

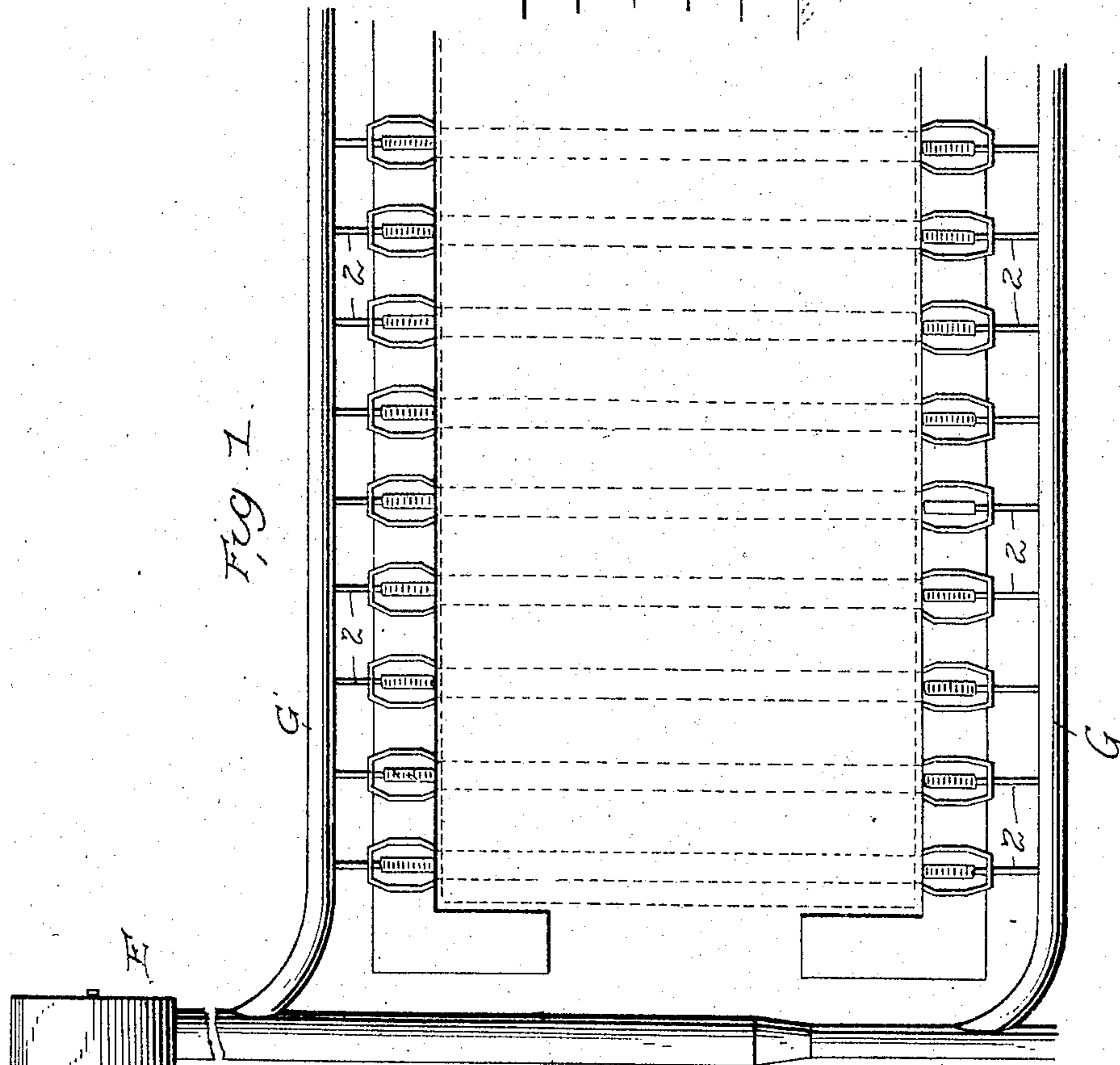
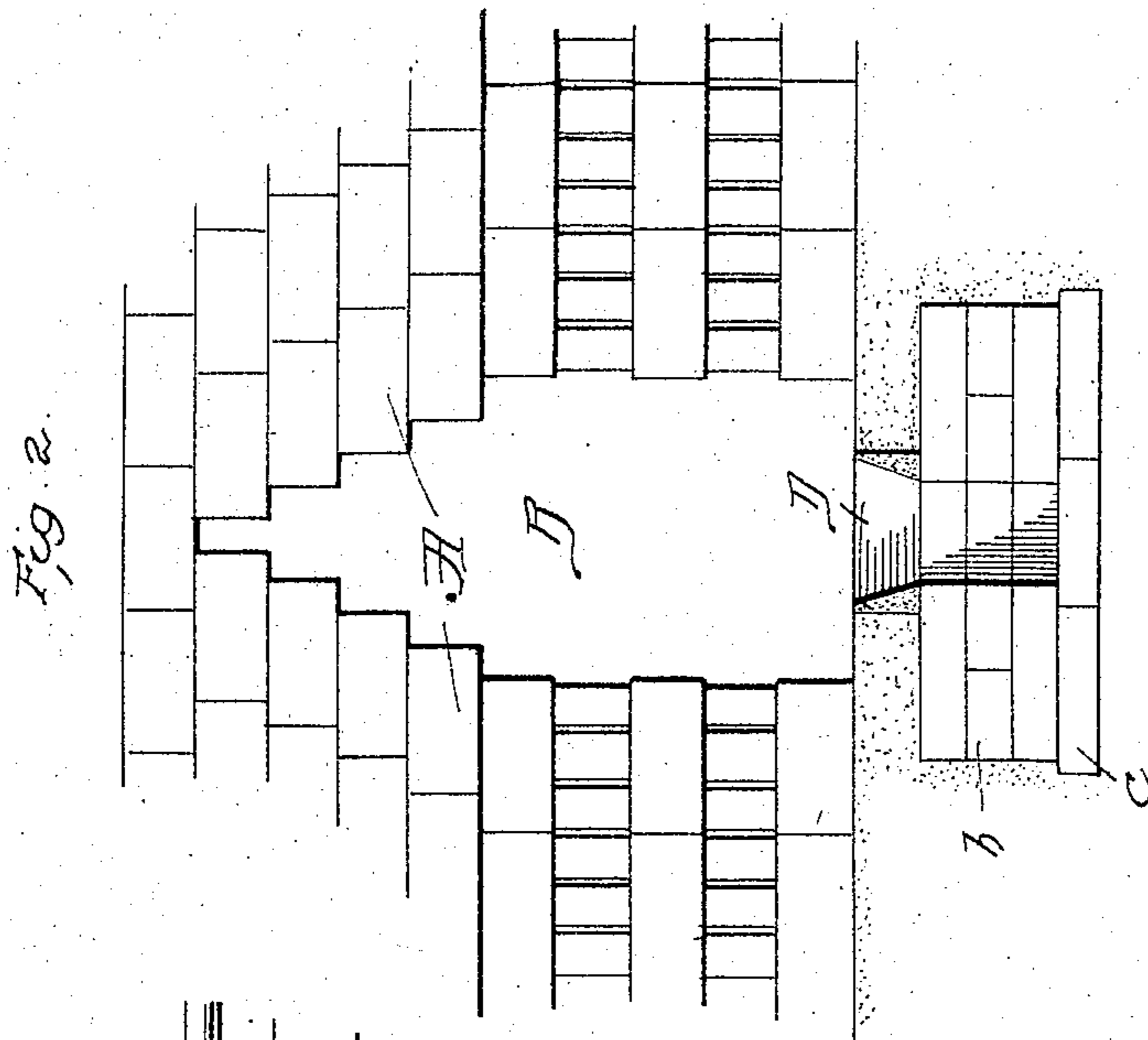
No. 778,441.

PATENTED DEC. 27, 1904.

J. C. BOSS.  
BRICK KILN.

APPLICATION FILED JAN. 7, 1904.

2 SHEETS—SHEET 1.



ATTEST:

*Commissioner*  
*Edward Sartor*

INVENTOR.  
JOHN C. BOSS.

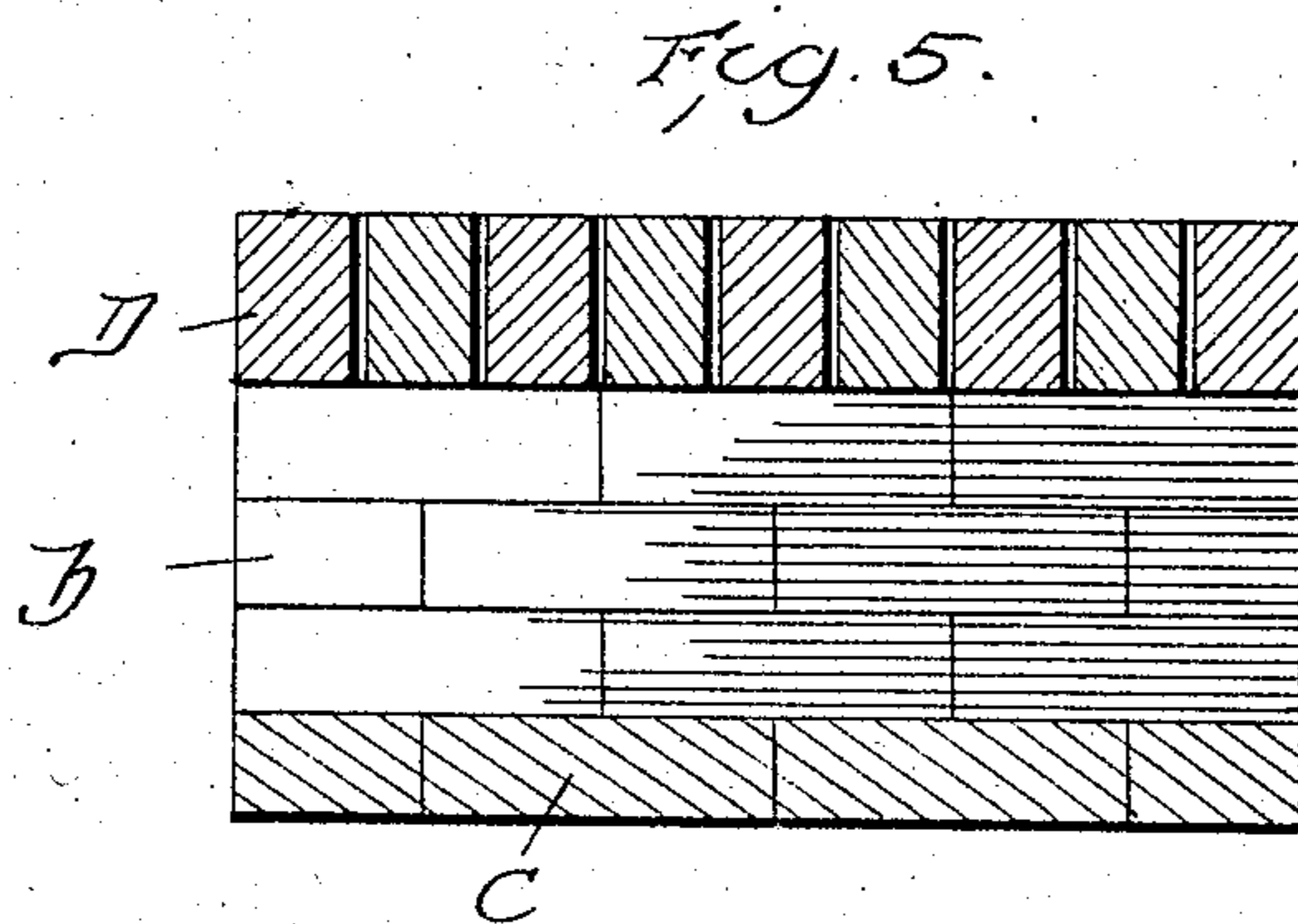
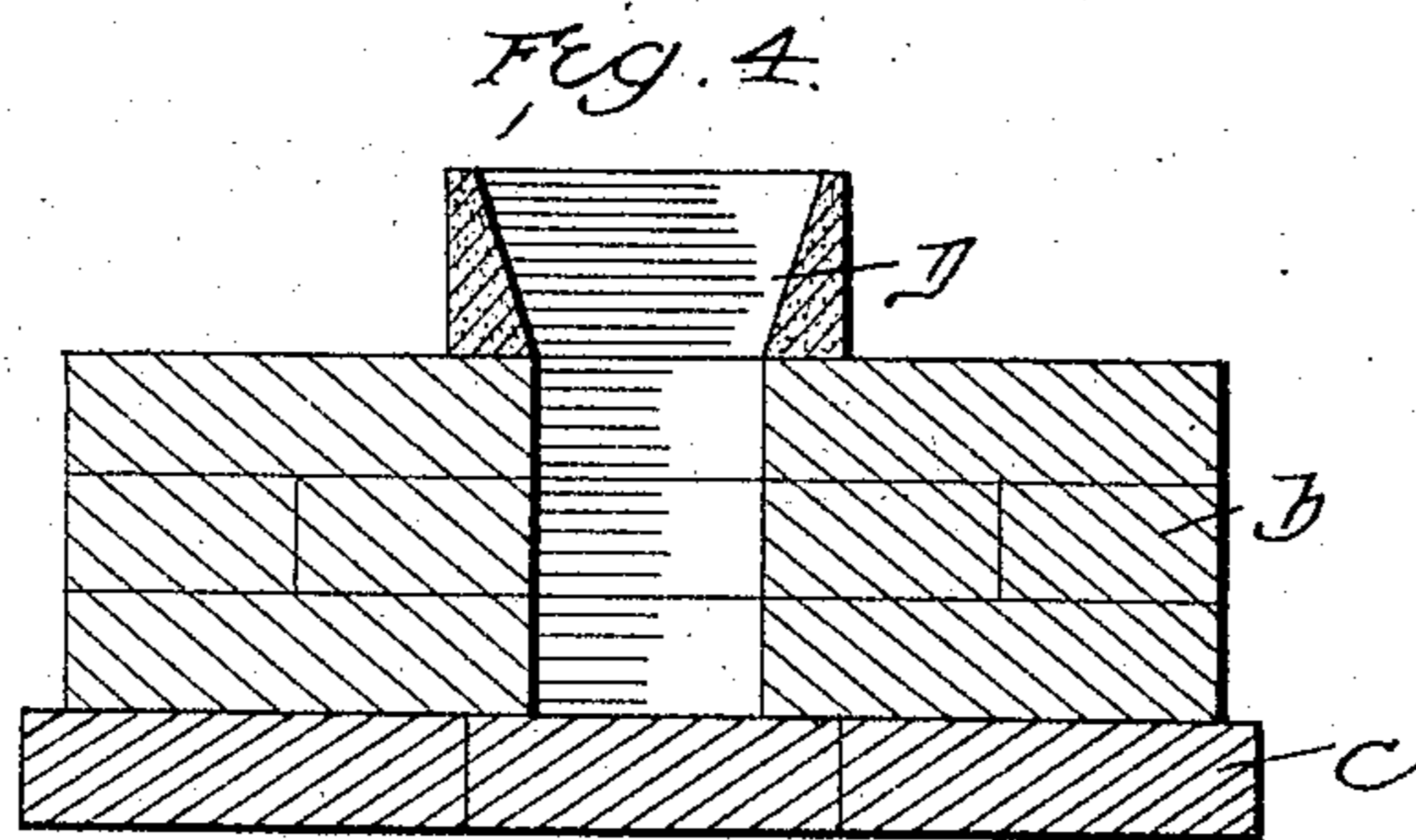
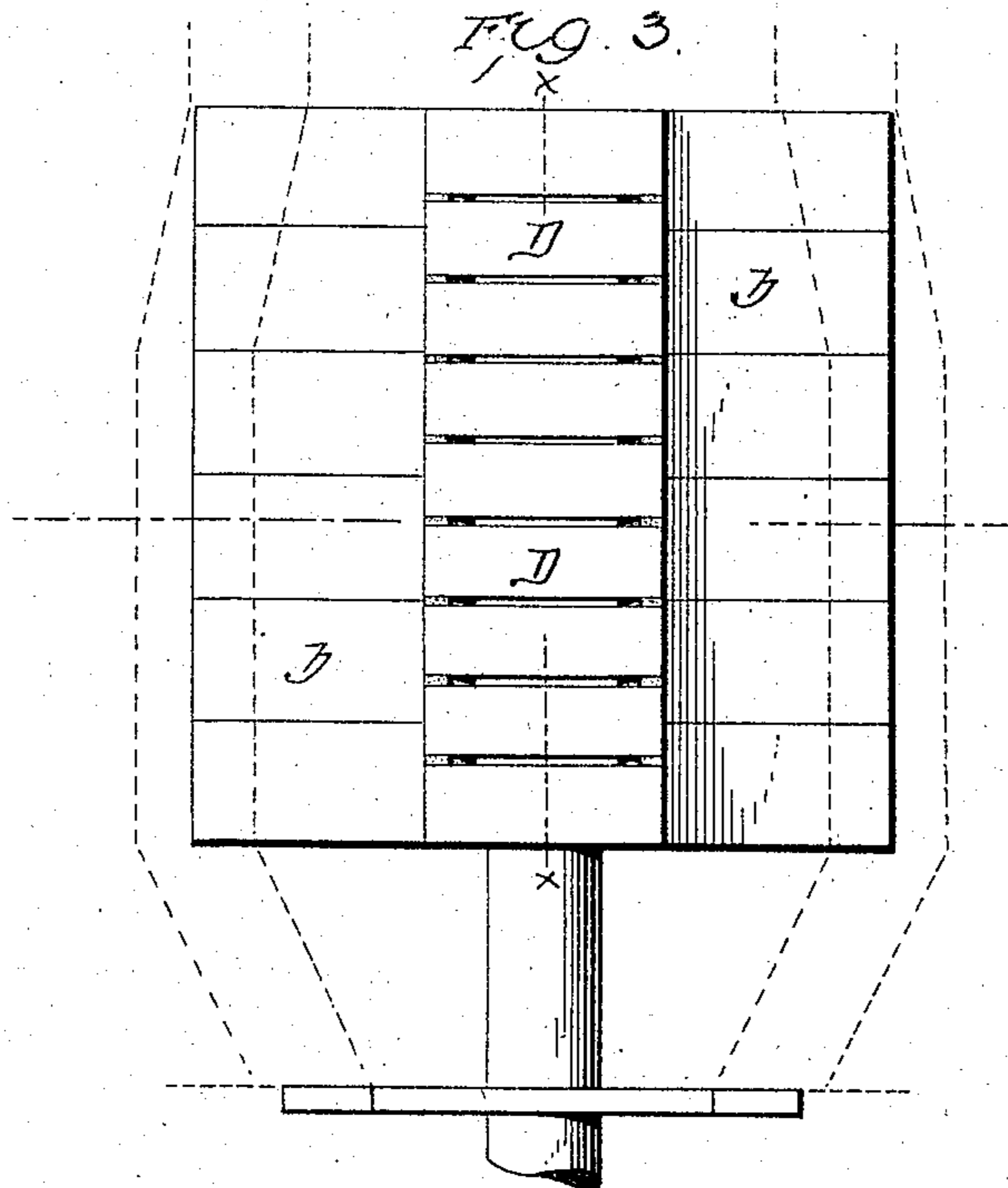
BY *Ellis Spear & Company*  
ATTYS.

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2 SHEETS—SHEET 2.



ATTEST.  
Commodore  
Edward Sartan

INVENTOR.  
JOHN C. BOSS.  
By Ellis Spear & Company  
ATTY

# UNITED STATES PATENT OFFICE.

JOHN C. BOSS, OF ELKHART, INDIANA.

## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 778,441, dated December 27, 1904.

Application filed January 7, 1904. Serial No. 188,135.

*To all whom it may concern:*

Be it known that I, JOHN C. BOSS, a citizen of the United States, residing at Elkhart, Elkhart county, Indiana, have invented certain  
5 new and useful Improvements in Brick-Kilns, of which the following is a specification.

My invention relates to kilns for the burning of brick or other clay articles, and is designed for the purpose of utilizing coal and  
10 at the same time to expedite the process of burning, to distribute the products of combustion and the heat more uniformly throughout the kiln, and thereby also to improve the products.

15 This invention is described in Letters Patent of the United States, granted to me on May 14, 1901, No. 673,896, and the present invention relates to an improvement on the form of air box or chamber placed at the bottom of  
20 the arch described in said patent.

In the drawings, Figure 1 shows a plan view of the arches, air-boxes, blower, and pipes leading therefrom to the boxes. Fig. 2 shows a front elevation of one of the arches  
25 with the box in place. Fig. 3 is a plan view of one of the boxes. Fig. 4 is a cross-section of Fig. 3, taken through one of the openings. Fig. 5 is a longitudinal section on the line *x x* of Fig. 3.

30 In the drawings, A represents the mass of bricks as they are arranged in an ordinary kiln prepared for the process of "burning." The ordinary arches, extending from side to side and constructed and arranged in the usual  
35 manner, are shown at B. Within these arches, at each end thereof, I locate my air-box, by means of which I am able to dispense with the grate. This box, as shown in Figs. 3, 4, and 5, consists of an elongated chamber formed  
40 of the bricks *b*, resting on a footing *c*, the said footing forming the bottom of the chamber. The top of the chamber is formed of fire-bricks D, which are supported at each end by the bricks *b*. The fire-brick D are  
45 set with a space C between them and at both ends up to a point flush with the sides of the chamber. This space is filled in with mortar or the like. The inner surface of the mortar is set at an obtuse angle to the sides of the box  
50 or chamber, so that an opening is formed be-

tween the fire-bricks of elongated shape and having its ends in the form of an inverted cone. These boxes are placed, preferably, in the central line of the arch at the bottom of the arch. One is placed at each end in every  
55 one of the series of the arches.

A blower E, located outside the kiln, is connected with a main pipe F on its pressure side, and this main pipe extends under the kiln-floor in two main branches G G, from  
60 each of which side pipes 2 extend laterally, one into every one of the air boxes or chambers through which the air is forced to the fuel within the arches.

Suitable valves are provided to control the  
65 air and direct it, as required.

My invention requires for the best effect that the air should be directed upon the fuel within comparatively narrow limits and only upon a part of the fuel. Practically the fire-  
70 chamber, which in the form shown occupies the whole arch, has a solid or closed bottom. The fuel, which may be spread out thinly on the bottom of the fire-chamber, is ignited along the line of openings in the air-box first,  
75 and air is applied by the blower, at first gently and afterward as the combustion increases a little more. This causes the combustion of the coal at first along the line of openings and maintains the combustion. As the operation  
80 increases the combustion spreads to the parts of coal not directly affected by the currents of air and simply by contact of the unflamed mass with that which is ignited. By this method of ignition along a narrow line or lines and by  
85 communication from the ignited to the unignited portion of the fuel not directly affected by the air-current I am able to consume the fuel thoroughly and at the same time force the products of combustion without the clog-  
90 ging of unconsumed carbon and without the expensive aid of a chimney gradually through the entire mass of brick.

By means of the air-pipes branching to each side of the kiln and the doors capable of clos-  
95 ing the arches I am able to control the heat and to direct the products of combustion to one side or the other, while still maintaining the fires upon both sides—that is to say, in each end of the arches. In the operation I at  
100

suitable times diminish or entirely shut off the outside air from one side of the kiln and maintain it upon the other. This forces the products of combustion to the one side and causes  
5 them to enter and pervade the mass upon that side, and having maintained this for a sufficient length of time I alternate with the other, and thus evenly distribute the action of the heat. At the beginning of the operation, how-  
10 ever, I leave the doors open on both sides and while maintaining the blast allow free access of air through the door. This is continued until the bricks become thoroughly dried and heated for the greater part to a red or ap-  
15 proximately red heat. This with my apparatus is accomplished in two days or a little more. I then establish the alternate action above described.

20 It will be observed that the boxes do not extend to the interior of the arches, but that an unoccupied space is left between their inte-

rior ends. This interior part, however, is occupied by the products of combustion when it is fully established.

I claim as my invention—

25 In combination, in a kiln, the arch, an air-box at the bottom of the arch, the said box being formed of brick, fire-bricks resting on the air-box and slightly separated from each other to provide elongated openings extend- 30 ing transversely of the arch, and mortar arranged at the ends of the elongated openings and between the fire-bricks, said mortar sloping outwardly from the lower part of the fire- 35 brick to the top to provide flaring discharge mouths, substantially as described.

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

JOHN C. BOSS.

Witnesses:

PERRY L. TURNER,  
MERLE DOTY.