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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

New and Useful Method and Means for Lining Wall, Ceiling, Floor or Other Surfaces

I, TIMOTHY MURPHY, a citizen of the Irish Republic, 5 Woodgrove Cross, Douglas Road, Cork, Republic of Ireland, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement :—

This invention concerns an improved method for lining wall, ceiling, floor or other surface and involves the use of a novel form of lining element.

The work of covering a wall, ceiling, floor or other surface with tiles or other elemental facing units in a satisfactory manner is one which usually necessitates the employment of a highly skilled workman, such as a tiler, plasterer or carpenter, or possibly all three, since it is essential that the wall, ceiling or floor to which units are to be applied must first be prepared so as to offer a firm, even and smooth support for the tiles or other units which are then individually fitted into position over a screed of liquid plaster or adhesive compound which must also be applied in an even manner, so that when set the tiles or the like will be firmly held and will present a perfectly even surface. The object of the invention is to provide a simple method and means whereby such surfaces may be created very easily and effectively.

The invention provides a method of lining a wall, ceiling, floor or like surface consisting in providing a number of sheet-like surface lining elements comprising a substantially rigid sheet material forming a base, having applied to one side thereof a layer of insulating material and having upon its other side surface units disposed contiguously so that the surface of the latter side of the base is substantially covered by said units except for the fact that at one or more isolated places spaced from the marginal edges of the base at least one surface unit is omitted so that a space is left into which said unit may me subsequently fitted, the assembled surface units being secured to the base by adhesive while leaving said isolated places uncovered by surface units, subsequently apply said lining elements to the surface to be lined, and securing same in position thereon by the aid of fastening means inserted through the base material at the uncovered places aforesaid, and finally covering said uncovered places by fitting a surface unit into the space left to receive same and securing said unit therein by adhesive or the like.

In order to enable the meeting edges of two adjacent lining elements to be readily and effectively concealed, according to a further feature of the invention, marginal portions of the surface lining elements may also be left uncovered by surface units before the elements are applied to the surface to be lined, said marginal portions also serving to enable fastening means to be inserted therethrough to assist in securing the lining element is position when applied to the surface to be lined, said marginal portions being subsequently covered by applying surface units thereto and securing same by the aid of adhesive.

The arrangement may be such that said marginal portions are covered by surface units which extend substantially beyond the edge of one lining element and over a similar marginal portion of an adjacent lining element so as to conceal the meeting edges of said adjacent lining elements.

The invention also provides improved surface lining elements for use in carrying out the novel lining methods above mentioned.

In order that the invention may be clear-

[Price 4s. 6d.]

ly understood and readily carried into practice it is hereinafter described with reference to the accompanying drawings, wherein:

Fig. 1 is an elevation of one form of wall lining element according to the invention.

Fig. 2 is a similar view showing a modified form which a lining element may take,

Fig. 3 represents in elevation portion of a wall surface in the course of being lined by the method according to the invention, using lining elements such as shown in Fig. 2, parts being broken away for the purpose of illustration.

Fig. 4 represents to an enlarged scale a side sectional elevation on line IV-IV of Fig. 3.

Fig. 5 similarly represents a sectional plan on line V-V of Fig. 3, and

Figs. 6 and 7 are views similar to Fig. 5 showing further alternative constructions where the edges of two adjacent lining elements meet.

Corresponding parts are indicated by similar reference numerals in all the Figures.

As shown in the drawings, the invention provides a wall lining element in which a substantially rigid backing or base 1, which may advantageously consist of a sheet of chip board, and has a layer 6 (Figs. 3 to 6) of insulating material applied to one side thereof, is substantially covered upon its other surface with units 2, which may consist of ceramic or plastic tiles or the like, but at isolated places 3 a unit is omitted, leaving the base exposed. It is to be noted that at least one of the places 3 is spaced from the edges of the base 1. The units 2 are secured to the base 1 in a permanent manner by an adhesive, and the uncovered places 3 are distributed so that if the base 1 is superimposed on any wall, ceiling, floor or other surface to be covered with the layer 6 of insulating material forming a buffer between said surface and the base 1, it may be firmly secured thereto by driving nails, screws or the like through the base 1 at the uncovered places 3. After the lining element has thus been fixed in position for use the uncovered places 3 are covered by placing thereover a facing unit to the back of which a suitable adhesive has been applied.

The surface of a wall or the like may be covered to any desired extent by lining elements such as above described and arranged contiguously. If desired, marginal portions of the surface lining elements may also be left uncovered by facing units so that when two such elements are placed side by side the co-adjacent marginal portions may be covered by units which extend across said marginal portions. An example of this kind is shown in Figs. 2 to 5. The facing units 2 cover the base 1 with the exception of the place 3 and the marginal portions 4. The width of the latter is advantageously approximately half the width of the facing unit 2, so that if two such elements are placed side by side and secured by nails or screws 5, as shown in Fig. 3, the marginal portions of the co-adjacent elements may be covered by units *2a*, held in position by adhesive applied to the back of the unit, and preferably also applied to said marginal portions 4.

Although in Figs 2 and 3 uncovered marginal portions 4 are shown at two lateral edges only of the base 1, all four edges of the base may be similarly provided with uncovered marginal portions if desired, so that when a number of such lining elements are placed in position side by side and secured in position with the aid of nails, screws or the like as above described all the meeting edges may be covered by applying the necessary facing units to the marginal portions.

Fig. 6 represents a cross-section of the construction at the meeting edges of two elements of the form shown in Fig. 1, but with the units *2a* of the respective units abutting instead of overlapping both elements. On the other hand, in the arrangement shown in Fig. 1 the uncovered places at the corner of the elements could, if desired be only one quarter of the area of a unit, so that the unit *2a*, when placed in position will fit into the space provided by the meeting corners of four adjacent lining elements. It is not essential for all the units to be of a uniform size, shape, colour or configuration.

Battens 7 are also shown for the purpose of supporting the lining elements, the battens being spaced to coincide with the spaces 3 and marginal portions 4 of the lining element. The use of such battens is generally unnecessary, however, the lining elements being applied directly to the wall or other surface to be covered, which requires no special preparation.

The accurate surface alignment of adjacent surface elements according to the invention may be further assured, of desired, by rebating the edges. Such a construction is shown in Fig. 7. In this example certain of the fixing screws 5 preferably penetrate the overlapping rebated edge portions of the lining elements. The joints between the elements may be covered by the units *2a*, applying the arrangement shown in Fig. 5, or the covering units 2a may abut as is shown in Fig. 6.

It will be evident that by the aid of the invention a wall, ceiling, floor or the like or any desired portion thereof may be lined by affixing thereto as above described the required number of lining elements (or if

circumstances permit a single lining element), cut to the appropriate shape. These elements may be produced by methods of mass production and the work of preparing them and applying them to a surface to be lined is infinitely less difficult than the method commonly employed of applying each individual tile or other elemental unit directly to the wall, ceiling or floor in question and retaining same in position by means of an interposed screed of plaster or coating of adhesive. Such screeding will generally be unnecessary with the present invention, and minor imperfections in the underlying surfact of the wall or the like will not affect the even alignment of the units pre-assembled and mounted on the substantially rigid base or backing sheet which in turn is backed by the layer of insulating material 6. When the surface is lined with a number of lining elements in edge-to-edge contact there will be no difficulty in aligning the elements so accurately that the edges where they meet will be quite unnoticeable. In the case where the lining surface consists of tiles, for example, the effect of tiling carried out by normal methods may be entirely simulated by applying a thin grouting of plaster or the like to the surface of the lining elements after they have been erected, the plaster filling the crevices between adjacent tiles so that the finished product is undistinguishable in appearance from normal tiling.

The invention may be carried out not only with ceramic tiles as the facing units, but with any other surfacing material, including natural tiles, plastic tiles, mosaic chips, composition or wooden flooring elements or panels, or with plates or pallets of glass, metal or other materials such as commonly used for lining or facing walls, ceilings and floors. The improved lining may be applied to both interior and exterior surfaces. As a backing for the facing units almost any sheet material of requisite strength or stiffness may be used, for example, plywood, chipboard, hardboard, asbestos board, precast concrete slabs or sheet metal. A number of proprietary adhesives having a plastic base and suitable for this purpose are commercially available.

It is usually advantageous to seal the surface of the backing, for example, by washing same with a silicone liquid sealing preparation before applying the adhesive thereto.

The layer 6 applied to one side of the base 1, as shown more clearly in Figures 4 to 7 is preferably of a substantial thickness, for example, at least comparable to the customary thickness of a wall tile ($\frac{1}{4}$ inch or more) so as to provide a buffer or cushion between the rigid base 1 and the wall or other surface to be covered thereby. The expression "insulating material" used herein is intended to include any material having good thermal insulating and/or moisture resisting properties. Materials for this purpose which will readily suggest themselves to those skilled in the art as having the desired bulk and insulating property are for example the foamed or "expanded" plastic materials of which a number of propriety brand are available in sheet form for use in the building industry.

WHAT I CLAIM IS:—

1. A method of lining a wall, ceiling, floor or like surface consisting in providing a number of sheet-like surface lining elements comprising a substantially rigid sheet of material forming a base having applied to one side thereof a layer of insulating material and having upon the other side surface units disposed contiguously so that the surface of the latter side of the base is substantially covered by said units except for the fact that at one or more isolated places spaced from the marginal edges of the base, at least one surface unit is omitted so that a space is left into which said unit may be subsequently fitted, the assembled surface units being secured to the base by adhesive while leaving said isolated places uncovered by surface units, subsequently applying said lining elements to the surface to be lined and securing same in position thereon by the aid of fastening means inserted through the base material at the uncovered places aforesaid, and finally covering said uncovered places by fitting a surface unit into the space left to receive same and securing said unit therein by adhesive or the like.

2. A method according to Claim 1, employing surface lining elements marginal portions whereof are also left uncovered by surface units before the elements are applied ot the surface to be lined, additional fastening means being inserted through said marginal portions to assist in securing the lining element in position covering the surface being lined, said marginal portions being subsequently covered by applying surface units thereto and securing same by the aid of adhesive.

3. A method according to claim 2, wherein after a plurality of surface lining elements have been affixed side by side to the surface to be lined said marginal portions are covered by surface units which extend substantially beyond the edge of one lining element and over a similar marginal portion of an adjacent lining element so as to conceal the meeting edges of said adjacent lining elements.

4. A surface lining element comprising a base of substantially rigid sheet material having a layer of insulating material affixed

circumstances permit a single lining element), cut to the appropriate shape. These elements may be produced by methods of mass production and the work of preparing them and applying them to a surface to be lined is infinitely less difficult than the method commonly employed of applying each individual tile or other elemental unit directly to the wall, ceiling or floor in question and retaining same in position by means of an interposed screed of plaster or coating of adhesive. Such screeding will generally be unnecessary with the present invention, and minor imperfections in the underlying surfact of the wall or the like will not affect the even alignment of the units pre-assembled and mounted on the substantially rigid base or backing sheet which in turn is backed by the layer of insulating material 6. When the surface is lined with a number of lining elements in edge-to-edge contact there will be no difficulty in aligning the elements so accurately that the edges where they meet will be quite unnoticeable. In the case where the lining surface consists of tiles, for example, the effect of tiling carried out by normal methods may be entirely simulated by applying a thin grouting of plaster or the like to the surface of the lining elements after they have been erected, the plaster filling the crevices between adjacent tiles so that the finished product is undistinguishable in appearance from normal tiling.

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2. A method according to Claim 1, employing surface lining elements marginal portions whereof are also left uncovered by surface units before the elements are applied ot the surface to be lined, additional fastening means being inserted through said marginal portions to assist in securing the lining element in position covering the surface being lined, said marginal portions being subsequently covered by applying surface units thereto and securing same by the aid of adhesive.

3. A method according to claim 2, wherein after a plurality of surface lining elements have been affixed side by side to the surface to be lined said marginal portions are covered by surface units which extend substantially beyond the edge of one lining element and over a similar marginal portion of an adjacent lining element so as to conceal the meeting edges of said adjacent lining elements.

4. A surface lining element comprising a base of substantially rigid sheet material having a layer of insulating material affixed

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to one side thereof and having the other side substantially covered by surface units arranged contiguously except for the fact that at one or more isolated places spaced from the marginal edges of the base at least one surface unit is omitted, said contiguous surface units being secured to said base by the aid of an adhesive.

5. A surface lining element according to claim 4, wherein marginal portions of the base are also left uncovered by the assembled surface units.

6. A surface lining element according to claim 4 or claim 5 wherein the edges of the base are rebated to enable adjacent lining elements to interfit or overlap at their edges.

7. A method of lining a wall, ceiling, floor or like surface with lining elements substantially as described.

8. Lining elements constructed substantially as shown in the accompanying drawings and adapted for use substantially as described.

TOMKINS & CO.,
Agents for Applicant,
93-94 Chancery Lane, London, W.C.2.

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ERRATA

SPECIFICATION NO. 995,619

AMENDMENT NO. 1

Page 1, line 47, *for* "me" *read* "be".

Page 1, line 70, *for* "is" *read* "in".

Page 2, line 34, *after* "with" *insert* "facing".

Page 2, line 116, *for* "of" *read* "if".

Page 3, line 2, *for* "shope" *read* "shape".

Page 3, line 15, *for* "surfact" *read* "surface".

Page 3, line 110, *for* "ot" *read* "to".

THE PATENT OFFICE,
9th December, 1966

D 78177/2

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