

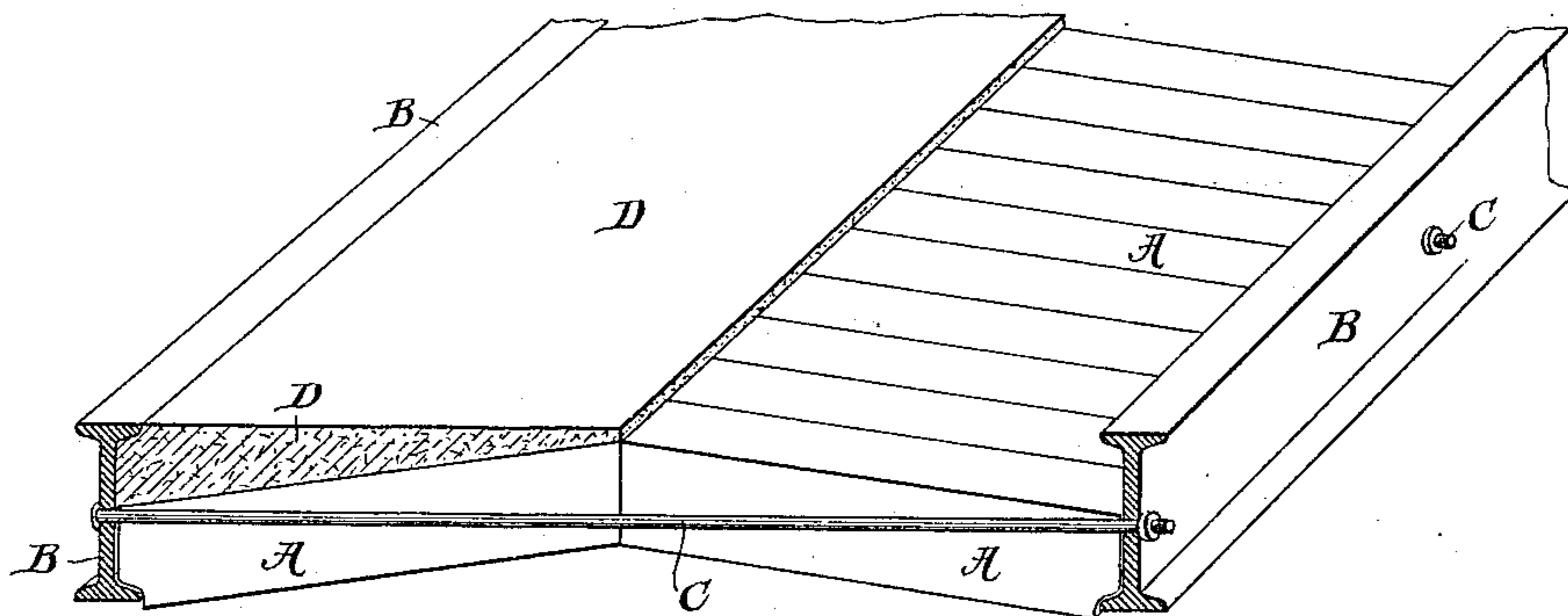
(No Model.)

C. C. GILMAN.

FLOOR ARCH.

No. 338,516.

Patented Mar. 23, 1886.



Attest:

Geo. H. Graham  
Geo. H. Botts

Inventor:

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per  
H. C. Schraud  
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# UNITED STATES PATENT OFFICE.

CHARLES CARROLL GILMAN, OF ELDORA, IOWA.

## FLOOR-ARCH.

SPECIFICATION forming part of Letters Patent No. 338,516, dated March 23, 1886.

Application filed October 15, 1885. Serial No. 179,918. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES CARROLL GILMAN, a citizen of the United States, and resident of Eldora, Hardin county, Iowa, have  
5 invented a new and useful Improvement in Floor-Arches, (Case F,) of which the following is a specification.

The object of my invention is to construct a light, substantial, and fire-proof floor-arch,  
10 which is inexpensive and can be easily erected.

To this end my invention consists in the combination of elements hereinafter described and claimed.

The accompanying drawing is a perspective view of a fire-proof floor-arch constructed  
15 in accordance with my invention.

In the construction of this floor-arch I make use of porous terra-cotta or terra-cotta lumber—a material which is thoroughly fire-proof,  
20 is a bad conductor of heat, and is capable of being sawed or worked with edged tools. I prefer this material above all others because it does not crack or disintegrate under the combined action of heat and water. I form  
25 blocks or joists A of this material, preferably hollow, and cut or form their ends at an angle to correspond with the rise in the span of the floor-arch. The blocks are of such length that two of them will span the space between  
30 the iron I-beams B.

In the drawing, I have shown a span of six feet between beams one foot in height. The blocks or joists are each about three feet long, eight inches deep, and four inches wide.  
35 These measurements may vary to a considerable extent, according to circumstances. I place said blocks or joists at such an angle to the iron beams that their upper and lower surfaces shall lie substantially parallel to the  
40 line of thrust of the arch, and I miter or cut their ends at such angle that the blocks will bear properly against each other, (without the intervention of mortar,) and against the webs of the iron beams, their ends adjacent  
45 to said beams being cut away so as to obtain a bearing on the flange of the same. In this construction, if the blocks extend two inches below the flanges of the beams, as shown, the remaining six inches of the depth of the  
50 blocks is within the lines of thrust, and is utilized in sustaining the load that may be

imposed thereon. If the blocks do not extend below the beam-flanges, no part of the depth of the joist is without or beyond the lines of thrust, and there is therefore no dead  
55 or useless weight to be carried. The iron beams B are prevented from spreading by the ordinary tie-rods, C, provided with adjustable nuts on their screw-threaded ends. The blocks are placed closely side by side, as  
60 shown, without making a mortar joint, and wherever a tie-rod is located the blocks are grooved on the side to a sufficient depth to allow the tie-rod to lie within the groove, so that no space may be left between blocks. In  
65 the triangular spaces above the blocks a light grouting, D, is placed, as illustrated at the left-hand side of the drawing.

An arch of the construction shown can be easily and quickly constructed, consists of  
70 few parts, is comparatively inexpensive, embraces no superfluous material, and requires no mortar in its construction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—  
75

1. The combination, with iron beams united by tie-rods, of an arch composed of two blocks of porous terra-cotta or terra-cotta lumber, placed in an inclined position to correspond with the line of thrust, substantially  
80 as described.

2. The combination, with iron beams united by tie-rods, of an arch composed of two blocks of terra-cotta lumber, placed in an inclined  
85 position corresponding with the lines of thrust, their abutting ends being in contact with each other without being united by a mortar joint, substantially as described.

3. The combination, with iron beams and tie-rods, of an arch composed of two blocks of terra-cotta lumber, inclined to correspond with the lines of thrust, and a filling of grouting in the triangular spaces above said blocks, substantially as described.  
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In testimony whereof I have signed my name in the presence of two witnesses.

CHARLES CARROLL GILMAN.

Witnesses:

SAML. G. SLOAN,  
H. H. GALUSHA.