

A. H. WILLETT,
 PERFORATED ARCH AND BRICK THEREFOR.
 APPLICATION FILED DEC. 4, 1918.

1,395,542.

Patented Nov. 1, 1921.

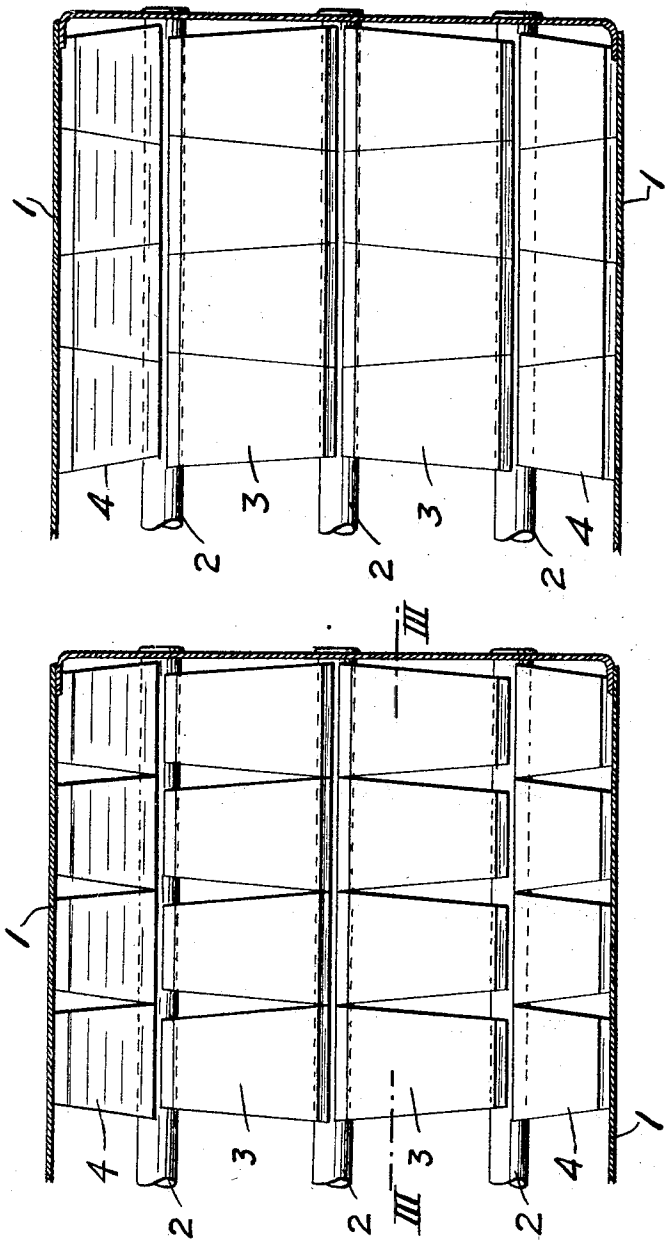


FIG. 2.

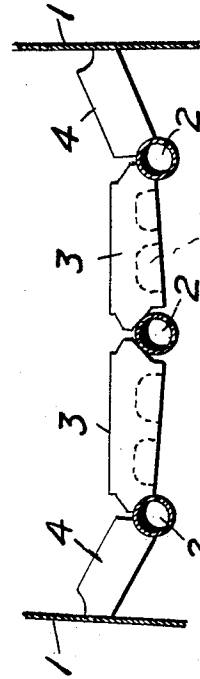


FIG. 4.

FIG. 1.

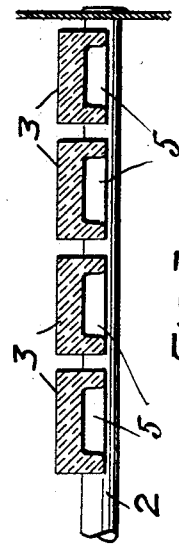


FIG. 3.

WITNESS:

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UNITED STATES PATENT OFFICE.

ALFRED H. WILLETT, OF WEST NEW YORK, NEW JERSEY, ASSIGNOR TO AMERICAN ARCH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

PERFORATED ARCH AND BRICK THEREFOR.

1,395,542.

Specification of Letters Patent.

Patented Nov. 1, 1921.

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To all whom it may concern:

Be it known that I, ALFRED H. WILLETT, a citizen of the United States, residing at West New York, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Perforated Arches and Bricks Therefor, of which the following is a specification.

This invention has reference to the provision of an improved form of arch and of the brick utilized in constructing the arch whereby with a single form of middle or body brick and practically a single type of wing brick, a considerable variety of arch structures may be built embodying various arrangements or locations of apertures and closed portions for determining the flow of the hot gases or products of combustion.

In carrying out my invention, I provide a series of bricks which I have illustrated in preferred form in the accompanying drawings, wherein:—

Figure 1 is a partial plan section of a locomotive fire box showing a portion of an arch with my invention embodied therein; Fig. 2 shows a similar section with the bricks arranged so as to produce an imperforate arch; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; and Fig. 4 is a sectional view across the circulating and supporting tubes.

Referring now to Figs. 1 and 3, it will be seen that I have therein shown the side sheets 1 with circulating and supporting tubes 2 carrying thereupon the middle or body bricks 3 with the wing bricks 4 located at the sides. The bricks 3 are made as shown so as to be independently supported at each end of the circulating tubes 2 preferably with supporting grooves or surfaces so arranged, as indicated in Fig. 4, that they may be inverted in position and each provided with recesses 5 upon one face.

At one end the bricks are made wider than at the other so that they are somewhat wedge-shaped in the plan view and thus when a series of them are placed as indicated in Fig. 1 with the several wider ends resting upon the same tube, there will be apertures between adjacent bricks which

will extend from one end of the bricks in a constantly widening form to the opposite end where the products of combustion in passing through the apertures will encircle or contact with the supporting tubes. A similar arrangement is provided in the placing of the wing bricks.

If desired this improved form of brick may be assembled, however, as shown in Fig. 2 in which by reversing the position of each alternate brick the apertures between the bricks are closed and this form of construction may be used, if desired, on a portion only of the arch, the remaining portion being assembled as in Fig. 1, leaving a portion of the arch apertured and a portion of the arch without apertures. It will be noted that the wing bricks must be inverted to form this construction due to the relation between their side sheet engaging surfaces and their tube engaging surfaces.

The brick which I have herein shown is not only thus capable of being used in a variety of arrangements or dispositions but it is also a brick which is of simple form and, therefore, easy and cheap to manufacture.

I claim:

1. In an arch construction for fire boxes provided with supporting tubes, the combination of a plurality of reversible fire bricks adapted to be supported in rows upon the tubes, each of said fire bricks being narrower at one end than at the other so that if the bricks in a row be assembled with narrow and wide ends alternating in adjacent bricks an imperforate arch will be formed, but if assembled with all wide and all narrow ends together, a perforate arch will be formed.

2. In an arch construction for fire boxes provided with arch supporting members, the combination of a plurality of rows of reversible fire bricks on said members, each of said bricks being narrower at one end than at the other so that if the bricks in a row be assembled with narrow and wide ends alternating in adjacent bricks, an imperforate arch will be formed, but if assembled with all wide and all narrow ends together, a perforate arch will be formed.

3. A reversible brick for sectional loco-

50 apertures between adjacent bricks which 100

motive fire box arch constructions in which
 the bricks are arranged in rows, having one
 end narrower than the other whereby in as-
 5 assembling a plurality of such bricks in a row
 it is possible to create an imperforate or a
 perforate arch, an imperforate arch being
 formed when bricks are arranged with nar-

row and wide ends alternating and a per-
 forate arch when all narrow and all wide
 ends are arranged together.

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In testimony whereof, I have hereunto
 signed my name.

ALFRED H. WILLETT.