April 20, 1965 R. F. STANSBERRY 3,178,776

GARAGE DOOR

Filed March 9, 1962

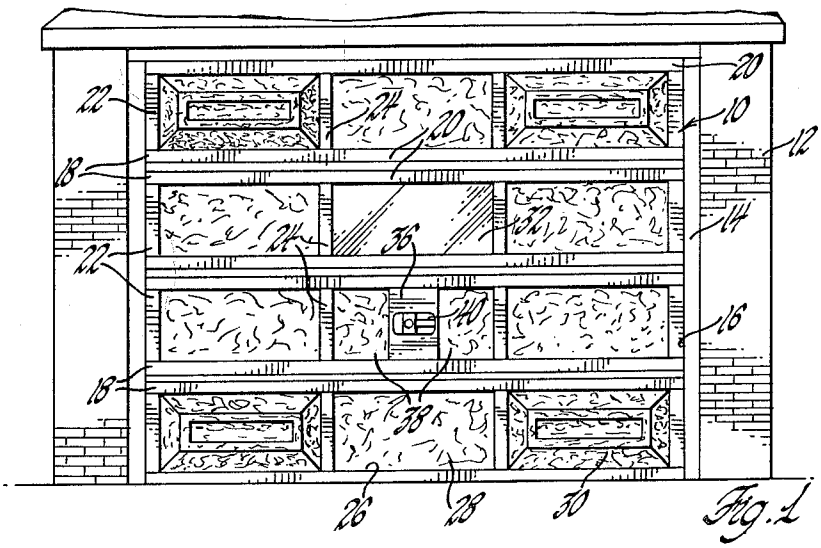


Fig. 1

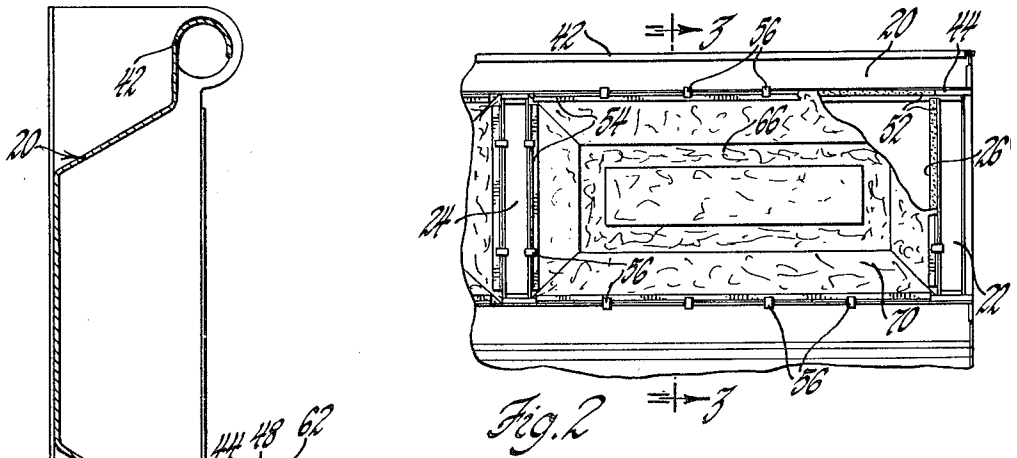


Fig. 2

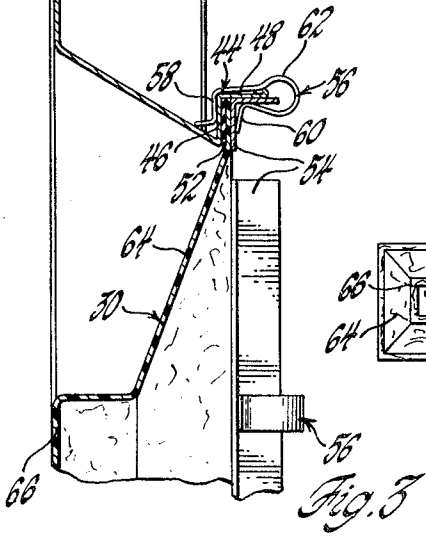


Fig. 3

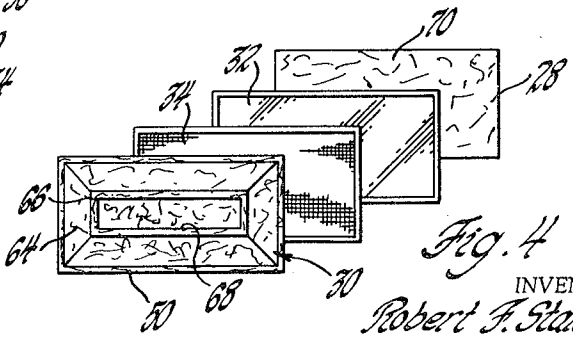


Fig. 4

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GARAGE DOOR

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This invention relates to garage door closures in general and more particularly to a garage door closure having replaceable and interchangeable door panels.

There is an increasing popularity amongst present day home owners for homes having an attached garage. Such garages are frequently provided with the garage door facing the front of the house and in such instances the architectural character of the house is dominated by the appearance of the garage door. Those homes which have double garages and garage doors have a particular problem in this regard. Builders, architects and home owners have all attempted to soften the blankness of the closed garage door by ornamental designs painted on the door. However, as will be appreciated, these efforts result in considerable more maintenance for the home owner.

The convenience of an attached garage has also led to the use of such garages as summer porches and play areas for young children during inclement weather. This in turn has required that the door closure include or be replaceable by a separate weather closure admitting more light into the normally darkened garage interior. In a few instances, as suggested, glass or screen enclosing curtainwall structures are substituted for the garage door during the summer weather months.

Quite obviously, the use of a separately installed glass or screen curtainwall is totally impractical unless the home owner is satisfied to completely lose the use of his garage for housing his automobile. It would be far more desirble to have the garage door itself adapted or adaptable to provide a dual function. Although several attempts have been made to accomplish this end result, none have proven very successful.

As will be appreciated, it is extremely difficult to make use of glass window panes in garage doors since they are repeatedly opened and closed with devastating effects to the window areas unless they are suitably cushioned in soft rubber glazing frames. A whole door of exposed window area would be both difficult and expensive to provide. Furthermore, it would not be particularly attractive nor functionally practical when the garage area was used for winter storage purposes.

It is an object of this invention to provide a new and different type of garage door wherein the door construction makes provision for replaceable panel areas and for the use of different panels which may be used to suit different needs and requirements.

It is an object of this invention to provide a garage door structure of the type mentioned wherein the panel members are interchangeable to permit innumerable variations in external design by the use of a minimum of panels of different colors or external configuration.

In this latter regard, it is an object of this invention to provide a garage door structure which will accommodate replaceable and interchangeable panel members.

It is also an object of this invention to teach the use of interchangeable and replaceable panel members for the garage door structure disclosed which are of translucent thermoplastic and formable material having a light diffusing surface texture. Such panels are weather resistant, maintenance free and can be provided in different color tones. The translucence admits light therethrough without enabling anyone to see into the garage while the diffusing surface texture precludes glare from the surface of the panels.

It is a further object of this invention to provide a garage door structure having multiple panel openings each receptive of a plurality of panel members capable of serving different functional purposes and to give optional selection in the appearance of the garage door.

A garage door constructed in accord with the teachings of this invention will enable a home owner to have an attractive garage door in that the replaceable panels may be styled to the architectural character of his house and, further, will enable selected positioning of the styled panels to suit his particular wishes and needs. The use of translucent panels will provide light in the normally darkened garage area and eliminate the need for window glass areas. However, the panels in question may be replaced in part or totally by suitable window glass or screen panel members as suits the wishes and needs of the home owner.

Other objects and advantages to be gained in the practice of this invention will be more apparent upon a reading of the following specification wherein a preferred embodiment of this invention is described with reference to the accompanying drawings wherein:

FIGURE 1 is a front plan view of a garage door constructed in accord with the teachings of this invention;

FIGURE 2 is a rear plan view of a panel section of the garage door structure shown by FIGURE 1;

FIGURE 3 is an enlarged cross sectional view of the garage door panel section shown by FIGURE 2 as seen in the plane of line 3—3; and

FIGURE 4 shows a collective group of replaceable panel members such as may be used with the garage door of this invention.

Referring to FIGURE 1 in further detail, there is shown a garage door 10 used with a garage 12 and disposed within a door frame 14 to close the frame opening 16. The garage door 10, in this instance, is of the overhead opening type made up of hinged door sections 18 each extending the width of the door opening and in combination of the full height thereof. The door sections 18 each include a pair of rails 20 extending the full width of the door and interconnected by stiles 22 between the ends thereof. Mullions 24 are provided in parallel spaced relation to the stiles between the ends of the rails 20.

As will be subsequently appreciated, the sectional construction of the garage door which is shown by the drawings is not a contributing factor to the broader aspects of the invention set forth. The same garage door may be viewed as a single unit having rails 20 at the top and bottom and stiles 22 extending the full height of the door. The intermediate rails, between those at the top and bottom of the door, may be more properly termed transoms and would be singular members. The door would then be considered to include intersecting cross-bars made up of vertically disposed mullions and horizontally disposed transoms.

Where appropriate this broader terminology will be used in defining the broader aspects of the invention and should be kept in mind. The stiles 22 and mullions 24 of each of the door sections in the embodiment shown by the drawing are relatively disposed to provide equal sized panel openings 26 therebetween. These panel openings are closed by flat and relatively plain surfaced panel members 28, ornamental panel members 30, framed glass panel 32, screen panels 34, or the like. The different panel members are interchangeable and accordingly permit multiple different variations of ornamental and functional garage door panel arrangements as will be subsequently described in further detail.

A door handle mounting 36 may be provided between a pair of one of the door section framing rails 20. In such instances the panel opening on each side of the door

handle muntin **36** is closed by filler panels **38**. This conveniently locates the door handle and lock member **40** in its conventional location.

The rails **20** which form the hinged door sections **18** are hat shaped in cross section, as best shown by FIGURE 3, and formed to include a hinge pin roll **42** at their outer edge. Adjacently disposed rails **20** of different hinged sections **18** are hinge connected together in the well known and conventional manner. The hat sectioned or channel shape of the rails **20** enables the use of lightweight sheet metal with assured cross beam structural strength.

Referring to FIGURES 2 and 3, it will be noted that the edge of the door section framing rails **20** which is next adjacent the panel openings **26** is formed to include a shoulder ledge **44** on which the panel members may be seated. This same type shoulder ledge is also provided on the edges of the stiles **22** and mullions **24** framing the panel openings **26**.

The shoulder ledges **44** are formed by having the inner edge **46** of the panel opening framing members bent back and extended outwardly of the panel openings **26** with the terminal edge **48** bent rearwardly of the panel openings.

The different panel members **28**, **30**, **32** and **34** are all interchangeable and adapted to fit into any of the panel openings **26**. However, each of the panel members is larger than the panel openings **26** sufficient to provide a peripheral edge **50** which is received and supported on the shoulder ledges **44** disposed about the different panel openings. A weather sealing strip **52** may be disposed between the peripheral edge of the different panels and the shoulder ledge **44** on which it is seated. Such weather sealing means may be made up of different strips and need not be an endless one piece of weather stripping member.

The panel members are retained on the shoulder ledge **44** by means of a glazing member **54** which is a simple sheet metal strip formed to an angular cross section, as best shown by FIGURE 3. They are slightly shorter than the panel sides received.

The glazing strip members **54** are separate straight edge members which are held on the shoulder ledge **44**, with the panel member edges therebetween, by means of spring clip members **56**. This allows for panel expansion and contraction.

The spring clip members **56** are formed to include a shoulder engaging leg **58** and a glazing strip retaining inner leg **60** joined by a spring loop **62**. The shoulder engaging leg **58** of the spring clip is received over the back of the panel receiving shoulder ledge **44** and the inner leg **60** of the spring clip holds the glazing strip member **54** seated securely against the terminal edge **48** of the shoulder ledge and biased towards the panel receptive face **46** thereof.

As noted by FIGURE 2, a plurality of spring clips **56** are used to hold the different glazing strip members **54** in place and the selected panel member in closing position across a panel opening **26**.

Although, as mentioned, glass pane panels **32** and screen panels **34** may be used to close the different panel openings **26** in the garage door **10**, the preferred type of panel is made of a thermo-setting plastic or thermo-plastic material which is readily receptive to thermo-forming. This latter material is such as cellulose acetate butyrate which may be used with vacuum forming molding equipment to obtain different ornamental design configurations; such as shown by the panel **30**. This particular panel is formed to include a rise **64** from the peripheral edge and includes a rectangular molding form **66** having a center depression **68**. Unlimited other designs may be provided in any of the thermo-plastic panels.

The panel members of the thermo-plastic material are also preferably formed to include a leather textured surface **70** and, in the molding operation, the dull side of the panel is intended to serve as the face of the panel as

mounted in the garage door. In combination the dull side of the panel with the leather textured surface serves to reduce any glare or reflection from the face of the plastic panels and to minimize their appearance as such.

As will be appreciated, the thermo-plastic material may be of any selected color and is of course weather resistant and maintenance free. Furthermore, the material is translucent and accordingly enables a diffused light to pass through the garage door during the daytime. This factor, in large respect, eliminates the need for any light admitting glass panels in the garage door.

The garage door **10** which has been described may be supplied to a builder or home owner with any type or combination of different panels to provide any color combination, external design appearance or functional character requested. Furthermore, a few extra panels of any selected design, or glass panels, or screen panels, may be provided to enable any variation after the garage door is installed or in use. Still further, a home owner may later order a full set of glass or screen panels to obtain a glassed or screened enclosure for a garage converted to summer porch or play area use. The home owner himself can readily remove any of the panels and exchange or replace the panels however he chooses.

There is no installation problem since the home owner himself can readily remove the spring clips **56** and the glazing strip members **54** to replace any or all of the panel members if and whenever desired.

I claim:

1. A garage door structure adapted to receive and retain a plurality of readily removable distinctively different and interchangeable panel members within different panel openings provided therein, and comprising: a garage door framework including interconnected stiles and rails having intersecting cross-bars provided therebetween and defining panel openings therewith, said stiles rails and cross-bars being disposed to provide a plurality of complementary panel openings between which different of said closure panels may be interchanged, said panel openings being undersized with respect to said panel members for receiving the latter in overlapping relation thereto, a shoulder ledge formed from said stiles rails and cross-bars about said panel openings and having a free edge extending behind and externally of said openings, straight length panel glazing members cooperatively engageable with said shoulder flanges, and readily removable spring clip members having the ends thereof formed and disposed for cooperatives locking engagement of said glazing members to the free ends of said shoulder flanges with the edges of said interchangeable panels overlapping said opening retained therebetween.

2. A garage door structure, comprising: a plurality of horizontally disposed and hinge connected door sections each extending the width of a door opening and in combination the full height thereof, said door sections each including a pair of rails having stiles provided between the ends thereof and mullions provided in parallel spaced relation to said stiles and intermediate the ends of said rails, said stiles and mullions of each of said door sections being relatively disposed to provide equal sized panel openings therebetween, panel members for closing said openings and interchangeable between substantially all of said openings, a flange wall formed from each of said rails stiles and mullions about said panel openings and extended outwardly of said opening and substantially in the plane thereof, said flange walls having the terminal edge thereof bent transversely and extending behind said panel opening, said panel members being sized to seat on said flange walls and within said terminal edges, individual straight edge members of extended length seating on said flange walls next adjacent said terminal edges and on each side of said openings, and spring clip fasteners for removably engaging said straight edge members to said flange walls and the terminal edges thereof with said panel member edges securely retained therebetween.

3. A garage door, comprising;

transversely disposed and spaced frame rails secured and engaged together to provide a frame member which fits a garage door opening and includes a plurality of panel receptive openings,

said frame rails having a channel cross-section and being open at the backs thereof,

a shoulder flange formed from the opening defining edges of said frame rails and extending transversely thereto,

said shoulder flanges in combination being disposed in peripheral and co-planar relation about each of said panel receptive openings and outside thereof,

terminal flanges formed from the terminal edges of said shoulder flanges by bending them at right angles and extending them rearwardly,

panel members for closing said openings and which are oversized with respect thereto and have the peripheral edge thereof received in engagement with the shoulder flanges of said frame rails,

and spring clip fastener means readily and removably engaged to said shoulder and terminal flanges for retaining and replaceable engagement of said panel members thereto.

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