

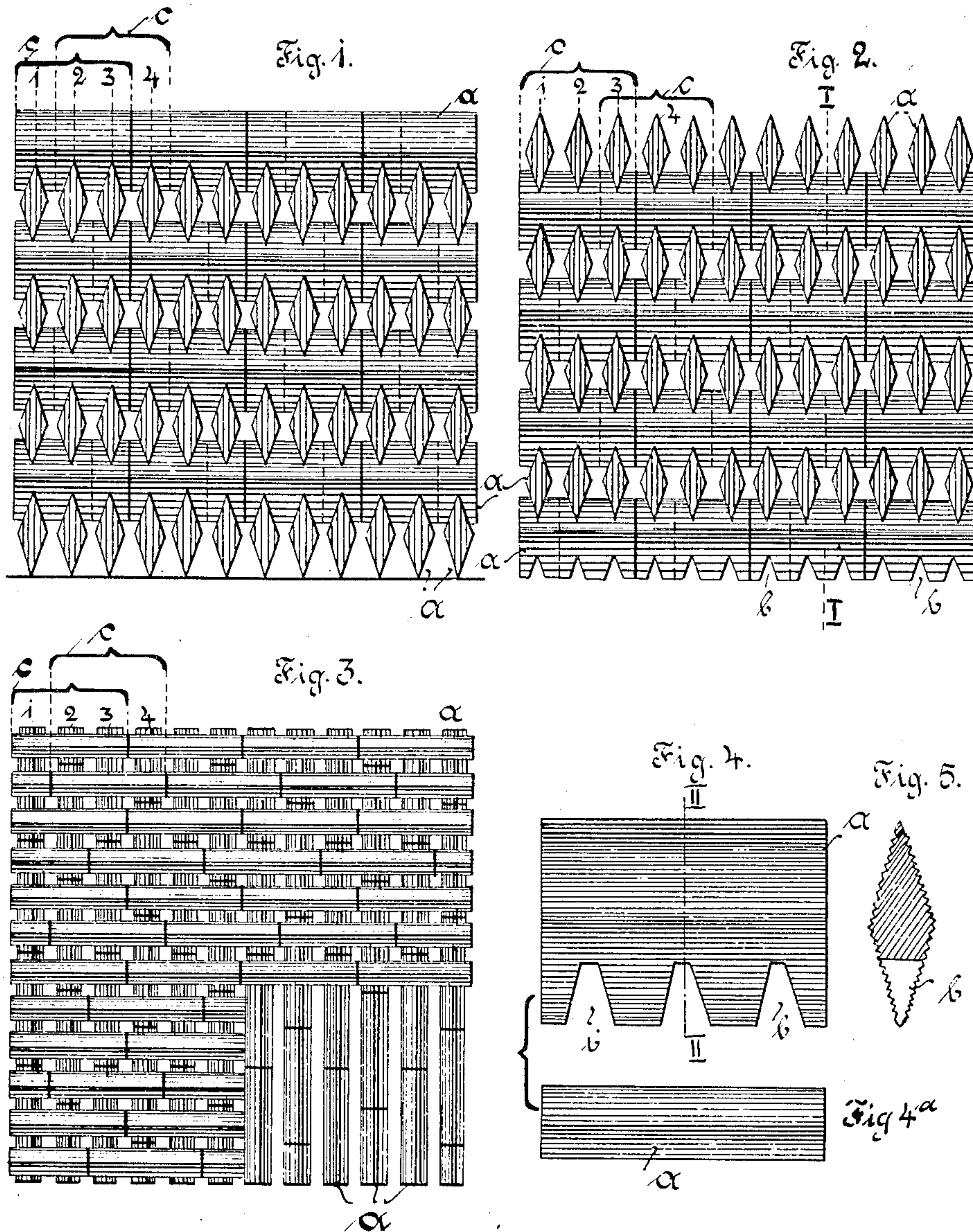
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R. SCHERFENBERG.

STRUCTURE MADE OF BRICKS FOR REACTION TOWERS, HEAT
COMPENSATION APPARATUS, AND THE LIKE.

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Witnesses:
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UNITED STATES PATENT OFFICE.

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STRUCTURE MADE OF BRICKS FOR REACTION-TOWERS, HEAT-COMPENSATION APPARATUS, AND THE LIKE.

No. 888,120.

Specification of Letters Patent.

Patented May 19, 1908.

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To all whom it may concern:

Be it known that I, REINHOLD SCHERFENBERG, engineer, a citizen of the Kingdom of Prussia, Empire of Germany, and resident of 28 Lutherstrasse, Berlin-Schöneberg, in the Kingdom of Prussia, Germany, have invented new and useful Improvements in Structures Made of Bricks for Reaction-Towers, Heat-Compensation Apparatus, and the Like, of which the following is a specification.

In reaction-towers or apparatus for compensating the temperature, the interior structure, consisting of triangular, quadrangular or polygonal bars or bricks, is erected by placing these bars from the lowermost to the top layer in the same direction, said bars resting upon each other with their shoulders. This mode of erection has a disadvantage, which is unavoidable with the known and customary means. The various rows or layers are loosely piled the one upon the other without any bond, and keep together only by their own weight; nothing however prevents them from shifting, so that they will easily be moved under any pressure.

When quadrangular or polygonal bricks with tapering shoulders are employed, the bearing surfaces of which are comparatively small, special carrier-stones are used for obtaining a hold between the single bricks; but also in such instance steadiness is not obtained, as the short tongues do not afford any bond in the longitudinal direction of the bricks and these bricks can by any pressure or force from outside be moved on their smooth and straight bearing surface. Besides it will hardly be possible to avoid some of the thin shoulders from being cracked during erection; frequently such cracks will not be noticed by the workmen, the cracked brick is built into the structure, and when in service, the brick will be penetrated by the acids and the shoulders will break off entirely so that the brick is supported on one side only. Owing to the effect of its weight it will sink on the other side, the remaining shoulder will act as a lever and move the neighboring bricks out of position. If such breakage occurs at several places, the structure will incline towards the surrounding wall and the broken bricks will have to be exchanged. Both the above modes of erection however still show the great disadvan-

tage, that by fitting the bricks together by means of shoulders or tongues partitions are created, dividing the given space into several chambers, thereby preventing a uniform distribution of the gases over the total area of the interior, as owing to the existing draft the gases will pass through the nearest chambers only and the surfaces of the bricks in the other chambers are but insufficiently utilized.

The purpose of the present invention is to avoid the above mentioned disadvantages, and to allow of erecting the interior structure of reaction towers and heat-compensating apparatus both with a strong inside cross-bond between the single bricks and in the whole layer, as also without partitions.

In the accompanying drawing Figure 1 is a section along I—I in Fig. 2, Fig. 2, a side-elevation of Fig. 1, taken at an angle of 90°, Fig. 3, a plan, on the right hand the second layer of bricks being removed in the bottom right hand corner, Figs. 4 & 4^a, side-elevation and plan of a brick —a—, Fig. 5, vertical section along II—II through a brick in the middle of a notch —b—.

The bricks —a— are provided with notches —b— arranged at given distance from each other in either their lower or upper beveled half. These notches are made to fit the bevel of the opposite half. In the accompanying drawing, of the numerous possible sections, the rhomboidal section with corrugated or fluted surfaces is shown.

The structure is erected in the following manner: The lowermost layer of bricks is placed in parallel rows, which rows are at a distance from each other equal to the pitch of the notches —b—. The bricks —a— can be placed with their ends close together, as there are no shoulders in the way. The following layer is placed in rows at right angles to the lower one, so that each brick —a— catches with its notches —b— over several bricks under it, and so on until a row is complete. The second row is commenced one brick ahead of the first row, so that if the first brick of the second layer catches with its notches —b— over the upper edges of the lower layer in row 1, 2, 3, the first brick of the second row engages 2, 3, 4, and the first brick of the third row again engages 1, 2, 3, of the layer beneath it. Fig. 1, 2, brackets —c—. Each brick is thus held by the notches —b— of several bricks over it, engaging like teeth, and

thus securely prevented from moving or giving way, as such engaging of the bricks forms a cross-bond. The structure made in this manner will therefore be well bound in all directions, no other means being employed except the bricks themselves. Contrary to the modes of erection used up to now with parallel layers and separate chambers, this structure has the layers bonded crosswise and channels at 90° to each other, so that the gases rising up are whirled around, mixed in a more perfect manner and more uniformly distributed over the total area of the structure.

Owing to the peculiar arrangement of the notches—*b*—these bricks can be easily used also in round towers without wasting any space, the bricks being shortened only at the respective places by one or two notches without reducing the strength of the structure. By avoiding the shoulders and carriers the weight of a cubic meter of the new structure is about only two thirds of that of the old style one, so that even if the foundations are weak, the structure may be erected without any danger.

Bricks having corrugated or fluted surfaces are preferable rather than bricks having smooth surfaces on account of the former exposing a greater area relatively to their weight than the latter.

Having now described my invention what I claim and desire to secure by Letters Patent of the United States is:

1. A brick, for interior structures of reaction towers, heat compensating apparatus and the like, having a polygonal section, a corrugated surface and a plurality of deep notches, substantially as shown, in one angle, substantially as and for the purpose described.

2. A brick, for interior structures of reaction towers, heat compensating apparatus and the like, having a rhombiform section, a corrugated surface and a plurality of deep

sharp notches, substantially as shown, in one angle, substantially as and for the purpose described.

3. A brick, for interior structures of reaction towers, heat compensating apparatus and the like, having a quadrangular section and a corrugated surface, and a plurality of deep sharp notches in one angle substantially as and for the purpose described.

4. The combination of a plurality of bricks each having a polygonal section a corrugated surface and a plurality of deep sharp notches in one angle, the arrangement being such that said bricks are placed longitudinally in parallel rows forming one layer, the distance between said rows being equal to the pitch of said notches, the following layer having bricks placed longitudinally in parallel rows on and at right angles to the former rows, each brick of the upper layer engaging a plurality of bricks of the lower layer whereby a structure is formed, substantially as and for the purpose specified.

5. The combination of a plurality of bricks each having a rhombiform section, corrugated surface and a plurality of notches in one angle, the arrangement being such that said bricks are placed longitudinally in parallel rows forming one layer, the distance between said rows being equal to the pitch of said notches, the following layer having bricks placed longitudinally in parallel rows on and at right angles to the former rows, each brick of the upper layer engaging a plurality of bricks of the lower layer, whereby a structure is formed, substantially as and for the purpose specified.

In witness whereof I have hereunto signed my name this 23rd day of July 1906, in the presence of two subscribing witnesses.

REINHOLD SCHERFENBERG.

Witnesses:

HENRY HASPER,
WILLIAM MAYNER.