

[54] FENCE PANEL

[76] Inventor: James Henry Newberry, Jr., 1627 Salem, Richardson, Tex. 75080

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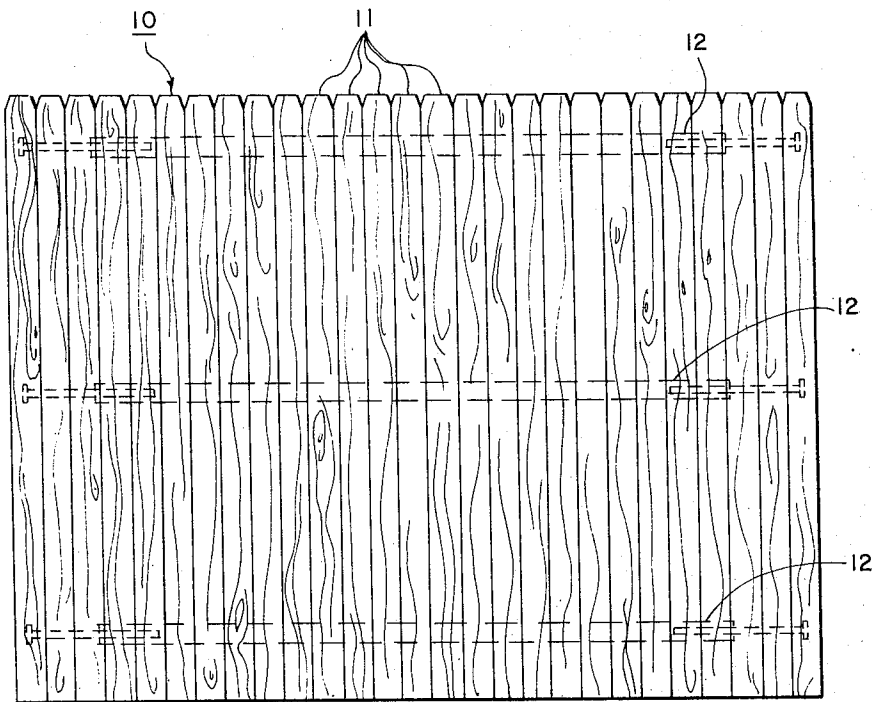
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Primary Examiner—Dennis L. Taylor
Attorney, Agent, or Firm—Jack A. Kanz

[57] ABSTRACT

Disclosed is a process for reproducing a fiberglass panel having the physical appearance of a fence made from conventional materials. A model fence panel is constructed from conventional materials, a mold is formed on the face of the model panel, and a fiberglass panel formed on the mold. The fiberglass panel duplicates the physical appearance of the original panel on one face and includes an integrally formed mounting frame on the opposite face. The panels are supported between conventional fence posts to form a fiberglass fence having the physical appearance of a conventional fence.

2 Claims, 5 Drawing Figures



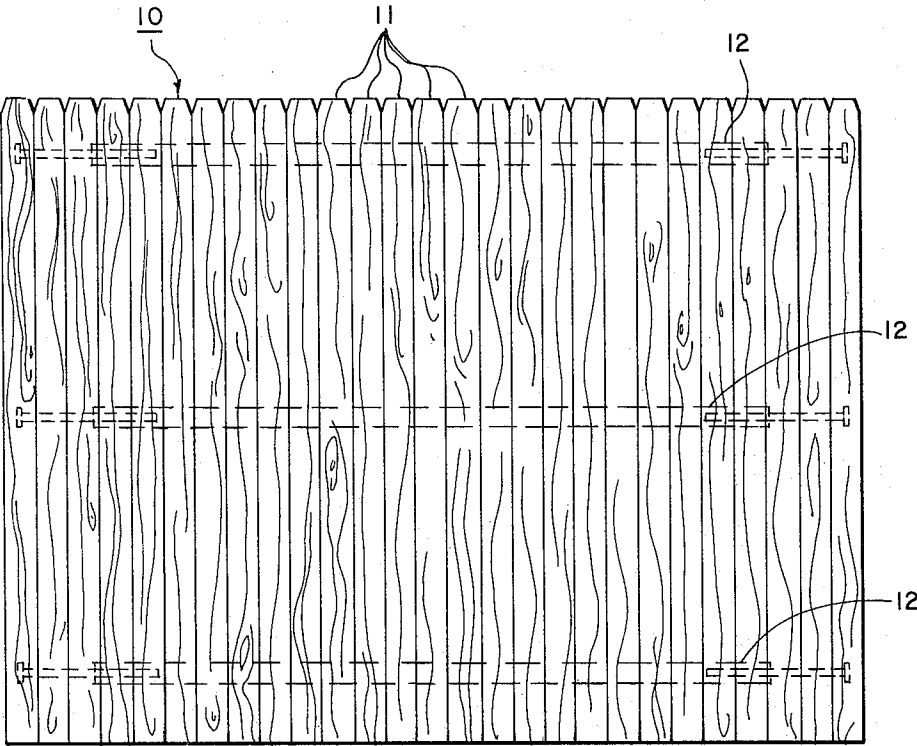


FIG. 1

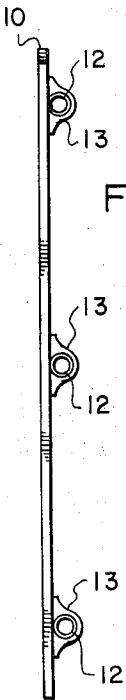


FIG. 2

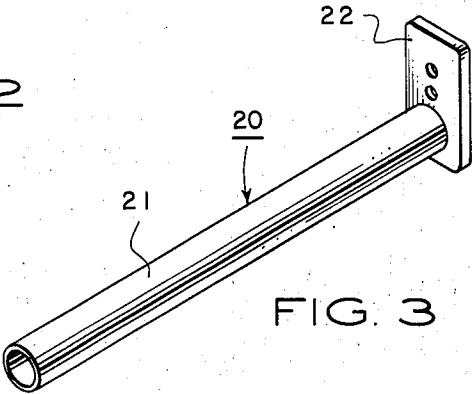


FIG. 3

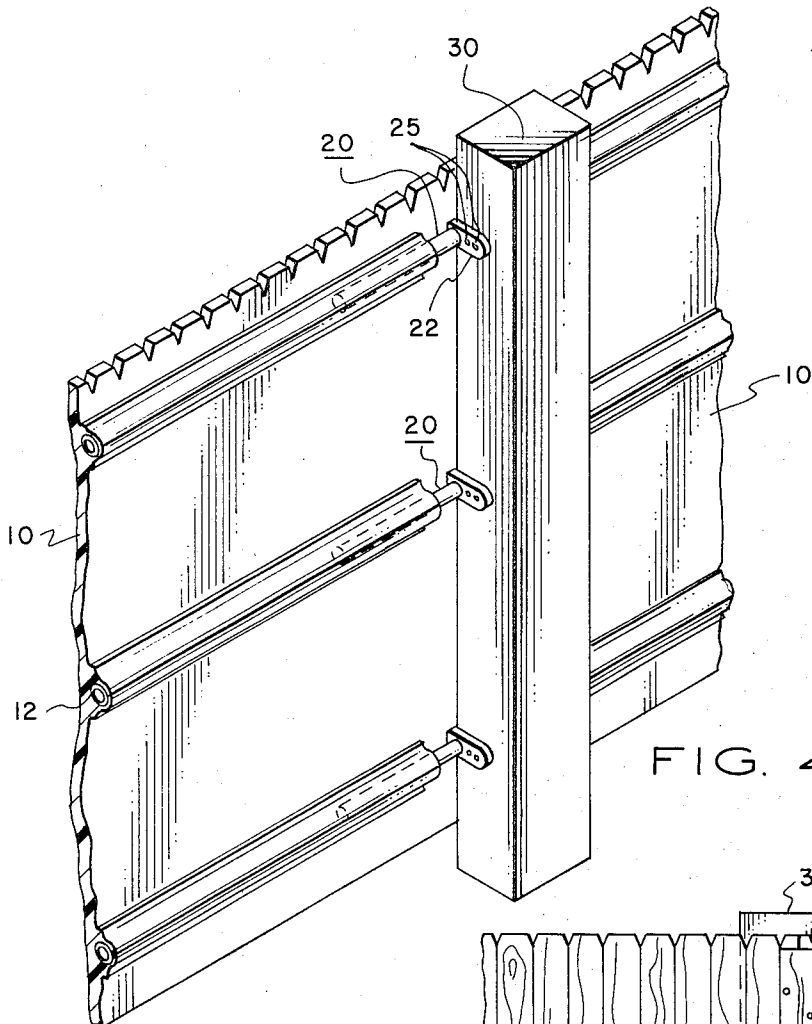
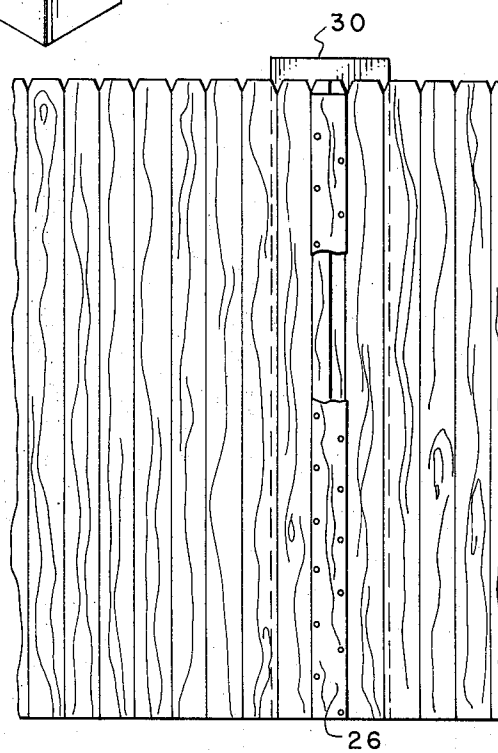


FIG. 4

FIG. 5



FENCE PANEL

This invention relates to fencing materials and methods of construction. More particularly it relates to prefabricated fencing panels made of fiberglass adapted to simulate natural wood or other conventional fencing materials and methods of fabricating same.

Various construction materials are generally used for fabrication of decorative and utilitarian fencing. Most commonly, decorative fencing is hand constructed at the site from common natural or treated woods such as cedar, redwood, pine and the like.

Wooden fences, while desirable for appearance, are subject to degradation and decay. Furthermore, fences fabricated from wood materials require painting, treating and other maintenance. Because of depleting supplies, the woods most desirable for fencing have become excessively expensive. Furthermore, since hand labor is required to construct wood fences at the site from preformed staves or planks, the total cost of a wood fence is quite excessive.

In accordance with the present invention a method and product is provided which simulates the appearance of fences made of wood, brick or other materials but which may be fabricated in complete sections or panels. The pre-assembled panels may be rapidly and easily erected at the desired site with a minimum of hand labor, thus vastly reducing labor costs.

The fence panel of the invention is made basically of fiberglass, thus reducing the cost of material and eliminating dependency upon natural wood materials. Furthermore, since the fencing panels are prefabricated in panels ready for erection, the cost of installation is greatly reduced, thereby reducing the total cost of the fence. The fence panel of the invention is formed on a fiberglass mold which is itself an impression of the desired fence panel. The mold is formed by making a fiberglass mold impression of the fence panel of any desired material. The surface features, texture and color of the original fence are duplicated in the finished fence panel, and, when erected, the facsimile panel has the same general appearance as a fence constructed of the original material.

The principles of the invention may be used to duplicate any conventional fencing material, thus allowing fabrication of fiberglass facsimile fences which have the general appearance of stone, brick or wood fences but which are much more easily and inexpensively erected and are essentially maintenance free. Other advantages and features of the invention will become more readily understood when taken in connection with the appended claims and attached drawings in which:

FIG. 1 is a elevational view of a fence panel formed in accordance with the invention,

FIG. 2 is an end view of the panel of FIG. 1,

FIG. 3 is a perspective view of a lug pin used for mounting the fence panel shown in FIG. 1,

FIG. 4 is an elevational view of a portion of the fence panel erected and attached to a fence post,

FIG. 5 is a front elevational view of a completed section between two fence panels of the invention.

In order to construct a fiberglass replica panel it is first necessary to form a mold duplicating the characteristics of the panel. The fiberglass mold is itself a negative impression of a panel of the desired fence material. Accordingly, the panel of the desired dimensions

and structure is first fabricated of a natural material of which the fence is to be a replica. A fence section of the desired dimensions is fabricated by conventional means. The fence may be brick, wood or any other desired materials. For purposes of explanation, the invention will be described hereinafter with reference to a 6ft. by 8ft. panel of fence constructed of vertical closely spaced staves of rough finished wood. It will be readily appreciated, however, that any conventional construction material may be used.

Care must be exercised in selecting materials for the model panel. If the panel is to be a wood fence, the staves must be selected for a relative close fit and relative uniformity of thickness so that the model panel will display the most desired characteristics of a wooden fence. The fence panel is then positioned substantially horizontal with the face to be duplicated facing upward. A mold or negative impression of the fence to be duplicated is then fabricated by forming a fiberglass replica on the fence panel surface.

To facilitate removal of the impression from the fence surface the surface of the fence material is coated with a thin coating of mold release wax. A suitable mold release wax is sold under the trade name Formula 5 by Costa Chemicals, Luguna Beach, Cal. The mold release wax is preferably applied with a stiff bristle brush so that the entire rough texture of the fence is coated with the wax without affecting its rough finish or appearance. The stiff bristle brush is used to force the wax into the crevices and cracks of the fence material so that the fiberglass will not adhere to the fence. Care should be taken to avoid filling the cracks. If too much wax is applied, the rough finish will not be reproduced in the mold.

A thin layer of standard release agent such as PVA parting film is then applied to the waxed surface and the film allowed to dry. To further aid the release of the fiberglass from the surface of the model a thin layer of tooling gel is sprayed on the PVA parting film and the gel allowed to dry.

The mold is formed by substantially conventional fiberglass fabrication methods. A sheet of 1½ oz. fiberglass mat is placed over the treated surface as described above. A layer of 6 oz. fiberglass cloth is then superimposed on the fiberglass mat and the two layers saturated with a conventional polyurethane resin. The resin is rolled firmly onto the cloth surface and squeezed through the cloth, the mat and into the grain surface of the model panel. Excess resin is wiped away and the composite layer allowed to cure for approximately 24 hours. The edges of the cloth and mat should be trimmed to conform to the dimensions of the model panel. Thereafter, two layers of 1½ oz. fiberglass mat and one layer of 6 oz. fiberglass cloth are positioned over the first layer and the laminated composition again saturated with polyurethane resin in a conventional manner. The composite layer is then allowed to cure another 24 hours.

The last described step, e.g., application of two layers of mat and one layer of cloth, is repeated a sufficient number of times to form a rigid mold. Preferably the three layer step is repeated two to three times, allowing approximately 24 hours for each layer to cure.

After the last layer has been cured for 24 hours, a framework is attached to the top side of the laminated structure. The supporting framework is preferably formed by placing a plurality of parallel steel bars along

the length of the mold and securing the bars to the mold. The bars of the frame are preferably secured to the mold by simply placing layers of fiberglass mat saturated with polyurethane resin over the bars. The fiberglass resin cures and forms a bond to the fiberglass to firmly attach the entire bar to the top side of the mold.

After the last layer of polyurethane resin and fiberglass mat has cured sufficiently the composite laminated structure may be lifted from the face of the model fence panel. The face of the fiberglass structure which was adjacent the fence will be a negative replica or impression of the surface of the fence model. The mold face may be sanded or otherwise treated to remove undesired blemishes or irregularities. The mold face is then coated with a mold release wax such as Formula 5 described hereinabove and buffed with a soft cloth or the like to produce the desired finish. Three separate coats of the mold release wax are preferably applied to the mold face and buffed to produce the desired release surface.

To produce a replica panel of the original fence panel a layer of 1½ oz. fiberglass mat is layed over the mold face and saturated with a conventional polyurethane resin. Pigments may be mixed with the resin to produce the desired color in the end product. It has been discovered that conventional pigments may be mixed directly with the resin resulting in a finished product of uniform color and appearance. By mixing the pigment with the polyurethane the entire panel appears of the same color and construction; further adding to the natural appearance of the finished product.

The colored polyurethane resin is applied directly to the fiberglass mat and the mat saturated by rolling the resin through the mat into the surface of the mold. A plurality of tubular supporting members are positioned along the back of the panel and attached thereto by a strip of fiberglass mat saturated with polyurethane. The edges of the mat are trimmed to conform to the edges of the mold and the composition allowed to cure for at least 24 hours. The finished panel may then be lifted from the mold and is ready for assembly. The mold, of course, can be used repeatedly to produce additional duplicate panels.

It will be understood that using the method described, only the front major face of the panel will exhibit the physical appearance of the model fence. If the panel is to exhibit the same characteristics on both major faces, two molds will be required. This may be accomplished by making two negative impression molds of the model fence as described above. The replica panel is formed as described but without attaching the tubular supporting members. Instead the second mold is placed on the resin immediately after the resin is placed on the mat, sandwiching the mat and resin between the two molds. After the resin has cured, both molds are removed and the tubular supporting members attached.

The fence panel produced as described above is illustrated in FIGS. 1 and 2. The fence panel 10 simulates the appearance of a plurality of individual staves II vertically arranged adjacent each other as they would appear in a finished fence. Tubular supporting bars 12 are attached horizontally to the back side of panel 10 as shown in phantom in FIG. 1. As described above, the horizontal bars 12 are attached to the panel 10 by strips of fiberglass 13 placed over the bars 12 while the panel

10 is in the green stage. As the panel 10 and strips 13 cure, the bars 12 are permanently and rigidly bonded to the panel 10.

Panels constructed as described above may be readily erected at the desired site using lug pins such as illustrated in FIG. 3. The pin 20 comprises a cylindrical shank 21 adapted for insertion into the bars 12. A substantially flat lug 22 is attached to one end of the lug pin 20 and extends therefrom at an angle of about 90°. If desired, the lug 22 may be curved or formed in a yoke to fit cylindrical posts.

Connection of the fence panels to a fence post is illustrated in FIGS. 4 and 5. Suitable fence posts 30 are erected along the desired fence row and spaced apart by the length of the panels 10. Lug pins 20 are inserted in the ends of each of the horizontal bars and the end of the panel 10 aligned substantially vertical along the center of one face of the post 30.

The lugs 22 are secured to the sides of the posts 30 by nails 25, bolts, screws or the like. Another panel is then placed adjacent the first panel and similarly secured to the opposite side of the post 30.

If desired, the panels 10 may be adapted to terminate in a stave of one-half width as illustrated in FIG. 5. Therefore, the ends of adjacent panels will form one complete vertical stave and the uniformity of the completed fence will not be interrupted. If desired, a stave 26 of wood of the type simulated by the panel 10 may be nailed to the post through the fiberglass panels directly over the junction as illustrated in FIG. 5. The stave 26 sometimes enhances the beauty of the completed fence by breaking the complete uniformity of the fiberglass panels. Furthermore, the stave 26 covers non-uniform junctions which may occur when the panels 10 must be adjusted to follow the contour of the terrain.

It will be readily observed that the principles of the invention may be used to form fiberglass panels which simulate the appearance of virtually any conventional fence material. The model panel need only be relatively flat and continuous so that a mold can be formed which will reproduce the surface of the model panel. The front major face of the panel formed on the mold will then duplicate the original fence panel.

Although the model fence is fabricated from a plurality of individual components, the fiberglass panel formed is a unitary panel. The junctions between the individual components, therefore, should be relatively continuous. The junction will then appear in the finished panel as a distinct grain line which has the physical appearance of the original junction.

Gates may be formed using the same methods. Gate panels, however, preferably include a more rigid supporting frame such as a rectangular cross-braced framework to prevent racking or bending of the panel. Gates may be supported on conventional hinges attached to the framework.

It will be readily recognized that fiberglass fences formed as described above are much more durable than the conventional materials simulated. Since the pigment is dispersed throughout the resin, the fence maintains its original color and is not subject to weathering. Furthermore, the fiberglass need never be painted or otherwise to maintain its original appearance.

From the foregoing, it will be readily recognized that fences embodying the principles disclosed are much

more easily erected than conventional fences. Therefore, much hand labor is avoided. Consequently, cost of fence construction is vastly reduced.

While the invention has been described with particular reference to specific embodiments thereof, it is to be understood that the form of the invention shown and described in detail is to be taken as the preferred embodiment of same. Various changes and modifications may be resorted to without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. In combination

- a. a substantially vertical fence post;
- b. a first unitary fiberglass panel having front and back major faces, at least one major face of said panel adapted to simulate the structural appearance of a portion of a fence comprised of a plurality of individual components assembled to form a portion of a fence, the back major face of said panel having attached thereto a plurality of substantially horizontally disposed supporting mem-

bers having hollow ends;

- c. lug pins mating said hollow ends for supporting said first panel and attached to said fence post for mounting said first panel on said fence post; and
- d. a second unitary fiberglass panel having front and back major faces, the front major face of said panel adapted to simulate the structural appearance of a portion of a fence comprised of a plurality of individual components assembled to form a portion of a fence, the back major face of said panel having attached thereto a plurality of substantially horizontally disposed supporting members having hollow ends;
- e. lug pins mating with said hollow ends for supporting said second panel and attached to said fence post to support said second panel in abutting relationship with said first panel on the opposite side of said fence post.

- 2. The combination set forth in claim 1 and including a stave overlying the junction between the abutting ends of said panels.

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