April 28, 1925. 1,535,301

J. H. E. FRANCIS

VITREOUS ENAMELED TILE, BRICK, AND THE LIKE

Filed Feb. 14, 1924

Fig.1.

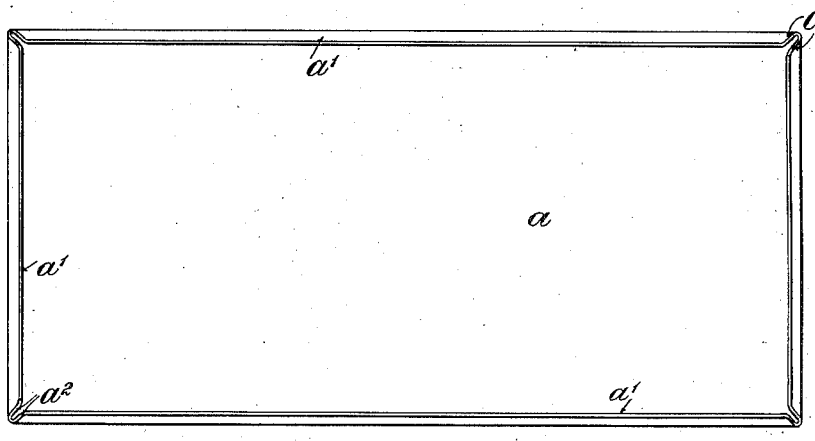


Fig.2.

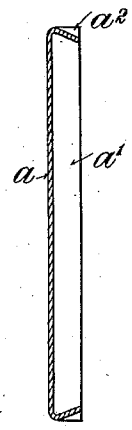


Fig.3.

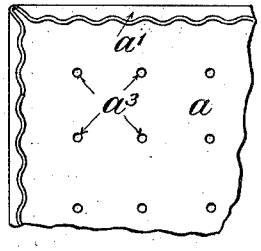


Fig.4.

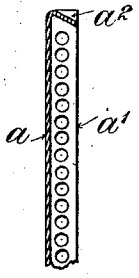


Fig.5.

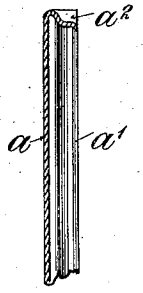


Fig.6.

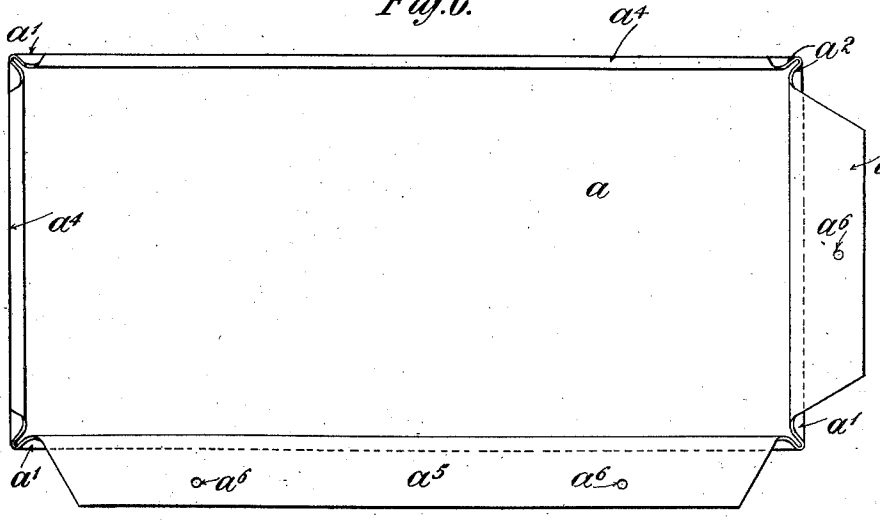
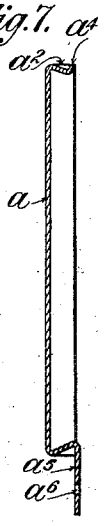


Fig.7.



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UNITED STATES PATENT OFFICE.

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VITREOUS ENAMELED TILE, BRICK, AND THE LIKE.

Application filed February 14, 1924. Serial No. 692,838.

To all whom it may concern:

Be it known that I, JAMES HENRY EDWARD FRANCIS, a subject of the King of Great Britain, residing at 140 Trundley's Road, Deptford, London, England, have invented Improvements in and Relating to Vitreous Enameled Tiles, Bricks, and the like, of which the following is a specification.

This invention relates to improvements in vitreous enameled tiles, bricks and the like of the kind in which a metal plate is provided with a vitreous enamel surface and with means for holding it to a backing of Portland cement, plaster, wood or other surface.

In such tiles it has been usual in order to provide a key for the cement backing or to provide a means for fixing to wooden surfaces to flange or turn inwardly the edges of the metal plate before enamelling and in order to readily effect this the corners of the plate have been cut away so that a mitred or bevelled open joint is formed at the corners of the flanges. Experience has shown that the cutting away of the corners has a tendency to cause the enamel to chip off the corners of the tiles and further has the effect of weakening the metal stampings generally to such an extent as to cause distortion and sagging whilst the plates are in the furnace undergoing the heat treatment necessary to fuse on the enamel. In order to prevent the plate from becoming distorted or sagging in the furnace during the heat treatment of the enamel it has been proposed to outwardly dish or curve the surface of the metal plate from its edges to the centre but all such propositions have not been entirely successful in practice, and the objects of the present invention are to obviate these drawbacks in a simple and efficient manner.

The present invention comprises essentially so stamping or pressing the metal plate before enamelling that the edges or flanges are each inwardly turned through an angle greater than 90° and are produced without cutting the metal plate so that the edges are formed without joints which materially enhances the stiffness of the plate and so prevents the centre from sagging or the plate from distortion during the firing of the enamel.

This invention will now be more particularly described making reference to the accompanying drawing in which:—

Fig. 1 is a back view of the metal plate before enamelling showing one method of forming the incurved edges or flanges thereof.

Fig. 2 is a view in section thereof.

Fig. 3 is a back view of part of a metal plate showing a modification and an alternative method of forming the edges.

Figs. 4 and 5 are part views in section of further modifications.

Fig. 6 is a back view of the metal plate before enamelling showing a method of forming the incurved edges or flanges for attachment to a wooden surface, and

Fig. 7 is a view in section thereof.

Throughout the views similar parts are marked with like letters of reference.

Figs. 1 and 2 show the preferred embodiment of the present invention in which a metal plate a before being enameled is provided with backwardly and inwardly turned edges or flanges a^1 so as to provide a key for the cement backing for attachment of the finished tile. The edges a^1 are produced by stamping them up from a rectangular blank or plate without cutting away the corners thereof as is usual. The excess of metal at the corners is taken up preferably by forming pleats or folds a^2 as shown.

In the construction shown in Fig. 3 the edges a^1 are crimped or corrugated which has the additional advantage of providing a better keying means for the cement backing or attachment of the finished tile to the surface which it is intended to cover.

To further improve this key, the edges a may be serrated or perforated as shown in Fig. 4 or corrugated longitudinally as shown in Fig. 5.

In order to prevent any tendency to distortion or sagging—particularly in large tiles—the surface of the plate may be slightly corrugated either longitudinally or transversely or in both directions or formed with a series of bosses or protuberances a^3, (see Figs. 3 and 4), of any desired shape or configuration but all such corrugations, bosses or the like are preferably so shallow as not to prevent a flat level outward surface on the finished tile, or in other words the corrugations, bosses or the like are of such a depth that the depressions are effec-

tually filled up with the thickness of the enamel coating so as to present a smooth level exterior surface on the finished tile.

It will also be seen that the hollows of such bosses, corrugations or the like on the inner face of the finished tile serve an additional purpose of improving the keying means for the cement backing.

In the modification shown in Figs. 6 and 7 which is particularly adapted for attachment to a wooden surface the edges or flanges a^1 besides being inwardly turned as in previous examples, are formed with additional flanges a^4 lying in a lower plane and parallel with the face of the plate a, and two of these additional flanges on adjacent edges are extended as at a^5 so that when positioned on the surface to which they are attached, the narrower flanges a^4 will overlap the wider flanges a^5 of the next adjacent tile. These flanges a^5 are perforated as at a^6 for receiving nails or the like for attachment to the wooden surface. The essential feature in this construction as in the previous ones is forming the corners without cutting them away as is usual, so as to produce incurved edges without joints.

What I claim is:—

1. A vitreous enameled tile, brick or the like formed from a metal plate having inwardly curved edges, characterized in that said edges throughout their length are each inwardly turned through an angle greater than 90° without joint, as set forth.

2. In a vitreous enameled rectangular tile or the like formed from a metal plate having edges inwardly turned through an angle greater than 90° and formed with pleats at the joints, as set forth.

3. A vitreous enameled rectangular tile formed from a metal plate having edges inwardly turned through an angle greater than 90° formed without joints and formed with additional flanges lying in a lower plane and parallel with the surface of the plate, two of said additional flanges on adjacent edges being extended and perforated, as set forth.

JAMES HENRY EDWARD FRANCIS.