Oct. 27, 1959 A. B. HAMMITT ET AL 2,910,154

DOOR FRAME ASSEMBLY

Original Filed July 14, 1953

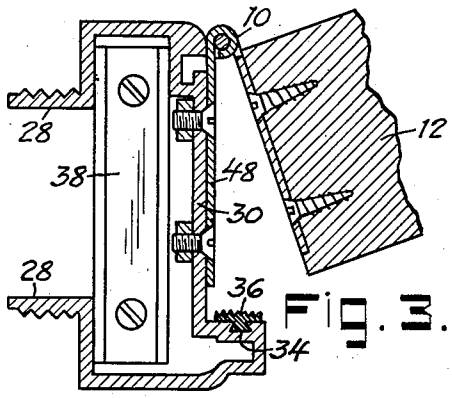


Fig. 3.

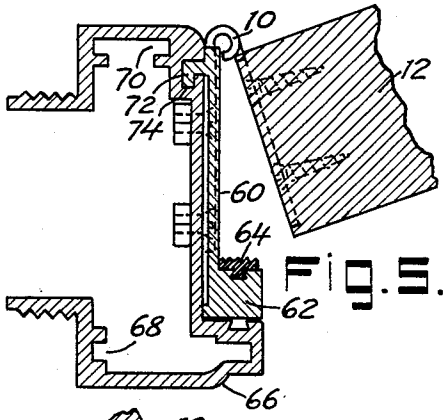


Fig. 5.

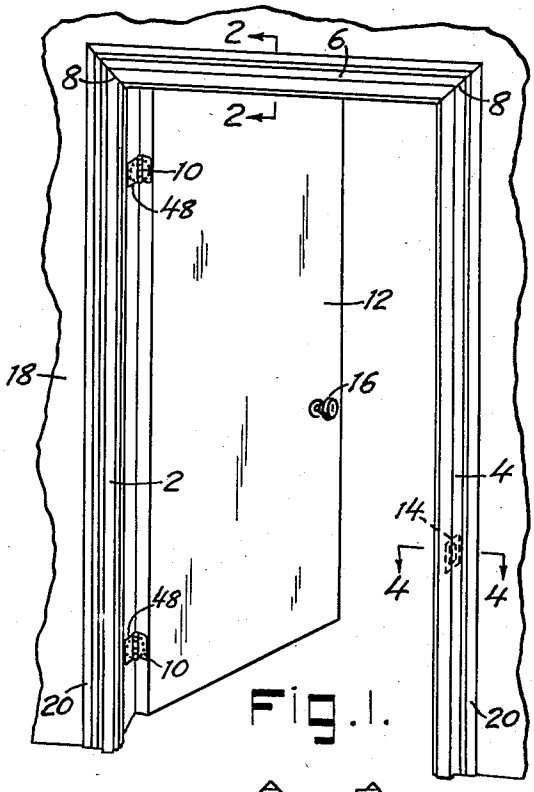


Fig. 1.

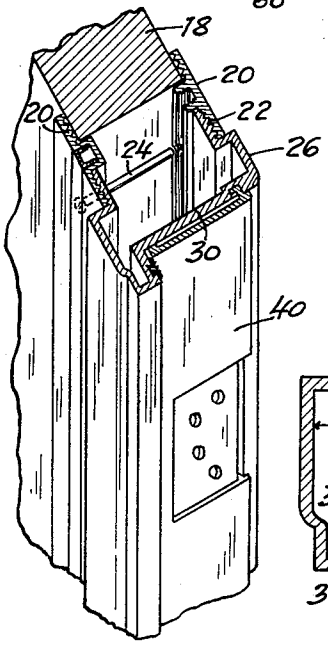


Fig. 6.

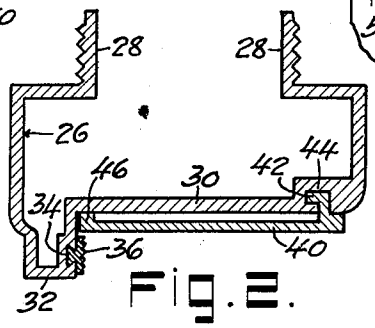


Fig. 2.

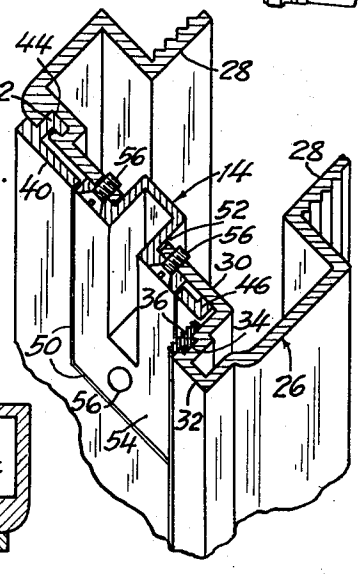


Fig. 4.

INVENTOR.
ANDREW B. HAMMITT
HERBERT L. BIRUM, JR.
Albert Sperry.
ATTORNEY

United States Patent Office

2,910,154

Patented Oct. 27, 1959

2,910,154

DOOR FRAME ASSEMBLY

Andrew B. Hammitt, Trenton, and Herbert L. Birum, Jr., Titusville, N.J.

Continuation of application Serial No. 367,804, July 14, 1953. This application February 5, 1957, Serial No. 638,269

4 Claims. (Cl. 189—46)

This invention relates to metal door frames and is directed particularly to constructions adapted to be formed from extruded metal strips. This application is a continuation of our copending application Serial No. 367,804 filed July 14, 1953.

It is common practice to form door frames of metal, particularly for use in interior constructions as in hallways, partitions and elsewhere. While such door frames sometimes embody certain elements fabricated from extruded metal strips, the constructions are generally difficult and expensive to produce because of the need to provide various recesses to receive the hinge butts, keeper and sealing strips.

In accordance with the present invention an improved type of door frame assembly is provided in which extruded aluminum or other metal strips are employed and means are provided which simplify the application of the hinge butts and other elements of the assembly.

These advantages are preferably attained by providing complementary and interfitting metal extrusions, one of which is formed to engage the wall forming material to constitute an outer frame while the other of which constitutes an inner door engaging frame which may be provided with recesses designed to receive hinge butts or the like.

One of the objects of the present invention is to simplify the fabrication and installation of metal door frames.

Another object of the invention is to provide a novel type of metal door frame formed of extruded metal members.

A specific object of the invention is to provide a metal door frame embodying complementary and interfitting extruded metal members including an outer frame engaging wall forming material and an inner door engaging frame having recesses therein for receiving hinge butts.

These and other objects and features of the present invention will appear from the following description thereof in which reference is made to the figures of the accompanying drawing.

In the drawing:

Fig. 1 is a perspective illustrating a typical door frame embodying the present invention with parts broken away;

Fig. 2 is an enlarged transverse sectional view of the construction shown in Fig. 1 taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view of the construction shown in Fig. 1 with a door and hinge assembled therewith;

Fig. 4 is an enlarged sectional view through the construction shown in Fig. 1 taken on the line 4—4 thereof;

Fig. 5 is a sectional view similar to Fig. 3 illustrating an alternative embodiment of the invention; and

Fig. 6 is a perspective showing the construction of Figs. 1, 2 and 3 with the hinge removed from the assembly.

In that form of the invention chosen for purposes of illustration in Figs. 1 to 4 of the drawing, a typical door frame embodies the stiles 2 and 4 connected at their upper ends to a header 6 by mitered corners 8 or otherwise. The stile 2 is designed to receive the hinges 10 by which a door 12 is supported, whereas the stile 4 may be provided with a keeper 14 for engagement with a latch carried by the door and operated by the handle 16. Of course the type and size of the door employed may be varied as desired and it may be provided with as many hinges as are required for support of the door. The style of hinge employed also may be chosen to meet any conditions encountered.

As shown in the drawing the door frame is located within a wall structure 18 and preferably is secured to the wall structure by extruded metal strips 20 as further shown and described in our copending application Serial No. 367,804. In conditions of this type, the strips 20 are provided on their inner face with ribs or corrugations 22 which are urged into retaining engagement with the sheet material 18 by means of a bolt 24 which extends through and is in threaded engagement with the strips 20 or otherwise serves to clamp the strips into engagement with the wall forming material.

The stiles 2 and 4 and the header 6 of constructions embodying the present invention are similar in that each embodies an outer frame member 26 which is generally U-shaped in cross section and provided with edge portions 28 having outwardly facing ribs or corrugations thereon for engagement with the ribs or corrugations 22 on the strips 20. The bolt 24 which clamps the strips 20 into engagement with the wall forming material 18 also serves to clamp the opposite edges of the strips 20 against the edge flanges 28 of the outer frame member 26 of the stile and header. In this way the outer frame of the door is secured in place within the door opening and with respect to the wall forming material 18 of the assembly.

The outer frame member 26 further includes a jamb portion 30 and a marginal extension 32 which preferably is formed with a recess 34 in which a sealing strip or gasket 36 is located in position to be engaged by the door 12 when it is closed so as to provide a weather-tight seal about the door frame.

As shown in Fig. 3 the vertical stiles 2 and 4 of the door may have their lower ends secured in place by means of a positioning strip or cleat 38 secured in place on the floor at opposite sides of the door opening. The lower ends of the door frame are thus held in place, whereas the upper ends of the door frame are secured together and held in place by the header 6.

The door frame further includes an inner frame member 40 which is provided with a tongue 42 formed to be slidable lengthwise within the slot 44 in the jamb portion 30 of the outer frame member 26. The tongue 42 is located adjacent one edge of the strip of which the inner frame member 40 is formed and the opposite edge of the strip 40 is preferably formed with an abutment piece 46 adapted to bear against the adjacent surface of the jamb portion 30 of the outer frame member 26. In this way the inner frame member or strip 40 is fixedly positioned and supported adjacent the jamb portion 30 of the outer frame member 26.

As shown in Figs. 1 and 3 the inner frame member

40 may be cut away at those points where the hinges 10 are to be located and in this way a recess is provided in which the stile engaging butt 48 of the hinge 10 is to be located. In order that the butt 48 may be suitably recessed or positioned so that it lies flush with the inner surface of the inner frame member 40, the thickness of the strip of material of which the frame member 40 is formed and the height of the abutment piece 46 should be such as to equal or exceed the thickness of the butt 48 of the hinge 10. Since the thickness of hinge butts is rather standard in most constructions, the thickness of the inner frame forming strip 40 and the height of the abutment 46 can be chosen to insure the proper recessing of the hinge butt so that its surface will lie substantially flush or below the surface of the inner frame member 40.

In a similar way, as shown in Figs. 1 and 4, the stile 4 of the door frame assembly may be provided with a keeper 14 which can be inserted in a recess 50 formed in the inner frame 40 carried by the stile 4.

The jamb portion 30 of the outer frame member 26 also may be formed with an opening 52 for receiving the keeper 14 and the flange portion 54 of the keeper may rest against the face of the jamb portion 30 and be secured thereto by screws or fasteners 56 so that the inner face of the keeper will lie in a plane substantially flush with the inner surface of the inner frame member 40. If desired, other openings can be formed in the inner frame member 40 and, if necessary, in the outer frame member 26 to receive locks, door operated switches or other elements desired in any door frame assembly.

The construction thus provided renders it possible to form each of the elements of the assembly from extruded material since the outer frame member 26, the inner frame member 40 and the retaining strips 20 by which the door frame is secured to the wall forming material 18 are all uniform in cross section throughout the length thereof. The inner frame member 40 is adapted to be assembled with the outer frame member 26 by inserting the tongue 42 of the inner frame member into the slot 44 of the outer frame member 26 so as to slide the inner frame member into place with respect to the outer frame member.

In erecting the door frame assembly illustrated in Fig. 1, the inner frame member 40 is cut or recessed as required to receive the butt of the hinge 10 for the door and to receive the keeper 14 carried by the stile 4. The inner frame members are then assembled with the outer frame member 26 by supplying the cut or recessed pieces into place. The cleats 38 are then secured to the floor adjacent the opposite sides of the door opening and the frame is placed in position within the door opening. The retaining strips 20 are then placed in position to span the opening between the edges of the wall forming material 18 and the retaining flanges 28 of the outer frame member 26. The bolts 24 are then applied to the strips 20 and are tightened into place so as to be clamped against the wall forming material 18 and the ribbed outer faces of the flanges 28. In this way the door frame is secured in place and the inner frame members 40 present the necessary openings or recesses for receiving the butts 48 of the hinges 10 by which the door 12 is mounted and the keeper 14 which is designed to receive the latch of the door which is operated by the handle 16.

The assembly thus provided is simple and economical to produce and insures a neat and durable assembly. On the other hand in the event it should be necessary or desirable to remove or replace the door or to locate the hinges thereof in different positions, the stile 2 can be removed and an inner frame member 40 having openings provided at suitable points can be inserted into the outer frame member 26 of the stile 2 and the assembly replaced in position. In this way changes in the type of door and the location of the hinges thereof can be effected without dismantling or replacing the entire door assembly.

In a similar way, if it should become necessary to remove the door frame in its entirety, this can be effected without destroying the elements of the door frame assembly. The door frame can then be used in other locations if desired.

The particular form of the extruded members which make up the inner and outer door frames of the assembly can be varied considerably. Thus as shown in Fig. 5, the inner frame member 60 may be provided with an extension 62 by which a sealing gasket 64 is carried. The inner frame member 60 can be applied to the outer frame member 26 of Figs. 1 to 4 or it may be applied to an outer frame member 66 as shown in Fig. 5. The latter frame member is formed with recesses 68 and 70 which may be used to connect such frame members together at the corners of a door or window frame as shown and described in our copending application Serial No. 638,270. In a similar way the inner frame member 60 can be employed with other types of outer frame members and the inner frame member 40 of the constructions shown in Figs. 1 to 4 can be used with outer frame members of various types and cross sectional design provided there are suitable interfitting parts such as the tongue 72 of the inner frame member 60 and the recess 74 of the outer frame member 66 of Fig. 5 or corresponding elements as shown in the construction of Figs. 1 to 4 which permit longitudinal sliding engagement and retention of the inner and outer frame members.

In any of the forms of the present invention the stiles and header which make up the door frame can be secured in place within a door opening by any suitable means. The assembly, of course, can be used in forming doorways in which no door or other closure member is mounted and the assemblies of the present invention can be embodied in various other assemblies and relations to meet alternative conditions. In view thereof it should be understood that the particular embodiments of the invention shown in the drawings and described above are intended to be illustrative only and are not intended to limit the scope of the invention.

We claim:

1. A door frame comprising stiles and a header each of which is formed of an extruded strip of metal, at least one of said stiles being provided with a surface having a slot extending lengthwise thereof, an inner frame member formed of an extruded strip of metal and having a tongue thereon extending into said slot, the inner frame member overlying said surface of the stile to which it is applied and having a recess formed therein for receiving an element.

2. A door frame comprising stiles and a header each of which is formed of an extruded strip of metal, at least one of said stiles being provided with a surface having a slot extending lengthwise thereof, an inner frame member formed of an extruded strip of metal and having a tongue thereon extending into said slot, the inner frame member overlying said surface of the stile to which it is applied and having a recess formed therein for receiving a hinge butt, and a hinge butt positioned in said recess and secured to the stile with the inner face of the hinge butt substantially flush with the inner surface of the inner frame member.

3. A door frame comprising an extruded metal strip presenting an inner surface having a slot extending throughout the length thereof, an element secured to said inner surface of the strip and presenting a substantially flat inwardly facing exposed face, a complementary frame member overlying said strip and having an opening therein in which said element is located, said complementary frame member having means on the outer surface thereof slidably fitting in said slot in the strip and having an inner surface which is substantially flush with the inner exposed face of said element.

4. A door frame comprising an extruded metal strip which is generally U-shaped in cross section and has a base presenting a substantially flat surface facing in-

wardly on the door frame with a slot extending throughout the length of said surface, an element secured to said flat surface of the strip and presenting a substantially flat inwardly facing exposed face, a complementary frame member overlying said strip and having an opening therein in which said element is located, said complementary frame member having means on the outer surface thereof slidably fitting in said slot in the strip and having an inner surface which is substantially flush with the inner exposed face of said element.

References Cited in the file of this patent

UNITED STATES PATENTS

2,186,458	Lehman	Jan. 9, 1940
2,632,534	Gray	Mar. 24, 1953
2,718,291	Goldberg	Sept. 20, 1955

FOREIGN PATENTS

3,757	Great Britain	Feb. 14, 1911