July 5, 1966 E. R. CHAPPELL ET AL 3,259,409

CORNER CONSTRUCTION

Filed April 6, 1964

Fig. 1.

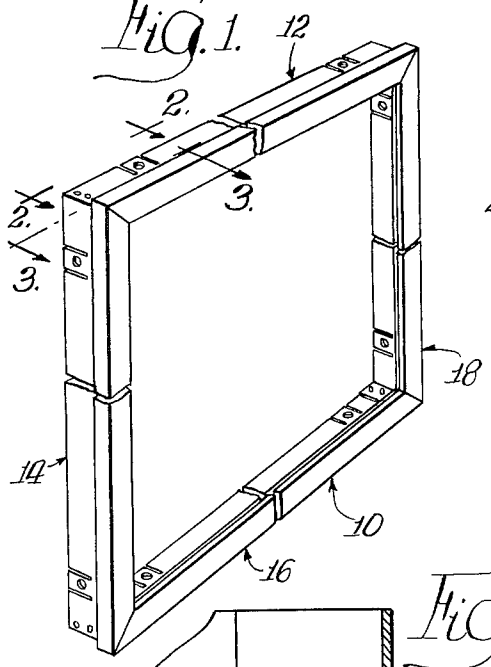


Fig. 2.

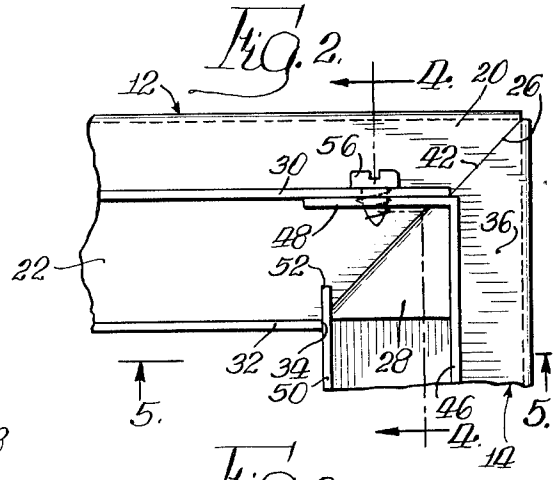


Fig. 3.

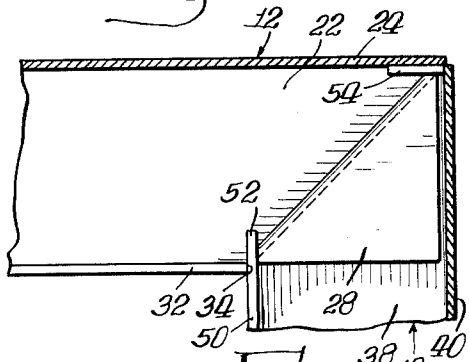


Fig. 5.

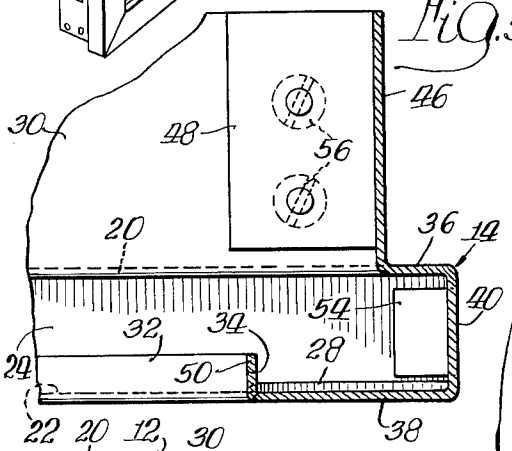


Fig. 4.

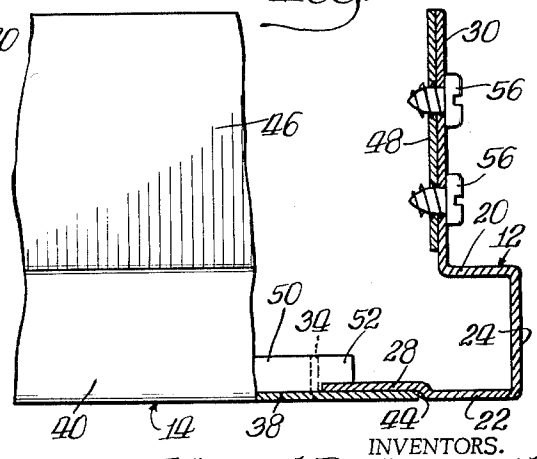
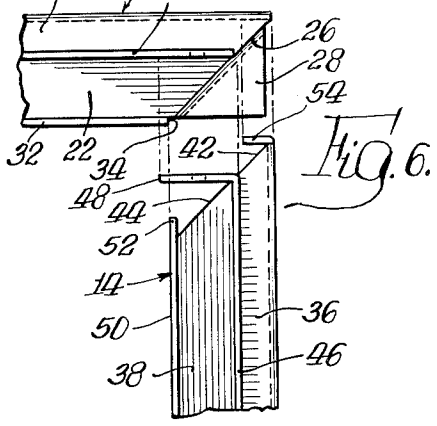


Fig. 6.



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CORNER CONSTRUCTION

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4 Claims. (Cl. 287—189.36)

The present invention relates generally to a corner construction and more particularly to a corner construction for angularly disposed trim members, and for door and window frames.

It is a primary object of the present invention to provide a new and novel corner construction for trim or frame members whereby the interconnection between the adjacent ends thereof is rigidified so as to maintain proper alignment of the members and resist twisting and bending forces imposed thereon.

It is another object of the present invention to provide a corner construction, as described, wherein rigidness of the interconnection between members is accomplished by forming the ends of the members with complementary interlocking elements.

It is a further object of the present invention to provide a corner construction, as described, wherein the complementary interlocking elements at the ends of the interconnected members are so arranged that the external appearance of a mounted trim or frame assembly is not impaired.

It is a still further object of the present invention to provide a corner construction, as described, wherein the members that are to be interconnected may be inexpensively fabricated and quickly and easily assembled.

Now in order to acquaint those skilled in the art with the manner of making and using corner constructions in accordance with the principles of the present invention, there will be described in connection with the accompanying drawing a preferred embodiment of the invention.

In the drawing:

FIGURE 1 is a front perspective view of a generally rectangular trim frame assembly, foreshortened in two dimensions, incorporating the corner construction of the present invention;

FIGURE 2 is a fragmentary elevational view, on an enlarged scale, of one upper corner of the trim frame assembly of FIGURE 1, taken substantially along the line 2—2 in FIGURE 1, looking in the direction indicated by the arrows;

FIGURE 3 is a fragmentary sectional view, on an enlarged scale, of the corner shown in FIGURE 2, taken substantially along the line 3—3 in FIGURE 1, looking in the direction indicated by the arrows;

FIGURE 4 is a fragmentary view, partly in section and partly in elevation, taken substantially along the line 4—4 in FIGURE 2, looking in the direction indicated by the arrows;

FIGURE 5 is a fragmentary view, partly in section and partly in elevation, taken substantially along the line 5—5 in FIGURE 2, looking in the direction indicated by the arrows; and

FIGURE 6 is a fragmentary elevational view of the complementary ends of a pair of trim members in adjacent but disconnected positions.

Referring now to FIGURE 1, there is indicated generally by the reference numeral **10** a rectangular trim frame assembly which comprises four trim members **12**, **14**, **16** and **18**. The adjacent pairs of ends of these four trim members are respectively secured together to form corners in accordance with the principles of the present invention. Since all four corners of the trim frame assembly **10** are of corresponding construction, only one corner construction will be described in detail.

Referring now to FIGURES 2–6, the corner construction at the adjacent pair of ends of the trim members **12** and **14** will be described. The trim member **12** is comprised of a channel member having spaced apart substantially parallel arm portions **20** and **22** joined together by a web portion **24**. The arm portion **20** has an end edge **26** terminating at an acute angle with respect to the plane of the web portion **24**. The arm portion **22**, which is preferably wider than the arm portion **20**, is provided with an end portion **28** that is offset from the plane of the arm portion **22** in the direction of the arm portion **20**. In addition the trim member **12** is provided with a flange element **30** which extends along the arm portion **20** in a plane substantially perpendicular to the plane of the arm **20**. Extending along the arm portion **22** in a plane substantially parallel to the plane of the flange element **30** is a ridge element **32** having a terminal end edge **34** adjacent the offset end portion **28**.

The trim member **14** is comprised of a channel member having spaced apart substantially parallel arm portions **36** and **38** joined together by a web portion **40**. The arm portions **36** and **38** respectively have end edges **42** and **44** terminating at an acute angle with respect to the plane of the web portion **40**. The trim member **14**, like the trim member **12**, is also provided with a flange element **46** that extends along the arm portion **36** in a plane substantially perpendicular to the plane of the arm portion **36**. The flange element **46** is formed with a lateral wing portion **48**. The trim member **14** is further provided with a ridge element **50** that extends along the arm portion **38** in a plane substantially parallel to the plane of the flange element **46**. The ridge element **50** is formed with a finger portion **52** that projects beyond the end edge **44** of the arm portion **38**. Still further, the trim member **14** is provided with a lateral tab element **54** on the web portion **40**.

In FIGURE 6, the described ends of the trim members **12** and **14** are shown in adjacent but disassembled positions. When the corner construction is for a right angle corner as shown, the end edges **26** and **42** of the arm portions **20** and **36** are formed at complementary angles, preferably each 45°; the line of offset of the end portion **28** of the arm portion **22** and the end edge **44** of the arm portion **38** are also found at complementary angles, preferably each 45°. To accommodate interlocking of the trim members **12** and **14**, the triangular offset portion **28** of the member **12** is offset out of the plane of the arm portion **22** a distance equal to the thickness of the arm portion **38** of the trim member **14**. The complementary elements at the ends of the trim members **12** and **14** may be readily interengaged by the simple act of moving the end of the member **14** longitudinally toward the end of the member **12** along the path indicated in dot-dash lines in FIGURE 6. After interengagement, as best shown in FIGURES 2–4, the wing portion **48** of the trim member **14** is suitably secured to the flange element **30** of the trim member **12**. The wing **48** and flange **30** may, for example, be secured together by means of a pair of sheet metal screws **56** threaded through aligned openings in the wing and flange. It will be appreciated that other forms of fastening means, such as rivets, may be used in place of the screws **56**.

When the wing **48** and flange **30** are secured together, the end edges **26** and **42** of the arm portions **20** and **36** are disposed in abutting relation, and the offset end portion **28** of the trim member **12** is disposed in overlapping relation to the adjacent end portion of the arm portion **38** of the trim member **14**. In addition, the tab element **54** of the trim member **14** is disposed in overlapping relation to or in abutment with the web portion **24** of the trim member **12**, and the projecting finger portion **52** of

the trim member **14** is disposed in overlapping relation to the arm portion **22** of the trim member **12** abutting the terminal end edge **34** of the ridge element **32** thereof.

From the foregoing description, it will be appreciated that the complementary elements at the ends of the members **12** and **14** overlap and interlock whereby to rigidify the interconnection therebetween so as to maintain proper alignment of the members and resist twisting and bending forces imposed thereon. The corner constructions at the other pairs of adjacent ends of the trim members of the trim assembly **10** correspond to the described corner construction. In this connection, the interlocking elements at the opposite ends of each trim member may be formed complementary to each other and the unlike ends of the members adjacently positioned. Alternatively, the interlocking elements at the ends of the horizontal trim members may be formed identical to each other, while the interlocking elements at the ends of the vertical trim members are formed identical to each other but complementary to the interlocking elements of the horizontal trim members. In either case, a set of complementary interlocking elements will thus be adjacently located at each corner for interconnection in accordance with the principles of the present invention. Additionally, in normal usage only the exterior of the channel members of the trim members are exposed to view. Therefore, since the interlocking elements are disposed interiorly or rearwardly of the exposed part of the trim members, the external appearance of the trim assembly **10** is not impaired by the interlocking corner constructions. Finally, although the corner construction of the present invention has been shown embodied in a trim frame assembly, it is to be understood that the corner construction may also be incorporated in door and window frame assemblies.

While there has been shown and described a preferred embodiment of the present invention, it will be understood by those skilled in the art that various rearrangements and modifications may be made therein without departing from the spirit and scope of the invention.

We claim:

1. In a corner construction: a first channel member having spaced apart arm portions joined together by a web portion, one of said arm portions having an end edge terminating at an acute angle with respect to the plane of said web portion, the other of said arm portions having an end portion offset from the plane of said other arm portion in the direction of said one arm portion, a flange element on said one arm portion, and a ridge element on said other arm portion; a second channel member having spaced apart arm portions joined together by a web portion, one of said second member arm portions having an end edge terminating at an acute angle with respect to the plane of said second member web portion, a flange element on said one second member arm portion, said flange element having a wing portion, a ridge element on the other second member arm portion, said ridge element having a projecting finger portion, and a tab element on said web portion; and means securing said wing portion of said second channel member to said flange element of said first channel member with said end edges of said one arm portions of both channel members disposed in abutting relation, with said offset end portion of said first channel member disposed in overlapping relation to the adjacent end portion of said other arm portion of said second channel member, with said tab element of said second channel member disposed in overlapping relation to said web portion of said first channel member, and with said finger portion of said second channel member disposed in overlapping relation to said other arm portion of said first channel member adjacent one end of the ridge element thereof.

2. In a corner construction: a first channel member having spaced apart substantially parallel arm portions joined together by a web portion, one of said arm portions having an end edge terminating at an acute angle with respect to the plane of said web portion, the other of said arm portions having a triangular shaped end portion offset from the plane of said other arm portion in the direction of said one arm portion, a flange element on said one arm portion in a plane substantially perpendicular to the plane of said one arm portion, and a ridge element on said other arm portion substantially parallel to said flange element and having a terminal end edge adjacent said offset end portion; a second channel member having spaced apart substantially parallel arm portions joined together by a web portion, both of said second member arm portions having an end edge terminating at an acute angle with respect to the plane of said second member web portion, a flange element on one of said second member arm portions in a plane substantially perpendicular to the plane of said one second member arm portion, said flange element having a lateral wing portion, a ridge element on the other of said second member arm portions substantially parallel to said flange element and having a projecting finger portion, and a lateral tab element on said second member web portion; and means securing said wing portion of said second channel member to said flange element of said first channel member with said end edges of said one arm portions of both channel members disposed in abutting relation, with said offset end portion of said first channel member disposed in overlapping relation to the adjacent end portion of said other arm portion of said second channel member, with said tab element of said second channel member disposed in overlapping relation to said web portion of said first channel member, and with said finger portion of said second channel member disposed in overlapping relation to said other arm portion of said first channel member adjacent said terminal end edge of the ridge element thereof.

3. For use in a corner construction, a channel member having spaced apart substantially parallel arm portions joined together by a web portion, one of said arm portions having an end edge terminating at an acute angle with respect to the plane of said web portion, the other of said arm portions having a triangular shaped end portion offset from the plane of said other arm portion in the direction of said one arm portion, a flange element on said one arm portion in a plane substantially perpendicular to the plane of said one arm portion, a ridge element on said other arm portion substantially parallel to said flange element and having a terminal end adjacent said offset end portion.

4. For use in a corner construction, a channel member having spaced apart arm portions joined together by a web portion, said arm portions each having an end edge terminating at an acute angle with respect to the plane of said web portion, a flange element on one of said arm portions in a plane substantially perpendicular to the plane of said one arm portion, said flange element having a lateral wing portion at the end thereof, a ridge element on the other of said arm portions substantially parallel to said flange element and having a projecting finger portion, and said web portion having a tab portion projecting inwardly of said channel member at the end thereof.

References Cited by the Examiner

UNITED STATES PATENTS

777,079	12/1904	Cottle	189—36
1,002,781	9/1911	Swart	189—36
1,968,890	8/1934	Huff	189—36
1,975,622	10/1934	Schermerhorn	189—36
2,204,493	6/1940	Henry	52—738
2,869,694	1/1959	Breckheimer	189—36

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