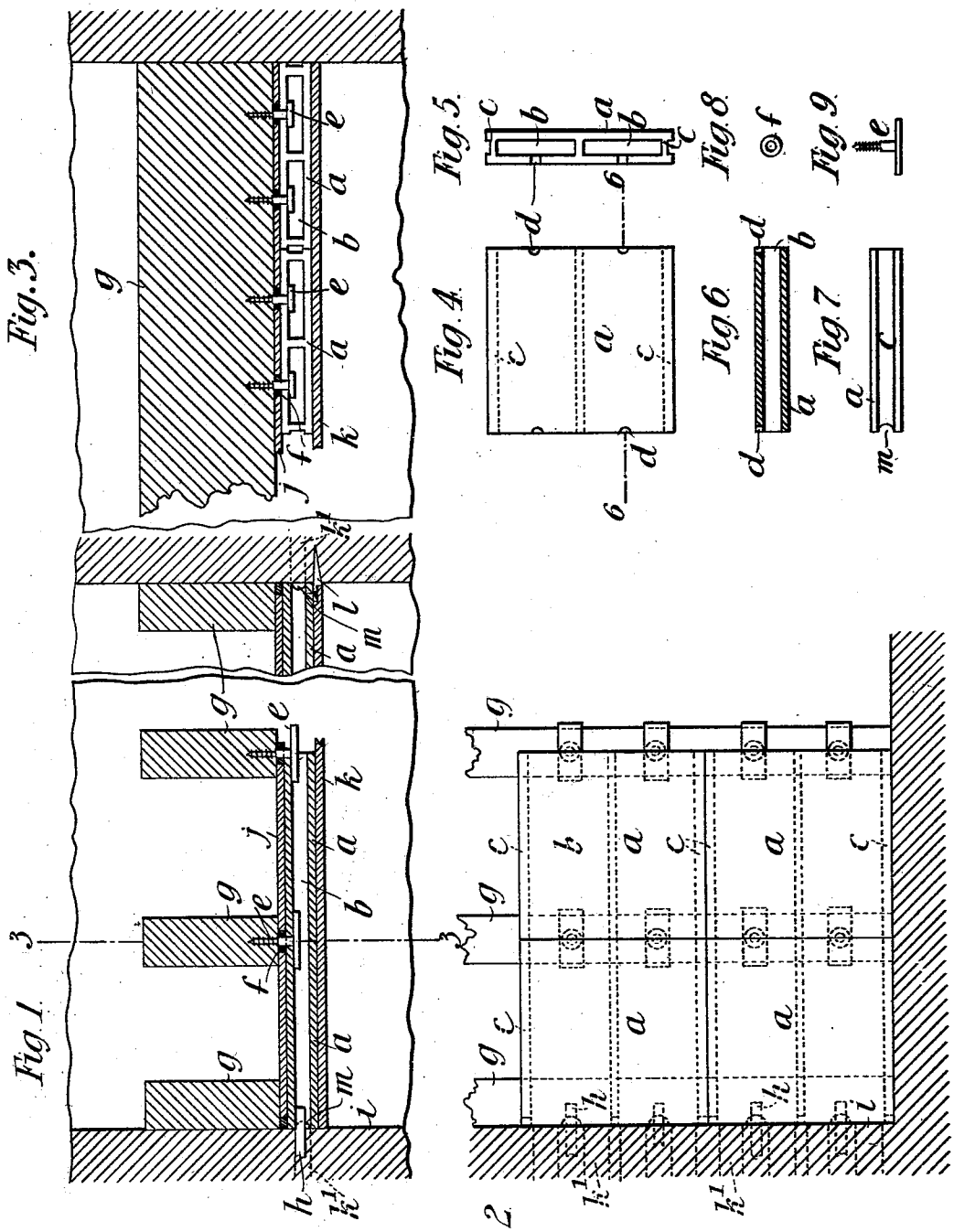
(No Model.)

W. A. BURR.

FIREPROOF CEILING.

No. 513,874. Patented Jan. 30, 1894.



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FIREPROOF CEILING.

SPECIFICATION forming part of Letters Patent No. 513,874, dated January 30, 1894.

Application filed September 21, 1893. Serial No. 486,084. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALFRED BURR, a subject of the Queen of Great Britain, residing at Berkhamsted, England, have invented new and useful Improvements in and Connected with Fireproof Ceilings, of which the following is a specification.

This invention relates to improvements in and connected with fireproof ceilings, the object being to provide such ceilings in connection with ordinary wooden floor joists.

In carrying out my invention I employ what I term flat tubular tiles, that is to say, tiles which are preferably square in plan and formed with one or more hollows passing through them from one end or side to the other but closed at the other ends or sides. The surfaces and edges of my tiles are grooved or otherwise suitably roughened in order to form a key for the plaster or cement with which the tiles are covered when they are fixed in position. The upper surface of each tile on two of its opposite edges is provided with semi-circular notches so that when the ends of two tiles butt together circular holes are formed which are for the purpose of allowing the tiles to be fixed to the floor joists by means of turn-buttons or clips screwed into the joists, the screw or pin of the turn-button or clip fitting in the said notches, while the turn-buttons or heads of the clips pass into the hollows of the tiles and hold them against the floor joists. Washers or distance-pieces of suitable material are provided between the under sides of the joists and the upper surfaces of the tiles so as to leave a space between the same to allow of the whole of the upper surface of the tiles forming the ceiling being covered with a grouting or coating of suitable cement or composition such as plaster of paris. In some cases the under sides of the tiles are not covered with cement, and may be glazed or ornamented.

To enable my invention to be fully understood I will describe the same by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of part of a ceiling constructed according to my improvements. Fig. 2 is a view of the ceiling looking from below. Fig. 3 is a section on the line 3—3, Fig. 1. Figs. 4 and 5 are a plan and edge view of one of my tiles detached; and Fig. 6 is a section on the line 6—6, Fig. 4. Fig. 7 is an edge view of one of the tiles which comes against a wall. Fig. 8 is a plan of one of the washers or distance-pieces; and Fig. 9 is an elevation of one of the turn-buttons or clips.

a, *a* represent my tubular tiles which (as shown in the drawings) are preferably square in plan but they may be made rectangular or of other suitable shape.

b, *b* are the hollows passing through the tiles from end to end.

c, *c* are the closed sides or ends of the tiles advantageously grooved as shown and *d*, *d* are the semi-circular notches on the upper surface of each tile.

e, *e* represent the turn-buttons or clips for fixing the tiles.

f shows the washers or distance-pieces, and *g* the ordinary floor joists.

To construct a ceiling with my improved tiles the openings of the first row of tiles are passed over nails *h* or the like driven into the side walls *i* of the building, one of the washers or distance-pieces *f* or a portion of the same being placed between the under sides of joist *g* and the upper surface of the tile as clearly shown in Fig. 1; the other end of each tile is then fixed to the floor joist by screwing pins or shanks of the turn-buttons *e* into the joists, the pins or shanks of the turn-buttons fitting into the recesses *d* in the end of the tile and the head or clip passing into the hollow of the tile so as to hold the tile against the distance-pieces or washer *f* between the tile and the floor joist. The openings of the next row of tiles are then placed over the heads of the said turn-buttons, the recesses *d* thereof fitting over the pins thereof and so on for each row of tiles the edges of the last row of tiles against the wall being supported by nails *l*, *l* driven into the wall. In consequence of the first and last rows of tiles being upheld by the nails *h*, *h* and *l*, *l*, the recesses *d*, *d* in the edges of the tiles abutting against the walls can be dispensed with.

In practice I find it convenient to employ two turn-buttons for each tile, as shown in the drawings, but in some cases one only or more than two may be employed as will be

readily understood. The tiles having thus been fixed in position to form the ceiling the upper surface of the tiles is then covered with a grouting or coating *j* of suitable cement or composition such as plaster of paris so as to fill in the space between the upper surface of the tiles and the joists *g* and to fill or partly fill the grooves in the closed sides *c*, *c* thereby forming a kind of key to assist in holding the tiles together and to make a tight joint. *k* represents the coating of plaster or cement on the under side of the tiles and forming the surface of the ceiling but as before stated this coating *k* may be dispensed with in which case the under sides of the tiles are advantageously ornamented or glazed.

The tiles are as before mentioned grooved or roughened on their surfaces so as to form a key for the coatings *j* and *k* of cement or plaster.

k', *k'* represent the openings which can, with advantage, be made in the outer walls so as to allow of the passage of air through the tiles, and *m*, *m* represent the grooves or openings in the edges of the tiles which come against the said openings so that the air may circulate from one row of tiles to another. By this mode of construction it will be obvious that if my tiles are made of a suitable refractory material such as is usually employed in the manufacture of tiles, I obtain a ceiling on wooden floor joists which is practically fire-proof, which can be easily made and at a comparatively low cost.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A flat tubular tile for forming fire-proof ceilings, such tiles being formed with semi-circular notches for receiving the pins of fixing turn-buttons, or clips as, and for the purposes, set forth.

2. A fire-proof ceiling formed of flat tubular tiles having semi-circular notches such as described, the said tiles being fixed to ordinary floor joists by means of turn-buttons or clips such as *e* with washers or distance-pieces *f* between the upper surface of the tiles and the under side of the floor joists, the upper and under sides of the tiles being covered or coated with suitable cement or plaster, substantially as described.

3. A flat tubular tile for fire-proof ceilings provided with grooves or openings such as *m*, as, and for the purpose, hereinbefore described.

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