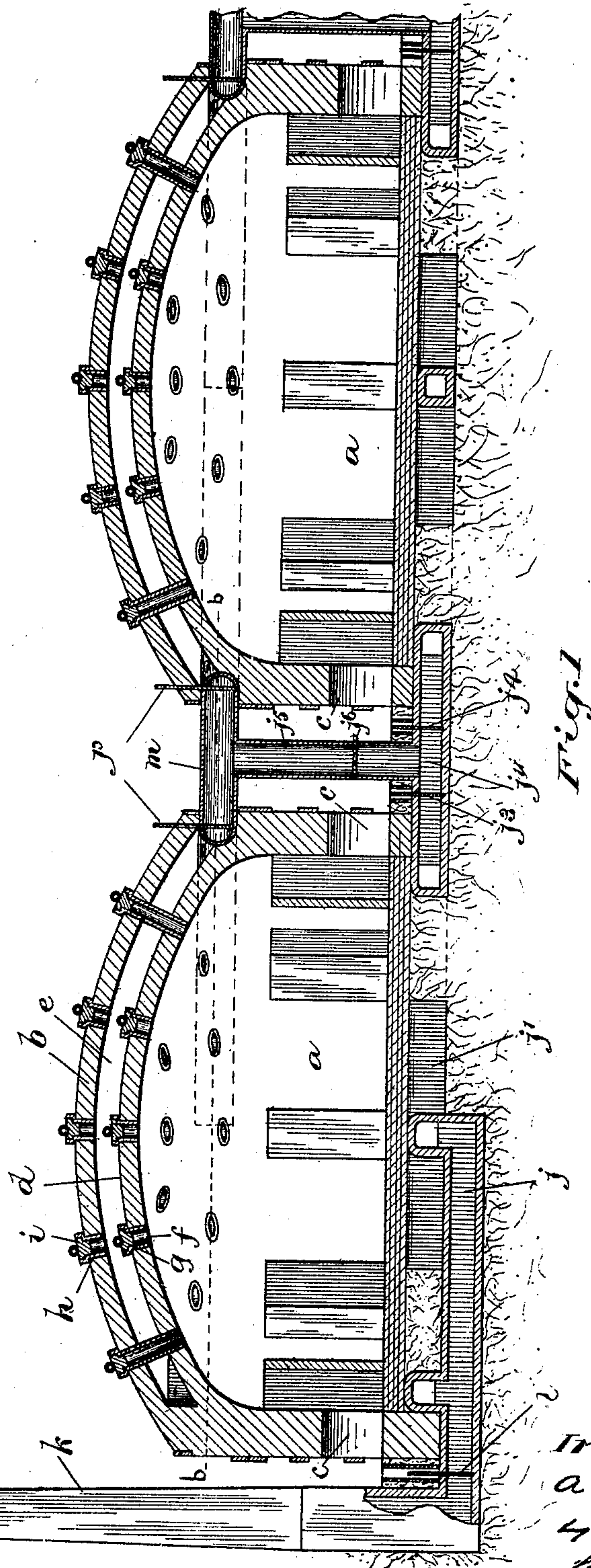
Patented Feb. 19, 1901.

A. FINCH.
KILN.

(Application filed June 7, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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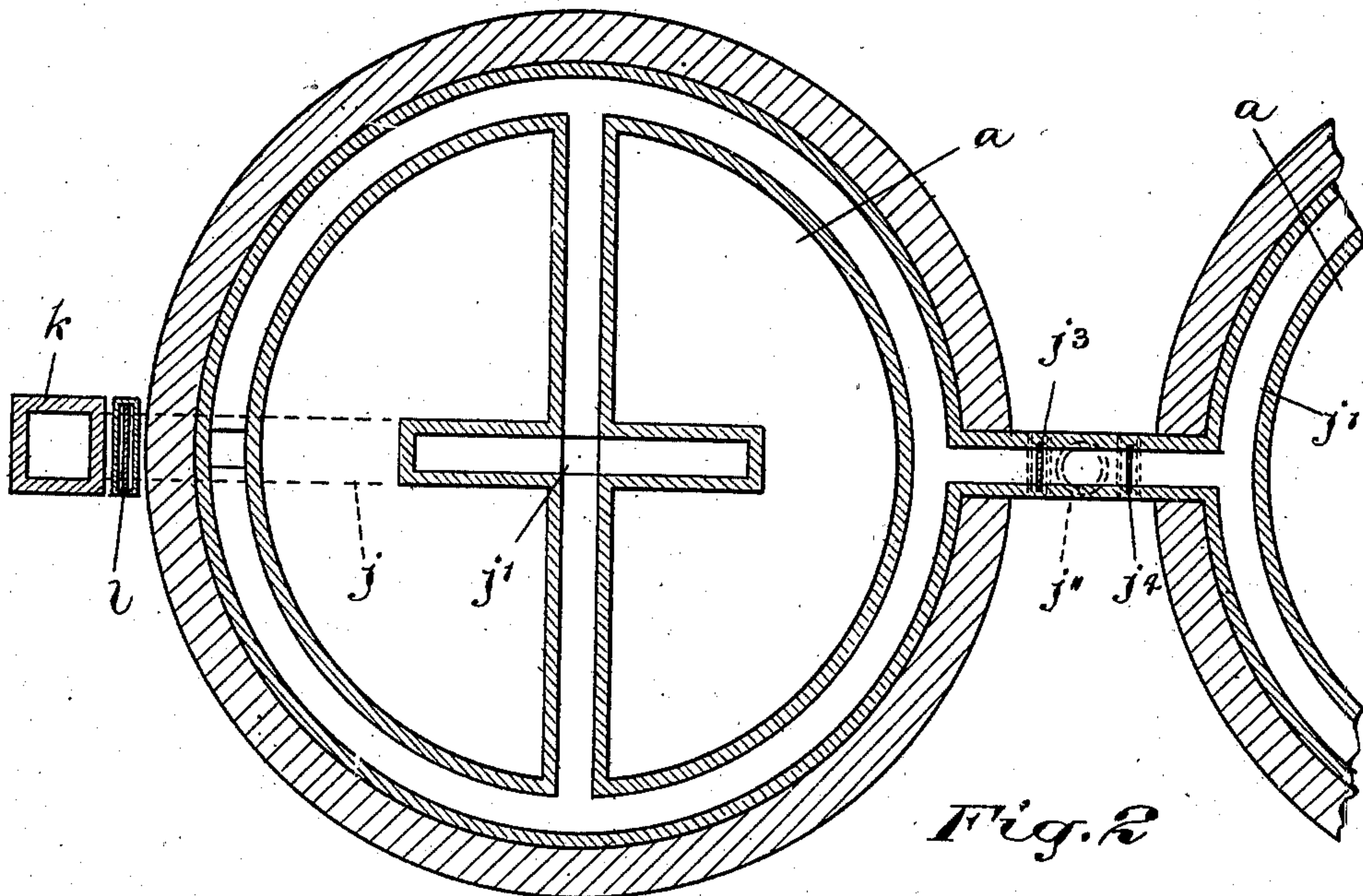


Fig. 2

Fig. 3

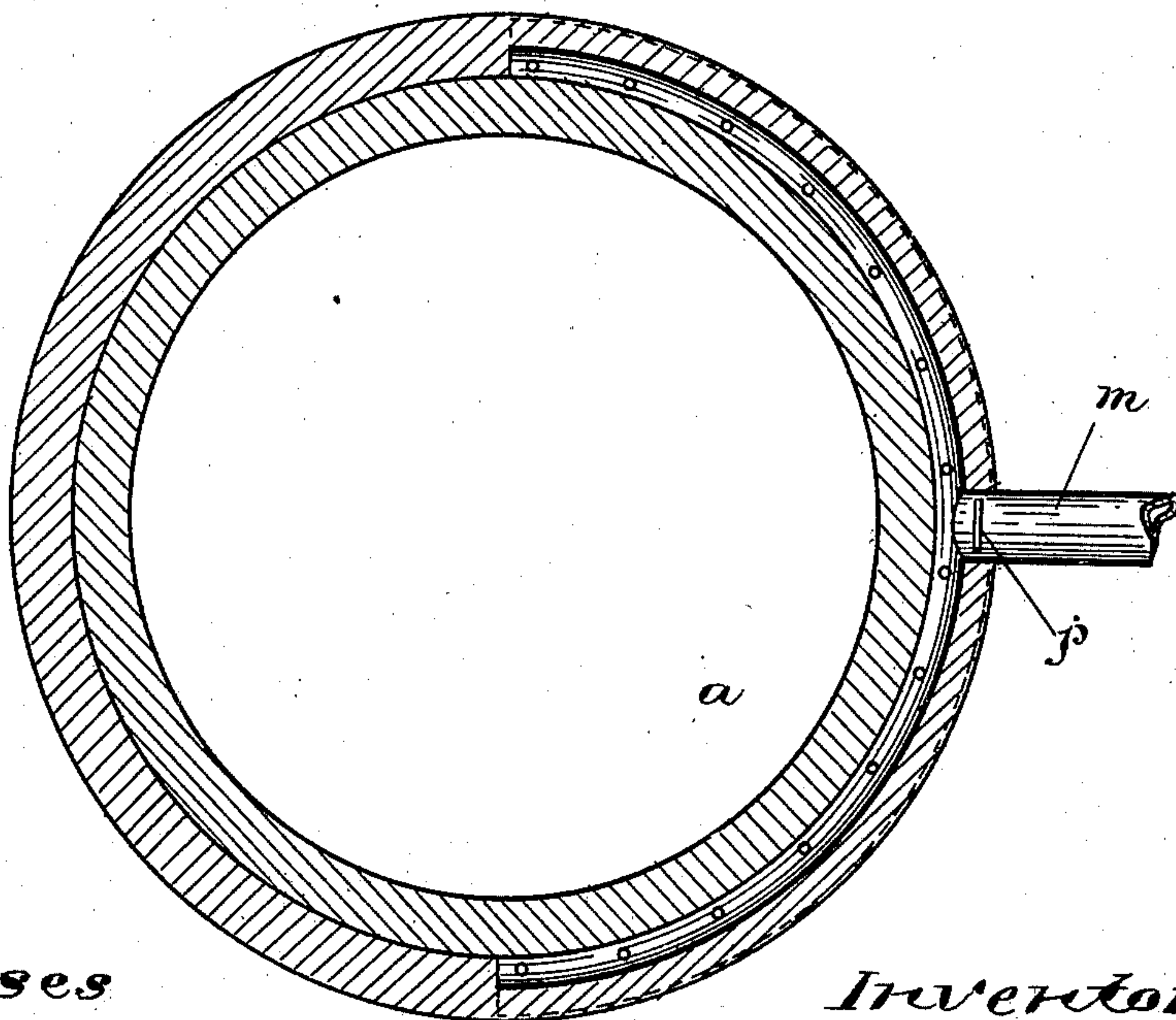


Fig. 3

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UNITED STATES PATENT OFFICE.

ARTHUR FINCH, OF MIMICO, CANADA.

KILN.

SPECIFICATION forming part of Letters Patent No. 668,370, dated February 19, 1901.

Application filed June 7, 1900. Serial No. 19,487. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR FINCH, a subject of the Queen of Great Britain, (whose post-office address is Mimico,) residing at Mimico, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Kilns for Burning Sewer-Pipes, &c.; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to certain new and useful improvements in kilns for burning sewer-pipes, bricks, and other articles of clay manufacture; and the object of the invention is to so arrange the kiln that the products of combustion can be completely utilized in burning the contents of the kiln; and the invention consists, essentially, of the device hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal section of two adjacent kilns. Fig. 2 is a cross-section of the kiln on the ground-line, showing the underground flue for the products of combustion. Fig. 3 is a sectional view through the top of the kiln on the lines *b b*, Fig. 1.

Like letters of reference refer to like parts throughout the specification and drawings.

The kiln *a* is provided with an ordinary top *b* and fire-holes *c c*, similar to those in common use. Within the upper part of the kiln *a* is an arch-shaped dome *d*, concentric with the top *b* and forming between itself and the top a chamber *e*, the purpose of which is to receive the heated gases from the body of the kiln in the manner hereinafter specified.

Formed through the dome *d* are a series of openings *f*, each of which is closed by a damper *g*, and formed through the top *b* are a series of openings *h*, closed by dampers *i*. The openings *h* are opposed to the openings *f* in order that access may be had to the openings *f*.

j represents the underground flue to convey the products of combustion from the body of the kiln to the chimney and to the next adjacent kiln of the series. The flue *j* practically encircles the bottom of the kiln and is provided with a number of feeders *j'*, extending upwardly into the body of the kiln. The flues *j* of two adjacent kilns are united by a coupling-pipe *j''*, provided with dampers *j³* and *j⁴*,

respectively. The coupling-pipe *j''* is provided with an upright branch *j⁵*, which connects with the pipe *m*, connecting the chambers *e* of two adjacent kilns. The pipe *m* is provided at each end with a damper *p* to control the passage of the products of combustion therethrough. The flue *j* of the end kiln is connected to the chimney *k* and is provided with a damper *l*, by means of which the passage of the gases to the chimney can be controlled.

The operation of the kiln is as follows: The fires are started in the first kiln, the damper *l* to the chimney is opened, and the dampers *g* are closed. The products of combustion pass from the kiln through the flue *j* to the chimney. When the second kiln is ready for firing, the damper *l* is closed and the damper *j³* opened, as well as the damper *p*, leading into the chamber *e* of the second kiln. The products of combustion then pass into the flue *j*, from the flue *j* to the coupling-pipe *j''*, through the branch *j⁵* into the coupling-pipe *m*, and from the coupling-pipe *m* into the chamber *e* of the second kiln. The dampers *g* of the second kiln are removed and the products of combustion pass through the openings *f* into the body of the kiln and through the kiln into the flue *j*, this being repeated with each kiln throughout the series as the kilns are ready. When it is not desired to allow the products of combustion to pass through the kilns, both of the dampers *p* are closed and the dampers *j⁴* are opened, allowing the products of combustion to pass from the flue *j* of one kiln into the flue of the next kiln and so on to the chimney of the end kiln.

By means of this construction it is possible to fully utilize all the heat units of the products of combustion, so that when these products of combustion escape to the chimney they are practically devoid of heat. By this means the kilns can be made continuous and the burning of the contents of the kilns accomplished with the greatest economy of fuel.

The gases from the first kiln can be employed either for the purpose of drying the contents of the second kiln or to assist the fuel of the second kiln in burning its contents. The upright branch *j⁵* may be provided with the damper *j⁶*, which is opened when the prod-

ucts of combustion are passing through the branch j^5 to the coupling-pipe m and closed when the products of combustion are passing through the coupling-pipe j'' to the next adjacent kiln.

5 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a series of kilns each
10 consisting of a burning-chamber, an arch-shaped dome for the burning-chamber having a series of openings therethrough, removable dampers to close the openings, a top inclosing the arch-shaped dome and forming with it a
15 chamber, openings formed through the top opposed to the openings through the dome, removable covers to close the openings, a pipe connecting the chambers of two adjacent kilns, dampers for the pipe, a flue below each
20 kiln communicating with the body of the

same, a chimney, a pipe coupling the flues of two adjacent kilns, a branch pipe connecting the coupling-pipes of the flues and chambers, and dampers for the coupling-pipe of the flues, substantially as specified.

2. The combination of a series of kilns each
25 having a burning-chamber, a pipe connecting the chambers of two adjacent kilns, dampers for the pipe, a flue below each kiln communicating with the body of the same, a pipe
30 coupling the flues of two adjacent kilns, dampers for the coupling-pipes of the flues, a branch pipe uniting the coupling-pipes of the flues and chambers, substantially as specified.

Toronto, Canada, May 16, 1900.

ARTHUR FINCH.

In presence of—

C. H. RICHES,

J. E. CAMERON.