The present invention relates generally to structural metal panels, and particularly to structural panels formed so as to be rigidly joined in overlapping arrangement.

In providing structural panels of aluminum or steel for covering the exterior surface of walls it is advantageous to provide a secure, locking joint between adjoining panels. In this type of construction it is further desirable to provide a protecting overlap for the joint between adjoining panels so that the line of junction between the panels is protected from the adverse effect of moisture driven into the joint by rain or wind. When the panels are used as a roof covering this overlapping construction is particularly important.

The primary object of the present invention is to provide a structural panel formed so as to provide a joint with adjacent panels which is effectively sealed and protected from the adverse effects of the weather.

A further object of the present invention is to provide a structural panel formed so as to provide a frictional, locking joint with the adjoining panels at each of its longitudinal margins.

A still further object of the present invention is to provide a panel construction of the type referred to above in which the joint structure is formed from the panel itself without the addition of other components.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a perspective view of a structural panel embodying the present invention.

Fig. 2 is a side sectional view of the panel shown in Fig. 1, illustrating the panel installed as a wall covering.

Referring to the drawings, the panel 10 is preferably formed of aluminum having a width and length of whatever proportions desired and provided with longitudinal strengthening ribs or flutes 11. Along one of the longitudinal margins of the panel a semicircular channel 12 is formed, extending outwardly from the inner face of the panel and having its mouth 13 opening in the plane of the panel.

Lateral openings 14 are provided in the base of the channel, and, as may best be seen in Fig. 2, are adapted to receive mounting screws 16 which extend into the insulation board or other material from which the supporting wall 17 is constructed.

Along the other longitudinal margin the panel is folded upon itself to provide a folded portion 18 with the outer extremity of the fold being formed to provide a head 19, semicircular in cross section. The bend thus extends along the lower margin of the formed panel but is spaced somewhat above its lower edge.

Referring principally to Fig. 2, in which a series of panels are shown installed upon the wall 17, it will be evident that the radius of curvature of the beads and the channels is such that each channel accommodates the bead of the upwardly adjoining panel.

When the bead is snapped within the accommodating channel, the adjoining panels are securely locked in place, and the folded portion of each panel depending below the bead is in engagement with the adjacent face of the next lower panel to effectively prevent moisture from entering the joint area.

The circular configuration of the bead and channel serve the further purpose of providing a gutter or passage for draining from the joint area any water which might accumulate therein through seepage.

From the foregoing it will be evident that the construction above described provides a structural panel in which the mating joint structures may all be formed from the panel itself by rolling, bending, and in which the overlapping, folded portion at the base of each panel protects the joint area from the weather and moisture accumulation.

While the invention has been disclosed and described in some detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention and the scope of the claims are also desired to be protected.

The invention claimed is:

1. A structural metal panel adapted to be mounted against a support in horizontally extending lapped relation with adjacent panels, said panel being folded upon itself along one of its margins with the terminal portion of the fold formed to provide a bead semicircular in cross section extending from the inner face of the panel adjacent said one margin, the opposite margin of said panel being formed to provide a channel semicircular in cross section extending from the inner face of the panel with its mouth opening in the plane of the panel, the radius of curvature of said bead and said channel being sized so that the bead of an adjacent panel may be snapped into the channel with said fold overlying the joint thereby formed, and lateral openings in said channel diametrically opposite the mouth thereof, said openings being adapted to accommodate members for mounting said panel to a support.

2. In a structural metal wall formed of a plurality of interlocking aluminum panels, a bead semicircular in cross section extending along the lower margin of each of the panels and protruding from the rear face thereof, said bead being positioned by folding the panel upon itself with the bead thereby spaced above the lower edge of the panel, a channel semicircular in cross section extending along the upper margin of each of the panels having its mouth opening in the plane of the panel, said channels of each of said panels being thereby adapted to accommodate the bead of the upwardly adjacent panel with the folded portion of each of said panels overlying the adjacent channel mouth, and lateral openings in said channels diametrically opposite the mouth thereof, said openings being adapted to accommodate means for mounting the panels to a support.

References Cited in the file of this patent

UNITED STATES PATENTS

225,172 Smith ........................ Mar. 2, 1880
1,907,536 Goldberg et al. ........ May 9, 1933
1,913,342 Schaffert ............... June 6, 1933
2,258,247 Hull ..................... Oct. 7, 1941
2,811,118 Ball ..................... Oct. 29, 1957