

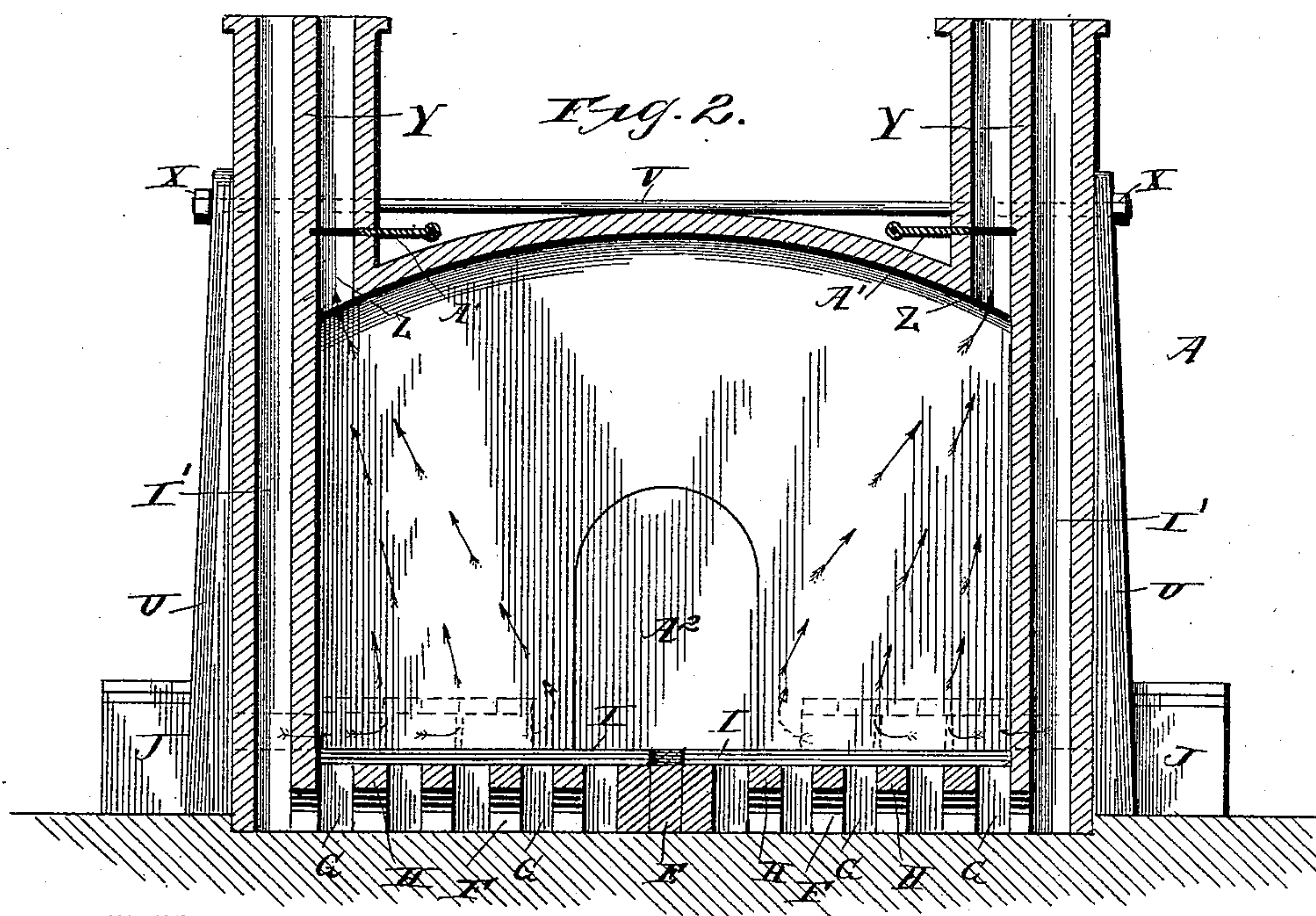
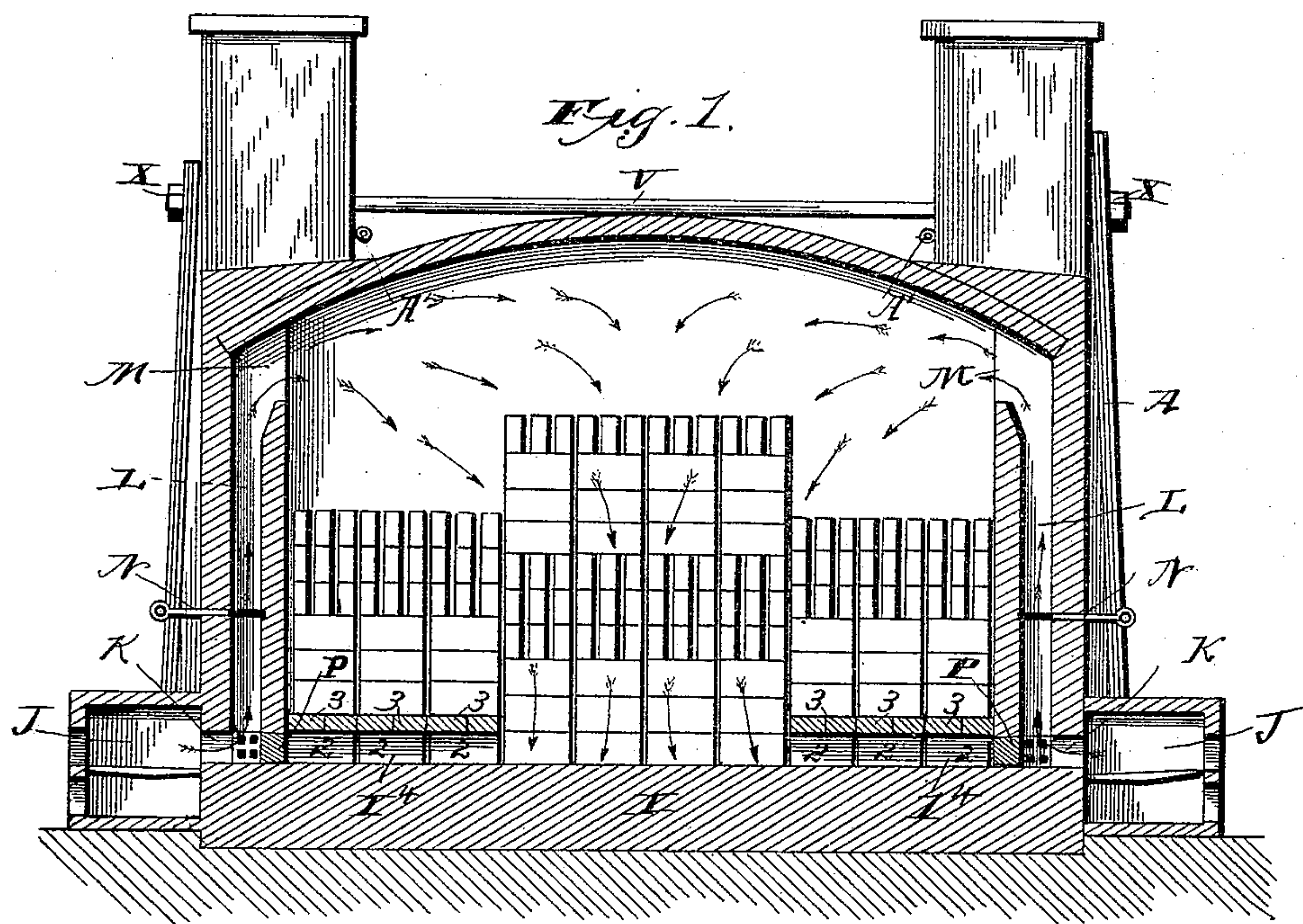
(No Model.)

2 Sheets—Sheet 1.

J. T. CULLENS.
BRICK KILN.

No. 437,577.

Patented Sept. 30, 1890.



WITNESSES:

Geo. G. Thorpe
H. C. Johnson

INVENTOR

J. T. Cutlens,

BY

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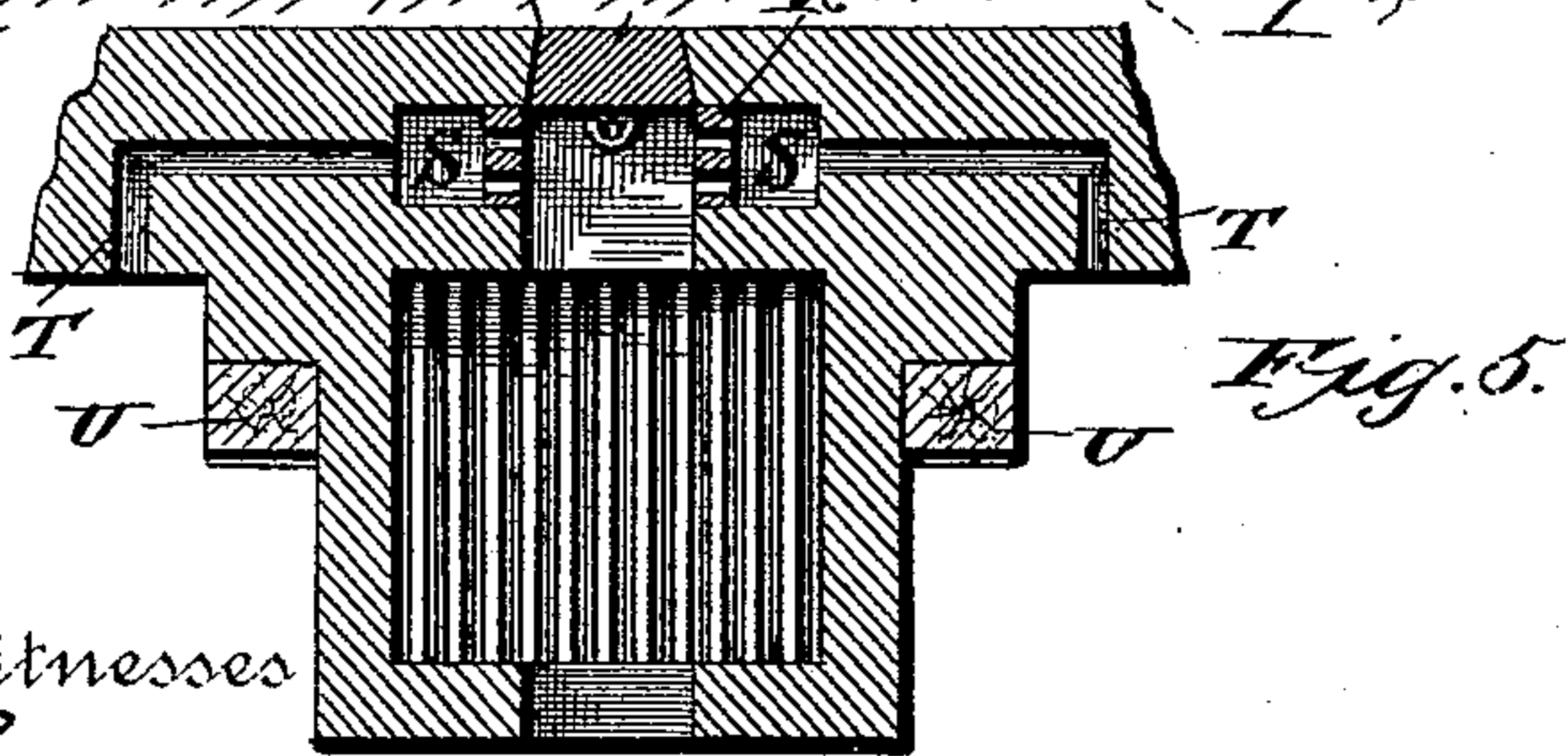
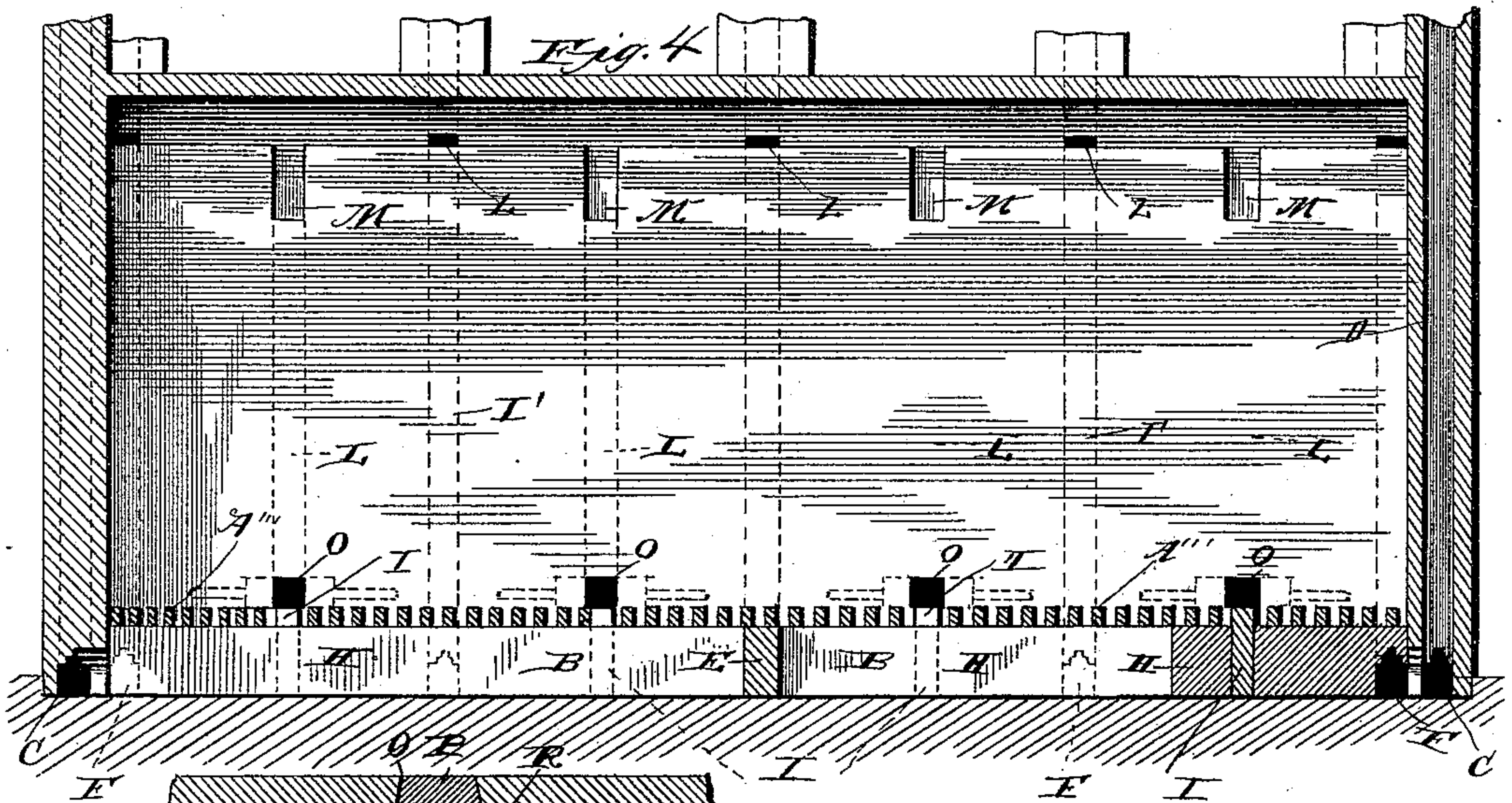
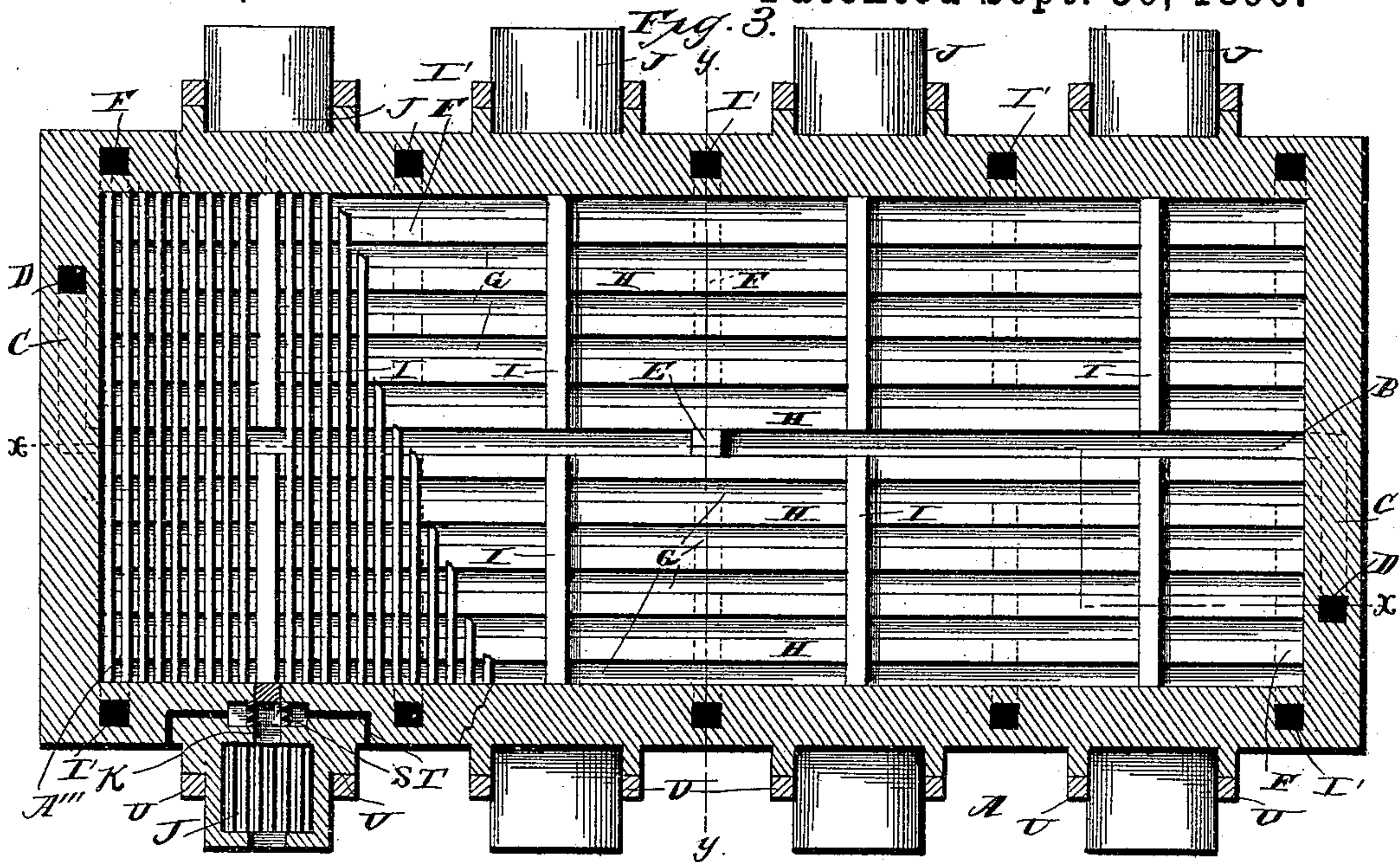
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Witnesses

Geo. V. Thorpe
H. C. Johnson,

Inventor
J. T. Cullens.

By his Attorneys

Higdon & Higdon.

UNITED STATES PATENT OFFICE.

JOHN T. CULLENS, OF KANSAS CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS
TO HENRY S. METTLEN, HENRY A. KENT, AND BENJAMIN F. JONES, ALL
OF SAME PLACE.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 437,577, dated September 30, 1890.

Application filed June 30, 1890. Serial No. 357,167. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. CULLENS, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Brick-Kilns, (for which, on the 7th day of August, 1890, I filed an application, No. 54,140 for a patent in the Dominion of Canada,) of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improvement in brick-kilns; and it consists in certain novel features of construction, as will be fully set forth and claimed in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical transverse sectional view of a kiln constructed in accordance with my invention. Fig. 2 is a vertical transverse section on line *y y* of Fig. 3. Fig. 3 is a horizontal section of the kiln, taken above the perforated flooring. Fig. 4 is a vertical longitudinal section on line *x x* of Fig. 3. Fig. 5 is a horizontal sectional view of the fire-box, the air or combustion chambers, and the opening in the inner wall of the kiln, through which passes the heat when used as an up-draft and which is closed by a plug, as shown, when used as a downdraft.

Similar letters refer to similar parts in all the figures.

A represents a kiln, preferably of rectangular form, having the central longitudinal flue B, communicating with the transverse flues C, in order to leave the central portion of the end walls unobstructed for the doors A², while the said transverse flues communicate with the lower end of the flues D, communicating with the chimneys on the end walls of the kiln.

The flue B is divided by the dead wall or partition E, whereby the course of the heated products of combustion through the middle of the stack may be readily controlled and may be caused to pass through the one end thereof or the other.

A series of transverse flues F terminate at the walls, forming the central longitudinal flue B, and communicate with the series of

longitudinal flues G, parallel with and arranged on either side of the flue B, which flues G are formed by the longitudinal walls H. The said flues G and walls H are intersected by the transverse dead walls or partitions I, extending from the inner wall of the kiln to either side of the longitudinal flue B. The flues F and partitions or walls I are arranged alternately.

The furnace-boxes J communicate through the openings K with the vertical passage-way L, opening at M into the body of the kiln. These passages L are provided with the dampers N, the object of which will be explained hereinafter.

The openings O, immediately opposite the openings K, are adapted to be occupied by the beveled bricks or plugs P, having shanks or loops in their outer sides, which may be engaged by a hook or other suitable means to displace said bricks or plugs P when necessary.

Separated by the perforated brick R from the passage-way L and on a level with the floor of the same are the air or combustion chambers S, communicating with the outside of the kiln through the passage T.

The brace-beams U are connected at their upper ends with the transverse rods *v*, the outer ends of which are engaged by the nuts X.

The chimneys to which the flues I' communicate are provided with the vertical partitions Y, which form the flues Z, communicating with the body of the kiln and controlled by the dampers A'.

The doors A'' of the kiln are of the ordinary construction, and the transverse bricks A''', placed across the longitudinal partitions H, form the perforated floor of the kiln.

In Fig. 1 I have shown by arrows the direction in which the heat is passing from fire-box J, through the opening K, vertical passages L, into the body of the kiln through the opening M; permeating the brick, and passing into the several flues B, F, and G, and escapes through the flues D and I', communicating with the chimneys, as will be readily understood.

In using the one-draft system a great dif-

5 difficulty has always been occasioned by having
 a large quantity of salmon brick left in the
 kiln, which had to undergo a second burning
 before they were fit for use. To obviate this
 10 difficulty, I form the flues I^4 , as shown in Fig.
 1, opposite each opening O in the inner side
 walls of the kiln and upon the top of par-
 titions I and above the level of the floor of the
 kiln. These flues I^4 , composed of the brick
 15 to be burned or not, as desired, extend in-
 wardly about one-third of the way across the
 kiln, having the side bricks 2 thereof placed
 a slight distance apart, and the covering or
 top bricks 3 are arranged so that no heat may
 20 pass between them, as shown. I then with-
 draw the bricks or plugs P, close the damp-
 ers N, and open the dampers A', causing the
 heat to pass through the opening O, and by
 reason of the flues I^4 the body of the heat
 25 travels to the end of said flues I^4 . At the same
 time heat passes through the passages be-
 tween the bricks 2, permeating the bricks
 above, and passes at the same time through
 the flues Z with the body of the heat from
 the ends of the flues I^4 , which heat is drawn
 in an upwardly-inclined direction through
 the flues Z, as is shown in Figs. 2 and 4, thus
 subjecting the salmon bricks mentioned to

the necessary temperature to complete the
 burning without endangering the bricks in 30
 the center of the kiln by an oversupply of
 heat, as will be readily understood.

Having thus described my invention, what
 I claim as new, and desire to secure by Let-
 ters Patent, is—

In a brick-kiln, the combination, with a cen- 35
 tral longitudinal flue, of a dead-wall dividing
 the said flue into two sections, a chimney
 communicating with the outer end of each
 section of the said flue, longitudinal walls H, 40
 forming a series of longitudinal flues G, trans-
 verse walls I, dividing the said series of flues,
 a transverse eduction-flue F, communicating
 with the said longitudinal flues G between
 each two of the transverse walls I, a fire-box 45
 located opposite each of the transverse walls,
 a vertical flue connected with each of the
 said fire-boxes and with the top of the kiln,
 and a perforated floor carried by the said lon-
 gitudinal and transverse walls, as described. 50

In testimony whereof I affix my signature in
 presence of two witnesses.

JOHN T. CULLENS.

Witnesses:

GEO. Y. THORPE,
 J. P. HARPER.