United States Patent

Martin

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[54] PLASTIC DOOR FRAME

[72] Inventor: **Robert I. Martin,** 27 E. Ferdinand Street, Manheim, Pa. 17545

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[52] **U.S. Cl.** **49/504,** 52/213, 52/217

[51] **Int. Cl.** **E06b 1/26,** E06b 1/28, E06b 1/34

[58] **Field of Search**.....52/208, 210, 211, 217, 213, 52/214; 49/505, 504

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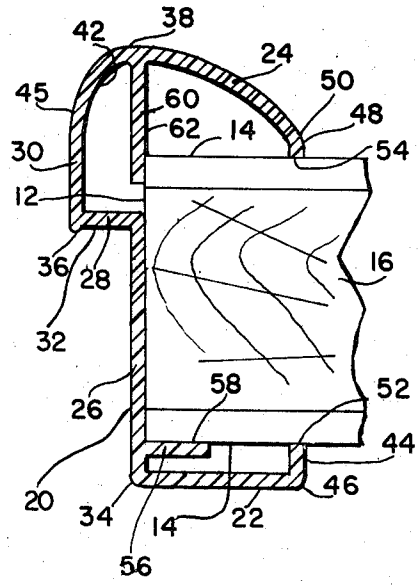
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Primary Examiner—Frank L. Abbott
Assistant Examiner—Henry E. Raduazo
Attorney—Karl L. Spivak

[57] **ABSTRACT**

A unitary, plastic door frame for defining the head and jambs of a door opening. Each frame member includes a first, stepped wall section adapted to overlie an end face of a wall with the step defining a surface extending outwardly in a transverse direction from the end face to constitute a door stop. The first stepped wall section extends outwardly beyond the edges defining the end face of the wall and is joined at its ends to second and third wall sections respectively. The second and third wall sections extend transverse to the first wall section and substantially in the same direction therefrom to overlie, in spaced relationship, the side faces of the wall extending from the edges of the end face of the wall. Inturned flanges extend from the ends of the second and third wall sections for engaging the side faces of the wall. Stabilizing wall members are joined to the first stepped wall section adjacent to the second and third wall sections. The stabilizing wall member adjacent to the second wall section has a substantially flat surface adapted to engage the side face of the wall, and the stabilizing wall member adjacent the third wall section has a substantially flat surface adapted to engage the end face of the wall.

5 Claims, 5 Drawing Figures



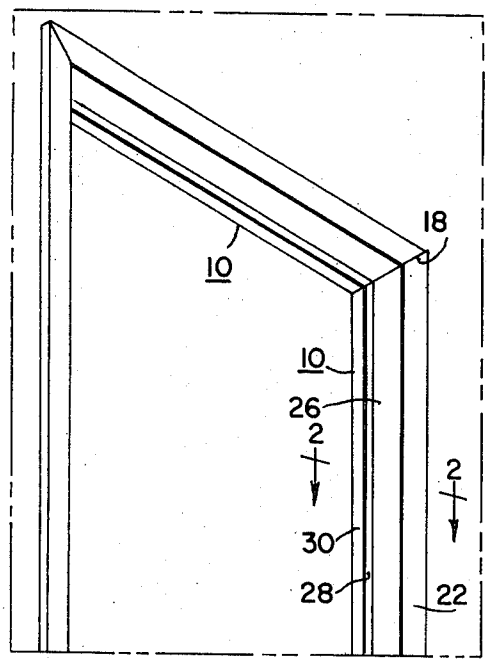


FIG. 1

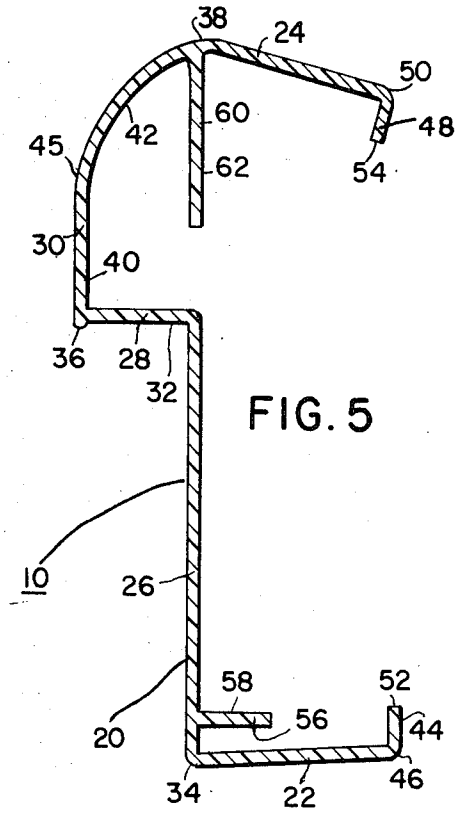


FIG. 5

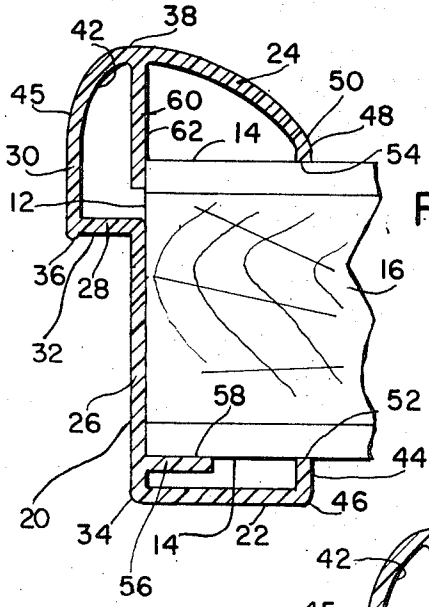


FIG. 2

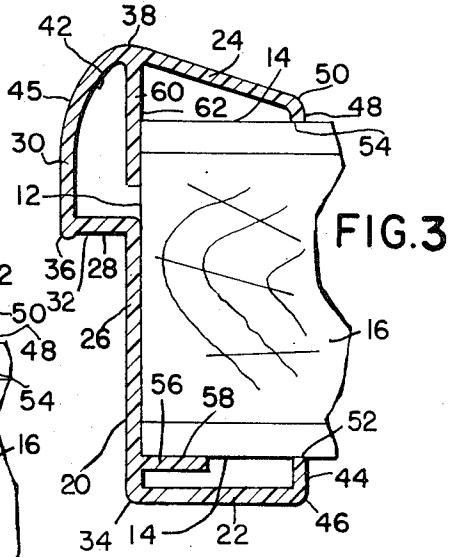


FIG. 3

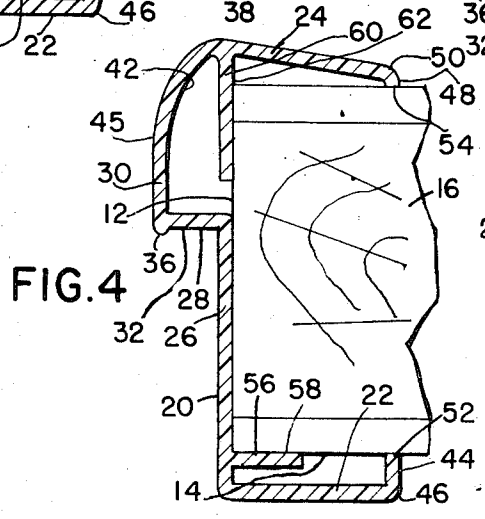


FIG. 4

INVENTOR.
ROBERT I. MARTIN
BY Karl L Spivak
ATTORNEY.

PLASTIC DOOR FRAME

BACKGROUND OF THE INVENTION

1. Field of the invention

This invention relates to door frames for encasing the end faces of a wall which define a door opening, and more particulatly, to a unitary, plastic door frame for use in mobile homes, industrial homes, and the like, where low initial costs, low installation costs and low maintenance costs are important factors.

2. Description of the prior art

It is current practice to utilize lumber or plywood as door jambs for finishing wall sections defining door openings in low cost home constructions such as mobile homes and other industrialized homes. These jambs often have jagged edges which can damage clothing and injure individuals who accidentally brush against the jambs.

Additional disadvantages of plywood jambs are high initial cost and high installation costs. A complete plywood door jamb is constructed from several separate pieces of plywood. The portion of the jamb which engages the end face of a wall is made from one piece of plywood; the portion of the jamb which extends outwardly into the door opening to define a stop surface for a door is made from a second piece of plywood; and the casing portions of the jamb which engage the side faces of the wall are made from separate pieces of plywood. The high installation cost of assembling the individual pieces to form the complete jamb is highly undesirable.

An additional disadvantage of milled lumber and plywood jambs is the finishing cost involved in sanding and painting the frame sections. In addition, the jambs must be periodically painted which represents an undesirable maintenance cost.

Rigid steel door frames of unitary construction are also known. Due to the rigidity, these frames can only be utilized on walls having a thickness within close tolerance limits. An additional disadvantage of the unitary steel frames is the cost required to maintain a suitable finish thereon. Also, sharp metal edges may cause injuries to individuals installing the frames, and therefore, extreme care is necessary in handling the frames during the assembling operation.

SUMMARY OF THE INVENTION

This invention relates to a unitary, plastic door frame which is made from one extruded part by cutting the extruded part to size and mitering the corners. The door jamb is preferably made from a vinyl plastic which comes in colors such as white, tan and brown. Therefore, no finishing or painting is required, which represents a definite advantage over the prior art lumber, plywood and metal jambs.

The unitary, plastic frame of this invention has a first, stepped wall section which is adapted to overlie an end face of a wall with the step defining a surface extending outwardly from the end face to constitute a door stop. In addition, the frame has second and third wall sections which are joined to the edges of the first wall section and extend transversely thereto. The second and third wall sections overlie, in spaced relationship, the side faces of the wall extending from the edges of the end face. The ends of the second and third wall sections which are remote from the first stepped wall section are

provided with inturned flanges having end surfaces for engaging the side faces of the wall. Spacing the second and third wall sections from the side face of the wall creates the appearance that the portions of the jambs and head which overlie the side faces of the wall are separate members from the remaining portions of the jamb and head.

A stabilizing wall member is joined to the first wall section adjacent to the second wall section for engaging the side face section of the wall when the frame is assembled thereto. This stabilizing wall member prevents the jamb from moving when a door is slammed against the surface defining the stop. This stabilizing surface is desirable, because the second wall section of the door jamb is spaced from the side face of the wall, and therefore does not provide a stabilizing function. A second stabilizing wall member is joined to the first wall section adjacent the third wall section and extends toward the second wall section. The second stabilizing wall member has a flat surface for engaging the end face of the wall. This stabilizing wall section is desirable because it overlies a portion of the first stepped wall section which does not engage the end face of the wall. The third wall section of the jamb is flexibly joined to the first wall section to permit the jamb to be used on walls having thicknesses which vary in thickness by as much as one-fourth of an inch.

It is an object of this invention to provide a unitary plastic door frame which overlies the end face of wall defining a door opening and also the side faces of the wall which extend from opposite edges of the end face.

It is a further object of this invention to provide a unitary plastic door frame having a stepped wall section which overlies an end face of a wall with the step defining a surface extending outwardly from the end face to constitute a door stop.

It is a further object of this invention to provide a unitary plastic door frame which is flexible, for permitting its use on walls which vary in thickness over as much as one-fourth of an inch.

It is a further object of this invention to provide a unitary, vinyl door frame which does not require any finishing operations.

It is a further object of this invention to provide a unitary plastic door frame which has low initial cost, low installation cost and low maintenance costs.

Other objects and a fuller understanding of the invention will be had by referring to the following description and claims of a preferred embodiment thereof, taken in conjunction with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view showing the unitary, plastic door frame of this invention in assembled position to finish the wall sections defining a door opening.

FIGS. 2–4 are enlarged sectional views taken along Line 2—2 of FIG. 1, showing the plastic door jamb assembled to walls of progressively increasing thicknesses.

FIG. 5 is an enlarged view through the door jamb similar to FIGS. 2–4 but disassembled from a wall.

Although specific terms are used in the following description for the sake of clarity, these terms are in-

tended to refer only to the particular structure of my invention selected for illustration in the drawings, and are not intended to define or limit the scope of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Referring to FIG. 1, the unitary plastic door frame **10** of this invention is shown in assembled condition with a wall defining a door opening. Each unitary plastic door frame **10** is cut to proper size from an extruded member and mounted in overlying relationship with the end face **12** and side faces **14** of the wall **16**. The tops **18** of each door jamb are mitered to form a junction between a pair of jambs and the head at the corner of a doorway.

Referring to FIGS. 2–5, the details of construction of the unitary plastic door frame **10** will now be described. The door frame **10** has a first, thin, stepped wall section **20**; a second thin wall section **22** and a third thin wall section **24**. The first wall section **20** overlies the end face **12** of the wall **16** (FIG. 2) and extends outwardly beyond the edges thereof.

The first, stepped wall section **20** comprises a first, substantially flat wall segment **26**; a step **28** and a second wall segment **30**. The first wall segment **26** is adapted to engage the end face **12** of the wall **16**, and can be either stapled, or glued or otherwise secured in place. It is understood that other attachment systems of well-known design can also be utilized. The step **28** forms a stop surface **32** extending inwardly in a transverse direction from the end face **12** of the wall **16** to limit movement of a door. The substantially flat, first wall segment **26** extends from the step **28** and terminates in a rounded edge **34**. This rounded edge **34** provides a smooth surface which will not damage either the clothing or person of individuals coming in contact therewith. The second wall segment **30** extends from a rounded edge **36** to a flexure point **38** to which the third wall section **24** is joined. The rounded edge **36**, like the rounded edge **34**, prevents damage to either clothing or individuals coming in contact therewith. As best seen in FIG. 5, the second wall segment **30** is formed from a straight wall portion **40** and an arcuate wall portion **42** joined to each other at a junction **45** in a smooth transition.

The second and third wall sections **22** and **24** terminate outwardly in rounded edges **46, 50** respectively. An inturned flange **44** extends from the rounded edge **46** of the second wall section **22**, and is provided with an end surface **52** adapted to engage the side face **14** of the wall **16**. A second inturned flange **48** is joined to the rounded edge **50** of the third thin wall section **24**, and is provided with an end surface **54** adapted to engage the other side face **14** of the wall **16**. The inturned flanges **44** and **48** space the second and third thin wall sections **22** and **24** respectively from the side faces **14** of the wall **16**. This spaced relationship creates the appearance that the second and third wall sections **22, 24** are separate from the remainder of the frame.

To provide stability for the door frame, stabilizing wall members **56** and **60** are provided. The stabilizing wall member **56** extends transversely from the first wall segment **26** in closely spaced, parallel relationship to the second wall section **22**, and terminates short of the inturned flange **44**. The stabilizing wall member **56** is positioned such that a substantially flat face **58** thereof is in alignment with the end surface **52** of the flange **44**, whereby the face **58** engages the side face **14** of the wall. The engagement of the stabilizing member **56** with the side face **14** of the wall prevents the frame from moving when a door is slammed against the top surface **32**.

The second stabilizing wall member **60** extends from the arcuate wall portion **42** of the second wall segment **30** adjacent to the flexure point **38**. This stabilizing wall member **60** aligns with the section **26** and extends toward the second thin wall section **22** terminating short of the step **28**. The stabilizing wall member **60** has a substantially flat surface **62** which is adapted to engage the end face **12** of the wall **16** to add stability to the frame. This stabilizing wall member is desirable because other portions of the frame in the area of this stabilizing wall member are spaced from the end face **12** and side faces **14** of the wall **16**.

As can be seen in FIG. 3 and 4, the third wall section **24** is free to flex about the flexure point **38** to permit the use of the door frame **10** on walls **16** of varying thicknesses. A single size door frame can be utilized on walls varying by as much as one-fourth of an inch in thickness. The unitary door frame **10** is also free to flex about the junction **45**.

The unitary plastic door frame of this invention can be manufactured from any suitable plastic material which can be extruded into the above described configuration. Preferably, the door frame is made from a vinyl plastic which does not require any finishing operation. For example, a vinyl which is white, tan or brown can be utilized to manufacture the door frame, and further finishing operations will not be necessary.

Because the door jamb can be used on walls of varying thickness, a builder can use plywood or other material which is either over or under standard thickness for forming walls. Also, a builder can use studs that are in excess of plus or minus tolerances without affecting the final appearance of the doorway.

I claim:

1. In a unitary door frame for encasing the end faces of a wall having two side faces to define a door opening in the wall, the combination of:

A. a first stepped wall section, said first wall section including

1. a flat wall segment in contact with the end face of the wall and having a first edge and a second edge,
2. a step extending transversely inwardly from the flat wall segment at the first edge thereof to form a door stop, said door stop terminating inwardly in a rounded edge, and
3. a second wall segment extending from the rounded edge,
   a. said second segment terminating at a flexure point;

B. a second wall section connected to the second edge and extending outwardly therefrom,

1. said second wall section terminating outwardly in a first flange,
2. a portion of first said flange contacting the first of said side faces;

C. a third wall section connected to the flexure point and extending outwardly therefrom,

1. said third wall section terminating outwardly in a second flange,
2. a portion of said second flange contacting the second of said side faces;

D. a first stabilizing wall member extending transversely outwardly from the flat wall segment,
1. a portion of the first stabilizing wall member contacting the said first side face; and

E. a second stabilizing wall member extending from the said flexure point,
1. said second stabilizing wall member contacting the end face of the wall.

2. The invention of claim 1 wherein the third wall section flexes about the flexure point to vary the distance between the first flange and the second flange.

3. The invention of claim 2 wherein the distance varies from a first distance which is less than the thickness of the wall to a final distance which is equal to the thickness of the wall.

4. The invention of claim 3 wherein the portion of the first stabilizing wall member which contacts the first side face aligns in the same plane as the portion of the first flange which contacts the first side face.

5. The invention of claim 4 wherein the second stabilizing wall member aligns in the same plane as the said flat wall segment whereby a sturdy, stable and easily adjustable door frame can be provided.

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