Dec. 8, 1936. H. L. WAUGH ET AL 2,063,714

STRUCTURAL ELEMENT

Filed Aug. 12, 1933 2 Sheets-Sheet 1

Fig. 1.

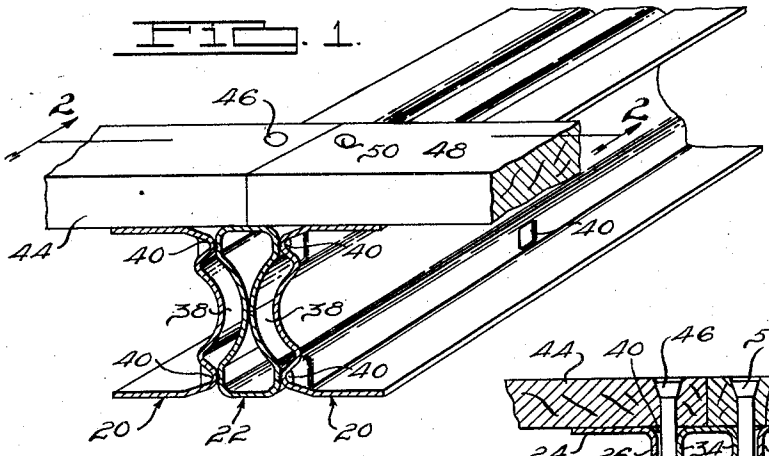
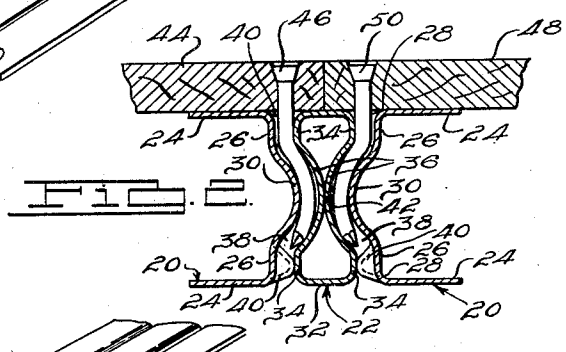


Fig. 2.



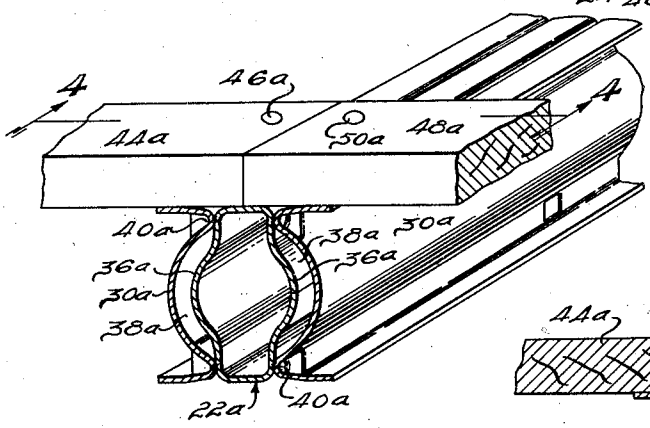


Fig. 3.

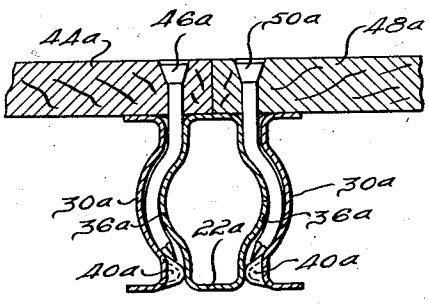


Fig. 4.

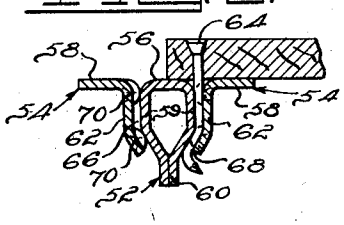


Fig. 5.

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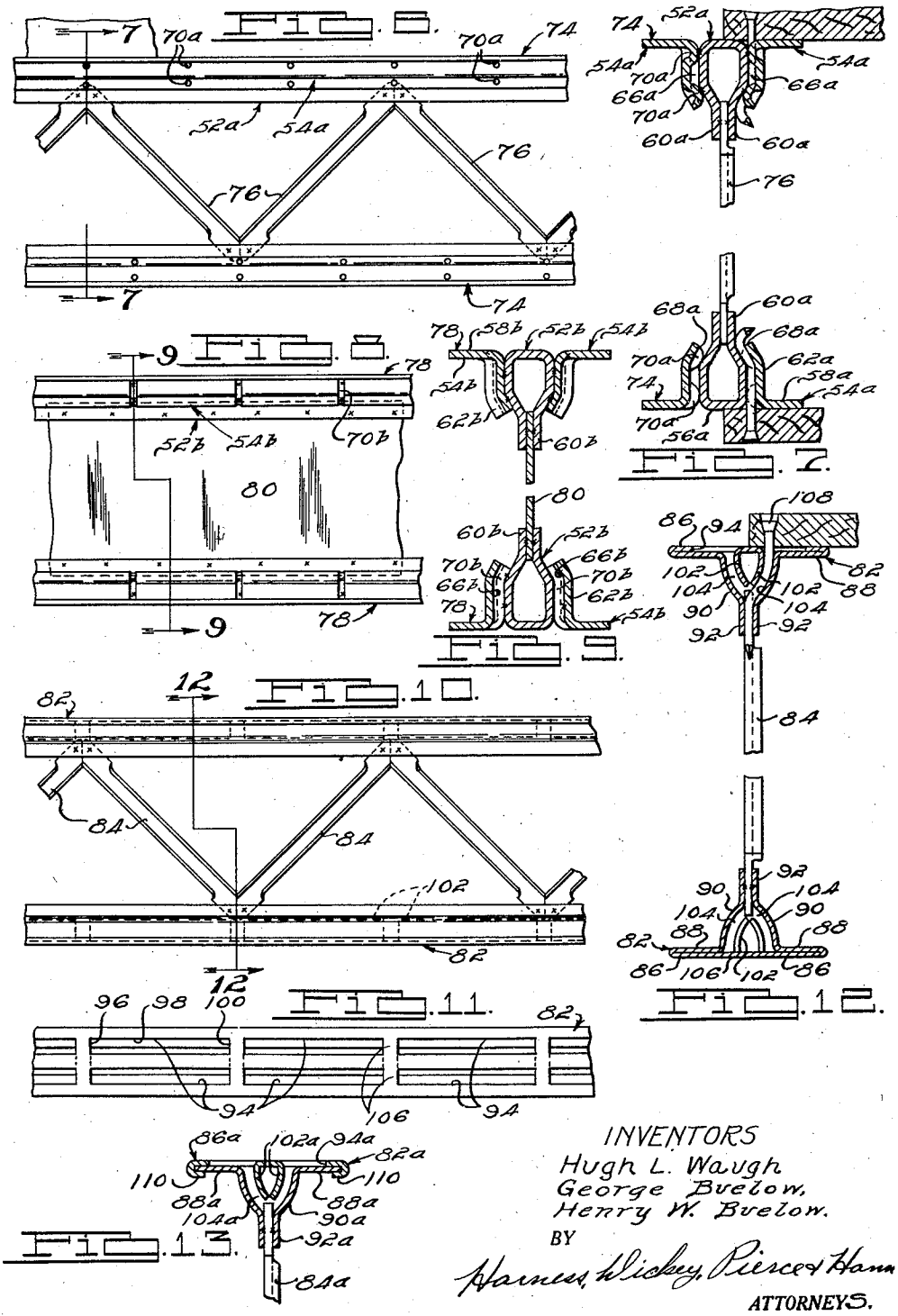
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Dec. 8, 1936. H. L. WAUGH ET AL 2,063,714

STRUCTURAL ELEMENT

Filed Aug. 12, 1933 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,063,714

STRUCTURAL ELEMENT

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Application August 12, 1933, Serial No. 684,850

20 Claims. (Cl. 189—37)

This invention relates to structural elements and particularly that type thereof employed for constructing the framework of buildings and the like, the principal object being the provision of an element of this type that may be formed economically from sheet metal and into which nails may be driven and secured.

Other objects include the provision of a metallic structural element at least one face of which is formed to provide laterally spaced slots for receiving and bending nails driven thereinto for the purpose of securing material to such element; the provision of a structural element formed from sheet metal to provide means whereby nails spaced transversely of a face thereof may be driven thereinto to secure material to the face of the element; the provision of a structural element of the type described formed from sheet metal and including a pair of opposed angle portions having a third portion interposed between them and so spaced therefrom as to provide a generally curved nail-receiving groove between each of the angle portions and the intermediate portion; and the provision of a structural element including a pair of channel members having generally curved web portions positioned in back-to-back relationship, together with an intermediate portion interposed between the channel portions and secured thereto, the intermediate portion having curved wall portions complementary to but spaced from the curved web portions of the channel whereby to provide curved nail slots.

Other objects are to provide a structural element formed from sheet metal to provide a maximum amount of bending resistance with a minimum amount of weight; a structural element formed from sheet metal including edge portions formed to resist compressive and bending stresses and a relatively light web portion connecting the edge portion; the provision of a structural element formed from sheet metal to provide substantially tubular edge portions; the provision of a sheet metal structural element including edge portions particularly formed to resist bending and compressive stresses and to provide grooves therein for receiving and bending nails, and an interconnecting web portion; the provision of a structural element formed from sheet metal and including opposite edge portions and an interconnecting web portion, the edge portions including a tubular sheet metal member and cooperating sheet metal flange elements; the provision of a structural element as above described in which the sheet metal flange element cooperates with the tubular member to provide one or more slots for receiving and bending nails driven thereinto; and the provision of a structural element including opposite edge portions and a connecting web portion, the opposite edge portions being formed to provide a pair of parallel spaced slots therein for the reception and bending of nails driven thereinto.

The above being among the objects of the present invention, the same consists of certain novel features of construction and combinations of parts to be hereinafter described with reference to the accompanying drawings, and then claimed, having the above and other objects in view.

In the accompanying drawings which illustrate suitable embodiments of the present invention and in which like numerals refer to like parts throughout the several different views,—

Fig. 1 is a fragmentary partially broken, partially sectioned perspective view of a structural element of the stud type having a pair of nail-receiving grooves formed therein, and illustrating a pair of abutting boards secured to an edge face thereof.

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1 but showing a modified form of construction.

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a transverse sectional view taken through a modified form of construction applicable for use as a half stud, showing a piece of board nailed thereto.

Fig. 6 is a side elevational view of a modified form of construction particularly adaptable for use as joists or the like.

Fig. 7 is an enlarged, broken, transverse sectional view taken on the line 7—7 of Fig. 6.

Fig. 8 is a fragmentary side elevational view of another modified form of construction.

Fig. 9 is an enlarged, partially broken, transverse sectional view taken on the line 9—9 of Fig. 8.

Fig. 10 is a fragmentary side elevational view of another modified form of construction.

Fig. 11 is a top plan view of the construction shown in Fig. 10.

Fig. 12 is an enlarged, broken, transverse sectional view taken on the line 12—12 of Fig. 10 and showing a portion of a board or other element secured thereto.

Fig. 13 is a fragmentary transverse sectional view taken through the flange portion of a modifi-

cation of the construction illustrated in Figs. 10, 11 and 12.

The structural elements provided in accordance with the present invention are applicable for use as substantially any of the framing elements of a building frame, that is, as studs, half studs, joists, beams, rafters or the like. Some forms of the invention, however, are more applicable for use as one framing element than another and, accordingly, in the accompanying drawings the elements illustrated are shown in the form to which they are most suitable for use, it being understood that those skilled in the art will readily understand how the proportions or constructions of the specific elements shown may be changed or varied to render them more suitable for other specific uses.

Referring to Figs. 1 and 2, a structural element is illustrated of a type suitable for use as a stud, rafter or the like. This element includes a pair of channel members illustrated generally as at **20** arranged in back-to-back relationship and with an intermediate member illustrated generally as at **22** interposed between them. As best illustrated in Fig. 2, the channel member **20** includes flanges **24** connected by a web, the web including a pair of relatively short portions **26** extending inwardly in perpendicular relationship with respect to the corresponding flange **24** and joined to their corresponding flanges **24** through a smooth curved portion **28**, and the adjacent ends of the portions **26** are joined together by a curved portion **30** merging into the portions **26** in a smooth curve. In the particular construction illustrated in Figs. 1 and 2, the curved portion **30** curves inwardly in a direction to increase the effective depth of the channels **20**.

The intermediate portion **22** includes relatively flat end faces **32** in coplanar relation with respect to the corresponding flanges **24**, short and relatively straight portions **34** extending inwardly from each edge of the portions **32** in generally perpendicular relation with respect thereto and joined to the portions **32** through a smooth curve, and central inwardly curved portions **36** joining the adjacent edges of corresponding and opposed portions **34**. The portions **34** are arranged in spaced and parallel relation with respect to the portions **26** of the channels **20** and the portions **36** are arranged in spaced and opposed relation with respect to the curved portions **30** of the web of the channel, so as to form between the web of each of the channels **20** and the member **22** a pair of generally curved or sinuous slots **38**. In the particular construction illustrated the channels **20** and intermediate member **22** are spaced from each other to form the slots **38** and are secured together in an integral structure by striking bosses or protuberances **40** outwardly from the channels **20** in the portions **26** thereof at spaced intervals along the length thereof, such bosses **40** contacting against the surface of the adjacent portions **34** of the intermediate member **22** and being welded or otherwise suitably secured thereto. It may also be noted that the curved portions **36** of the intermediate member **22** extend into abutting relationship at their centers and are preferably welded or otherwise secured to each other at this point to further enhance the strength of the structure. Where the intermediate member **22** is formed from a single strip of sheet metal, as indicated, the line of abutment **42** of the free edges thereof is preferably located along the center of the member **22** as illustrated so that in welding the curved portions **36** together such free edges are prevented from separation.

The depth of the bosses **40** are so controlled that they will space the webs **20** and intermediate member **22** a distance such that the slot **38** formed thereby will be substantially equal to or slightly greater than the diameter of the largest nail which the element is designed to receive.

In operation a board, sheet or other element **44** which it is desired to secure to the frame element is placed against one face thereof including coplanar flanges **24** and corresponding end portions **32** of the intermediate member **22**, and a nail such as **46** is driven therethrough in a direction perpendicular to the surface of such face of the member and so that its point will penetrate one of the grooves **38**. The point of such nail will first penetrate that portion of the groove **38** which extends in perpendicular relationship with respect to the securing face of the structural or frame element, and upon further penetration its end will reach the curved central portion of the slot **38** which will cause the nail to be guided around such curved portion. The nail in being driven home will assume substantially the position indicated in Fig. 2 in which it will be noted that that portion thereof received in the slot **38** will be curved into general conformance therewith and this will cause the nail to be securely held in position in the element and thus securely hold the board or other element **44** securely in place.

To insure proper retention of the nail in the groove **38** the curvature of the central portion thereof is preferably such that it bends the corresponding portion of the nail out of the original axial line of the nail by a distance at least equal to the diameter of the nail, and it is preferable to employ a nail of sufficient length that the point of the nail will return to a point approximately in line with the original axis of the nail, or beyond such point. With such a construction it is possible for a nail to exert a greater holding force on an element such as **44** secured to the structural element thereby than in a corresponding wooden element, but still permit the nail to be withdrawn from the structural element where necessary or desirable and without affecting the operativeness of the structural element or of its nail holding characteristics in any respect whatever.

The particular advantage of the element illustrated in Figs. 1 and 2 is, however, its ability to receive and retain two nails spaced laterally of its securing faces. The particular advantage of this feature is that in building framing it often occurs that two boards, sheets or other sheathing elements abut along a stud, joist or other frame element and such abutting edges must be securely fastened to such frame element. Such a condition is illustrated in Figs. 1 and 2 in which the covering element **44** is illustrated as terminating centrally of the structural or frame element and another covering element **48** extends into abutting relationship with respect to the element **44**. Accordingly, a second nail **50** is shown as securing the end of the covering element **48** to the frame or structural element in the same manner that the nail **46** secures the end of the covering element **44** thereto. As will be obvious, this permits any number of covering elements to be brought into abutting relationship centrally along the frame or structural element and to have their abutting ends firmly

secured to the frame or structural element by one or more suitable nails driven into and retained in the slot **38**.

In Figs. 3 and 4 a construction is shown which, in its main features, is the same as that indicated in Figs. 1 and 2, and, accordingly, similar parts and portions are indicated by the same numerals except that they bear the sub-letter *a*. The main difference, as will readily be apparent, is that the central curved portions **36***a* of the intermediate member **22***a* are curved outwardly away from each other instead of inwardly toward each other as in Figs. 1 and 2, and the central portions **30***a* of the webs of the channels are bent into spaced conformance to the curvature of the portions **36***a*. The nails **46***a* and **50***a* in this case curve outwardly away from the central plane of the frame or structural element in extending into the slot **38***a* instead of inwardly as in the previously described construction. The ultimate effect of the construction illustrated in Figs. 3 and 4, is, of course, substantially identical to that described in connection with Figs. 1 and 2.

In Fig. 5 is illustrated a construction which particularly lends itself for use as a half-stud. Essentially the construction illustrated in Fig. 5 constitutes approximately half of the frame or structural element illustrated in Fig. 1. In other words, it comprises an intermediate portion indicated generally as at **52** which is equivalent to half of the intermediate element **22** of the previously described construction, and angle members indicated generally as at **54** arranged in back-to-back and spaced relation with respect to the intermediate member **52** and which correspond to approximately half of the channel members **20** in the construction illustrated in Figs. 1 and 2. In this construction the intermediate member **52** is provided with a planular face **56** arranged in coplanar relation with respect to the flanges **58** of the angle member **54**. The sides **59** of the intermediate member **52** extend first perpendicularly away from the plane of the flanges **58** and then curve inwardly into contacting relationship and then into parallel contacting relation as at **60** for a short distance. The legs **62** of the angles **54** extend into spaced parallel relation with respect to the sides **59** of the intermediate member **52**. The legs **62** preferably terminate short of the point of contact of the sides **59** of the intermediate member **52** so that when a nail such as **64** is driven into one of the slots **66** formed between each angle member **54** and the intermediate member **52** the end of the nail which projects beyond its slot **66** will have a tendency to curve outwardly away from the central plane of the element and the sharp edge **68** at the free edge of corresponding leg **62** will more or less serve as a prong in engagement with the nail to aid in preventing its withdrawal or loosening in the slot.

With this contruction, in order to get the necessary rigidity of connection between the angle members **54** and the intermediate member **52**, opposite lateral edges of the legs **62** of the angle members **54** are provided with bosses or projections **70** at spaced intervals over the length thereof which contact with and are secured to the intermediate member **52**.

The construction illustrated in Fig. 5 admirably lends itself to modification to provide a joist or beam of such a construction as to resist the maximum amount of bending or compressive stresses for a given weight of material and such modification is illustrated in Figs. 6 and 7.

Referring to Figs. 6 and 7, a structural element is shown including edge portions indicated generally as at **74** and interconnecting lattice work elements **76**. The different parts and portions of each of the edge members or elements **74** are each substantially identical to the construction illustrated in Fig. 5 and, accordingly, are indicated by the same numerals but bearing the sub-letter *a*, the only difference being that the portions **60***a* of the intermediate member **52***a* in this case are spaced apart sufficiently to permit the ends of the lattice members **76** to be inserted between them and secured against movement therein by welding or other suitable means. The lattice members **76** are preferably formed from sheet metal with angularly extending edges adapted to abut the corresponding edge of the adjacent member when assembled in the staggered relation illustrated in Fig. 6, and the main body portion of each member **76** between such flat ends is preferably formed into a U section, as indicated, in order to increase the ability of these members to withstand compressive and bending stresses.

With the construction illustrated in Figs. 6 and 7, it will be apparent that the main bulk of the metal forming the greatest proportion of the weight of the structural element is concentrated at the opposite edges of the element. Because of this fact, particularly in view of the fact that the intermediate member **52***a* is of tubular construction and that the lattice members **76** are of relatively light construction and simply serve to tie the edge members together, it will be apparent that a structure is provided capable of withstanding a maximum amount of bending stresses for the weight of metal involved in the structure.

In Figs. 8 and 9 a modified form of structure is illustrated including edge members illustrated generally as at **78** and a sheet-like connecting web **80**. The edge members **78** are substantially identical to the edge members **74** previously described and, accordingly, similar parts and portions thereof are indicated by the same numerals except that they bear the sub-mark *b*, the only difference in the construction of the edge members in this construction, as compared to that illustrated in Figs. 6 and 7, being that instead of employing a pair of spaced bosses or projections **70***a* at spaced intervals along the length of the edge members to space the parts to provide the nail receiving grooves **66***b*, a transverse rib **70***b* extending for substantially the full depth of each leg **62***b* is provided at intervals along the length of the angle element **54***b* to provide means for spacing and securing the angle members **54***b* to the intermediate member **52***b*. Also, as previously noted, in the construction illustrated in Figs. 8 and 9 instead of employing lattice members **76** to space the edge members, a continuous sheet-like web member **80** is employed, its opposite edges being received between and secured to the portions **60***b* of the intermediate member **52***b*.

Figs. 10, 11 and 12 illustrate another modified form of lattice girder construction including edge members indicated generally at **82** and connecting lattice members **84**. The lattice member **84** may be considered to be identical to the lattice members **76** previously described. The edge members **82** in this case, instead of being formed of three independent parts secured together, are each formed from a single piece of sheet metal. In each edge member **82** in this case the central part of a strip of metal is arranged in perpendicular relationship with respect to the central plane of the framing ele-

ment to provide a securing face 86, the metal at the edges of the face 86 being reversely bent into contact with the outer portions of the face 86 as at 88 to a point outwardly spaced from the central plane of the element at which line the metal is bent inwardly in generally perpendicular relationship to the plane of the face 86 and gradually curves toward the central plane of the element as at 90, and then the free edges are bent into spaced parallel relation as at 92 to provide a slot for the reception of the ends of the lattice members 84 therein. The face 86 of each edge member 82 is provided longitudinally thereof with aligned pairs of spaced and parallel slots 94. Each of the slots is provided by shearing the metal of the face 86 along three lines 96, 98 and 100, as best illustrated in Fig. 11, and then bending the metal bounded by such lines inwardly about the unsheared edge as at 102, the portions 102 being bent into a complementary curvature with respect to the corresponding portions 90 but in spaced relation thereto to provide a nail-receiving slot 104 between them. The parts or portions 102 from corresponding pairs of slots are preferably bent into contact at their outer edges as illustrated in Fig. 12 so that one aids in reinforcing the other against undesirable distortion. That portion of the metal of the face 86 between the ends of adjacent slots provides ties or bridges 106 for the opposite edges of the face 86.

With the above described construction a nail such as 108 may be driven into either one or other of the slots 104 in each of the edge members 82, the points of the nails in being driven into the slots and being caused to curve in conformance therewith being brought into the central plane of the element, and when long enough will project beyond the free edges of the portions 92. The ends of the lattice members 84 where received between the portions 92 will, of course, obstruct such portions to the passage of nails therethrough but where such ends are aligned with the bridges 106 the obstructive effect of the ends of the lattice members 84 may be practically disregarded.

Where it is not deemed feasible to make the edge members 82 in Figs. 10, 11 and 12 from a single strip of metal, the construction illustrated in Fig. 13 may be resorted to. In the construction illustrated in Fig. 13 the various parts and portions thereof are substantially identical to those in the edge members illustrated in Figs. 10, 11 and 12 and, accordingly, are indicated by the same numerals except that they bear the subletter *a*. The only difference in this construction is that the face member 86*a* is made of a separate piece of metal, each edge member thus being formed from three separate pieces of metal, and the free edge portions of the face portion 86*a* are reversely bent over the free edges of the portions 88*a*, as at 110, so as to clinch the latter edges to the face member 86*a*. The construction is otherwise identical to the construction illustrated in Figs. 10, 11 and 12.

From the above it will be apparent that by the structures herein provided a metallic frame for a building may be provided in which it is possible to drive nails for the purpose of securing sheathing or other material thereto and that in all of the structures illustrated transversely spaced parallel rows of nails may be driven into a face of each of the elements described, thereby to permit the abutting ends of boards or other sheathing material to be simultaneously secured in place thereon.

The above described constructions will, of course, suggest other similar constructions to those skilled in the art and, accordingly, it will be apparent that formal changes may be made in the specific embodiments of the invention described without departing from the spirit or substance of the broad invention, the scope of which is commensurate with the appended claims.

What we claim is:

1. A metallic structural element including, in combination, an intermediate portion having generally curved side faces and edge portions secured to opposite sides of said intermediate portion, said edge portions having faces complementary to said side faces and being generally spaced therefrom whereby to form a pair of parallel nail receiving slots of generally curved sectional configuration opening onto the face of said element in laterally spaced relation to one another.

2. A metallic structural element including, in combination, an intermediate portion formed from sheet metal into a generally hollow structure having side walls of generally curved conformation in a direction normal to the length thereof, and a metallic edge portion secured to each side of said intermediate portion in generally spaced and complemental relation to said side walls thereof whereby to form a pair of longitudinally extending transversely curved nail receiving slots between said intermediate and side portions and opening onto the face of said element in laterally spaced relation to one another.

3. A metallic structural element including, in combination, an intermediate portion having an end face and side faces curved in a direction transverse to the length thereof, and an edge portion secured on each side of said intermediate portions, said edge portions having co-planar faces approximately flush with said end face and legs complementary to and generally spaced from said side faces whereby to form a slot of curved sectional configuration on either side of said intermediate portion.

4. A metallic structural element including, in combination, an intermediate portion having an end face and side faces curved in a direction transverse to the length thereof, and an edge portion secured on each side of said intermediate portions, said edge portions having co-planar faces approximately flush with said end face and legs complementary to and generally spaced from said side faces whereby to form a slot of curved sectional figuration on either side of said intermediate portion, said legs terminating short of one edge of said curved side faces whereby an edge corner of each of said legs serves as a prong for engagement with nails driven through said slots.

5. In a metallic structural frame element, an intermediate member having edge faces and generally curved side faces, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges co-planar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

6. In a metallic structural frame element, an intermediate member having generally planular opposite edge faces and opposite side faces of centrally curved conformation having edge portions

arranged in approximately normal relation with respect to said edge faces, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

7. In a metallic structural frame element, a hollow sheet metal intermediate member having edge faces and generally curved side faces, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

8. In a metallic structural frame element, an intermediate member having edge bearing faces and opposite side faces curved inwardly toward each other, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

9. In a metallic structural frame element, a hollow sheet metal intermediate member having generally planular edge bearing faces and opposite side faces curved inwardly into contact with each other, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

10. In a metallic structural frame element, a hollow sheet metal intermediate member having generally planular edge bearing faces and opposite side faces curved inwardly into contact with each other and secured together, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

11. In a metallic structural frame element, an intermediate member having edge bearing faces and opposite side faces curved outwardly away from each other, and a channel member secured on each side of said intermediate member, the channel members being arranged in back-to-back relationship with corresponding flanges coplanar and flush with the corresponding edge face of said intermediate member, and the webs of said channels being curved in complemental relationship with respect to said side faces and positioned in generally parallel and spaced relation with respect thereto.

12. A metallic structural element of the I-beam type including a pair of flange portions and interconnecting web portion, at least one of said flange portions including a hollow sheet metal member slotted to receive said web member therein and an angular member fixed to a side thereof.

13. A metallic structural element of the I-beam type including a pair of flange portions and interconnecting web portion, at least one of said flange portions including a hollow sheet metal member slotted to receive said web portion and angular members fixed to opposite sides thereof, providing side walls of double thickness along the hollow portion of said hollow member.

14. A metallic structural element including a pair of opposed flange portions and an interconnecting web portion, said flange portions each including a hollow sheet metal member having an edge bearing face, and angle members secured to opposite sides of said hollow member with one of the legs thereof in generally coplanar relation with respect to said face, the other leg of each of said angle members being positioned in generally spaced and generally parallel relation with respect to the corresponding side of the corresponding of said hollow members.

15. A metallic structural element including a pair of opposed flange portions and an interconnecting web portion, each of said flange portions including, an intermediate portion having generally curved side faces, and edge portions secured to opposite sides of said intermediate portion, said edge portions having faces complementary to said side faces and being generally spaced therefrom whereby to form a pair of parallel nail receiving slots of generally curved sectional configuration.

16. A metallic structural element including a pair of opposed flange portions and an interconnecting web portion, each of said flange portions including, an intermediate portion having an end face and side faces curved in a direction transverse to the length thereof, and an edge portion secured on each side of said intermediate portions, said edge portions having coplanar faces approximately flush with said end face and legs complementary to and generally spaced from said side faces whereby to form a slot of curved sectional configuration on either side of said intermediate portion.

17. A metallic structural element including a pair of opposed flange portions and an interconnecting web, each of said flange portions including a hollow sheet metal intermediate portion having an outer edge bearing face, a slotted inner edge face and generally curved side faces, angular portions secured at opposite sides of said intermediate member with flange portions thereof in generally coplanar relation with respect to said outer edge face and leg portions curved in complemental relation with respect to said side faces and generally spaced therefrom to provide nail receiving grooves, and said web including lattice members having opposite ends thereof received and secured within said slots in said intermediate members.

18. A metallic structural element including a pair of opposed flange portions and an interconnecting web, each of said flange portions including a face portion and a curved side portion, and a portion struck out of said face portion into spaced and generally parallel relation with respect to said side portion whereby to form a

curved nail receiving slot between said curved side portion and said struck out portion.

19. A metallic structural element including a pair of opposed flange portions and an interconnecting web, each of said flange portions including a face portion and a pair of curved side portions, and portions struck out of and bent relative to said face portion into spaced and generally parallel relation with respect to said side portions whereby to form a curved nail receiving slot between each of said curved side portions and the corresponding of said struck out portions, edges of said struck out portions contacting with each other to enhance the rigidity thereof.

20. A metallic structural element including, in combination, a pair of angle portions arranged in generally back-to-back relationship and an intermediate portion interposed between said angle portions, said angle portions and said intermediate portion having opposed surfaces complementarily formed and spaced relative to each other, means securing said angle portions relative to said intermediate portion whereby to form a pair of nail receiving slots between said opposed surfaces, said nail receiving slots each having a pair of curved substantially parallel walls for deforming and inhibiting the withdrawal of nails driven therein.

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