F. GIRTANNER.

FURNACE ARCH.

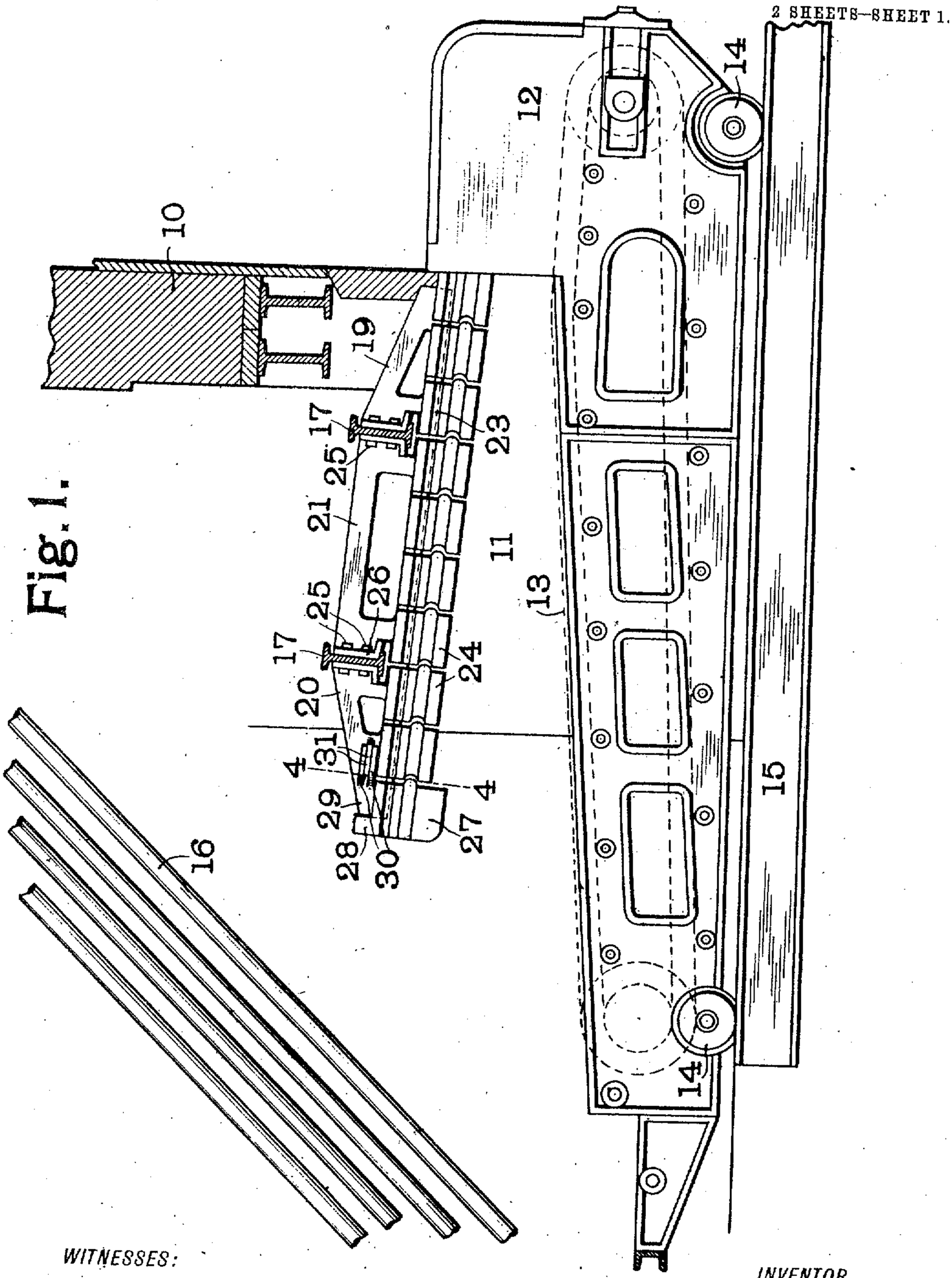
APPLICATION FILED JAN. 8, 1910. RENEWED JAN. 21, 1911.

986,455.

Patented Mar. 14, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

L. L. Mead

W. A. Alexander

INVENTOR

Frederick Girtanner.

BY

Fowler & Huffman

ATTORNEYS

F. GIRTANNER.

FURNACE ARCH.

APPLICATION FILED JAN. 8, 1910. RENEWED JAN. 21, 1911.

986,455.

Patented Mar. 14, 1911.

2 SHEETS—SHEET 2.

Fig. 2.

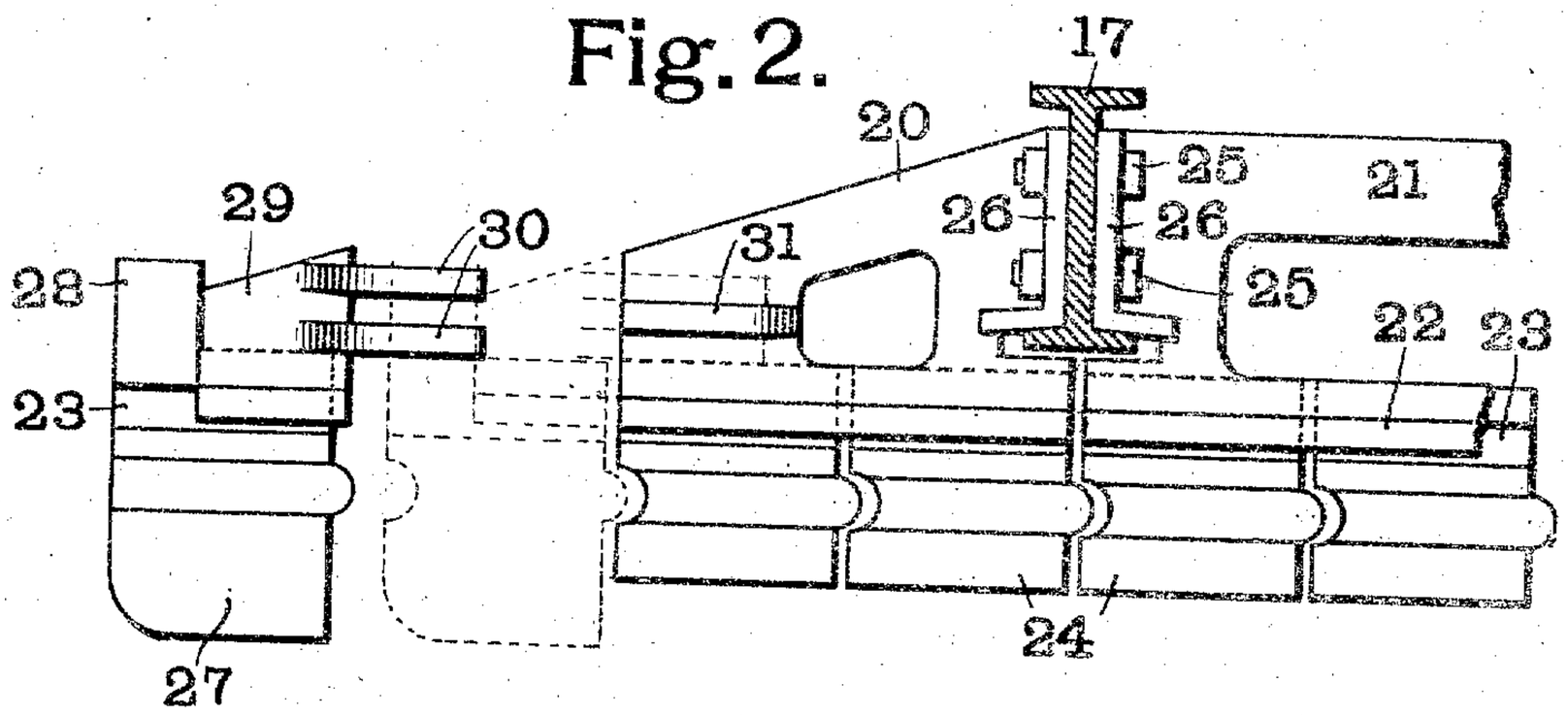


Fig. 3.

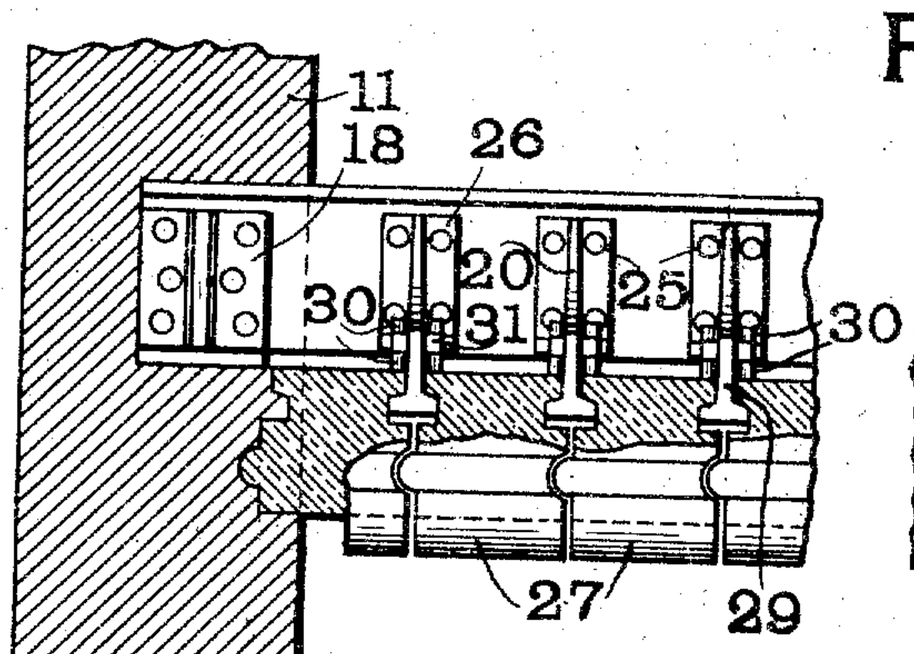


Fig. 4.

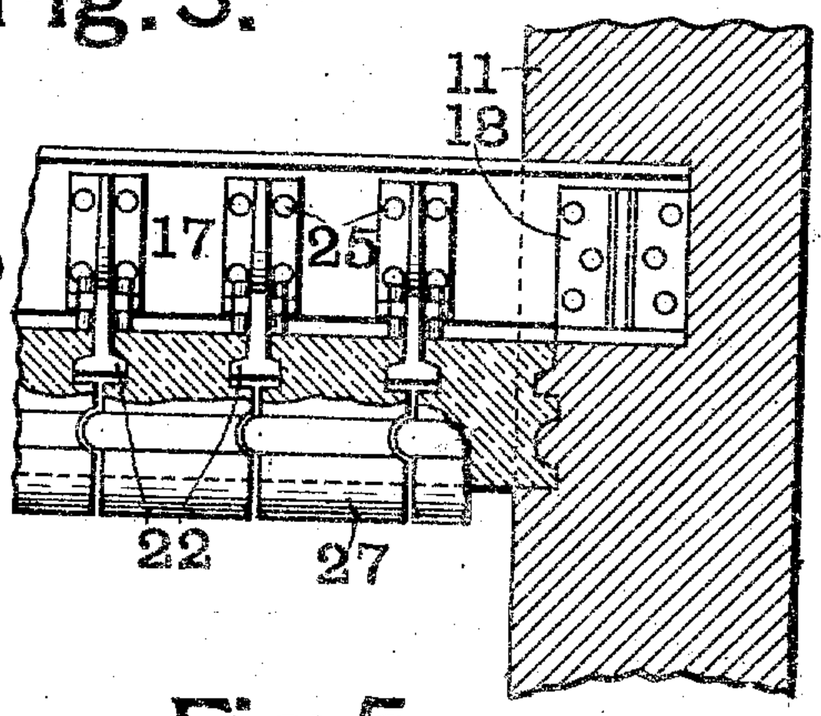


Fig. 5.

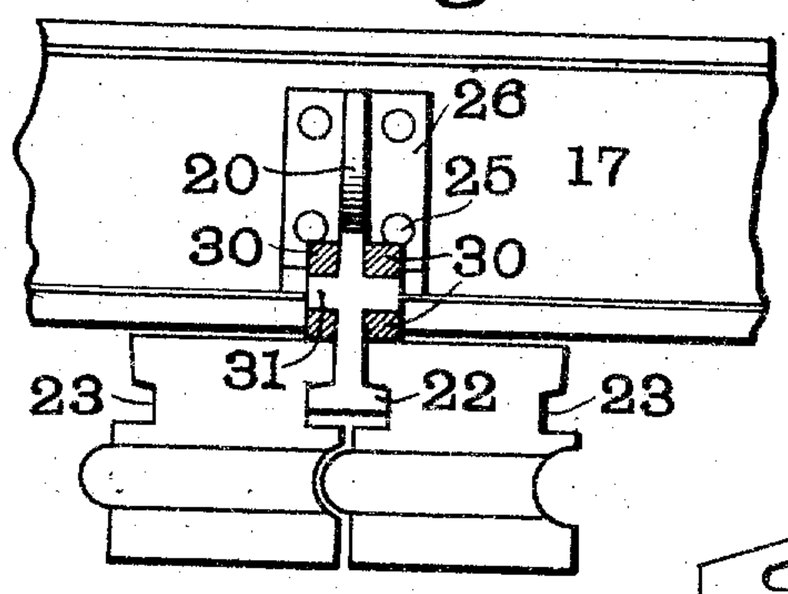
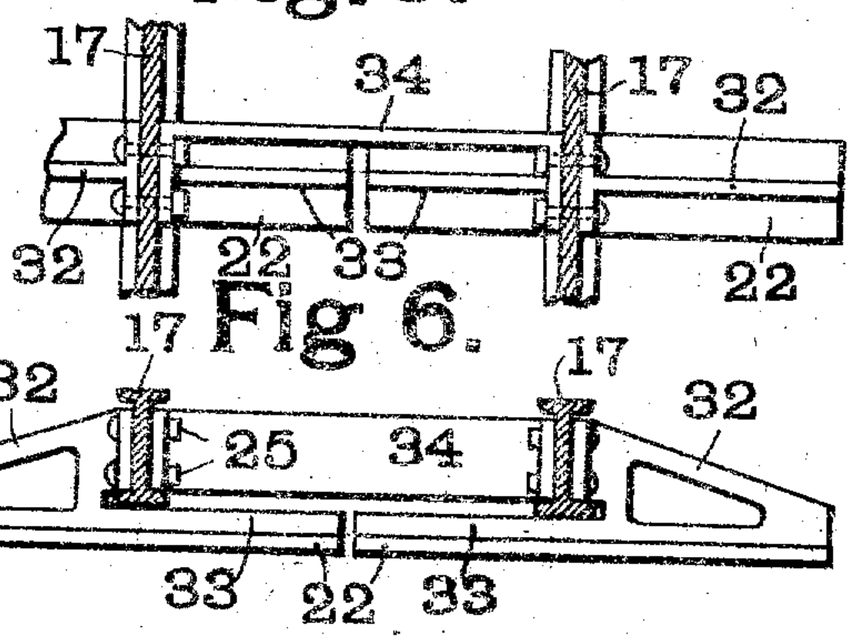


Fig. 6.



WITNESSES:

L. L. Mead.

W. A. Alexander.

INVENTOR

Frederick Girtanner.

BY

Fowler & Huffman

ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK GIRTANNER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO LACLEDE-CHRISTY CLAY PRODUCTS COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

FURNACE-ARCH.

986,455. Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed January 8, 1910, Serial No. 537,035. Renewed January 21, 1911. Serial No. 603,922.

To all whom it may concern:

Be it known that I, FREDERICK GIRTANNER, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Furnace-Arch, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an arch for furnaces and more particularly to that form of arch known as a flat arch and usually used in connection with chain grate furnaces.

The object of my invention is to provide supporting means for a flat arch which will support an arch of any desired length and in which any part of the supporting means may readily be replaced when injured.

In the accompanying drawings which illustrate one form of arch made in accordance with my invention, together with a portion of furnace to which the same is applied, Figure 1 is a vertical longitudinal section; Fig. 2 is an enlarged view of one end of the arch; Fig. 3 is a cross section; Fig. 4 is a section on the line 4—4 of Fig. 1; and Figs. 5 and 6 are top plan and side view respectively showing a modified form of supporting bracket.

Like marks of reference refer to similar parts in the several views in the drawings.

10 represents the front walls and 11 the side walls of the furnace.

12 is the frame which carries the chain grate 13 shown in dotted lines and which is provided with wheels 14 running on a track 15 in the usual manner so that the grate may be inserted or removed from the furnace. 16 are the boiler tubes. Extending between the side walls 11 are a pair of I-beams 17. These I-beams 17 are supported from the side walls 11 in any suitable manner but preferably by wall brackets 18 set into the wall as shown in Fig. 3. Carried by the I-beams 17 are a number of supporting brackets for the tiles, as shown in Figs. 1, 2, 3 and 4. Each of these brackets consists of a front end-piece 19, a rear end-piece 20 and a center piece 21. Each of these parts 19, 20 and 21 of the bracket extends below the lower edge of the I-beams 17 and is provided with flanges 22, which flanges engage with grooves 23 formed in the tiles 24 which form the arch proper. The parts 19, 20 and 21 are secured to the I-beams 17 by means of bolts 25 passing through flanges 26 on the side parts and through the said I-beams 17. The tiles 27 forming the extreme rear end of the arch differ from the tiles 24 in being provided with an upwardly extending part 28 as shown in Figs. 1 and 2. The rear ends 20 of the supporting brackets are more liable to be injured by the heat than the other members of the bracket and the extreme rear portion of these ends are more liable to be injured than the parts nearer the I-beams. In order, therefore, to allow the ready renewal of the extreme rear ends I provide separate tips 29 to receive the rear blocks 27. Each of these tips 29 is provided on each side with a pair of lugs 30 and each of the end pieces 20 is provided on each side with a lug 31 adapted to slip between the corresponding lugs 30 on the end-piece 29. The end-piece 29 can, therefore, be readily renewed without renewing the body of the end-piece 20.

In Figs. 5 and 6 I have shown a modification of the supporting bracket. In this form two end-pieces 32 are used, each of which is similar to the front end-piece 19 hereinbefore described, except that it is provided with an extension 33 as best shown in Fig. 6. These extensions 33 meet and together with the body of the end-pieces 32 carry the flanges 22 for supporting the tiles through the entire length of the arch. A center-piece 34 is used in this form of arch which center-piece does not extend below the I-beams 17 and is not provided with flanges for supporting the tiles. It will be evident that with this form of supporting bracket the rear end-piece 32 may be formed similar to the end-piece 30 hereinbefore described and supplied with a separate tip in the same way.

It will be evident that with my construction a flat arch of any desired length can be readily supported and at the same time the separate parts of the arch can be readily renewed in case of injury.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a furnace arch, the combination with a pair of I-beams extending across the furnace, of brackets supported by said I-beams; each of said brackets extending to the front and rear of said I-beams and com-

prising end-pieces and a separate center piece extending between said I-beams; said brackets being provided with flanges on their lower edges, and tiles provided with grooves to receive the flanges of said brackets.

2. In a furnace arch, the combination with a pair of I-beams extending across the furnace, of brackets supported by said I-beams; each of said brackets comprising a pair of separate end-pieces one extending to the front and the other to the rear of said I-beams, and a separate center piece extending between said I-beams; said brackets being provided with flanges on their lower edges, and tiles provided with grooves to receive the flanges of said brackets.

3. In a furnace arch, the combination with a pair of I-beams extending across the furnace, of brackets supported by said I-beams; each of said brackets comprising a pair of separate end-pieces one extending at the front, the other at the rear, of said I-beams, and a separate center piece extending between said I-beams; flanges on the lower edges of both said end-pieces and said center piece, and tiles provided with grooves to receive said flanges.

4. In a furnace arch, the combination with an I-beam extending across the furnace, of brackets supported by said I-beams, each of said brackets comprising an end-piece extending to the rear of said I-beam, said end-piece being provided at its lower edge with flanges, a tip removably secured to said end-piece and also provided with flanges, and tiles provided with grooves to receive the flanges on said end-piece and tip.

In testimony whereof, I have hereunto set my hand and affixed my seal in the presence of the two subscribing witnesses.

FREDERICK GIRTANNER. [L. S.]

Witnesses:
W. A. ALEXANDER,
ELIZABETH BAILEY.