United States Patent

Byland

[15] **3,690,082**

[45] **Sept. 12, 1972**

[54] **DOOR FRAME**

[72] Inventor: **Henry L. Byland,** Lighthouse Point, Fla.

[73] Assignee: **Futuristic Building Products, Inc.,** Northbrook, Ill.

[22] Filed: **Feb. 24, 1970**

[21] Appl. No.: **13,331**

[52] **U.S. Cl.**.....**52/213,** 52/656
[51] **Int. Cl.**.....**E06b 1/52,** E06b 1/34, E06b 1/12
[58] **Field of Search** ...52/213, 214, 212; 49/405, 656

[56] **References Cited**

UNITED STATES PATENTS

2,574,350	11/1951	Peelle	52/213
3,160,247	12/1964	Masters	52/213 X
3,375,627	4/1968	Bursiek et al.	52/213 X
1,287,622	12/1918	Berrill et al.	52/214 X
3,401,487	9/1968	Brandt	52/212

FOREIGN PATENTS OR APPLICATIONS

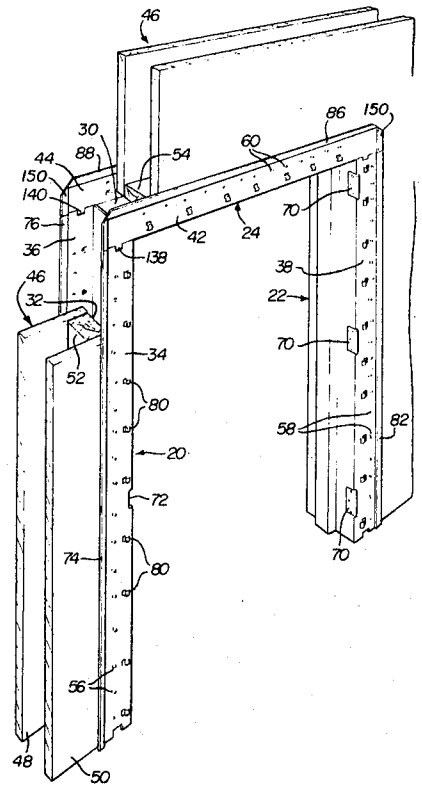
291,122	1/1965	Australia	52/214
1,167,975	10/1969	Great Britain	52/213

Primary Examiner—Frank L. Abbott
Assistant Examiner—Henry E. Raduazo
Attorney—Hill, Sherman, Meroni, Gross & Simpson

[57] **ABSTRACT**

A door frame for framing an opening in a wall and including a pair of spaced stiles and a header bridging the stiles with the stiles and header each having spaced flanges fastened to the wall about the opening with fasteners, and a plurality of mold trim members retained on a continuous lip and separate tabs on each flange to cover the fasteners and provide a neat mold trim framing the door opening. The stiles and header have interlocking portions at their ends to accurately locate these parts relative to each other.

2 Claims, 12 Drawing Figures



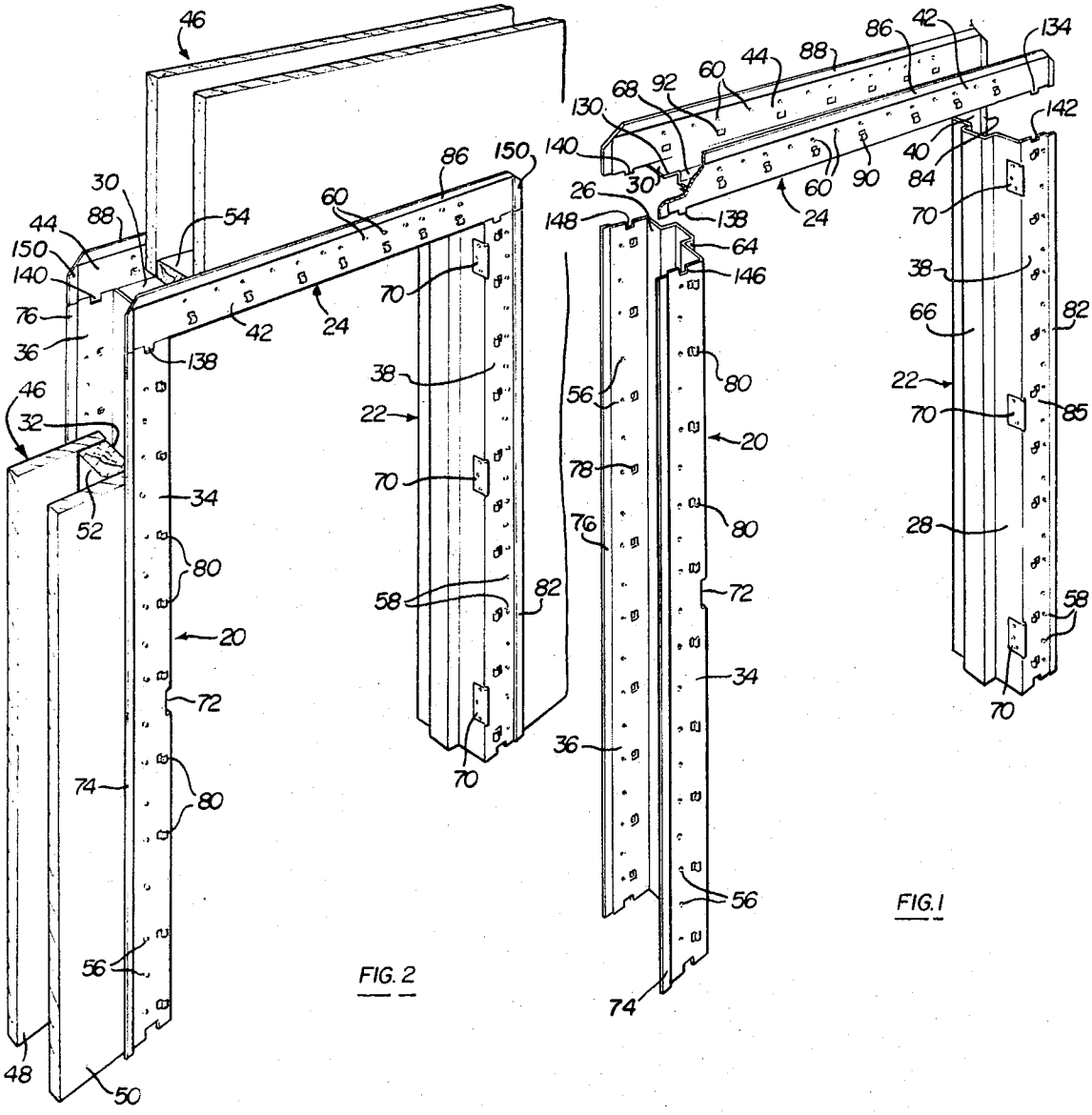


FIG. 2

FIG. 1

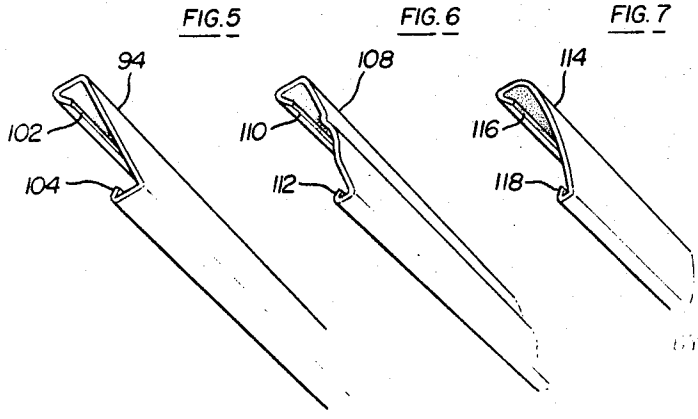


FIG. 5 FIG. 6 FIG. 7

INVENTOR.
HENRY L. BYLAND.

SETTLE & OLTMAN.
ATT'YS.

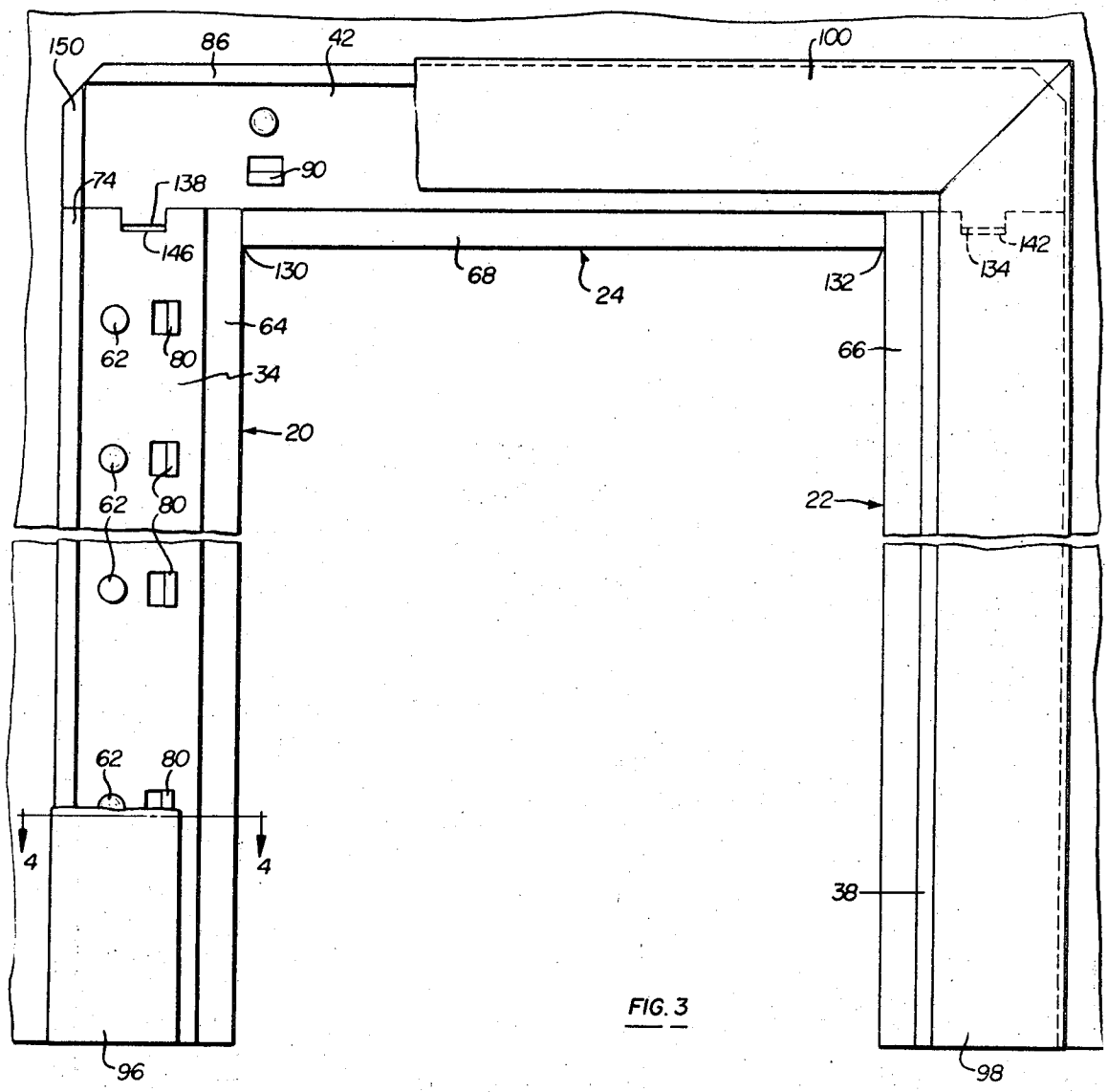


FIG. 3

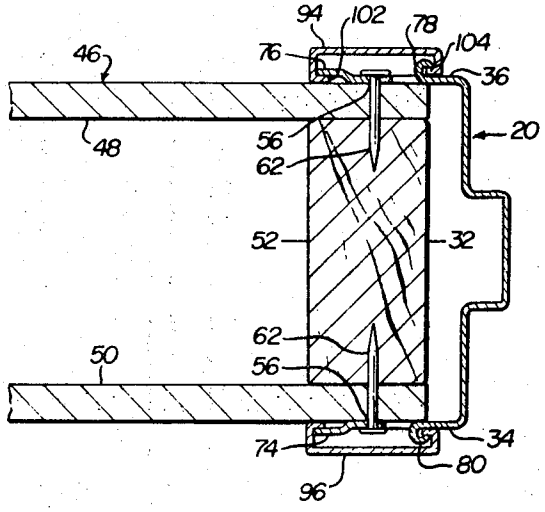


FIG. 4

HENRY L. BYLAND.

SETTLE & OLTMAN.
ATT'YS.

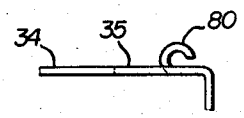


FIG. 8

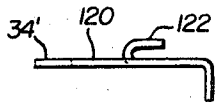


FIG. 9

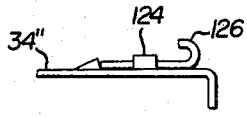


FIG. 10

FIG. 11

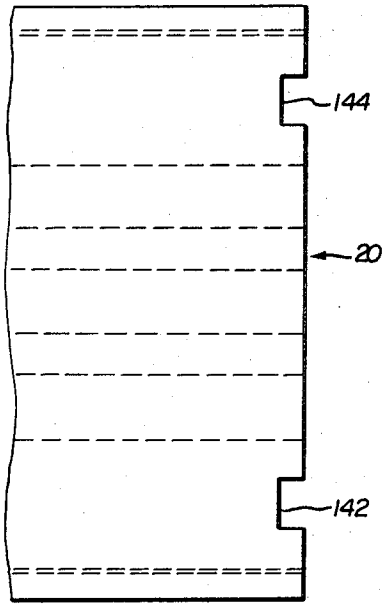
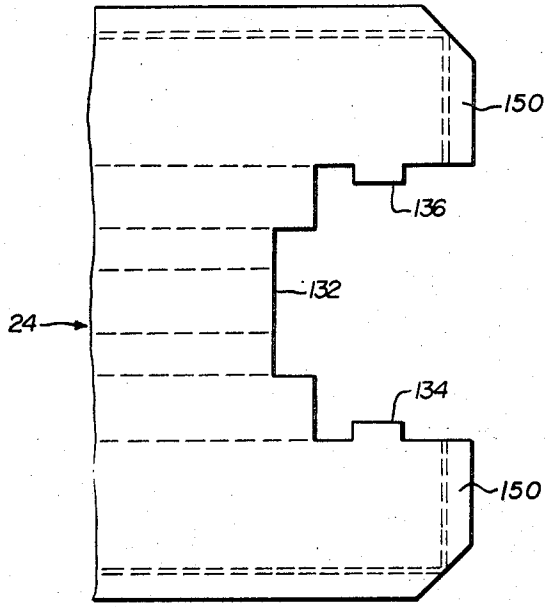


FIG. 12



INVENTOR.
HENRY L. BYLAND.

BY

SETTLE & OLTMAN.
ATT'YS.

DOOR FRAME

BACKGROUND OF THE INVENTION

Many door frames in use at the present time are made up of three relatively heavy frame members which define the door opening and actually support the wall around the opening. These frame members are structural parts of the building, and the wall in which the door opening is provided is built around the door frame and supported thereby. Such bulky and heavy door frames are difficult to handle in manufacturing, shipping and installation operations. It is believed to be desirable to have a construction wherein the wall is built first and provided with a door opening to which relatively light weight frame members are attached and made a part of the wall. When such a frame is installed, however, there is a need for structure to finish off the door frame to provide an attractive exterior appearance and also to cover fasteners used in fastening the frame members to the wall. Also, there is a need to accurately locate the frame members relative to each other.

Accordingly, it is an object of the present invention to simplify the manufacture and installation of door frames, particularly for framing inside doors, and to facilitate the finishing off of the door frame to provide an attractive appearance for the door opening.

Another object of the invention is to provide a door frame with members which can be installed accurately relative to each other in a previously constructed door opening and with mold trim members which can be applied to the door frame after installation thereof to cover fasteners and provide a finished appearance for the frame.

A further object of the invention is to provide fastening means including a continuous lip and tabs on the door frame which enable mold trim members to be snapped onto the door frame after installation thereof, and to incorporate hooking edges in the mold trim members which facilitate the snap fastening thereof.

SUMMARY OF THE INVENTION

The objects of the invention are attained in accordance with a particular embodiment of the invention by providing a pair of stiles and a header for a door frame with spaced flanges having openings receiving fasteners which fasten the flanges directly to the wall, each of the flanges having a continuous lip at the outer edge thereof and a series of tabs spaced inwardly from the lip on the opposite side of the fastener openings. At least three mold trim members are applied to each side of the frame and are respectively attached to the two stiles and the header. Each of the mold trim members has a portion spaced from the respective flange covering the fasteners and fastener openings and also has edges hookingly engaging the lip and the tabs for the respective flange to cover them and retain the mold trim member on the flange. In this embodiment the stiles and the header have interfitting ends facilitated by interlocking portions at the ends of the header and the stiles, and the mold trim members have ends which fit together and cover the ends of the header and stiles.

Other objects of this invention will appear from the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

ON THE DRAWINGS

FIG. 1 is a perspective view showing the header and stiles included in door frame of the invention;

FIG. 2 is a perspective view similar to FIG. 1 but showing the header and stiles attached to a wall to frame a door opening in the wall;

FIG. 3 is a fragmentary elevational view, partly broken away, showing mold trim members applied to flanges of the header and stiles to finish off the door frame;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3 illustrating the manner in which the mold trim members are retained on the flanges of the door frame;

FIG. 5 is a fragmentary perspective view of one end of a mold trim member which may be used in the door frame;

FIG. 6 is a fragmentary perspective view of one end of a modified mold trim member;

FIG. 7 is a perspective view of one end of a further modified mold trim member;

FIG. 8 is a fragmentary view of an edge of a flange of the door frame showing a tab to which the mold trim member is attached;

FIG. 9 is a fragmentary view of a flange showing a modified tab construction;

FIG. 10 is a further fragmentary view of a flange showing a two-piece tab construction;

FIG. 11 is a view of an end of a stile as stamped; and

FIG. 12 is a view of an end of the header as stamped.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

AS SHOWN ON THE DRAWINGS

Included in the door frame of the invention is a pair of stiles **20** and **22** for framing the vertical sides of a door opening in a wall, and a header **24** bridging the stiles at the top ends thereof. The header and stiles are shown in assembled condition in FIGS. **2** and **3** and in a disassembled position in FIG. **1**. It may be seen that the header and stiles are all essentially metal channel members which have a special configuration. Stile **20** has a web portion **26**, stile **22** has a web portion **28** and header **24** has a web portion **30**, these web portions being dimensioned to fit across the inside face **32** of a wall about a door opening as shown in FIG. **2**. Extending at right angles to the web portions **26**, **28** and **30** respectively, are flanges **34** and **36**, **38** and **40**, and **42** and **44**. As shown particularly in FIGS. **2** and **4**, these flanges are spaced from each other by the thickness of the wall **46** so as to embrace and fit against opposite sides of the wall at the door opening.

In the illustrated embodiment, the door frame is applied to a wall having wall panel members **48** and **50** secured to a vertical wooden stud **52** at each side of the door frame, the inside face **32** of which forms the door opening. At the top of the door opening there is a cross-member **54** (FIG. **2**) which is also a wooden brace. Referring to FIG. **4**, it may be seen that the flanges **34**

and 36 are directly opposite the vertical faces of the stud 52, as also are the flanges 38 and 40 in the assembly. Similarly, the flanges 42 and 44 of header 24 are directly opposite the horizontal faces of crossmember 54.

Each of the flanges 34, 36, 38, 40, 42 and 44 has a series of longitudinally spaced apertures or openings respectively designated 56, 58 and 60. These openings receive fasteners such as nails 62, although screws could be used. The nails 62 shown in FIG. 4, for example, are driven through the panel members 46 and 50 into the wooden stud 52. Like nails are used for fastening both stiles and the header to the wall 46.

Stile 20 has an inner longitudinal projection 64, stile 22 has an inner longitudinal projection 66, and header 24 has an inner longitudinal projection 68. These projections together form door stops for the door which is ultimately hingedly attached to the door frame. The stile 22 has hinge jamb seats in the form of recesses 70 formed therein, and these seats may be reinforced by backing on the inside of the stile if desired. Similarly, the stile 20 has a strike seat in the form of a recess 72 which may also be reinforced on the inside of the stile 20 if desired.

Referring particularly to FIGS. 1 and 4, it may be seen that the outside edge portions of flanges 34 and 36 are in the form of lips 74 and 76 which extend out away from into offset generally parallel relation to the wall panel members 48 and 50. Spaced inwardly from the flange 36 and located on the opposite side of the openings 56 is a series of tabs 78, and in similar fashion on the flange 34 are tabs 80, which extend out away from the wall panel members 46 and 50. The lips and tabs just referred to constitute retention means to which mold trim members may be applied as will be described further. The stile 22 has identical lips 82 and 84 and tabs 85, and header 24 has identical lips 86 and 88 and tabs 90 and 92.

FIGS. 3, 4 and 5 illustrate mold trim members which are applied to the retention means in the form of the lips and tabs just referred to. It may be seen that mold trim members 94 and 96 are applied to flanges 36 and 34 respectively. In FIG. 3, mold trim member 98 is shown applied to flange 38 and mold trim member 100 is shown applied to flange 42. Similar mold trim members are applied to flanges 40 and 44. Thus, there are at least three mold trim members on each side of the door frame, two of these three trim members being applied to the stiles and the other being applied to the header.

Referring to mold trim member 94 in FIG. 4, it may be seen that it has edge portions 102 and 104 which are bent inwardly thereof relative to the vertical sides of the mold trim member, and these edge portions 102 and 104 may be referred to as hooking portions since they respectively hook onto the lip 76 and the tabs 104. The hooking portions 102 and 104 are bent at an angle greater then 90° relative to the vertical side of mold trim member 94. With this construction, hooking portion 102 can be slipped under the lip, and the hooking portion 104 can then be snapped around and under the tabs 78 by pushing on the trim member 94 to apply the mold trim member by a snap fastening technique. The bend of hooking portion 104 at an angle greater than 90° relative to the vertical side of the mold trim member makes it easier for this hooking portion to ride over the tabs 78 and then hookingly engage those tabs to retain the mold trim member in place. The other mold trim members have identical hooking portions and are attached to the respective lip and tabs in the same way.

It is apparent that in assembling the door fame, the wall is built so as to define a door opening by means of members such as wooden members 32 and 54 and the header 24 and stiles 20 and 22 are then applied to the door opening and nailed in place. Subsequently, the mold trim members are snapped onto the flanges of the header and stiles to cover the nail fasteners and to provide an attractive finished appearance for the door frame.

FIG. 6 shows another form of mold trim member 108 which has hooking portions 110 and 112 identical to hooking portions 102 and 104. The only difference is that mold trim member 108 has a more complex curvature on the front side thereof. Similarly, mold trim member 114 shown in FIG. 7 has identical hooking portions 116 and 118 and is very similar to mold trim member 94 except that the front side thereof has greater curvature.

FIGS. 8, 9 and 10 show tabs of different forms. In FIG. 8, a flange 34 has been provided with a tab 80 merely by lancing a portion of the metal of flange 34 and rolling the metal to the rounded shape shown, thus leaving an opening 35. In FIG. 9, a flange 34' has been lanced to form an opening 120 and a tab 122 has been bent upwardly and outwardly as shown. In FIG. 10, a flange 34'' has been lanced to form a strap 124 and a separate tab 126 has been inserted under the strap 124. The strap 124 may be pressed against the tab 126 to assure that it is clamped in place.

The header 24 has recesses 130 and 132 formed in the inner door stop portion 68 thereof for receiving the stop portions 64 and 66 of the stiles 20 and 22. Thus, the ends of the header and stiles fit together as shown in FIG. 3. It may be noted that the header has tongues 134, 136, 138 and 140 which fit respectively in recesses 142, 144, 146 and 148 in the stiles. This interlocks header and stiles to accurately position them relative to each other. The mold trim members such as 96, 98 and 100 have mitered ends to provide mitered corners such as 138 which cover the ends of the header and stiles and have a pleasing appearance.

The ends of the header have vertical lips 150 which line up with the lips on the stiles. Thus, the trim members hook onto lips 150 to assure that they are solidly fastened even at the corners of the frame.

The header and stiles may be formed from sheet metal by standard forming operations, and relatively thin metal (perhaps 20 gauge) may be used making the resulting header and stile members light in weight so that they can be easily handled for manufacturing, shipping and installation purposes. The door frame is attached to a wall around a door opening which previously exists, so this contrasts with the situation where a door frame is installed and the wall is built around it. The lips and tabs which provide retention means for mold trim members may be integral portions of the flanges of the door frame, so no complicated extra parts are required. The mold trim members can be attached after the header and stiles are installed on the wall, and this attachment of trim members is facilitated

by the snap fastening features thereof. The header and stiles are accurately located relative to each other by means of the interlock portions at the ends thereof.

Having thus described my invention, I claim:

1. A door frame for framing a door opening in a wall, comprising:

a pair of stiles and a header bridging said stiles to frame the sides and top of said door opening, said stiles and said header each having an inner portion with a door stop projection and a pair of planar flanges extending outwardly from said inner portion and spaced apart to embrace the wall, each of said flanges extending longitudinally and having a plurality of openings spaced along the length thereof;

fasteners respectively received in said openings to fasten the flanges to the wall;

each of said flanges having a continuous lip at the outer edge thereof offset generally parallel to the wall, and tab means spaced inwardly from said lip on the opposite side of said openings; and

at least three mold trim members on each side of said frame respectively attached to the two stiles and the header, each of said mold trim members having a portion spaced from the respective flange covering the fasteners and fastener openings and having outer edge underturned flanges hookingly engaging said lips and inner edge turned flange means snappingly engaged with said tab means to cover the same and retain said trim member on said flange;

said flanges of the stiles and said header having interfitting tongue and recess portions in the planes of the flanges;

said tongue and recess portions each having vertical edges parallel to the stiles which engage in parallel edge to edge bearing relationship for maintaining the stiles in alignment with ends of the header; said mold trim members having ends fitting together and covering said tongue and recess portions.

2. A door frame according to claim 1, said header having a vertical lip at each end thereof aligned with respective ones of said lips of said stiles so that said trim member hook flanges engage with said lips all the way to the corners formed by the trim members.

* * * * *