(No Model.) 2 Sheets—Sheet 1.

P. H. JACKSON.

FRAME FOR ILLUMINATING TILES.

No. 405,778. Patented June 25, 1889.

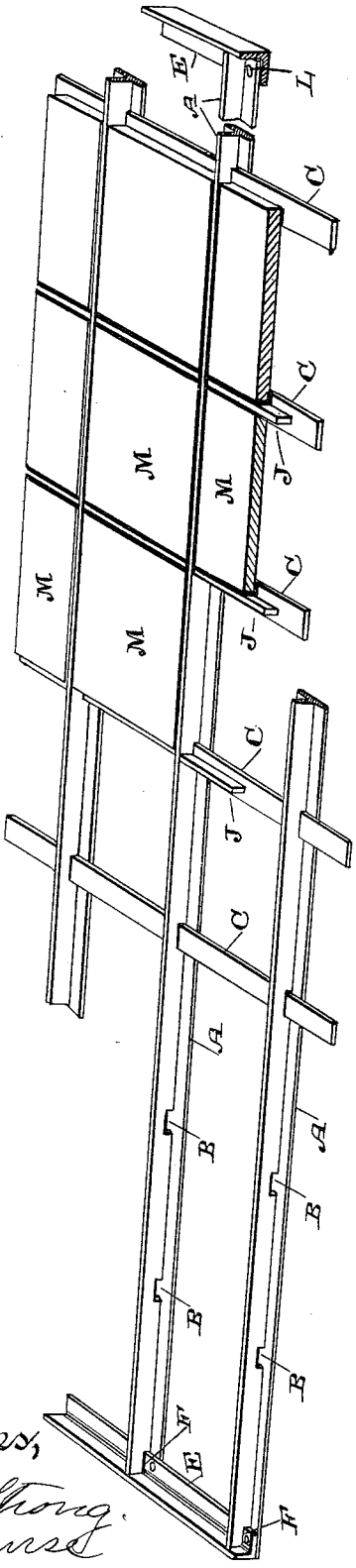


Fig. 1.

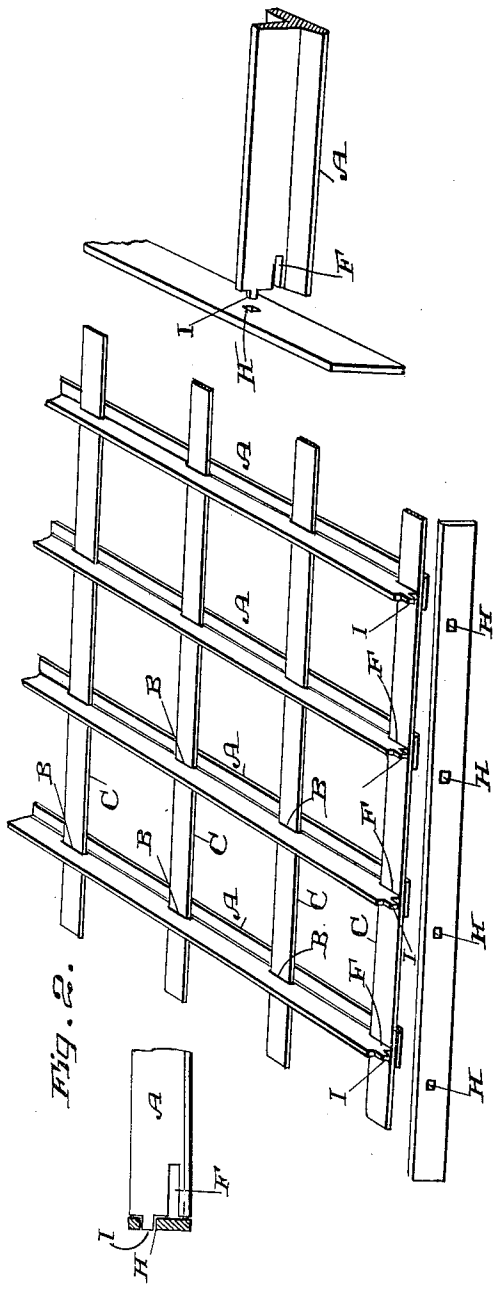


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

P. H. JACKSON.

FRAME FOR ILLUMINATING TILES.

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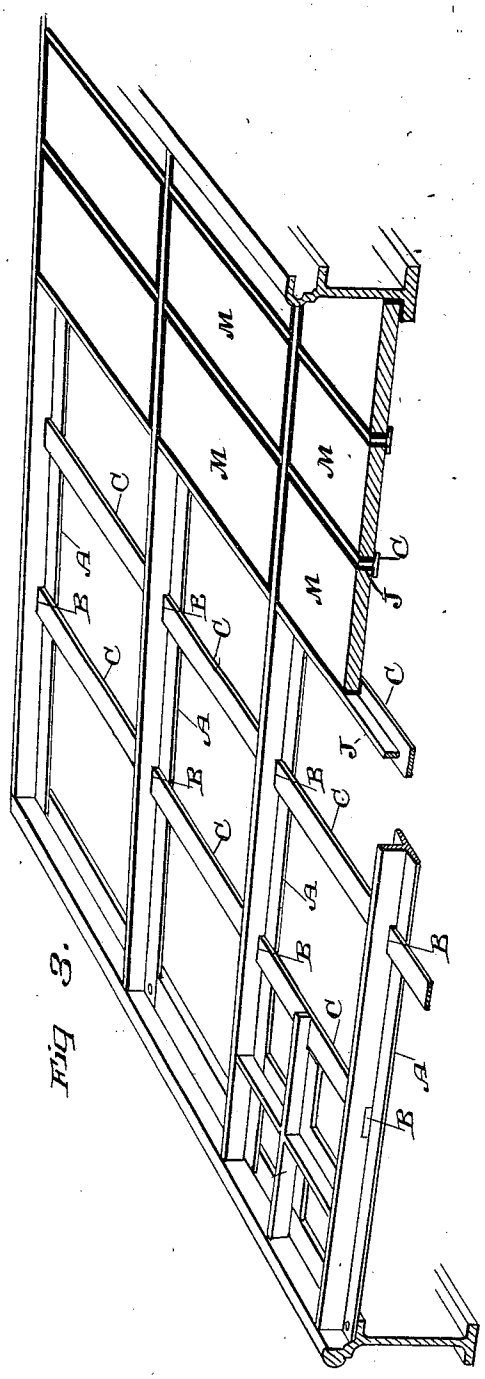


Fig. 3.

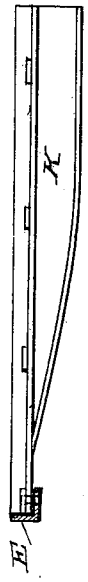


Fig. 4.

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UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

FRAME FOR ILLUMINATING-TILES.

SPECIFICATION forming part of Letters Patent No. 405,778, dated June 25, 1889.

Application filed March 25, 1889. Serial No. 304,729. (No model.)

To all whom it may concern:

Be it known that I, PETER H. JACKSON, of the city and county of San Francisco, State of California, have invented an Improvement in Frames for Illuminating-Tiles; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improvement in illuminating-tiles to be employed as gratings covering vaults, roofs, floors, and other surfaces; and it consists of the peculiar construction and arrangement of sash-bars wherein the glass is to be held between said bars.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view showing the construction of my sash and manner of securing the parts together. Fig. 2 is a modification showing a different way of securing the side bars. Fig. 3 is a view showing these side bars dispensed with where the tiles are used between beam-risers. Fig. 4 shows the manner of constructing the T-bars when they are made of cast-iron.

It is usual to make illuminating-tiles of this kind with heavy cast-iron sash-frames glazed with thick glass, and where a number are together, to prevent leak at the joints between the tiles and to support their sides, bearers are used, secured to the sides of the tile-frames, the seam between the tiles being filled with cementing material. Wrought-iron frames are also used, made of several pieces riveted together and the spaces filled with cementing material; but these are quite expensive of construction, which is also the case with cast-iron frames on account of the cost of patterns and the continual alteration of the same to suit different lengths and various outlines of buildings where they are to be used, and to be of equal strength with wrought-iron frames they must be made much heavier and be supported by bearers, which causes an additional expense.

The object of my invention is to produce a light and inexpensive frame for illuminating-tiles. In order to do this I take rolled T-iron as it comes from the rolling-mill, and these furnish the main supporting-bars. They are cut into the required lengths and then punched with slot-holes at or about the neutral axis of the bar, and through these slots are passed small flat bars of wrought-iron, so that the flanges of these T-bars and the flat bars form supports for the glass.

A A are the T-iron bars, having holes punched through them, as shown at B, this point being just above the bottom transverse flange of the bar A. These holes are such a distance apart as to admit the required size of a glass with which the frame is to be filled.

C C are small flat bars of iron, which pass through these slots B, the T-bars being strung upon the flat bars, as shown, until as many of them have been put together as will serve to fill the required space, leaving the proper distance between these bars to receive the glass or tiles which form the covering. For the ends I use angle-iron bars E, and the ends of the T-bars have slots punched in them, as shown at F, so that the slots will fit over the edges of the horizontal flanges of the angle-iron bars, and rivets or bolts will then be put through the flanges of the angle T-iron bars, thus holding them firmly together.

In some cases it may be found preferable to let the bottom flanges of the T-iron bars rest upon the tops of the horizontal flanges of the angle-iron bars, as shown at L, Fig. 1, in which case the T-bars will not need to be slotted, but the parts may be riveted together; or, if desired, instead of employing angle-iron bars and slotting the T-bars, I may use flat iron bars on edge and having holes punched through them, as shown at H, Fig. 2, and the ends of the T-bars may be formed with projecting tongues, which will pass through these holes and be riveted therein, thus holding the frames securely together. The flanges of the T-bars being lower than the transverse bars C, to bring them up to the same level and form a solid support for the glass I introduce wood, iron, or other solid material; or this space may be filled with cement of any suitable description, so as to make the proper support and bed for the glass. The spaces formed by this rectangular frame are of such size as to allow the glass to rest upon the bearings, as before described, and to leave a place between the glass and frame into which any suitable cementing material may be placed, which will harden and hold the glass and iron firmly in position, filling all interstices in slot-holes, stiffening the frame,

and uniting the whole in one piece and preventing leakage.

When the tiles are to be subjected to severe usage, as foot-travel, I introduce small vertical bars J between the edges of the glass M, the spaces being sufficient to admit these small iron bars and the necessary amount of cement to support and secure when in place and secure the glass as well. The top of these bars protect the edges of the glass in one direction and the top of the T-iron in the opposite direction. For roof-lights these bars J would not be needed, as they are not subjected to severe usage.

The spaces in the frame before mentioned as being blocked up by a single glass may be made up by two or more glasses united by any cementing or other material and filling the space usually occupied by a single glass, as in Fig. 3.

Any suitable plastic filling-cement may be employed to make the glass bear evenly all around and to secure it in place, or a fusible cement may be run in, which fills to an even bearing beneath the edges of the glass, and also at the sides between it and the iron all around; or, if desired, Portland cement may be used to make the bearing-surfaces for the glass and to fill up at the sides, or any other plastic material which will harden and stick to the glass and iron.

In some cases, where the proper size rolled T-iron bars cannot be obtained, I may use cast bars having similar-shaped flanges and having a rib projecting below, as shown at K, Fig. 4, for the purpose of strengthening the lower part below the slot-holes, the slot-holes in this case being cast in the bars, and the flat wrought bars being passed through the slot-holes, as before described.

In cases where beam-risers are shown at each end of the illuminating-tile, the end bars may be omitted, as the risers themselves serve to support and protect the outer edges of the glass, as shown in Fig. 3.

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

1. An illuminating-tile frame consisting of T-iron supporting-bars, slotted, as shown, and transverse flat bars passing through said slots and forming supports for the tiles, substantially as herein described.

2. An illuminating-tile consisting of a frame-work having the slotted T-iron bars, with flat bars passing transversely through the slots, with glass blocks fitting into the spaces and supported by the frames beneath, with a cementing and filling material beneath and between the glass, substantially as herein described.

3. An illuminating-tile consisting of the frame-work formed of T-iron bars having slot-holes, with transverse flat bars passing through said slots, forming rectangular spaces for the reception of glass, outside bars of angle-iron, and the flanges of which the T-bars are secured, substantially as herein described.

4. An illuminating-tile consisting of the frame-work composed of T-iron bars having slot-holes, and flat bars passing transversely through said slot-holes, angle-iron end pieces fitted and bolted to the ends of the T-iron bars and forming a frame with regular spaces, glass plates fitting said spaces and supported upon the horizontal surfaces of the bars, and a support and filling of cement beneath and around the glass, substantially as herein described.

5. An illuminating-tile consisting of a frame-work of slotted T-iron bars, with flat bars passing through said slots, and angle or equivalent iron end pieces to which the T-iron bars are secured, and a filling of cement or metal strips upon which the glass is supported, vertical strips of iron between the glass, and a surrounding filling of cementing material whereby the whole is secured together, substantially as herein described.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:
S. H. NOURSE,
H. C. LEE.