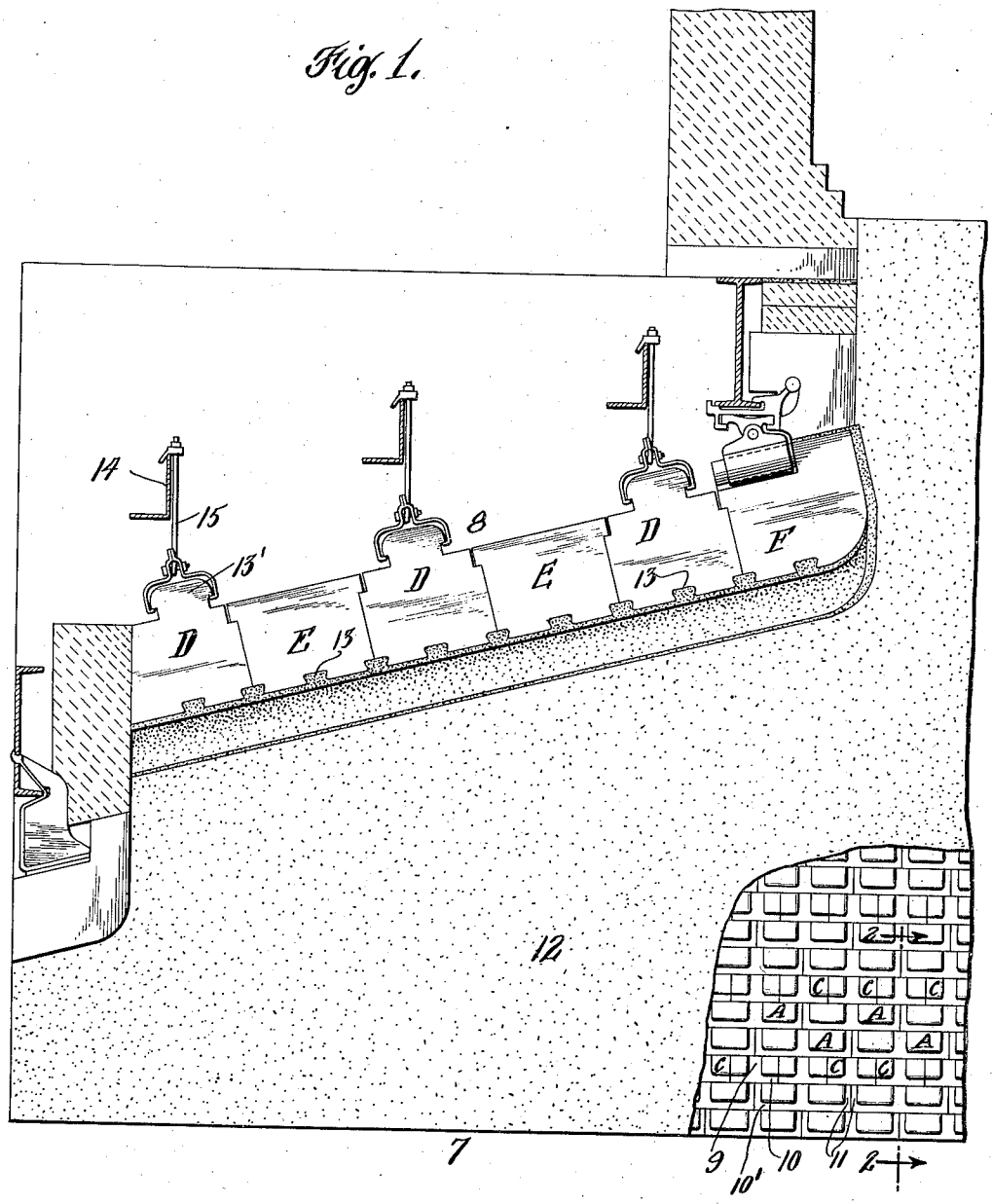
Aug. 17, 1926. 1,596,695

E. P. STEVENS

FURNACE CHAMBER CONSTRUCTION

Filed Nov. 20, 1922 2 Sheets-Sheet 1

Fig. 1.



Witness.
Gustav Genzlinger.

Inventor
Enoch P. Stevens

By Attorneys
Symmetrell & Lachner

Aug. 17, 1926. 1,596,695

E. P. STEVENS

FURNACE CHAMBER CONSTRUCTION

Filed Nov. 20, 1922 2 Sheets-Sheet 2

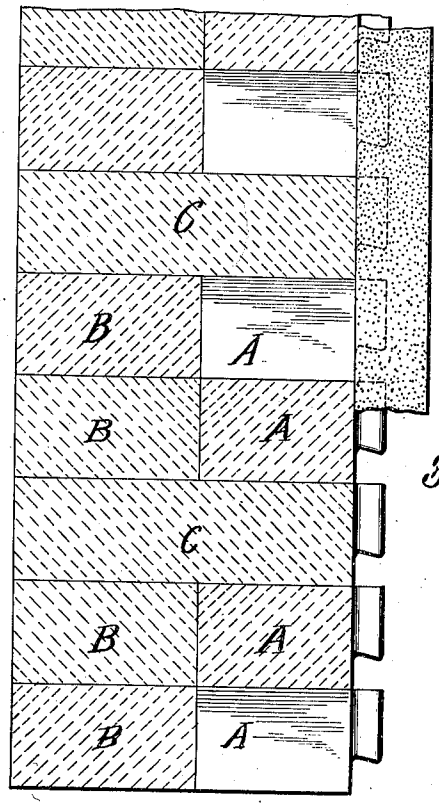


Fig. 2.

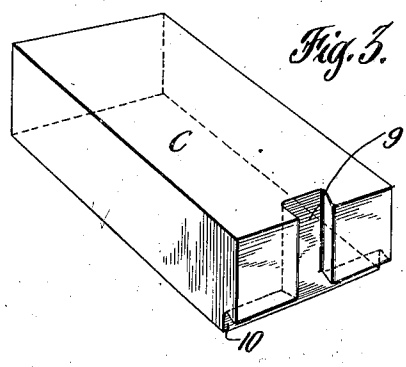


Fig. 3.

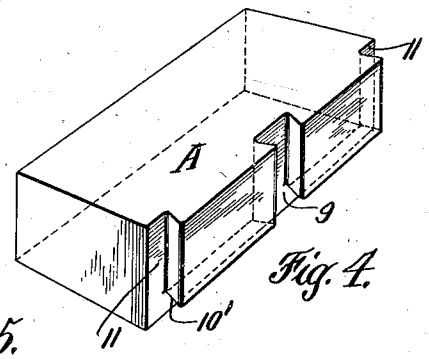


Fig. 4.

Fig. 5.

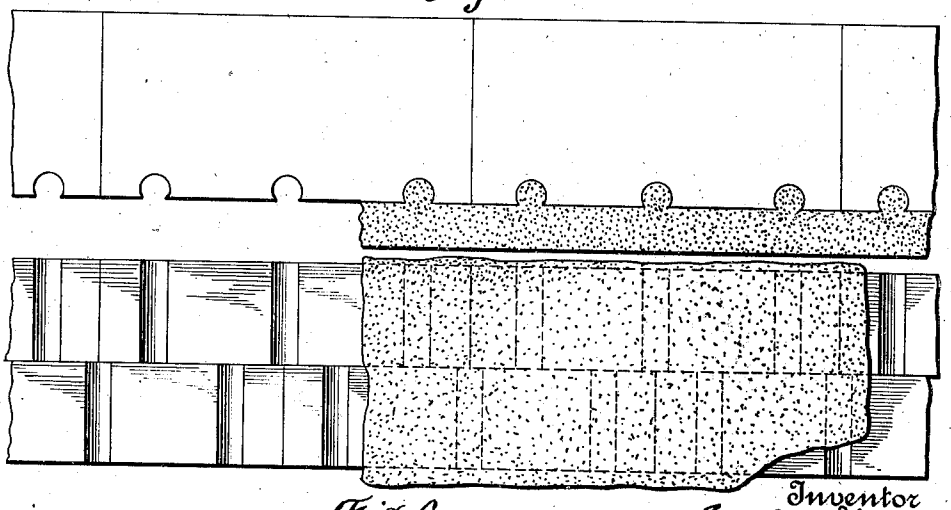


Fig. 6.

Witness.
Gustav Genzlinger.

Inventor
Enoch P. Stevens

By Attorneys
Symmestedt Hachmeister

Patented Aug. 17, 1926. 1,596,695

UNITED STATES PATENT OFFICE.

ENOCH P. STEVENS, OF CHICAGO, ILLINOIS; MARY ANN STEVENS EXECUTRIX OF SAID ENOCH P. STEVENS, DECEASED.

FURNACE-CHAMBER CONSTRUCTION.

Application filed November 20, 1922. Serial No. 602,018.

This invention relates to the construction of furnace or combustion chambers and one of its primary objects is to obtain the advantages and to avoid certain disadvantages which are incident to sectional and monolithic structures.

Another object of the invention is to prolong the life of combustion chambers and to simplify and cheapen repair thereof, when repair is necessary.

The foregoing, together with such objects as may hereinafter appear or are incident to my invention, I obtain by means of a construction which I have illustrated in preferred form in the accompanying drawings, wherein:

Fig. 1 is a cross section through a furnace chamber embodying my improvements; Fig. 2 is a cross section through one of the walls, drawn on an enlarged scale; Figs. 3 and 4 are perspective views illustrating certain of the bricks used in constructing the walls; and Figs. 5 and 6 illustrate a modification of the invention.

In the drawings, I have illustrated my invention as applied to the combustion chamber of a stoker fired stationary boiler, for purposes of illustration. This chamber is provided with side walls 7, a roof or arch 8, and a rear wall (not shown).

The side and rear walls are composed of bricks preferably constructed and arranged as follows:

There are courses of stretcher tiles or bricks A, with a corresponding course or courses of ordinary tiles B; a course of header bricks C between a course or courses of the bricks A and B; then a course of the header brick C; etc. The header bricks C serve to tie or anchor the bricks A and B which are of less length; that is to say, they tie the bricks together crosswise of the wall. The bricks A and also, if desired, the bricks B are of a greater width than the bricks C and serve to tie or anchor adjacent bricks lengthwise of the wall.

The header bricks C have a slot 9 in their inner end faces, such slot merging with a groove 10 formed by cutting away the bottom inner edge of the bricks, so that, as shown in Figs. 2 and 3, their faces are of narrower width than the thickness of the bricks. The slot 9 and the groove 10 form a T-shaped recess in the inner faces of the bricks.

The stretcher bricks have a groove 10′ formed by cutting away the inner bottom edge of the inner face of the brick in the same fashion as in the case of the groove 10 above mentioned; they have a slot 9, the same as the bricks C; and have grooves 11 formed by cutting away the end edges of the inner face.

When the bricks are assembled it will be seen that grooves which intersect each other at right angles are provided on the inner face of the walls. These grooves are widened toward their base.

A lining 12 is applied to the inner faces of the walls in any preferred manner, such lining being preferably applied in a plastic condition and composed of refractory material, i. e., material capable of withstanding high temperatures and adapted to resist the scouring action of the flame. In applying such a lining—which may be termed a monolithic lining—projecting portions or tongues 13 will be formed fitting the grooves before mentioned and interlocking the lining with the walls.

The roof or arch 8 is composed of rows of hung courses of brick or tile D, having heads 13′ by means of which such courses are suspended from the supports 14, through the medium of hangers 15. These bricks are also shouldered so as to support intermediate courses of brick E, which are of T shape. The end of the arch is formed of the nose bricks F. The bricks D, E and F are grooved and lined as before.

The lining presents a comparatively smooth, uninterrupted surface, more impervious to the action of the flame and to penetration by the products of combustion. There will be less tendency to spall than is the case with exposed bricks and the eating away which is apt to take place at the joints between bricks is obviated. When the lining becomes worn, a fresh lining may be applied directly over the old lining, if desired. Thus, in making repairs, it is unnecessary to disturb the bricks composing the respective wall portions of the chamber.

In the main, however, in so far as the walls themselves are concerned, these retain all of the advantages incident to a built up or sectional construction, particularly in so far as manufacture, shipping, installation and repair or replacement of these bricks is concerned. Thus the improvements com-

bine the advantages of monolithic and built up or sectional construction and avoid some of the disadvantages incident to either construction, considered alone.

The monolithic lining should preferably be composed of a material having substantially the same co-efficient of expansion as the bricks.

In the construction of Figs. 5 and 6 the grooves are round instead of tapered in cross section.

What I claim is:

A furnace chamber wall composed of stretcher and header bricks, the header bricks having their inner bottom edge cut away and being provided with a slot in the inner end face merging with the recess formed at said bottom edge, and the stretcher brick having their inner end and bottom edges cut away and having a slot in the inner end face merging with the recess in said bottom edge, and a refractory inner lining.

In testimony whereof, I have hereunto signed my name.

ENOCH P. STEVENS.