(No Model.)

N. COWSILL.

FIRE PROOF TILE.

No. 462,534. Patented Nov. 3, 1891.

Fig: 1.

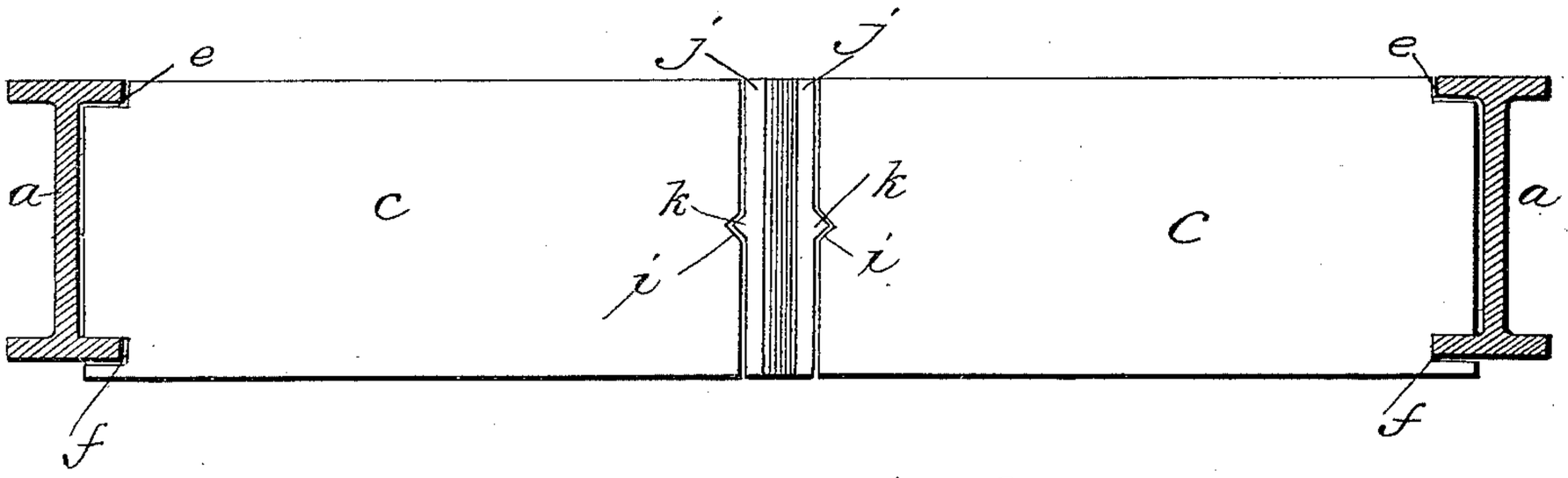


Fig: 2.

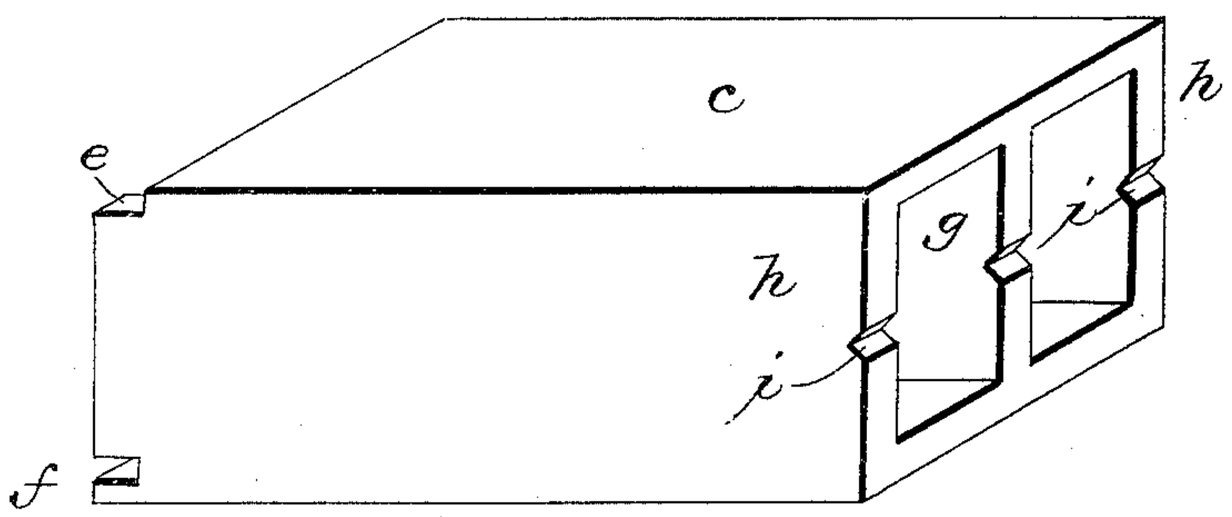


Fig: 3.

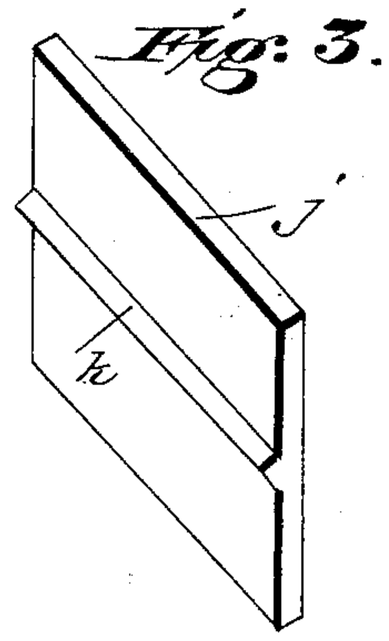
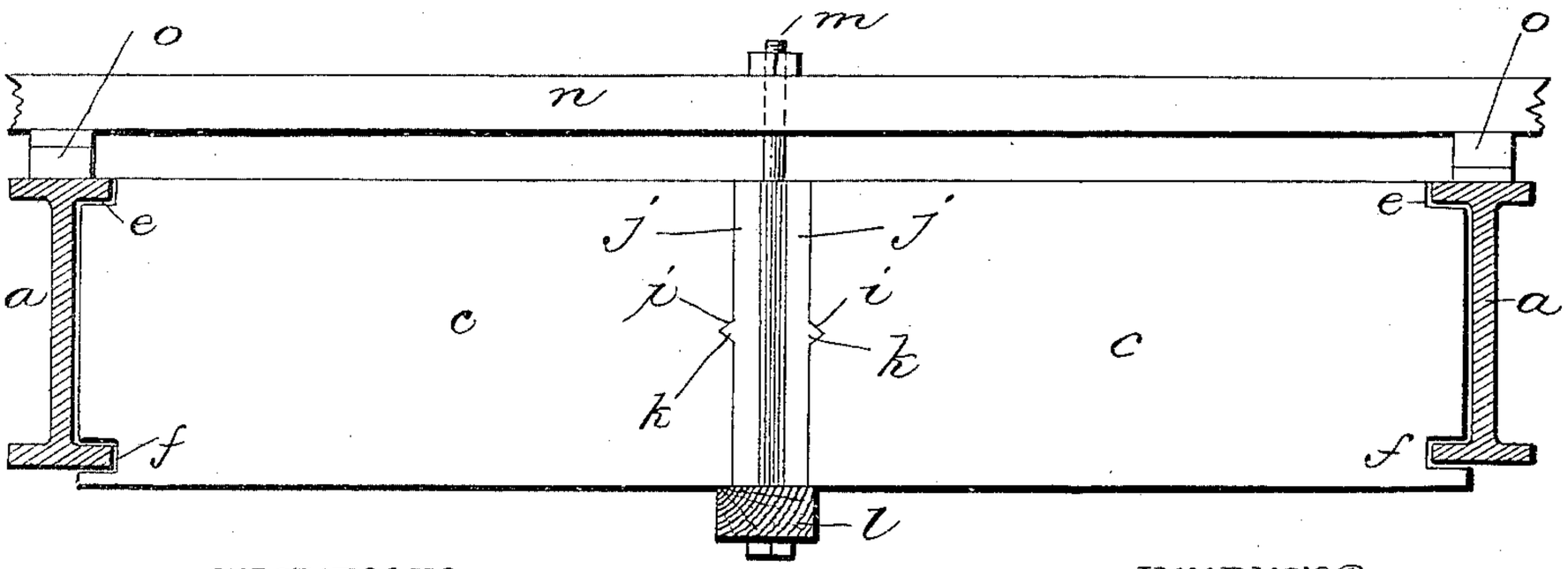


Fig: 4.



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FIRE-PROOF TILE.

SPECIFICATION forming part of Letters Patent No. 462,534, dated November 3, 1891.

Application filed February 9, 1891. Serial No. 380,751. (No model.)

To all whom it may concern:

Be it known that I, NATHAN COWSILL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a certain new and useful Improvement in Fire-Proof Tiles, of which the following is a full, clear, and exact description.

The object of this invention is to obviate the necessity of the employment of skewbacks in connection with that class of tiles which are laid between girders or beams in the erection of fire-proof buildings. Setting tiles with skewbacks is expensive in anywise, not only by reason of the first cost of the skewbacks themselves, but because of their liability to break, and also the necessity for trimming either the tiles or the skewbacks in order to fit and adjust them. In my invention I dispense with these skewbacks and form the ends of the tiles themselves in usual manner to engage the flanges of the **I** beams or girders and construct the adjacent ends of the tiles with substantially parallel faces and make a joint between these faces by means of substantially flat and solid slabs and mortar or cement or like plastic material.

I will describe the principle of my invention first, and then particularly point out and distinctly claim the part or improvement which I claim as my invention.

In the accompanying drawings illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is an elevation showing two tiles set between two girders or beams, the latter being in cross-section. Fig. 2 is a perspective view of the tile, and Fig. 3 is a perspective view of the slab; and Fig. 4 is a view similar to Fig. 1, showing the manner of supporting the tiles until the plastic material sets.

The letters *a a* designate usual **I** beams or girders commonly employed in the construction of fire-proof buildings.

c c are tiles similar to one another. These tiles, as shown in Fig. 2 more particularly, are notched at *e* to engage the lower surface and edge of the upper flange of the girder or beam, and are also notched at *f* to engage the lower flange of such girder or beam. The webs *g* of the tiles run longitudinally of the tiles, so that when set the said webs will be at right angles to the girders or beams. The webs and parallel walls *h h* of the tiles are provided with notches *i*, arranged in alignment, the said notches being angular or curvilinear and of slight depth.

j is a slab of substantially the dimensions of the cross-section of the tile and of slight width or thickness. This slab is provided with a rib *k*, which is adapted to fit into the notches *i* of the tile. The slab is made by preference of terra-cotta or other usual tile material.

In setting tiles constructed in accordance with my invention I use a timber *l* and arrange it beneath the tiles in the plane and in the direction of the length of the joints of the tiles and suspend the said timber by means of the adjusting-bolts *m* from cross-bars *n*, which are supported upon beams or timbers *o*, laid longitudinally of the beams or girders. As the tiles are set in place between the beams or girders with their faces having the notches *i* adjacent, I apply a slab *j* to the face of each tile and then fill up the space between the said slabs with mortar, cement, or other plastic material, and then let such plastic matter dry or set, after which the scaffolding just described may be removed.

The drawing shows the relative size rather exaggerated in order to make the principle of the invention clearer. In practice the slabs *j* will almost meet between the tiles, so as to require as little plaster or cement or the like as possible, in order to avoid a loose joint incident to shrinkage by reason of excess of moisture in the plaster or cement.

Not only may tiles be laid very expeditiously and securely in accordance with my invention, but there is a very considerable saving of cost, for it will be observed that the skewbacks are entirely dispensed with, and that the slabs which obviate their use are of inconsiderable cost comparatively to the ordinary skewbacks.

I do not limit the use of my invention to the scaffolding illustrated in Fig. 4 and herein described, but may employ any other means for supporting the tiles until they are set. In this Fig. 4 the tiles are supposed to be set and the scaffolding may be removed. It will be understood that in laying the tiles they will be crowned about a half-inch in order to compensate for the shrinkage of the mortar.

When tiles are used in which the webs run at right angles to the girders or beams, these webs and sides being narrow afford very little support for the mortar, and consequently, should weight be placed upon the tiles before the mortar is dry, the mortar will be pressed out of place and into the hollows of the tiles and the setting thus rendered imperfect. By the use of my slabs broad solid surfaces are afforded for the mortar and the hollows closed up at their ends, so that the mortar cannot escape.

I do not mean to restrict my invention to tiles whose meeting ends are parallel. They need not be so.

While I prefer to employ the ribs *k* and notches *i* in the use of my slabs and for the reason that they assist in holding the slabs in place until the cement sets, yet I do not limit my invention to the slabs and tiles provided with such connecting mediums. In fact, the ribs and notches may be dispensed with entirely, and simple slabs having plane faces on both sides may be employed. Neither do I limit my invention to slabs of equal thickness throughout, as the said slabs may vary in thickness from top to bottom or otherwise, as may be desired. Any form of slabs may be employed which will serve in the capacity of the slabs described, which may be designated that of a "keystone."

Neither do I limit my invention to slabs whose faces are smooth, for in some cases it may be quite desirable to have the outer faces roughened, grooved, or otherwise provided with projections or indentations the better to take the cement or mortar.

The slabs might be economically made of metal, such as cast-iron.

What I claim is—

1. Fire-proof tiles constructed at one end to fit the girders or beams and made hollow from end to end and having substantially parallel adjacent ends, and slabs interposed between such adjacent ends to close these ends and combined with the tiles by plaster, cement, or other plastic material laid in between the slabs, substantially as described.

2. A tile having its webs running longitudinally, so as to be presented at right angles to the girder or beam and having transverse notches *i*, combined with a slab constructed with a transverse rib *k* to engage the notches of the tile, substantially as described.

3. Fire-proof tiles constructed to be inserted in pairs between the girders or beams and having their ends to come next to the girders or beams shaped to engage such girders or beams, and having their adjacent ends notched transversely, combined with slabs having ribs to engage such transverse notches, and plane adjacent faces to receive plaster, cement, or other plastic material, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 9th day of February, A. D. 1891.

NATHAN COWSILL.

Witnesses:
WM. H. FINCKEL,
PHILIP F. LARNER.