J. KENNEDY.

FLUE STRUCTURE FOR HOT BLAST STOVES.

APPLICATION FILED SEPT. 10, 1915.

1,167,081.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

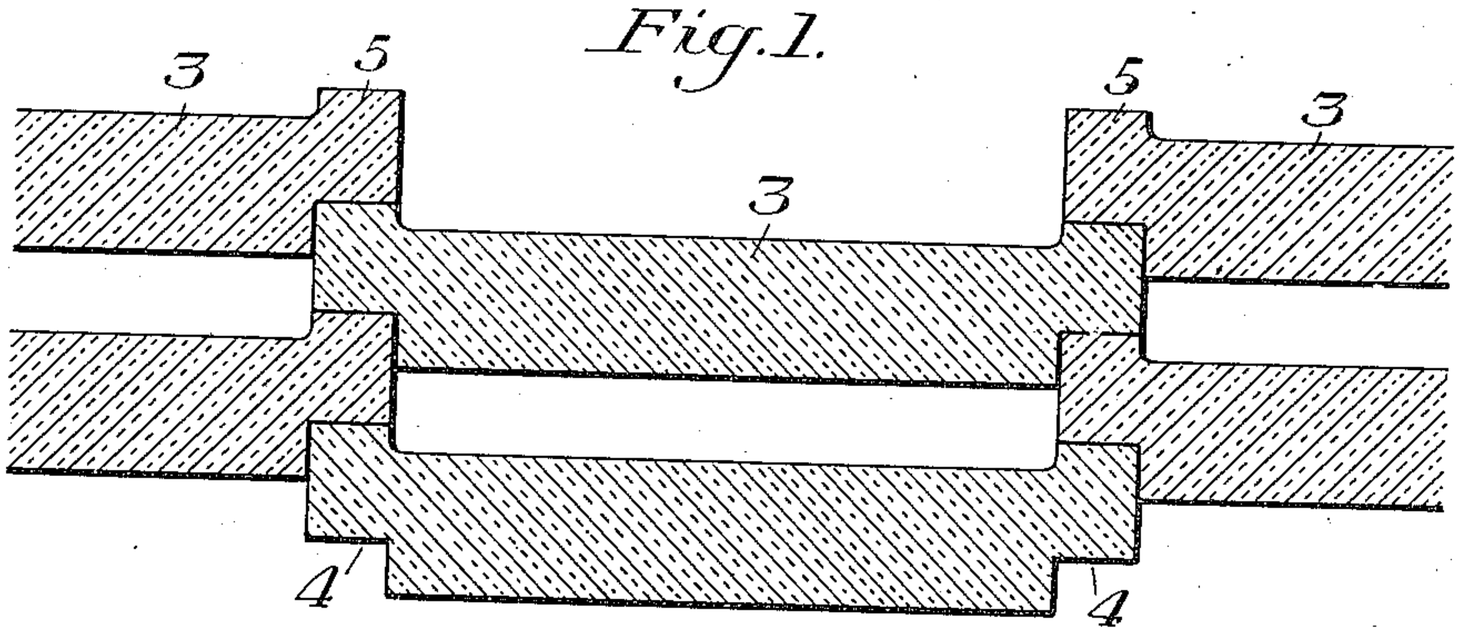


Fig. 2.

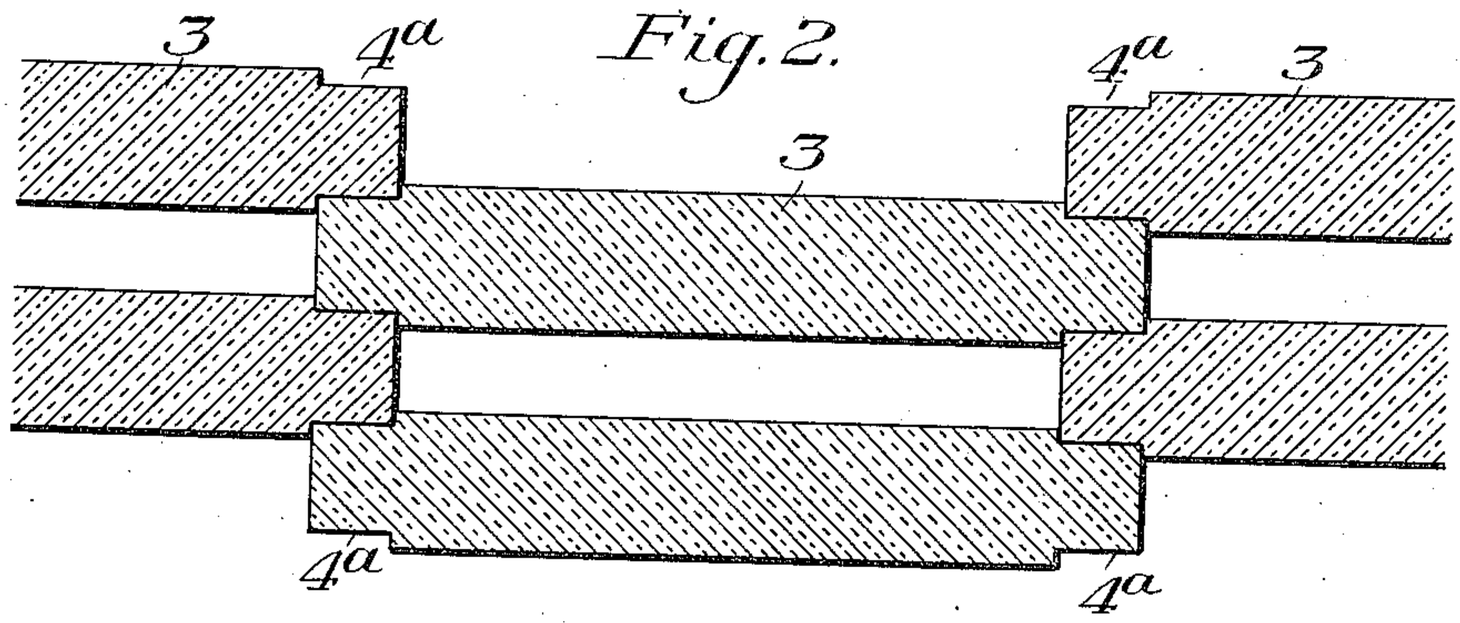
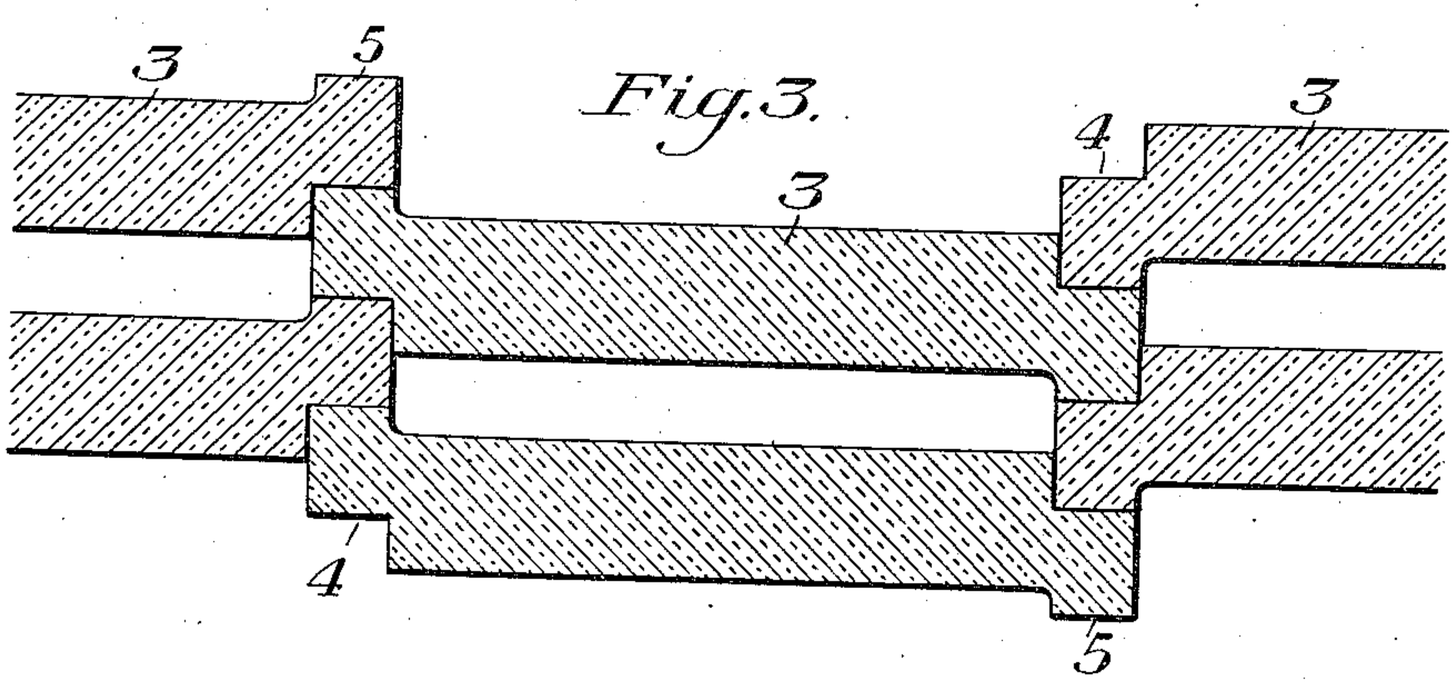


Fig. 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

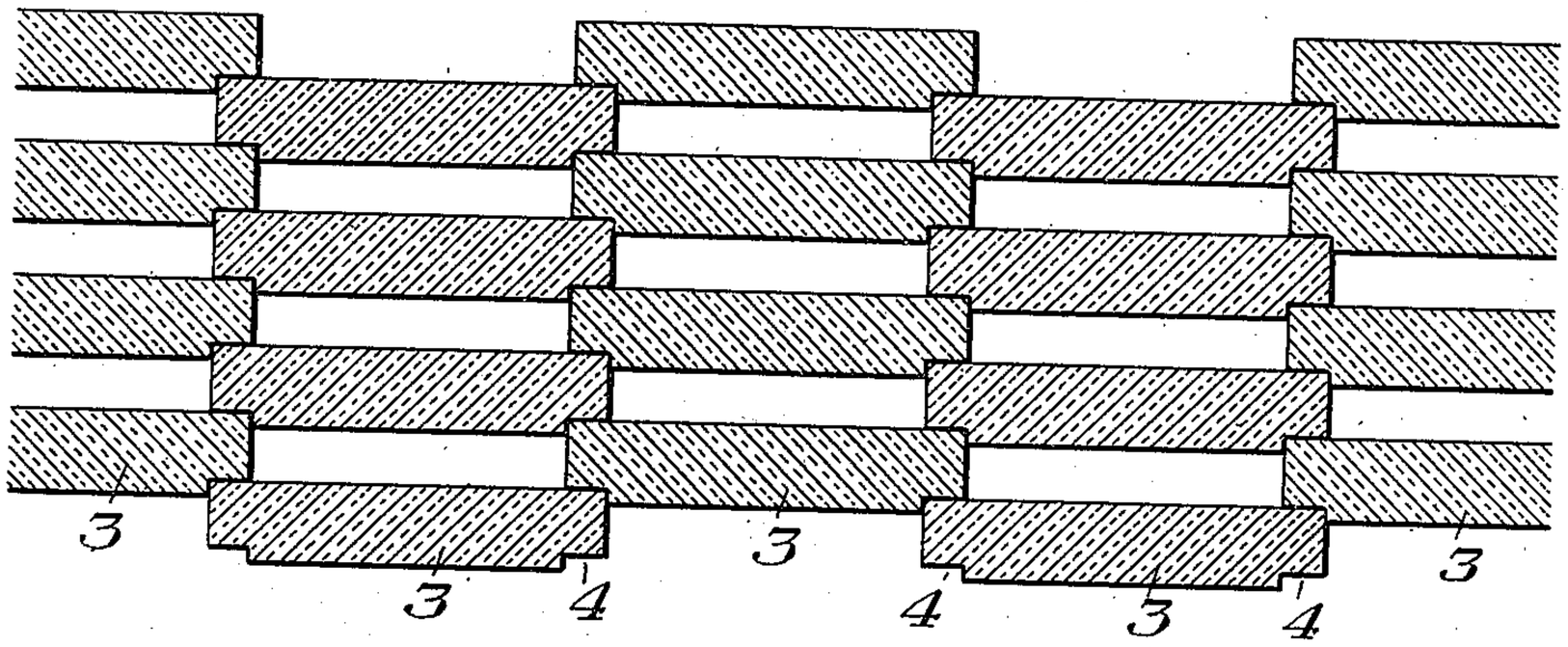
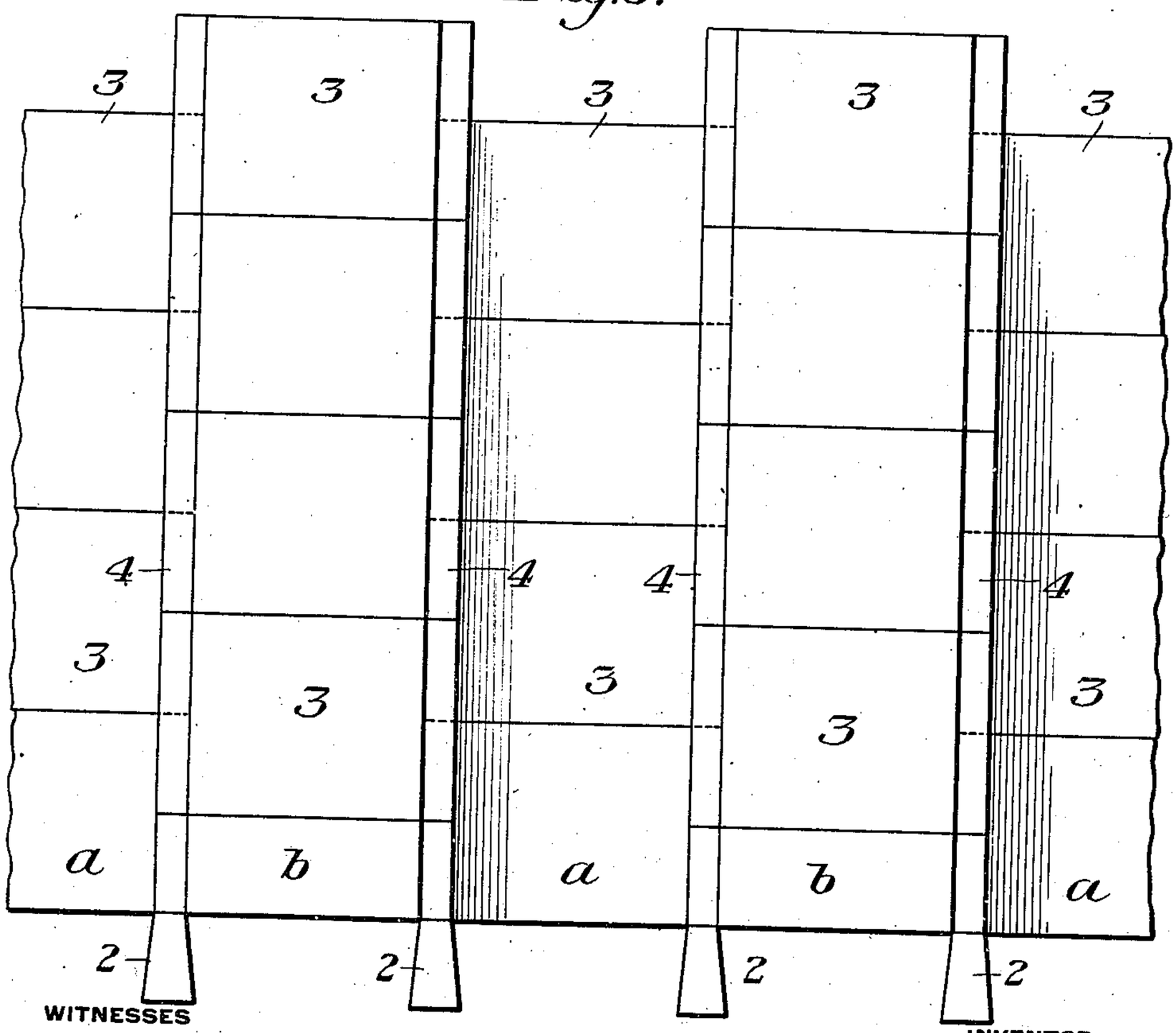


Fig. 5.



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FLUE STRUCTURE FOR HOT-BLAST STOVES.

1,167,081. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed September 10, 1915. Serial No. 49,952.

To all whom it may concern:

Be it known that I, JULIAN KENNEDY, a citizen of the United States, residing at Pittsburgh, Allegheny county, State of Pennsylvania, have invented a new and useful Improvement in Flue Structures for Hot-Blast Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a horizontal section taken through a portion of a hot blast flue structure, showing one form of my invention. Figs. 2, 3 and 4 are similar views showing other forms of blocks; and Fig. 5 is a partial front elevation of the structure shown in Fig. 4.

My invention relates to the refractory flue structures of hot blast stoves, through which the heating gases and the air to be heated alternately flow.

The object of my invention is to provide a simple, cheap and effective structure of greater strength; and which will give a maximum heating surface; which can readily be laid; and be built up of one form of brick. To that end, the invention consists in forming the flue structure of vertical rows of slabs having their edge portions superimposed, forming relatively thin and wide spaces for the passage of the gas and air, the adjacent rows of the bricks being staggered with relation to each other, and each slab having a small recess along its vertical edges for the reception of a slab in an adjacent row. The invention also consists in providing staggered joints between the slabs in one row and the joints between the slabs in adjacent rows.

In the drawings, the numeral 2 designates the usual supporting piers, and 3 the slabs supported thereon, each of which is provided with a cut-away portion or recess 4 along each of its vertical edges, and preferably, in one face of the slab. These recesses are adapted to receive the vertical edge portions of the slabs in adjacent rows.

The blocks of all of the figures are provided with cut-away portions or recesses 4, while the blocks in Fig. 1 are provided with projections 5, there being one projection along each longitudinal edge at the side opposite the recess.

In Fig. 2 the blocks are provided with two recesses 4^a along each longitudinal edge; while in Fig. 3 the blocks are provided with recesses and projections similar to those shown in Fig. 1, but in which case the recesses and projections extend in opposite directions with relation to the block.

In Fig. 4 I have shown a structure similar to that shown in Fig. 3, but in which case the recesses are only formed in one side of the block.

The structure is erected as follows: After the piers have been built, I place a full slab, as indicated at *a*, above every other opening between the piers, and place all of these slabs in vertical alinement with each other, and place over the other openings between the piers half slabs *b*, which are in vertical alinement, but staggered with relation to the slabs *a*. Full slabs are then placed upon the slabs *a* and *b* to the full height of the structure. By placing the slabs in this manner the slabs in one row are in staggered relation with the slabs in adjacent rows, while the horizontal joints between slabs in one row are staggered with relation to the horizontal joints between the slabs in adjacent rows.

I prefer to form the blocks as shown in Fig. 1, but it will readily be understood by those familiar with the art that all of the other blocks shown in the drawings, as well as blocks of different shapes than those shown in the drawings may be used without departing from the spirit and scope of my invention as defined in the appended claims.

The blocks may be made of suitable refractory material, and the advantages of the invention result from the simplicity and cheapness of the structure, and also from the strength and great heating surface, the heat being rapidly absorbed and given out, owing to the air flowing in relatively thin layers between the slabs, and also contacting with the ends of the slabs, furthermore, from the increased area of support of each of the lower slabs on the supporting piers.

I claim:

1. A regenerator checkerwork formed of a plurality of slab-like blocks stacked on edge in vertical rows, each of said blocks having recesses for the reception of the edges of the blocks in adjacent rows, the blocks in one row being in staggered rela-

tion to the blocks in adjacent rows whereby the spaces between the blocks in one row are in staggered relation with respect to the spaces between the blocks in adjacent rows, substantially as described.

2. A regenerated checkerwork formed of slab-like blocks on edge in vertical rows, each of said slabs having a vertical recess along one of its longitudinal edges, said recesses being arranged to receive the edges of blocks in adjacent rows, the blocks in one row being in staggered relation to the blocks in adjacent rows whereby the spaces between the blocks in one row are in staggered relation with respect to the spaces between the blocks in adjacent rows, substantially as described.

3. A regenerator checkerwork formed of slab-like blocks on edge in vertical rows, each of said slabs having a vertical recess along one of its longitudinal edges, said recesses being arranged to receive the edges of blocks in adjacent rows, the blocks in one row being in staggered relation to the blocks in adjacent rows whereby the spaces between the blocks in one row are in staggered relation with respect to the spaces between the blocks in adjacent rows, the horizontal joints between the blocks in one row being in staggered relation to the horizontal joints in adjacent rows, substantially as described.

4. A regenerator checkerwork formed of slab-like blocks stacked on edge in vertical rows, the lower blocks of each row extending from the outer edge of one supporting pier to the outer edge of an adjacent pier, the blocks in one row being in staggered relation to the blocks in adjacent rows, and means for locking the blocks in their assembled positions, substantially as described.

5. A regenerator checkerwork formed of a plurality of slab-like blocks stacked on edge in vertical rows, each of said blocks having recesses for the reception of the edges of blocks in adjacent rows, the blocks in one row being in staggered relation to the blocks in adjacent rows, there being vertical flues or spaces between said rows of blocks, a portion at least of the ends of said spaces being formed between the edges of blocks in adjacent rows, substantially as described.

In testimony whereof, I have hereunto set my hand.

JULIAN KENNEDY.

Witnesses:
H. W. RANO,
J. W. KENNEDY.