No. 724,517. PATENTED APR. 7, 1903.

R. F. STURROCK.

BRIDGE OF FURNACES FOR BOILERS.

APPLICATION FILED MAR. 3, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

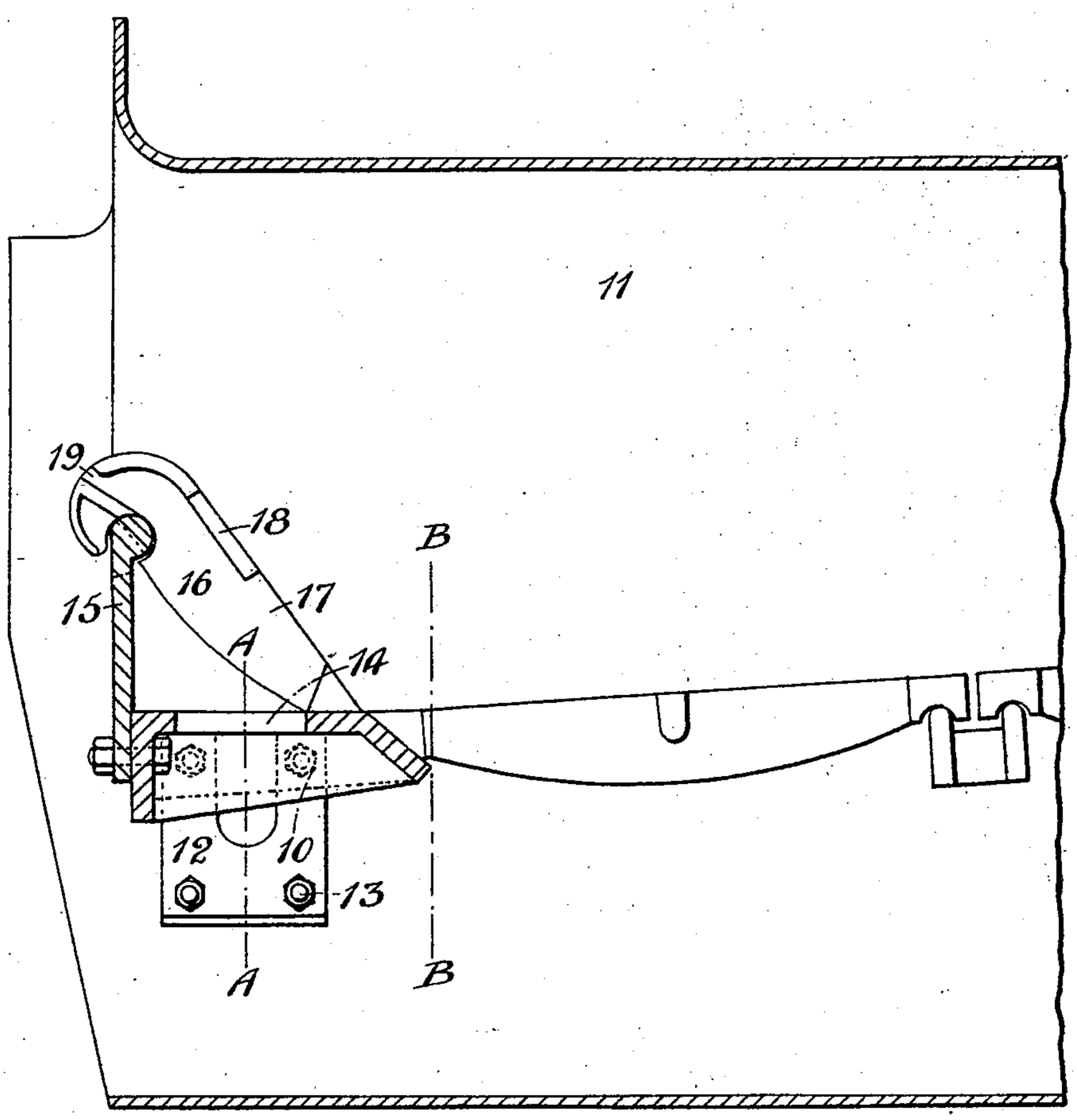

FIG. 1.

Witnesses.
Agnes Douglas.
Robert H. Addison.

Inventor.
Robert Findlay Sturrock,
per
George Cameron Douglas
Attorney.

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NO MODEL. 3 SHEETS—SHEET 2.

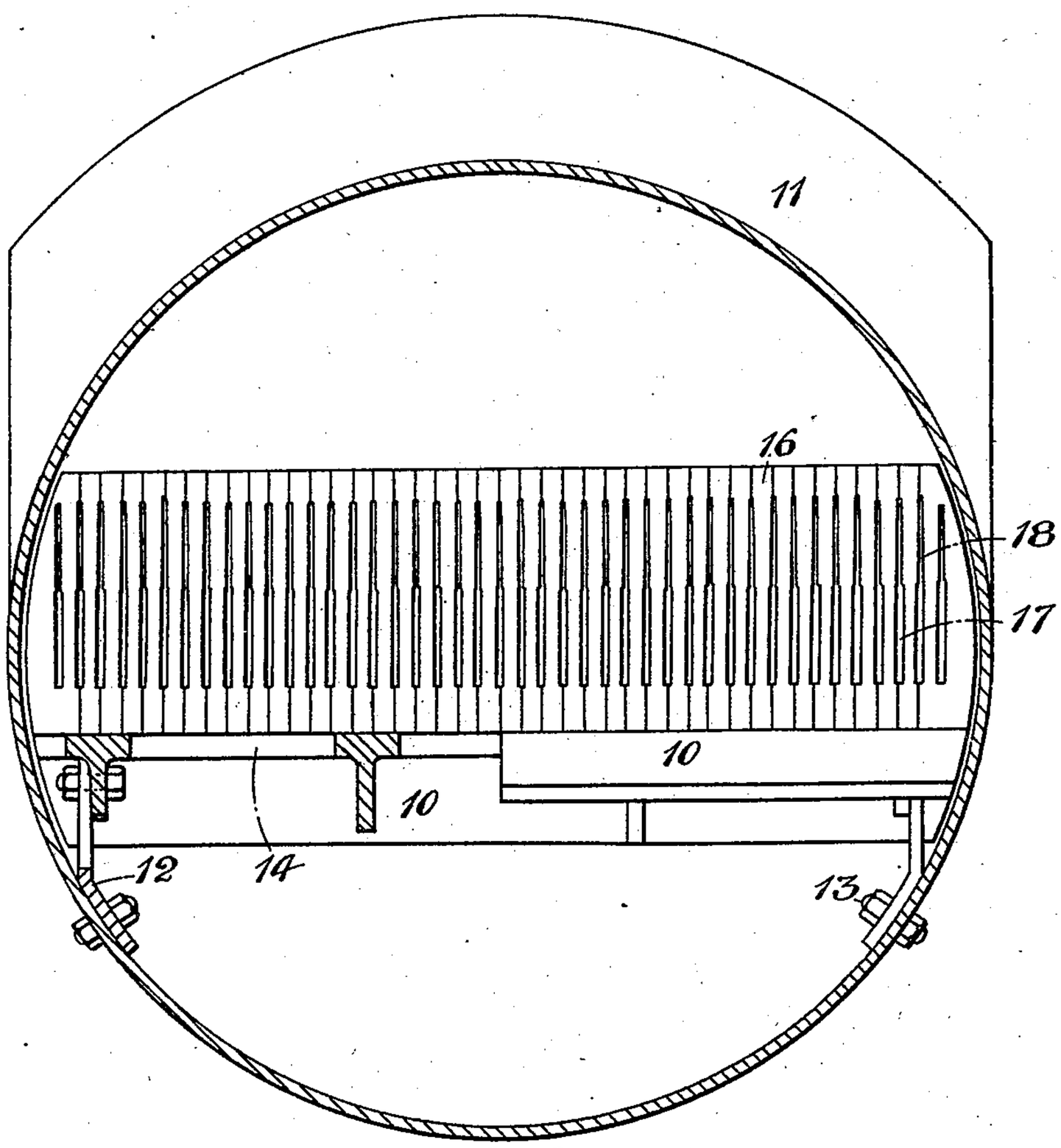

FIG. 2.

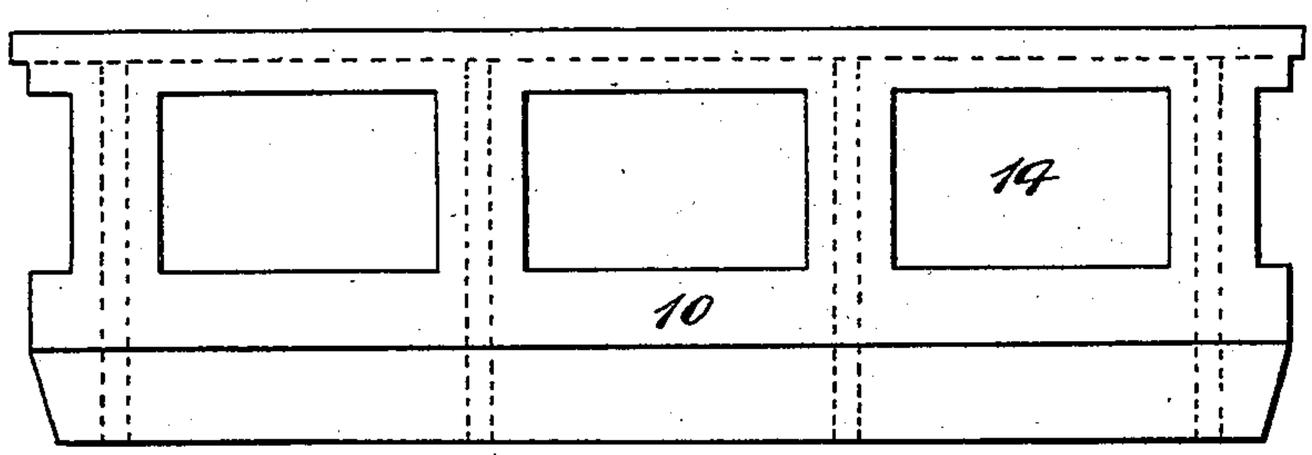

FIG. 3.

Witnesses.
Agnes Douglas.
Robert H. Addison.

Inventor
Robert Findlay Sturrock
per
George Cameron Douglas.
Attorney.

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NO MODEL. 3 SHEETS—SHEET 3.

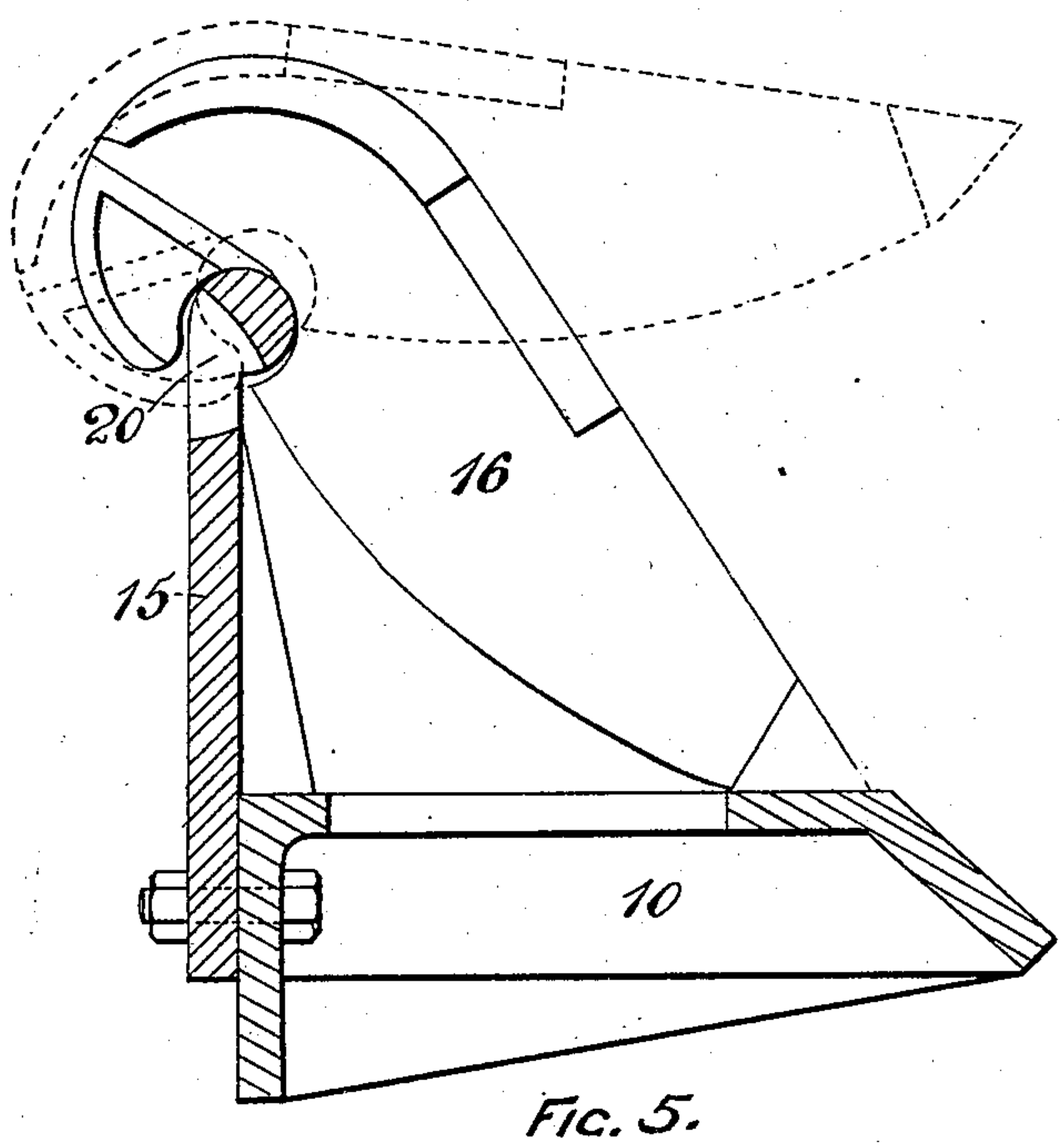

FIG. 5.

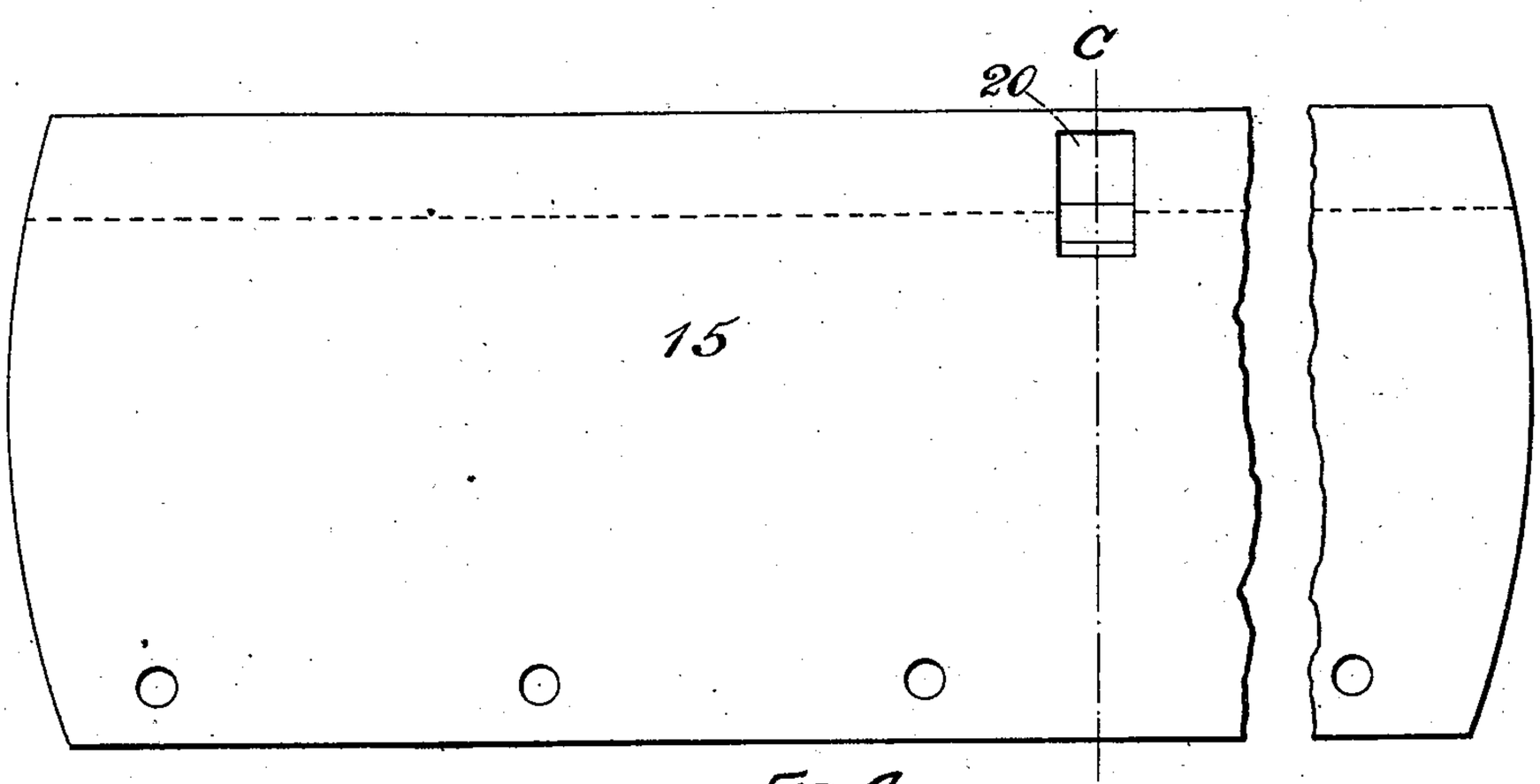

FIG. 4.

Witnesses.
Agnes Douglas.
Robert H. Addison.

Inventor.
Robert Fiddes Sturrock
per George Cameron Douglas.
Attorney.

UNITED STATES PATENT OFFICE.

ROBERT FINDLAY STURROCK, OF DUNDEE, SCOTLAND.

BRIDGE OF FURNACES FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 724,517, dated April 7, 1903.

Application filed March 3, 1902. Serial No. 96,535. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FINDLAY STURROCK, a subject of the King of Great Britain and Ireland, and a resident of Dundee, in the county of Forfar, Scotland, (whose post-office address is 3 Rustic Place,) have invented Improvements in Bridges of Furnaces for Boilers, of which the following is a specification.

This invention relates to improvements in the bridges of furnaces for boilers, the object being to thoroughly burn the products of combustion by admitting and heating air in a new and improved manner and incidentally to permit of clinkers being more easily removed than hitherto obtains.

In order that my said invention and the manner of performing or carrying the same into effect or practice may be properly understood, I have hereunto appended three explanatory sheets of drawings, in which the same reference-numerals are used to indicate corresponding parts in all the figures where shown.

Figure 1 is a part longitudinal section through a boiler furnace or flue, showing the bridge in position. Fig. 2 is a cross-section of a boiler furnace or flue, the one half being a section at A A and the other half at B B, Fig. 1. Fig. 3 is a plan of the foundation cross-plate. Fig. 4 is a part face view of the support for the bridge-bars; and Fig. 5 is a section at C C, Fig. 4, showing the aperture for shipping and locking the bars.

In carrying out my invention I attach the foundation cross-plate 10 to the inner end of the flue 11 by means of the brackets 12 and bolts 13, such foundation cross-plate being provided with suitable air-apertures 14. To the cross-plate 10 is bolted the support 15 for the bridge-bars 16. The cross-plate and the bridge-bars are so designed and made that they can be threaded onto the bulb of the support 15 by means of the aperture 20, the bridge-bars in their first and entering position being shown by the dotted lines in Fig. 5. The bars are provided with recesses or notches of different depths, whereby the bars when assembled form apertures of varying sizes, the largest, 17, being nearest the foundation-plate 10, the second and smaller, 18, being immediately above, and the third, 19, at or near the crown. These bars 16 are not otherwise held, their lower extremities simply resting on the foundation-plate 10 in order that they may expand freely.

The action of my improved bridge or arch is as follows: The air passes up through the apertures 14 in the foundation-plate in the direction shown by the arrows and through the three assembled apertures 17, 18, and 19 between the bars, and in its passage it gets heated to such an extent that it readily combines with the products of combustion coming from the furnace, thus assuring their combustion. The passage of such air between the bars keeps them from being unduly heated, and thus renders them less liable to deteriorate too rapidly. From the formation and the manner of setting these bars clinkers may be quite easily cleared out.

Although I have for the purpose of illustrating my invention shown one way of carrying out the same, yet the details of the various parts may be altered and modified to suit varying conditions without in any way departing from my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a furnace, the combination of a grate, a perforated foundation-plate, a vertically-disposed supporting-plate secured to the rear end of the foundation-plate, and a series of inclined bridge-bars, supported at their upper ends by the supporting-plate and at their lower ends by the foundation-plate, the sides of said bars being provided with recesses or notches of different depths, whereby when the bars are assembled openings of various sizes are formed between the bars, said openings decreasing in size from the bottom upward, substantially as described.

2. In a furnace, the combination of a grate, a perforated foundation-plate, a vertically-disposed supporting-plate secured to the rear end of the foundation-plate and having a medially-situated aperture for allowing the

bars to be threaded on; and a series of inclined bridge-bars, supported at their upper ends by the supporting-plate and at their lower ends by the foundation-plate, the sides of said bars being provided with recesses or notches of different depths, whereby when the bars are assembled openings of various sizes are formed between the bars, said openings decreasing in size from the bottom upward, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ROBERT FINDLAY STURROCK.

Witnesses:

AGNES DOUGLAS,

JOHN BROUGH.