March 29, 1932. M. HEYMANN 1,851,834

METHOD OF MANUFACTURING METAL TILES

Filed June 17, 1929

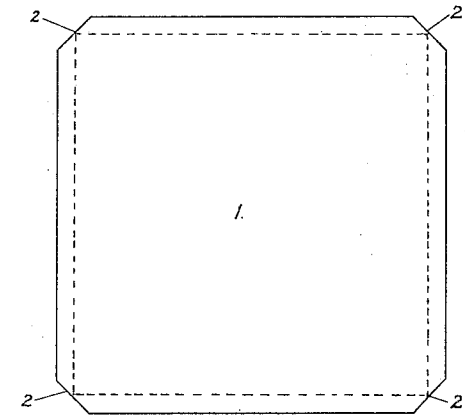


Fig. I.

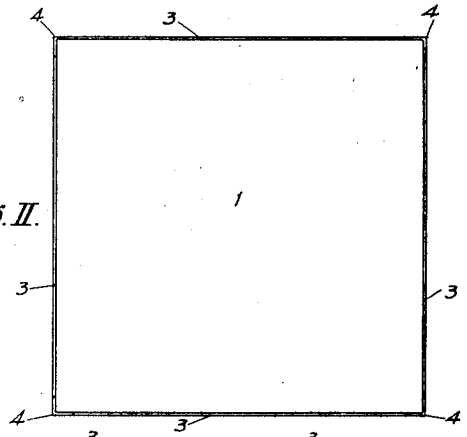
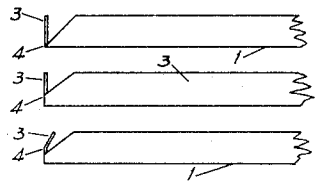


Fig. II.



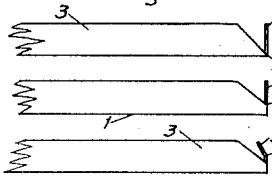


Fig. III.

Fig. IV.

Fig. V.

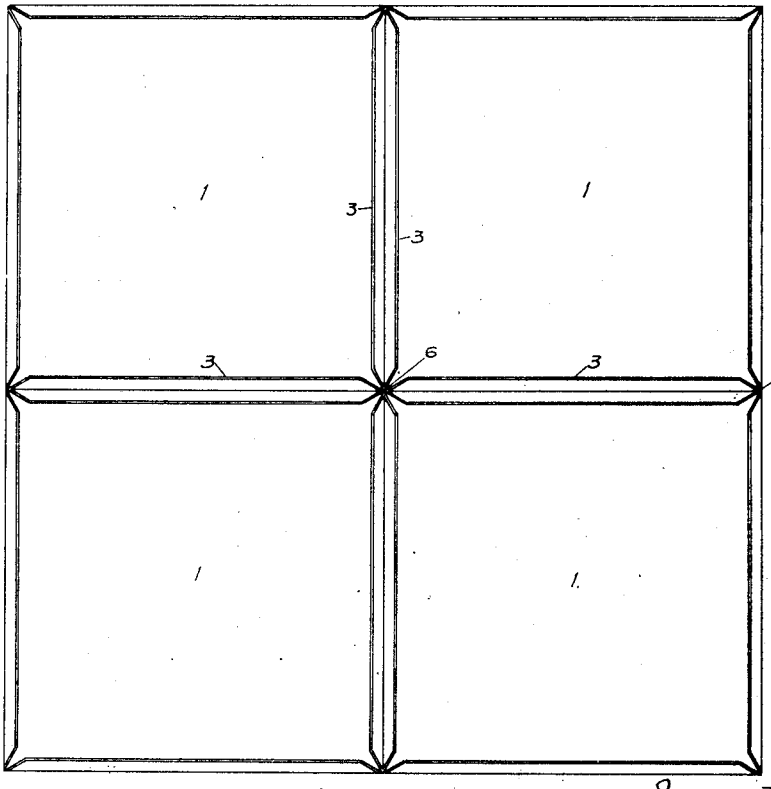


Fig. VI.

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UNITED STATES PATENT OFFICE

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METHOD OF MANUFACTURING METAL TILES

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This invention relates to an improved method of manufacturing metal tiles, cornices, skirtings, cappings and the like for use as wall coverings, and the object thereof is to produce a tile or similar article which is cheap to manufacture, light to handle, and adapted to be easily and securely fixed, and to form a united surface without appreciable gaps through which exudation of cement is likely to occur. While my invention is more particularly designed for the production of articles for interior use, I do not intend to exclude its application to external decoration.

Tiles of glazed earthenware or the like as now used are relatively expensive to make and heavy to handle, while they are also liable to become broken or damaged in transit or manipulation. Various substitutes have from time to time been proposed, amongst others, relatively large sheets of zinc having a lithographed pattern representing a number of contiguous tiles or the like, and such sheets are affixed to the surface to be covered by means of a white lead or similar cement. Newly plastered or cemented walls are, however, not well adapted to take these sheets, because adhesion is not perfect until the surfaces have thoroughly dried out; moreover, if any acid is present in the cement or plaster, it tends to set up a chemical action which is injurious to the metal, and relatively rapid deterioration of the sheets ensues, which can only be remedied by the replacement of the entire sheet.

My invention consists in a process for manufacturing metal tiles wherein triangular portions are first removed from the corners of a flat metal blank by straight line cuts making equal angles with the sides, next turning up flanges on the edges of the blank of such depth that the apices of the triangular gaps so formed at the corners are in the plane of the tile face, and then pressing the tile face outwardly to a depth of 1 or 2 millimetres from such apices, so as to form a tile having a cupped body portion with closed corners, and edge flanges separated by triangularly shaped openings which do not extend to the plane of the body of the tile.

In carrying out my invention I press or stamp from suitable sheet metal such as zinc, copper, aluminium, steel, or the like, of a relatively thin gauge, blanks of slightly larger dimensions than those of a separate tile of the kind required, or of one element adapted to constitute with other similar elements a skirting, cornice or the like. I remove the corners from the blanks so formed by a straight line cut making equal angles with the sides, the size of the triangle removed being such as to leave free for bending over on each edge of the blank a strip of metal of slightly less width, measured from the external face of the blank, than the final width of the flanges hereinafter referred to, by means whereof the tiles are retained in place. These side strips are next turned up, by appropriate dies, so that they stand vertically to the face of the blank, and in order to prevent exudation of the cement or mortar from between the meeting edges of contiguous tiles when fixed in place, it is desirable that such edges should be as straight as possible; furthermore, for the same reason, and for the sake of appearance, it is desirable to dispense with radiused corners in plan view, such as usually occur in stamped or pressed work, and it is also advisable to key the tiles together by means of the cement by which they are affixed. I obtain these results by subjecting the blank with its vertical flanges to pressure between appropriate male and female dies, of the type usually employed for metal drawing or pressing, such that its external face or body is "cupped" or pressed out by drawing the metal to a distance of about one or two millimetres below the apices of the triangular gaps at its corner when the tile is regarded in side elevation (see Figures III and IV) thus forming a body with closed corners from the point 4 downwards; by the same or a subsequent operation, the flanges are turned in slightly so that they incline towards one another and stand at an angle of somewhat less than 90 degrees with the body of the blank, so that in cross-section the body and the flanges form an enlarged dovetail. In this manner a tile is produced having in-turned flanges extending around its whole periphery, such flanges

having triangular portions removed from the corners in such manner as to provide openings which do not extend to the plane of the tile body.

The tile so formed, if required to be coated, is now thoroughly cleansed, and if desired treated with a suitable preservative paint or the like adapted to prevent corrosion, and the external surface is then provided, by spraying or in any other convenient manner, with a suitable coating or coatings of cellulose or other appropriate enamel. If, however, the metal used for forming the blank is copper, aluminium, or a similar decorative metal which is not easily corrodible in ordinary circumstances, these latter operations may, if desired, be omitted.

The tiles produced in the above manner are adapted to be affixed and to remain firmly attached to walls and other surfaces by embedding their flanges in cement, plaster, or the like, and by reason of their formation they will form a practically continuous decorative surface, without exudation of cement.

In order that my invention may be more readily comprehended, I have appended drawings hereto in which Figure I represents in plan view a blank for a square tile after the corners have been removed; Figure II shows such blank in plan view with the flanges pressed up vertically to the face or body, of which Figure III is an elevation on a larger scale; Figure IV is a view in elevation of the blank after "cupping"; Figure V is an elevation of the cupped blank with the flanges turned inwards, and Figure VI is a view in plan from behind of four tiles as they would appear when assembled. Like numerals refer to like parts in all the figures.

Referring to Figure I, the metal blank 1 has its corners removed by straight line cuts making equal angles with the sides, as indicated at 2; the flanges 3 are then turned up vertical to the body 1 of the blank, along lines (see the dotted lines in Fig. I), parallel with the sides, which meet at right angles approximately in the centres of the lines 2 formed by the removal of the corners. As shown in Figure III the apices 4 of the triangles formed at the corners are in the plane of the body 1, and it will be noted that such corners are as sharp as possible and not radiused. The blank, as shown in Figure III, is next subjected to pressure between suitable dies in such manner as that the external face of the body 1 is "cupped" to the extent of 1 or 2 millimetres and therefore stands away to that extent from the apices 4 of the corner triangles, as indicated in Figure IV, and by the same or a subsequent operation the flanges 3 are bent inwards towards each other so that the flanges on opposite sides form together with the body 1 an enlarged dovetail in cross-section. If desired, however, not all the flanges need be so inclined.

The blank so formed is next treated as hereinbefore indicated and the finished product is adapted after drying and polishing (if desired) to be used commercially.

Figure VI is a plan view from the rear of four tiles as they appear when assembled. The angle 5 is made at the junction of the flanges of two contiguous tiles forms a triangular passage, and when four tiles are laid as shown in the figure the point 6 at which they meet forms a passage leading from any one to any other. If therefore, there is an excess of cement or the like on the surface which any one tile covers, such excess can, if suitable pressure be applied to the face of the tiles while the cement is still sufficiently plastic, be caused to flow through the passages so formed, and a uniform and level surface can thus be assured.

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. Process for the production of metal tiles consisting in the removal from the corners of a flat blank of appropriate metal, of triangular portions by straight line cuts making equal angles with the sides, turning up flanges on the edges of the blank of such depth that the apices of the triangular gaps so formed at the corners lie in the plane of the face, and pressing the face outwardly to a depth of 1 or 2 millimeters from such apices.

2. Process for the production of metal tiles consisting in the operations specified in claim 1 and the additional operation of turning in some or all of the flanges.

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