

H. L. HINTON.
 FIREPROOF FLOOR CONSTRUCTION.
 APPLICATION FILED AUG. 10, 1908.

970,500.

Patented Sept. 20, 1910.

Fig. 1.

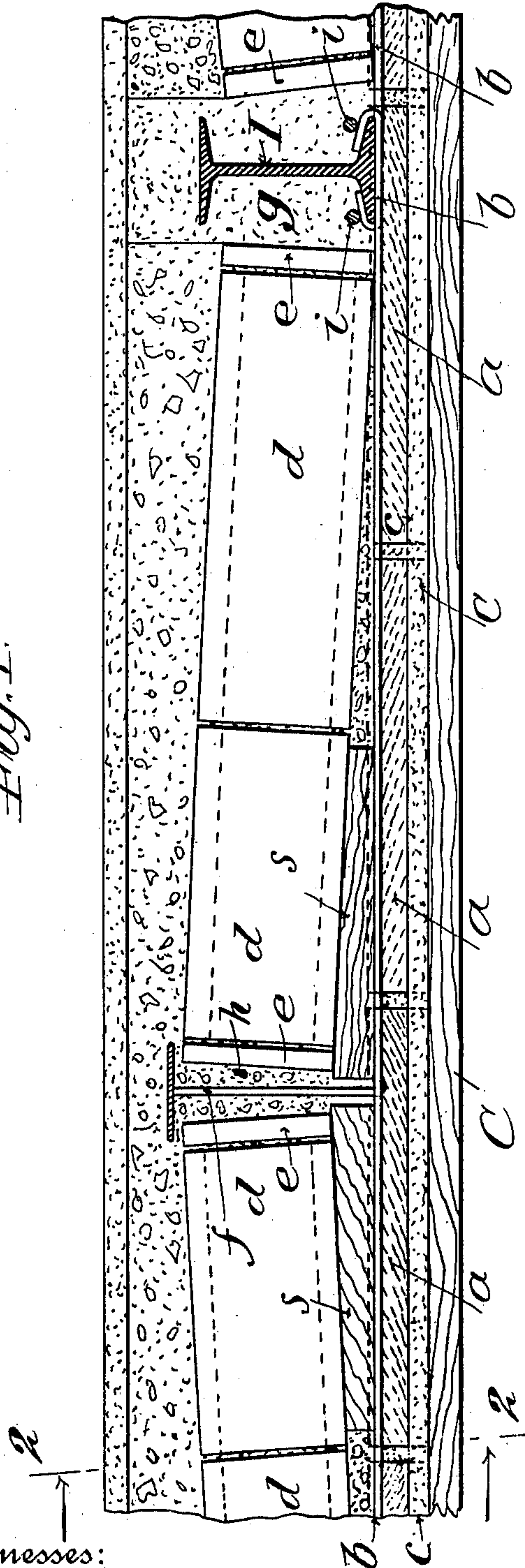
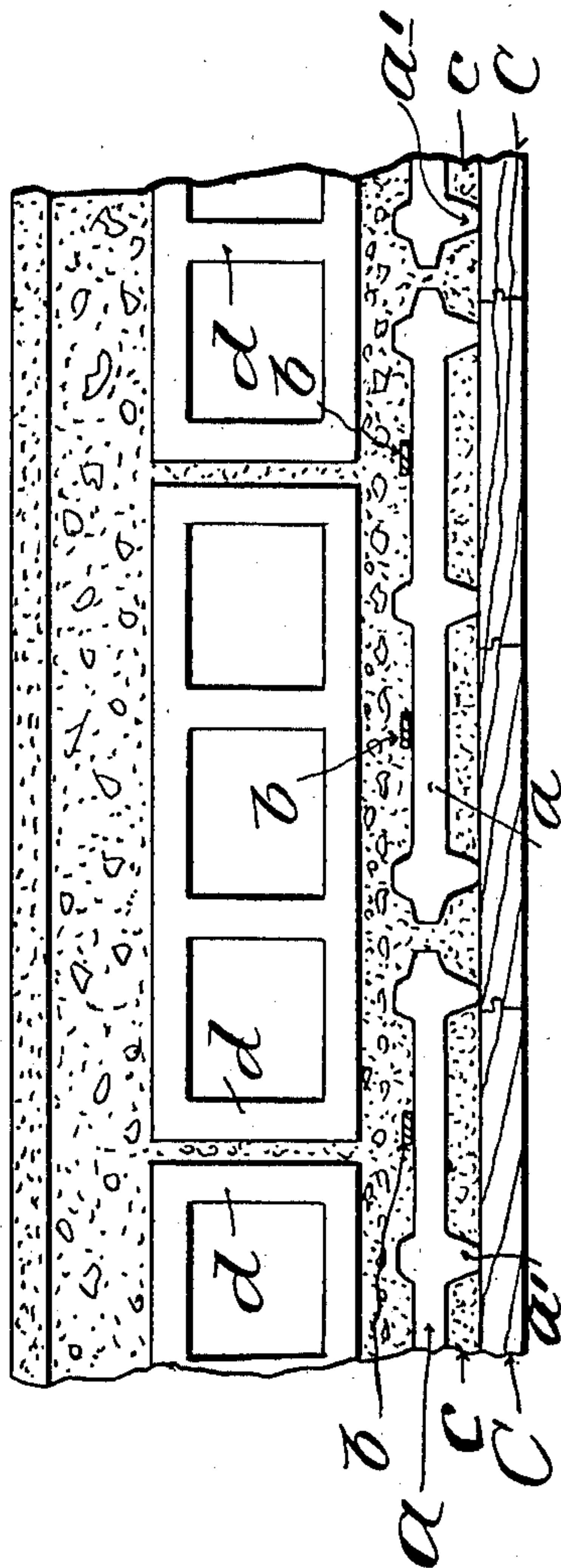


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY L. HINTON, OF NEW YORK, N. Y.

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970,500.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed August 10, 1908. Serial No. 447,697.

To all whom it may concern:

Be it known that I, HENRY L. HINTON, a citizen of the United States, residing in the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Fireproof Floor Construction, of which the following is a specification.

My invention relates generally to that form of building construction in which hollow fire proof tiles are used in connection with I beams to form the floor arches, and the object of my improvements is to provide a more economical form of floor construction in such buildings, together with greater supporting power for the cost and amount of material employed than heretofore.

Broadly stated, my invention consists in the system of floor construction hereinafter described, involving a lower course of cement in connection with specially formed ribbed tile blocks and cement reinforcing beams around the usual steel I beams.

It will be best understood by reference to the accompanying drawings, of which—

Figure 1 shows a transverse section across the I beams and Fig. 2 a longitudinal section on the line 2—2, Fig. 1, of a section of floor constructed in accordance therewith.

The same letters of reference indicate corresponding parts throughout.

In constructing a floor according to my invention, the steel I beams, I, being in place, a centering, C, is erected in the usual manner. The surface of the centering is treated in any convenient way to prevent the adhesion of mortar thereto, as by covering it with oiled paper, or by paraffining the surface of the boards. Upon the centering, C, I then place the tile plates, *a*, *a*, which are provided with ribs or projections, *a'*, *a'*, whereby the body of the plates is held up from the centering, leaving an open space underneath. Tie rods, *b*, are then put in place between the I beams. The tie rods, *b*, are preferably narrow rolled steel plates. They pass under the bottoms of the I beams, and are held in place by being bent up and hammered down over the lower flanges of the I beams, as shown in Fig. 1. The tie rods, *b*, not only hold the I beams together, but also assist in supporting the lower course of cement by their embedment therein. After the tie rods, *b*, (of which, for proper construction, there should be at least

one for each of the tile plates, *a*) are in position, the lower course of cement, *c*, is formed by pouring in soft cement, or grout, so as to make a layer of such depth as to rise above the tie rods, *b*, partially covering the lower flanges of the I beams. The grout employed should be of such consistency as to flow into and fill the spaces under the plates, *a*, between the projections, *a'*. This layer of cement, *c*, having been allowed to take its initial set, triangular sectioned tile supports, *s*, *s*, formed of wood or any suitable material, are put in position. The thickness of the supports, *s*, at their inner ends and their slope is determined by the pitch to be given to the arch, the tiles, *d*, of which rest thereon. The supports, *s*, should run down to a thin edge at their outer ends, so as to give a continuous support to the arch blocks, or in case they are cut short, the void should be filled in with cement, as shown in Fig. 1 of the drawings. The hollow tile arch blocks, *d*, *d*, *d*, *d*, are then put in position between the I beams, resting on the supports, *s*, *s*. In case the blocks, *d*, are so placed that their voids run from side to side of the arch, the openings of the voids are covered by the tile slabs, *e*, *e*, *e*, *e*, set in front thereof. The opening between the blocks, *d*, *d*, at the center of the arch is then filled in with cement of good quality to form the key-block, *h*, of the arch. The supplementary cement beams, *g*, are then built up from the course, *c*, around the I beams, I, to such a height as may be required, and the space above the arch is filled in the usual manner, and any usual or suitable floor applied.

Preferably tension rods, *i*, *i*, are put in place in connection with each of the I beams, before the cement beams are built in.

In case the arches are of such width as to make additional support for the tie rods, *b*, desirable, I catch under each tie rod a hooked wire, *f*, which extends up through and is embedded in the cement of the key block *h*, when this is formed.

In building a floor in this manner, I prefer to give the arch formed of the hollow tiles, *d*, *d*, as great a pitch as the thickness of the floor will permit, as this not only strengthens the arch, but reduces the amount and weight of the dead filling on top of it.

It will be noted that the supplementary cement beams serve as skewbacks for the arch, which are naturally adjusted to the pitch of the arch by the method of construction, thus

obviating the cost of specially formed skew-backs and the labor of setting. Certain other important advantages are also obtained by the combination of the cement beams with the steel I beams. Thus the floor section can be made thinner, with consequent economy in space and in cost of filling, since the same supporting strength can be obtained by the use of a relatively shallow beam, as with a deep I beam without the cement. The tendency of the I beams to buckle and cripple when loaded excessively is also greatly reduced.

In addition to the other features of economy of this construction, the labor cost is also greatly reduced, as such a floor structure can be put in place by ordinary laborers, without the employment of skilled artisans.

What I claim as new and desire to secure by Letters Patent is:

1. A fire proof floor construction comprising I beams a lower course formed of ribbed tile plates and cement flowed into the spaces between the ribs under said plates, and forming a layer above the plates, tie rods connecting the I beams embedded in said layer, a pitched arch of hollow tile blocks between the I beams, cement beams surrounding the I beams, and bonding with said lower course and forming skew-backs for the arch, and a cement key block for the arch bonding with said lower course, substantially as set forth.

2. In a fire proof floor construction the combination of a lower cement course, arch supporting blocks whereby the pitch of the arch is determined resting thereon, hollow tile arch blocks resting on said supporting blocks, I beams and cement beams surrounding the I beams and forming skewbacks for the arch, substantially as set forth.

3. A fire proof floor construction comprising I beams, a pitched arch of hollow tile blocks between the I beams, a course below said arch formed of ribbed tile plates and cement flowed into the spaces between the ribs under said plates and forming a layer above the plates, cement beams surrounding the I beams and bonding with said lower course and forming skewbacks for the arch, and a cement key-block for the arch bonding with said lower course, substantially as set forth.

4. A fire proof floor structure comprising a pitched hollow tile arch, cement courses above and below said arch, key-blocks and skewbacks for said arch formed of cement and bonding with both said courses and tile plates embedded in the lower cement course, substantially as set forth.

In testimony whereof, I have hereunto subscribed my name, this 7th day of August A. D. 1908.

HENRY L. HINTON.

Witnesses:

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