This invention relates to improvements in partitions such as doors and the like.

A primary object of the invention is to provide an improved low cost hollow partition such as an entrance, cabinet, or other door, or the like, having the appearance and feel of a more costly solid partition or door.

Another object is to provide improved hollow partitions such as doors, having decorative carving-like panels recessed within the door structure in a manner to present, when both the panels and the outer surfaces of the door are given a unitary coating or finish, an overall appearance of intaglio carving from solid material.

Another object is to provide an improved internally weighted hollow door presenting the appearance and feel, during hinging, of a relatively heavy solid door.

A still further object is to provide a hollow door with decorative ornamentation of metal or other materials on opposite surfaces of the door, with the ornamentation maintained clamped in back-to-back relation for the dual purpose of presenting an elegant appearance while adding weight to the door structure.

Another object is to provide a hollow door of plywood, the outer surfaces of which have applied thereto a relatively heavy material, to provide both the appearance and feel of a heavy door fabricated from a solid material such as wood or metal.

Further objects and advantages will become apparent to persons skilled in the art, upon examination of specification, as will various modifications and adaptations within the scope of the invention as defined in the appended claims.

In the drawings, in which like parts are identified by the same reference numerals:

FIG. 1 is a perspective view of a hollow door incorporating the concepts herein taught.

FIG. 2 is an enlarged fragmentary vertical section of the door of FIG. 1 taken along lines 2—2.

FIG. 3 illustrates an otherwise conventional hollow door with portions of the structure broken away to show internal weighting.

FIG. 4 is an enlarged fragmentary vertical section of a portion of the door of FIG. 3.

FIG. 5 is a front elevation view, with parts broken away, of a door divided into quadrants by frame members, with four internally mounted weight elements attached to the frame.

Referring to FIG. 1, a hollow door 10, which may be constructed in a conventional manner, has mounted thereon one or more decorative attachments 12, recessed in suitable apertures 14. FIG. 2, and preferably mounted back-to-back in registered relation and maintained clamped against opposite sides of door 10 by as by stud bolts 16 extending inwardly from one or both sides of the door. The heads of bolts 16 may be provided with decorative portions, if desired, to blend with the design of the decorative attachments 12. As shown, a conventional bolt head is employed to form terminal portions of the simple decorative design shown.

Attachments 12 are preferably but not necessarily of metal. They may be aluminum castings, stampings or otherwise formed of metal, plastic, or other materials. However, since the attachments are the sole means of adding weight to the doors and the like, they may be selected for other purposes, such as design, in some instances to mount the attachments on only one wall of a hollow partition such as a door. In that event satisfactory weight distribution may be effected between the spaced partition panels by providing apertures in one wall panel only, and internally mounting an attachment device such as a plate to the opposite panel in registry with said apertures. Referring to FIG. 2, the left hand panel and attachment would remain unaltered, but the right hand panel would be unapertured and the mating fixtures shown would be replaced by a plate or other non-decorative fixture suitably fixed to the interior surface of the unapertured right hand panel to receive clamp bolt 16, thereby to maintain the exposed decorative and non-exposed non-decorative fixtures in clamped engagement. The resulting assembly is thus supported by both wall panels of the hollow structure. The non-decorative mounting fixture may be a plate of metal or plastic material, or alternately a relatively thick spacer of wood or other suitable material, which may, if desired, close the gap shown between the paired identical fixtures, FIG. 2.

Hollow doors are currently in wide use in both residential and commercial buildings. Technique have been developed to a high degree by door manufacturers, making it difficult to detect by sight alone a hollow from a solid door. A hollow door may, however, be identified by the "rap test." When in use, the comparatively light weight of a hollow door results in a quite different "feel" from that of a solid door, hence the two types are seldom confused in use.

The total added weight of the decorative attachments of metal or other material as above described is preferably such as to match the weight of a solid door with a resultant like feel during use. The same result as to weight only may also be obtained by internally or externally weighting a conventional hollow door, as hereinafter described.

FIGS. 3 and 4 illustrate a hollow door 20 provided internally with a metallic or other webbing 22 such as heavy
screening to which low-cost weights 24 are attached. Weights 24 may be, for example, a low cost material, such as an inexpensive metal attached to webbing 22, or a silicate or other low cost material or otherwise secured to the webbing in quantities sufficient to provide the desired weight. Webbing 22 may be suspended between the solid wood portions 26 of door 20, FIG. 4, to which the webbing may be suitably attached, as by screws 28 or the like. Many other low-cost methods of internally weighting hollow doors to give the feel of solid doors will become apparent to persons skilled in the art, without departing from the concepts herein taught, selected examples of which are shown in the drawings.

Most hollow doors are manufactured with smooth exposed surfaces, whereas many solid doors are rough finished to accentuate the grain pattern while presenting a sturdy look. The present invention is directed in part to duplication of the overall appearance of a roughly hewn oak door, for example, by use of a heavily grained or rough outer ply of the door. A rough surface finish which may be superfi cially applied resin or the like, embossed to simulate rough grain, or an outer ply having a tool roughened surface is shown at 30, FIG. 4. It is known to simulate such surfaces either by mechanical treatment of the wood forming the outer ply or by a superfiциально coated application of plastic resin, or fibrous or other material onto which the desired surface pattern may be roll embossed or otherwise applied. Such treatment of the exposed surfaces of hollow doors greatly improves appearance, with the resulting product closely resembling the more expensive solid doors. Alternately, a heavy surface treatment of three dimensional contour may, if desired, be selected to add enough weight to produce the desired feel, duration of the art, without departing from the appearance of solid doors. Also, a variety of weights for producing the desired feel may be selected to provide the desired appearance.

Doors or the like which include the decorative attachments may be given an overall coating or finish applied over both the exposed door surfaces and the attachments to produce the appearance of a heavy solid wood door, or alternately, a carved all-metal door. Suitable finishes are currently available from major paint manufacturers. For example, the overall application of a bronze finish to both the attachments and exposed door surfaces results in a finished door which is difficult to distinguish from one carved out of a single slab of bronze. Grain pattern may be applied in the form of lacquer, varnish stains or the like over both the "carvings" or attachments and the other exposed door surfaces to give the appearance of a door carved out of solid hardwood or the like. When plywood having a grained or contoured outer surface is used, the resulting appearance is particularly effective.

The present invention contemplates volume manufacture and sale of decorative partitions such as elegant doors at prices sufficiently low to establish a mass market. It is contemplated that one or more major plywood manufacturers will supply specially surfaced plywood to major door manufacturers for application to otherwise conventional hollow doors. Present door fabrication techniques need not be modified nor production equipment altered except to the extent of either adding internal weights, decorative attachments, or both if that is desirable in some instances. Plywood with a heavy external surface is within the skill of plywood manufacturers, for sale as an end product to door manufacturers. The potential market for the doors and partitions above described appears currently to be substantial in volume.

A definite need exists for relatively inexpensive hollow doors, both weighted and unweighted, which resemble in appearance solid doors, and for such doors, both with and without the decorative attachments or "carvings."

1. A decorative fixture adapted for disposition within a panel to provide surface ornamentation, said fixture comprising a pair of marginally flanged elements having major portions insertable within said panel aperture from opposite sides of the panel in juxtaposed relation, said portions of said elements being of dimensions less than half the thickness of a panel to which said elements are adapted to be attached, whereby the innermost surfaces of said elements are in spaced apart relation when said fixture is clamped to a panel, said marginally flanged portions being positioned to engage exposed panel portions marginally of said aperture, and means spaced from said flanged elements and positioned within the area defined by the aperture for maintaining said flange portions in clamped engagement with surfaces of said panel marginally of said aperture.

2. The device of claim 1, wherein said panel comprises a portion of a door structure.

3. The fixture of claim 1 wherein said clamp means includes an elongate member extending transversely of the juxtaposed assembly and clamping engaged said elements to maintain bias against an intervening panel.

4. The fixture of claim 1 wherein one of said elements is of metal.

5. The fixture of claim 1 wherein said elements are of non-metallic materials.

6. The combination with an apertured panel member, of a fixture adapted for substantial disposition within the panel aperture in clamped engagement with said panel, said fixture comprising a pair of elements provided with marginal flanges having major portions insertable within said panel aperture from opposite sides of the panel member, said portions of said elements being of dimensions less than half the thickness of the panel member, whereby the innermost surfaces of said elements are spaced apart relation, and clamp means maintaining said elements in juxtaposed relation with said marginal flanges in clamped engagement with panel surfaces marginally of said opening, said clamp means spaced from said marginal flanges and positioned within the area of said panel opening.

7. The panel and fixture of claim 6 wherein the exposed surface on one of said elements is contoured to resemble carvings.

8. The device of claim 6 wherein said fixture is of metallic material.

9. The device of claim 6 wherein said fixture is of plastic-like material.

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