

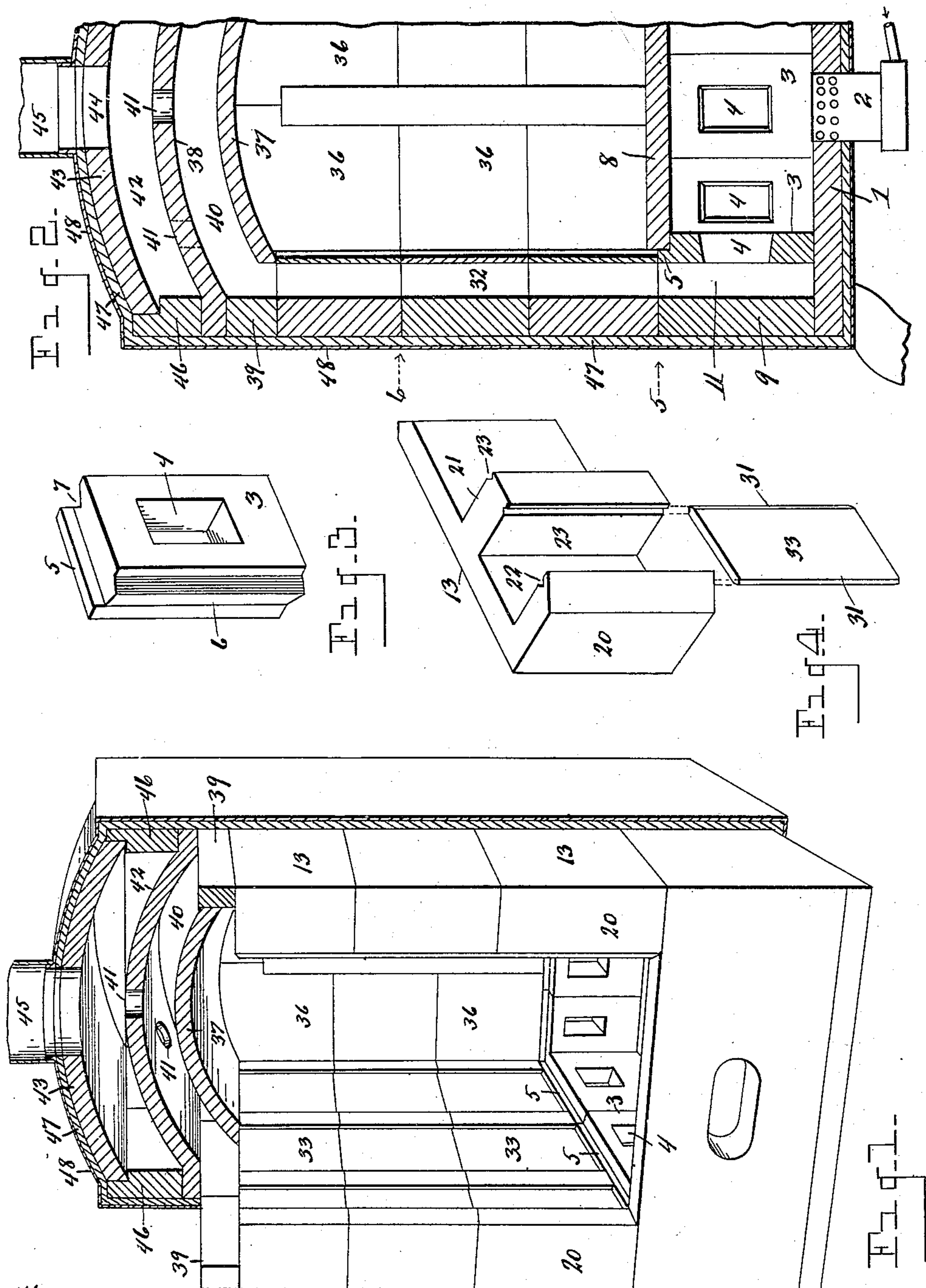
No. 875,350.

PATENTED DEC. 31, 1907.

J. C. HINZ.
CHINA KILN.

APPLICATION FILED NOV. 2, 1908.

2 SHEETS—SHEET 1.



WITNESSES.
Q. B. Bröniger.
J. G. Howlett.

INVENTOR.
Julius C. Hinz.
By T. A. Wheeler & Co. attys.

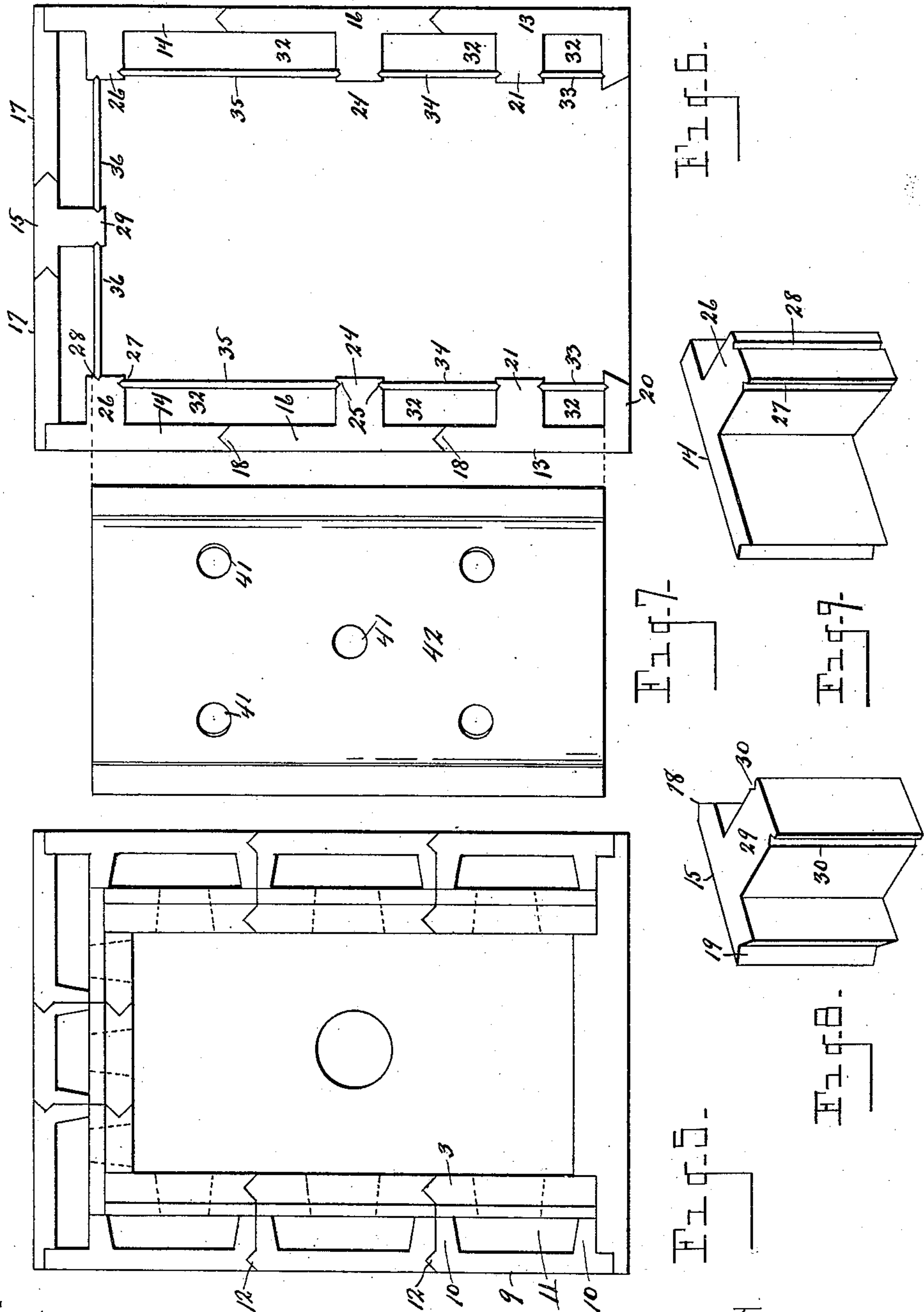
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UNITED STATES PATENT OFFICE.

JULIUS C. HINZ, OF DETROIT, MICHIGAN.

CHINA-KILN.

No. 875,350.

Specification of Letters Patent.

Patented Dec. 31, 1907.

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To all whom it may concern:

Be it known that I, JULIUS C. HINZ, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in China-Kilns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in portable china kilns, especially designed for firing china and analogous purposes, and consists in the construction and arrangement of parts hereinafter fully set forth and claimed.

The object of the invention is to provide a kiln of the character described of comparatively simple and inexpensive construction, wherein the walls of the kiln are formed of interchangeable blocks or tile sections of such shape and character as to protect the oven from the products of combustion and enable the building of a kiln of any desired size, and wherein provision is made for mounting between inwardly projecting members on the tile sections vertically slidable tile pieces, which in conjunction with the inwardly projecting members, form flues for the caloric current, and also serve as the inner wall of the oven.

The above object is attained by the structure illustrated in the accompanying drawing, in which:—

Figure 1 is a perspective view, partly in section, showing a kiln embodying my invention. Fig. 2 is an enlarged fragmentary view in vertical section through a portion of the top and bottom and one side of said kiln. Fig. 3 is a perspective of one of the interchangeable blocks or tile sections which form the base of the kiln and upon which the bottom is supported. Fig. 4 is a perspective view of one of the blocks or tile sections which form the upper wall of the kiln. Fig. 5 is a plan view of the base portion of a kiln as though said kiln were divided horizontally on line 5— of Fig. 2. Fig. 6 is a similar view as though the kiln were divided horizontally on line 6— of Fig. 2. Fig. 7 is a plan view of the perforated crown plate which forms the central or inner wall at the top of the kiln. Figs. 8 and 9 are perspective views of the in-

terchangeable blocks or tile sections which are used to form the walls of the kiln in conjunction with the tile sections shown in Fig. 4.

Referring to the characters of reference, 1 designates the bottom of the kiln, of any suitable material having a central opening therein which receives the burner 2, preferably of a hydrocarbon type.

Mounted upon the bottom 1 are the inner blocks 3 of the base having central openings 4 therethrough, and each having a marginal flange 5 at its upper end; said blocks are also provided upon one edge with a tongue 6, and upon the opposite edge with a corresponding groove 7. These blocks 3 are placed edge to edge to form the inner wall of the base and serve as a support for the bottom 8 of the oven whose margins abut against the flanges 5 of said blocks.

The outer wall of the base is formed by the blocks 9 which at their ends are provided with inwardly extending members 10 (see Fig. 5) whose inner ends have terminal contact with the outer face of the blocks 3, forming flue passages 11 that communicate through the openings 4 in the blocks 3 with the combustion chamber formed between the bottoms 1 and 8 and into which the flame from the burner initially enters. The marginal edges of the blocks 9 are provided with tongue and groove members, as shown at 12, to maintain said blocks in position in the wall of the base. Above the base section of the kiln the end and side walls are formed of the interchangeable blocks or tile sections 13, 14, 15, 16 and 17. All of these blocks or tile sections, except those designated by the numeral 17 are provided with inwardly projecting members having vertical channels, while one or both of the vertical edges of said blocks are provided either with a tongue 18 or a groove 19, to enable them to interlock when set in the wall of the kiln.

The front corners of the super-structure of the kiln body or wall are formed of the blocks or tile section 13 having the inwardly projecting members 20 and 21; the members 20 forming a portion of the front of the kiln and their margins serving as the jamb of the door opening, the inner face of the members 20 being provided with the marginal vertical channel 22. In the opposite vertical faces of the members 21 of said blocks are the vertical channels 23. The middle blocks or tile sections 16 forming the central portions of the

side walls have inwardly projecting members 24 whose opposite vertical faces are provided with marginal channels 25. The rear corners of the kiln are formed by the side blocks 14 and the end blocks 17, between which latter, to form a complementary portion of the end, is inserted the block 15. The blocks 14 are provided with the inwardly projecting members 26 having in one side thereof the vertical channel 27 and in the inner face thereof the vertical channel 28, while the block 15 has the inwardly extending member 29 provided in its opposite sides or faces with the vertical channels 30. The lower tier of the blocks 13, 14, 15, 16 and 17 of which the super-structure of the kiln body is formed, rests upon the outer base blocks 9, while the inwardly projecting members of said blocks of the super-structure rest upon the inner base blocks 3.

To form the walls of the oven of the kiln, thin, flat tiles are employed provided with beveled edges 31 which are adapted to slide into the vertical channels in the inwardly projecting members of the blocks forming the super-structure, said flat tiles not only serving in conjunction with said inwardly projecting members to form the walls of the oven, but also to form the inner walls of the vertical flue passages 32 which continue upwardly in the wall of the kiln from the flue passage 11 formed in the base thereof and which communicate with the combustion chamber through the openings 4 in the base blocks 3. The flat tiles just referred to are made of various widths or lengths, according to the position in which they are to be used; for instance, the tiles 33 which are inserted between the projecting members 20 and 21 of the tile blocks 13 are comparatively short, while the tiles 34 which extend between the members 21 of the blocks 13 and the members 24 of the blocks 16, are of greater length, and the tiles 35 which extend between the members 24 of the blocks 16 and the members 26 of the blocks 14 are of still greater length. The flat tiles 36 which extend between the members 26 of the blocks 14 and the member 29 of the block 15 may be any length, according to the width of kiln desired, or to harmonize with the length of the blocks 17 which form the outer wall of the kiln at the end. Any desired height of kiln may be attained by using as many tiers of the blocks forming the super-structure as required, said blocks being placed one upon the other and the flat tiles which form the walls of the oven inserted in place, as will be well understood. By means of the interchangeable blocks which form the walls of the kiln, the width or length of the kiln may be varied at pleasure, for instance, to make a kiln narrower than that shown in Fig. 6, the end blocks 15 may be omitted and the blocks 17 permitted to engage each other directly; in the same manner the length of the kiln may be decreased

by removing the blocks 16 and permitting the blocks 13 and 14 to engage. By inserting more of the blocks in the end and side walls, the size of the kiln may be increased, as will be well understood, provision for such changes being made by making the flat, thin tiles which form the oven wall in lengths to accommodate said changes.

It will be noted that by means of the blocks of the super-structure, in conjunction with the flat tiles, the continuity of the flues is effected through the wall of the kiln, the manner of inserting the flat tiles preventing the escape of the products of combustion into the oven, while the thinness of said tiles offers little obstruction to the radiation of the heat from the flues into the oven.

The top of the oven is formed by a crown plate 37 which rests upon the inwardly projecting members of the blocks of the super-structure and upon the upper edges of the thin, flat tiles forming the oven walls. Above the top 37 of the oven is an arched muffle plate 38 whose edges are supported upon the blocks 39 of the super-structure, and which, together with the oven top 37, forms a chamber 40 into which the vertical flues 32 lead. Formed through the muffle plate 38 are apertures 41 which allow the products of combustion to pass upwardly into the upper chamber 42 formed between the muffle plate 38 and the crown plate or top 43 having a central opening 44 therethrough which communicates with the pipe 45 that carries away the flue gases or products of combustion. The top 43 is supported upon the blocks 46 which rest upon the margins of the plate 38.

Covering the outer wall of the kiln is a layer of asbestos 47 and embracing said asbestos and confining it in place is a sheet metal jacket 48.

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

1. In a china kiln, the combination with the base portion containing the combustion chamber and having flue passages communicating therewith, of the super-structure mounted upon the base portion consisting of interchangeable blocks having laterally extending members, and relatively thin tile pieces removably seated between the inner ends of said members to form one side of the flue passage ways leading from the combustion chamber, and collectively to form the walls of the oven, the body of the blocks forming the outer wall of the furnace.

2. In a china kiln, the combination of a base having a combustion chamber and flue openings leading therefrom, of a super-structure consisting of tile blocks supported upon said base having lateral projecting members, which together with the body of the blocks form three sides of the flue passages, thin,

flat tiles removably interposed between the inner ends of said lateral members to form the fourth side of said flue passages, said removable tiles and said lateral members
5 forming the walls of the oven.

3. A china kiln having a wall with vertical flues, said wall consisting of blocks of tile provided with laterally projecting members and relatively thin removable tiles supported
10 between the inner ends only of said lateral members to form the inner side of the vertical flues of said wall.

4. A tile block for china kilns having lat-

erally projecting members provided with vertical grooves in their inner ends and relatively thin tiles seated in said grooves to form one of the walls of a flue, the remaining walls of the flue being formed by said laterally projecting members and the body portion of the block.

In testimony whereof, I sign this specification in the presence of two witnesses.

JULIUS C. HINZ.

Witnesses:

E. S. WHEELER,
I. G. HOWLETT.