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FOLDING DOOR

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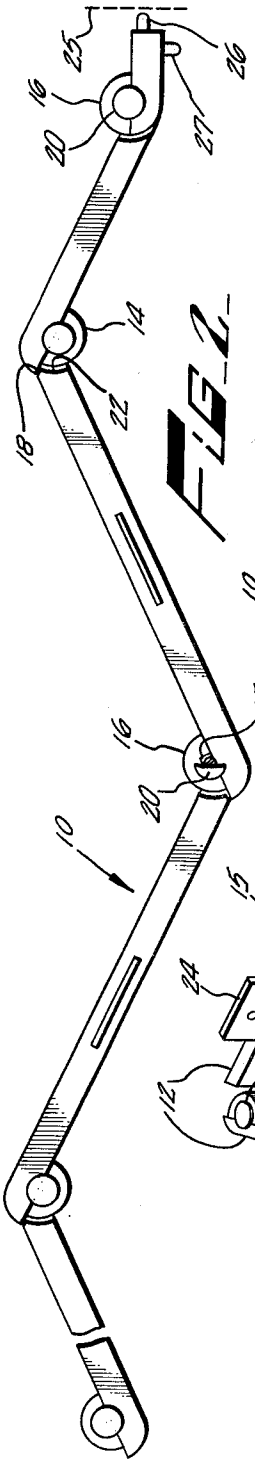


FIG 2

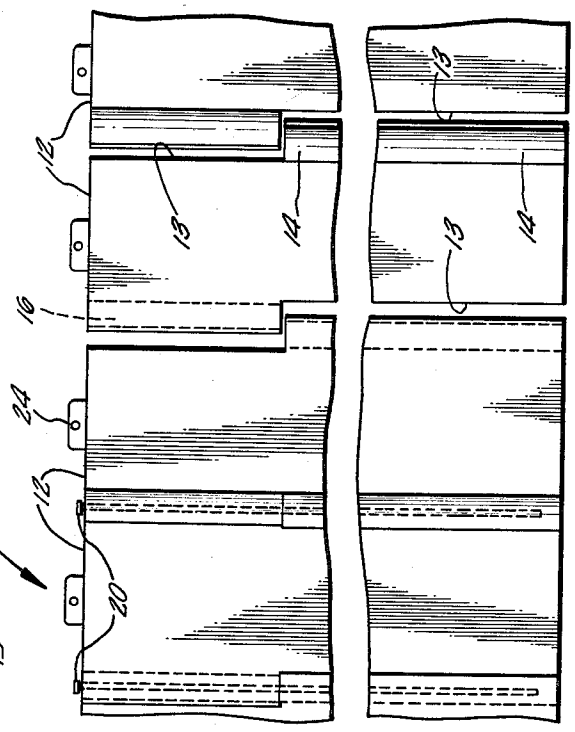


FIG 3

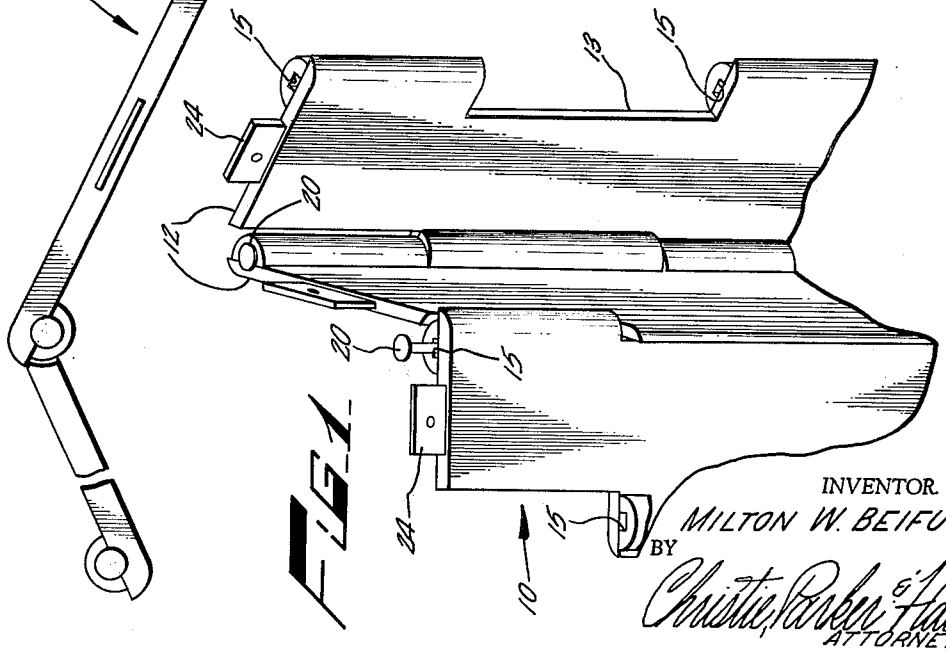


FIG 1

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FOLDING DOOR

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This invention relates to folding doors which can be extended and retracted in an accordion fashion.

Accordion type folding doors are widely used at the present time as room dividers, closet doors, and generally in any area where it is necessary to cover space with a minimum amount of clearance area required for the door to swing. Folding doors are well suited to meet this requirement because they expand and retract along a line which is generally in the plane occupied by the door in the expanded or closed position.

Previous folding doors have been either expensive, or unattractive in appearance because they do not appear to be of all one material, e.g., adjacent edges of panels in some folding doors are held together by flexible plastic strips which are unsightly and detract from the appearance of the door.

This invention provides a folding door which is inexpensive to manufacture, and which presents the appearance of being made from only one type of material, e.g., wood.

Briefly, the folding door of this invention includes a plurality of upright elongated panels disposed side by side. A separate set of longitudinally spaced hinge sleeves is mounted along each side edge of each panel, and have collinear bores extending through them. The sleeves along each side edge of a panel are disposed to make intermeshing fits between adjacent sleeves along the adjacent side of an adjacent panel. A separate elongated hinge pin is disposed through the collinear portions of each intermeshing hinge sleeve to hold the panels together.

Peferably, the sleeves are spaced to fit with their ends abutting to form a substantially continuous conduit throughout the length of the panels. Conveniently, the hinge pin terminates a substantial distance above the lower end of the lowermost sleeve to permit the door to be trimmed to fit into spaces of different heights.

Preferably, each panel is provided with longitudinally spaced notches on each side edge, and the notches on one edge are longitudinally spaced and staggered between the notches on the opposite edge. The sleeves along one side edge of the panel are mounted on one face of the panel between adjacent notches, and the sleeves on the other side edge are mounted on the opposite face between adjacent notches.

Preferably, the panels and sleeves are made of wood, and the sleeves are one-half round molding sections with saw cuts on the flat faces to form the longitudinal openings through the sleeves. Preferably, the sleeves are glued with the flat faces against the panel, and are each spaced inwardly from the adjacent edge of the panel on which they are mounted by a distance greater than the spacing between the sleeves and the edge of the adjacent panel so that the adjacent panel edges form a stop to prevent the panels from folding out into a flat plane. Preferably, the notched edge portion of each panel is made concave to accommodate the convex surface of the one-half round sections that form the sleeves.

These and other aspects of the invention will be more fully understood from the following detailed description and the accompanying drawings, in which:

FIG. 1 is a fragmentary perspective view of the folding panel door in the presently preferred embodiment of the invention;

FIG. 2 is a plan view of the folding door shown in FIG 1; and

FIG. 3 is a fragmentary elevation of some of the panels partially assembled into the folding door.

Referring to the drawings, a folding door 10 includes a plurality of elongated vertical and generally rectangular panels 12 disposed side by side as shown in FIGS. 1 and 3.

Each side edge of each panel has a plurality of longitudinally spaced elongated notches 13. The notches on one side of the panel are longitudinally offset from or staggered from the notches on the other side so that the boards and notches can be fitted together and intermeshed as shown in FIGS. 1 and 3. A first set of hinge sleeves 14 are glued to one face of each panel adjacent one side edge to extend from one notch to the next adjacent notch, or the end of the panel. Preferably, the panels are wood, and the hinge sleeves are wood one-half round molding sections with longitudinal saw cuts 15 on their flat surfaces to form collinear openings in the sleeves of the first set. A second set of elongated collinear hinge sleeves 16, identical with those in the first set, are secured to the opposite face of each panel along the opposite side edge, preferably by gluing. Each hinge sleeve in the second set has a longitudinal saw cut 17 to form collinear openings in the sleeves of that set. The panels are disposed side by side, as shown in FIG. 3, with the notches intermeshing, and with the hinge sections on the common faces aligned so that their respective cuts or openings are collinear.

As shown best in FIG. 2, the notched portions of each panel terminate adjacent the face of the adjacent panel on which are mounted the nearer set of sleeves on the adjacent panel. Each sleeve is set inwardly from the adjacent edge of the panel on which it is mounted a distance slightly greater than that between the sleeve and the adjacent notched portion of the adjacent panel to leave a stop shoulder 18 which engages the notched portion of the adjacent panel to hold the panels in the accordion shape shown in FIG. 2 when the door is in its extended or closed position. This prevents the appearance of unsightly gaps or spaces throughout the width of the door when it is expanded to the closed position, and makes it easy to open the door to the folded position. A separate hinge pin 20 extends from the top sleeve down through the collinear openings in each aligned set of hinge sleeves and terminates at its lower end in the lowermost sleeve and a substantial distance above the lower end of it. Ordinarily, this distance is between one to four inches to permit the lower edge of the door to be trimmed to the exact length required to fit the opening in which the door is mounted. As shown best in FIG. 2, the notched portion of each side edge of each panel has a longitudinally extending concave recess 22 to fit around the adjacent portion of the hinge section disposed in the respective notch.

A separate hanger 24 is secured to the upper end of each panel so the folding door can be supported in a conventional overhead track (not shown). The sleeves on the traveling end panel (right end, as viewed in FIG. 2) are mounted with their inner edges flush with the inner edge of the end panel, which therefore does not have the integral stop provided by the other panels. This permits the end panel to assume a position perpendicular to the wall 25 (shown only in phantom line) which the door moves toward and away from. A conventional lock 26 and handle 27 is mounted on the traveling end panel.

The panels which form the door of this invention are easily and inexpensively formed by notching them in the shape shown in FIG. 3. Thereafter, the collinear sets of hinge sleeves are secured to the proper faces of the panels, each hinge having previously been longitudinally cut, say, with a saw, to provide the necessary opening for the hinge. This manufacturing process avoids the necessity of attempting to drill an elongated

bore through the length of the panel to receive a hinge pin. Moreover, the sleeves are such a length that the sleeves in one panel abut the ends of adjacent sleeves in the next adjacent panel and present a substantially continuous conduit for the hinge pin, and monolithic appearance of a door made of all one material.

I claim:

1. A folding door comprising a plurality of elongated wood panels disposed side by side, a set of longitudinally spaced elonged wood hinge sleeves mounted along each side of each panel, the sleeves being one-half round sections of molding with their flat sides against the panels, the sleeves having collinear longitudinal cuts on their flat sides, the sleeves along each side of a panel being disposed to make intermeshing fits between adjacent sleeves along the adjacent side of an adjacent panel, and a separate elongated hinge pin disposed through the collinear openings of each intermeshing set of hinge sleeves.

2. A folding door comprising a plurality of elongated panels disposed side by side, a set of longitudinally spaced

elongated hinge sleeves mounted along each side of each panel, the sleeves being one-half round sections of molding with their flat sides against the panels, the sleeves having collinear longitudinal cuts on their flat sides, the sleeves along each side of a panel being disposed to make intermeshing fits between adjacent sleeves along the adjacent side of an adjacent panel, the sleeves having the same external appearance as the panels so the door has a monolithic apeparance when the sleeves are mounted on the panels, and a separate elongated hinge pin disposed through the collinear openings of each intermeshing set of hinge sleeves.

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