Jan. 2, 1923.

1,440,446

W. H. COTTON.
FURNACE ROOF.
FILED JAN. 13, 1921.

2 SHEETS-SHEET 1

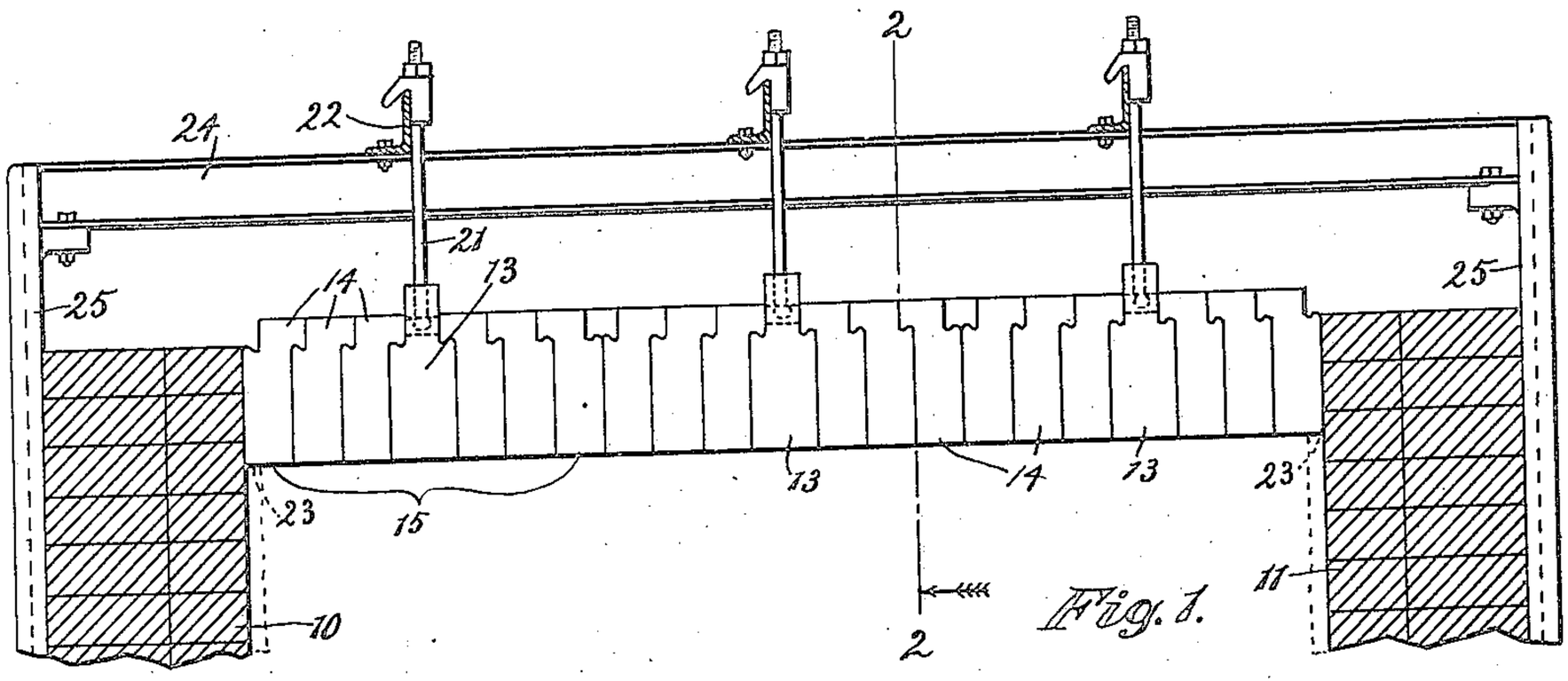

Fig. 1.

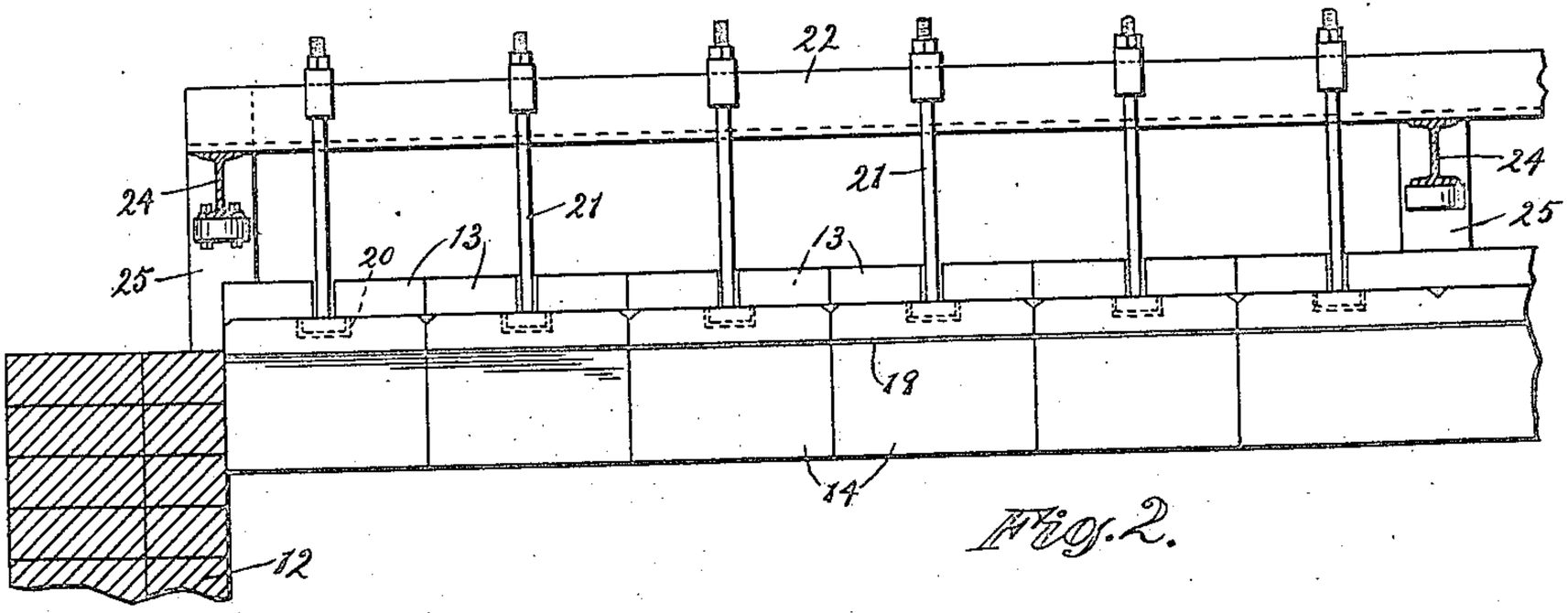

Fig. 2.

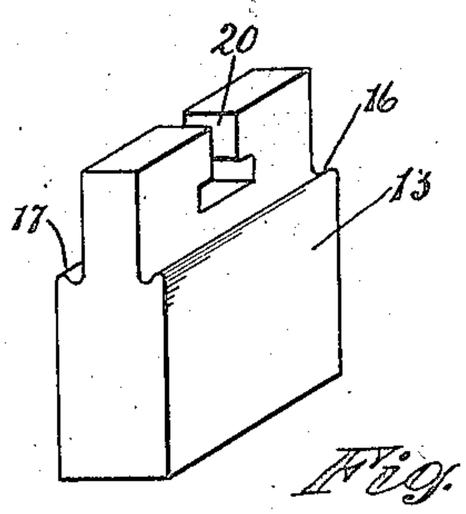

Fig. 3.

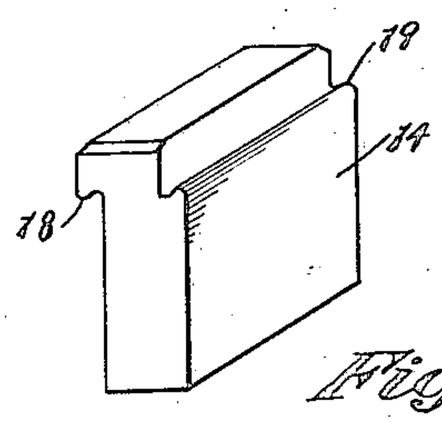

Fig. 4.

Inventor:
Walter H. Cotton
By Gilbert & Kiggins
Attys

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2 SHEETS-SHEET 2

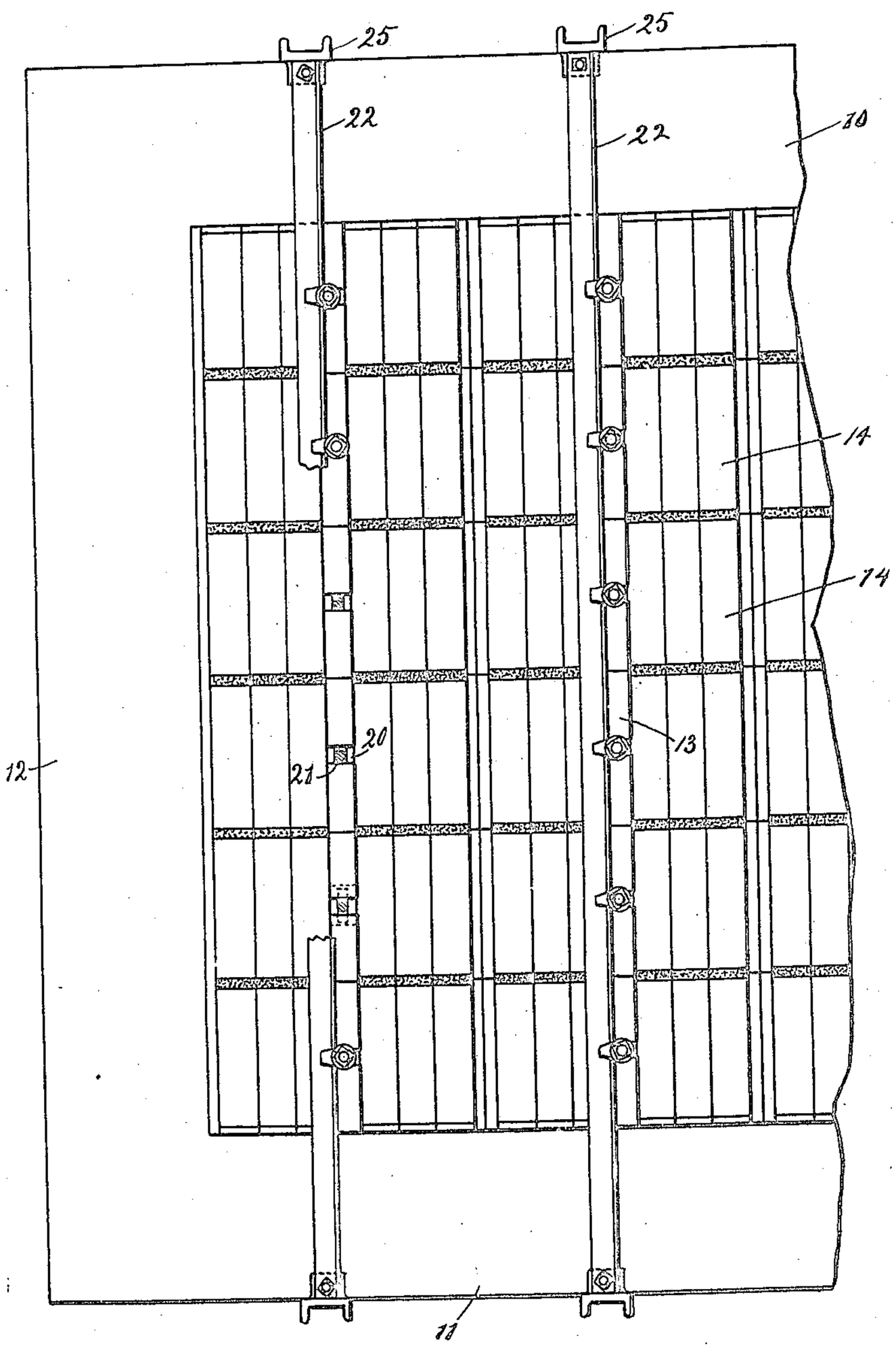

Fig. 5.

Inventor:
Walter H. Cotton
By Wilson & Higgs.

Patented Jan. 2, 1923. 1,440,446

UNITED STATES PATENT OFFICE.

WALTER H. COTTON, OF CHICAGO, ILLINOIS.

FURNACE ROOF.

Application filed January 13, 1921. Serial No. 437,036.

To all whom it may concern:

Be it known that I, WALTER H. COTTON, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Furnace Roofs, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to furnace roofs formed of brick, and particularly to roofs which are not inclosed within the flue or other chambers of the furnace.

The object is to provide a roof which may be readily assembled, will be durable, and easily repaired, and which is supported without lateral strains upon the furnace walls.

The invention is exemplified in the construction hereinafter described and illustrated in the accompanying drawings, in which—

Fig. 1 is a detail transverse vertical section through a furnace fire-box;

Fig. 2 is a similar view taken on line 2—2 of Fig. 1;

Figs. 3 and 4 are views in perspective of two forms of brick used in the construction of the roof; and

Fig. 5 is a partial detail plan view with portions broken away of a furnace.

The side walls of a fire-box are shown at 10, 11, and one of its end walls at 12, these walls being of masonry and of ordinary construction. The roof is constructed of brick of special form, as shown at 13, 14. These bricks are assembled in independent groups, as 15, each group consisting of a central element, being one of the bricks 13, and a plurality of bricks 14 at each side of the central brick. The number of bricks 14 used in each group may be varied, as shown six are employed.

Each of the central bricks 13 is provided on each of its vertical side faces with an upwardly facing rib 16, 17, and each of the bricks 14 is provided on one side face with a complementary downwardly facing shoulder 18, and upon the opposite face with an upwardly facing shoulder 19 of the same form as the shoulder 16, 17. These shoulders are undercut, and preferably given an S curve. The central brick 13 is provided with a T recess 20 in its upper face, to receive the head of a hanger bolt 21 which depends from a stringer 22.

The central brick 13 of each section of the roof being properly placed, a pair of the bricks 14 have their shoulders engaged with it, and the section is built out by the addition of more bricks of the same form. As many of these roof sections are employed as may be necessary to fill the entire space between the walls of the fire-box.

The outer end brick of each end section of the course bears against the adjacent side wall, as 10 or 11, and preferably, although not necessarily, this wall is provided with an upwardly facing shoulder 23 upon which the brick rests. The end bricks of adjacent sections of the roof are in bearing but not interlocking engagement. While these end bricks 14 of each section are shown as having upwardly facing shoulders, it is obvious that this detail is not essential but is preferably followed in order to limit the number of special forms required to be molded.

The stringers 22 are supported upon cross beams, as 24, which are carried by the side walls of the furnace, or preferably, as shown, by metal columns 25 associated therewith.

It will thus be seen that the roof is composed of a plurality of juxtaposed courses extending between opposite walls of the furnace, the several courses, while being in bearing contact, being relatively independent. The several sections of each course are related independently and each is supported by the hanger associated with it. The bricks of each section are held together by their interlocking engagement, and each section may be built up and placed without requiring temporary support during the construction of the roof. Should any of the bricks 14 be damaged and replacement become necessary, they may be easily removed, the end bricks of each section being withdrawn and subsequently as many others as may be necessary to reach the one which is damaged. Should it become necessary to replace one of the central bricks 13, the entire section is withdrawn and reconstructed, as many of the old bricks 14 being used as are found serviceable.

I claim as my invention—

1. A furnace roof comprsing two groups of interlocking brick and a central element with which one member of each group interlocks, and a hanger attached to the central element and forming the support for the entire mass.

2. A furnace roof comprising, in combi-

nation, a course of brick consisting of a plurality of independent abutting sections, each section being composed of a plurality of interlocking brick, and a supporting hanger for each section.

3. In a furnace roof, in combination, a pair of supporting beams, stringers carried by the beams, a plurality of laterally juxtaposed courses of brick, each course comprising a plurality of independent sections, each section being formed of a central brick and a group of brick at each side thereof interlocked with each other, and the contiguous brick of each group interlocked with the central brick, and a hanger pendant from one of the stringers and attached to the central brick of each section.

4. A furnace roof comprising, in combination, a course of brick consisting of a plurality of independent abutting sections, each section being composed of a plurality of interlocking brick, and a hanger for each section forming the sole support for said section.

5. A furnace roof comprising two groups of interlocking brick and a central element with which one member of each group interlocks, and a hanger attached to the central element and forming the support for the entire mass, said central element comprising a brick having laterally upwardly facing shoulders and said interlocking members having complementary shoulders for engaging the upwardly facing shoulders.

WALTER H. COTTON.