April 23, 1929. E. P. STEVENS 1,710,247

FURNACE ARCH CONSTRUCTION

Filed May 22, 1922

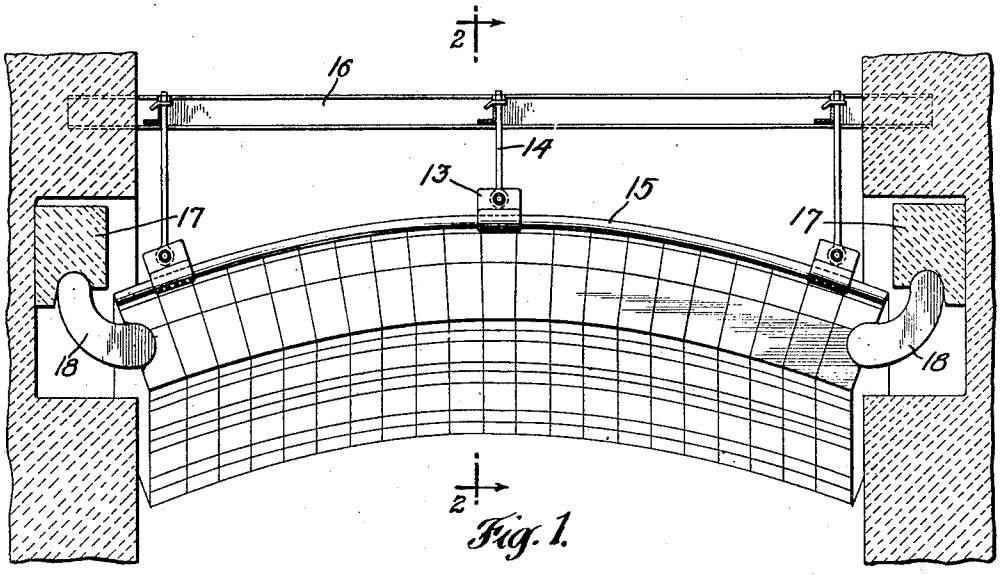


Fig. 1.

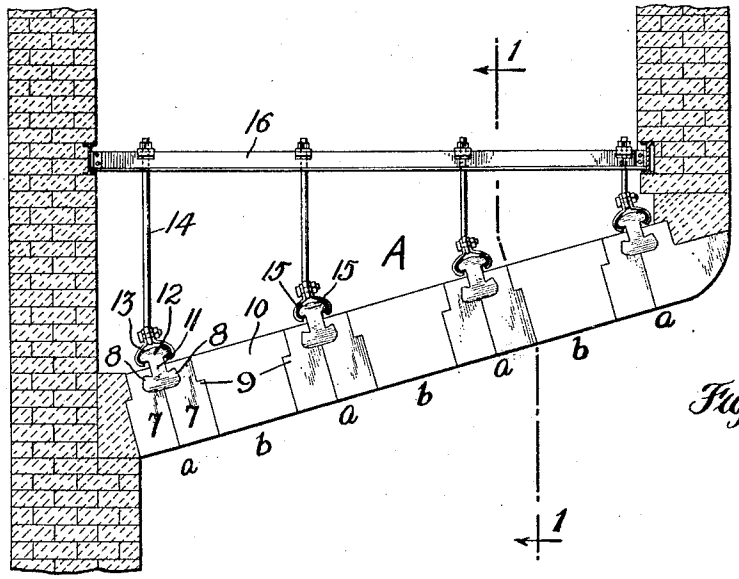


Fig. 2.

WITNESS
Gustav Genzlinger.

BY Enoch P. Stevens INVENTOR
Synnestvedt & Lechner ATTORNEYS

Patented Apr. 23, 1929. 1,710,247

UNITED STATES PATENT OFFICE.

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

FURNACE-ARCH CONSTRUCTION.

Application filed May 22, 1922. Serial No. 562,640.

This invention relates to arches for furnaces and particularly to arches, the bricks of which are laid in courses.

One of the primary objects of my invention is to provide a simple and effective means for supporting the courses of brick, with freedom for expansion and contraction, the arrangement being such as to permit of ready assemblage, and to afford ease of replacement and repair.

My invention also contemplates the provision of means cooperating to support the bricks of the courses in place to prevent the bricks from separating or "opening up" gaps.

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

Fig. 1 is a fragmentary cross section through a furnace having an arch embodying my improvements, said section being taken on the line 1—1 of Fig. 2; Fig. 2 is a longitudinal section taken on the line 2—2 of Fig. 1.

Referring now to the drawings, it will be seen that the arch, indicated as a whole by the reference letter A, is composed of a plurality of courses of brick, the courses marked *a* being composed of one form of brick, and the courses marked *b* being composed of another form of brick adapted to be supported by the bricks of the courses *a*.

The courses *a* are composed of what may be termed double brick 7 arranged in pairs. Each of the bricks 7 has a recess 8 or cut away portion, formed partly in the upper face and partly in the inner vertical face, so that when a pair of such bricks are assembled with their inner faces in abutment, a T-shaped slot will be formed therebetween. The outer faces of the brick 7 are formed so as to provide the shoulders 9. The bricks 10, of which the courses *b* are composed, are substantially T shaped so as to fit between the courses *a*, the shoulders 9 of the latter serving to support the bricks 10.

The double bricks constituting the courses *a* are supported in the following manner. A T-shaped carrying brick 11 fits the recesses 8 in a pair of the bricks 7 and serves to interlock each pair. The carrying bricks 11 for a course are preferably cemented together so as to in effect constitute a single carrying member for the course. These carrying bricks are also provided with a head 12 about which the clips 13 of the hangers 14 are adapted to be clamped. Interposed between the clips 13 and the head 12, I may also provide longitudinally extending stringer members 15, preferably composed of metal, bent to shape to embrace the heads 12. These stringer members 15 also serve to form the carrying bricks 11 into a substantially continuous carrying member. The hangers 14 are supported from a beam 16 suitably carried in the walls of the furnace.

It will be seen from the foregoing that the arrangement provides an economical, simple and effective means for supporting the arch, and permits the arch to freely expand and contract. The bricks may also be readily assembled in place and the whole arch may be replaced easily or if necessary repairs can also be easily made by removing broken or damaged bricks and substituting others in place thereof. In this connection one or more of the bricks 10 can be readily removed without disturbing others, making it possible to remove any of the bricks 7.

To prevent the opening up of gaps in the arch, I prefer to provide a yielding means engaging the ends of the courses of bricks, and adapted to press the bricks of the course together. This means comprises the bricks 17 and the compression members 18, the compression members being socketed in the respective bricks 17 and end brick of a course. This arrangement, it will be observed, is such as to produce an inward pressure on the ends of a course. As the arch expands, the bricks 17 will be forced upwardly and as the arch contracts the weight of such bricks will cause them to follow downward, maintaining the pressure of the members 18.

The joint between the arch and the furnace walls is filled with a sand seal 23 which permits the arch to freely expand and contract.

I claim:

In furnace arch construction, a row of bricks, suspension means therefor and compression means at an end of the row, said compression means comprising a weight and an elbow member socketed in the end brick of the row and also in the weight.

In testimony whereof, I have hereunto signed my name.

ENOCH P. STEVENS.