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SIMULATED CERAMIC TILE-LIKE MOSAIC CONSTRUCTION

Filed Jan. 17, 1961

FIG. 1

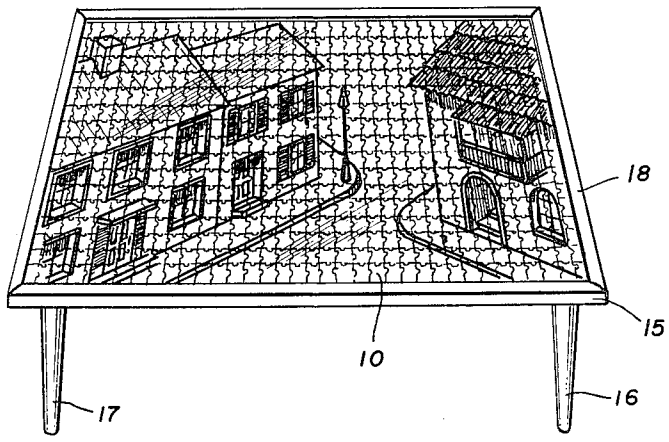
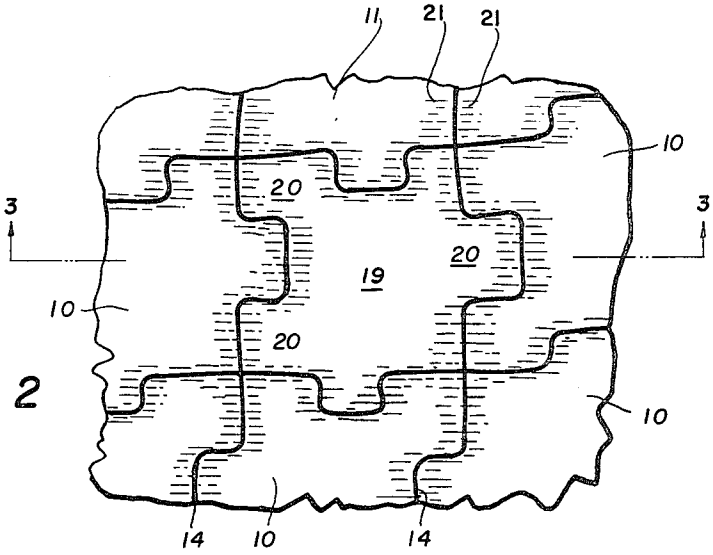


FIG. 2



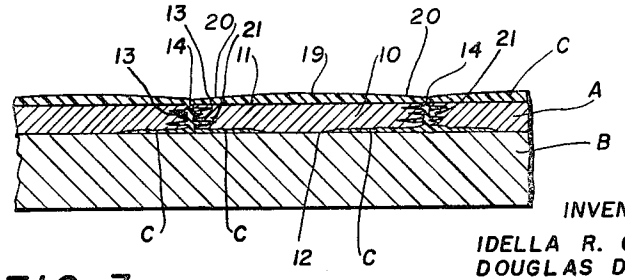


FIG. 3

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This invention relates to mosaics. More particularly, it relates to a novel simulated ceramic tile-like mosaic construction and to the method of preparation thereof.

In recent times, mosaics, both in their form as works of art as well as items of utility appear to have enjoyed increasing popularity. However, ceramic mosaics are generally expensive, primarily because they require considerable skill and human labor in their construction.

It is a principal object of the present invention to provide a simulated ceramic mosaic tile-like construction from readily available and inexpensive materials, such as, for example, paper board tile pieces embedded within a layer or coating of substantially transparent synthetic resin. In the particular embodiment of the invention to be described in more detail hereinafter, we teach how it is possible to fabricate a remarkably realistic simulated mosaic tile construction using as the base materials a conventional jig saw puzzle made of chip-board, cardboard, or a similar heavy paper stock, and a clear polyester type resin. As will more fully be described, the jig-saw puzzle is assembled in the usual manner on a flat table surface, whereupon the liquid resin is poured and spread directly over the upper face of the puzzle to form a relatively thick coating over the entire surface. We have found that some of the resin will separate or run down between the puzzle pieces and that this action produces a multiplicity of results in reference to determining the ultimate physical and visual characteristics of the end product. More specifically, the resin will of course form a grouting in the hairline cracks and sufficient quantities of the liquid will also seep under at least the marginal edges of the jig-saw pieces to permanently bond the latter to the table surface on which the puzzle has been prepositioned. The flow or seepage of the resin into the hairline cracks also results in each puzzle or tile piece being coated with a thinner layer of resin adjacent its marginal edges than at its center portions. Therefore, when the clear resin dries and hardens, each of the individual puzzle or tile pieces is formed with a rounded crown of resin coating which creates highlights and shadows that very realistically simulate the rounded or crowned surface contour of actual ceramic tile pieces.

There is also another phenomenon that has been observed to occur due to seepage of resin into the hairline cracks separating the puzzle pieces in instances where the puzzle or tile pieces are made of relatively absorbent paper stock or similar material. In this connection, the cardboard or chip-board pieces will tend to absorb a certain amount of the resin adjacent their peripheral margins where the original sheet of paper stock has been die-cut to form the multiplicity of individual puzzle pieces. It has, therefore, been found that the relatively heavy impregnation of each piece around its peripheral margins will tend to deepen the tone of color painted or lithographed on the upper surface of the puzzle. As a consequence, each puzzle piece looked upon individually will appear to have deeper tones of color around its periphery than toward its center portions. This difference in color tone effect gives great depth and a three-dimensional effect to the end product.

A principal object of the present invention, therefore, is to provide a mosaic and method of making same which can be made to appear as a remarkably realistic duplication of a polished mosaic tile work.

More specific objects of the invention are to provide a

simulated ceramic mosaic tile-like construction that is inexpensive to manufacture, that requires substantially little skill, and that may be fabricated to form items of utility, particularly table surfaces which because of their heavy overlayer or coating of durable plastic may be employed for indoor or outdoor use.

Further objects, features, and advantages of the present invention will become apparent upon reading the following detailed specification, in which:

FIGURE 1 shows in perspective one embodiment of the product provided by the present invention.

FIGURE 2 shows in top elevation an enlarged section of the product illustrated in FIGURE 1.

FIGURE 3 shows a sectional side view of an enlarged segment of the product illustrated in FIGURE 1 and is taken along line 3—3 of FIGURE 2.

The present invention may be more easily understood by considering the preferred embodiment as being composed of three major elements designated by letters particularly as shown in FIGURE 3. These major elements comprise a plurality of resin supporting members A, a base or supporting surface B for said resin supporting members A, and a resin layer C coated on the resin supporting members A. The resin supporting members A are disposed on base B in closely positioned relationship and the resin layer C which covers a major portion of the surface of members A imparts a ceramic tile-like appearance to resin supporting members A. Resin layer C also serves to bond resin supporting members A to each other and to base B.

The resin supporting members A in the embodiment shown in the drawings are conventional jig-saw puzzle pieces and are made out of cardboard. Piece **10** has a top **11**, a bottom **12**, and sides **13**. There are, however, a multitude of suitable sizes and shapes for the resin supporting members A. Thus, top **11** may be curved instead of flat and in some instances the curvature may accent and bring out the desired simulated ceramic effect. Piece **10** may similarly have straight sides instead of being irregular and interlocking as is true of jig-saw puzzle pieces **10**. The interlocking nature of pieces **10** is particularly well shown in FIGURE 2. The only requirement for pieces **10** is that they have enough surface area to support a sufficient quantity of resin capable of forming the resin configuration to be hereinafter described.

It has been found that a flat, relatively thin design is suitable for pieces **10**. This design is found in the conventional jig-saw puzzle pieces **10**. Thus, the size of conventional jig-saw puzzle pieces **10**, which are generally about one inch across at the widest point on top **11** and have a side **13** of about ⅛ inch in height, are suitable for use in the present invention. It will be obvious to those skilled in the art that the foregoing dimensions are subject to a great deal of permissible latitude.

Pieces **10** are assembled in conventional closely spaced substantially abutting interlocking relationship. This normally leaves an irregular channel **14** or hair line crack defined by the adjacent sides **13** and located between all adjacent puzzle pieces **10**. The function of irregular channel **14** will be described later.

Base B is made from any desired material and is shown as a wooden surface. It is contemplated that base or supporting surface B will be designed to just fit the overall outside perimeter of the closely spaced pieces **10** although variations in design to suit the individual are unlimited. Supporting surface B will generally be designed with the end purpose of the simulated ceramic mosaic in mind. Thus, if it is to be hung on a wall, base B would be some type of a frame. The embodiment illustrated in FIGURE 1 shows the mosaic employed as the decoration for a table top **15** having table legs **16** and **17** and two other legs not shown. Optionally, the completed mosaic

is bordered by a molding 18 which serves to protect the edges of the mosaic from being broken and also to improve the overall appearance of the construction.

It should be pointed out that while the preferred embodiment employs a base or supporting surface B, constructions which do not have such a base are still to be considered within the scope of the present invention. For example, a construction having resin supporting members and a resin coating of sufficient strength because of the type and thickness of resin employed, and therefore does not require an external support or base, is contemplated.

Each of puzzle pieces 10 has a section of a visual display such as a section of a design or an image visible on the top 11 thereof. When the puzzle pieces 10 are disposed in interlocking and ordered relationship, the solved puzzle may be viewed and the total composed visual display seen as illustrated in FIGURE 1. Puzzle pieces 10 are preferably disposed on base B in a coplanar relationship. However, other special relationships are contemplated by the present invention such as may be found when employing a base B with a curving surface. It will also be obvious that pieces 10 be free of any design or image or other visual display.

Resin layer C covers a major portion of the surfaces of pieces 10 including substantially all of tops 11 and sides 13. The part of layer C disposed on top 11 of pieces 10 is present in the shape of a rounded crown. This is due to the fact that resin layer C is thicker in the central portion 19 of top 11 than it is in the vicinity of the peripheral portions 20 of top 11. This differential thickness of layer C in contact with top 11 results partially from the surface tension of the layer C during the time it is being applied in the form of a liquid as will be more fully described hereinafter. In addition, when resin layer C is in its initial liquid state, it tends to flow from peripheral areas 20 of top 11 down into channel 14. This leaves less resin in the peripheral areas 20 than in the central portion 19 of top 11 and thereby produces the foregoing differential thickness.

The configuration of a rounded crown present in that part of layer C which is in contact with top 11 is responsible for creating the illusion that pieces 10 are ceramic tiles. As a result, the completed puzzle shown in FIGURE 1 appears to be composed of a plurality of ceramic tiles and resembles a ceramic mosaic to an amazing degree.

Resin coating C has yet another important function. As previously mentioned, the resin flows down channel 14. It also usually seeps to an appreciable extent beneath bottom 12 of piece 10 and thus is simultaneously in contact with bottom 12 and base B. The resin in the foregoing two locations serves to bond pieces 10 to each other and to base B.

Besides assuming a rounded crown configuration on top 11 and thus imparting a simulated ceramic tile-like appearance to pieces 10, resin C creates the ceramic illusion in yet another manner. Sides 13 of cardboard puzzle pieces 10 are porous and resin permeable as compared with the glazed top 11 which is relatively resin non-permeable. When resin C flows down channel 10, a portion of resin C permeates through side 13 and into the interior portions 21 of piece 10 proximate to channel 14. The resin C present in interior portions 21 causes the appearance of puzzle pieces 10 to be deeper in color in the areas where resin C is present. Thus, there is a color gradient between interior portions 21 and the remainder of puzzle pieces 10. This color gradient is visible to the human eye and tends to increase the apparent depth of individual pieces 10, further heightening the illusion that pieces 10 are ceramic tile-like.

In addition, resin coating C tends to cause top 11 of piece 10 itself to become crown shaped. This occurs as resin coating C dries and hardens, at which time it contracts the interior portions 21 where it has permeated. The result is a shortening of sides 13 and the creation of a crown effect on top 11.

The foregoing simulated ceramic tile-like construction may be prepared by the method provided by the present invention. The construction may be made by optionally providing a supporting surface or base as is discussed above. A plurality of resin supporting members are disposed in closely positioned relationship and a coating of resin applied over a substantial portion of the surface of the resin supporting members.

In the case of the preferred embodiment, the resin supporting members selected are conventional jig-saw puzzle pieces and are disposed on a supporting surface which comprises a table top with legs.

The method of this invention is practiced, in the case of the illustrated construction, by applying at least one layer of a translucent laminating resin over substantially all of the surface of the puzzle pieces. The result is the creation of a ceramic tile-like appearance in the puzzle pieces.

As mentioned above, differential permeation of the resin in various parts of the resin supporting members heightens the ceramic illusion. The desired degree and areas of resin permeation and its attendant effect may be accomplished by the present method by preselecting the resin supporting members with this end in mind. Thus, by preselecting the members for the portions of their surface which are porous and for the degree of porosity of those porous portions, any desired effect may be obtained when practicing the present invention.

Any resin having the properties of being flowable, preferably at room temperature, and which may then be cured to sufficient hardness to be durable under the conditions of the intended use of the mosaic is suitably used. A group of suitable resins is herein referred to as laminating resins to differentiate them from resins used for diverse other purposes including adhesives or in the extrusion of plastics to make products of various shapes.

In particular it is preferred to use laminating resins of the polyester type which may be cured at room temperature. One very suitable example is Laminac polyester resin 4116 which is manufactured by American Cyanamid Company. Laminac resins are thermosetting and are a group of 100% reactive polyester copolymers. They are supplied in the form of liquids. This resin and others of the same variety are designed to be catalyzed prior to being applied to the resin supporting members. Any of the catalysts known in the art for such purposes may be used. Suitable examples include the organic peroxides such as methylethyl ketone peroxide and the like.

The resin is applied in any manner which results in a layer being formed over a major portion of the surface of the resin supporting members. It is preferred that the resin be so applied that it covers substantially all of the tops 11 and sides 13 of puzzle pieces 10 at least in the case of when the construction of the preferred embodiment is made. When this procedure is followed, sufficient resin will necessarily flow beneath the resin supporting members to create a sufficiently strong bond between the resin supporting members and the base or supporting members when one is used.

One suitable way of applying the resin in accordance with the present method is to add the catalyst selected to a container containing the particular resin selected. The catalyst and resin are then mixed and the contents of the container poured in a continuing stream over the resin supporting members. A small amount of the contents of the container is reserved. The resin is smoothed into a layer over the resin supporting members with a cardboard squeegee. The small portion of the reserved contents of the container is then used to do any necessary touching up in the coating. The resin is then allowed to "set" or harden. Any bubbles that may form are pricked with a

pin and any parts of the supporting members that may float up are pushed down.

The length of time necessary for producing a hard surface will depend on the particular resin chosen and will usually be about one to three days. In most cases the time can be accelerated by subjecting the applied resin to heat. After a period of about one month the surface will have hardened to the point where it is as hard as glass.

In the case of the preferred embodiment, the table top, legs, and molding may be stained or varnished or otherwise decorated to suit the individual's taste.

Although the foregoing inventions has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be practiced within the spirit of the invention as limited only by the scope of the appended claims.

What is claimed:

1. A simulated ceramic tile mosaic construction comprising a single layer of a plurality of closely positioned resin supporting members and a continuous coating of resin over a substantial portion of the surface of said members, the coating over each member being thicker in the central portion than at the peripheral portions thereof to define a rounded crown of resin thereover, and thereby to impart a ceramic tile appearance to said members.

2. A construction in accordance with claim 1 wherein said resin supporting members are disposed on a supporting surface.

3. A simulated ceramic tile mosaic construction comprising a supporting surface, a plurality of flat resin supporting members disposed on said supporting surface in closely positioned substantially coplanar relationship, and a continuous coating of laminating resin over a major portion of the surface of said members including substantially all of the tops and sides of said members forming a ceramic tile curved top on each of said resin supporting members.

4. A simulated ceramic tile mosaic construction comprising a plurality of relatively thin, flat, resin supporting members each having a section of an overall visual display imprinted on its top surface, said resin supporting members being disposed in closely positioned substantially coplanar relationship and in such a manner as to form an ordered total visual display composed of said display sections, and a coating of laminating resin over a major portion of the surface of said members including substantially all of the tops and sides of said members, the coating over each member being thicker in the central portion than at the peripheral portions thereof to define a rounded crown of resin thereover, thereby to impart a ceramic tile appearance to said members.

5. A construction in accordance with claim 4 wherein said resin supporting members are differentially resin permeable and said resin is permeated through a part of said members thereby increasing the illusion of said members appearing to be ceramic.

6. A simulated ceramic tile mosaic construction comprising a plurality of jig-saw puzzle pieces having a portion of a visual display on one side of each piece, a supporting surface for said pieces, said pieces being disposed on said surface in interlocking substantially coplanar relaitonship in such a manner as to form an ordered total visual display from said display portions, and a coating of translucent laminating resin over substantially all of said pieces, the coating over each piece being thicker in the central portion than at the peripheral portions thereof to define a rounded crown of resin thereover, thereby to impart a ceramic tile appearance to said pieces and to bond said pieces to each other and to said surface.

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