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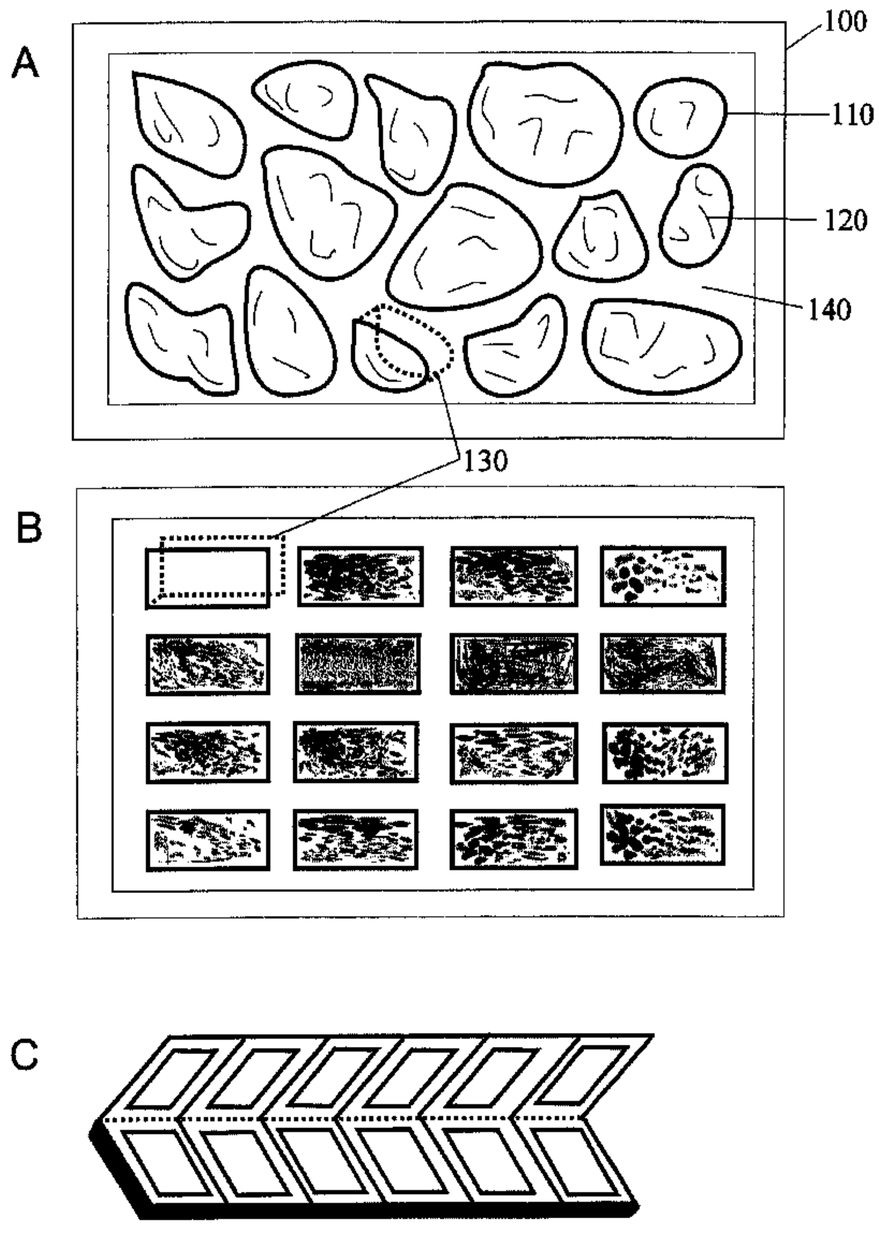


(57) Abrégé/Abstract:
The present invention provides a sheet of articulated masonry-like units (SAMU) and a method for producing the same. The method comprises obtaining masonry-like units prepared from one or more hardening materials; placing said masonry-like units into an articulating structure; interconnecting the masonry-like units to each other using a mesh-adhesive thereby generating a SAMU. Kits for preparing such sheets and methods of installing the same are also provided.

A SHEET OF ARTICULATED MASONRY-LIKE UNITS AND METHOD FOR PRODUCING THE SAME

ABSTRACT

The present invention provides a sheet of articulated masonry-like units (SAMU) and a method for producing the same. The method comprises obtaining masonry-like units prepared from one or more hardening materials; placing said masonry-like units into an articulating structure; interconnecting the masonry-like units to each other using a mesh-adhesive thereby generating a SAMU. Kits for preparing such sheets and methods of installing the same are also provided.

FIELD OF THE INVENTION

The present invention relates to decorative facing materials.

BACKGROUND OF THE INVENTION

Masonry materials such as brick and natural building materials such as stone or marble are often used to decorate walls due to the unique and inherent beauty of the finished product, their durability and maintenance free attributes. Since no two pieces of masonry-like elements look exactly the same, each wall comprising these components will also be unique, which is part of the artistic beauty of these types of decorating materials. The "earthy" look of brick with wood beams, for example, can render an interior warm and interesting. Moreover, these types of materials also serve the functions of providing temperature insulation and reducing exterior noise. A major disadvantage of conventional brick construction is that it is expensive, labor intensive, and normally must be done by professional masons.

There are different strategies in the prior art used to simulate the appearance of masonry material, for example brick, other mortar and sand based products such as stucco, and natural building materials such as stone or marble. Familiar products include pre-decorated plywood products or other forms of wood based products that simulate the look of masonry elements such as brick. More complex methods of achieving simulated masonry-like elements range from synthetic copolymers and resins, to the construction of composite and bulky masonry-like pieces glued onto heavy backing boards or support frames. Such methods are generally expensive to produce, are usually heavy and furthermore, such methods require an elaborate process of manufacture.

Apart from the decorative limitations, most artificial panels have the disadvantage of being heavy with poor insulating properties. They are susceptible to fracture if dropped or struck and they lack flexibility in that slight bending stresses induce inappropriate cracking. Moreover, each of these synthetic strategies involves the use of rigid, non-flexible surface coverings that greatly restrict ease of use and limit the surface contours to which they can be applied to linear planes.

Some examples in the prior art that attempt to develop methods and strategies of simulating masonry elements, for example brick wall material, are disclosed in U.S. Patent Nos. 4,644,719, 4,646,722, 5,228,937, 5,373,675, 5,787,666, 5,792,511, 5,974753, 6,041,561, 6,164,037 and 6,240,691 as well as published U.S. Patent Application No. 2001/0023559 A1. One such technique is disclosed in 5,228,937 wherein a panel, simulating in this instance a brick wall, is constructed using a stiff backing member, an impermeable sheet with a plurality of horizontal shelves upon which a plurality of spaced apart full sized masonry brick-like units are adhesively attached to the sheet and grouting mixture is applied between the spaces to cover the entire panel. This method requires that a rigid backing be used as a supporting mechanism for the brick panel which in turn allows for no flexibility in the finished product. This lack of flexibility prevents the use of the panel in any type of construction setting save for flat surfaces. Further, a plurality of screws and nails are used in order to secure the bricks to the rigid support panel, a mechanism which encourages cracks and stress fractures within the panel structure itself. This method suffers from the disadvantage of producing a relatively heavy, thick and stiff panel that is not useful for widespread decorative application.

Another example of a method that simulates a wall constructed from masonry material is disclosed in U.S. Patent No. 5,373,675. This composite building system suffers from the disadvantage of being extremely heavy and hard to maneuver safely, thus posing a safety hazard to workers. In addition, the process of making such a composite building system requires a substantial amount of reinforcing material which itself is heavy and not flexible. Finally, this method results in a very rigid panel made of concrete and metal reinforcements which must be moved into place with the use of heavy equipment, increasing the cost and time of production.

U.S. Patent No. 6,041,561, is directed to a self-contained molded pre-fabricated building panel and a method of making the same. The self-contained panel includes: a steel skeletal assembly comprising an array of steel channels and rigid sheeting, a forming structure to surround the skeletal array, a self-hardening material such as concrete that is introduced into the forming structure, and a molding with a means to enable press-setting thereof in a wet concrete wall. Disadvantages of such a self-contained pre-fabricated building wall include the following. One,

walls made with this method contain heavy support and load bearing structures that make assembly of the wall and moving the finished product difficult. Two, construction of a pre-fabricated wall as disclosed in 6,041,561 is very complicated and if it is to be built correctly, must be completed by a professional builder. Therefore, using such a method to construct a pre-fabricated wall made with simulated masonry elements is not amenable to a worker of limited skill in the art. Finally, in order for such a wall to be used as a structural support in a building it must meet safety standards. Therefore, an inspection by a qualified structural engineer must be performed which would increase the construction costs.

U.S. Patent No. 6,164,037, is directed to a formliner for producing a decorative panel made up of a layer of concrete which interconnects a layer of spaced apart bricks secured in a layer of concrete or cementitious material. Disadvantages of such a formliner include the following. One, a decorative wall formed using the formliner described in U.S. Patent No. 6,164,037 is rigid, heavy and not flexible and therefore, can only be placed on flat surfaces. The heavy weight of a finished panel produced using the formliner makes it awkward for a worker skilled in the art to properly attach the panel to a support structure. Two, a preferred method of attachment for a decorative panel to a support structure is nailing or screwing, which may damage or mar the appearance of the bricks forming the decorative face of the panel. Three, the decorative look of a finished panel cannot be adjusted without substantially changing the look of a formed panel. For example, more grout-material may have to be added to a panel in order to fill in open spaces, and because the panels produced with the formliner are cured before adding a grout material, cracking or decay of the decorative facing may occur due to insufficient bonding of the added grout-material to the panel.

Published U.S. Patent Application No. 2001/0023559 A1, is directed to a process for making brick-faced construction material and to brick-faced blocks made by the process. Disadvantages of such a method include the following. One, individual foamed resin base-blocks having an adhesive layer are laid free-hand on top of the base-side of uncured bricks within a molding unit. Once the foam resin base blocks are laid free-hand without any type of guiding mechanism their position cannot be adjusted because they are bonded to the uncured bricks. Such a procedure is

tedious and lends itself to a high degree of error when forming a brick-faced construction. Two, the entire brick-faced construction must be removed from the silicone mold in one unit, a procedure that is very difficult to perform and often leads to damaged brick material or separation of the bricks form the foamed-resin base blocks in the finished product. Third, a finished brick-faced construction is not flexible, making transport of the fished product to a construction site very difficult. Four, a brick-faced construction must be supported by reinforcing material, usually in the form of concrete, at a construction site, adding yet another step to finish off the brick-faced construction. Thus, the procedure to make a brick-faced construction, using the method disclosed in U.S. Patent Application No. 2001/0023559 A1, is quite laborious and time consuming.

Due to these types of limitations in the prior art a need remains for a light weight decorative wall covering that simulates masonry elements such as brick or concrete or natural building materials such as stone or marble, is economical, flexible, and easy to produce and apply.

SUMMARY OF THE INVENTION

The present invention provides a sheet of articulated masonry-like units and method for producing the same. One aspect of the invention provides a method of forming a sheet of articulated masonry-like units using the sequential steps comprising: obtaining masonry-like units having a base portion ranging in size from about 1/8 to 2½ inches in thickness prepared from one or more hardening materials selected from the group gypsum cement, plaster of Paris, Portland cement, an acrylic-based resin with cementitious material and cementitious material; placing said masonry-like units into an articulating structure with a plurality of separate holding cavities to hold one or more masonry-like units at least 1/16 of an inch above the height of the upper edge of said articulating structure; interconnecting the masonry-like units to each other using a mesh-adhesive thereby generating a sheet of articulated masonry-like units, wherein sufficient space is present between each masonry-like unit sufficient to enable an installation or filler material to enter between adjacent masonry-like units and pass through the open weave portions of said mesh adhesive.

One further aspect of the invention provides a kit to produce a sheet of articulated masonry-like units comprising separately; an articulating structure shaped to simulate any wall, ceiling, or building type structure constructed with masonry units; masonry-like units; mesh netting means; adhesive; adhesive application means; mortar material(s); and instructions for use.

One further aspect of the invention provides a kit having a sheet of articulated masonry-like units comprising separately; a sheet of articulated masonry-like units; mortar material(s); and instructions for use.

One further aspect of the invention provides a sheet of articulated masonry-like units produced by the method using the sequential steps comprising: obtaining masonry-like units having a base portion ranging in size from about 1/8 to 2½ inches in thickness prepared from one or more hardening materials selected from the group gypsum cement, plaster of Paris, Portland cement, an acrylic-based resin with cementitious material and cementitious material; placing said masonry-like units into an articulating structure with a plurality of separate holding cavities to hold one or more masonry-like units at least 1/16 of an inch above the height of the upper edge of said articulating structure; interconnecting the masonry-like units to each other using a mesh-adhesive thereby generating a sheet of articulated masonry-like units, wherein sufficient space is present between each masonry-like unit sufficient to enable an installation or filler material to enter between adjacent masonry-like units and pass through the open weave portions of said mesh adhesive.

DESCRIPTION OF THE DRAWINGS

Figure 1 provides a schematic of masonry-like units after preparation and curing of the units subsequent to their removal from a high definition mold.

Figure 2 provides a schematic of masonry-like units having a curvilinear base and a sample mold that may be used to form masonry-like units of this type of configuration.

Figure 3 depicts three different exemplary pattern types of high definition open tray molds. Each

mold may be designed to produce any shaped pattern for the masonry-like units of the invention. A) a flagstone shaped pattern; B) a brick pattern; C) a corner brick pattern.

Figure 4 depicts an example of a high definition mold in the shape of a cornered brick pattern. Light weight masonry-like units in the shape of bricks cure within the high definition mold. These brick-like units will be used to form a SAMU of a similar structure by placing the cured brick-like units in a form matched articulating structure in the shape of a cornered brick pattern.

Figure 5 illustrates how a completely constructed SAMU can be folded or rolled for packaging into a kit format for sale to the public. Similarly, the components that make up a finished SAMU, the high definition mold, masonry-like units, mesh, articulating structure, and glue etc. can be sold in a kit.

Figure 6 depicts three different exemplary patterns of articulating structures: A) a flagstone shaped pattern; B) a brick wall pattern and; C) a structure demonstrating how four different types of non-natural materials patterns can be produced using this method.

Figure 7 depicts a worker designing, in this instance, a customized brick wall shaped pattern for a SAMU. In this embodiment light-weight gypsum brick-like units are placed in an articulating structure having a brick wall pattern using a desired color arrangement of the brick-like units.

Figure 8 depicts a customized brick-like arrangement set in the articulating structure. In tis embodiment, gypsum brick-like units are loaded into the articulating structure front face down. Further, each brick-like unit extends out of the articulating structure so that the Sheet of Articulated Masonry-like Units (SAMU), once constructed, will dry separately away from and above the articulating structure, thus preventing the SAMU from drying attached to the articulating structure. The design also allows for the easy removal of the SAMU from the articulating structure.

Figure 9 depicts the finished product, a light weight, flexible SAMU. In this example the SAMU bears a customized pattern in the shape of a brick wall. In this figure the orientation of

the SAMU is face down.

Figure 10 provides a schematic of the articulating structure and a cross sectional view of the articulating structure at various stages during the manufacturing of a SAMU.

Figure 11 provides a schematic of a SAMU after the application of a mesh-adhesive.

Figure 12 illustrates a worker completing the construction of a SAMU. In this embodiment, a lightweight porous mesh is placed on top of the masonry-like units following application of a glue adhesive to the back face of the masonry-like units. In this embodiment the masonry-like units are laid out in a brick-wall pattern set in the articulating structure. The mesh is further adhered to the masonry-like units made from gypsum material by applying a second coat of glue adhesive onto and through the mesh material with a brush, such as a paint brush or a foam roller. Once the glue has dried, thereby forming a SAMU simulating a brick wall, the entire brick-like unit and mesh assembly is peeled away from and out of the brick-like unit wall shaped articulating structure.

Figure 13 depicts a SAMU with a brick wall pattern applied to a supporting wall. The top perimeter mesh of the SAMU may be attached to a support that may be attached to the wall if desired. To adhere the SAMU to the wall, mortar or a similar substance, is applied to the wall and the SAMU is pressed onto the wall. A worker then removes excess mortar, or adds additional mortar, with a mortar-trowel until a desired finished looked is reached.

Figure 14 depicts a magnified view of Figure 13, and shows the detail of the finished product, a SAMU.

DETAILED DESCRIPTION OF THE INVENTION

The following description illustrates the invention by way of example, not by way of limitation of the principles of the invention. The description will clearly enable those skilled in the art to make and use the invention described herein. The description includes a number of examples of the many variations and adaptations that are possible using the method of the present invention.

The present invention provides for methods of designing, making and using a Sheet of Articulated Masonry-like Units, SAMU. The masonry-like units used to make a SAMU may be produced in a manner that reflects the look of any type of natural material used in the art of masonry, for example, stone, marble, adobe, brick, distressed brick, blasted rock, irregular stonework, carved stone.

A SAMU is a one-piece sheet that can be attached to a wall, closely juxtaposed to other SAMUs to form a decorative pattern for a wall. One SAMU may or may not be identical in construction to another, wherein the aesthetics of each SAMU can depend upon the desired outcome and design of the final network of SAMUs. A SAMU can be produced such that it is flexible, light-weight and inexpensive relative to natural materials and. In addition a SAMU may be constructed such that it is water impermeable. A SAMU can also be constructed in a manner enabling it to be folded or rolled for shipment or storage. Furthermore, a SAMU can be constructed for interior or exterior use, wherein the environment in which a particular SAMU may be installed can depend upon the type materials used to construct the SAMU and attach it to the surface.

As an overview, the method of making a SAMU comprises the steps of (a) preparing a high definition open tray mold; (b) mixing a fluent gypsum cementitious material and if necessary adding an appropriate dye color to the mix; (c) filling the mold with the fluent gypsum cementitious material to make a plurality of masonry-like units; (d) allowing the masonry-like units to cure and harden in the mold; (e) removing the masonry-like units from the mold; (f) laying the masonry-like units front face down in a form-matched articulating structure in order to form a desired pattern; (g) overlaying the masonry-like units contained in the articulating structure with a mesh-adhesive; (h) allowing the SAMU to dry; and (i) removing the SAMU from the articulating structure.

Masonry-like Units

Masonry-like units are shaped to simulate masonry material such as bricks, concrete blocks or

may be shaped like natural materials used in the masonry art for example, stones, flagstones or marble. The masonry-like units can be made from gypsum or a similar material and described herein, may be made in any color, in particular, colors that resemble natural masonry-like material for example bricks, stones or marble.

Masonry-like units are generated by preparing and pouring a hardening material, preferably gypsum cement into a high definition open mold. The hardening material can be of many types, the defining characteristics include the fact that, within a practical period of time after mixing with an appropriate dilutent, for example water, the material hardens and does not crumble or otherwise significantly loose its integrity over the lifetime of the SAMU. Interior surfaces may crack in such a manner to further add to its "realistic" appearance, as long as the integrity is maintained such that the material does not spall. The hardening material may be any cementitious or non-cementitious compound, preferably but not limited to gypsum cement, portland cement, plaster-of-Paris, an acrylic based compound. The material chosen can depend upon the desired final texture as well as considerations of weight, wear and costs of the project.

In one embodiment an appropriate amount of gypsum cement is prepared by mixing water and gypsum cement in an approximate ratio, for example one part water to four parts dry gypsum cement, said mixture being stirred or mixed until all lumps have dissolved, resulting in a thick smooth consistency. The mixture is then poured separately into the individual cavity or cavities of the high definition mold and spread with a tool, for example a trowel to smooth the base surface of the masonry-like unit. Appropriate dyes may be added to the mixture during the initial mixing of the hardening material or may be placed on the interior surfaces of the high definition mold, in order to simulate the color of the appropriate masonry-like unit to be produced. Colors may include, but are not limited to, burnt orange, orange, red, gray, black, brown, tan, beige, or white.

The masonry-like units **300** can be envisioned as having two sections, as indicated in Figure 1: a base portion **310** and a high definition or decorative face portion **320**, shaped by the high definition mold **330**. ". In one embodiment the base portion **310** of the masonry-like units **300** is

approximately 1/8" to 2.5", and in a further embodiment the base portion of the masonry-like units ranges between approximately 1/8" to 2" and yet a further embodiment the base portion of the masonry-like units ranges between approximately 1/8" and 1".

In one embodiment of the present invention, if the masonry-like units are of a heavier nature, for example the base portion of the unit is larger than 1.5", the masonry like units may be formed such that the hardening material in the interior of the masonry-like unit is replaced with a less dense material thus reducing the mass of the unit. The surface area of this type of masonry-like unit will still be formed using the hardening material, in order that the desired physical features of the unit can be produced.

In one embodiment of the present invention as illustrated in Figure 2, the base portion of the masonry-like units is shaped in a curvilinear fashion, providing a means for a SAMU constructed using this form of masonry-like units to be installed around a curved surface, for example a circular column. In addition, the curvilinear base of a masonry-like unit may be concave or convex wherein this curvilinear shape may be dependent on the particular application for a SAMU constructed using these forms of masonry-like units.

Masonry-like units are typically cured in the molds for about 4 to 24 hours. One skilled in the art will envisage longer curing times for masonry-like units having greater thicknesses. Once the masonry-like units are made and cured they are removed from the high definition mold, a process known as demolding, placed into an appropriate pile based on color or size, and appropriately stored until required. However, removal of the masonry-like units may occur in as little a 30 minutes, wherein this time frame being determined by the type of material used to form the units.

In Figures 1 and 2 the back surface of the masonry-like units is illustrated as a smooth surface. In reality this surface may not be smooth but it may have a rough texture which can provide an improved surface to which a mesh adhesive may adhere.

The High Definition Open Molds

Masonry-like units are prepared in a high definition open molds. The simplicity of the high definition mold renders freedom to design almost any size, type and shape of masonry-like unit needed in the construction of a sheet of articulated masonry-like units (SAMU), and dramatically decreases the time and cost of producing and constructing masonry-like units.

As illustrated in Figure 1, a high definition mold **330** is formed such that the masonry-like unit **300** may be easily removed from said mold. In addition, the high definition mold **330** provides a means for preparing masonry like units having high definition faces which simulate masonry type components, in a cost effective and simple manner.

In one embodiment of the present invention and with reference to Figure 3, high definition open tray molds **100** are made of silicone. A plurality of smaller cavities **110** are contained within a larger open tray cavity **140**. Further, each cavity **110** may contain distinctive high definition markings **120**. The plurality of cavities **110** have a depth lower than the open tray cavity **140**, which is shown in perspective by the dashed lines **130**. The high definition open tray mold may be designed in order to produce any type or shape of masonry-like unit as illustrated in Figures 3A-C. Using the masonry-like units and method of the present invention, it is possible to create a pattern that is not entirely repetitious in its fine detail. This design feature is lost with all other artificial coverings or masonry structures because the cost of producing such a large surface area warrants a repetitive design.

Figure 4 depicts one example of a high definition mold in the shape of a brick wall corner. The masonry-like units formed using this particular mold may form the corner pieces of a SAMU to be utilized as a decorative covering for a fireplace or any other support structure with corners for example.

In one embodiment of the present invention, high definition molds may be designed to form masonry-like units that have convex or concave curves in order to be used to make SAMUs as decorative coverings for rounded support structures like pillars or columns. With reference to

Figure 2 sample molds for a brick like unit and a stone like unit having concave bases are illustrated. As would be known to a worker skilled in the art, a mold used to create a curvilinear surface on the base of a masonry like unit would typically have to be modular in construction, in order to provide a means for the removal of this form of a masonry-like unit since the high definition face may prevent the de-molding of a masonry-like unit formed in a single entity mold. In particular, the mold can be formed from two sections which are interconnected to form the complete mold, wherein the two sections are connected by a connection system which is easily disconnected and reconnected for the removal and reuse of the mold.

In a further embodiment of the present invention, masonry-like units having a concave or convex back surface may be constructed through the bending of a high definition open molds such that the mold has the desired curvature. Upon completion of this step the hardening material is placed in the high definition molds and allowed to cure. In addition, masonry-like units having a back surface which is curved may be produced using a process similar to that previous mentioned, however the hardening material is poured into the molds in a two step process. First, hardening material having a typical consistency is poured into the molds such that the high definition surface of said mold is covered by the hardening material. A second batch of hardening material is prepared which has a much stiffer consistency by, for example by reducing the volume of water in the mix, such that this second batch of material is able to maintain the curved shape on the back surface of the masonry-like units. This second batch of hardening material is placed in the molds completing the formation of the masonry-like units.

In one embodiment as illustrated in Figure 3, the simplicity of a high definition mold comprising a plurality of cavities as shown in Figure 3, allows a worker to construct and make masonry-like units in an efficient and quick manner which significantly reduces time and cost of production. Such a mold produces masonry-units with high definition front faces which will be facing out from the viewing side of the SAMU, while providing each masonry-like unit with a flat back face necessary for attachment to the netting means of the SAMU as described in detail below.

In order to produce the masonry-like units used to construct a SAMU, the first step entails

designing a high definition open tray mold that reflects the desired final appearance of each masonry-like unit that will be used in the production of the decorative facing. A plurality of different pattern types used for the production of masonry-like units are shown in the three different designs of high definition open tray molds as illustrated in Figures 3A-C. Such masonry-like units may be simulated brick, stone-work, any type of masonry work or may simulate natural material such as marble.

The process of making a high definition mold is well known to those skilled in the art and practically any type of mold structure may be used to construct the masonry-like units of the present invention. The composition of the high definition mold itself may encompass any or all of the following characteristics, wherein it may be made from a high definition silicone rubber compound, or similar such material, having attributes which will allow one to achieve numerous high definition replications of the desired surface texture on the final masonry-like units produced. In addition the high definition molds may be formed from material which is easy to clean upon the removal of a masonry like unit, which provides a means for quick turn around for the reuse of said molds. The high definition molds may be a vacuum formed or mold injected plastic, polymer or other synthetic material. The materials chosen will ultimately depend on the desired finished pattern for the masonry-like units and whether or not the pattern will be reproduced many times, i.e., the mold may be used for a single customized project or may be used for a large commercial production run.

Prior to pouring the gypsum cementitious material the cavity or cavities of the high definition open tray mold may be coated or treated with a parting agent to assist in the removal of the masonry-like units from the high definition open tray mold upon completion of the curing process. The type and amount of parting agent used will depend on the type of hardening material or materials used to construct the masonry-like units of the present invention.

When making high definition molds to be sold in a kit format, one option may be to construct a mold using non-durable or bio-degradable materials that would render the mold functional for creating a limited number of masonry-like units. For example, if the kit is designed for making

SAMUs with a brick-wall pattern, as exemplified in Figure 5, for one accent wall (for example, a living room or den), the mold may be constructed from a degradable or recycled material such as a very low grade polyvinyl chloride (PVC) or ABS plastic, on the order of 1 to 2 mm thick. Such a mold may be recycled in order to produce new molds with different patterns or other types of recycled products, if one so desired. The outer rim size of the mold may vary. Preferably 32 ft^2 to 36 ft^2 is a desirable size that is small enough such that it is easy to manipulate, yet large enough to produce a plurality of masonry-like units. A kit-sized high definition mold would preferably be on the order of 16 ft^2.

In one embodiment at least a 4 foot by 4 foot high definition mold is prepared from a vacuum formed plastic which will impart an overall bold repetitive pattern, such as brick in Figure 4, with a subtle random appearance, i.e., each brick-like unit is not identical in appearance. Once the mold has been completed, and the hardening material poured into the individual cavity or cavities the masonry-like units are allowed to cure and harden. The curing time for masonry-like units will depend on the type of hardening material used and usually takes from 24 to 48 hours. For example a gypsum cement can take from 4 to 24 hours to cure and harden. Once the masonry-like units are hardened they can be removed from the mold and each cavity is cleaned of any debris so that the mold can be used again to form more masonry-like units if desired. Prior to forming more masonry-like units, a releasing or parting agent is applied to the cavity or plurality of cavities of the high definition open tray mold. The release agent is preferably a wax, oil, or silicone based product wherein the use of such a releasing agent is not detrimental to the structural integrity of the mold and is not detrimental to the high definition surface of the masonry-like units.

Construction of the Articulating Structure

Masonry-like units are placed into an articulating structure, wherein said units can be arranged in any manner or pattern desired including, but not limited to, such configurations as diamond, herring bone, mosaic-type, star, square, or T-bone patterns. Articulating structures have a

plurality of cavities to loosely hold one or more masonry-like units constructed using the high definition open tray mold of the present invention. Such articulating structures can be form matched to reflect the design of the high definition mold or may be designed to reflect an entirely different pattern or patterns. Similarly, a pattern that is familiar to one of skill in the art may be utilized; however, custom design patterns can also be produced using the method and articulating structures detailed in the present invention.

With reference to Figures 6, 7 and 8, the simplicity of the articulating structure renders freedom to design almost any size, type and shaped sheet of articulated masonry-like units, SAMU, and it may dramatically decrease the time and cost of producing and constructing such decorative facings. Further, articulating structures may be produced to match the form of the high definition open tray mold. Such units are referred to as "form matched" articulating structures.

In one embodiment of the present invention and with reference to Figure 9, the articulating structure may provide a means for the production of a SAMU with a brick wall pattern. The masonry-like units may be set in any unique pattern or design which the user of the product desires as illustrated in Figures 7 and 8. Using the masonry-like units and method of the present invention, it is possible to create a pattern that is not entirely repetitious in its fine detail. This design feature is lost with all other artificial coverings or masonry-like structures because the cost of producing such a large surface area warrants a repetitive design.

Figure 6B is a schematic of Figures 7 and 8. A myriad of different type patterns can be designed using the articulating structures **200** of the present invention, examples of which are depicted in Figure 6C. Each articulating structure **200** may or may not be form matched as depicted in Figure 6B to the corresponding high definition open tray mold which was used to create the masonry-like units. Articulating structures **200** may be designed in such a manner as to allow for one or more masonry-like units **220** to be placed into each holding cavity **210** as shown in Figures 6A and 6C. The holding cavities **210** may be any shape. In one embodiment, the holding cavities **210** are rectangular and the perimeter **230** of each holding cavity **210** is raised to loosely hold one or more masonry-like units **220**, face down in the articulating structure **200**.

Figures 7 and 8 depict an articulating structure in the shape of a brick wall. The simplicity of an articulating structure as defining an upwardly open tray or an open tray comprising a plurality of cavities as shown in Figures 6A-C, 7 and 8, provide a means for a worker to construct patterns for SAMUs in a quick and simple manner. The composition of the articulating structure itself may encompass any or all of the following characteristics. It may be made from a high definition silicone rubber compound, a vacuum formed or mold injected plastic, polymer or other synthetic material, aluminum, steel, other metals, wood or composites thereof. The materials chosen will ultimately depend on the desired finished pattern for the masonry-like units and whether or not the pattern will be reproduced many times, i.e., the form matched articulating structure may be used for a single customized project or may be used for a large commercial production run.

In one embodiment of the present invention, the articulating structures may be sold in a kit format and as such it may be desirable to construct an articulating structure using non-durable or bio-degradable materials that would render the articulating structure functional for creating a limited number of SAMUs. For example, if the kit is designed for making SAMUs with a brick-wall pattern for one accent wall (for example a living room or den), the articulating structure may be constructed from a degradable or recycled material such as a very low grade polyvinyl chloride (PVC) or ABS plastic, on the order of 1 to 2 mm thick. Such an articulating structure may be recycled in order to produce new articulating structures with different patterns or other types of recycled products, if one so desired.

The outer rim size of an individual articulating structure may vary. Preferably 32 ft^2 to 36 ft^2 is a desirable size that is small enough that it is easy to manipulate, yet large enough to produce a plurality of SAMUs. A kit-sized articulating structure would preferably be on the order of 16 ft^2. In one embodiment at least a 4 foot by 4 foot articulating structure is prepared from a vacuum formed plastic which will impart an overall bold repetitive pattern, such as brick, with a subtle random appearance, i.e., each brick-like unit is not identical in appearance. Once the articulating structure has been completed the production of the SAMU may begin.

Selection and Laying of Patterns Used to Construct SAMUs

With reference to Figures 7 and 8, a SAMU having masonry-like units simulating bricks, can completed in the following manner. Masonry-like units, for example brick-like units as depicted in Figure 1 and 2, are laid face down in an articulating structure so that once completed, the side of the masonry-like units which faces down will become the primary viewing side of the SAMU. The articulating structure is designed so that the height of each masonry-like unit, once placed in the articulating structure, is above that of the articulating structure. The articulating structure may be designed so that each masonry-like unit is at least 1/16th of an inch higher than the height of the articulating structure itself. This feature is key for the easy removal of the SAMU from the articulating structure. With reference to Figure 10, a cross sectional schematic of the articulating structure used in this manner is depicted, wherein the cross section is illustrated at two stages of the formation of a SAMU. The void **360**, which is formed in the above manner is schematically illustrated. This method allows the SAMU to dry separately away from and above the articulating structure, which helps to prevent the SAMU from adhering to the articulating structure. In one embodiment the masonry-like units are light weight gypsum masonry-like units of various colors. Any wall pattern can be chosen or designed by a worker in a simple and quick manner. A distinct advantage of the present invention over the prior art is the ability of having complete design freedom. Any design pattern imaginable for a SAMU may be attainable using this invention.

Many designs for SAMUs are possible using the present invention. For example, if one wanted to design a theme room such as a cave, appropriate articulating structures could be constructed to create SAMUs with a cave-like relief. These articulating structures would generate flexible SAMUs that if wrapped around a curved structure or structures and attached to a wall, ceiling or floor, such as columns, pillars or support beams, would simulate vertical support structures made of brick or stone. In contrast to typical pre-fabricated surface-covering options, the simplicity of the articulating structure enables a freedom of design which not found in other methods of manufacture for pre-fabricated wall coverings.

Formation of a Sheet of Articulated Masonry-like Units

In one embodiment, masonry-like units, whether simulating masonry units such as brick, adobe or concrete blocks or natural masonry-like units like stone flagstone or marble for example, are placed into an articulating structure in order to form a SAMU. The masonry-like units can be arranged in any manner or pattern desired including, but not limited to, such configurations as diamond, herring bone, mosaic-type, star, square, or T-bone patterns. Articulating structures have a plurality of cavities to loosely hold one or more masonry-like units constructed using the high definition open tray mold of the present invention. Such articulating structures can be form matched to reflect the design of the high definition mold or may be designed to reflect an entirely different pattern or patterns. Similarly, a pattern that is familiar to one of skill in the art may be utilized; however, custom design patterns can also be produced using the method and articulating structures detailed in the present invention.

As discussed in Example 1 below, one embodiment of the present invention is the formation of a SAMU simulating a brick wall pattern. However, it may be envisioned that SAMUs may be produced using masonry-like units other than brick-like units that are made with the hardening material of the present invention. Such masonry-like units may include, but are not limited to, stone, adobe or marble. These structural material pieces are made in order to simulate the "look" of these materials in their natural state.

In one embodiment of the present invention a SAMU is formed by the placement of a plurality of masonry-like units into an articulating structure in a desired fashion and subsequently these masonry-like units are interconnected by use of a mesh-adhesive which is distributed over the back surface of the masonry-like units thus interconnecting said units forming a SAMU.

In one embodiment of the present invention, the mesh-adhesive after application to the base of the masonry-like units, maintains its open weave portions wherein upon installation of a SAMU the installation or filler material, which may be mortar, is able to pass through said open weave portions enabling the filling of the separation distance between the masonry-like units of a

SAMU. This process provides a means for reducing the amount of work required to produce realistic masonry type cladding, since the process of pointing of the spaces between the masonry like units is partially or fully performed by the above mentioned process. In one embodiment of the present invention, the open weave portions have a mesh size ranging from 1mm^2 to 30 mm^2.

In one embodiment of the present invention and with reference to Figure 11A the mesh-adhesive is a combination of a mesh netting means and an adhesive, which serves to form a sheet-like material and impart flexibility to the finished product. This enables the final SAMU to be easily manipulated and attached onto curved surfaces. There are many synthetic or natural materials which may be used as the mesh netting for this purpose including but not limited to glass fiber, nylon, or any man made mesh-like substance which is resistant to the inherent alkalinity of a cementitious material. Figure 11A illustrates a schematic of the front and back side of a SAMU created using this type of mesh-adhesive.

In another embodiment of the invention and with reference to Figure 11B the mesh-adhesive can be a random pattern of adhesive, for example latex glue or a polymer based glue. The mesh-adhesive may be applied to the masonry-like units in the articulating structure from top to bottom and end to end of the articulating structure random pattern. In such an embodiment the glue material must fully harden before removing the brick-like unit wall patterned SAMU from its corresponding articulating structure. Figure 11B illustrates a schematic of the front side and back side of a SAMU created using this type of mesh adhesive. In this embodiment of the present invention, the mesh-adhesive may be spread over the back surface of the masonry-like units in such a manner that an even distribution of said mesh-adhesive is realized over the surface of the SAMU.

The following procedure is used in order to make a complete SAMU. Masonry-like units, simulating bricks in this example, are placed face down in an articulating structure. In one embodiment the mesh-adhesive is a combination of a fine mesh material and an adhesive. A piece of fine mesh netting is stretched over the entire surface area of the masonry-like units, leaving a 3 inch overlap on the top side of the articulating structure. Although facings can be

made without overhang, in one embodiment the mesh netting material is cut to a dimension ensuring an overhang of at least 3 inches along the top edge of the SAMU, as illustrated in Figure 9.

In one embodiment of the present invention, netting is adhered to the masonry-like units using for example a commercially available latex glue by brushing the glue on using a foam roller, as illustrated in Figure 12. In one embodiment one coat of latex glue applied to the non-viewing side of the masonry-like units in the articulating structure is sufficient to attach the mesh material to the masonry-like units. However, it will become clear to a worker of ordinary skill when more than one coat of glue is required to secure the mesh to the masonry-like units and when the mesh net is firmly attached to the gypsum masonry-like units in such a manner that the netting does not peal away from the masonry-like units. The mesh adhesive and masonry-like units that are interconnected in this manner form a SAMU, as illustrated in Figure 9.

In one embodiment of the present invention, a SAMU may be produced using automation wherein each of the steps as described above may be performed by a machine which therefore may reduce the production time for a SAMU and furthermore may reduce costs.

Removing the SAMU from the Articulating Structure

Once the glued masonry-like units and the mesh-adhesive dry and the formed SAMU is hard to the touch, it is ready to remove from the articulating structure. One embodiment is to lift the SAMU out of the articulating structure by lifting the mesh-adhesive that extends beyond the edge of the upper most layer of masonry-like units. In one embodiment the mesh-adhesive may take between 20 to 40 minutes to cure and dry to the masonry-like units, depending on the brand used, before the SAMU is hard to the touch and removal from the articulating structure can be attempted.

In embodiments where it is desired to have interlocking panels, portions of the SAMU can be cut out using a knife. This will generate spaces that can be filled in by the protruding pieces on an

adjacent SAMU.

In one embodiment, an elongated piece of wood is placed along one edge of the SAMU as it sits in the articulating structure such that the overhanging mesh net member can be wrapped around the piece of wood and attached as illustrated in Figure 13 by means including stapling, nailing, screwing or other fastening means. The cured SAMU can then be gently pried from the articulating structure beginning with the edge that is fastened to the plywood strip. The SAMU is then placed in a warm dry area, preferably with low humidity conditions, for the remainder of the curing period after which it will be ready for installation.

Attaching a SAMU to a Surface

The method of attachment for one preferred embodiment includes attaching SAMUs to a surface using an industrial mortar which spreads the adhesive force over the entire surface of the SAMU and serves to sustain the shape, look, weight and structural integrity of the entire SAMU. Guiding lines can be placed on the wall for proper alignment of the facings. Figure 13 shows how the support beam may be used to "hang" the facing following the hardening of the mesh-adhesive wherein in this figure, a worker has screwed the beam to the wall. This mode of attachment is in contrast to rigid points of attachment such as nails or clips, which focuses the support to the point of attachment. Although nails or screws may be used to hold the SAMUs in place during installation, these are eventually removed, such that a uniform decorative wall is manufactured with little or no visible gaps or lining. In one embodiment the SAMU is pressed against a mortar material that was previously applied to a wall or surface to be decorated. The mortar flows through the mesh portion of the SAMU to form the grouting of the SAMU and to hold the SAMU including the masonry-like units, in place. An enlargement of such a SAMU is illustrated in Figure 14. Removal of excess mortar (grout) is taken off the SAMU using a proper mortar tool known to a person of skill in the art of masonry pointing.

Construction of a rectangular SAMU is demonstrated by Figure 13 wherein the masonry-like units are brick-like units, and mortar lines are in coplanar relation with a top edge portion, a

bottom edge portion, and two side edge portions and wherein the finished product has a three-dimensional quality when mounted on a wall or fireplace either vertically or horizontally. All SAMUs are mounted in such a way as to mask the points of juncture between two or more SAMUs mounted on a wall. The top edges of these SAMUs are likewise made to simulate a mortar line, however, the free ends of these edge portions can optionally be trimmed back to the upper edge and/or the lower edge of the masonry-like units to allow for the union of a further panel.

SAMUs can be mounted above, below or beside one another, in either a horizontal or vertical orientation, depending upon the requirements of the area to be covered. After mounting the SAMU to a wall, the space between the masonry-like units along the upper edge of one SAMU and the masonry-like units along the lower edge of a co-planer mounted SAMU can be filled in with mortar to hide the junction between the two SAMUs.

The dimensions of each SAMU can vary, depending upon the dimensions of the wall to be covered, the number of people working to construct and mount each SAMU onto a wall, the design of the relief, and the type and shape of the articulating structure used. In general, dimensions will be chosen in order to maintain an economical cost both for making and installing such SAMUs. The larger the SAMU, the fewer number of SAMUs required to cover a wall surface, which diminishes the amount of work invested to mask seams. On the other hand, the SAMUs cannot be so large as to be unwieldy to manipulate and install in small enclosures such as a wine cellar or basement. The height of each SAMU can range significantly, with a typical height being from 1 foot to 8 feet, and the height of preferred embodiments being on the order of 4 to 5 feet. The width can range significantly, with a typical width ranging from 2 to 14 feet, and one width being on the order of 4 to 6 feet. It can be envisioned that both the height and width of a SAMU can be greater that 8 feet and 14 feet, respectively and may depend upon the height and width of the structure to be covered or on the inclination of a particular designer.

In one embodiment, the exterior boarders of the SAMUs produced with the method of the present invention are rectangular in shape. However, depending upon the requirements of the wall

surface desired to be covered, SAMUs may be produced with exterior boarders that are other than rectangular. Such shapes may include, but are not limited to, circular, square, triangular, rhomboid and any other shape envisioned by the user of the present invention in order to properly cover the wall surface of interest.

Supplemental Features

If spaces are left surrounding the masonry-like units, filler can be added after the SAMUs are attached to the wall. This will reduce to an even greater extent any "pre-fabricated" appearance and multi-colored masonry-like units with a mortar-like material will be rendered even more realistic. However, by using the method of the present invention this course of action is usually not necessary.

The face of these SAMUs can be painted to more closely simulate natural products or a wall constructed of natural products, such as stone or marble or other like masonry-like units.

Though not strictly considered part of this invention, foam material may be applied to the back of the SAMU, after the SAMU has hardened, to provide an insulating feature.

One skilled in the art will recognize that modifications may be made in the present invention without deviating from the scope of the invention. The invention is illustrated further by the following example which is not to be construed as limiting the invention or scope of the specific procedures, constructions, components or compositions described herein.

EXAMPLES

The following example illustrates the method used to construct decorative Sheets of Articulated Masonry-like Units, SAMUs, that achieve the appearance of a brick wall. Gypsum cementitious material has been utilized to form light-weight masonry-like units, hereinafter referred to as brick-like units, in order to produce SAMUs using the method of the present invention because it is desirable and necessary to achieve the appearance of brick while at the same time decrease the

costs incurred when constructing an entire brick wall.

Brick Wall Shaped High Definition Open Tray Mold

The simplicity of a high definition mold as defining an upwardly open tray mold or an open tray mold comprising a plurality of cavities as shown in Figure 3, allows a worker to construct and make brick-like units in an efficient and quick manner which significantly reduces time and cost of production. Such a mold produces brick-like units with high definition front faces which will be facing out from the viewing side of the SAMU. Use of the high definition open tray mold and method of the invention produces brick-like units with flat back faces which facilitates the attachment of the brick-like units to the netting means of the SAMU. However, brick-like units produced using the high definition mold **100** depicted in Figure 3B of the present invention, may have a back face which is not entirely flat and may be slightly rough or bumpy. A rough back face may be required to better adhere the mesh netting means to the brick-like units, depending upon the material characteristics of the mesh netting means to be glued to the brick-like units in order to make the SAMU.

In order to produce the brick-like units used to construct a SAMU, the first step entails designing a high definition open tray mold that reflects the desired final appearance of each brick-like unit that will be used in the production of the decorative facing. Examples of the plurality of different brick pattern types used in the production of brick-like units are shown in the high definition open tray mold depicted in Figure 3B. Individual molds may be designed to produce clones of one type, shape, size or color of brick-like unit, or in such a manner as to produce brick-like units of different type, shape, size or color within a single high definition open tray mold.

Preparing the Hardening Material Mixture (Gypsum Cement) and Producing Brick-like units

In one embodiment gypsum cement, is prepared and poured into a brick wall shaped high definition open tray mold in order to make the brick-like units, which will be used as the facing material for the SAMU. The hardening material can be of many types, the defining

characteristics include the fact that, within a practical period of time after mixing with an appropriate diluent, for example water, the material hardens and does not crumble or otherwise significantly loose its integrity over the lifetime of the SAMU. The hardening material may be any cementitious or non-cementitious compound, preferably but not limited to gypsum cement, plaster-of-Paris or an acrylic based compound. The material chosen will once again depend on the desired final texture as well as considerations of weight, wear and costs of the project.

The preferred ratio of dry gypsum cement powder to water is 4 to 1. The gypsum cement mixture is stirred until said mixture is free of lumps and is of a smooth creamy consistency. In one embodiment, one or more commercially available dyes, known to a worker skilled in the art, may be added to the gypsum cement mixture, in order to produce colored brick-like units, before or after pouring said mixture into the plurality of cavities, **110**, of the high definition open tray mold **100**. Colors may include, but are not limited to, burnt orange, orange, red, gray, black, brown, tan, beige, or white. Brick-like units can be removed from the high definition mold in as little as 30 min for brick-like units with a width of less than 1/8 of an inch. In one embodiment masonry-like units are about 1/8 to 3/4 of an inch in thickness and are dried for about 4 to 24 hours.

Selection and Laying of Patterns Used to Construct SAMUs

Figure 7 depicts a worker laying brick-like units face down in an articulating structure so that once completed, the side of the brick-like units which faces down will become the primary viewing side of the SAMU. The articulating structure is designed so that the height of each brick-like unit, once placed in the articulating structure, is above that of the perimeter **230** of the holding cavity. The articulating structure may be designed so that each brick-like unit is at least 1/16th of an inch higher than the height of the articulating structure itself. This feature is key for the easy removal of the SAMU from the articulating structure. This method allows the SAMU to dry separately away from and above the articulating structure, and helps to prevent the SAMU from adhering to the articulating structure. Any wall pattern can be chosen or designed by a

worker in a simple and quick manner. A distinct advantage of the present invention over the prior art is the ability of having complete design freedom. Any design pattern imaginable for a SAMU may be attainable using this invention.

Formation of a Brick Wall Patterned Sheet of Articulated Masonry-like Units

The following procedure is used in order to make a complete brick wall shaped SAMU. Brick-like units are placed face down in an articulating structure. Although facings can be made without overhang, in one embodiment a piece of fine mesh netting is stretched over the entire surface area of the brick-like units leaving a 3 inch overlap on the top side of the articulating structure. Mesh netting may be any type of fine mesh, one embodiment being a mesh netting that is light weight. In yet another preferred embodiment a random pattern of adhesive, applied as discussed above, may serve as the mesh-adhesive means for the SAMU.

Netting is adhered to the brick-like units using a commercially available latex glue by brushing the glue on using a foam roller, as illustrated in Figure 12. In one embodiment one coat of latex glue applied to the non-viewing side of the brick-like units in the articulating structure is sufficient to attach the mesh material to the brick-like units. However, it will become clear to a worker of ordinary skill when more than one coat of glue is required to secure the mesh to the brick-like units and when the mesh net is firmly attached to the gypsum brick-like units in such a manner that the netting does not peal away from the brick-like units. In one embodiment the glue will take between 20 to 40 minutes to cure and dry to the brick-like units, depending on the brand used, before the SAMU is hard to the touch and removal from the articulating structure can be attempted. The mesh netting and brick-like units that are glued together in this manner form a SAMU, as illustrated in Figure 9.

Removing the SAMU from the Articulating Structure

Once the glued brick-like units and net dry and the formed SAMU is hard to the touch, it is ready to remove from the articulating structure. One embodiment is to lift the facing out of the

articulating structure by lifting the mesh netting means that extends beyond the edge of the upper most layer of brick-like unit. In one embodiment, an elongated piece of wood, preferably a 2 by 4 or a piece of plywood, is placed along one edge of the SAMU as it sits in the articulating structure such that the overhanging mesh net member can be wrapped around the piece of wood and stapled, as shown in Figure 13, nailed, screwed or otherwise fastened to the beam. The cured SAMU can then be gently pried from the articulating structure beginning with the edge that is fastened to the plywood strip. The SAMU is then placed in a warm dry area, preferably with low humidity conditions, for the remainder of the curing period after which it will be ready for installation.

Attaching a SAMU to a Surface

The method of attachment for one preferred embodiment includes attaching SAMUs to a surface using an industrial mortar which spreads the adhesive force over the entire surface of the SAMU and serves to sustain the shape, look, weight and structural integrity of the entire SAMU. Guiding lines can be placed on the wall for proper alignment of the facings. Figure 13 shows how the support beam may be used to "hang" the facing following the adhesive hardening. In this figure, a worker has screwed the beam to the wall. This mode of attachment is in contrast to rigid points of attachment such as nails or clips, which focuses the support to the point of attachment. Although nails or screws may be used to hold the SAMUs in place during installation, these are eventually removed, such that a uniform decorative wall is manufactured with little or no visible gaps or lining. In one embodiment the SAMU is pressed against a mortar material that was previously applied to a wall or surface to be decorated. The mesh netting means must have a lattice with holes of sufficient diameter to allow mortar to flow through the mesh netting means of the SAMU to the front viewing face of the SAMU. The mortar flows through the mesh portion of the SAMU to form the grouting of the SAMU and to hold the SAMU including the masonry-like units, in place. An enlargement of such a SAMU is illustrated in Figure 14. A close-up view of an attached SAMU is shown in Figure 5. Removal of excess mortar (grout) is taken off the SAMU using a proper mortar tool known to a person of

skill in the art of brick laying. Mortar may be added to any gaps in the SAMU if necessary, using a mortar tool.

It is to be understood that the exemplary embodiments contained herein are illustrative and not restrictive. It will be obvious to those skilled in the art that various modifications, adaptations and variations may be made without departing from the teaching of the invention.

EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OF PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method of forming a sheet of articulated masonry-like units using the sequential steps comprising:

(a) obtaining masonry-like units having a base portion ranging in size from about 1/8 to 2½ inches in thickness prepared from one or more hardening materials selected from the group gypsum cement, plaster of Paris, Portland cement, an acrylic-based resin with cementitious material and cementitious material;

(b) placing said masonry-like units into an articulating structure with a plurality of separate holding cavities to hold one or more masonry-like units at least 1/16 of an inch above the height of the upper edge of said articulating structure;

(c) interconnecting the masonry-like units to each other using a mesh-adhesive thereby generating a sheet of articulated masonry-like units, wherein sufficient space is present between each masonry-like unit sufficient to enable an installation or filler material to enter between adjacent masonry-like units and pass through the open weave portions of said mesh adhesive.

2. The method of forming a sheet of articulated masonry-like units according to claim 1, wherein said masonry-like units comprise a high definition front face shaped to look like masonry material selected from the group of bricks, stones, flagstones, marble and any type of masonry work or millwork, and wherein said masonry-like units comprise a generally flat back face and sides necessary for attachment to the mesh adhesive.

3. The method of forming a sheet of articulated masonry-like units according to claim 1, wherein said masonry-like units are brick-like units.

4. The method according to claim 2, wherein said mesh-adhesive is formed by:

(a) placing a mesh selected from the group of glass fiber, nylon, fiberglass and any material that is resistant to the alkalinity of said hardening material over said masonry-like units; and

(b) applying an adhesive over said mesh to form said mesh-adhesive.

5. The method according to claim 4, wherein said mesh-adhesive is formed by placing an adhesive onto and over said masonry-like units in a random pattern.

6. The method according to claim 5, wherein said adhesive is latex glue or a polymer-based glue.

7. A sheet of articulated masonry-like units produced according to the method of claim 1.

8. A sheet of articulated masonry-like units produced according to the method of claim 3.

9. A kit to produce a sheet of articulated masonry-like units comprising separately:

(a) an articulating structure shaped to simulate any wall, ceiling, or building type structure constructed with masonry units;

(b) masonry-like units;

(c) mesh netting means;

(d) adhesive;

(e) adhesive application means;

(f) mortar material(s); and

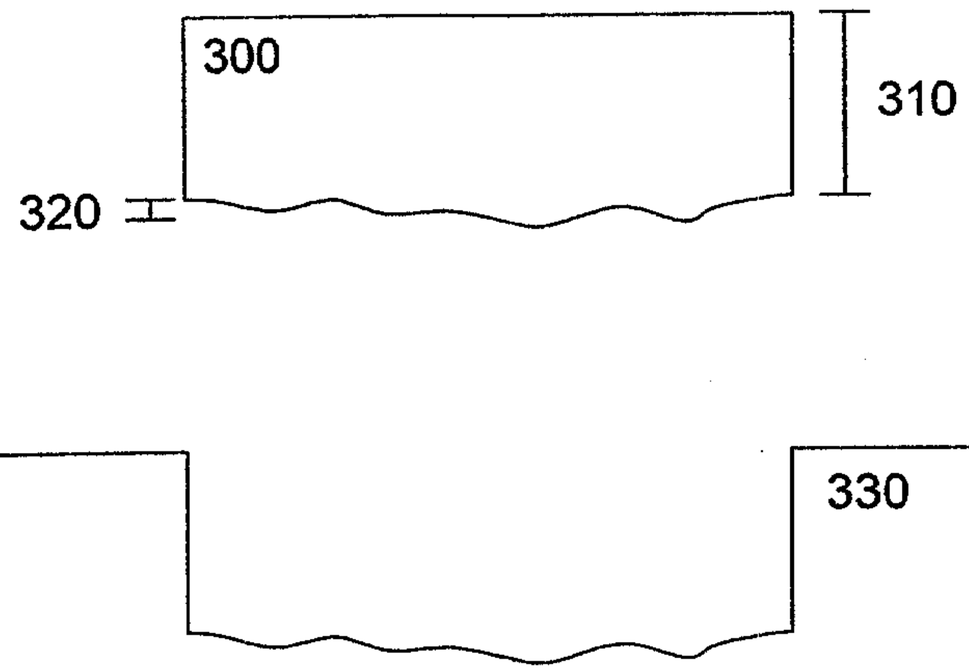
(g) instructions for use.

10. A kit having a sheet of articulated masonry-like units comprising separately:

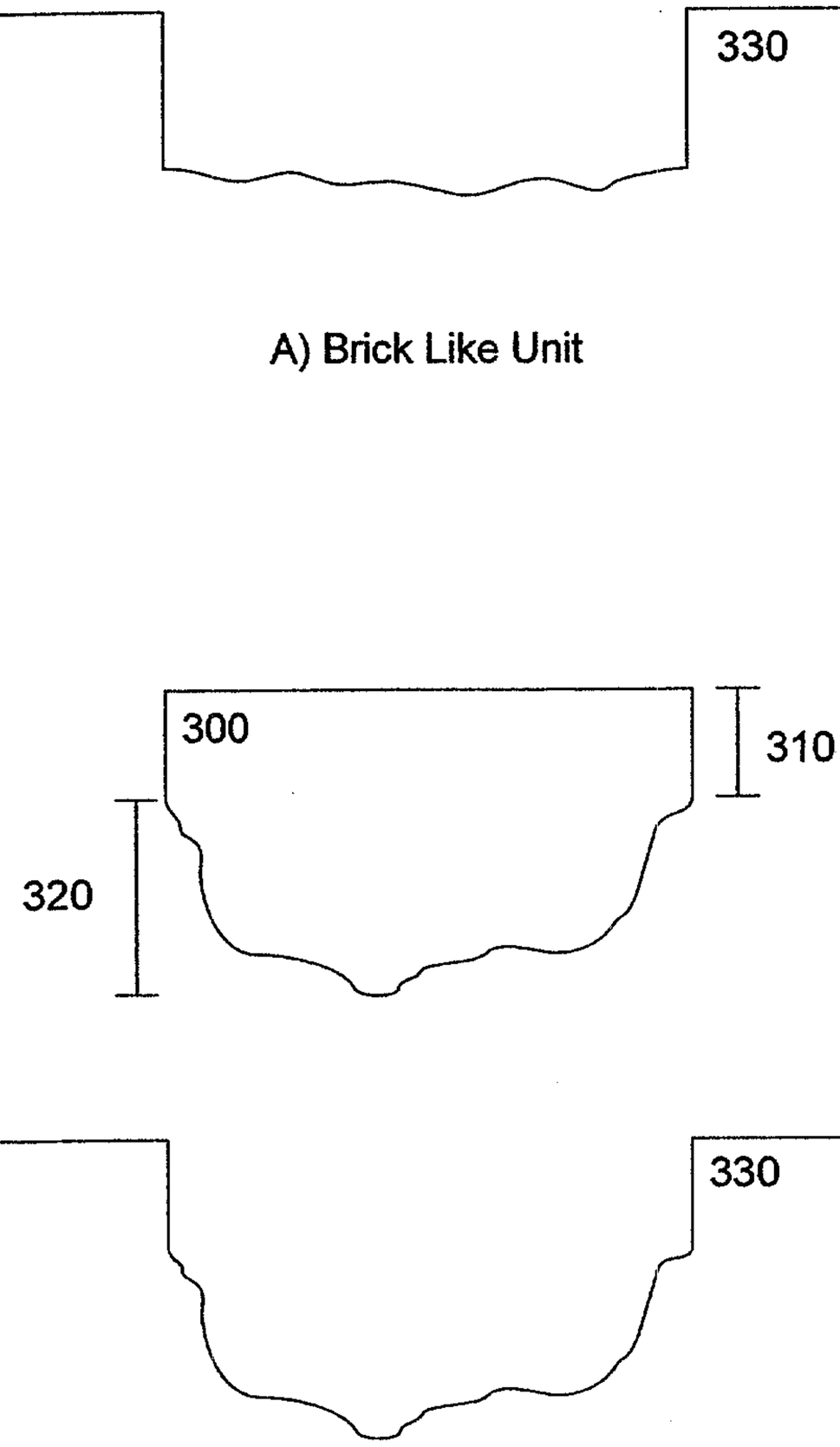
(a) a sheet of articulated masonry-like units;

(b) mortar material(s); and

(c) instructions for use.

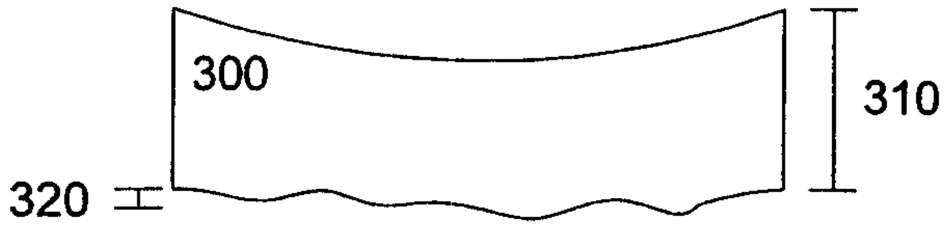


A) Brick Like Unit

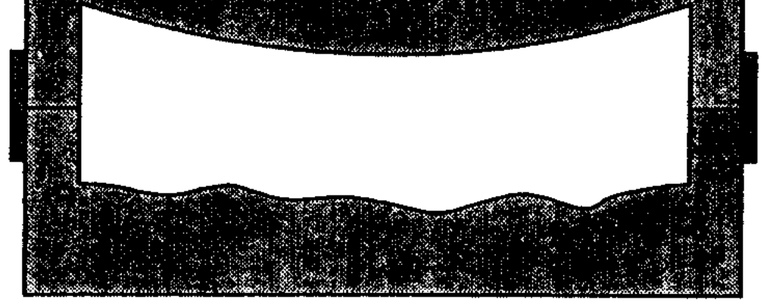


B) Stone Like Unit

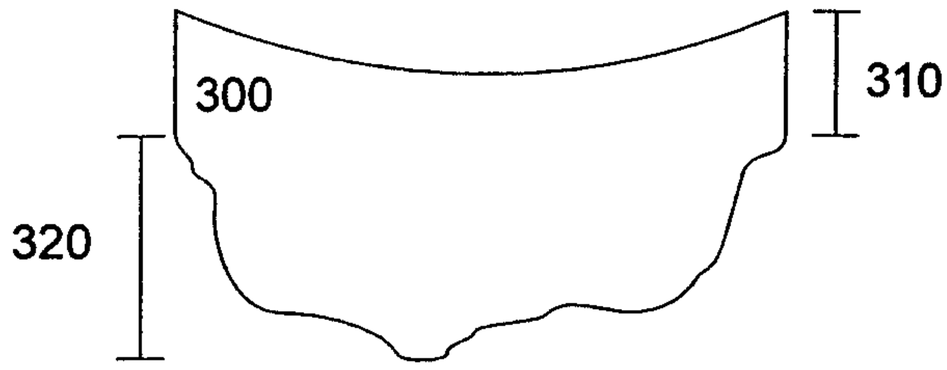
FIGURE 1



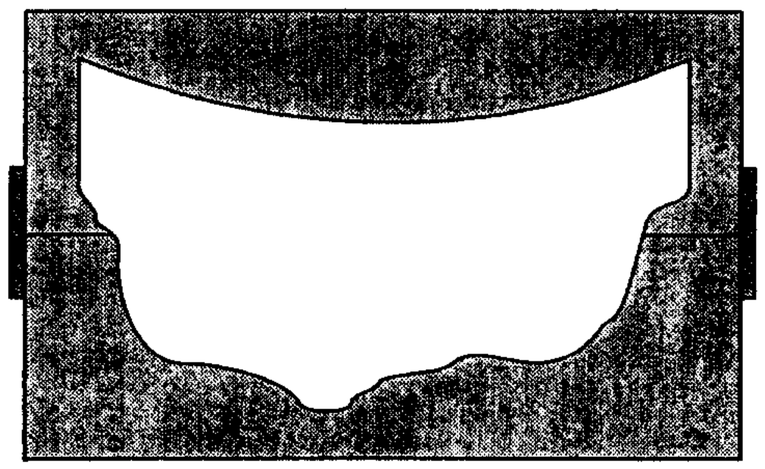
1) Brick like unit with curvilinear base



2) A sample mold for brick like unit as illustrated in 1)



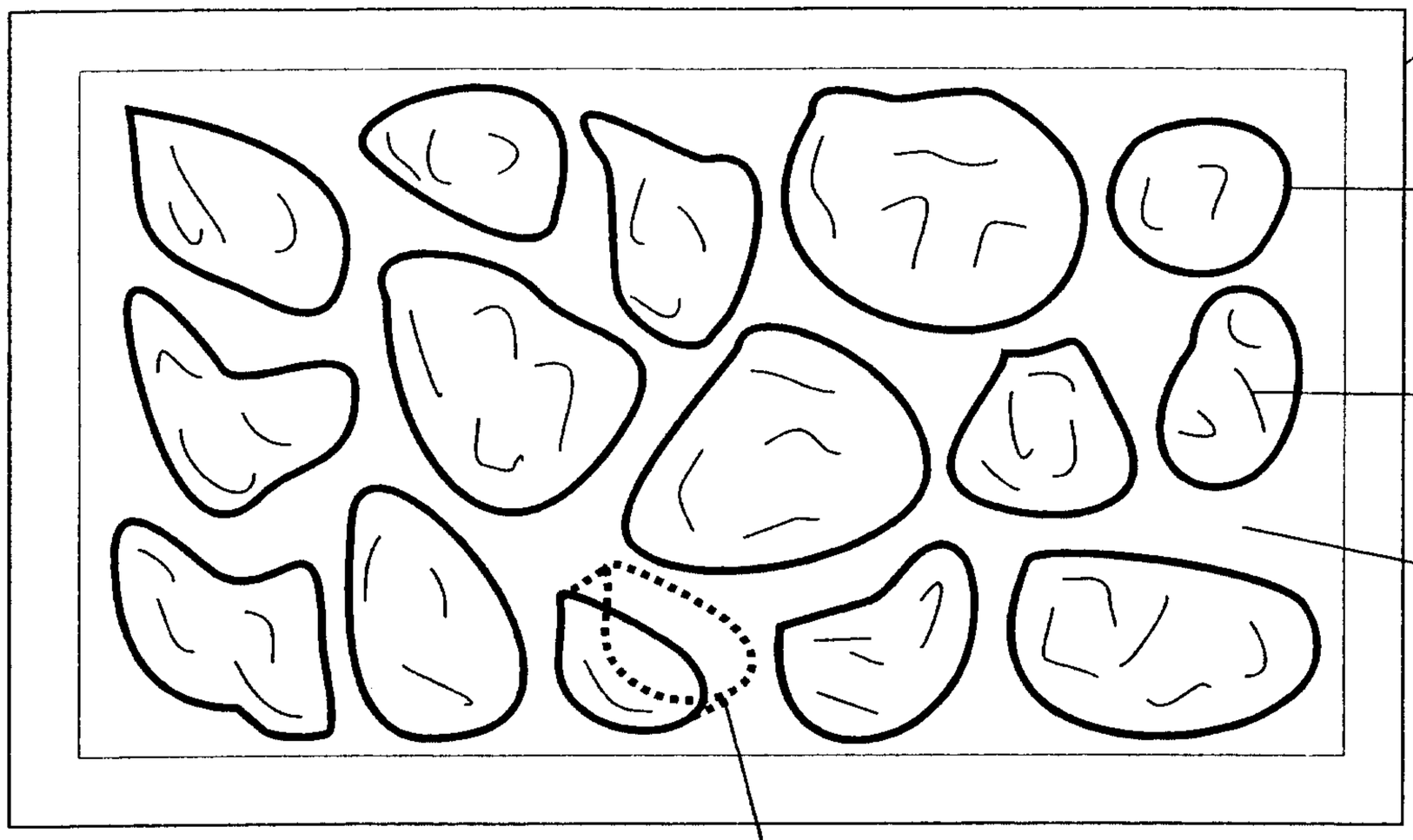
3) Stone like unit with a curvilinear base



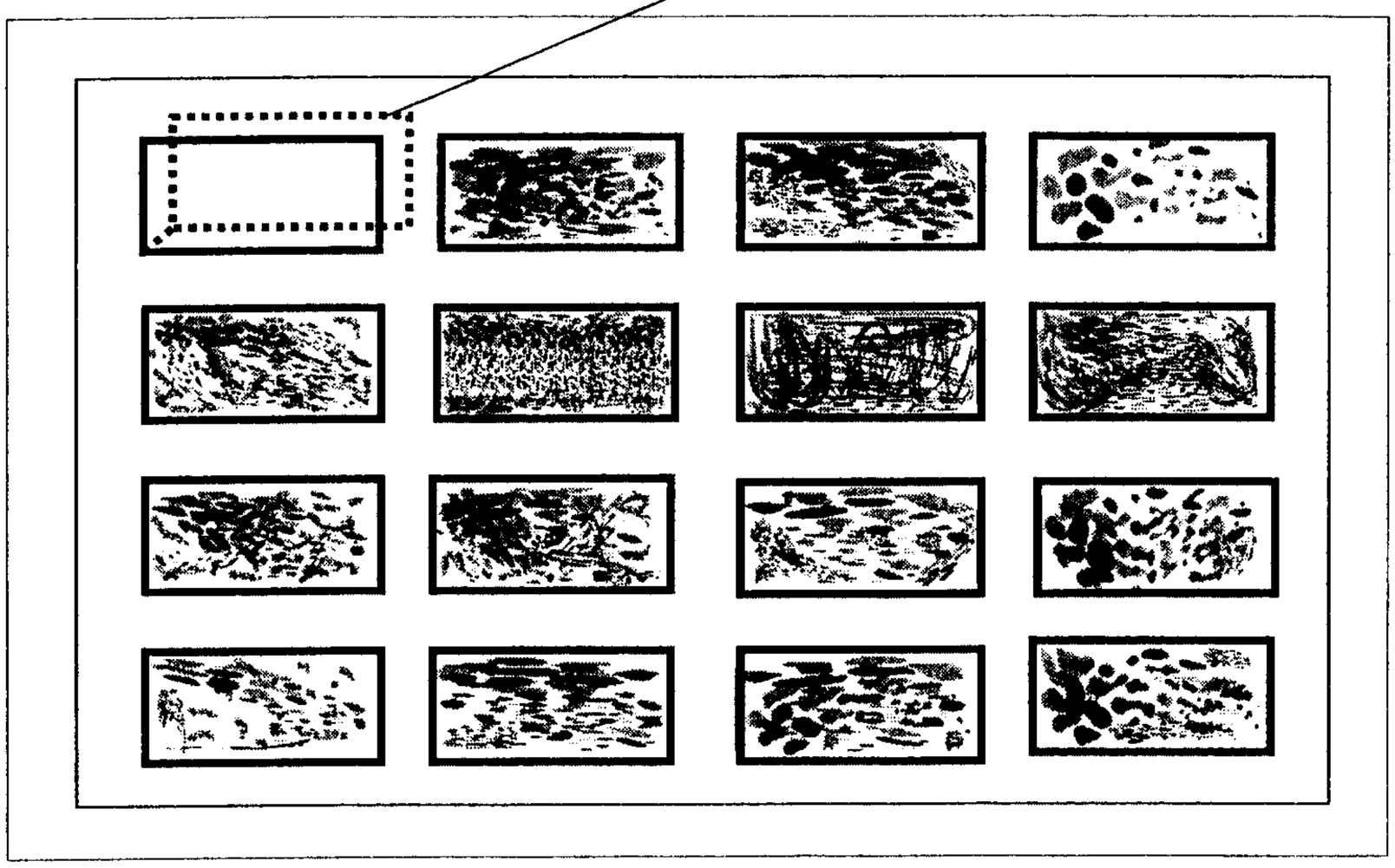
4) A sample mold for stone like unit as illustrated in 3)

FIGURE 2

A



B



C

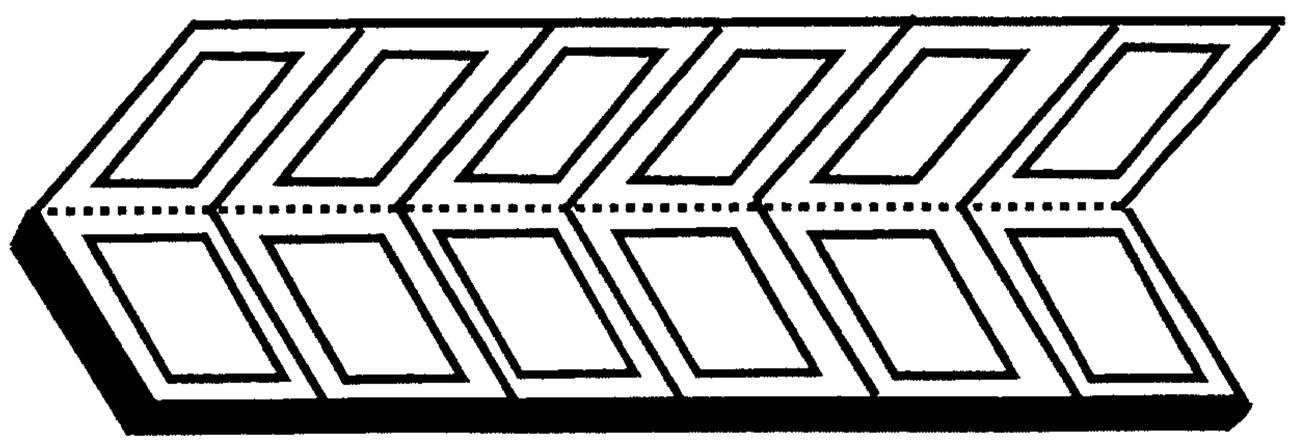


FIGURE 3

FIGURE 4

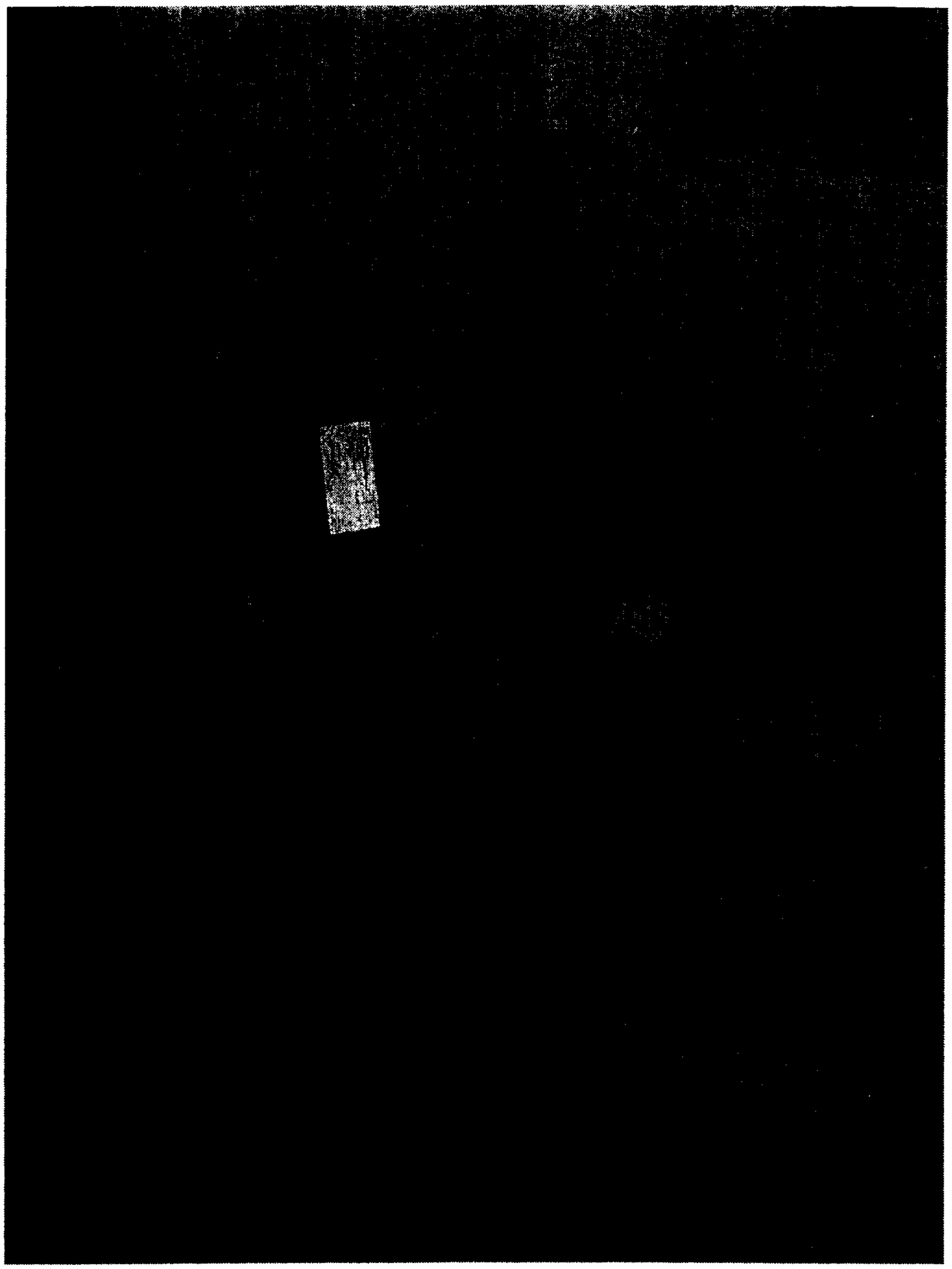
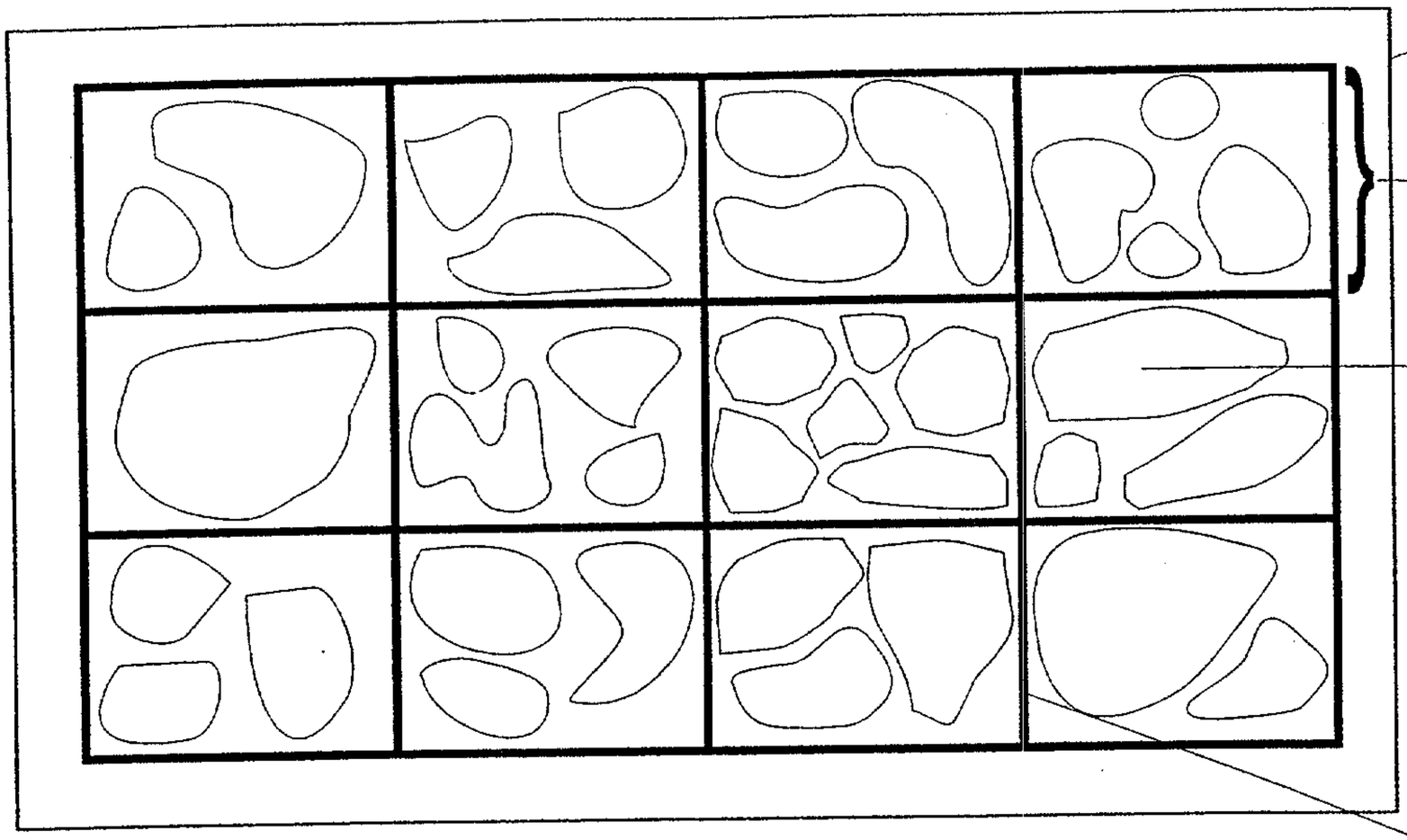
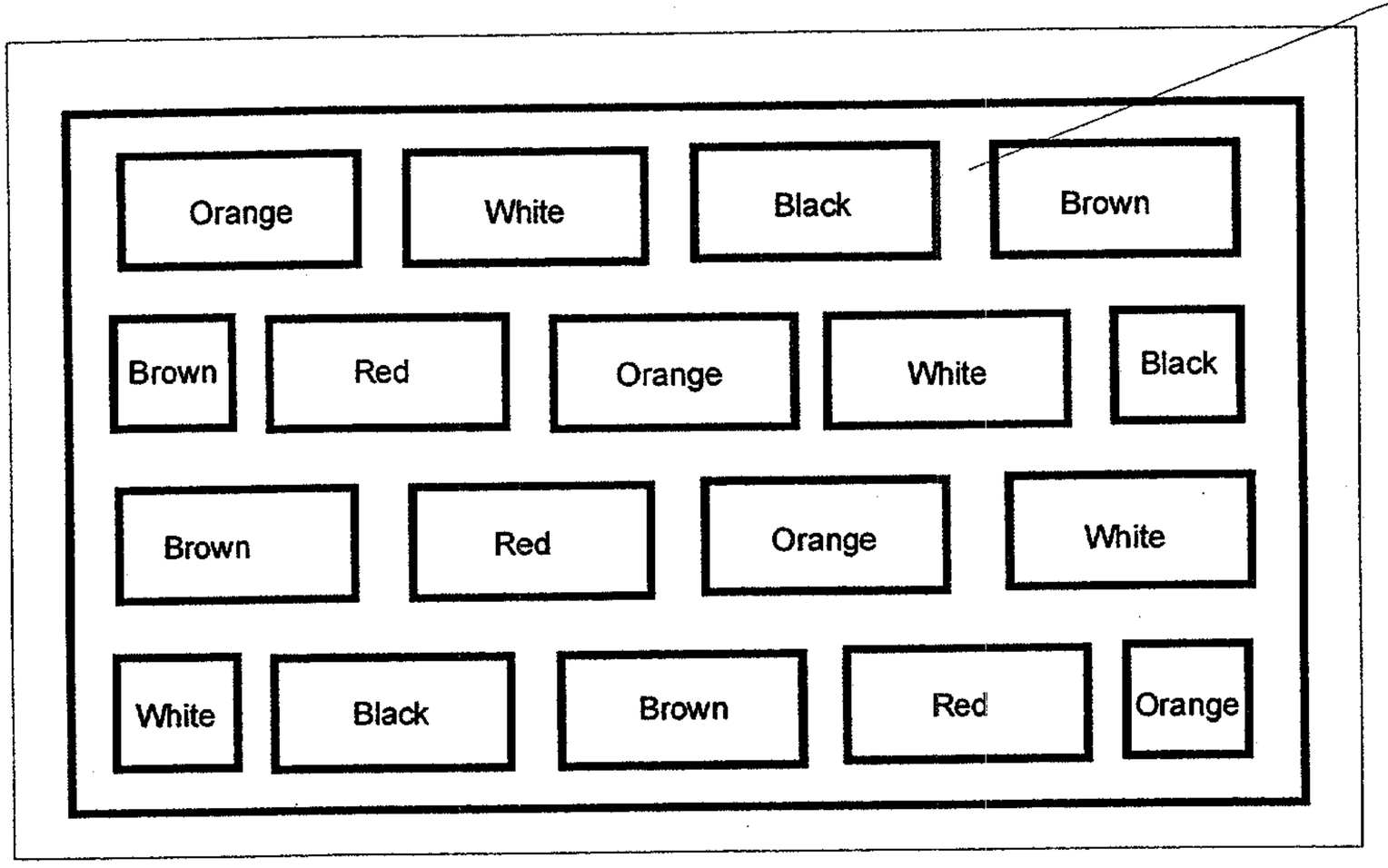


FIGURE 5

A


200
210
220
230

B


Orange
White
Black
Brown
Brown
Red
Orange
White
Black
Brown
Red
Orange
White
White
Black
Brown
Red
Orange

C

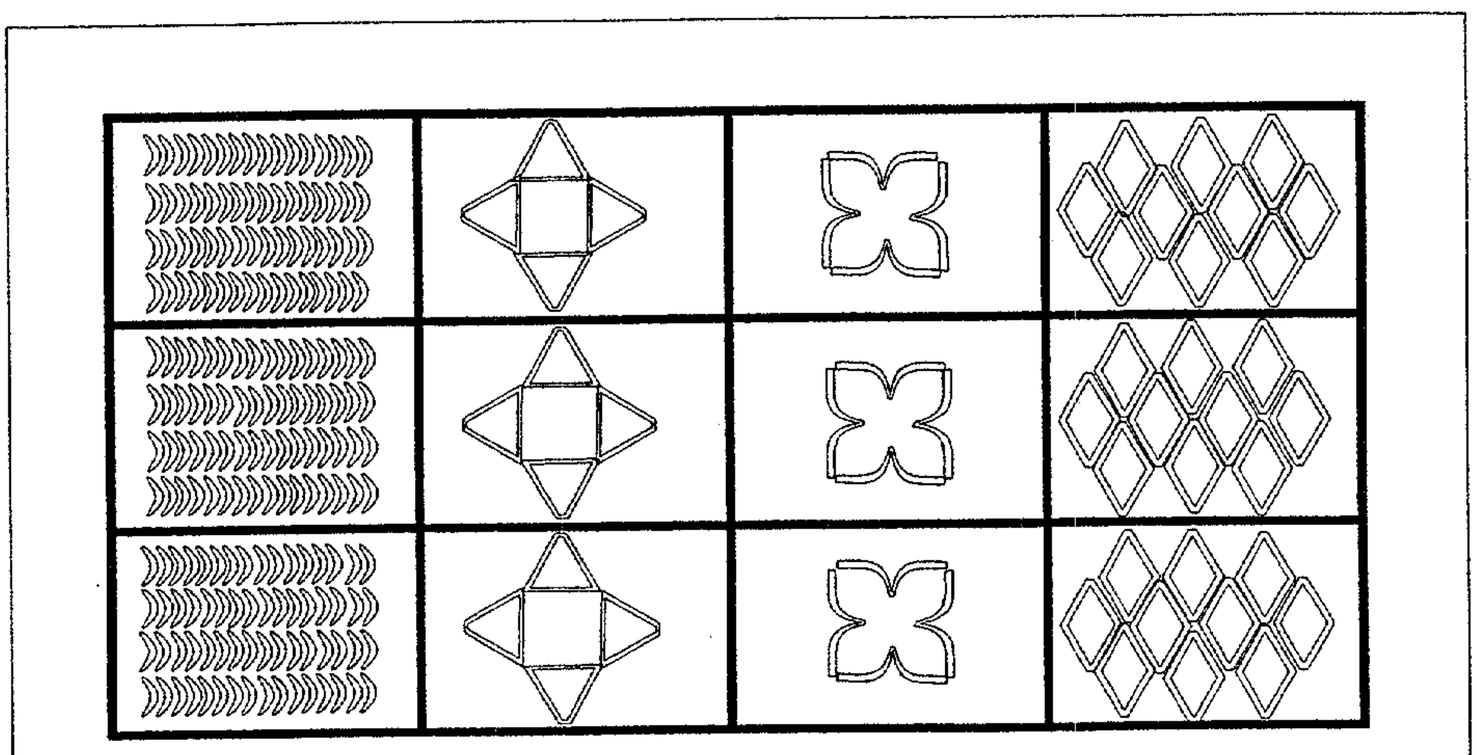


FIGURE 6

FIGURE 7

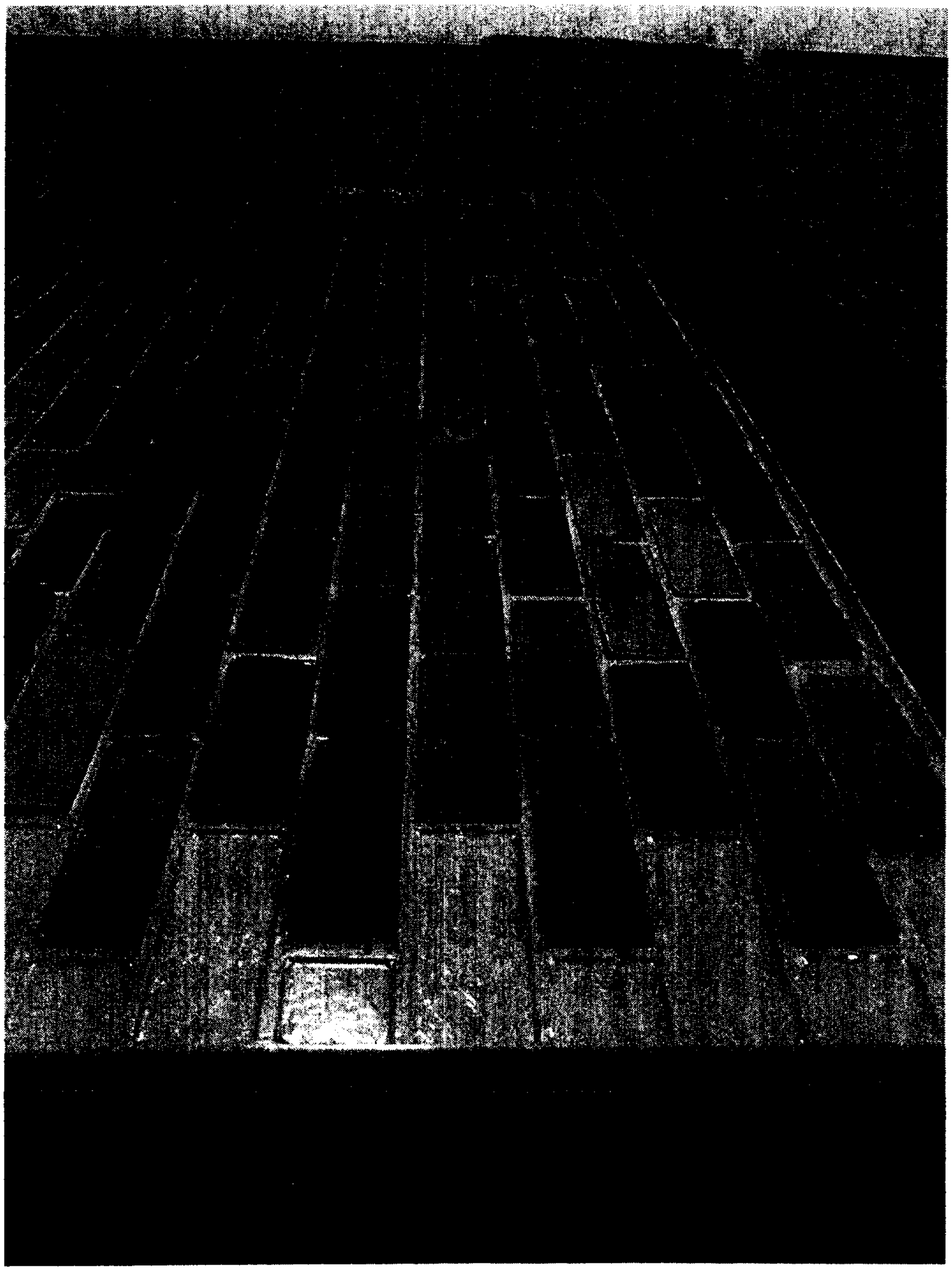
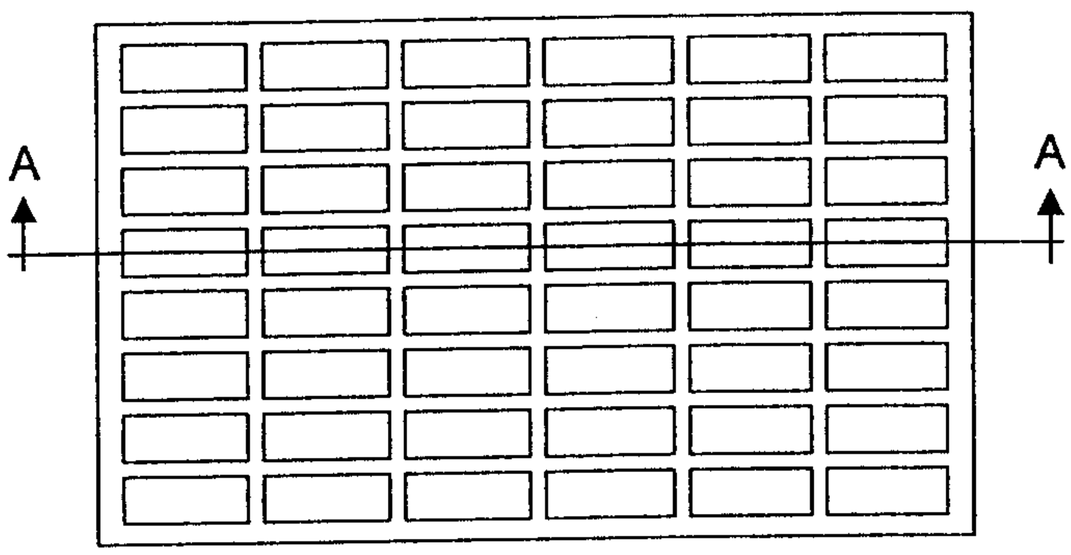
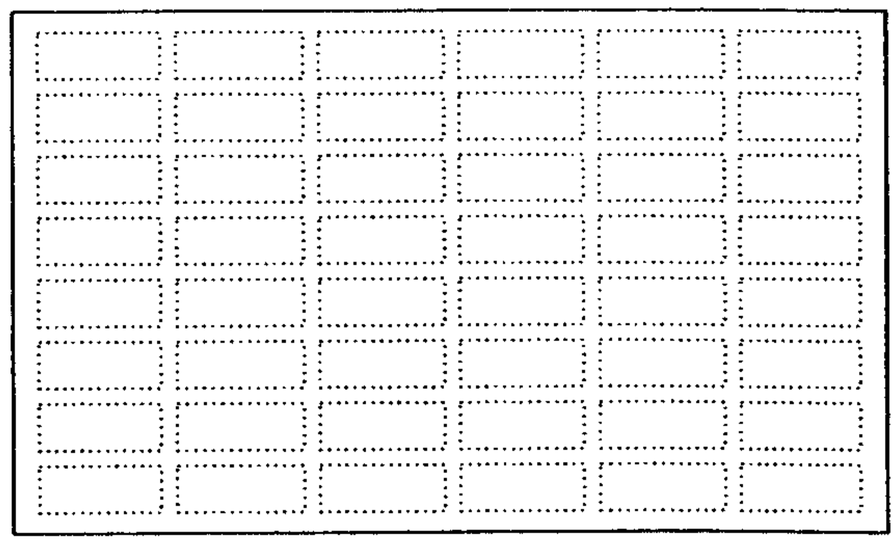


FIGURE 8

FIGURE 9

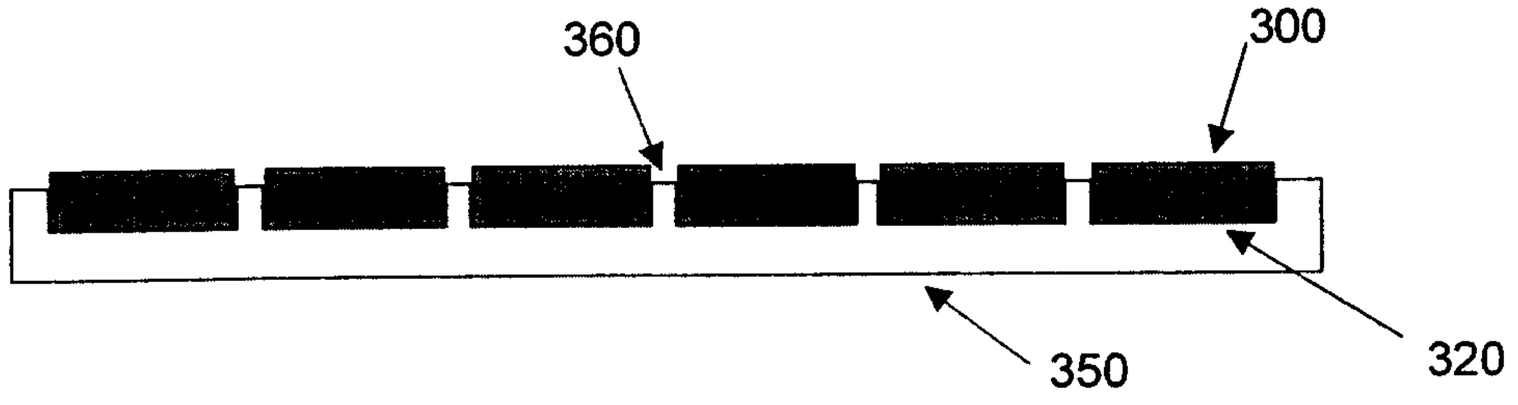




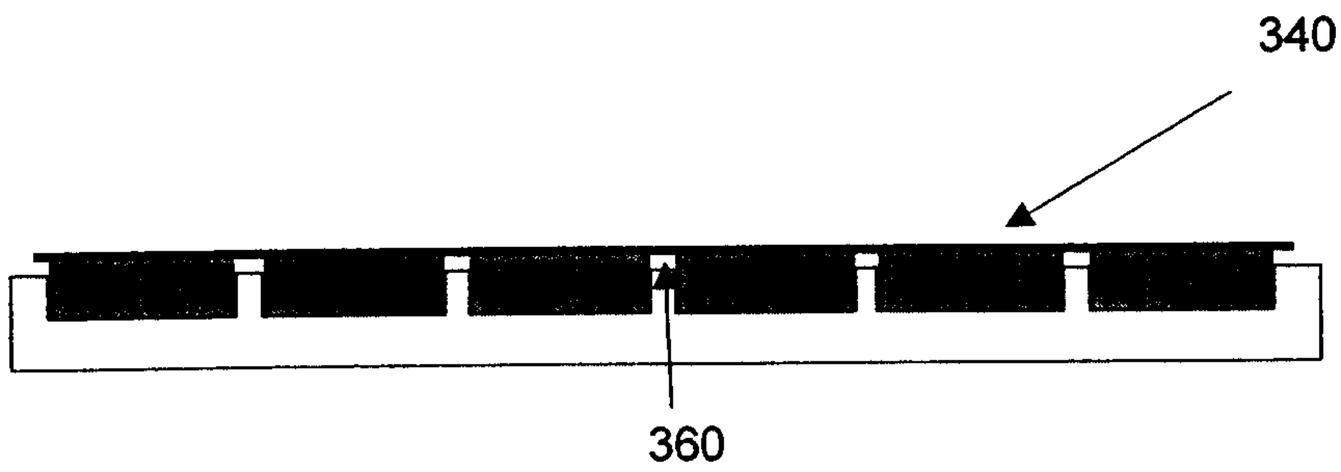
1) Top View

2) Bottom View

A) Articulating Structure

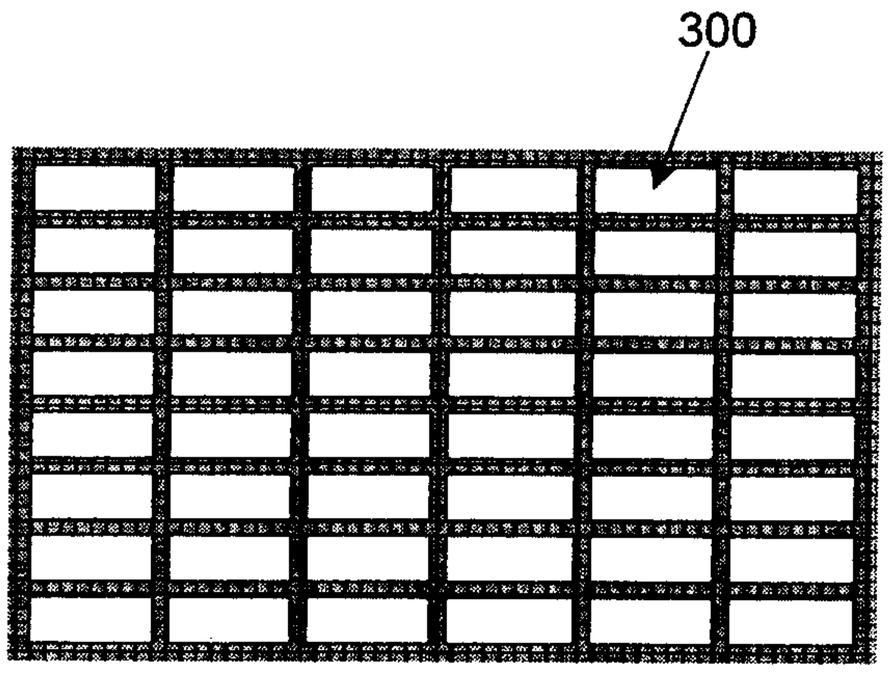


B) Cross Section A-A after placement of masonry like units in the articulating structure

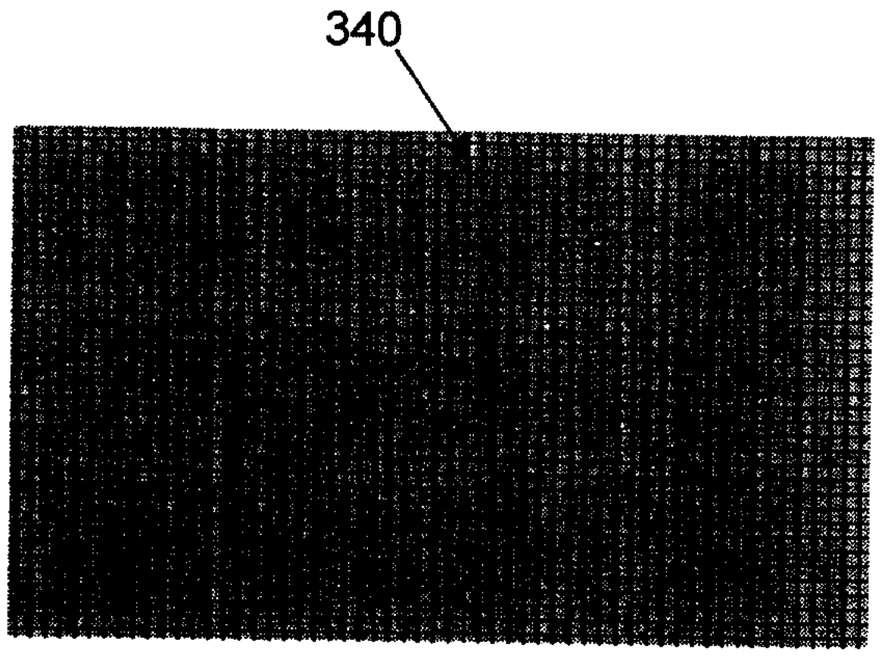


C) Cross Section A-A after application of mesh-adhesive

FIGURE 10

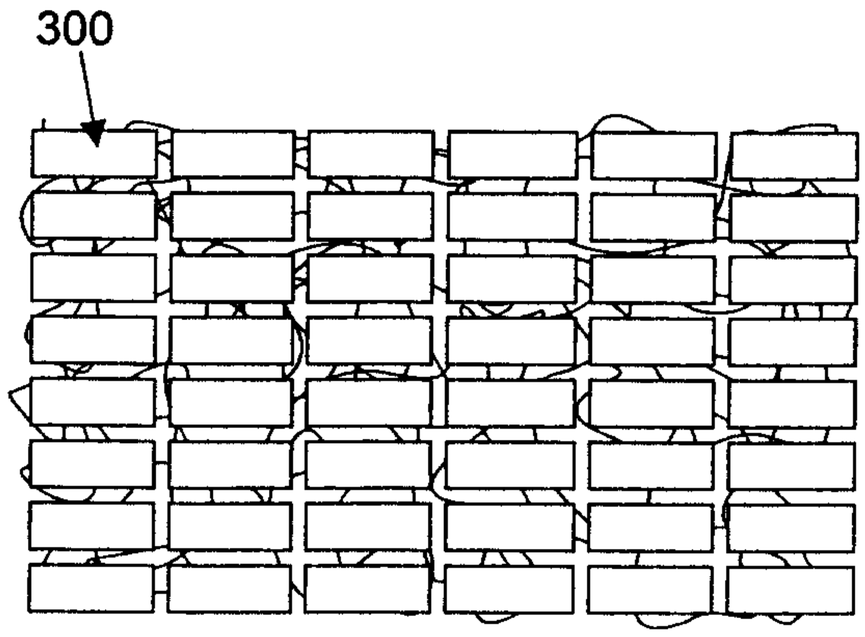


1) Front side of SAMU

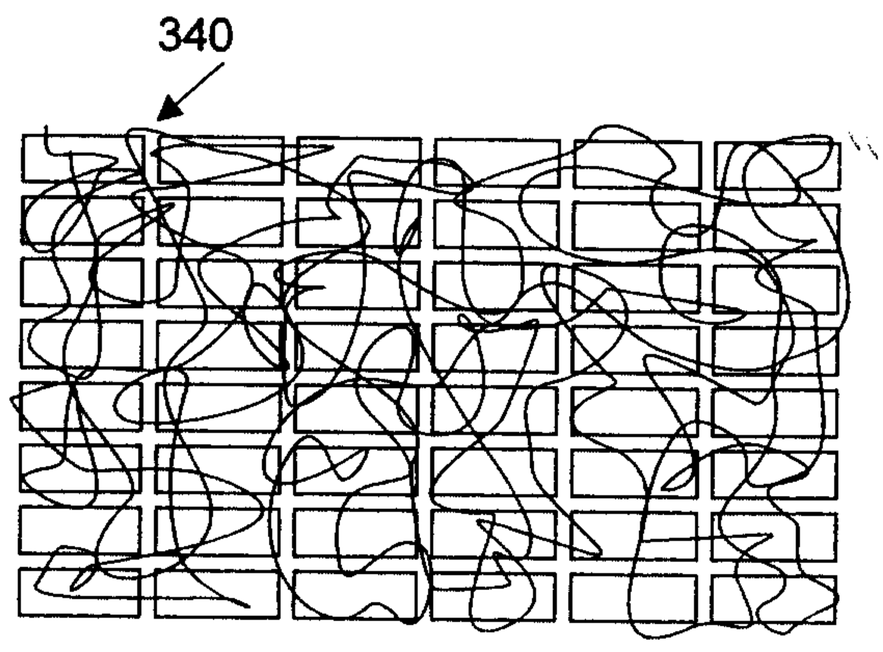


2) Back side of SAMU

A) Mesh-adhesive Type 1



3) Front side of SAMU



4) Back side of SAMU

B) Mesh-adhesive Type 2

FIGURE 11

FIGURE 12

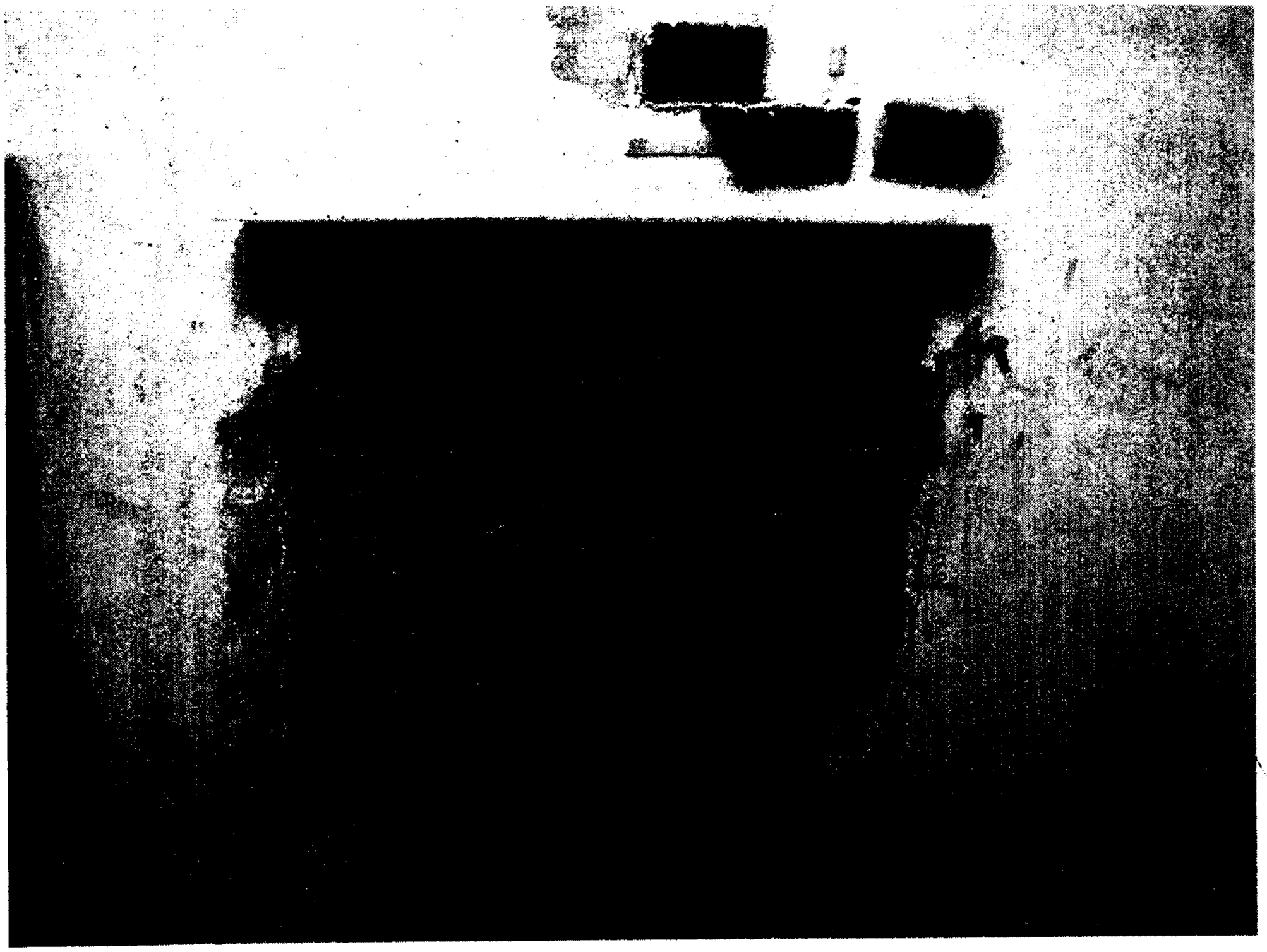


FIGURE 13

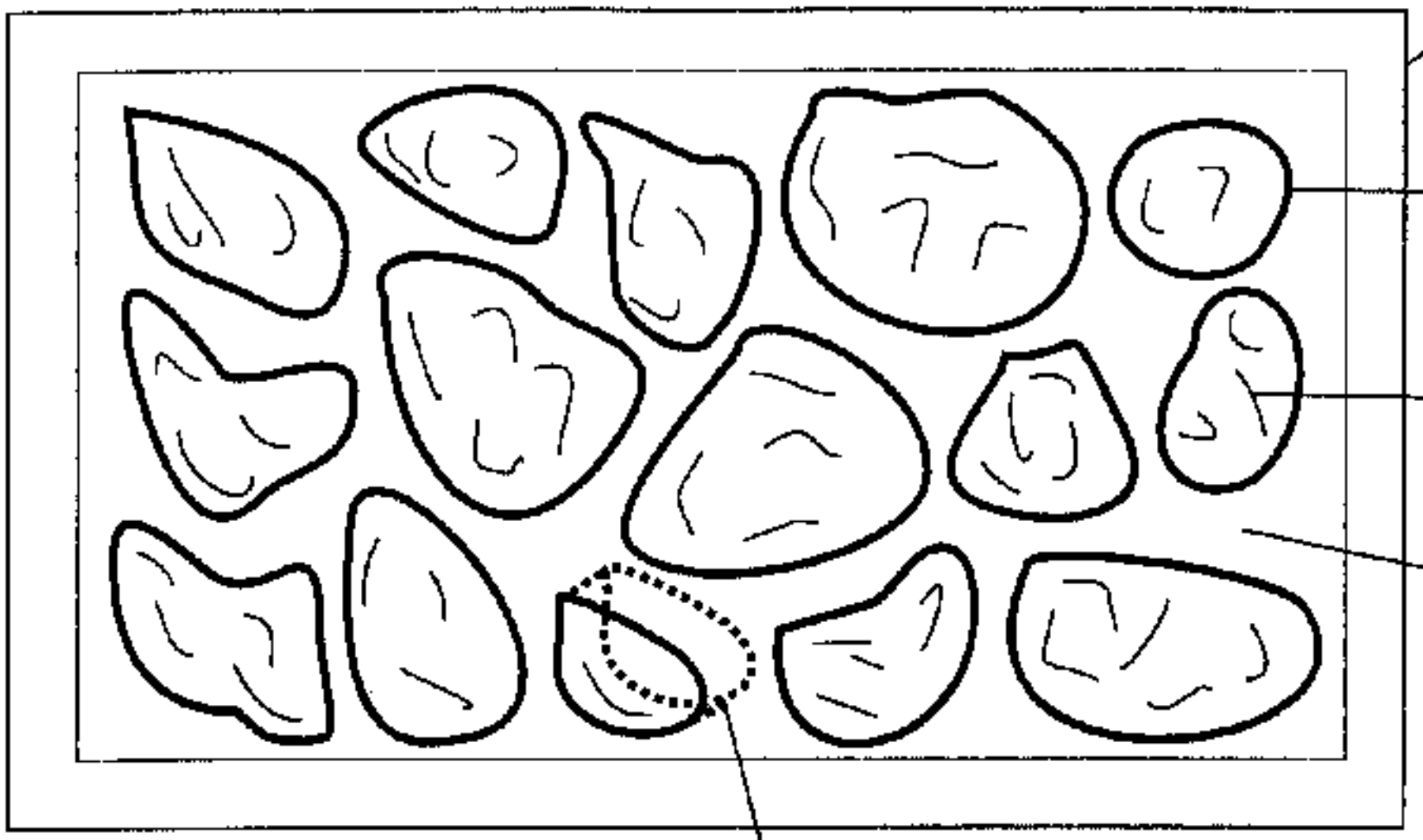
FIGURE 14

Application number/ Numéro de demande : 2359639

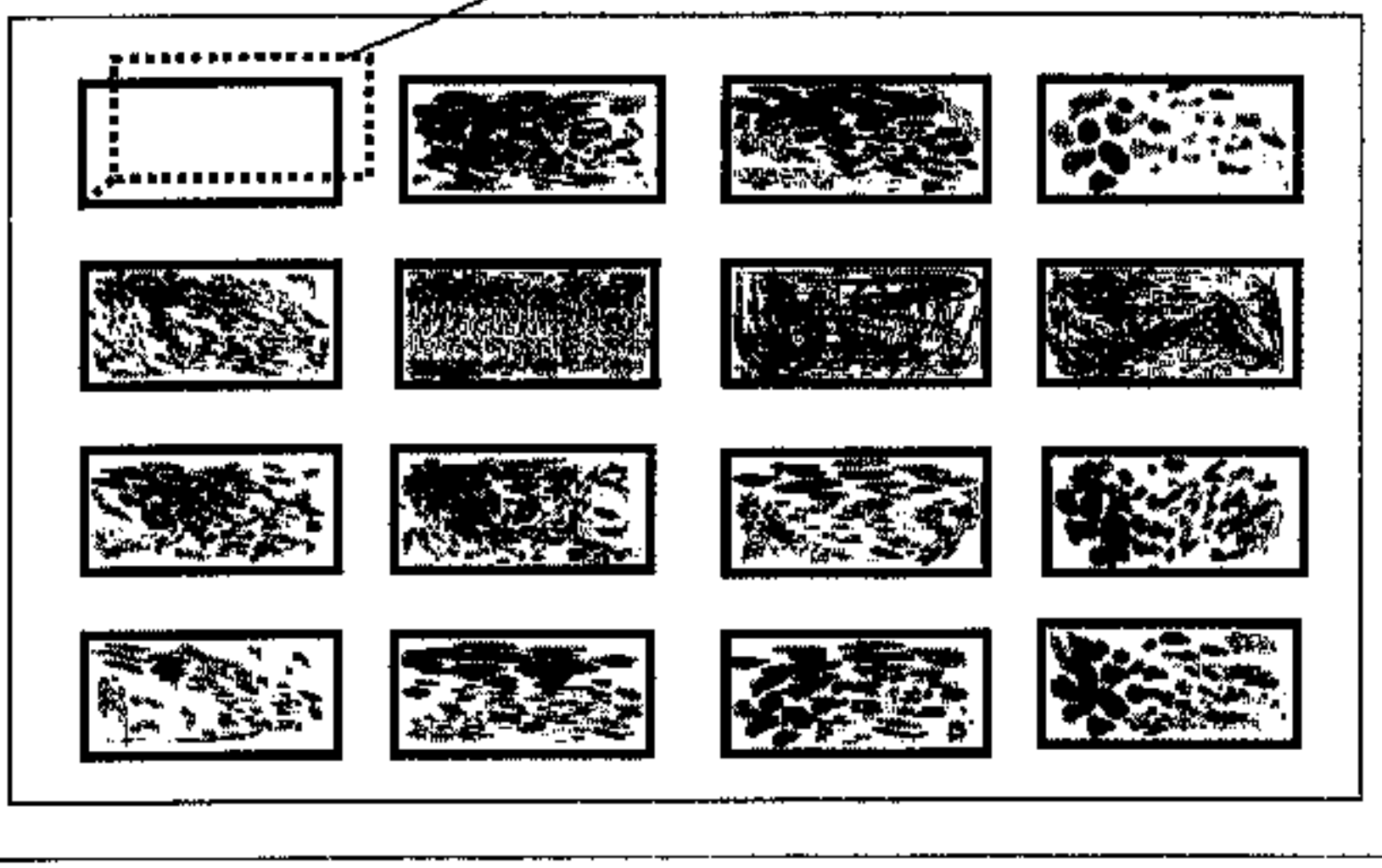
Documents of poor quality scanned
(request original documents in File Prep. Section on the 10th floor)

Documents de piètre qualité numérisés
(Pour obtenir les documents originaux, veuillez vous adresser à la Section de préparation des dossiers, située au 10e étage)

A



B



C