Jan. 31, 1933. A. V. KELLER 1,895,801

TILE

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Fig. 1.

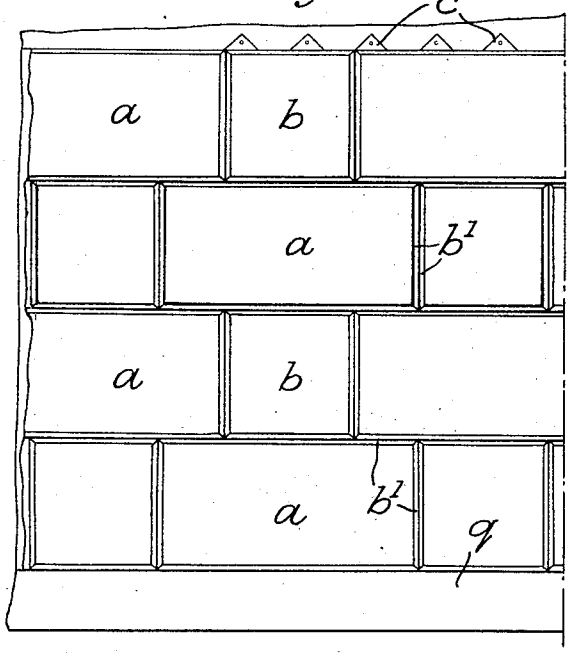


Fig. 2.

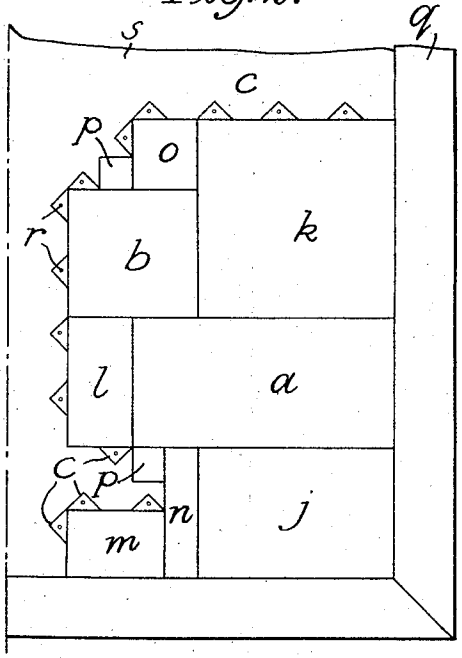


Fig. 4.

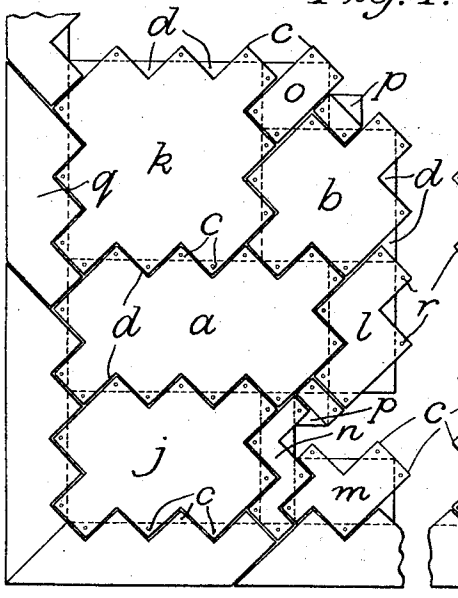
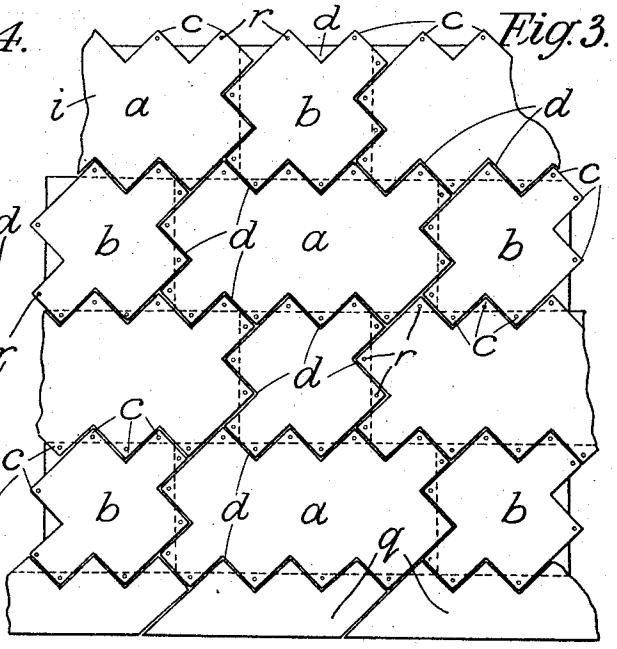


Fig. 3.



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TILE

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Fig. 5.

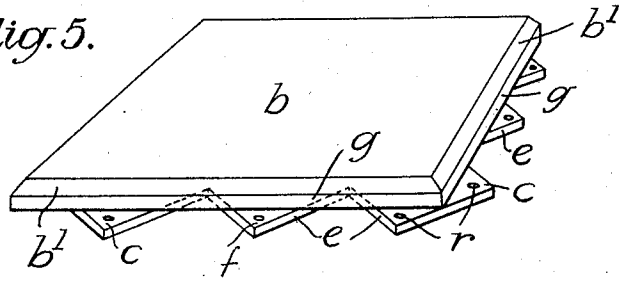


Fig. 6.

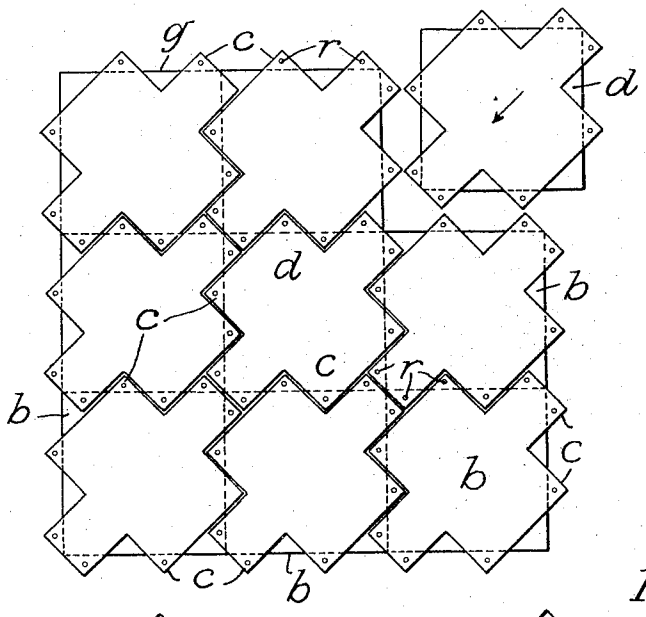
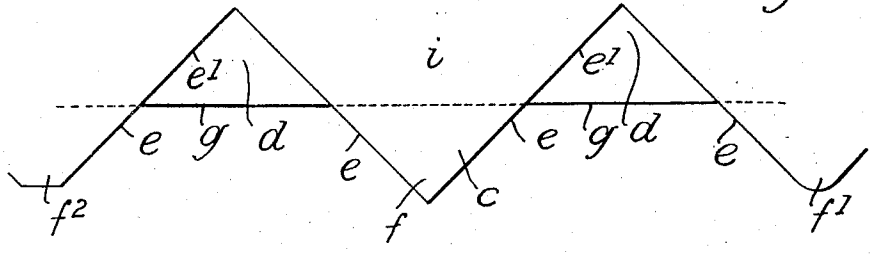


Fig. 7.



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UNITED STATES PATENT OFFICE

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TILE

Application filed January 15, 1929, Serial No. 332,654, and in Great Britain May 16, 1928.

This invention relates to tiles for the sheathing or covering of walls, ceilings and other surfaces, and more particularly to interlocking tiles having their edges provided with alternate projections and recesses, the projections being adapted to slip into and engage with the corresponding recesses of the adjacent tiles.

The invention has for its main object to provide new or improved tiles having the projections and recesses on their edges of such uniform regularity, angularity and formation, that a common principle of construction can be applied to a wide range of various polygonal shapes and sizes of tiles.

A further object of the invention is to enable a universal interengagement and correct fitting of any size or shape of tile to be obtained, so that a tiled sheathing or covering can be applied to a wall or surface of irregular outline, without unduly cutting away or trimming the tiles or the projections, when endeavouring to accommodate a variation from ordinary straightforward grouping or bonding.

Another object of the invention is to provide a tile of the interlocking type which can be fitted in place between or beside adjacent tiles without presenting any difficulty as regards the interengagement of the projections and recesses on the edges of the respective tiles.

The invention has also for its object to provide an interlocking tile in which the projections and recesses are all of substantially similar right-angled triangular shape and of equal size, the apices of the triangular projections being however rounded or slightly abbreviated if desired in order to facilitate manufacture and to render the tile less liable to damage.

The invention consists in the construction and combination of parts, as hereafter described with reference to the accompanying drawings, in which,

Figure 1 is a front view of a portion of wall sheathed with my improved tiles, fitted "half-bond".

Figure 2 is a similar view of an end portion of wall, sheathed with a number of tiles of various shapes and sizes.

Figure 3 is a rear view of the arrangement of the tiles in Figure 1, showing their interengagement.

Figure 4 is a rear view of the arrangement of the tiles in Figure 2, showing the common principle of interengagement of the various tiles.

Figure 5 is a perspective view of a single tile of rectangular shape.

Figure 6 is a rear view of a group of square tiles demonstrating the fitting of an entering tile.

Figure 7 is a diagram on a larger scale, illustrating the angular formation of the projections and recesses of a tile edge.

The tiles may be composed of wood, metal, moulded compound or like sheet or any combination of such sheets: the moulded compound referred to may consist of a clay or like earth admixed with a suitable binder and glazed, coloured and fired, or it may be of fibrous or cellular nature, preferably powdered and admixed with a suitable binder, or it may be a chemical product, with or without a filling material, for example a natural or synthetic resin or any such compound or substance as may be moulded by pressure and/or heat.

The tiles are made to any required size, but preferably always of rectangular shape; in practice, the dimensions of the tiles will be determined by multiples of a standard unit which remains fixed for any desired range of interengageable tiles. Assuming a standard unit of one inch, then the tiles can be made in sizes of one inch square, two inches square, etc., as well as in sizes of one by two, one by three, etc., two by three, two by four, etc., and so on. All these various sizes of tile are rendered interengageable by the present invention, so that not only can a wall be sheathed with interlocking tiles of the regular and most frequently used sizes and shapes, as illustrated in Figure 1, but also tiles of various different shapes and sizes, as illustrated in Figure 2, can be fitted to a wall with equal facility of interlocking, so that the tiles are adaptable to widely varying conditions

and irregular shapes of the wall or other surface.

In Figures 1 and 3, the tiles *a b* are of two different sizes, the tiles *a* being for example of eight inches by four, and the tiles *b* being of four inches square; these two sizes of tile are arranged to break joint, giving the appearance of a half-bond in brickwork.

The manner in which the interlocking projections and recesses of the tiles are disposed will be apparent from Figure 3, where it is seen that the oblong tiles *a* comprise four projections *c* on each of their longer sides, and two such projections on each of their shorter sides, while the square tiles *b* comprise two projections *c* on each side; alternating with these projections *c* in each case, there are provided recesses *d* of corresponding shape.

As shown more clearly in Figure 7, the sides *e* of each projection *c* enclose an area which is of the shape of an isosceles right-angled triangle, the right-angle *f* of which projects outwardly and forms the apex of the projection, while the base of the triangle conforms with the side or edge *g* of the tile. The base of this triangle constitutes the unit mentioned above, being in the present instance assumed to be one inch long.

The sides *e* of the triangular projection *c* cross the edge *g* of the tile at an inner angle of forty-five degrees and an outer angle of one hundred and thirty-five degrees, as shown in Figure 7. Each side *e* is continued inwards in the same plane into the back *i* of the tile for a distance equal to that from the apex *f* to its point of intersection with the tile edge *g*. The inward extension e^1 of the side *e* thus forms one side of a similar right-angled triangle, having its base likewise conforming with the side or edge *g* of the tile. This inner triangular area is undercut to form the recess *d* which is of substantially the same area and depth or thickness as the projection *c*. A small clearance may be allowed by making the projection *c* an easy fit in the recess *d*, thereby allowing the projection to enter easily into place and to be adjustable slightly to suit minor variations of the surface to which the tile is affixed. The tile edge *g* thus forms the base of a series of isosceles triangles alternating on opposite sides and forming the projections *c* and recesses *d* respectively.

The triangular projection *c* may extend to a sharp point, as shown at *f* in Figure 7, or be rounded at the apex as at f^1, or be slightly abbreviated as at f^2; by this cutting off a small portion of the apex of the triangular projections *c*, the tile is rendered less liable to damage in the course of fitting.

In Figures 2 and 4, the tiles are shown in a plurality of different sizes, viz. a tile *a* of eight inches by four, a tile *b* of four inches square, a tile *j* of six inches by four, a tile *k* of six inches square, a tile *l* of four inches by two, a tile *m* of three inches by two, a tile *n* of four inches by one, a tile *o* of two inches square, and two tiles *p* of one inch square. It will be seen from Figure 4 that all these various tiles are provided with projections *c* and recesses *d* of similar triangular shape, so that as in the previous case the tiles can all be interengaged to form an interlocked sheathing or surface covering; owing however to their differences of size and shape, the tiles can be arranged and fitted together so as to form a continuous covering for walls or surfaces of irregular outline.

The outer edges of the tiles may be framed and covered by a moulding or beading *q*, one or more edges of which are preferably provided with alternate projections *c* and recesses *d* corresponding to those of the tiles.

Figure 5 illustrates a square tile *b* having three projections *c* and three recesses *d* along each of its edges; the upper face of the tile has a bevelled edge b^1 to represent a jointure or pointing between adjacent tiles in the completed structure.

The right-angled triangular formation of the projections *c* and recesses *d*, as already described with reference to Figure 7, ensures a true line of guidance, as seen in Figure 6, for the entering tile during fitting and enables it to be brought as close as possible to the tiles already fixed; at the same time the guidance caused by the sliding of the adjacent edges *e* e^1 of the projections *c* and grooves *d* allows ample room to locate and correctly center the entering apex *f* in the corner of the angular recess which it is to enter; this automatically adjusts the alignment and ensures the correct position and perfect parallelism of any combination of tiles, whether of equal size as in Figure 6 or of unequal sizes as in Figures 1 to 4. Although the invention is especially valuable in the forming of "brick", "half-bond" or other staggered patterns, as in Figures 1 and 3, it is also applicable to all ordinary patterns and a very wide range of intricately designed patterns.

Any alteration of the height of the engagement of a tile such as *b* in Figure 2 in relation to another, as may be required in patterning or varied bonding, does not affect the positioning of ensuing tiles as *o* and *p*, which are automatically located and engaged, and will do so to almost any degree of interchangeability. A particular advantage of the invention is the ease by which a rapid conversion may be accomplished from ordinary straightforward tiling or covering of a surface to an intricately designed effect, without prejudice to the neat setting of such designs and the maintenance of uniformity; the right-angled triangular shaped projections *c* and recesses *d* permit of a universal adjustability and correctness with any size

used. The combination of these projections and recesses may be incorporated in the design even when the tile is constructed of a moulded or like compound.

The projections *c* may be perforated as at *r* the holes being preferably countersunk for the reception of nails or screws, whereby the tile may be fixed to a supporting surface *s*. One point of fixture only may be necessary, the selection or number of fixing points being controlled by the firmness or easiness of fixing, and the desired rigidity of the work.

The tiles may be made of other than rectangular shape wherever necessary, with only one, two or three edges carrying projections and recesses as desired, especially when the tile is used as a skirting, capping, angle bead or moulding as at *q* in Figure 1.

The tile may be embossed, engraved, indented, metallic-finished, stencilled, painted by hand, or otherwise finished or ornamented, or it may be used as a medium for the presentation of posters, or other announcement display sheets.

What I claim is:—

1. A tile adapted to be interengaged with any one of a series of tiles of varying dimensions, comprising an integrally-moulded, rectangular slab with projections and recesses alternating along its edges, each of said projections and recesses being of a depth approximately equal to half the thickness of said slab, of right-angled triangular shape and of equal size, and the bases of said triangular projections and recesses being each equal to the side of the smallest tile of the same series.

2. In a surface covering of the type made up of interfitted tiles having their edges provided with alternating triangular projections and recesses with the projections of one tile engaged in the recesses of abutting tiles, the combination of two individual tiles fitted together, said two individual tiles having mutually abutting edges of different lengths, the length of each of said abutting edges being an even multiple of the base of each of said projections measured along the edge of the tile.

3. A surface covering, comprising a plurality of interfitting tiles of non-uniform area, each of said tiles consisting of a slab of rectangular shape, said slab having right-angled triangular projections and recesses alternating along its edges, all the projections and recesses of the several tiles having their bases, measured along said edges, of equal length, and said length being an even sub-multiple of the lengths of all said edges.

In testimony whereof I hereunto affix my signature.

AUGUSTE VICTOR KELLER.