Oct. 22, 1963 R. L. DAY ETAL 3,107,759

PREFABRICATED DOOR FRAME AND MOLDING STRUCTURE

Filed July 29, 1960 2 Sheets-Sheet 1

FIG. 1.

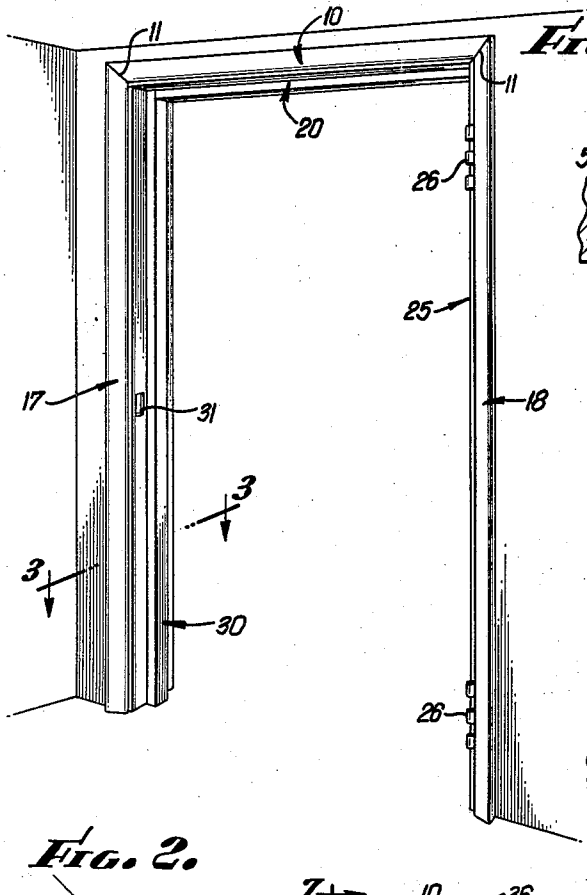


FIG. 3.

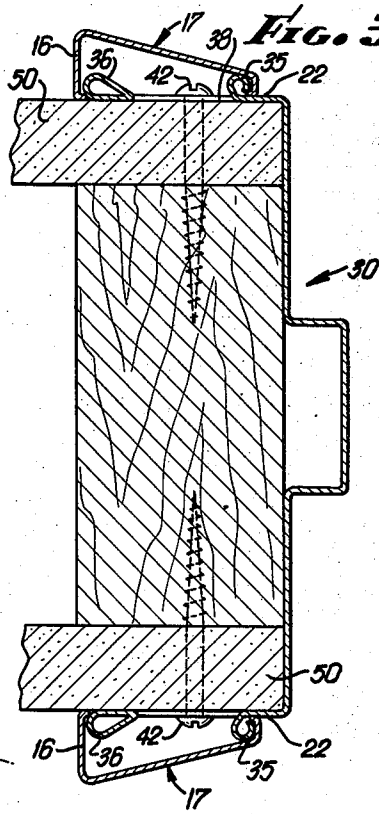


FIG. 2.

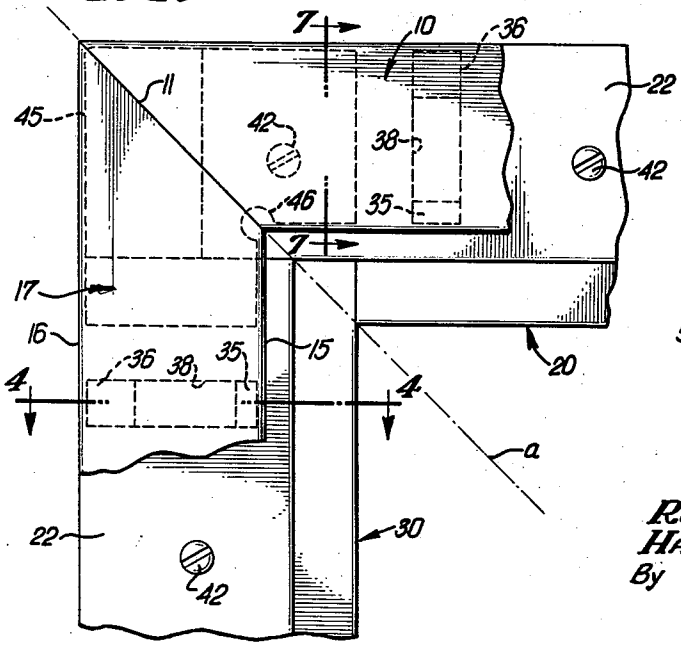
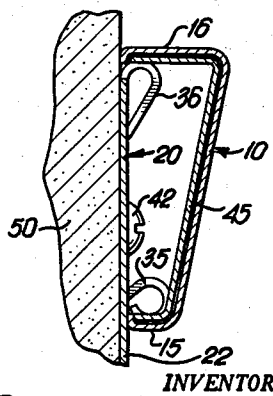


FIG. 4.



INVENTORS.
ROBERT L. DAY
HARRY L. WILLIAMS
By Flam and Flam
ATTORNEYS.

Oct. 22, 1963 R. L. DAY ETAL 3,107,759

PREFABRICATED DOOR FRAME AND MOLDING STRUCTURE

Filed July 29, 1960 2 Sheets-Sheet 2

FIG. 4.

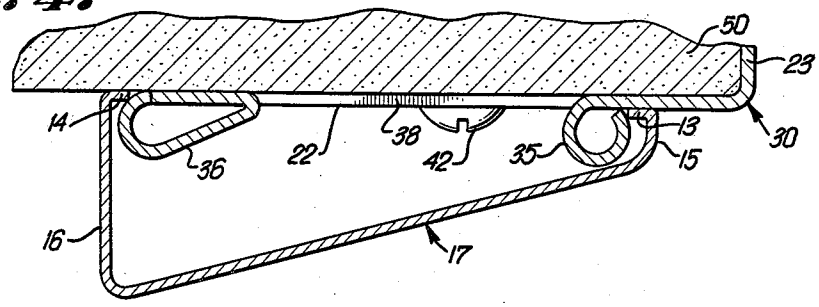


FIG. 5.

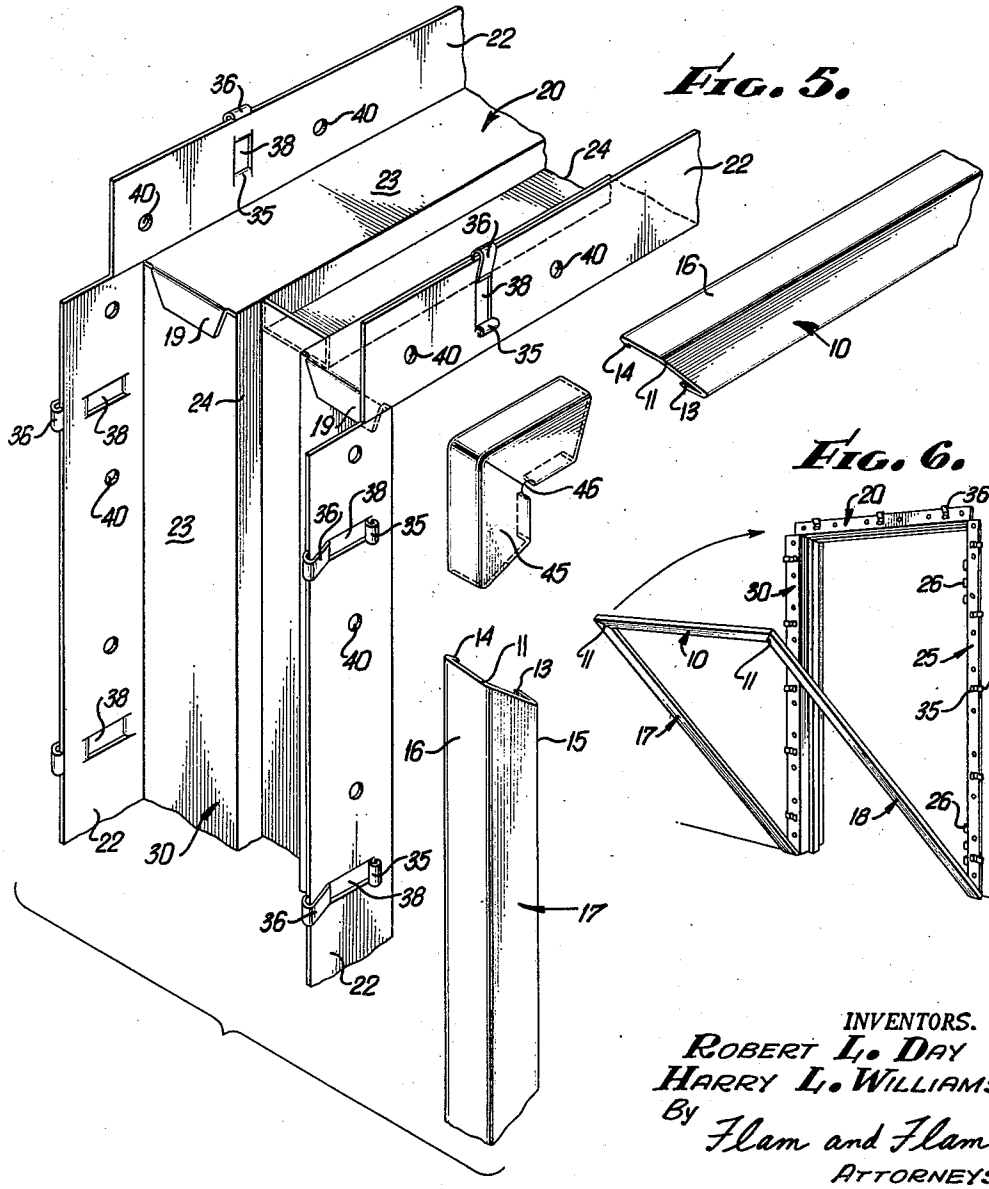


FIG. 6.

INVENTORS.
ROBERT L. DAY
HARRY L. WILLIAMS
By Flam and Flam
ATTORNEYS.

United States Patent Office 3,107,759 Patented Oct. 22, 1963

3,107,759
PREFABRICATED DOOR FRAME AND MOLDING STRUCTURE

Robert L. Day, Burbank, and Harry L. Williams, North Hollywood, Calif., assignors to American Frame Company, Los Angeles, Calif., a corporation of California

Filed July 29, 1960, Ser. No. 46,130
6 Claims. (Cl. 189—46)

This invention relates to a frame construction and particularly to a prefabricated metal frame, such as for a door.

The appearances of previous metal door frames have been severely marred by the means used to install them. Many attempts have been made to utilize camouflaging techniques, analogous to those employed with wood materials. None of these methods have been successful, since the metal is not a comparable surface. The primary object of this invention is to provide an arrangement in which the exposed surfaces of the metal frame will not be the subject of any disfigurations.

In order to achieve the foregoing result, use is made of a novel prefabricated frame and detachable trim structure.

Another object of this invention is to provide a unique fastening arrangement whereby the trim structure can be made of material having a uniform cross-section. Accordingly, the trim can be inexpensively made.

Still another object of this invention is to provide a unique means for fastening a trim structure of this character in which an effective catch is formed by striking tabs from the flanges of the frames. Thus it is unnecessary to affix any separate parts to the metal frame, and economical manufacture of the unit is facilitated.

Still another object of this invention is to provide a prefabricated trim structure that has miter corner joints that can be made to precisely fit by simple adjustments at the time of installation, and despite slight departures of the dimensions of the parts or their relationship from a desired standard.

Still another object of this invention is to provide a unique bracket or guide for the corners of the trim members, to assist the catches in holding the trim in place, and that, like the catches, allows the trim members to be adjusted to compensate for the dimensional variations.

Still another object of this invention is to provide an improved relationship whereby the molding abuts the finished wall, entirely concealing all but the inner margin of the frame flanges, thereby providing an unusually neat appearance.

It is another object of this invention to provide a metal frame and trim structure for various wall openings that can be easily installed.

This invention possesses many other advantages and has other objects which may be made more clearly apparent from consideration of one embodiment of the invention. For this purpose, there is shown a form in the drawings accompanying and forming a part of this specification. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Referring to the drawings:

FIGURE 1 is a pictorial view of a door frame and molding structure embodying the invention;

FIG. 2 is an enlarged fragmentary view of the corner frame and trim structure;

FIG. 3 is an enlarged sectional view taken along the plane indicated by line 3—3 of FIG. 1;

FIG. 4 is an enlarged sectional view taken along the plane indicated by line 4—4 of FIG. 2;

FIG. 5 is an exploded pictorial view of the corner structure;

FIG. 6 is a pictorial view illustrating how the molding structure is attached to the door frame; and

FIG. 7 is an enlarged sectional view taken along the plane indicated by line 7—7 of FIGURE 2.

In FIG. 1 there is illustrated a metal frame structure installed in a doorway. The frame is composed of three pieces, as shown in FIG. 6. Two substantially similar members 25 and 30 are placed at the sides of the doorway to form jambs. One of the jamb members 25 mounts the hinge-posts 26, and the other of the jamb members 30 mounts the strike plate 31. The upper edges of the jambs abut a head piece 20 which extends across the top of the doorway. Together the head piece 20 and the jamb members 25 and 30 provide a complete frame for the doorway.

The head piece 20 and the jambs 25 and 30 are cut from identical stock, as shown in FIG. 5. A detailed description of the cross-sectional configuration of the jamb member 30 suffices as a description of the other frame members 20 and 25.

The jamb member 30 has a configuration substantially as a channel, as shown in FIGS. 3 and 5, there being flanges 22 extending from opposite sides of a central connecting portion 23. The flanges 22 embrace opposite sides of the finished wall 50 (FIG. 3) cornered. The central portions of the jambs are contiguous with the central portions of the head piece. The ends of the head pieces' intermediate depression 24 are relieved to avoid interference and to provide a fitted relationship.

The frame members are attached to the wall (as shown best in FIG. 3) by screws 42, nails, or similar fastening means. The screws 42 pass through apertures 40 in both of the flanges on each frame member. The apertures 40 extend in spaced relationship along the length of each flange.

The frame members are uniformly fabricated, and by virtue of their fitted relationship the precise dimensions of the finished doorway are pre-determined. The fitted relationship is achieved by virtue of the guide tabs 19 which are formed by folding downwardly, that is in the same direction as the intermediate depression 24, the ends of the central portion 23 of the head piece 20 exclusive of the intermediate depression 24. These tabs 19 form a corner angle somewhat greater than ninety degrees, and provide an effective and efficient means of guiding the vertical jamb members 25 and 30 into the proper position relative to the head piece 20. Therefore, the door mounted on the hinge jambs 25 will precisely fit, regardless of variations in any particular opening. Thus, the width of the opening in which the frame members are accommodated may equal or exceed the exact length of the head piece 20 without disturbing the fit of the door in the finished frame.

In order to provide a finished appearance the frame is provided with trim molding. This molding conceals the fastening means 40—42 and also hides other unattractive areas of the flanges, as for example, the corner intersections of the head piece 20 and the jambs 25 and 30.

The trim is affixed to the flanges on both sides of the doorway. On each side the trim consists of three pieces adapted to be secured to the three frame members. Two similar side mold pieces or molding members 17 and 18 are secured to the flanges of the jambs 25 and 30. A top mold piece or molding member 10 is affixed to the flange of the head piece 20. Each of these trim molding members is pre-cut to conform precisely to the length of the corresponding frame member. The trim molding members completely overlie the flanges 23, except for a narrow

strip adjacent the central section of the frame, as shown in FIG. 2.

The trim members **10**, **17**, and **18** are cut from stock material of uniform cross-section that may expeditiously be made by roll forming processes or the like. The trim has a cross-section-configuration as a channel (FIG. 4), with the flanges **15** and **16** extending toward the wall. The outer flanges **16** of the trim members actually contact the wall **50** beyond the edges of the corresponding frame flanges **22**, thereby completely concealing them. The inner flanges of the trim members contact the corresponding frame flanges **22** adjacent the doorway.

In this example, the inner flange **15** is somewhat narrower than its opposite member **16**. Therefore, the central section of the trim tapers inwardly of the doorway on all sides.

The upper ends of the side trim members **17** and **18** are fitted to opposite ends of the top trim member **10**. For this purpose, the ends of the trim members are cut at an angle of 45° to provide edges **11** forming a miter joint. To maintain the right angle relationship, the trim members are telescoped about a right angle corner guide **45**. The guide is hidden by the engaged trim members.

The right angle corner guide **45** is a unitary body, having legs extending at right angles to each other from a common junction, symmetrically with respect to an axis *a* drawn bisecting the right angle. Each leg (FIG. 7) of the guide or bracket extending from the axis of symmetry is slightly smaller, but of substantially the same channel configuration as the trim members in order snugly to fit therein. The mitre edges of the molding members abut each other adjacent the axis of symmetry *a* as they are fully telescoped over the guide **45**.

The flanges **15** and **16** have inwardly turned ends **13** and **14**, as shown in FIG. 4, that form a restricted opening co-operable with catches extending in spaced, aligned relationship along the frame flanges **22**.

Each of the catches are struck in two parts, **35** and **36**, from the parent metal of the flange **22**. The parts **35** and **36** extend as tabs from opposite ends of a rectangular cut out or opening **38** of the flange **22**. The combined lengths of the tabs precisely equal the length of the opening **38**. Hence the two parts of each catch are formed by a single I or H-type cut in the flange **22**. The catch part **35** is curled to provide a re-entrant latching surface facing in a direction away from the other catch part **36**, and located near the base of the frame flange **22**. The catch part **36** is oriented to determine an overhanging relationship of the trim molding member with respect to the flange edge. Thus, the other catch part **36** is bent outwardly to extend beyond the edge of the flange **22**, the projecting end being curled to provide a re-entrant latching surface facing in a direction away from the first catch part **35**. The terminal portion of the catch part **36** not only abuts the edge of the flange **22**, but is forced inwardly to create an indentation in the flange surface that secures the catch part **36** firmly in place.

In order to install the trim, the molding members **10**, **17** and **18** are pre-assembled with the aid of the corner brackets or guides **45**, as shown in FIG. 6, and the inwardly turned edges **13** and **14** of the trim's flanges will progressively engage the catches **35**, **36** as the trim is rotated upwardly about an axis passing through the lower ends of the side members **17** and **18**. The lower ends of the side members **17** and **18** are located at the lower ends of the flanges **22**.

In the present instance, the flanges **15** and **16** flex over the respective latching surfaces provided by the catch parts **35** and **36**, and resiliently snap in place. However, the required resilient flexure could be achieved by one or both of the catch parts **35** or **36**.

Finally, the top molding member **10** is snapped in place. If the vertical jamb members **25** and **30** are not precisely situated at the bases of the tabs **19**, an imperfect fit may result between the horizontal trim member

10 and the vertical trim members **17** and **18**. In order to avoid gaps and to insure an abutting relationship of the miter edges, the side molding members **17** and **18** can be moved up or down to achieve precise abutting relationship of the miter edges. Such movement does not disrupt the cooperation with the catches **35—36** because the trim molding members have uniform cross-section.

As the molding members are so adjusted, the corners of the miter joints may become slightly misaligned, but not noticeably so. The inner corner of the guide **45** is relieved, as at **46**, to preclude interference due to such adjustment, and to allow the guide **45** to fit the trim molding members even though they pass on opposite sides of the symmetry axis *a* to maintain abutting relationship. The frame and trim can be fabricated of any appropriate metal and finished as desired.

The inventors claim:

1. A metal frame structure for a door opening or the like formed in a wall, comprising: a pair of spaced side frame members and a top frame member coupled to the upper ends of said frame members, the three frame members each being of elongate channel form providing opposed side flanges adapted to overlie the two surfaces of the wall and thereby frame the opening; a trim molding member for each of said frame members made of resilient material and extending along one flange of the respective frame member, said trim member being of elongate channel form with inwardly turned flanges along its two opposite lengthwise edges, said trim member having one of said edges located beyond the lengthwise edge of said one flange to engage the wall, thereby concealing the edge of said one flange; and each of said frame members having means integrally formed from the material of said one flange securing the trim member to said one flange, said securing means comprising two series of spaced tabs, the first series of tabs being spaced inwardly from the lengthwise edge of said one flange and each having a curved latching surface, the second series of tabs being formed along said edge of said one flange and each having a curved latching surface extending beyond said edge of said one flange and being reversely folded and having its end rigidly secured to said one flange, said inturned flanges of said trim members being resiliently engaged about curved latching surfaces of said two series of tabs.

2. A metal frame structure as set forth in claim 1, wherein said two series of tabs are formed from I-shaped cuts in said one flange, the tabs of said second series being folded substantially 180° outwardly from the center axis of said one flange to project beyond said edge of said one flange, and the tabs of said first series being tightly curled to form said latching surface.

3. A metal frame structure as set forth in claim 2, wherein the latching surfaces of both series of tabs are substantially semi-cylindrical, and said end of each tab of said second series is clinched to said one flange.

4. A metal frame structure as set forth in claim 1, wherein each end of said top frame member is provided with a depending tab engaging the top end of the respective side frame member.

5. A metal frame structure as set forth in claim 4, wherein each end of said top frame member is provided with additional depending means axially spaced from the respective depending tab by a distance substantially equal to the transverse dimension of that portion of the respective side frame member received therebetween, said depending tab and depending means forming a slot engaging said side frame member on two opposite surfaces thereof.

6. A metal frame structure as set forth in claim 1, wherein the trim members of the side frame members abut the trim member of the top frame member in miter joints, and further including a corner bracket for each miter joint, each corner bracket having a first arm telescopically received interiorly of the respective end of said top frame trim member and a second arm telescopically received interiorly of the miter joint end of the respective

side frame trim member, said corner bracket having a relieved inside corner to allow limited adjusting movement of the trim members in forming the miter joint.

References Cited in the file of this patent

UNITED STATES PATENTS

1,701,679	Johnson	Feb. 12, 1929
1,835,587	Baum	Dec. 8, 1931
2,541,871	Heijmer	Feb. 13, 1951
2,721,634	Barraco	Oct. 25, 1955
2,741,344	Herr	Apr. 10, 1956
2,776,735	Bancroft	Jan. 8, 1957
2,843,232	Goldberg	July 15, 1958
2,913,777	Viets	Nov. 24, 1959
2,916,112	Kiehl	Dec. 8, 1959
2,927,354	Lauer	Mar. 8, 1960