(No Model.)

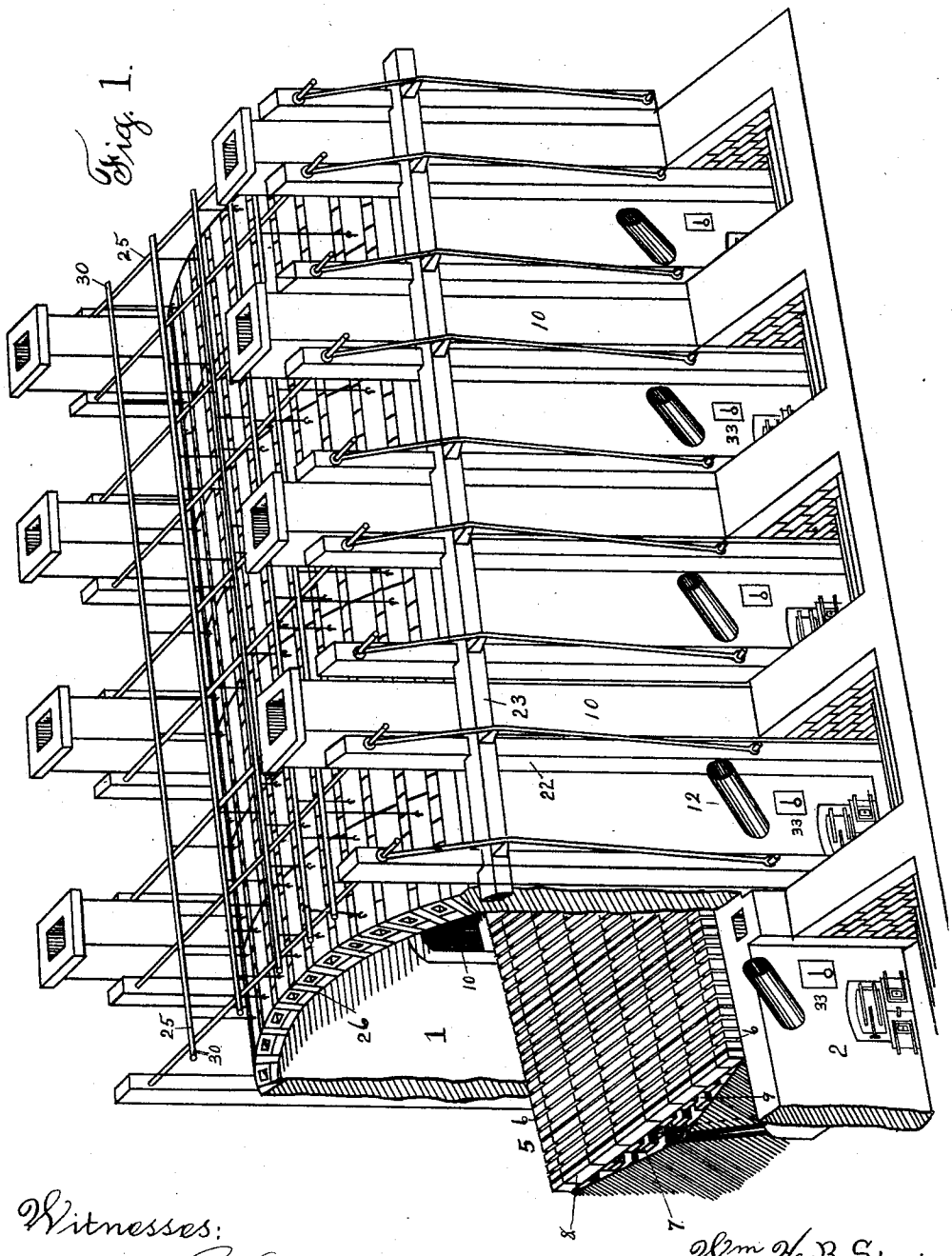
4 Sheets—Sheet 1.

W. H. B. STOUT.

BRICK KILN.

No. 480,940. Patented Aug. 16, 1892.

Fig. 1.



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W. H. B. STOUT.

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Fig. 2.

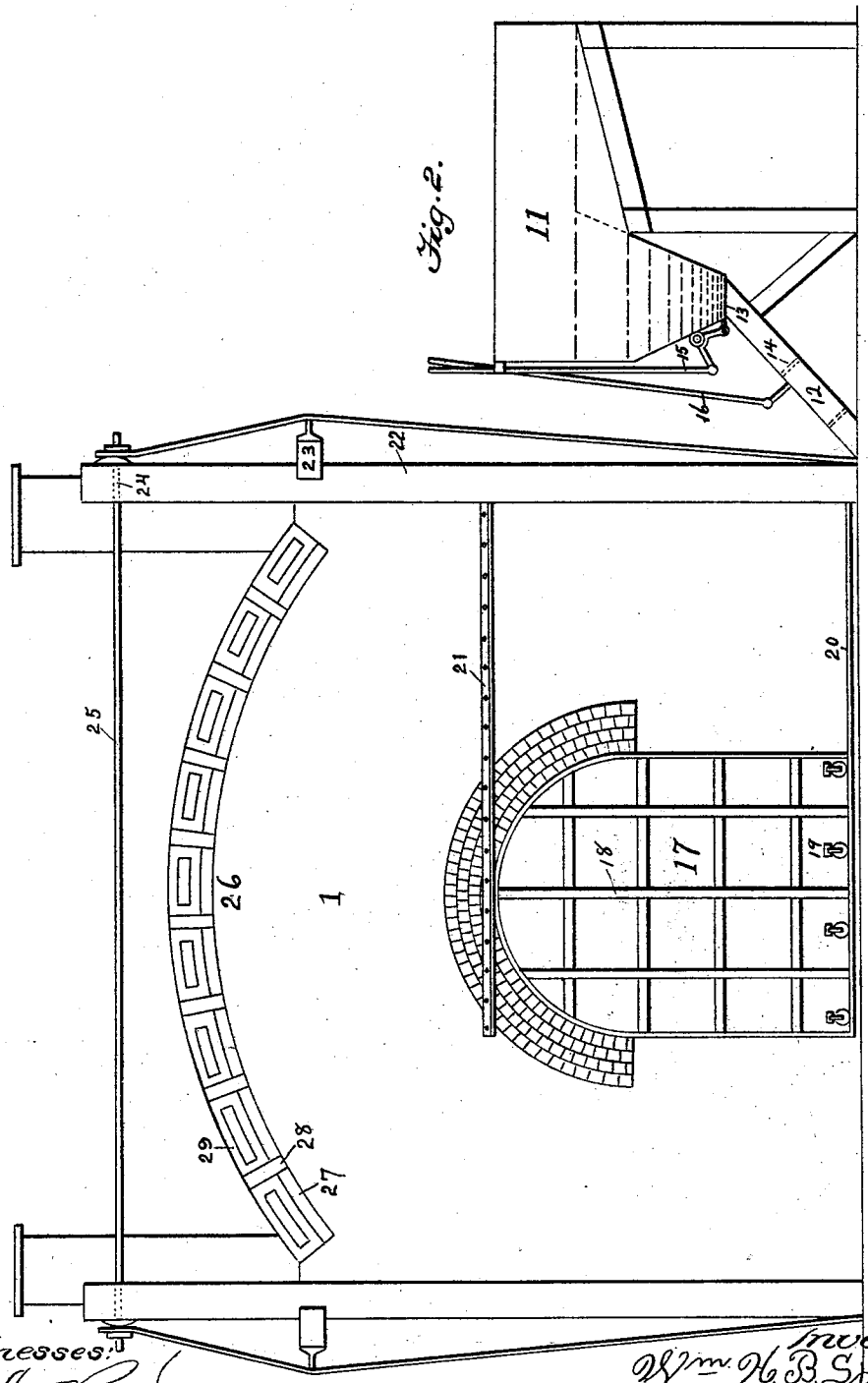

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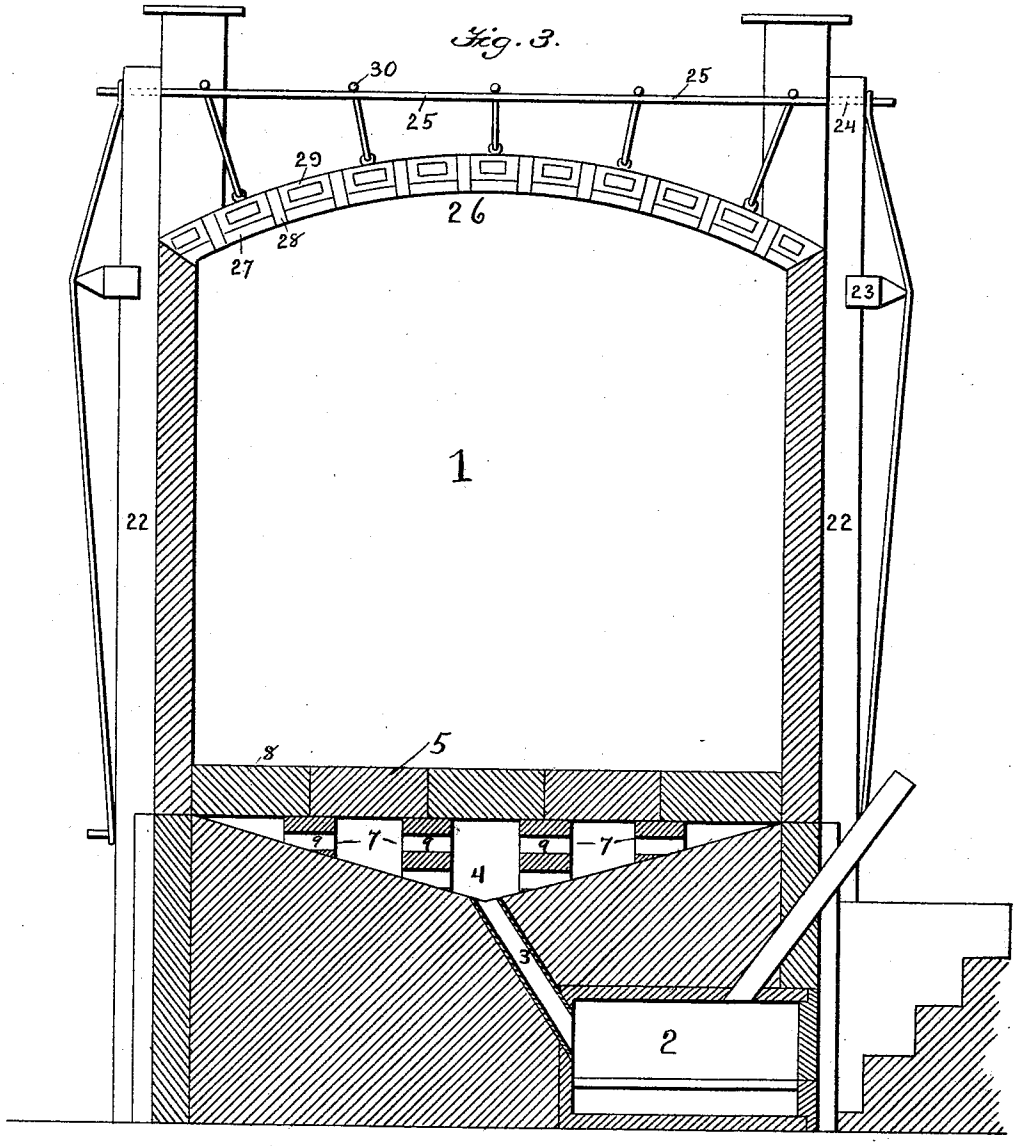
Fig. 3.



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(No Model.) 4 Sheets—Sheet 4.

W. H. B. STOUT.

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Fig. 4.

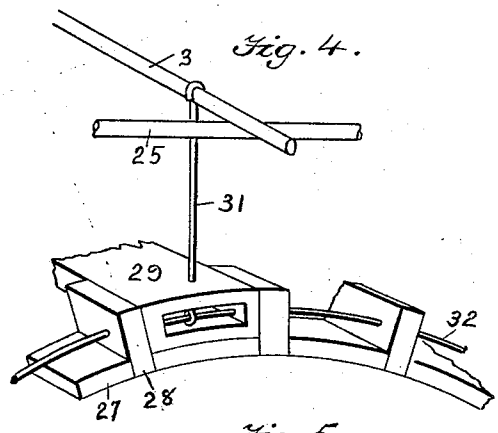


Fig. 5.

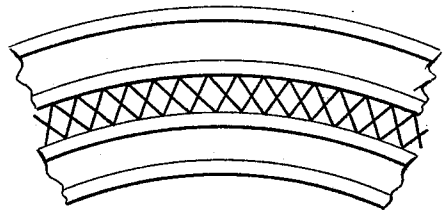


Fig. 6.

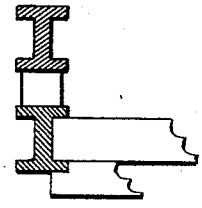
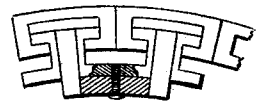


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM H. B. STOUT, OF CHICAGO, ILLINOIS.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 480,940, dated August 16, 1892.

Application filed August 15, 1891. Serial No. 402,764. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. B. STOUT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new, useful, and valuable Improvement in Kilns, of which the following is a full, clear, and exact description.

My invention has for its object, first, to produce a strong and compact furnace, which will be economical in construction and operation; second, to form a novel floor for the kiln which will permit of heat from the furnaces passing upward through its interstices into the kiln; third, to provide a heavy and durable door for the kiln and at the same time so arrange it that it may be moved back and forth easily without the application of a very great amount of force; fourth, to provide a newly arranged and constructed furnace or series of furnaces by means of which the kiln may be heated; fifth, to provide an improved automatic feed for supplying fuel to the furnace or furnaces; sixth, to provide improved means for binding the walls of the kiln together, and, seventh, to provide a new and improved form of roof, as more fully hereinafter specified. These objects are accomplished by the improved construction and arrangement or combination of the parts, illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a perspective view of a kiln constructed in accordance with my invention, portions being broken away for the purpose of more clearly showing the interior of the kiln and one of the furnaces; Fig. 2, a front elevation of the kiln, showing the automatic feed of one of the furnaces; Fig. 3, a sectional elevation taken through the center of one of the furnaces of Fig. 1; Fig. 4, a detailed view of a modified form of roofing, and Figs. 5, 6, and 7 other modifications of the same.

Referring to the drawings, the kiln is represented by the numeral 1, the walls of which are preferably constructed of brickwork, and below the floor thereof the furnaces 2 are located, from each of which a pipe or flue 3 is run upward obliquely to a point 4 under the center of the floor 5, where the heat and products of combustion are allowed to escape, whereupon a portion passes directly upward and between the cracks or spaces 6, left between each row of bricks forming the said floor 5, which latter is supported by a series of longitudinal walls 7, running the full length of the kiln and arranged only about four inches apart, so that the ends of the floor-brick 8 rest upon two of these longitudinal supporting-walls 7, which are built by leaving each alternate brick out, so that the heat upon being liberated at the upper end of the pipe 3 passes through the holes or openings 9, and thence upward through the floor 5 into the kiln. A portion of the heat passes through two or more of the walls 7, thus permitting it to pass up through the floor at the sides as well as at the center, serving in this way to keep all parts of the kiln at a uniform temperature and burning the brick near the floor as thoroughly and well as those above, which to the best of my knowledge has never been accomplished by any other kiln. In order to keep the bricks 8, forming the floor 5, slightly separated, so as to allow the heat to pass upward through it, I may place strips of fire-clay or other material between them.

Under the floor 5 of the kiln is a heat-chamber, into which the heat is led, and this chamber has a converging bottom, which allows the heat to spread laterally and ascend through the floor.

A series of flues 10 are provided on both sides of the kiln at a suitable distance apart, and they serve to let the descending heat escape.

At the front of the kiln are located one or more feed-hoppers 11, corresponding in number to the furnaces. Each hopper is connected to its respective furnace by means of the inclined feed-pipe 12, which leads into the forward part of the furnace; also, each feed-pipe is provided with gates or valves 13 and 14, which are controlled by the valve-rods 15 and 16, by means of which coal or other fuel may be dropped or fed into the furnaces in uniform charges, as desired or required. The door 17 of the kiln is constructed of fire-brick, which are bound and held together by the iron bands or cross-bars 18; also, said door is mounted upon the swiveled rollers 19, which travel on the rail 20, which is located at the front of the kiln and on a level with the floor thereof; also, the up-

per edge of said door moves under the guide-bar 21. This construction and arrangement allow of the door being opened with the minimum force. After the door has been closed I prefer to fill up the cracks remaining between it and the doorway with clay, thus rendering it impossible for any of the heat of the kiln to escape.

The numeral 22 indicates a series of vertical beams resting against the outer side walls of the kiln. In the upper parts of said beams are mortised the tie-beams 23, and through suitable openings 24 therein pass the tie-rods 25, which extend over the lugs 26 on said tie-beams, and are secured at their lower ends to the vertical beams near the level of the floor of the kiln.

The roof 26 of the kiln is arched, as shown, and in order to render the roof as light as possible and at the same time render it capable of retaining the heat within the kiln, I construct it of a combination of brick and tile. The bricks 27 are laid flat and the bricks 28 are stood on edge, and the intervening space between the bricks 27 and 28 is filled with a long tile 29, and, as this tile forms the greater bulk of the roofing, the latter is rendered much lighter than it would be if it were composed entirely of brick. The bricks 27 and 28 and the tile 29 are fastened together in any suitable manner, either by cementing or by running a bar 32 through them, as shown at Fig. 4. A roof made in this way would be self-supporting; but in order to strengthen it I run longitudinal bars 30 across the tops of the tie-rods 25, and downward from these I run supporting-wires 31, which attach to the rods 32, passing through and connecting the tile and bricks.

In order that I may know approximately the temperature of the furnaces, I may employ thermometers 33, located as shown.

By making a plant of several kilns party walls may be used, which will lessen the expense of construction and operation.

Pipes may be provided and passed into the furnaces or directly under the floors by means of which fluids or gaseous fuel may be supplied and burned.

What I claim is—

1. In a brick-kiln, the combination, with a suitable furnace or other heat-supplying means, of an open floor having a converging bottom heat-chamber underneath into which the heat is led and disseminated, said floor being supported by a series of open walls running lengthwise of the kiln, substantially as set forth.

2. In a brick-kiln, the combination, with a suitable heat-supplying means, of an open floor having a converging bottom heat-chamber underneath into which the heat is led at the lowest point, substantially as shown and described.

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

WILLIAM H. B. STOUT.

Witnesses:

WM. A. EASTERDAY,

H. L. DAVIS.