Sept. 17, 1968 F. H. BRANDT ET AL 3,401,487

DOOR FRAME AND MOLDING CONSTRUCTION

Filed Nov. 28, 1966 2 Sheets-Sheet 1

FIG. 1.

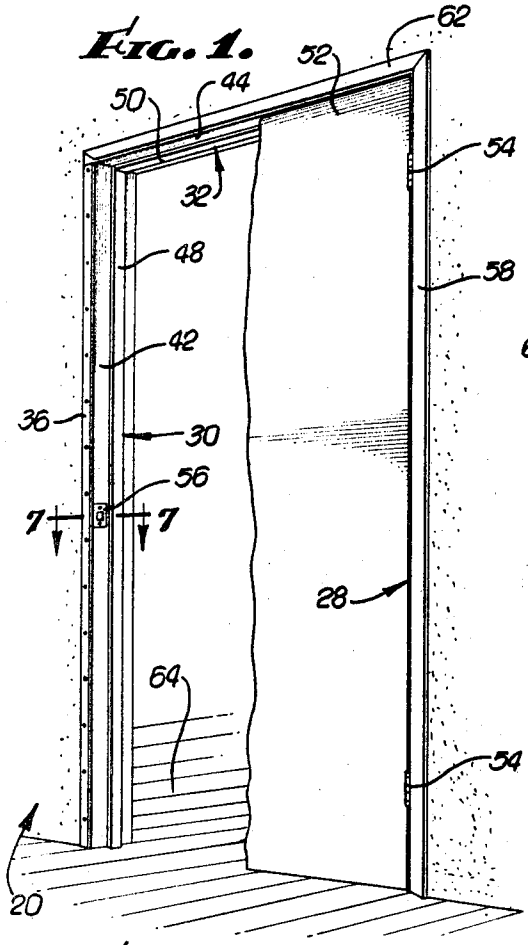


FIG. 5.

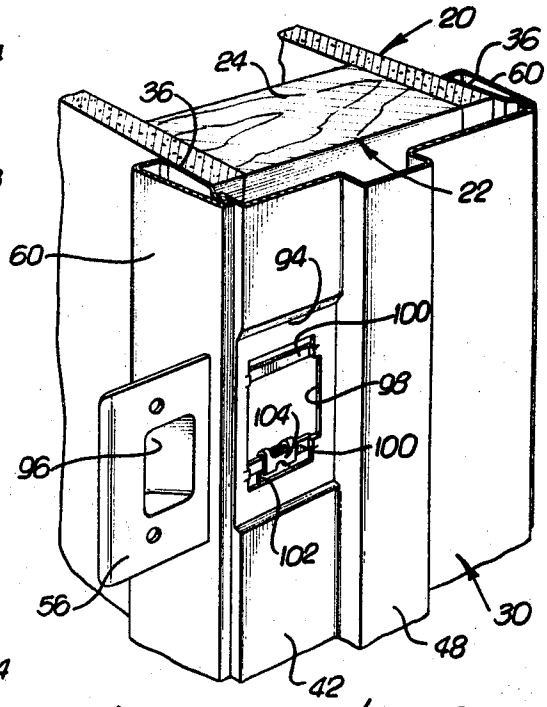


FIG. 2.

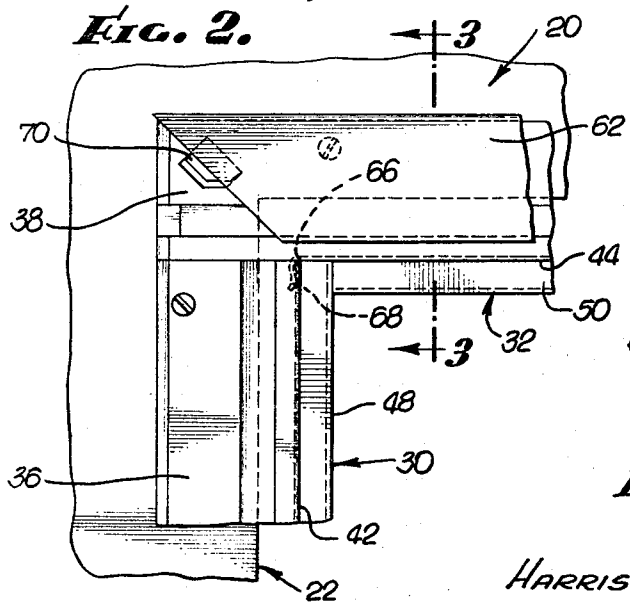


FIG. 8.

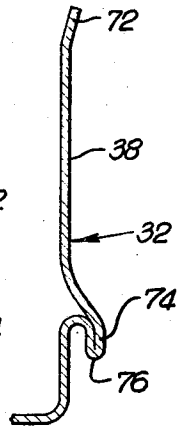
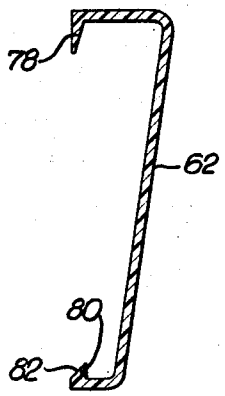


FIG. 9.



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FIG. 3.

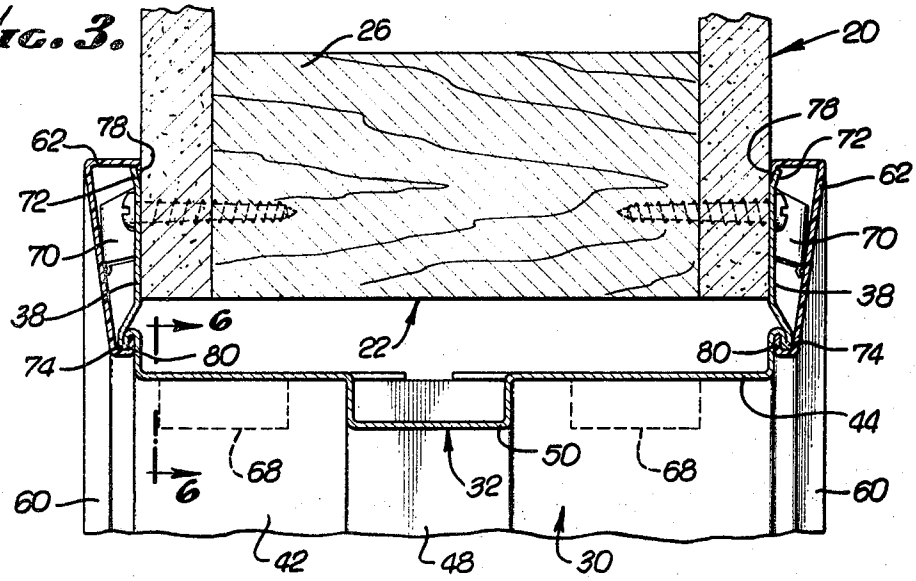


FIG. 6.

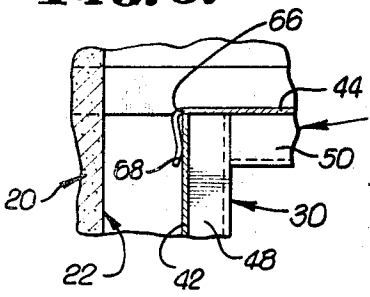


FIG. 10.

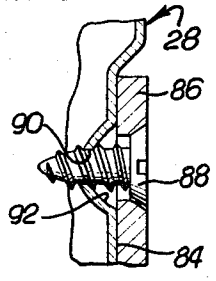


FIG. 4.

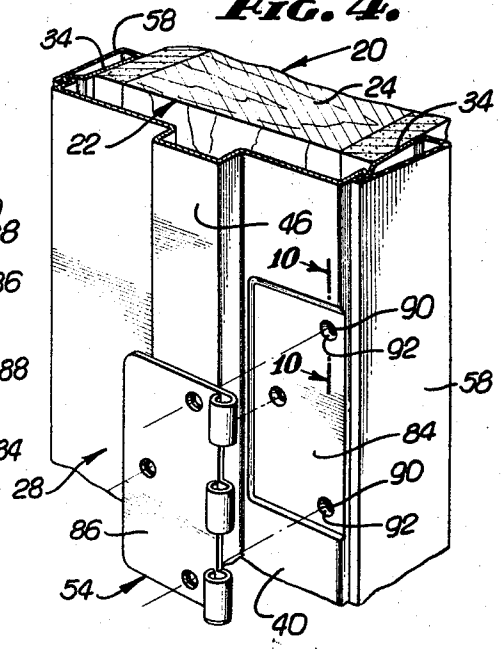


FIG. 7.

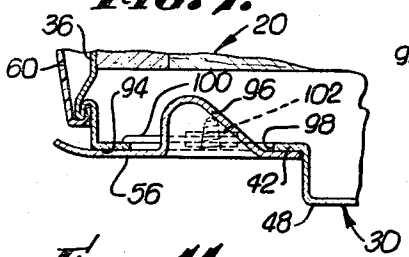
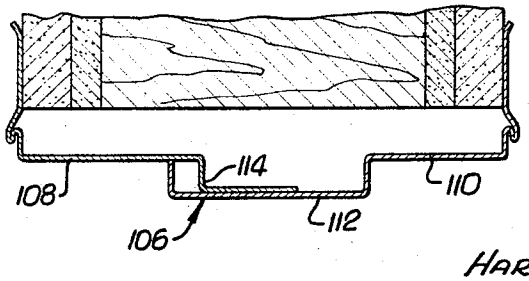


FIG. 11.



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3,401,487

DOOR FRAME AND MOLDING CONSTRUCTION

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4 Claims. (Cl. 49—504)

ABSTRACT OF THE DISCLOSURE

A door frame comprising generally channel-shaped jambs respectively embracing the edges of and framing a door opening and each having opposed flanges respectively engaging opposite sides of the wall adjacent the corresponding edge of the opening. Each flange has parallel, continuous, opposed, inner and outer molding-retaining lips which extend the full lengths thereof. Flexible moldings respectively overlie the flanges and each has parallel, continuous, hook-like inner and outer retaining edges extending the full lengths thereof and respectively hooked behind the inner and outer molding-retaining lips of the corresponding flange.

Background of invention

The present invention relates in general to frame and molding structures for doors, and the like, and, more particularly, to a prefabricated door frame and molding structure of the type wherein snap-on moldings are used to conceal the means for attaching the jambs of the door frame to the wall around the opening for the door.

As further background, the invention contemplates a prefabricated door frame and molding structure of the type comprising: generally channel-shaped hinge, strike and head jambs respectively embracing the hinge, strike and head edges of and framing the door opening and each having opposed flanges respectively engaging opposite sides of the wall adjacent the corresponding edge of the door opening; means, such as nails or screws, driven into the wall through the flanges of the various jambs to secure the frame in place in the door opening; and moldings overlying and snapped onto the respective flanges to conceal the respective attachment means.

Summary and objects of invention

A primary object of the invention is to provide the jamb flanges with parallel, continuous, opposed, inner and outer molding-retaining lips which extend the full lengths of the respective flanges.

A related primary object is to provide the moldings with parallel, continuous, hook-like inner and outer retaining edges which extend the full lengths of the respective moldings and which are respectively hooked behind the inner and outer molding-retaining lips of the corresponding flanges, the moldings being flexible so that they can be snapped into place.

Still more specifically, an important object of the invention is to provide jambs the free longitudinal edges of the flanges of which diverge away from each other along their entire lengths to form the outer molding-retaining lips mentioned, and to provide inner molding-retaining lips which are hook-like in cross section and which face inwardly of the door opening away from the outer molding-retaining lips and have rounded inner edges. With this construction, each molding is installed on the corresponding flange by first inserting the hook-like outer retaining edge of the molding behind the outer molding-retaining lip of the flange, and then snapping the hook-like inner retaining edge of the molding behind the rounded inner edge of the hook-like inner molding-retaining lip of the flange.

The foregoing frame and molding structure has a number of important advantages. First, since the molding-retaining lips on the jamb flanges and the retaining edges on the moldings are continuous throughout the full lengths of the jamb flanges and the moldings, the snap-on moldings are secured throughout their entire lengths in a positive manner against accidental dislodgment. Preferably, the molding-retaining lips on the jamb flanges are formed integrally therewith so that they provide permanent anchors for the snap-on moldings regardless of the abuse to which the jamb members are subjected in use. Second, since the inner and outer molding-retaining lips on the jamb flanges are integral therewith, they act as integral reinforcing ribs which contribute measurably to the stiffness and mechanical strength of the jambs, which is an important feature. Third, since each molding is installed by first inserting the outer retaining edge thereon behind the outer molding-retaining lip on the corresponding flange, and then snapping the inner retaining edge of the molding over the rounded inner edge of the hook-like inner molding-retaining lip on the flange, the possibility of damage to the adjacent wall surface during installation of the snap-on molding is reduced virtually to zero. Fourth, since the inner and outer molding-retaining lips on the jamb flanges are continuous throughout the entire lengths of the flanges, the flanges have no lanced or sheared edges for the purpose of retaining the moldings. The absence of such lanced or sheared edges minimizes the possibility of injury to personnel handling and/or installing the jambs, and, further, reduces the number of raw edges subject to rust, corrosion, or the like.

Another important object of the invention is to provide the moldings with abutting mitered ends at the upper corners of the door frame and molding structure, and to provide certain of the jamb flanges, preferably the head jamb flanges, with integral miter supports which are located behind the abutting mitered ends of the moldings and against which such abutting mitered ends are seated. With this construction, positive support for the mitered corners of the molding assemblies is provided, which is an important feature.

Still another object of the invention is to provide the hinge jamb with preformed, threaded holes therethrough to threadedly receive screws for securing door hinges to the hinge jamb. This construction provides a positive means of attaching the door hinges directly to the hinge jamb so that the door hinges can be removed and reinstalled repeatedly, if necessary, without any danger of losing nuts behind the hinge jamb.

A further object of the invention is to provide a strike jamb having means for horizontally adjustably mounting a strike plate to accommodate different lock sets.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the art to which the invention relates in the light of this disclosure, may be achieved with the exemplary embodiments of the invention described in detail hereinafter and illustrated in the accompanying drawings.

Description of drawings

In the drawings:

FIG. 1 is a perspective view of a doorway provided with the door frame and molding construction of the invention, one of the moldings being omitted;

FIG. 2 is an enlarged, fragmentary elevational view showing the upper left corner of the door frame and molding construction illustrated in FIG. 1;

FIG. 3 is an enlarged sectional view taken as indicated by the arrowed line 3—3 of FIG. 2;

FIG. 4 is a fragmentary perspective view showing a hinge jamb and moldings of the invention;

FIG. 5 is a fragmentary perspective view showing a strike jamb and moldings of the invention;

FIGS. 6 and 7 are enlarged, fragmentary sectional views respectively taken as indicated by the arrowed lines 6—6 and 7—7 of FIGS. 3 and 1, respectively;

FIG. 8 is an enlarged, fragmentary sectional view of a jamb flange of the invention;

FIG. 9 is an enlarged, fragmentary sectional view of a molding of the invention adapted to be snapped onto the jamb flange of FIG. 8;

FIG. 10 is an enlarged, fragmentary sectional view taken as indicated by the arrowed line 10—10 of FIG. 4; and

FIG. 11 is a sectional view generally similar to FIG. 3, but illustrating an alternative embodiment of the invention.

Description of exemplary embodiments of invention

In the drawings, the numeral **20** designates a wall having a door opening **22** therein. In the particular construction illustrated, the wall is of the wood frame and plaster type and the door opening **22** is defined by trimmer studs **24** and a header **26**.

The door opening **22** is framed by generally channel-shaped hinge, strike and head jambs **28**, **30** and **32** respectively embracing the corresponding edges of the door opening. More particularly, the hinge, strike and head jambs **28**, **30** and **32** are respectively provided with opposed flanges **34**, **36** and **38** respectively engaging opposed sides of the wall **20** along the corresponding edges of the door opening **22**. The jambs **28**, **30** and **32** are secured in place by nails or screws driven through the corresponding flanges **34**, **36** and **38** into the trimmer studs **24** and the header **26**. The flanges **34**, **36** and **38** of the respective channel-shaped jambs **28**, **30** and **32** are integrally interconnected by walls **40**, **42** and **44** respectively provided with integral, channel-shaped stops **46**, **48** and **50** abuttable by a door **52** hingedly connected to the hinge jamb **28** by hinges **54** in a manner to be described. The door **52** is adapted to be latched and/or locked in its closed position, in abutting relation with the stops **46**, **48**, **50**, by engagement of the bolt, not shown, of a lock set thereon with a strike plate **56** connected to the strike jamb **30** in a manner to be described.

The various flanges **34**, **36** and **38** of the jambs **28**, **30** and **32** are respectively covered by snap-on moldings **58**, **60** and **62** in a manner which will be described in detail hereinafter. These moldings cover the nails or screws used to attach the jambs **28**, **30** and **32** to the wall **20**. The moldings **58**, **60** and **62** have abutting mitered corners at the top of the doorway, as shown in FIGS. 1 and 2 of the drawings.

Considering the hinge, strike and head jambs **28**, **30** and **32** in more detail, these jambs are all precut to the proper length to accommodate the door **52** and to provide the necessary clearance between the lower edge of the door and a finished floor **64**. When installed, the lower ends of the hinge and strike jambs **28** and **30** are seated on the finished floor **64**. As best shown in FIGS. 2 and 6, the hinge and strike jambs **28** and **30** terminate short of the upper edge of the door opening **22** and support the ends of the head jamb **32**. The connecting wall **44** of the head jamb **32** is provided at its ends with notches **66** which receive the upper ends of the vertical edges of the door opening **22** therein while the ends of the flanges **38** of the head jamb **32** extend horizontally beyond the ends of the connecting wall **44** to embrace the upper ends of the vertical edges of the door opening. The ends of the connecting wall **44** of the head jamb **32** are provided with downturned tabs **68**, FIGS. 2, 3 and 6, which are hooked behind the upper ends of the connecting walls **40** and **42** of the hinge and strike jambs **28** and **30**. The tabs **68** thus limit the spacing between the upper ends of the hinge and strike jambs **28** and **30** to the precise distance necessary to accommodate the door **52**.

When installing the hinge, strike and head jambs **28**, **30** and **32**, the head jamb **32** is installed first, but is not secured in place at this stage. Then, the hinge and strike jambs **28** and **30** are installed, but not secured in place. The lower ends of the hinge and strike jambs **28** and **30** are seated on the finished floor **64** (or on shims simulating the finished floor if the latter has not been installed). The head jamb **32** is then lowered solidly onto the upper ends of the hinge and strike jambs **28** and **30**, the horizontal spacing of the upper ends of the hinge and strike jambs being determined by the tabs **68**. The door **52** is then hung on the hinge jamb **28**, in a manner to be described hereinafter, and the door itself is then used as a template to square the hinge, strike and head jambs **28**, **30** and **32** in the door opening **22**, making sure that proper clearances for the door are provided. The hinge jamb **28** is then secured in place by means of nails or screws driven through the flanges **34** thereof. Subsequently, the strike and head jambs **30** and **32** are secured in place, in that order, by nails or screws driven through the flanges **36** and **38** thereof.

The foregoing operations completed, the moldings **58**, **60** and **62** are snapped onto the respective flanges **34**, **36** and **38**, in a manner to be described hereinafter. As previously pointed out, the hinge and strike moldings **58** and **60** have mitered upper ends which abut mitered ends of the head moldings **62**. As best shown in FIGS. 2 and 3, the ends of the head-jamb flanges **38** have integral miter supports **70** struck outwardly relative to the wall **20**. The abutting mitered ends of the various moldings **58**, **60** and **62** are seated against the miter supports **70** to provide firm supports for these mitered joints, which is an important feature.

Considering now the manner in which the moldings **58**, **60** and **62** are snapped onto the respective flanges **34**, **36** and **38**, one of the head-jamb flanges **38** and one of the head moldings **62** are shown in detail in FIGS. 8 and 9, respectively. The other jamb flanges and moldings are identical to the head-jamb flange **38** and the molding **62** shown in FIGS. 8 and 9 so that the following discussion is equally applicable thereto.

Considering FIG. 8 first, the free longitudinal edges of the head-jamb flanges **38** diverge away from each other along their entire lengths to provide each head-jamb flange **38** with a continuous outer molding-retaining lip **72** extending the full length of such flange. As will be apparent, when the head-jamb flange **38** shown in FIG. 8 is in abutting relation with one side of the wall **20**, the outer molding-retaining lip **72** diverges away from the wall. Spaced inwardly of the door opening **22** from the outer molding-retaining lip **72** is a continuous, hook-like, inner molding-retaining lip **74** which extends the full length of the head-jamb flange **38** and which faces inwardly away from the outer molding-retaining lip **72** and has a rounded inner edge **76**. In the particular construction illustrated, wherein the various jambs **28**, **30** and **32** are formed of sheet metal, the inner molding-retaining lip **74** is formed by doubling a portion of the sheet metal back on itself.

Turning to FIG. 9, the corresponding head molding **62** has a hook-like outer retaining edge **78** which is continuous throughout the entire length of the molding **62** and which is adapted to be hooked behind the outer molding-retaining lip **72** of the head-jamb flange **38**. Also extending the full length of the head molding **62** is a continuous, hook-like inner retaining edge **80** adapted to be hooked behind the inner molding-retaining lip **74** on the head-jamb flange **38** by snapping it over the rounded inner edge **76** of the lip **74**, it being noted that the inner retaining edge **80** has a beveled surface **82** engageable with the rounded inner edge **76** to facilitate snapping the inner retaining edge **80** behind the inner molding-retaining lip **74**. It will be understood that the head molding **62** has sufficient flexibility to permit its inner retaining edge **80** to be snapped into place in the foregoing manner after

hooking of its outer retaining edge **78** behind the outer molding-retaining lip **72**. For example, the molding **62** may be made of flexible plastic, sheet metal, or the like.

As previously pointed out, the hinge-jamb and strike-jamb flanges **34** and **36** have the same construction as the head-jamb flanges **38**, and the hinge and strike moldings **58** and **60** have the same construction as the head moldings **62** and are installed in the same way. Consequently, a further description is not necessary.

The extreme ends of the head-jamb flanges **38** preferably diverge outwardly away from each other so that the outer molding-retaining lips of the hinge and strike moldings **58** and **60** can be hooked therebehind, thereby securing same in place throughout their full lengths.

The foregoing construction of the various jamb flanges and moldings has various important advantages, as hereinbefore outlined. More particularly, the molding-retaining lips on the jamb flanges and the retaining edges on the moldings, being continuous throughout the full lengths of the jamb flanges and the moldings, secure the snap-on moldings in place throughout their entire lengths to prevent accidental dislodgement. Second, since the inner and outer molding-retaining lips on the jamb flanges are integral therewith, they act as integral reinforcing ribs which contribute measurably to the stiffness and mechanical strength of the jambs. Third, since the moldings are installed by first inserting the outer retaining edges thereof behind the outer molding-retaining lips on the corresponding flanges, and then snapping the inner retaining edges over the rounded inner edges of the inner molding-retaining lips, the possibility of damage to the surfaces of the wall **20** is minimized. Finally, the various jamb flanges have no lanced or sheared edges for the purpose of retaining the corresponding moldings.

Considering the manner in which the hinges **54** are attached to the hinge jamb **28**, the connecting wall **40** of the hinge jamb is provided with recesses **84**, FIG. 4, to receive jamb leaves **86** of the hinges **54**. Each jamb leaf **86** is attached by means of sheet metal screws **88** extending through the jamb leaf and threaded through holes **90** in the connecting wall **40**, all as best shown in FIG. 10. The holes **90** are formed in conical depressions **92** and are cocked at an angle corresponding to the angle of the threads on the screws **88** so that the screws positively and smoothly engage the edges of the holes **90**. With this construction, the hinges **54** are positively attached to the hinge jamb **28** in a manner which permits repeated installation and removal of the hinges, and without any danger of losing nuts behind the hinge jamb after installation, which is an important feature.

Turning to FIGS. 5 and 7, the connecting wall **42** of the strike jamb **30** is provided with a recess **94** to receive the strike plate **56**. The latter has an integral dust box **96** which projects outwardly relative to the door opening **22** through an opening **98** in the recessed portion **94**. Above and below the dust-box opening **98** are horizontal bars **100** integral with the recess portion **94** and carrying sheet metal nuts **102**, one of the nuts being omitted for clarity. Each nut **102** has a spring clip **104** hooked around the corresponding bar **100** to secure the nut in place while permitting movement of the nut along the bar toward and away from the corresponding door stop **48**. The strike plate **56** is secured by means of screws threadedly engaged with the nuts **102**. As will be apparent, this construction permits horizontal adjustment of the strike plate **56** toward and away from the corresponding door stop **48** to accommodate different lock sets.

Turning to FIG. 11 of the drawings, illustrated therein is a jamb **106** which is identical to the jambs **28**, **30** and **32**, except that it is made in two longitudinally-extending halves **108** and **110** which are horizontally adjustable relative to each other to accommodate walls of different thicknesses. More particularly, the half **110** of the jamb **106** is provided with an integral channel-shaped door stop **112** and the half **108** is provided with an L-shaped extension **114** nested within and horizontally slidable relative to the door stop. As viewed in FIG. 11, the jamb **106** accommodates a maximum-thickness wall when the L-shaped extension **114** engages the left side of the door stop **112**, and accommodates a minimum-thickness wall when the extension engages the right side of the door stop. In all other respects, the jamb **106** is identical to and is mounted in the same way as the jambs **28**, **30** and **32**.

Although exemplary embodiments of the invention have been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiments within the scope of the appended claims.

We claim as our invention:

1. In a frame and molding structure for a door, or the like, in an opening in a wall, the combination of:

(a) generally channel-shaped jambs respectively embracing the edges of and framing the opening and each having opposed flanges respectively engaging opposite sides of the wall adjacent the corresponding edge of the opening;

(b) each of said flanges having parallel, continuous, opposed, inner and outer molding-retaining lips which extend the full lengths thereof;

(c) flexible moldings respectively overlying said flanges and each having parallel, continuous, hook-like inner and outer retaining edges extending the full lengths thereof and respectively hooked behind said inner and outer molding-retaining lips of the corresponding one of said flanges;

(d) the free longitudinal edges of said flanges of each of said jambs being flat and diverging away from each other along their entire lengths to form said outer molding-retaining lips thereof;

(e) said inner molding-retaining lips being hook-like in cross section and facing inwardly away from the corresponding outer molding-retaining lips; and

(f) said inner molding-retaining lips having rounded inner edges to provide for snapping said inner retaining edges of said moldings into place behind said inner molding-retaining lips of said flanges after hooking said outer retaining edges of said molding behind said outer molding-retaining lips of said flanges.

2. A frame and molding structure according to claim **1** wherein one of said jambs is a hinge jamb having preformed, threaded holes therethrough to threadedly receive screws for securing hinges to said hinge jamb.

3. A frame and molding structure as defined in claim **1** wherein one of said jambs is a strike jamb having horizontal webs carrying horizontally adjustable nuts for screws for securing a strike plate to said strike jamb.

4. A frame and molding structure as defined in claim **1** wherein said moldings have abutting mitered ends and wherein at least one of said jambs includes miter supports against which said abutting mitered ends of said moldings are seated.

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