

(No Model.)

F. FURNESS.
FLOOR FOR BUILDINGS.

No. 416,907.

Patented Dec. 10, 1889.

Fig. 1.

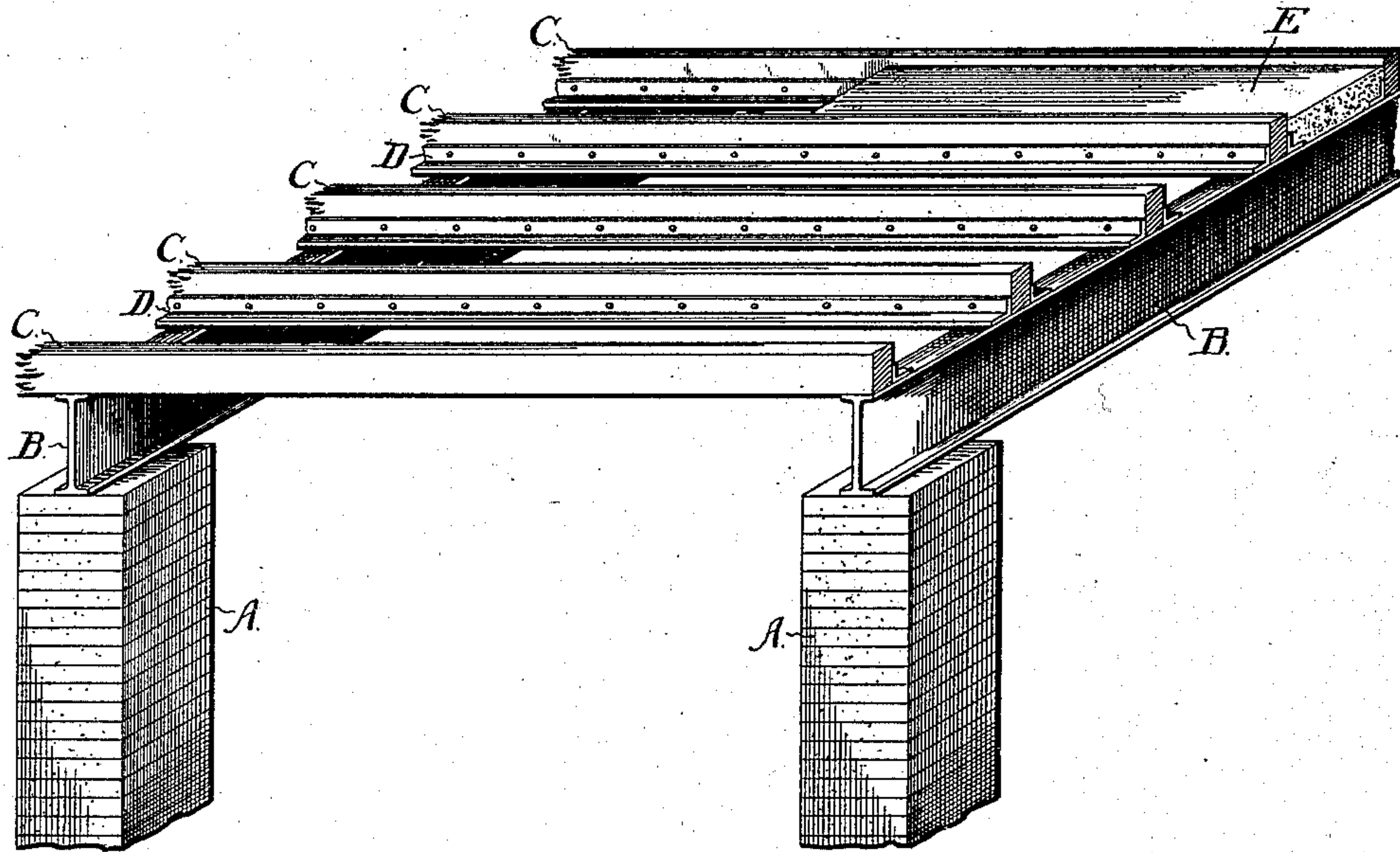


Fig. 2.

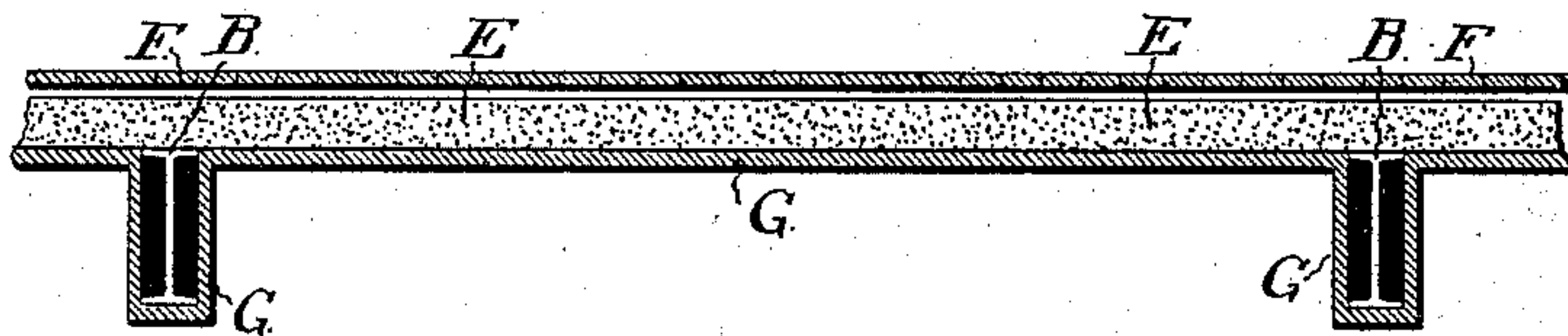
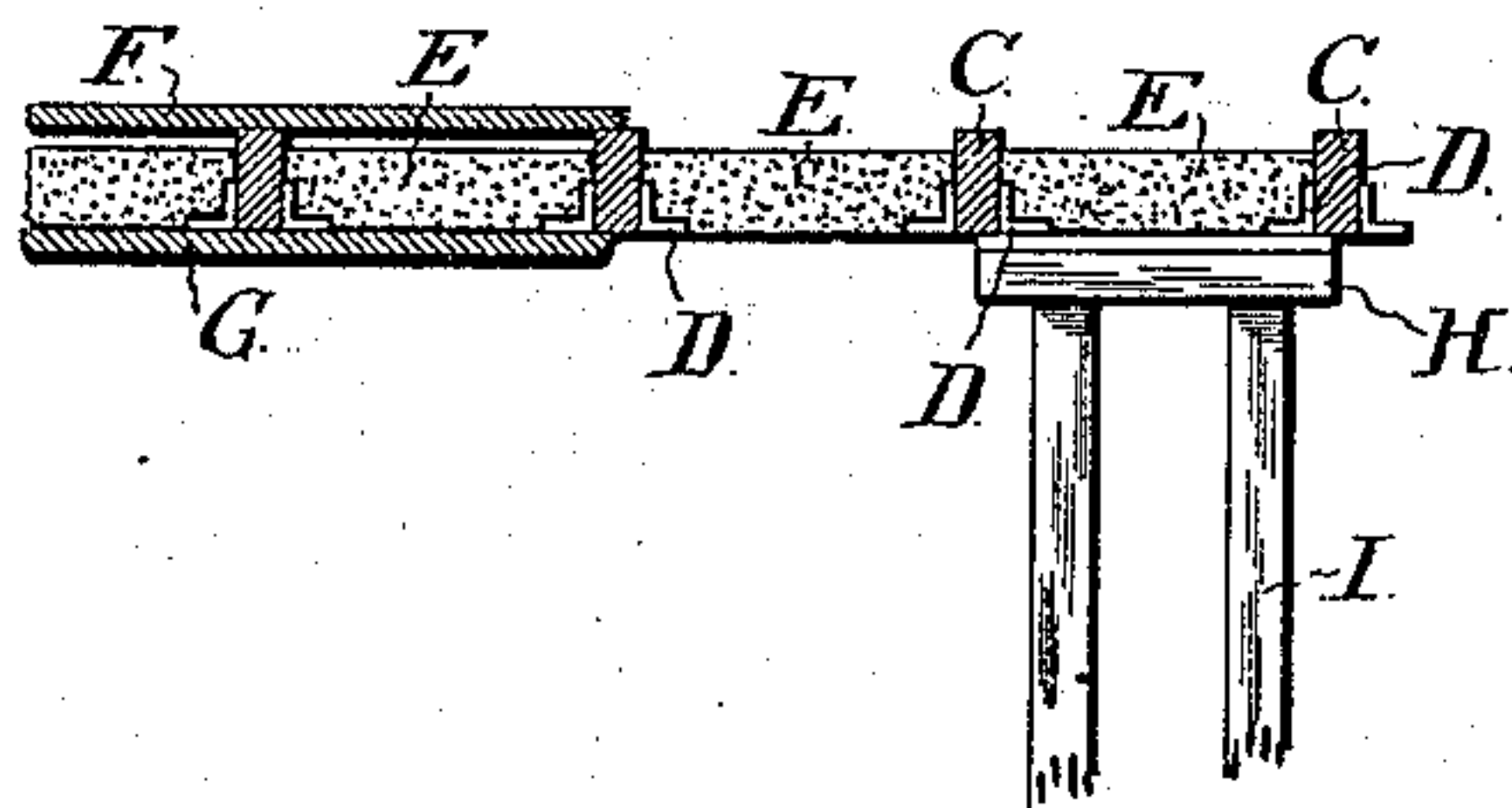


Fig. 3.



WITNESSES:

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FLOOR FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 416,907, dated December 10, 1889.

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To all whom it may concern:

Be it known that I, FRANK FURNESS, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Floors for Buildings, whereof the following is a specification, reference being had to the accompanying drawings, which illustrate several stages of the method of laying the floor as well as the finished structure itself.

The object of my invention is to obtain a practically fire-proof floor at much less expense than can be done by the usual modes of construction.

The so-called "fire-proof" floor most commonly used consists of a series of iron beams or girders laid close to one another, usually not more than thirty-six to forty-eight inches apart, between which are placed arches of brick. Transverse wooden sleepers are bedded in concrete on top of the brick arches and iron girders, the object of these sleepers being to afford nailing for the ordinary board floor. This method is open to the objection of cost, owing to the great number of iron girders required for a given area, and is also liable to be destroyed by fire in the room below, since any considerable warping or twisting of the iron girders from heat may loosen the bricks of the arches and allow them to drop, thus, of course, exposing the under side of the wooden flooring.

Referring to the accompanying drawings, I will proceed to describe my method of obviating these objections.

Figure 1 represents in perspective the supporting frame-work of the floor and a portion of the latter in a partly finished condition. Fig. 2 is a vertical section through the completed floor, and Fig. 3 is a vertical section at right angles to the sectional view of Fig. 2, illustrating upon the right-hand side one of the stages of construction, and upon the left-hand side the finished floor.

In Fig. 1 the structure is represented as supported upon piers A, though, of course, any other system of supporting may be adopted. At intervals of, say, eight feet are placed horizontal iron beams or girders B, upon which I arrange a series of transverse wooden joists C, parallel to one another and

at a distance from center to center of eighteen inches. Along the lower edges of these wooden joists, and upon both sides thereof, I attach angle-irons D, so as to form horizontal flanges of, say, two and one-half inches in width. I then fill in the spaces between the several pairs of joists with slabs of artificial stone or concrete E, preferably applying the same in the manner illustrated on the right-hand side of Fig 3, where H I represent a temporary supporting-floor arranged beneath a pair of joists and extending completely across the opening between them. The artificial-stone composition, in a plastic state, is poured into the receptacle thus formed by the joists and the temporary flooring, and after the composition has hardened the temporary flooring is removed, leaving the slab E of artificial stone suspended by the angle-irons D. As shown in the drawings, I allow the upper edges of the joists C to project slightly above the top of the slabs E. The wooden flooring F (in case that material is used) is then nailed to the top of the joists.

For tile floors and floors of a similar character the wooden joists form a key for the cement ground-work for tile floor, or the ground-work for a cement floor or floor of a similar character. The under side of the structure (which is of course the ceiling of the room beneath) is coated with plaster G to a thickness sufficient to fully protect the under sides of joists C. I have found that a floor thus constructed is fire-proof under the most severe tests, it being practically impossible to dislodge the concrete slabs or to set fire to the joists C.

The advantages in the cheapness of construction over the ordinary floors above referred to are obvious.

In the foregoing description I have specified the use of angle-irons as the preferred mode of constructing the flanges to support the concrete slabs; but it must be understood that I do not limit my claim to this particular form of flange; and in using the term "flanged" in my claim I mean thereby to include any underhanging support, whether continuous or not, which is capable of properly sustaining the slabs. Furthermore, it must be understood that by the term "floor-

ing" in my claim I mean to indicate not only boards, but tiles, cement, and generally any material which may be used for the final surface of the floor as a whole.

5 I am aware that it is not new to construct pavements by the use of concrete arches supported by correspondingly-arched plates which are suspended upon flanges. I do not claim such a structure, since the object of
10 my invention is to construct a floor for interior use which is flat on its under side and capable of being plastered, like an ordinary ceiling, and, furthermore, has on its upper side projecting portions of the wooden beams
15 adapted to permit ordinary flooring to be nailed thereto. My invention is thus adapted to produce, without any expensive departure from ordinary systems of construction, a thoroughly fire-proof floor, which is also ca-
20 pable of being plastered on the under side, as above stated.

Having thus described my invention, I claim—

As an improvement in floors, the combination, with a series of main girders, of a series 25 of flanged wooden joists resting upon the upper or top surface of the girders and supported thereon, a series of slabs of artificial stone suspended between the flanges of the joists, but not enveloping the top or bottom 30 of the same, flooring laid directly on top of said joists, and a coating of plaster or similar material applied to the under surface of the joists and slabs, substantially as hereinbefore described.

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Witnesses:

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