March 25, 1969 YOUUKOU SAKUMA 3,434,257

TILE-SETTING FRAME APPARATUS

Filed Jan. 18, 1967

Fig. 1

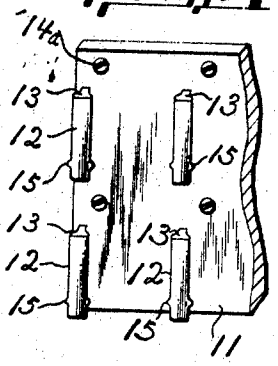


Fig. 2

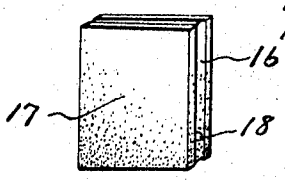


Fig. 3

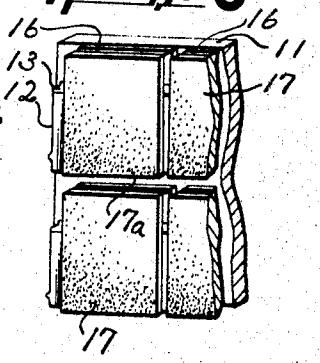


Fig. 4

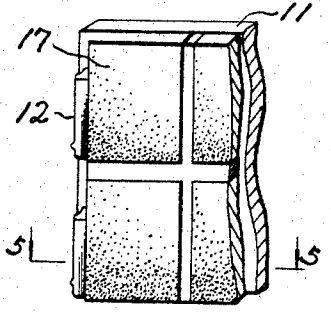


Fig. 5

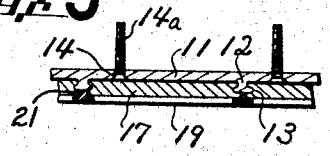


Fig. 7

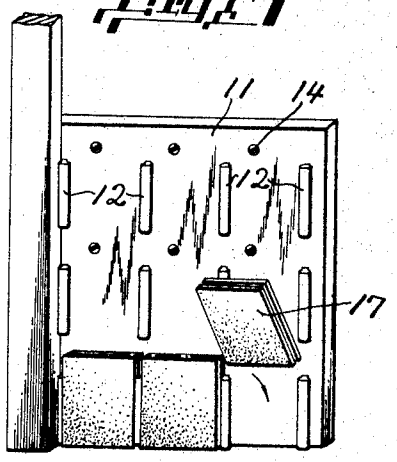
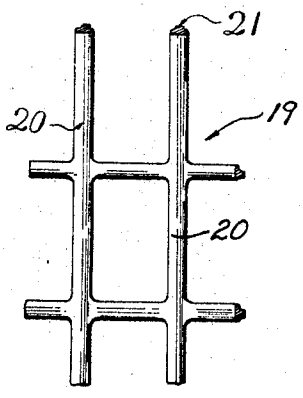


Fig. 6



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3,434,257

TILE-SETTING FRAME APPARATUS

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U.S. Cl. 52—387 1 Claim

ABSTRACT OF THE DISCLOSURE

A tile setting frame having integral T-shaped ribs thereon which interlock with grooves in the sides of the tiles and filler strips which extend between said tiles and overlap the surface thereof.

The present invention relates to a tile-setting frame apparatus for use in building and construction, and more particularly to a frame apparatus for setting pieces of tiles made from porcelain, synthetic resin or other molded products for facing with tiles the walls, panels and other tiling-necessitated sections of the houses and other buildings.

The tiling of this kind has conventionally been practiced either by placing pieces of tiling material on the tile-setting faces on which an adhesive is applied and then providing a proper joint filler to the joints of the tile pices, or by first setting the tile pieces in a lattice frame and then applying this setting on the desired surfaces. But these methods require considerable skillfulness on the part of the tilers for achieving orderly and evenly-surfaced tile-setting. Further, since the tiles are supported on the setting faces only with the adhesive, they are likely to come off due to difference of humidity and temperature of other dynamic elements such as impact or vibration.

A primary object of the present invention is to provide a tile-setting frame with which any person can easily and decently practice tile-setting at any desired place.

It is another object of the present invention to provide a tile-setting frame whereby the tile facing can be achieved easily and the joining of the tiles can be effected orderly and securely.

It is still another object of the present invention to provide a tile-setting frame which permits extremely solid tile joint whereby the set tiles are kept free from coming off even if subjected to difference of humidity or temperature, or to impact or vibration.

Various features and advantages of the present invention will become clear from reading the following descriptions specifying an embodiment of the present invention shown in the accompanying drawings, in which:

FIGURE 1 is a partial perspective view of a base plate of the tile-setting frame according to the present invention;

FIGURE 2 is a perspective view of a piece of tile;

FIGURE 3 is a partial perspective view of tiles fixed on the base plate;

FIGURE 4 is a partial tile-set surface view in which the spaces between the tiles are joined up;

FIGURE 5 is a sectional view as taken on the line 5—5 of FIG. 4;

FIGURE 6 is a partial perspective view of a tile joint filling band; and

FIGURE 7 is an illustration showing the condition in which the tile pieces are being set in position.

Now the invention will be discussed on its particular structure shown in the above-described drawings, and first the reference is made to FIG. 1 in which is shown, in part, the base plate **11** of the tile-setting frame, said base

plate being molded from a plastic material and having integrally formed on its surface the projected ribs **12** which are arranged parallel to each other at a constant interval both lengthwise and crosswise.

Each of said ribs **12** is T-shaped in section and formed with a head **13** at its tip. At the side edges of said head **13** are formed a pair of projections **15** at the identical position for each rib **12**, and at proper positions on the surface of said base plate **11** are formed holes **14** for receiving fastening rivets **14***a*.

Each tile piece **17** made from porcelain, plastics or other molding materials has formed around its periphery a groove **16** arranged so as to fitly receive the head **13** of each rib on the surface of said base plate **11**, and on the inside of said groove **16** are formed recesses **18** at the positions corresponding to the projections **15** provided at the side edges of said rib head **13**.

The latticed frame-shaped packing band **19** which is also made from plastic material separately comprises a front piece **20** provided with any desired coloring and pattern and a back piece **21**, each piece being so formed as to correspond to the positions which cover the joint spaces **17***a* between the tile pieces **17**. Thus, by applying a suitable adhesive agent, the ribs **12** and the filling band **19** are bonded together tightly to thereby fill up the joint spaces **17***a* and the tile pieces **17** are thus excellent in joint filling operation may be attained by conventional jointing means using cement or other similar materials.

The base plate **11** of the tile-setting frame, which is composed as described above, is beforehand set at fixed length both lengthwise and crosswise and is provided on its surface with parallelly arranged ribs **12** in a number corresponding to the number of tile pieces **17** to be used. After binding this base plate **11** on a desired place to be tiled and fixing the same solidly with rivets **14***a* or other means, the tile pieces **17** are inserted into the spaces between the ribs **12** on the surface of the base plate **11** in such manner that the heads **13** of the ribs **12** are suitably fitted into the grooves **16** on the periphery of the tile pieces **17** and that the projections **15** formed on both sides of the head **13** of each rib **12** are fitted into the recesses **18** formed in the inside of each groove **16**, whereby the tile pieces **17** are fixed in position securely. Since te position of the projections **15** and the shape of the tile pieces **17** are set uniform, the tile pieces **17** are arranged extremely orderly on the surface of the base plate **11**.

The spaces **17***a* between the adjoining tile pieces **17** are covered by the plastic-made filling band **19** so formed as to correspond to the shape of said spaces **17***a*, said band being bonded on the surface of the heads **13** of the ribs **12** by applying a suitable adhesive thereto. The resulting surface configuration is extremely decent and also stable.

It is of course possible in this case to cement conventional filling material instead of the filling band **19** of the present invention.

As described above, the tile pieces **17** are not only bonded on the surface of the base plate **11**, but also supported by the ribs **12** of which the heads **13** are fitted in the grooves **16** of the tiles, resulting in an extremely solid tiled condition. Further, the jointing sections of the spaces **17***a* and the tile pieces **17** are thus excellent in interchangeability and mass-productivity, and the tiling operation can be effected very economically.

It is also to be understood that various changes and modifications in structures in practicing the tiling operation can be made within the scope of the present invention without departing from the spirit of the present invention described in the appended claim.

What is claimed is:

1. A tile-setting frame apparatus on which a plurality of tiles are mounted comprising: a base plate, a plurality

of integral ribs arranged at fixed intervals and horizontally and vertically spaced from one another on the surface of said base plate, an enlarged head on each of said ribs, projections on each of the enlarged heads; the tiles being preformed and including peripheral grooves receiving the heads of the ribs, recesses formed in the grooves of said tile pieces for receiving the projections, to maintain the tile pieces in mounted position whereby the head portions of the ribs are shaped as to engage the grooves of adjacent tile pieces arranged on opposite sides of the rib, and a filling band secured between the mounted adjoining tile pieces and serving to cover the joint spaces.

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