

Aug. 19, 1952

B. J. TRILLER

2,607,087

CABINET DOOR CONSTRUCTION

Filed Sept. 11, 1946

2 SHEETS—SHEET 1

Fig. 1

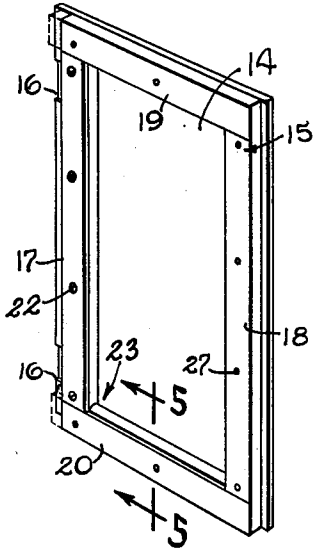


Fig. 2

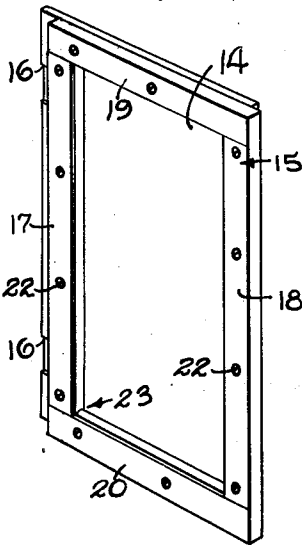


Fig. 3

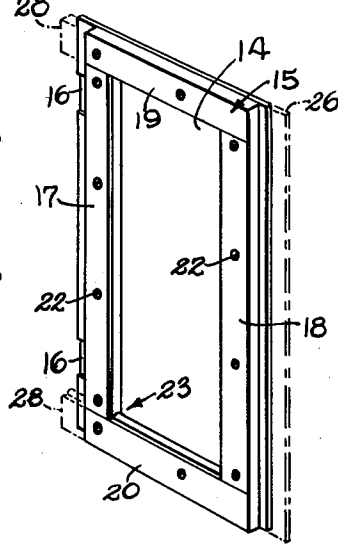


Fig. 4

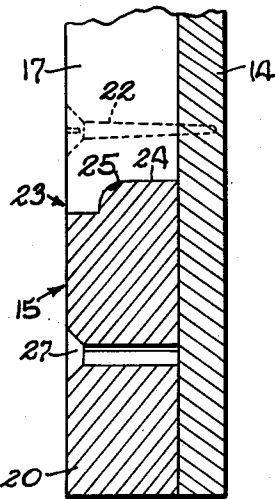
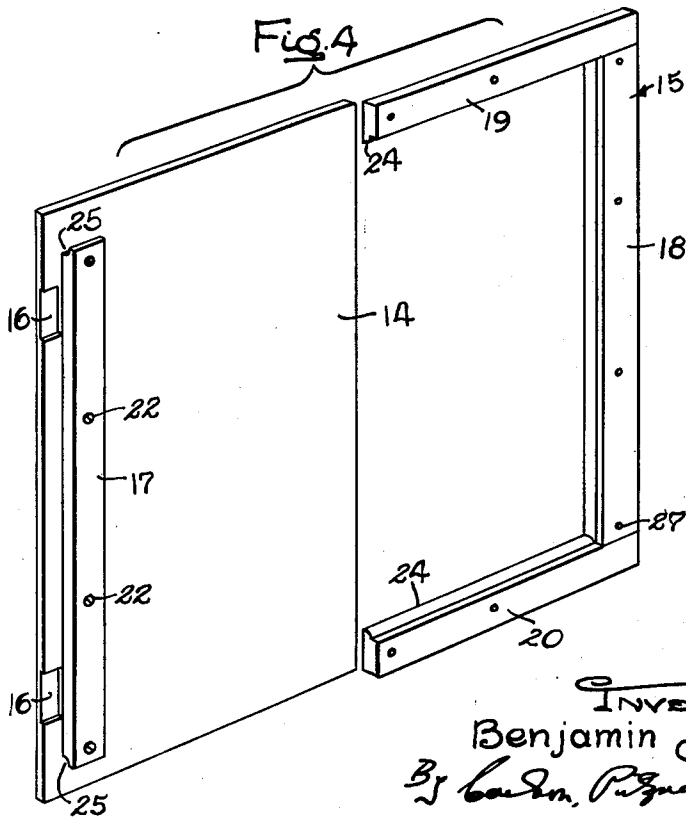


Fig. 5

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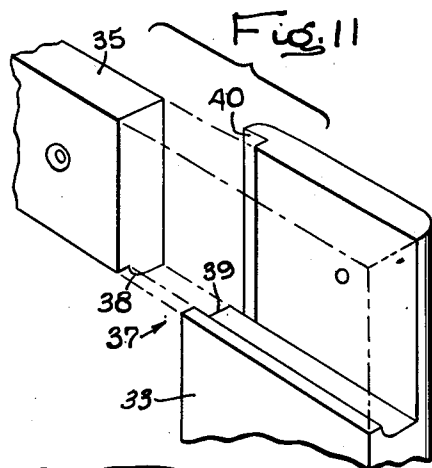
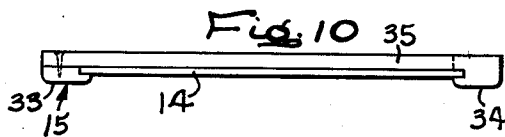
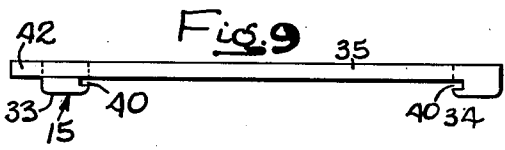
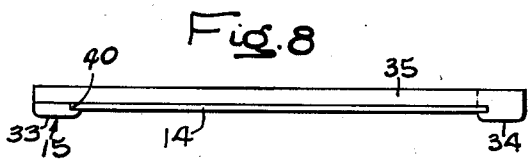
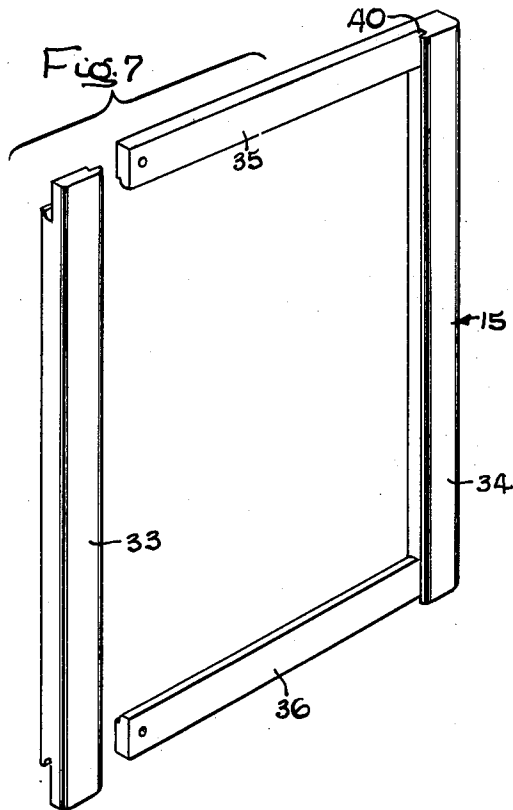
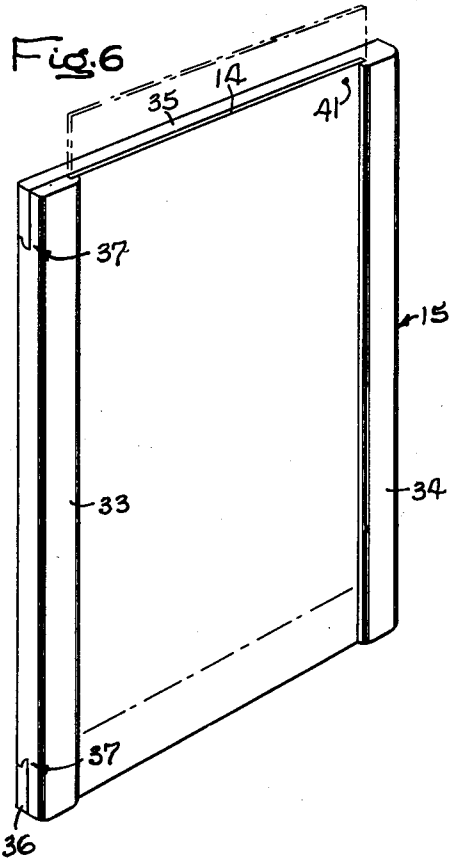
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CABINET DOOR CONSTRUCTION

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2 SHEETS—SHEET 2



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CABINET DOOR CONSTRUCTION

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4 Claims. (Cl. 20—35)

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The invention relates to improvements in door construction and more particularly to doors for kitchen cabinets and the like.

Cabinets of the type commonly installed in kitchens have been standardized to the extent that all such cabinets are now built to substantially the same height. In custom built cabinets and in cabinets of the type disclosed in my co-pending application Serial No. 432,398, filed February 26, 1942, Patent Number 2,466,869 issued April 12, 1949, compartment widths vary according to the dimensions of the wall space in which the cabinet is to be installed and of course require doors of correspondingly varying widths.

The primary object of the present invention is to provide an improved cabinet door structure which may be manufactured efficiently and cheaply in one standard size and which is readily adjustable to provide doors of varying widths to meet the requirements of different cabinet installations.

A more specific object is to provide a reinforced cabinet door structure adapted to be produced in a standard size for cabinet compartments of maximum width and which can be reduced to any required width very quickly and with simple tools.

A further object is to provide a cabinet door structure including a closure panel and reinforcing frame which is readily adjustable relative to the panel to form either an inwardly facing or outwardly facing rabbet along the side edge of the door to facilitate the installation of doors in pairs.

Other objects and advantages of the invention will become apparent from the following detailed description of the preferred embodiment illustrated in the accompanying drawings, in which:

Figure 1 is a rear view of a cabinet door structure embodying the features of the invention, the particular door shown having the reinforcing frame adjusted to provide an inwardly facing rabbet along the free side edge of the door panel.

Fig. 2 is a view similar to Fig. 1, showing the reinforcing frame adjusted to provide an outwardly facing rabbet along the side edge of the door.

Fig. 3 is a rear view of the door structure as reduced in size to fit an opening of less than the standard width in which the structure is supplied.

Fig. 4 is a view showing the manner in which the fixed and adjustable parts of the reinforcing frame are assembled with the door panel.

Fig. 5 is a transverse sectional view of the door

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structure taken in a vertical plane substantially on the line 5—5 of Fig. 1.

Fig. 6 is a front view of a modified form of the door structure particularly adapted for the use of a thin panel.

Fig. 7 is a perspective view of the reinforcing frame of the door shown in Fig. 6.

Figs. 8, 9 and 10 are end views of the door structure showing successive steps in the process of reducing its width.

Fig. 11 is a detailed view of one of the sliding joints between the side stile and cross members of the frame structure.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring to the drawings, the improved door structure comprises generally a flat, rectangular panel 14 of plywood or other suitable material reinforced by a rigid frame 15 extending around its marginal edge. In the form in which the door structure is supplied to the trade, the frame 15 is associated with the panel 14 in a manner which permits the latter to be reduced in width to fit different door openings, and the members comprising the frame are assembled and inter-fitted in a novel manner which enables the frame to be quickly and easily adjusted to the width of the panel. Accordingly each of the parts entering into the construction of the door may be produced efficiently and cheaply in one standard size and the parts may be assembled at the factory without regard to the final size of the door when installed. The factory assembly of the parts is economical, insures accurate matching of the parts, and materially reduces the time and labor required to fit the doors to the particular cabinets in which they are to be installed.

In the form of the door shown in Figs. 1-5 of the drawings, the reinforcing frame 15 preferably comprises four elongated members or strips arranged in rectangular formation and adapted to be secured to the inner face of the panel 14 with the respective members disposed parallel to and closely adjacent the four edges of the door. Thus, as shown in the drawings, the frame comprises a pair of upright members or side stiles 17 and 18 adapted to lie parallel to and adjacent opposite side edges of the panel 14 connected

by cross members top and bottom rails 19 and 20 adapted to lie parallel to and adjacent the upper and lower edges of the panel. The frame members when secured to the panel as by screws 22 impart strength and rigidity to the door structure and effectually prevent warping of the panel 14.

In the manufacture of the door structure, the top and bottom rails 19 and 20 and the side stile 18 are rigidly and permanently secured together as a unit to form a U-shaped frame while a sliding connection or coped joint 23 is provided between the rails and the side stile 17, thus permitting the two stiles to be adjusted toward or from each other. The panels 14 are all cut to the same standard width, that is, the maximum width ordinarily required for cabinet construction and the top and bottom rails are similarly dimensioned for maximum width. In this type of door structure, one of the side stiles 17 is permanently secured to each panel adjacent its hinged side edge which may be notched for hinges as indicated at 16.

The U-shaped frame unit including the companion stile 18 with the top and bottom rails 19 and 20 secured thereto is next assembled with the stile 17 but is not secured to the panel at this time, the parts being frictionally held in assembled relation by the coped joints 23. For this purpose, the joints are formed by providing up-standing beads 24 along the inner edges of the rails and the ends of the side stile 17 are provided with complementary transverse notches 25 (Figs. 4 and 5) for the reception of the beads. A permanent rigid joint is provided between the rails and the stile 18.

The doors are shipped to the job in the condition above described, that is, with the panels 14 of maximum width and the side stiles 18 and associated cross rails 19 and 20 held in assembled relation therewith by engagement with the stile 17. When the width of the door required for a particular cabinet compartment is less than the maximum width of the panel 14, the latter is reduced to such desired width by cutting a strip 26 from the side edge adjacent the stile 18 as shown in Fig. 3. This can be done with a hand saw or other suitable tool and the edge of the panel may be planed or sanded to present a smooth surface.

In preparing the panel for such cutting, the adjustable portion of the frame 15 may be used advantageously for marking off the line on which the cut is to be made, that is, the side stiles 18 may be utilized as a straight edge for scribing the line. This simplifies accurate location of the cut off line as the stile is held square with the side edge of the panel by engagement of the rails 19 and 20 with the fixed stile 17. After the panel has been properly marked, the stile 18 is moved to an out-of-the-way position to avoid marring of the edge in the cutting operation.

Having reduced the panel 14 to the desired width, the installer then adjusts the movable portion of the frame 15 to locate the side stile 18 in proper spaced relation to the free edge of the panel 14. Thus the stile may be spaced inwardly from the edge of the panel as shown in Fig. 1 to provide an inwardly facing rabbet at the edge of the panel or it may be shifted so as to extend beyond the edge of the panel as shown in Fig. 2 to provide an outwardly facing rabbet. The doors may be installed with the hinges at either the right or left side by turning them end for end and, when installed in pairs, the oppositely facing

rabbeted edges provide an overlapping joint therebetween.

After adjusting the frame 15 in the manner above described, the remaining screws 22 are driven to secure the movable frame portion to the panel 14. To facilitate this operation holes 27 (Figs. 4 and 5) are drilled and countersunk in the stile 18 and rails 19 and 20 at the factory. As a final step, the projecting ends 28 of the rails 19 and 20 are sawed off flush with the outer edge of the stile 17, the stile in this instance serving as a guide for the saw.

It will be evident that cabinet doors constructed as above described can be manufactured efficiently and cheaply. Only one size of panel is required. Moreover, the top and bottom rails are generally alike, as are the side stiles 17 and 18. Accordingly, the parts entering into the construction of the door may be produced on a mass production basis at minimum cost. Adjustment of the doors to selected sizes is also quickly and easily effected and only simple tools such as a saw and a screw driver are required for that purpose. Installation costs are therefore held at a minimum figure.

In the modified form of construction shown in Figs. 6-11 of the drawings, the reinforcing frame 15 is adjustable as above described but, in this case, the frame is constructed so as to substantially enclose the panel 15. The panel may therefore comprise a relatively thin sheet of fibreboard or the like.

Referring to the drawings, the modified frame 15 comprises side stiles 33 and 34 and top and bottom rails 35 and 36 arranged in rectangular formation. The rails 35 and 36 in this instance are permanently secured to the side stile 34 and are joined to the stile 33 by a coped joint 37 permitting relative movement between the rails and stile transversely of the frame. As shown in Fig. 11, the joints 37 are constructed so as to hold the parts in assembled relation, that is, the rails 35 and 36 are formed with longitudinally disposed beads 38 adapted to engage in complementary undercut transverse notches 39 in the ends of the stile 33. The rails and the stile 34 are permanently secured together in any suitable manner.

To receive and hold the panel 14, the inner side edges of the stiles 33 and 34 are formed with grooves 40 dimensioned to accommodate the panel with a sliding fit. The side stiles 33 and 34 are made of substantially thicker stock than the rails 35 and 36 and the joints therebetween are lapped so that the inner faces of the elements lie in a common plane while the outer faces of the rails are flush with the inner edges of the grooves 40. Thus, the panels are supported at their side edges by the walls of the grooves 40 and at their upper and lower edges by the rails 35 and 36 against which the panel rests.

In practice, the door is supplied with a panel of maximum width which is cut to the required size on the job. The panel of course is removed from the frame structure during the cutting operation which may be performed with a saw or other suitable tool. After being cut to size the panel is reinserted in the grooves 40 and the side stile 33 is shifted along the rails 35 and 36 into tight engagement with the panel. The rails may then be permanently secured to the stile 33 by means of screws or the like, preferably driven through the rear faces of the rails. A small nail or brad 41 holds the panel in assembled relation to the frame. Finally, the projecting ends 42 (Fig. 9) of the rails 35 and 36 are cut off flush

with the outer edge of the stile 33 thus providing a finished door of precisely the required width as shown in Fig. 10.

With the construction above described, the side stiles 33 and 34 overlie the outer side edges of the panel as shown in Fig. 6 and are preferably rounded at the corners to present a smooth and pleasing appearance. Strength and rigidity is imparted to the door structure by the frame 32 thus enabling the panel to be made of relatively thin sheet material such as fibreboard. The savings obtained by mass production of the doors are thus further increased by the use of inexpensive material for the door panels. Moreover the doors may be quickly and easily adjusted for any installation with simple tools.

It will be apparent from the foregoing that the invention provides a cabinet door construction of novel and advantageous character. Manufacture of the doors may be standardized with a substantial reduction in costs and the doors may be readily adjusted for any installation in a very simple and expeditious manner. Such adjustment requires only the use of a saw and screw driver and may be made by relatively unskilled workmen. The invention also provides a modified form of door embodying all the features of adjustment above referred to and presenting the further advantage of utilizing a relatively thin inexpensive panel of fibreboard or similar material.

I claim as my invention:

1. A prefabricated cabinet door structure adapted for on-the-job fitting to door openings of various sizes and comprising, in combination, a single flat, generally rectangular panel, a reinforcing frame of adjustable size disposed on one side of said panel, said frame including a first elongated stile rigidly secured to one marginal side edge of said panel, opposite ends of said stile being formed to define transverse notches facing contiguous portions of said panel and defining therewith grooves each having a continuous extension of uniform size from side edge to side edge of said stile, a unitary U-shaped frame member comprising a second stile generally similar to said first stile and having a pair of cross rails rigidly secured to opposite ends thereof to extend outwardly therefrom in perpendicular relation thereto, said frame member being slidably mounted on said one panel side with the inner marginal side edge portions of said rails slidably received in said respective grooves, said stiles and said rails each being formed from a single unitary structural element, said panel being reducible in size by cutting therefrom the side edge portion remote from said first stile, and said cross rails being of uniform cross sectional size and configuration throughout the extended length thereof to adapt said U-shaped member for adjustment toward and away from said first stile to vary the size of said frame proportionately to the size of said panel.

2. A prefabricated cabinet door structure adapted for on-the-job fitting to door openings of various sizes and comprising, in combination, a single flat, generally rectangular panel, a generally rectangular reinforcing frame of adjustable size disposed on one side of said panel, said frame including a first elongated stile rigidly secured to one marginal side edge of said panel, opposite ends of said stile being formed to define transverse notches each having a continuous extension of uniform size from side edge to side edge of said stile, a unitary U-shaped frame

member comprising a second stile generally similar to said first stile and having a pair of cross rails rigidly secured to opposite ends thereof to extend outwardly therefrom in perpendicular relation thereto, said rails each having an elongated bead formed along the inner marginal edge thereof, said frame member being slidably mounted on said one panel side with the said beads of said respective rails slidably received in said respective notches, said stiles and said rails each being formed from a single unitary structural element, said panel being reducible in size by cutting therefrom the side edge portion remote from said first stile, and said cross sectional size and configuration throughout the extended length thereof to adapt said U-shaped member for adjustment toward and away from said first stile to vary the size of said frame proportionately to the size of said panel.

3. A prefabricated cabinet door structure adapted for on-the-job fitting to door openings of various sizes and comprising, in combination, a single flat, generally rectangular panel, a generally rectangular reinforcing frame adjustable in size and including a first elongated stile adapted to engage one marginal edge of said panel, opposite ends of said stile being formed to define transverse notches each having a continuous extension of uniform size from side edge to said edge of said stile, a unitary U-shaped frame member comprising a second stile generally similar to said first stile and having a pair of cross rails rigidly secured to opposite ends thereof to extend outwardly therefrom in perpendicular relation thereto, said rails each having an elongated bead formed along the inner marginal edge thereof, said frame member being slidably mounted on said one panel side with the said beads of said respective rails slidably received in said respective notches, said cross rails both being disposed entirely to one side of said panel in longitudinal engagement therewith, said stiles and said rails each being formed from a single unitary structural element, said panel being reducible in size by cutting therefrom one side edge portion and said cross rails including said beads thereon being of uniform cross sectional size and configuration throughout the extended length thereof to adapt said U-shaped member for adjustment toward and away from said first stile to vary the size of said frame proportionately to the size of said panel.

4. An adjustable cabinet door structure as set forth in claim 3 further characterized by longitudinal grooves defined in the inner side edges of said stiles, said grooves being adapted to receive the opposite side edges of said panel.

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