

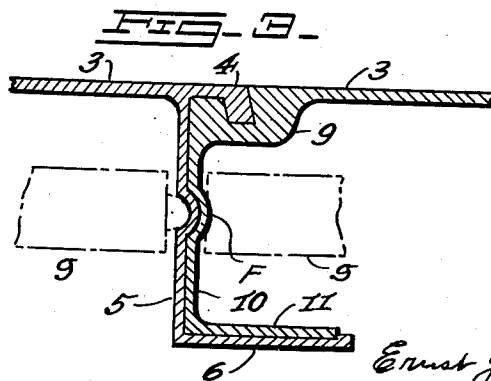
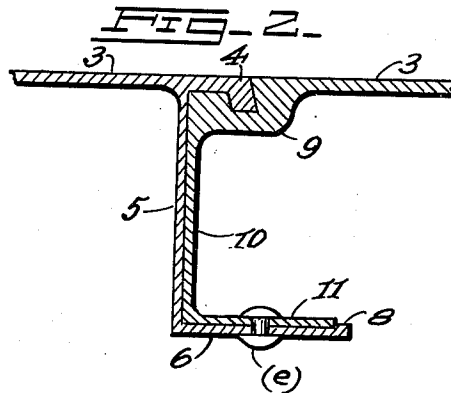
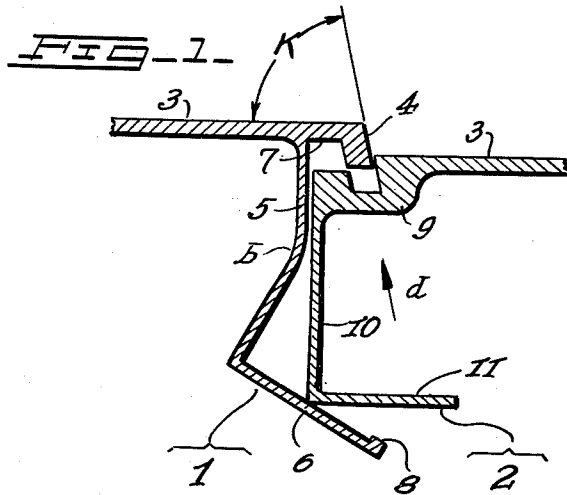
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E. J. DE RIDDER

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INTERLOCKING METALLIC STRUCTURAL MEMBERS

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INVENTOR.
Ernst J. de Ridder
BY
H. Lee Helms

ATTORNEY.

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INTERLOCKING METALLIC STRUCTURAL MEMBERS

Ernst J. De Ridder, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Continuation of application Ser. No. 558,527, Jan. 11, 1956. This application July 13, 1959, Ser. No. 826,880
4 Claims. (Cl. 189—34)

The present invention relates to metallic structural members adapted to be formed by extrusion and having ends so formed that a plurality of the said members may be interlocked. This application is a continuation of my co-pending application Serial No. 558,527 filed January 11, 1956, now abandoned.

An object of the present invention is to provide a metallic structural member particularly adapted for use in curtain walls, highway signs, stressed panels in side-walls of vehicles, and the like.

A further object of the present invention is to provide a metallic structural member adapted for interlocking with other similar structural members in such a manner as to form at each interlocking point a strong moisture-resitant joint having a flat outer surface.

The structural member of my invention is specially suited for use wherever a surface formed of a plurality of interlocked sections with great facility and at low cost, and allowing for high stress is required. When interlocked, the said members virtually provide, in assembly, a unitary structure regardless of length and the number of members interlocked.

The invention will be described with reference to the accompanying drawings, in which:

FIGURE 1 is a sectional view showing two members in accordance with the invention, said members being broken away, and the right-hand member being in position for interlocking with the left-hand member;

FIGURE 2 is a view similar to FIGURE 1, the members being interlocked and riveted together; and

FIGURE 3 is a sectional view similar to FIGURE 2, the members being dimpled, and a dimpling instrument being shown in phantom, and broken away.

Referring to the drawings, there are shown, in FIGURE 1, two members generally indicated from left to right at 1 and 2. Member 2 is in position for interlocking with member 1. Each member is formed of a panel 3 having a flat outer surface. Panel 3 may, if desired, have one or more integral T-shaped stiffener legs (not shown).

Projecting inwardly from one end of panel 3 and at an obtuse angle thereto, is a flange 4, having a lower end surface parallel to panel 3, and parallel side surfaces. Back of flange 4 and spaced therefrom is an integral, generally L-shaped flange having a leg 5 and base 6, and extending outwardly from panel 3. Leg 5 has a section adjacent panel 3 perpendicular to the latter, which perpendicular section with flange 4 forms a channel 7. The remainder of leg 5 is bent back at (b). Perpendicular to said bent section and extending forwardly therefrom is the base 6. At the outer end of base 6 and projecting from its inner surface is a rib 8 parallel to the bent leg section, and providing a seat or concavity in the base 6.

Panel 3, at the end thereof opposite the aforementioned end, terminates in a hook-shaped portion 9, the latter merging into a downwardly directed strut or flange 10. Projecting perpendicularly from strut 10 and behind it is a flat flange 11. Hook portion 9 conforms with flange 4 and channel 7, while the outer surfaces of strut 10 and flange 11 conform respectively with the inner surface of leg 5 (when straightened) and the seat in base 6.

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Thus, two or more of the members may be interlocked by fitting together the conforming end areas thereof.

As shown in FIGURE 1, the right-hand member 2 is brought into engagement with the left-hand member 1 in the direction (d). Leg 5 is then straightened into the position shown in FIGURE 2. After the interlocked joint is formed, the panels 3 of the interlocking members provide a continuous flat outer surface area. After the members are interlocked, they may be spot welded or riveted together, as indicated at (e), FIGURE 2, for added strength against shear load. Alternatively, they may be dimpled, as shown at (F), FIGURE 3. A dimpling instrument (g) is shown in phantom in FIGURE 3, in position for the dimpling operation.

It should be noted that the interlocking members are brought together at an angle (k) parallel to the splitting line at the outer surface. The latter is set at less than 90°.

The structural members of the invention are preferably of aluminum, but it will be understood that other metals may be employed. The walls of these members are sufficiently flexible to allow for an interlocking action in which the said walls will spring into tight connection.

The members of the invention may be fastened to supporting structures, as for example by means of bolts, (not shown).

Having described my invention, what I claim and desire to secure by Letters Patent is as follows:

1. At least two extruded panels, each planar on one side thereof, adapted for interlocking engagement along their ends to define a wall having an uninterrupted planar surface on one side thereof, one of said panels having a solid flange provided with parallel planar side surfaces extending from the other side of said one panel along one end to define a hook nose portion, said one panel also having a generally L-shaped flange on its said other side extending in spaced relation to said end flange, said L-shaped flange having a leg perpendicular to said one panel, and spaced from and of greater length than said end flange, and a base extending outwardly of said one end of said one panel, said base having a concavity in that sides thereof facing said nose portion, the other of said panels having a recessed groove in its said one side along one end and a generally L-shaped flange on its said other side having a leg perpendicular to said other panel at its said one end and a base extending inwardly of its said one end, said groove and end of said other panel being complementary to and having surfaces which conform to those of said nose portion on said one panel for snug interlocking engagement therewith to dispose said one sides of said panels in the same plane and with said L-shaped flanges in opposition, and opposed surfaces of said L-shaped flanges being complementary and coextensive, whereby when said interlocking engagement is effected, said opposed surfaces are in engagement, with said base of said L-shaped flange on said other panel fitting snugly within said concavity.

2. The structure defined in claim 1 wherein the base of the L-shaped flange on the one panel has a rib along its free edge extending toward the nose portion, and the concavity is defined by said base, said rib, and the leg of said L-shaped flange.

3. The structure defined in claim 1 wherein the leg of the L-shaped flange on the one panel is bent back intermediate its edges a distance sufficient to enable the nose portion to be engaged in the groove, whereby after such engagement said leg is adapted to be straightened to bring the opposed surfaces of the legs and bases into engagement.

4. At least two extruded panels, each planar on one side thereof, interlocked along their ends to define a wall having an uninterrupted planar surface on one side there-

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of, one of said panels having a solid flange provided with parallel planar side surfaces extending from the other side of said one panel along one end to define a hook nose portion, said one panel also having a generally L-shaped flange on its said other side extending in spaced relation to said end flange, said L-shaped flange having a leg perpendicular to said one panel, and spaced from and of greater length than said end flange, and a base extending outwardly of said one end of said one panel, said base having a concavity in that side thereof facing said nose portion, the other of said panels having a recessed groove in its said one side along one end and a generally L-shaped flange on its said other side having a leg perpendicular to said other panel at its said one end and a base extending inwardly of its said one end, said groove and end of said other panel being complementary to and having surfaces which conform to those of said nose portion on said one panel and said

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groove and nose portion being in interlocked engagement with said one sides of said panels being in the same plane and with said L-shaped flanges being in opposition, and the opposed surfaces of said L-shaped flanges being complementary, coextensive, and in engagement, with said base of said L-shaped flange on said other panel fitting snugly within said concavity.

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