

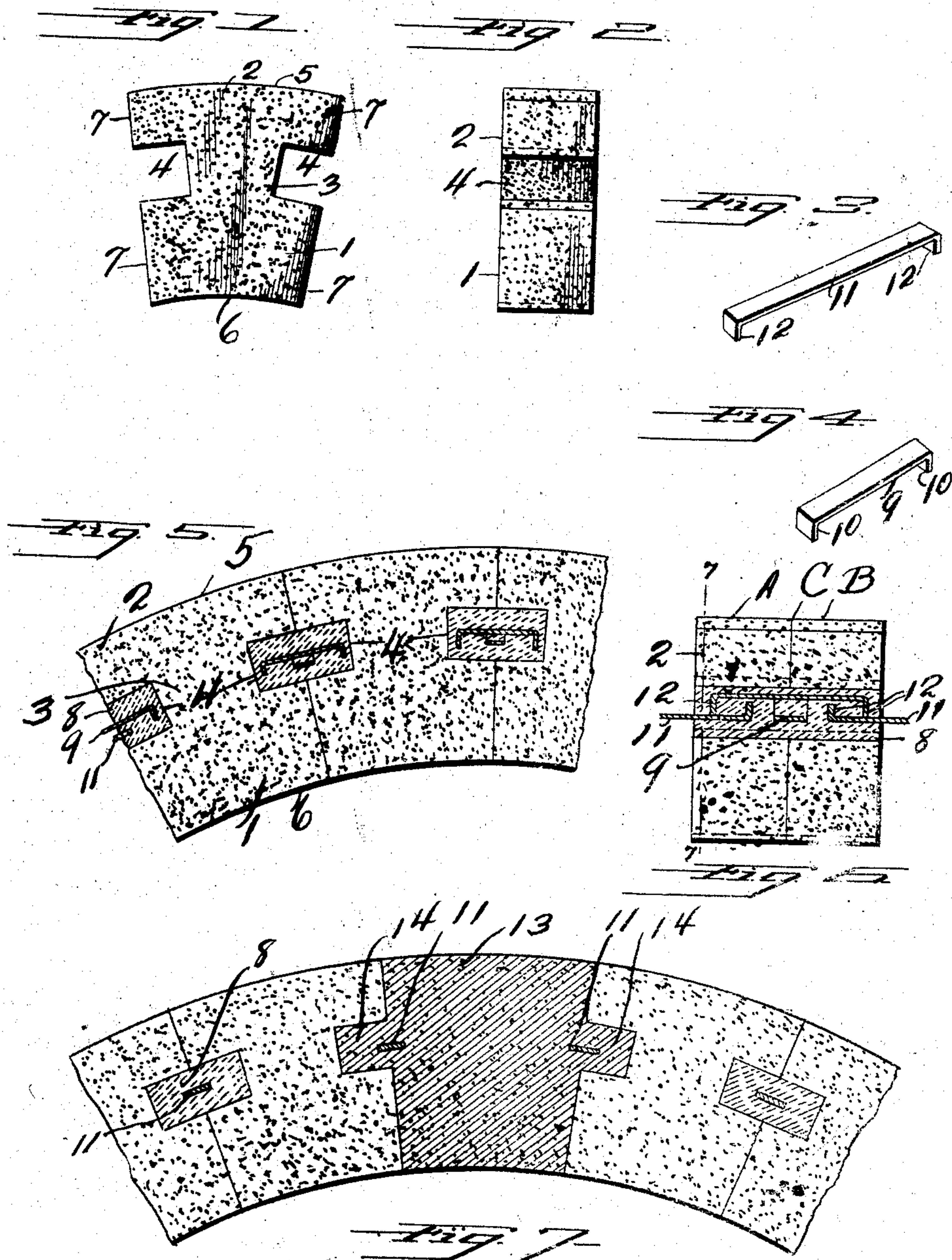
No. 864,283.

PATENTED AUG. 27, 1907.

E. D. ANDRUS.

BRICK AND WALL CONSTRUCTED THEREOF.

APPLICATION FILED JULY 12, 1906.



Witnesses
Chas. H. Davis.
John S. Davis.

Inventor
Elmer D. Andrus

By Shepherd & Parker
Attorneys

UNITED STATES PATENT OFFICE.

ELMER D. ANDRUS, OF SOUTH CHICAGO, ILLINOIS.

BRICK AND WALL CONSTRUCTED THEREOF.

No. 864,283.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed July 12, 1906. Serial No. 325,928.

Be it known that I, ELMER D. ANDRUS, a citizen of the United States, residing at South Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bricks and Walls Constructed Thereof, of which the following is a specification.

This invention relates to new and useful improvements in bricks and walls constructed thereof and it particularly embodies a brick formed with reinforcing openings or recesses, which in the assembled relation of a number of said bricks to form a wall, afford a space for the reception of a continuous reinforcing means.

It is a primary object to provide a brick designed to be assembled in courses and to employ a reinforcing means extending throughout the courses. This mode of construction renders the brick especially adaptable for structures in which there is vibration or movement, or in which there is a lack of positive supporting elements. Examples of such structures are rotary kilns for the reduction of raw materials into Portland cement clinker, or arches in steam boilers which on one side have no perpendicular support.

The invention aims as a further object to provide in connection with a brick of the above type a novel reinforcing means embodying an interlocked structure of cement and metal.

It is a further consideration of the invention to provide a brick applicable to structures of the above type, of such conformation that the key brick may be molded in the wall *in situ*. A decisive advantage over the ordinary practice is thus obtained, inasmuch as the key brick molded from the freshly mixed material forms an absolutely perfect key, and in fact a key which is far more perfect than any that the most skilled artisans could cut and drive in place.

The detailed construction will appear in the course of the following description in which reference is had to the accompanying drawings forming a part of this specification, like numerals designating like parts throughout the several views, wherein,

Figure 1 is a front elevation of a brick constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Figs. 3 and 4 are detailed perspective views of the elements of the reinforcing means. Fig. 5 is a front elevation of a wall constructed in accordance with my invention, the reinforcing means being shown in section. Fig. 6 is a reduced side elevation thereof the reinforcing means being shown in section, and Fig. 7 is a vertical transverse section of a wall as embodied in my invention and viewed upon the line 7-7 of Fig. 6.

In the practical embodiment of my invention I employ a brick of substantial H shape embodying a lower portion 1, an upper portion 2 and a central connecting web 3, of such disposition and proportions that longi-

tudinal spaces or recesses 4 are afforded between the portions 1 and 2 and on each side of said web.

The brick thus constructed is designed in practical use to be of various proportions and shapes, which will depend entirely upon the circumstances of use, but in the preferred embodiment of the invention, as above intimated, it is designed for circular work, such as arches, and in view of this fact the brick disclosed in Fig. 1 is conformable to an arched structure. To this end the upper portion 2 has a convex top surface 5 and the lower portion 1 has a concave bottom surface 6, the surfaces 5 and 6 constituting chords of the circle formed by the arched structure. In the abutting relation of the bricks, the sides thereof are tapered from top to bottom as at 7. It is to be noted that in the arbitrary disclosures of Figs. 1 and 2 the sides of the recesses 4 extend at such an angle to a line central of the body of the brick and extending perpendicularly, that in a wall constructed as shown in Fig. 5, said recesses are arranged in circular series concentric with the upper and lower edges of the structure.

In the wall illustrated in Fig. 6 the bricks are arranged in courses A and B, the recesses 4 in the adjacent bricks registering longitudinally throughout the wall, and as shown in Fig. 5 the recesses 4 will severally register with the confronting recess in the adjacent brick of the same course. Hence the longitudinal and transverse registry of the recesses 4 affords an enlarged longitudinal space between the adjacent bricks in each course and between the courses themselves for the reception of a reinforcing means designed to be molded therein. As above intimated the reinforcing means comprises a cement filling 8 which serves as a binding agent between the several bricks and courses and in this function is reinforced by metallic elements. The filling 8 is reinforced transversely by a member 9 of substantial U-shape and formed with angular ends 10. In the preferred arrangement of parts the member 9 is disposed transversely along the line of articulation C of the courses. The filling 8 is reinforced longitudinally by a continuous series of members 11 of the same shape as the member 9 and formed with depending ends 12. The members 11 are preferably of greater length than the members 9 and overlie one another for a portion of their length as shown in Fig. 6, the ends 12 of one member 11 extending toward the adjacent member. It will be readily apparent that the members 9 may be increased or decreased as desired and that numerous variations may be made in the arrangement thereof.

With reference to Fig. 7 it will be noted that I have employed a key block 13 molded between a pair of bricks of the construction set forth and formed with laterally extending portions 14 which interfit the adjacent recesses 4. The key brick 13 is preferably rein-

forced in the same manner as the structural brick and as above described.

While the elements herein shown and described are well adapted to serve the functions set forth, it is obvious that various minor changes may be made in the proportions, shape and arrangement of the several parts without departing from the spirit and scope of the invention as defined in the appended claims.

Having fully described my invention I claim:

- 10 1. A wall comprising bricks arranged in transverse courses and in longitudinal alinement, each of said bricks being formed adjacent its side edges at opposite points with recesses extending from front to rear and extending to the edges thereof, and designed to register with the recesses in the longitudinally and transversely adjacent bricks, and a reinforcing agent disposed within said recesses and comprising a filling of cement molded there-
 15 within and metallic strengthening members embedded in said cement filling in longitudinal and transverse relation, said members overlying the respective adjacent bricks in
 20

pairs, said members comprising bands having bent ends to grip said cement filling, said bands being arranged independently between the respective pairs of several adjacent bricks.

2. A wall comprising bricks arranged in transverse 25 courses and in longitudinal alinement, each of said bricks being formed adjacent its side edges at opposite points with recesses extending from front to rear and designed to register with the recesses in the longitudinally and transversely adjacent bricks and a reinforcing agent continuously disposed within said recesses and comprising a filling of ce- 30 ment molded therewithin, and metallic strengthening members embedded in said cement filling in longitudinal and transverse relation, said members overlying the respectively adjacent bricks in pairs and having their ends bent at an 35 angle to the plane of their body portions.

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

ELMER D. ANDRUS.

Witnesses:

JAMES E. SPRAGUE,
A. P. SMITH.