

L. R. Norman.

Brick Kiln.

N^o 61,449.

Patented Jan. 22, 1867.

Fig. 1.

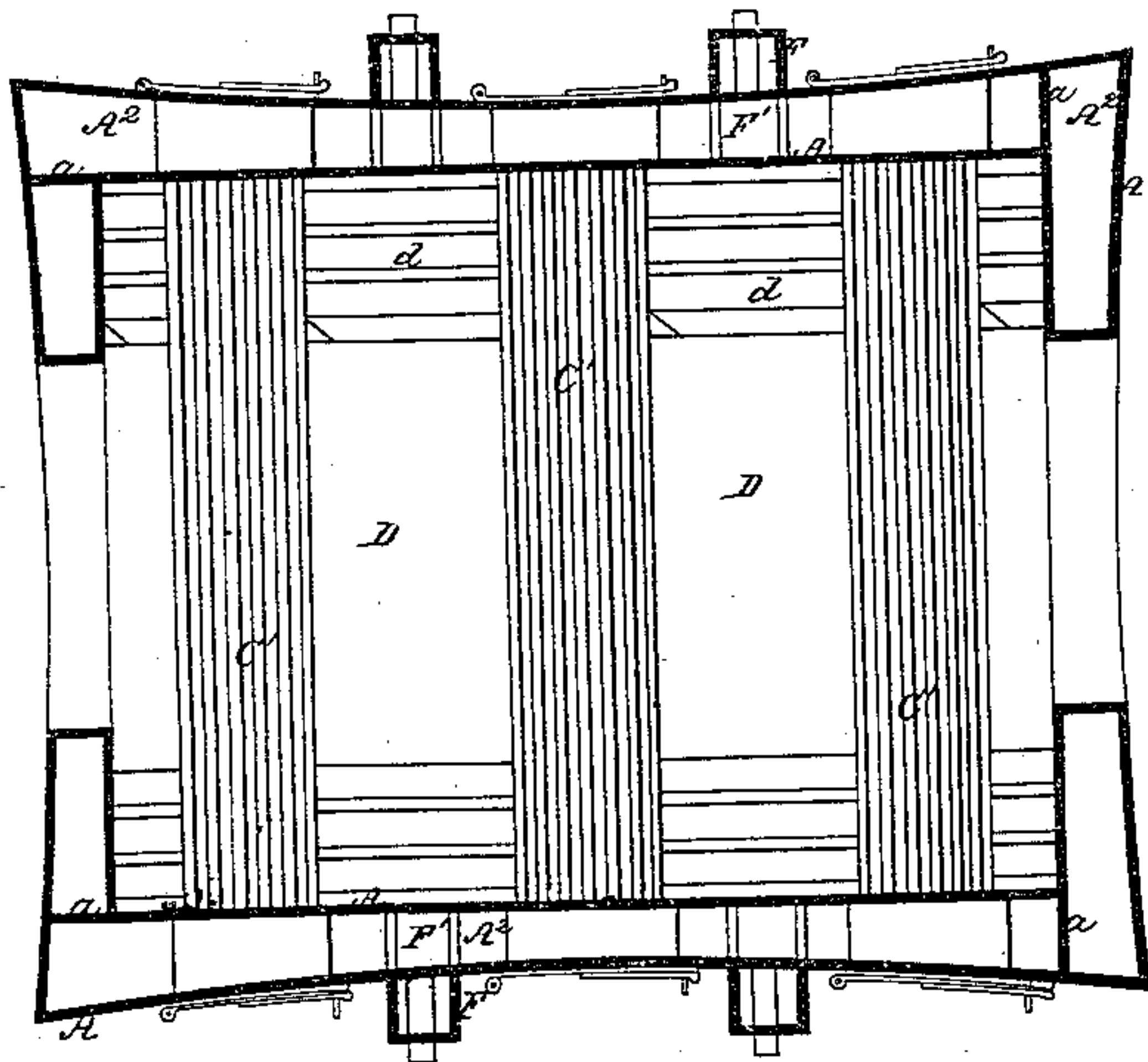


Fig. 2.

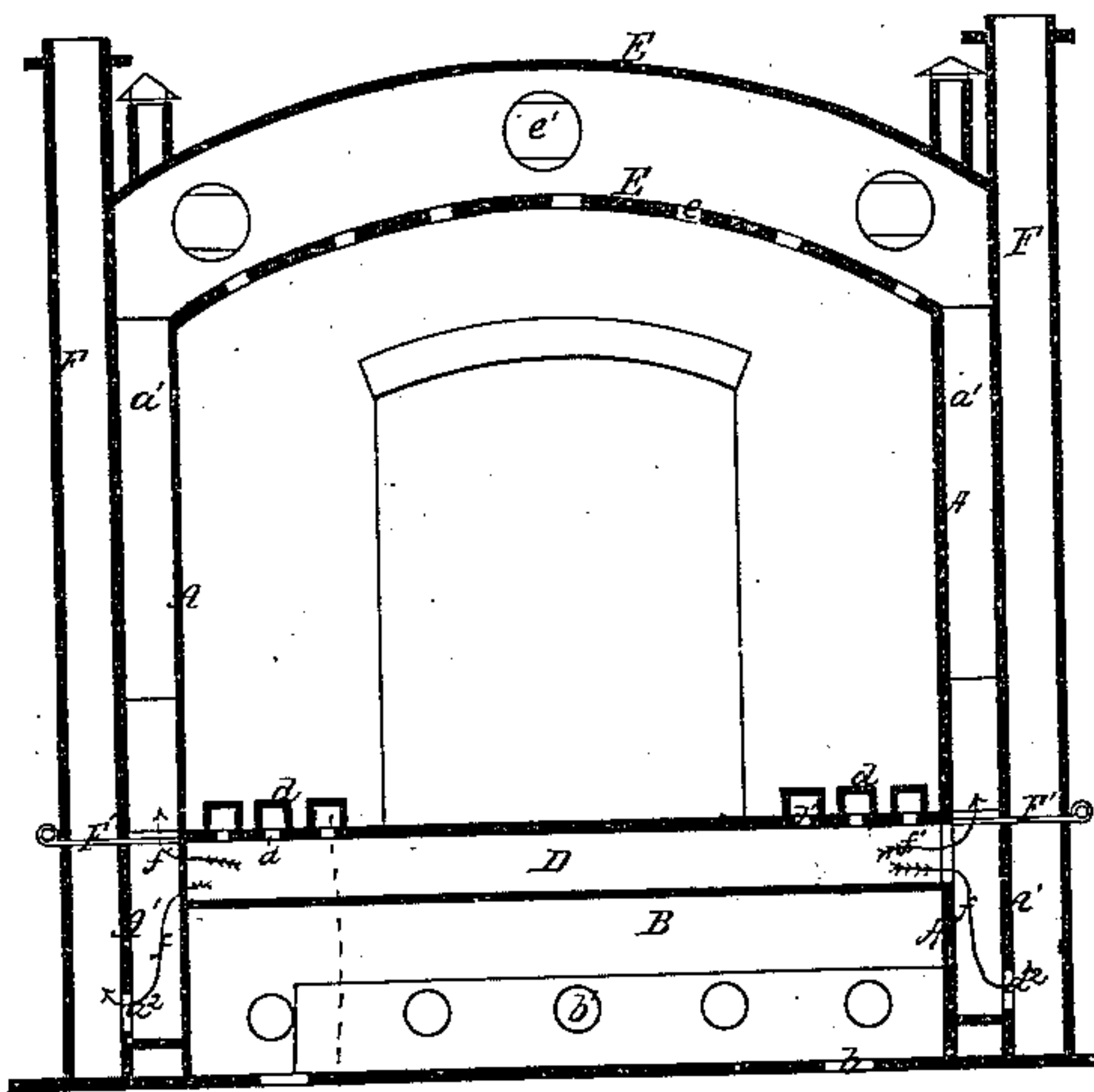
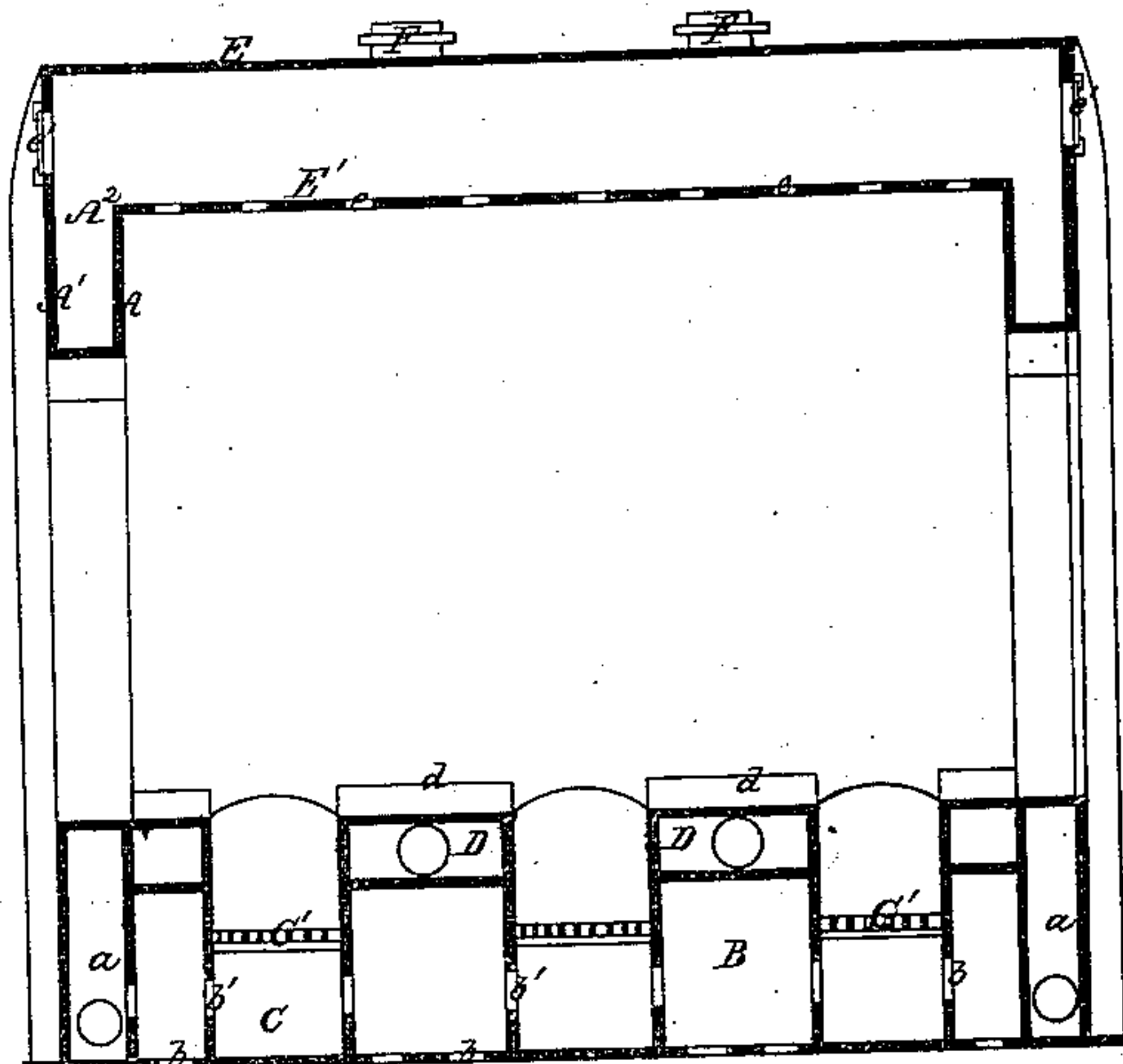


Fig. 3.



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Letters Patent No. 61,449, dated January 22, 1867.

IMPROVED BRICK-KILN.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, LESLIE R. NORMAN and WILLIAM F. DIETERICH, both of the city and county of St. Louis, and State of Missouri, have invented a new and useful improvement in Kilns for Burning Bricks, Tiles, Earthenware, &c.; and we do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 of the drawings is a sectional plan of the improved kiln.

Figure 2 is a transverse vertical section.

Figure 3 is a longitudinal vertical section.

This invention relates, firstly, to the construction of the walls of the kiln, whereby they are made strong enough to withstand the expansive force of the confined air within the kiln, and the walls of the kiln are otherwise so constructed as to afford an economical expenditure of fuel used for heating purposes. The invention also relates to the arrangement of the smoke and hot and cold-air flues and passages, and to an arrangement of valves for the purpose of changing the direction of the currents of smoke and hot air.

To enable those skilled in the art to make and use our improved kiln, we will proceed to describe its construction and operation.

This kiln is an improvement on a kiln previously invented by ourselves, and on which the patent is already ordered to issue. The sides of the kiln are built of two thicknesses of walls, *i. e.*, an inner wall A and an outer wall, A¹, enclosing a hot-air chamber, A², between them. The inner wall A should be built with straight sides, but the wall A¹ should have concave sides, the same as those in our former invention. The two walls should be tied together at the angles by wing walls *a a'*, which are to be built up alternately to one side and then to the other, so as to allow a free circulation of air into the corner of chamber A². The cold-air chambers B in this invention are much the same as those in our former invention. The cold air passes into them from underground passages (not shown) through the aperture *b* and thence through apertures *b'* to the ash-box C, below the grate-bars C'. In the present invention, in addition to the cold-air chamber above alluded to, there is a hot-air chamber, D, immediately above it, as clearly shown in fig. 3. The smoke-chambers *d*, on top of and near the ends of the chambers D, are much the same as those in our former kiln. The smoke from the kiln enters their open ends and passes thence down into the chambers D through the aperture *d'*. The smoke-chambers *d* and the top walls of the chambers B and D (although not represented so in the drawings) may be formed of brick arches. The top of this kiln is covered with double brick arches E E', the latter being perforated with smoke-holes *e*, the same as in our former kiln. The ventilation-doors *e'* are also similar in construction and arrangement to those formerly employed. The chimneys F in this kiln are much different from those hitherto employed. They should be arranged, as shown in fig. 1, with one of them at each end of each of the chambers D and connected with the chamber A² (which is in open communication with the chambers D) by the orifice *a''* in the wall A¹ at valve F' in the chimney may be opened when desired, so as to allow the smoke to pass into the flue in the direction of the arrow *f*; but when it is desirable to close the said valve the smoke and heated air will pass up into the chamber A² in the direction of the arrow *f'*. In this chamber a large part of the heat that would otherwise be wasted will be absorbed and economized in the kiln. A great improvement over the old kilns consists in starting the fires in the centre of the kiln, and for this reason we construct the grate-bars C' entirely across the kiln, as shown in fig. 1. A great economy of time and fuel in starting the kiln is thus effected.

Having thus fully described our invention, we claim therein as new, and desire to secure by Letters Patent—

1. Constructing the sides of our improved brick-kiln of double walls, to enclose a hot-air chamber, when the outward wall is inwardly curved or arched, the inner wall being straight, all substantially in the manner herein described and for the purposes set forth.

2. We claim, also, the arrangement of a hot-air chamber, D, over the cold-air supply-chamber B, between the fire-spaces of our improved kiln, constructed and operating substantially in the manner and for the purpose herein specified.

3. The combination and arrangement of the outer chimneys F, the valves F', and the air-chambers A² and D enclosing the kiln, all substantially in the manner and for the purpose herein set forth.

4. We claim also the arrangement of the fire-boxes with grate-bars extending entirely across our improved kiln, substantially as herein set forth.

Witnesses:

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