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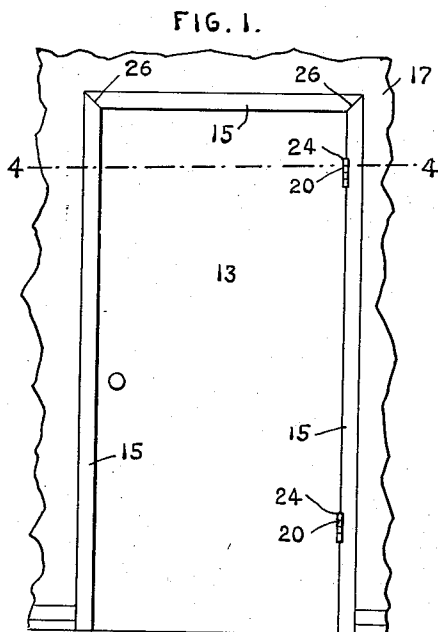
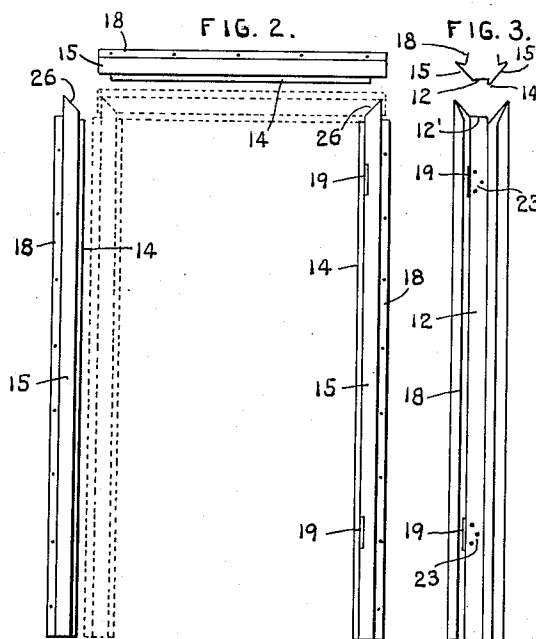
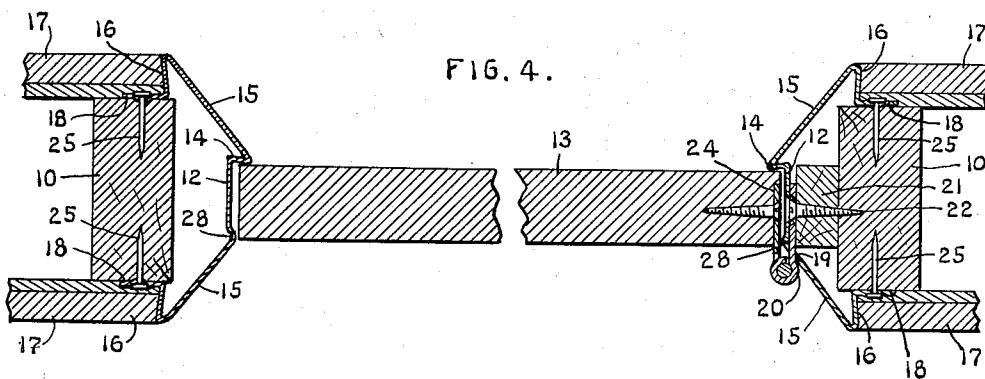
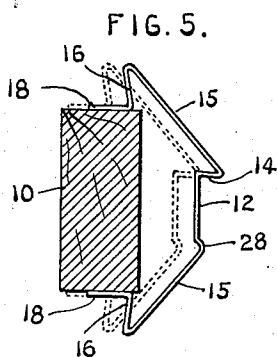
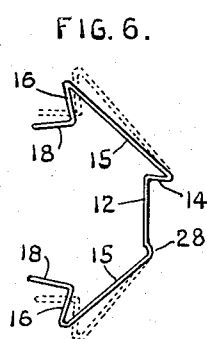
J. J. STEFFAN

2,661,084

DOORFRAME

Filed Aug. 8, 1949

2 Sheets-Sheet 1



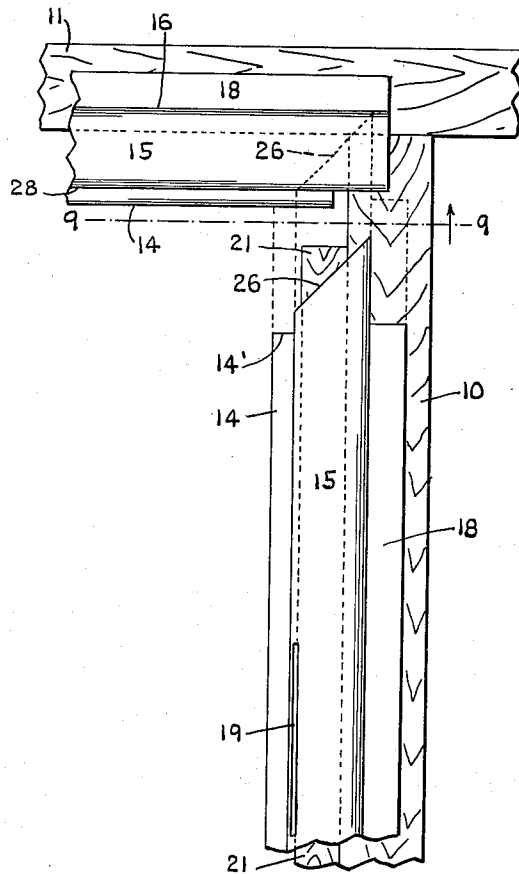
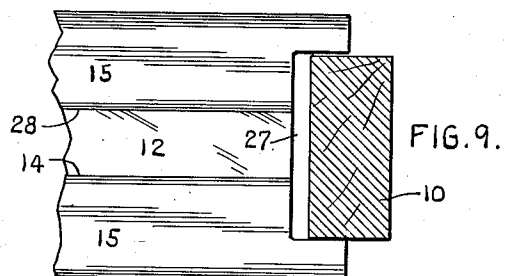
INVENTOR.  
JOSEPH J. STEFFAN  
BY *Albert J. McCauley*  
ATTORNEY.

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**J. J. STEFFAN**  
DOORFRAME

2 Sheets-Sheet 2

FIG. 8.



INVENTOR.  
JOSEPH J. STEFFAN  
BY *Albert J. McCauley*  
ATTORNEY.

## UNITED STATES PATENT OFFICE

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## DOORFRAME

Joseph J. Steffan, St. Louis, Mo.; Julius A. Steffan  
and Dolores H. Williams, executors of said  
Joseph J. Steffan, deceased

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5 Claims. (Cl. 189—46)

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This invention relates to door frames and the like. The new frames are particularly adapted to form outside trims or casings for doors, but some of the novel features can be advantageously employed in window frames.

Prior to this invention, the jambs of a door frame have been securely anchored to produce a rigid frame before the door is hinged to the frame. This ordinary procedure usually involves considerable time and expense in altering the door to make it fit the space between the rigidly anchored jambs. Skilled labor is employed to hang and trim the door, and the trimming is a perplexing matter often requiring several hours of trimming and testing operations before a reasonably accurate fit is obtained. In many cases, the heavy door is repeatedly hung on its hinges for successive trimming operations.

One of the objects of the present invention is to practically eliminate the time, trouble, expense and annoyance of the usual trimming and testing operations, while accurately providing a predetermined clearance for the hinged door. As a specific illustration of this feature, I have shown a pair of vertical jamb sections made of sheet metal, adapted to lie outside of and form trims for firm inner jamb sections, and a corresponding metallic head section at the upper ends of said metallic jamb sections. All of said metallic sections may be slidable laterally on their companion inner sections, so that the frame can be easily and quickly adjusted to fit the door, instead of altering the door to fit the frame.

A further object of the invention is to produce adjustable frame sections of this kind having yieldable gripping elements whereby they are frictionally secured to firm inner frame sections. This is a highly important detail because it temporarily holds the sections in positions to which they are accurately adjusted to fit the closed door, and maintains the adjustments until said sections are rigidly anchored in permanent positions. Furthermore, the yieldable gripping elements frictionally secure the adjustable sections at an intermediate stage when they are pushed to extreme positions, allowing the hinged door to freely swing to a closed position for the subsequent adjustments.

A separate and distinct object is to very conveniently produce simulated miter joints at the junctions of metallic head and jamb sections, so as to simplify the manufacture of such sections, and eliminate the usual requirement for accurate matching at conventional miter joints. As a specific illustration of this feature, I will here-

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after describe head and jamb sections made of sheet metal, each section having a pair of side trim members located at opposite sides of the frame. The pair of side trim members of one of said sections is provided with beveled end edges to form simulated miter joints, while the adjacent companion section has a plain end portion seated between and extended beyond said beveled end edges. As a result, the pair of beveled end edges appear as miter joints at the junctions of the side trim members at opposite sides of the frame. This specific condition also allows one section to be adjusted laterally at its companion section, while maintaining the simulated miter joints at the junctions of said sections.

With the foregoing and other objects in view, the invention comprises the novel combination and arrangement of details hereinafter described to specifically set forth one form of the invention. However, it is to be understood that the scope of the invention extends to variations and modifications more broadly described by terms employed in the claims hereunto appended.

Fig. 1 is a diagram showing a door frame embodying features of this invention, some of the details being concealed by plaster or other covering material.

Fig. 2 is a detail view with full lines showing head and jamb sections separated from each other, and dotted lines showing the head section seated on the jamb sections.

Fig. 3 is a side view of the details shown in Fig. 2.

Fig. 4 is an enlarged horizontal section on the line 4—4 in Fig. 1.

Fig. 5 is a section showing conditions which appear before one of the adjustable metallic sections is rigidly anchored to a firm inner section.

Fig. 6 is a detail view of one of the metallic frame sections as it appears when free of contact with a firm inner section, including dotted lines showing how its gripping elements can be forcibly sprung apart to frictionally grasp the inner section.

Fig. 7 is an inside view partly in section, of upper portions of the frame, with one of the metallic jamb sections in an imaginary position considerably below the head section, showing how a recess in the upper end of said jamb section may conform to the contour of bottom surfaces of the metallic head section.

Fig. 8 is a front view of the same details, showing a beveled upper edge of the jamb section

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adapted to contact with the metallic head section as shown by dotted lines.

Fig. 9 is a detail view showing how extended end portions of the metallic head section may be recessed to receive and interlock with a firm inner jamb section.

To illustrate one form of the invention, I have shown firm inner jamb sections 10 which can be conveniently formed by simple vertical studs, and a firm inner head section 11 (Figures 7 and 8) at the upper ends of said jamb sections. These firm inner sections 10 and 11 are rigidly anchored in any suitable manner. They may be made of wood or any other desired material, and of any suitable shape.

Each of the outer sections herein shown consists of a thin sheet metal channel having a web 12 to match an edge of a door 13, a door-stop 14 projecting from one side of said web, and a pair of oppositely inclined side trim members 15 diverging from said web and door stop. Each of said metallic outer sections is also provided with suitable gripping elements adapted to grasp opposite sides of one of the firm inner sections. As a simple illustration of this feature, I have shown approximately L-shaped members extending from the side trim members 15, so as to produce abutments 16 for plaster 17 or other surface material, and a pair of gripping flanges 18 extending from said abutments.

In manufacturing the sheet metal outer frame sections shown in the drawings, each of said sections is deformed to locate its gripping elements 18 in converging positions, relatively close to each other as suggested in Fig. 6, requiring said gripping elements to be forcibly sprung apart to receive and frictionally grasp the parallel opposite sides of a firm inner section 10 or 11, as suggested in Fig. 5. The several metallic outer frame sections are frictionally secured to the firm inner sections 10 and 11, so that each of said metallic sections can be adjusted laterally and temporarily held in positions to which it is adjusted.

At the hinge side of the door, the vertical outer jamb section is preferably provided with slots 19 (Figures 2, 4, 7 and 8) said slots being formed at the junction of a web 12 and a side trim member 15 to receive fixed hinge members 20 (Fig. 4) which lie between said web 12 and a filler strip 21 attached to the adjacent firm jamb section 10. Each fixed hinge member 20 is rigidly secured by means of screws 22 passing through holes 23 in said web 12 (Figures 3, 4 and 7) and driven into the filler strip 21. The companion hinge members 24 (Figures 1 and 4) may be attached to the door by means of screws in the usual manner. Under these conditions, the hinges are attached to both jamb sections at one side of the door, but the weight of the door is supported by the firm inner jamb section.

I will now describe a manner in which the several metallic frame sections may be adjusted and then rigidly secured before plaster 17, or the like, is applied at the frame sections.

The first step consists in hanging the door 13, the web 12 of the metallic jamb section at the hinge side being seated against the interposed hinge members 20 and secured by the screws passing through said hinge members as shown in Fig. 4. This metallic jamb section is also secured by means of nails 25, or the like, passing through its gripping flanges 18.

The metallic outer jamb section at the lock side of the door may be sprung from the de-

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formed condition shown in Fig. 6 to the condition shown in Fig. 5 wherein its gripping members 18 frictionally grasp opposite sides of the companion inner jamb section 10. The metallic outer head section is likewise expanded from its primary deformed condition to frictionally grasp the firm inner head section 11, as shown at the upper portion of Fig. 7.

After the door is attached to its hinges, said frictionally secured metallic outer sections can be pushed laterally to extreme positions, suggested by dotted lines in Fig. 5, so as to provide excessive clearance for the lock edge and the top edge of the hinged door. The yieldable gripping elements will hold these metallic sections in said extreme positions while the door is moved to its closed position. The metallic jamb section at the lock side of the frame can then be adjusted laterally to an approximately vertical position wherein it accurately provides a predetermined clearance between its web 12 and the adjacent edge of the door. The gripping elements retain said metallic jamb section in its adjusted position until it is permanently anchored to the adjacent inner jamb section 10.

The metallic head section is likewise adjusted on its firm head section 11 to provide for accurate matching of said metallic head section with the upper ends of the metallic jamb sections. While I have shown nails 25 passing through the gripping flanges 18 to rigidly secure the metallic sections after they have been adjusted, it is to be understood that other suitable fastening elements may be employed.

The metallic outer frame sections can be very readily adjusted to make the frame fit the door, instead of resorting to the usual trouble and expense of altering the door to fit the frame. This metallic frame also provides a relatively inexpensive casing, adapted to be installed at a low cost, and including neat side trim members. However, the invention is not limited to the precise shapes of the trim members and gripping elements herein shown.

I will now refer to details of the simulated miter joints at the junctions of the metallic head and jamb sections. To illustrate this feature I have shown beveled edges 26 at the upper ends of the metallic jamb sections to form the simulated miter joints. Each of said jamb sections is provided with a recess between its beveled upper edges 26 and as shown most clearly in Fig. 7, this recess extends downwardly from the tops of said beveled edges and conforms approximately to the contour of exposed side and bottom faces of the metallic head section. When the frame sections are assembled, end portions of the metallic head sections are seated within and extended beyond walls of said recesses as suggested in Figures 2 and 8. Under these conditions the beveled end edges 26 appear as miter joints at the junctions of the head and jamb sections.

More specifically stated, the beveled edges 26 herein shown appear at the upper ends of a pair of oppositely inclined side trim members 15 diverging from an intermediate web 12 of each metallic jamb section. It will also be observed that the diverging side trim members 15 of the metallic head section are seated on said beveled edges 26. Furthermore, as shown in Figures 4 and 5, the side trim member 15 at one side of each metallic frame section may extend from the door stop 14, so as to lie at an angle differing from the inclination of the companion side trim member 15 at the opposite side which ex-

tends directly from the web 12. Nevertheless, the beveled edges 26 may contact with the differing side trim members 15 of the head section to produce the simulated miter joints, while the extended ends of said head section project beyond the beveled edges. One of these projecting ends is visible in Fig. 8, but it will be concealed by walls of the recess in which it is located when the frame sections are assembled as shown in Fig. 1.

Other odd conditions appear in the fact that the extreme upper end 12' of the web 12 of each metallic jamb section may be horizontal as shown in Fig. 7 to match the horizontal web 12 of the metallic head section, while the extreme upper end 14' of the door stop 14 is also horizontal, as shown in Fig. 8, to match the horizontal bottom edge of the door stop 14 on said head section.

It is to be observed that the side trim members 15 are positioned entirely within an opening defined by the outer face of a finished wall in which the frame is set. That is to say, the side trim members 15 do not extend along and against the face of a wall in which the frame is set; the simulated mitre joints lie between an edge of intermediate web 12 and the meeting edge of a side trim section and a wall defining a door opening.

Each extended end portion of the metallic head section may be recessed as shown at 27 in Fig. 9 to receive and interlock with one of the firm inner jamb sections 10.

In assembling the metallic frame herein shown, either of its jamb sections, including the beveled upper edges 26, can be adjusted laterally with relation to the head section, while maintaining the simulated miter joints at the junctions of said head and jamb sections.

It will be understood that some of the features herein disclosed are desirable in producing a casing for an open passageway without using a door or a door stop, or for a window casing having a horizontal head section at the upper ends of vertical jamb sections.

Each metallic frame section is preferably provided with a relatively small convex reinforcing bead 28 integrally connecting its web 12 to one of the side trim members 15. As shown in Fig. 4, the door stop 14 lies at one side of the web 12 and the small bead 28 appears at the opposite side, said elements 14 and 28 being arranged longitudinally of the sheet metal sections and extended inwardly into the door-receiving space at opposite sides of the web 12.

In addition to enhancing the appearance of the metallic sections, the beads 28 have several useful functions. They provide reinforcing elements at corners of the frame likely to be struck by large objects carried through the doorway. At the hinge side of the frame (Fig. 4), the extended bead 28 partly or entirely closes the space that may otherwise appear between the metallic jamb section and a corner of the door. Furthermore, at the lock side of the door (left side of Fig. 4) the bead 28 provides a well defined tangible guide line in adjusting the jamb section to accurately provide the predetermined clearance for the adjacent edge of the door. Another and unexpected result of the provision of the bead 28 is the cushioning effect of the channel formed between the bead 28 and the door stop 14. It has been found that the air cushion resulting when the door is swung closed makes slamming of the door against the door stop virtually impossible.

# I claim:

1. A door frame comprising sheet metal jamb sections each having an intermediate web to match an edge of the door, divergently inclined side trim members at opposite sides of said web, a door stop integrally connecting one side of said web to one of the side trim members, and a relatively small convex head integrally connecting said web to the other side trim member, said bead and door stop being extended inwardly, into the door-receiving space at opposite sides of said web and arranged longitudinally of the sheet metal jamb sections to provide a cushioning air pocket therebetween when said door is moved from open to closed position.

2. An adjustable casing mounted on a fixed frame of substantial thickness comprising, a sheet metal head section and a pair of sheet metal jamb sections, each of said sections having a web, a pair of divergently inclined side trim members extending along opposite edges of said web, and a yieldable frame-gripping flange connected to and extending along the edge of each of said side trim members opposite said web, each of said sections being primarily deformed to locate its frame-gripping flange in converging position relatively close together, requiring said flange to be forcibly sprung apart to receive and frictionally grasp said frame, an end of each of said sheet metal jamb sections being beveled to define a recess therein conforming approximately to the contour of the web and side trim members of the head section both before and after the frame-gripping flanges of said jamb and head sections are sprung for mounting said sections on said frame, said head section being seated at a distance from each end within said recesses, and said beveled edges being exposed to appear as miter joints at junctions of the side trim members of the head and jamb sections, each of said sheet metal head and jamb sections being mounted on said frame independently of one another on said frame.

3. An adjustable casing, having simulated miter joints, mounted on a fixed frame, comprising sheet metal head and jamb sections each having a web and a pair of divergently inclined side trim members extending along opposite edges of said web, the pair of side trim members of one of said sheet metal sections being provided with beveled end edges to form simulated miter joints and to define a recess between said end edges conforming approximately to the contour of the web and side trim members of a companion sheet metal section, said companion section being seated at a distance from its end within said recess, and said beveled edges being exposed to appear as miter joints at junctions of the side trim members of the sheet metal sections, each of said sheet metal head and jamb sections being mounted on said frame independently of one another.

4. An adjustable casing, having simulated miter joints, mounted on a fixed frame, comprising sheet metal head and jamb sections each having a web and a pair of divergently inclined side trim members extending along opposite edges of said web, the pair of side trim members of said jamb sections being provided at one end of said section with beveled edges to form simulated miter joints and to define a recess between said end edges conforming approximately to the contour of the web and side trim members of said head section said head section being seated at a distance from its ends

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within said recess in each of said jamb sections and said beveled edges being exposed to appear as miter joints at junctions of the side trim members of the head and jamb sections, each of said sheet metal head and jamb sections being mounted on said frame independently of one another.

5. An adjustable casing, having simulated mitre joints, for mounting on a fixed frame, comprising sheet metal head and jamb sections each having a web provided with an inwardly extending door stop along one edge and an inwardly extending bead along its other edge, defining a cushioning channel therebetween, and a pair of divergently inclined side trim members integral with and extending along opposite edges of said edge, the pair of side trim members of one of said sheet metal sections being provided with beveled end edges to form simulated mitre joints and to define a recess be-

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tween said end edges conforming approximately to the contour of the web and side trim members of a companion sheet metal section, said companion section being seated at a distance from its end within said recess, and said beveled edges being exposed to appear as mitre joints at junctions of the side trim members of the sheet metal sections.

JOSEPH J. STEFFAN.

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