

Feb. 2, 1926.

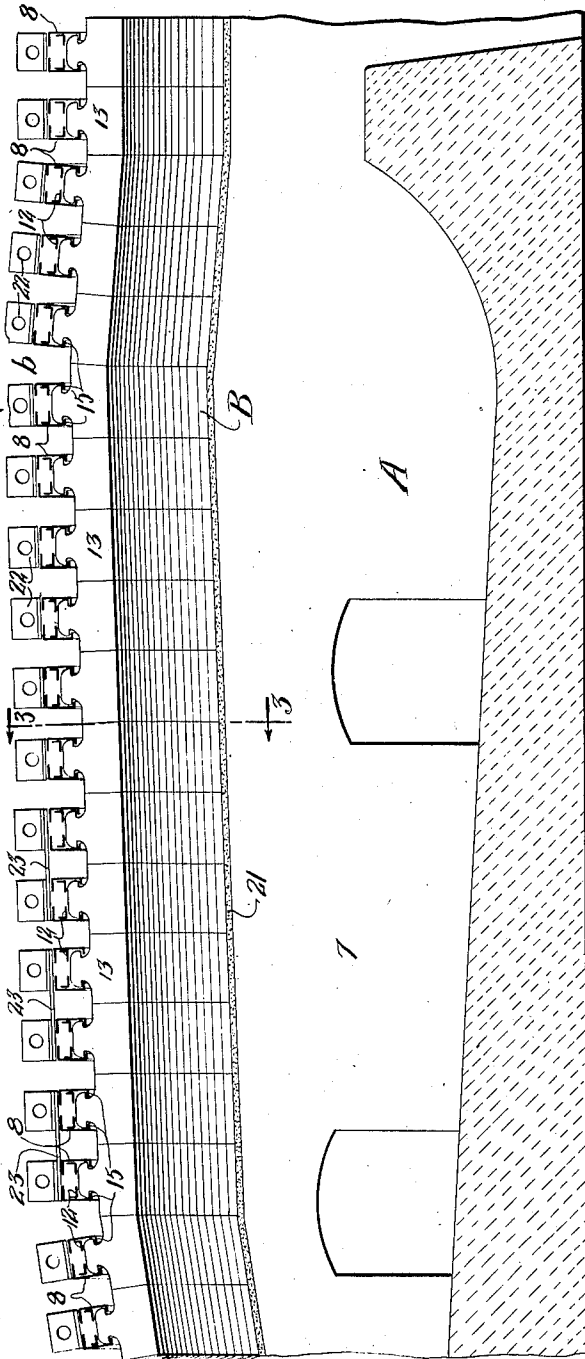
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E. P. STEVENS

FURNACE ROOF STRUCTURE¹

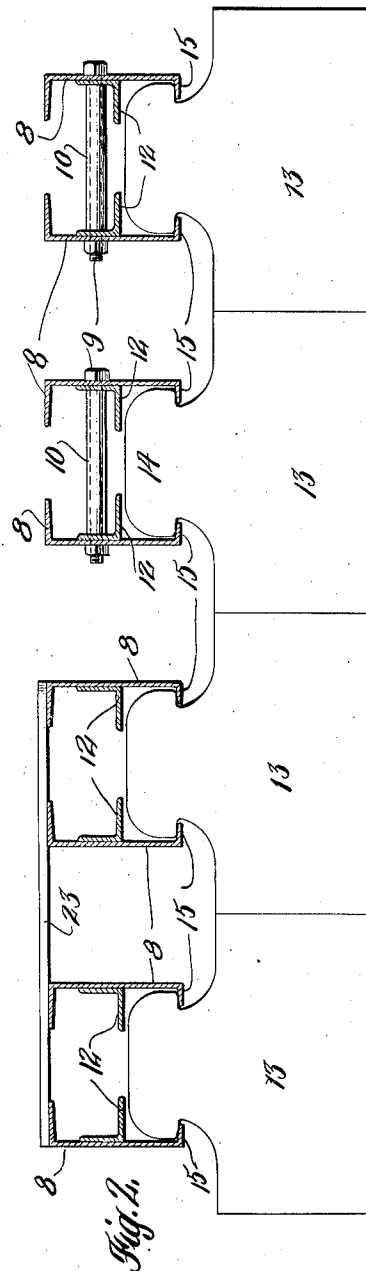
Filed April 12, 1923

2 Sheets-Sheet 1



WITNESS.

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Gustav Genglinger.



INVENTOR

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Enoch P. Stevens

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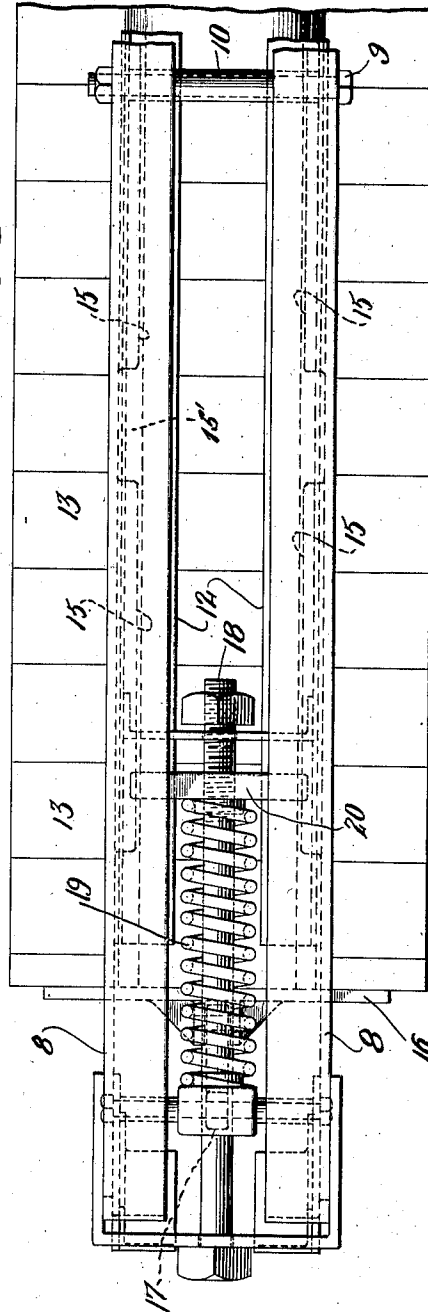
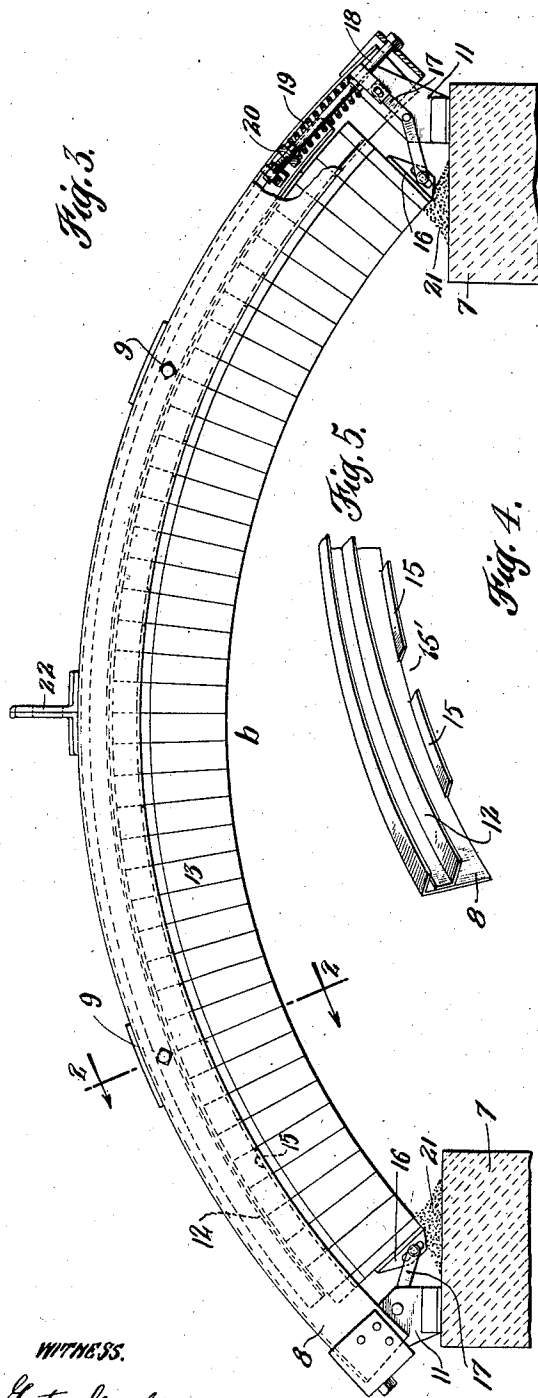
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2 Sheets-Sheet 2



WITNESS.
Gustav Henglinger.

INVENTOR
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UNITED STATES PATENT OFFICE.

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

FURNACE-ROOF STRUCTURE.

Application filed April 12, 1923. Serial No. 631,650.

To all whom it may concern:

Be it known that I, ENOCH P. STEVENS, a citizen of the United States, residing at Morgan Park, Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Furnace-Roof Structures, of which the following is a specification.

This invention relates to roof or top wall constructions for furnaces and is primarily useful for the roofs of malleable and similar types of furnaces.

One of the primary objects of my invention is to provide a very simple construction so arranged that no substantial thrust or pull is imparted on the side walls when expansion or contraction of the roof occurs.

Still another object of the invention is the elimination of the heavy buck stay supporting structure for the furnace side walls heretofore found necessary where the side walls take the thrust of the roof.

More particularly my invention is intended to provide a roof construction composed of units or bungs, each including a supporting means adapted to be carried on the side walls and imposing no substantial thrust thereon in expansion or contraction, if any, and a row of bricks carried by each supporting member with freedom for expansion and contraction without imposing stress on the side walls.

The foregoing, together with such other 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 fragmentary longitudinal section through a malleable furnace illustrating the application of my improvements thereto. Fig. 2 is a section taken on the line 2—2 of Fig. 3; Fig. 3 is a section taken on the line 3—3 of Fig. 1, on an enlarged scale; Fig. 4 is a fragmentary plan view of Fig. 3, on a still further enlarged scale; and Fig. 5 is a perspective illustrating a detail of the invention.

Referring now to Fig. 1, the malleable furnace A has the usual side walls 7 which carry the roof, indicated as a whole by the reference letter B.

This roof is comprised of units or bungs b. Each of the bungs consists of a supporting member comprising reversely dis-

posed channels 8, secured together in spaced relation by means of the bolts 9 and the sleeves 10 and provided at the ends with foot members 11 adapted to rest on top of the side wall 7, as will be seen on inspection of Fig. 3; the reinforcing angles 12 secured to the webs of the channels; the row of bricks 13, provided with T-shaped heads 14, the spacing of the channels being such that the bricks may be slipped or threaded in with their heads resting upon the lower flanges 15 of the channels, as will be clear on inspection of Fig. 2; and means for yieldingly pressing the bricks together longitudinally of the row, such means consisting of the pads 16, the pivoted levers 17, the rods 18, and the springs 19, one end of each of which bears on a lever or arm 17, the amount of compression being determined by means of the nuts 20.

The channels 8 are arranged in arched form and support the bricks in an arch, the radius of which is comparatively small, the row of bricks being free to expand and contract while at the same time the load is transmitted to the side walls in such way that there is no outward thrust to speak of on expansion of the channels.

It will also be observed that the ends of the row of bricks come above the side walls which makes it possible to provide a sand or similar seal 21 to protect the metal parts from the direct heat.

The bungs are lifted by the eyes 22 and the "charging" bungs are tied in pairs by plates 23.

To facilitate the threading of the bricks, the lower flanges of the channels are slotted out at intervals, as at 15', the slots being slightly longer than the thickness of the bricks. This arrangement also facilitates breaking out of all of the bricks; or of one or more of the bricks which may wear out more rapidly, without disturbing all of the remaining bricks.

What I claim is:

1. In a furnace having side walls, a roof structure comprising a plurality of removable bungs each including a supporting member adapted to be carried on the side walls, and a row of bricks carried by the supporting member with freedom of expansion and contraction.

2. In a furnace having side walls, a roof structure comprising a plurality of remov-

able bungs each including an arched supporting member adapted to be carried on the side walls, and a row of bricks arranged in an arc and carried by the supporting member with freedom of expansion and contraction.

3. In a furnace having side walls, a roof structure comprising a plurality of removable bungs each including a supporting member adapted to be carried on the side walls, and a row of bricks carried by the supporting member with freedom of expansion and contraction, together with means for yieldingly pressing the bricks together longitudinally of the row.

4. In a furnace roof structure, a row of headed bricks and supporting means therefor including a pair of reversely disposed structural members each having a flange adapted to engage the heads, means for securing the structural members together and means for yieldingly pressing the bricks together.

5. In a furnace roof structure, a row of headed bricks and supporting means therefor including a pair of reversely disposed structural members each having a flange adapted to engage the heads, means for securing the structural members together in spaced relation, and means for yieldingly pressing the bricks together.

6. In a furnace roof structure, a row of headed bricks and supporting means therefor including a pair of reversely disposed channel members, the lower flanges of which

engage the heads, means for securing the channels together, and means for yieldingly pressing the bricks together.

7. In a furnace roof structure, a row of headed bricks and supporting means therefor including a pair of reversely disposed channel members, the lower flanges of which engage the heads, and means for securing the channels together, together with angles reinforcing the channels.

8. In a furnace roof structure, a row of headed bricks and supporting means therefor including a pair of reversely disposed channel members, the lower flanges of which engage the heads, and means for securing the channels together, said lower flanges being shaped to permit threading of bricks intermediate the ends of the channels.

9. In a furnace structure, a row of headed bricks and supporting means therefor including structural work with opposing flanges adapted to engage the brick heads and arranged to permit threading of the bricks thereinto at a point intermediate the ends of the row.

10. A furnace roof bung comprising in combination a supporting member, a plurality of bricks carried thereby with freedom for expansion, and means for yieldingly pressing the bricks together during expansion and contraction.

In testimony whereof, I have hereunto signed my name.

ENOCH P. STEVENS.