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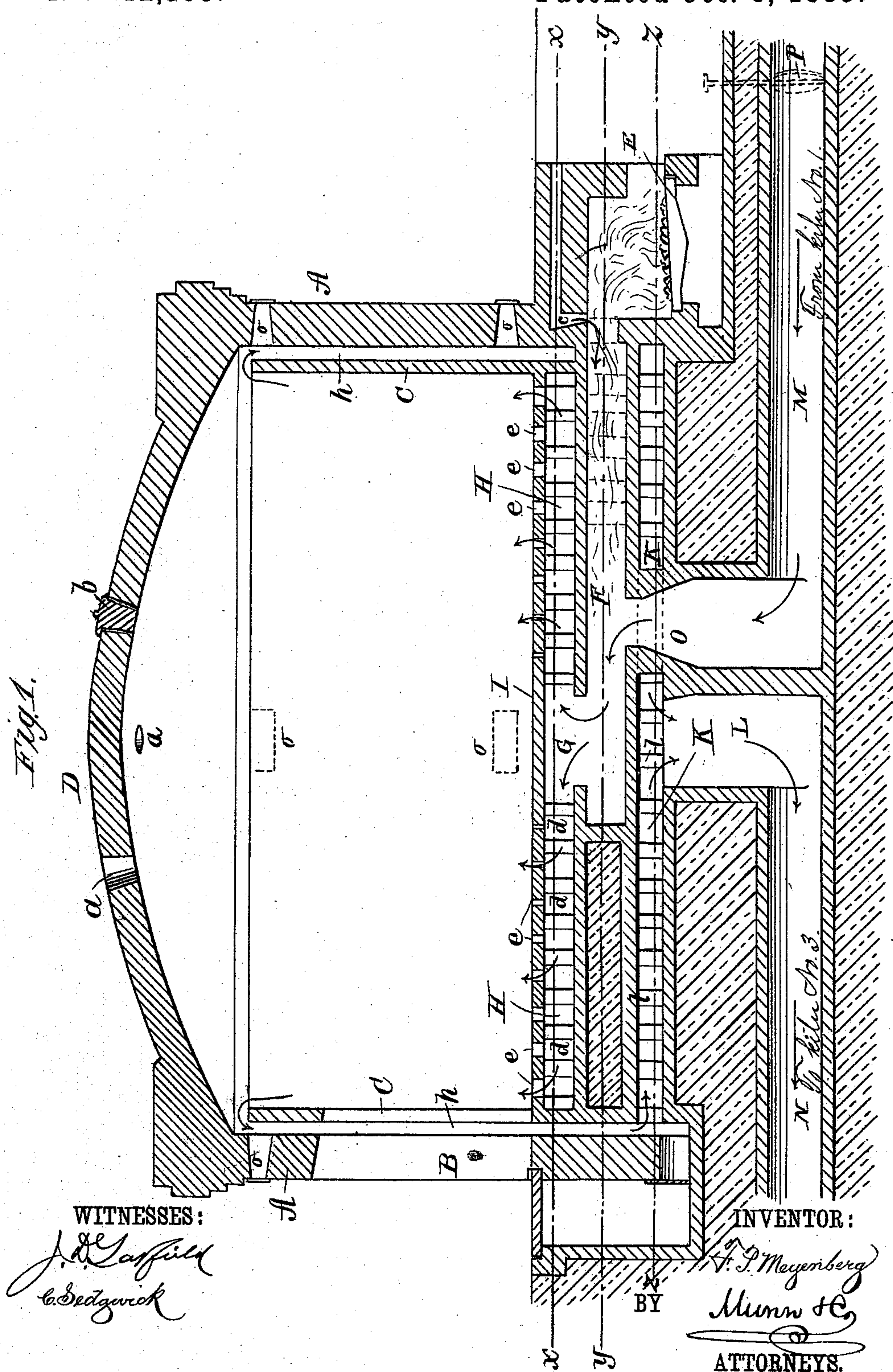
F. P. MEYENBERG.

BRICK KILN.

No. 412,399.

Patented Oct. 8, 1889.

FILE



WITNESSES:

J. D. Garfield
C. Sedgwick

INVENTOR:

F. J. Meyenberg
Munn & Co.
ATTORNEYS.

(No Model.)

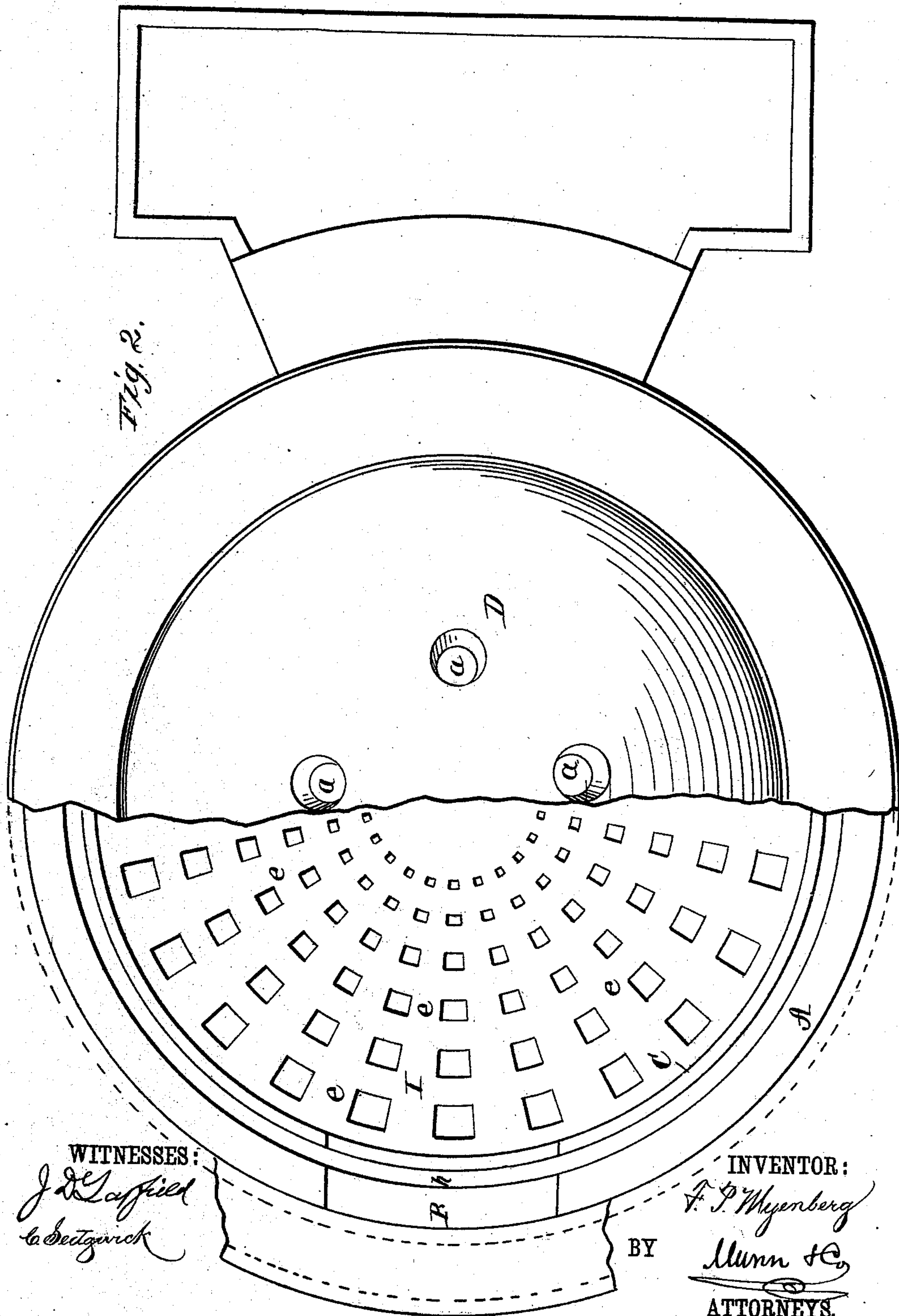
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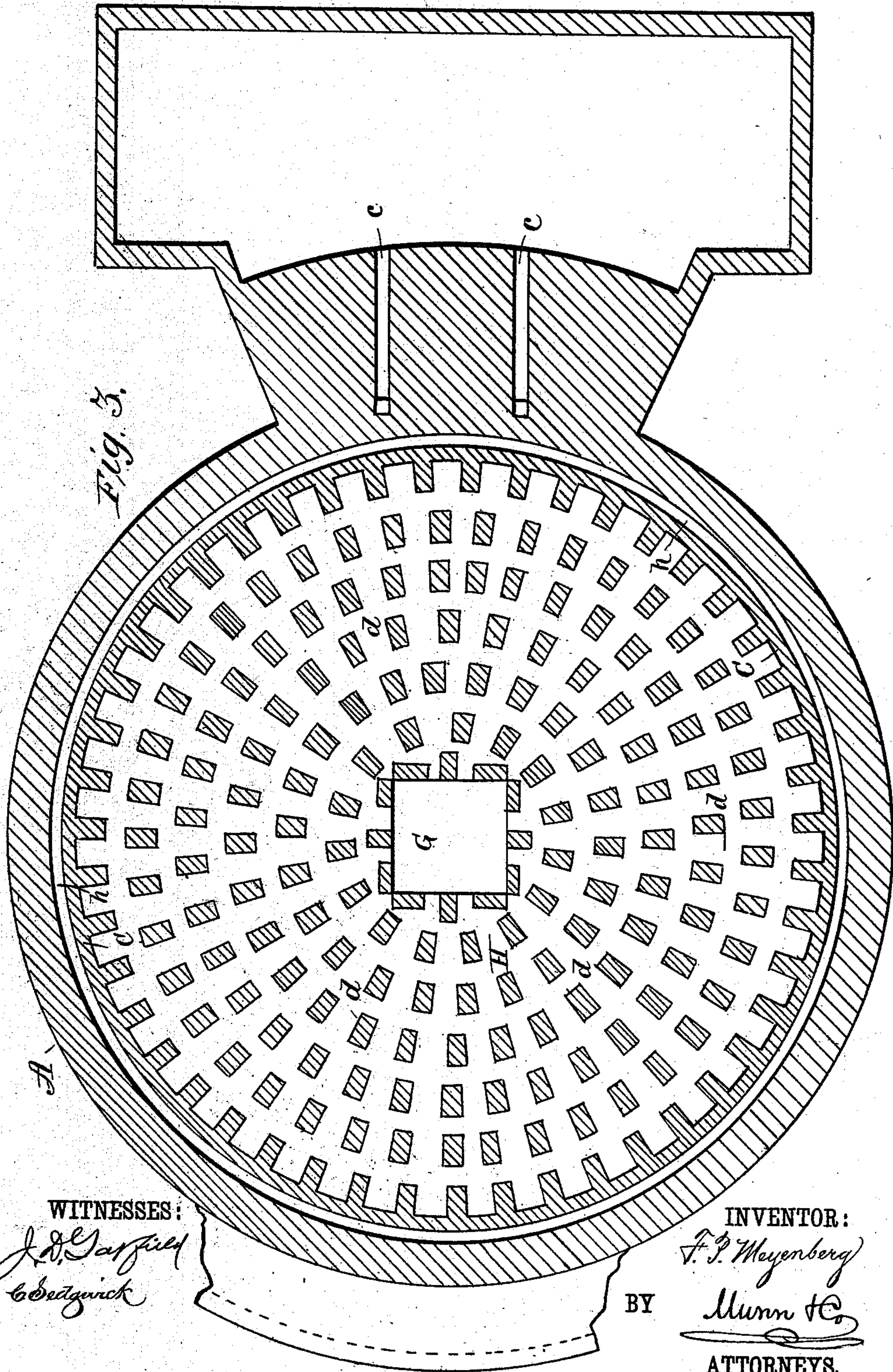
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5 Sheets—Sheet 4.

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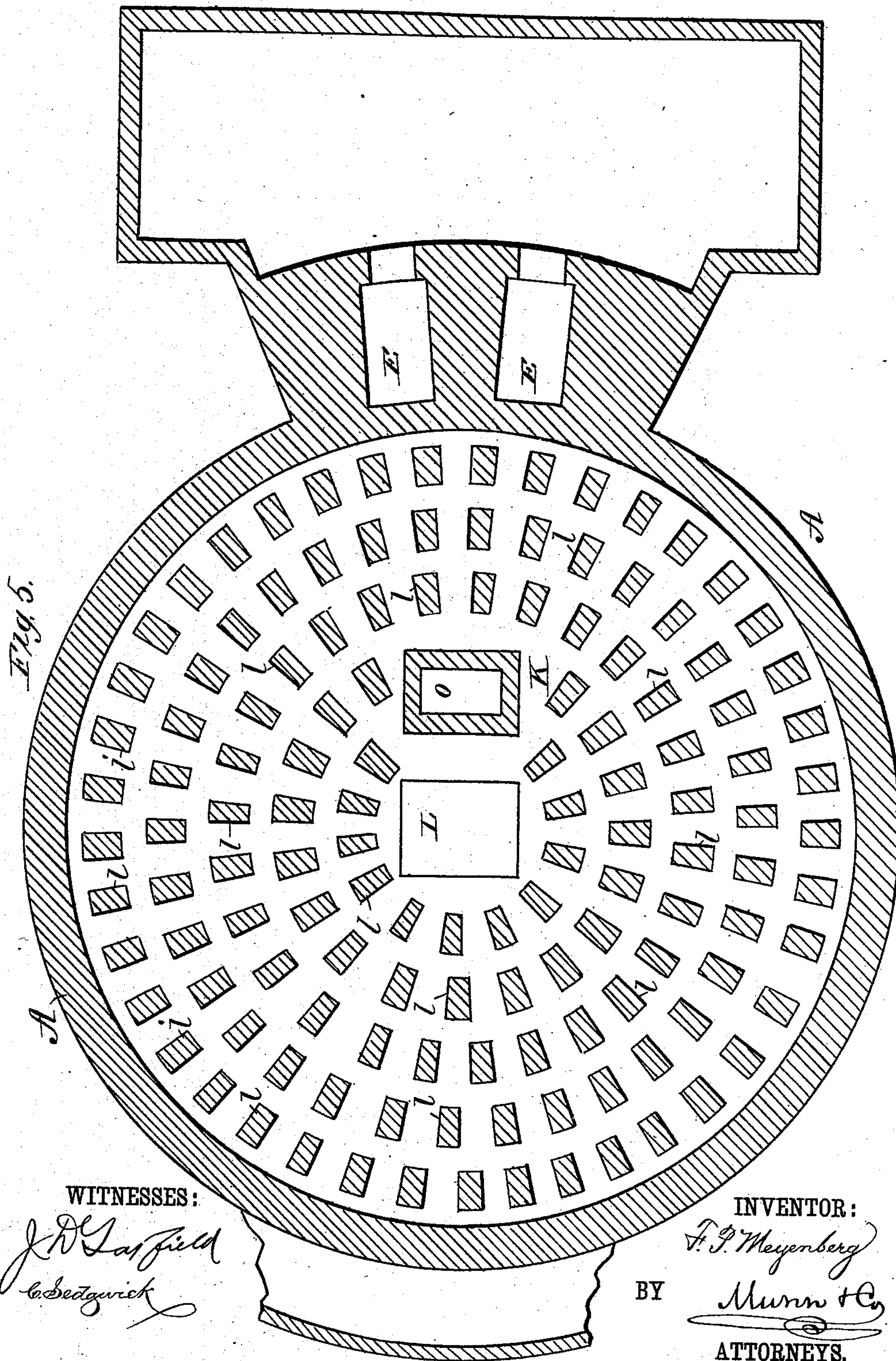
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5 Sheets—Sheet 5.

BRICK KILN.

No. 412,399.

Patented Oct. 8, 1889.



UNITED STATES PATENT OFFICE.

FRANZ P. MEYENBERG, OF CHICAGO, ILLINOIS.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 412,399, dated October 8, 1889.

Application filed December 28, 1887. Renewed March 13, 1889. Serial No. 303,196. (No model.)

To all whom it may concern:

Be it known that I, FRANZ P. MEYENBERG, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Brick and Pottery Kiln, of which the following is a full, clear, and exact description.

My invention relates to the construction of a continuous-burning kiln arranged upon new and improved principles, whereby the heat delivered to the kiln is equalized and freed from all impurities in the form of gas, smoke, and incombustible particles—such as ashes—and whereby all excess of heat employed in one kiln is utilized in the succeeding kiln, instead of passing off as usual up through the smoke-stack, the object of the invention being, as above intimated, to produce a uniform and equally-tempered heat, which object is accomplished by intermixing and combining the heat from all the fire-places or furnaces, together with the surplus heat from the preceding kiln, prior to the passage of the heat to the main body of the kiln.

A further object of the invention is, as above stated, to arrest all ashes or incombustible particles and to burn the gas and smoke before the heated currents come in contact with the wares to be burned or baked.

A still further object of the invention is to distribute the heat equally throughout all parts of the kiln, and to protect the wares arranged at or near the outer wall of the kiln from any injurious effect which might arise from too close a contact with the extreme outer wall; and to the ends above named the invention consists of a kiln provided with a combustion and mixing chamber, and having its main burning or baking chamber surrounded by a flue, the floor of said main burning or baking chamber being perforated by graduated perforations radiating from the center, the flue surrounding the main chamber being connected with a flue leading to the succeeding kiln, all as will be hereinafter more fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a central sectional elevation of my improved form of kiln. Fig. 2 is a plan

view of the kiln, a portion of the roof being broken away to disclose the construction of the floor of the main chamber of the kiln. Fig. 3 is a sectional plan view taken on line *x x* of Fig. 1. Fig. 4 is a sectional plan view taken on line *y y* of Fig. 1, and Fig. 5 is a sectional plan view taken on line *z z* of Fig. 1.

In constructing such a kiln as is illustrated in the drawings above referred to, the general construction of the kiln being best shown in Fig. 1, I provide an outer inclosing-wall A, provided with an opening B, adapted to be closed by a properly-constructed door. Just within the wall A there is a second wall C, formed with an opening corresponding to that of the opening B in the wall A, said opening being arranged to be closed by a door, the kiln being covered by an arched roof D, in which there are arranged openings *a a*, that are closed by traps or covers *b*.

At one side of the kiln I arrange the furnaces E, there being any desired number of said furnaces, all of which lead through flues *e'* to a combustion or mixing chamber F, as best shown in Figs. 1 and 4, the products of combustion being supplied with fresh air, which enters through passages *c*, that are arranged as best shown in Figs. 1 and 3, the idea of so supplying the combustion-chamber with fresh air being to permit of a perfect combustion of the smoke and gases within said chamber, so that the heated currents passing upward into the body of the kiln will be purified and freed from all matter that would be likely to injure the wares contained within the kiln. After leaving the combustion-chamber the heated currents pass up through a flue G into an annular chamber H, that is arranged beneath the main floor I of the kiln, said main floor being built upon piers *d d*, and being provided with numerous perforations *e e*, the space over the flue G being solid, however. An inspection of Figs. 1 and 2 will show that the apertures formed in the floor I are arranged in lines radiating from the center of the floor, and are so proportioned that the area of the apertures increases toward the outer wall of the kiln, the idea being to provide for an equal distribution of the heat delivered through the flue G into the distributing-chamber H, arranged, as shown, be-

neath the floor I. After passing through the apertures *ee* in the floor I the heated currents are carried upward, and are finally drawn over the top of the wall C into the annular space *h* between the outer and the inner walls of the kiln. This annular space constitutes the return-flue and leads into a chamber K, arranged beneath the floor of the combustion-chamber F, the floor of said combustion-chamber, and, indeed, all material above the chamber K, being supported by short pillars or columns *lll*, arranged within said chamber K, that portion of the floor of the compartment H that is above the combustion-chamber F being supported by similar columns *ll'*, that are arranged within said combustion-chamber.

Leading from the center of the chamber K there is a flue L, which carries the heated currents forward, as indicated by the arrows, through a flue N to the combustion-chamber of the next succeeding kiln, the flue N connecting with a flue similar to the flue M, which leads into a flue O, that conveys the heated currents into the chamber F, as clearly indicated in Fig. 1. It will thus be seen that the heated currents from the furnace of each kiln are combined with the surplus heated currents from the preceding kiln, so that the said currents are tempered and equalized before being distributed to the main chamber of the kiln.

In order that the draft within the return-flue *h* may be regulated, I form openings *oo* through the wall A, and in order that the kiln may be gradually cooled when desired I form other openings in the roof or ceiling of the kiln, which, as before stated, are provided with covers *b*.

As shown in Fig. 1, the flue M is provided with a damper P, arranged as indicated or in any manner desired.

Such being the general construction and arrangement of my improved form of kiln, it will readily be understood that the heat delivered through the flue G to the chamber H, and from there distributed throughout the main body of the kiln, may be tempered and regulated, as required, by the admission of hot or warm air from the kiln, discharging its surplus heat through the flue M, and it will be appreciated that the heat from all of the furnaces is led into the mixing-chamber F, there to be intermingled and combined, and to be led from such mixing-chamber to a point beneath the center of the main kiln-chamber, from which point it is led out and distributed equally through the main kiln-chamber, entering through apertures which gradually increase in size toward the outer wall of the flue, and as the main kiln-chamber is surrounded by the downdraft-flue it will be understood that the wares placed in close proximity to the defining-walls of the

kiln-chamber will be protected from any injurious effect of dampness or of cold from the outside atmosphere.

Another and very material advantage of my improved construction is that by the use of a combustion or mixing chamber—such as F—the gases generated will all be consumed, and consequently all of the heat-producing materials contained in the fuel will be utilized. Then, too, the heat ordinarily wasted is conveyed to the succeeding kiln, there to be intermingled with the heat of said kiln and a second time utilized for the purpose of baking or burning the ware stored in the kiln-chamber; also, by my arrangement of air-inlets upon the sides, top, and bottom of the kiln I am able to increase or decrease the velocity of the current passing through the kiln-chamber, or to check the velocity of the heated current at any point required, thereby effectually regulating the heat at any point desired.

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

1. In a kiln, the combination, with the main chamber of a mixing-chamber in communication with the kiln-furnace and a distributing chamber arranged beneath the main chamber and connected with the mixing-chamber by a flue, substantially as described.

2. In a kiln, the combination, with a main kiln-chamber, of a mixing-chamber in connection with the kiln-furnaces, an interposed distributing-chamber, and a return-flue practically surrounding the main kiln-chamber, substantially as described.

3. In a kiln, the combination, with a main kiln-chamber, of a mixing-chamber, an interposed distributing-chamber, and a return-flue practically surrounding the main kiln-chamber and leading to the mixing-chamber of the next succeeding kiln, substantially as described.

4. In a kiln, the combination, with the main kiln-chamber, of a mixing-chamber in communication with the furnace of the kiln, a fresh-air passage leading to the mixing-chamber, and an interposed distributing-chamber, substantially as described.

5. In a kiln, the combination, with the main kiln-chamber, of a mixing-chamber in connection with the kiln-furnace and with the escape-flue of the preceding kiln, an interposed distributing-chamber, and a return-flue surrounding the main kiln-chamber and provided with air-passages *oo*, substantially as described.

FRANZ P. MEYENBERG.

Witnesses:

WYLLYS S. ABBOT,
GEORGE H. HOLTON.