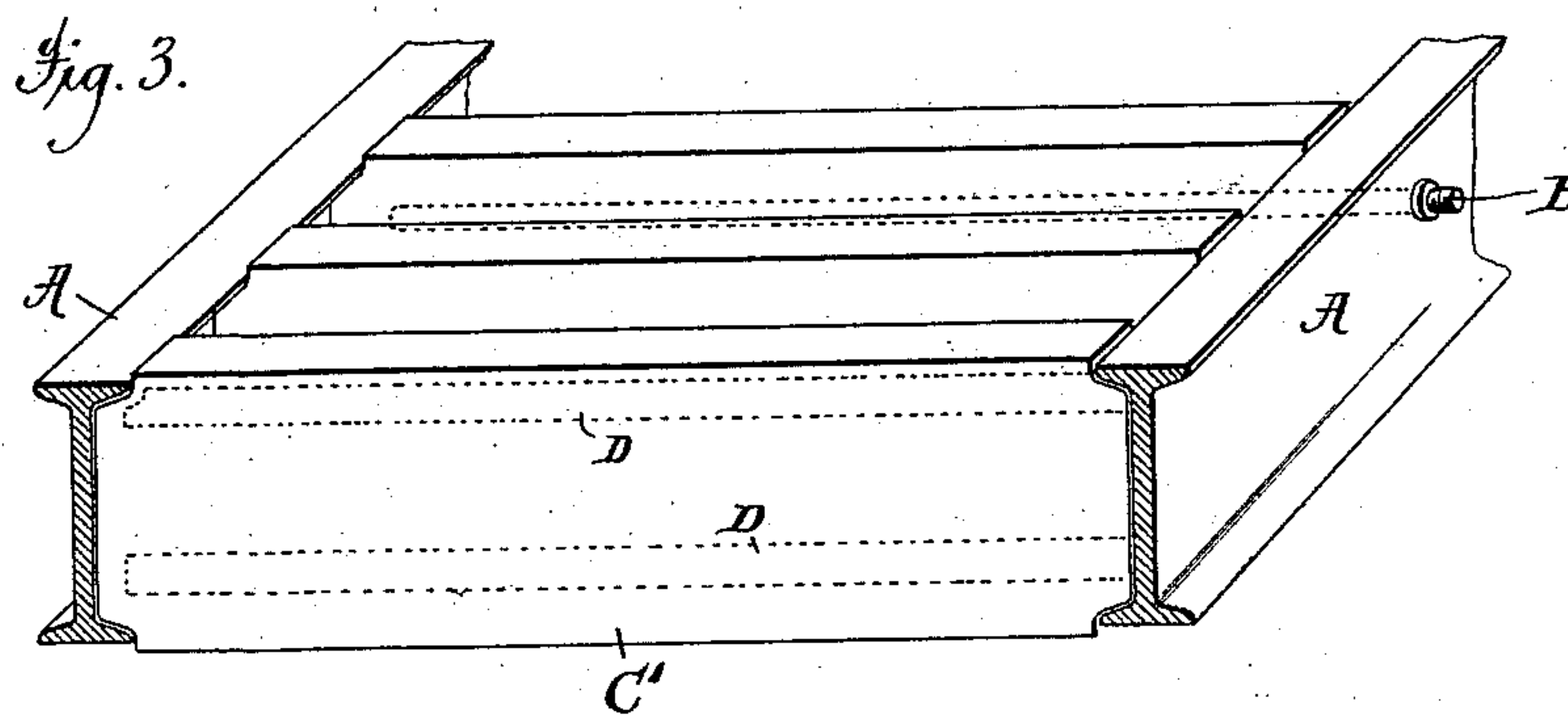
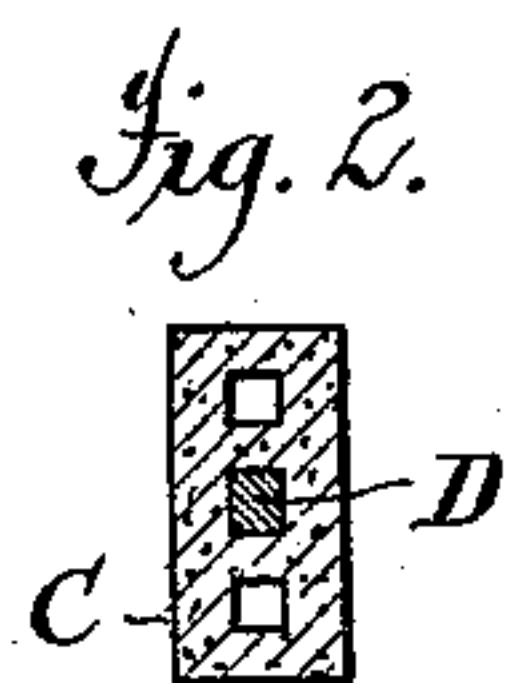
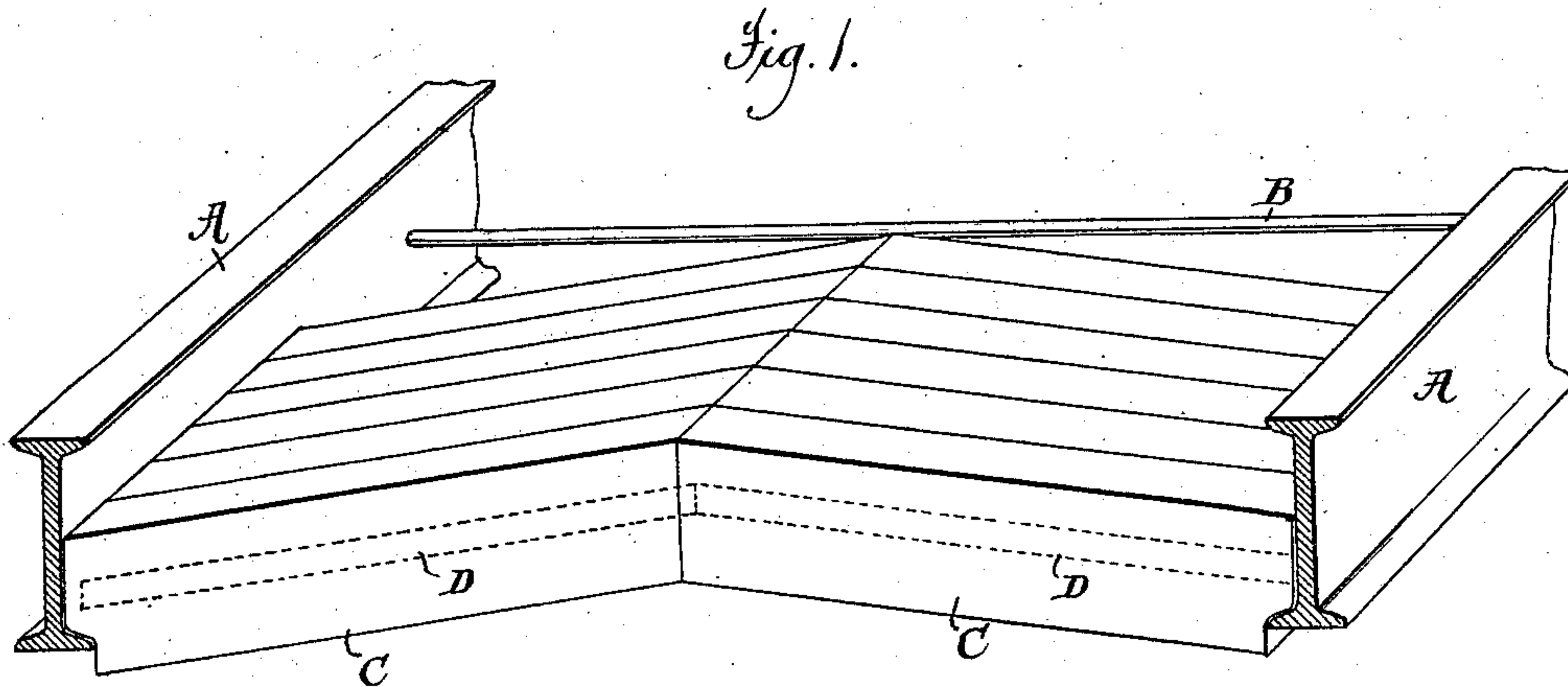


(No Model.)

C. C. GILMAN.
FIRE PROOF FLOOR ARCH.

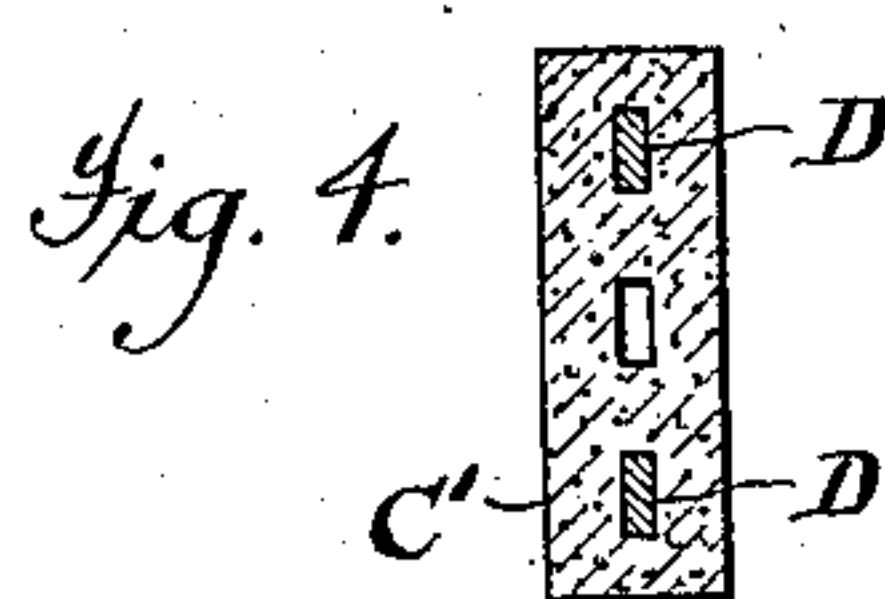
No. 345,379.

Patented July 13, 1886.



Attest:

Geo. H. Graham
Geo. H. Botto



Inventor:

Chas. C. Gilman,
per
J. O. Behrens
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES CARROLL GILMAN, OF ELDORA, IOWA.

FIRE-PROOF FLOOR-ARCH.

SPECIFICATION forming part of Letters Patent No. 345,379, dated July 13, 1886.

Application filed October 15, 1885. Serial No. 179,919. (No model.)

To all whom it may concern:

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

The object of my invention is to construct a floor-arch which shall be light as well as
10 exceedingly strong; and to this end my invention consists in combining with iron floor-beams blocks or joists of porous terra-cotta or terra-cotta lumber strengthened by rods or cores of iron cast in a hole or holes therein,
15 as fully hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figures 1 and 3 represent two forms in which my invention may be embodied; and Figs. 2 and 4 are cross-sections, respectively, of the blocks or joists shown
20 in Figs. 1 and 3.

Referring to the drawings, A represents iron I-beams connected by tie-rods B, provided with screw-nuts. In the space between
25 said beams I place blocks or joists of porous terra-cotta or terra-cotta lumber. I employ this material for the reason that it is an excellent non-conductor of heat, and will not crack like ordinary terra-cotta when subjected to the action of heat and water. Possessing these properties, and being absolutely fire-proof, it is far superior to other materials for the purpose in view. It can also be
30 sawed and worked with ordinary carpenters' tools, and thus it is possible to secure accurately-fitting joints.

The blocks or joists C, of terra-cotta lumber, are made from three to five feet in length, though they may be made shorter or longer,
40 if desired. Their depth is preferably from eight to fourteen inches, and their width from three to five inches. These blocks or joists are provided with one or more iron cores or rods, which are cast in one or more of the longitudinal passages or holes therein.
45 By casting the iron in said holes it becomes thoroughly united to the porous terra-cotta, and takes up at once any strain imposed on the latter, thus greatly strengthening said blocks
50 or joists.

In Fig. 1 I have shown the arch between the beams to consist of two joists, C, placed at an angle from the horizontal. Each joist is provided with an iron core, D, the ends of which, as well as the ends of the joists, abut
55 against each other and against the webs of the iron beams. Instead of casting the iron core in the central hole, a core may be cast in each of the outer holes, as shown in Fig. 4, or all of the several holes may be provided
60 with iron cores.

In Fig. 3 I have shown the arch between the beams to consist of one joist, C', provided with two iron cores, D; but said joist may have one only or several cores. In this construction the joists are placed in position by
65 slightly spreading the beams to permit their insertion, and finally causing the beams to approach each other and clamp the joists between them by tightening the nuts on the ends
70 of the tie-rods.

In both of these constructions the iron cores add greatly to the strength of the joists, so that greater weights than were heretofore allowable can be sustained by the floors laid
75 over said joists.

I am aware of the patent to J. J. Schillinger, No. 182,717, dated September 26, 1876, which describes anchors connected by tie-rods around
80 which plaster-of-paris is placed so as to cover and inclose the same, the whole forming an arched tile; but this construction differs essentially from my invention, and to it I lay
no claim.

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

1. The combination, with iron beams, of an arch consisting of porous terra-cotta or terra-cotta lumber strengthened by iron cast there-
90 in, substantially as described.

2. The combination, with iron beams, of an arch consisting of two blocks or joists of porous terra-cotta or terra-cotta lumber strengthened by rods or cores of iron cast in holes therein
95 and placed in an inclined position, substantially as shown and described.

3. The combination, with iron beams, of an arch consisting of porous terra-cotta strengthened by iron cast therein, said iron extending
100

from end to end of each block or piece, substantially as described.

4. The combination, with iron beams, of an arch consisting of porous terra-cotta strengthened by iron cast in longitudinal passages therein, said iron abutting against the webs of the iron beams, and tie-rods provided with screw-nuts, substantially as described.

In testimony whereof I have signed my name in the presence of two witnesses.

CHARLES CARROLL GILMAN.

Witnesses:

SAML. G. SLOAN,

H. H. GALUSHA.