E. F. FITZPATRICK.

FIREPROOF ARCH.

APPLICATION FILED MAY 6, 1909.

948,215. Patented Feb. 1, 1910.

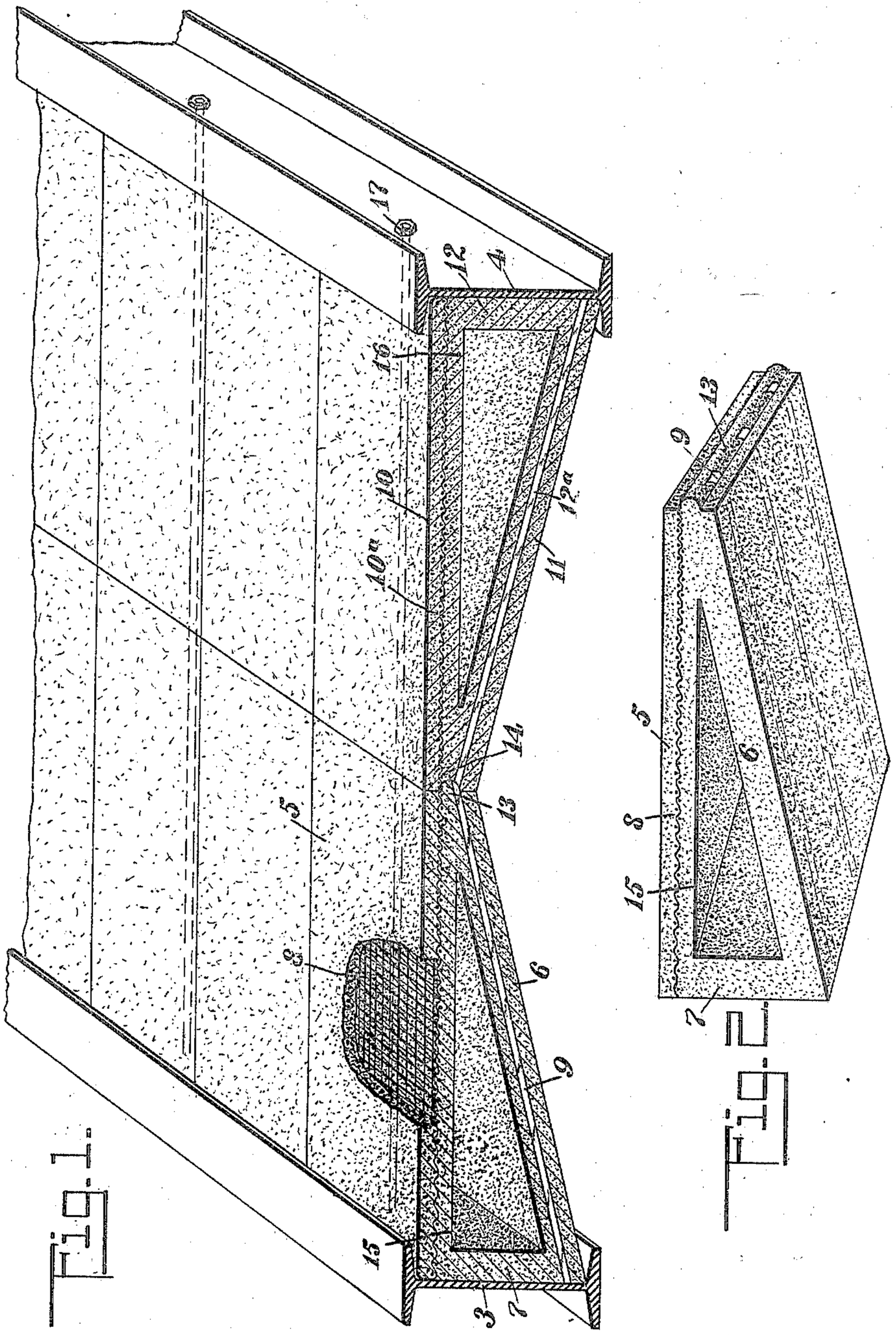

Fig. 1.

Fig. 2.

WITNESSES

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FIREPROOF ARCH.

948,215. Specification of Letters Patent. Patented Feb. 1, 1910.

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To all whom it may concern:

Be it known that I, EUGENE F. FITZPATRICK, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fireproof Arch, of which the following is a full, clear, and exact description.

My invention relates to arches used more particularly in fire-proof work, a more particular purpose being to provide a very simple construction of arch made in two pieces, each provided with an air space, usually designated as a "vacuum", and each piece being further provided with means whereby said pieces may be connected firmly together when in position.

My invention further relates to embedding in the arch certain metallic members for reinforcing and strengthening the same, without materially increasing the weight of the arch.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views, and in which—

Figure 1 is a perspective showing two I-beams, and intermediate the latter a number of tile sections locked together so as to form my improved arch; and Fig. 2 is a perspective of one of the tile sections removed.

I-beams are shown at 3, 4, and may be of usual construction. A top panel 5 and a bottom panel 6 are connected together by a side panel 7 at one of their ends and are integral at the other end, thereby forming an arch having a general wedge shape, as indicated in Fig. 2. The panel 5 is provided with a netting 8 of heavy iron or steel wire embedded centrally within it. A number of rods 9 of metal, preferably steel or iron, are embedded within the panel 6 and extend throughout the entire width of the panel, coming out flush with the edges thereof.

At 10 and 11 are panels analogous to the panels 5, 6, the same being connected together by a side panel 12. The panel 11 is provided with rods 12^a embedded within it and extending practically the entire width, and the panel 10 is provided with a netting 10^a embedded centrally within it. Some of the tile sections thus formed are provided with tongues 13 and others with grooves 14, the tongues mating the grooves, as will be understood from Fig. 1. The tile sections thus formed are provided with wedge shaped openings 15, 16.

At 17 are cross rods which extend directly through the tile sections and serve to hold the I-beams together so as to exert pressure endwise against the tile sections.

Each wedge-shaped opening 15, 16 constitutes, when the arch is in place, an air space or so-called "vacuum", the purpose of which is to prevent undue travel of heat through the arch in case of fire. A building having a large proportion of such arches is therefore to that extent rendered more nearly fire-proof than would otherwise be the case, other things being equal.

It will be noted that there is a direct coaction between the cross rods 17 and the two-part arch above described in that the tension of the rods holds the two pieces of the arch in proper position, and any direct vertical strain upon the arch, especially adjacent to its middle, is taken up directly by the cross rods.

The operation of my device is as follows: An even number of the tile sections are grouped together in pairs, as indicated in Fig. 1, the tongue 13 of one tile section mating the groove 14 of the opposite tile section. The under panels 7, 12 are fitted against the I-beams 3, 4, and are of sufficient width to fit neatly into the same. As each tongue 13 fits into the groove 14, and as the I-beams are prevented from moving apart by reason of the cross rods 17, the tile sections are locked very firmly in position, and any weight resting upon the center of the arch thus formed can only increase the pressure of the tile sections against the I-beams. Moreover, the strain thus thrown upon the metallic rods 9, 12^a is in the general direction of the length of these rods, and the nettings 8, 10^a are so distributed as to strengthen the upper panels 5, 10 to a remarkable extent. The strength and stability of the arch are increased because of the fact that the rods 9 extend out into the tongue 13, thereby specifically strengthening this tongue.

The arch when constructed as above described is comparatively deep at its ends and shallower adjacent to its middle portion, having thus on its under side a true arch shape. This formation enables the parts to distribute a weight, and especially a weight resting in the direct middle of the arch,

in various directions favorable to the strength of the arch.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an arch construction, a pair of supporting members, each having generally the form of a truncated wedge and provided with a thin portion, said supporting members being so positioned that said thin portions engage each other at the proximate center of the arch, one of said supporting members being provided with a tongue and the other with a groove mating said tongue, said supporting member with said tongue being provided with reinforcing members which extend out into said tongue.

2. In an arch construction, a pair of supporting members, each having generally the form of a truncated wedge and provided with a thin portion, said supporting members being so positioned that said thin portions engage each other at the proximate center of the arch, one of said supporting members being provided with a tongue and the other with a groove mating said tongue, said portion provided with said tongue comprising an upper panel and a lower panel separated by an air space, and reinforcing members extending through said lower panel and into said tongue.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EUGENE F. FITZPATRICK

Witnesses:

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