March 6, 1962 W. E. BUCHANAN 3,023,834

PRE-FORMED SECTIONS FOR PLATFORMS OR THE LIKE

Original Filed Jan. 20, 1958 2 Sheets-Sheet 1

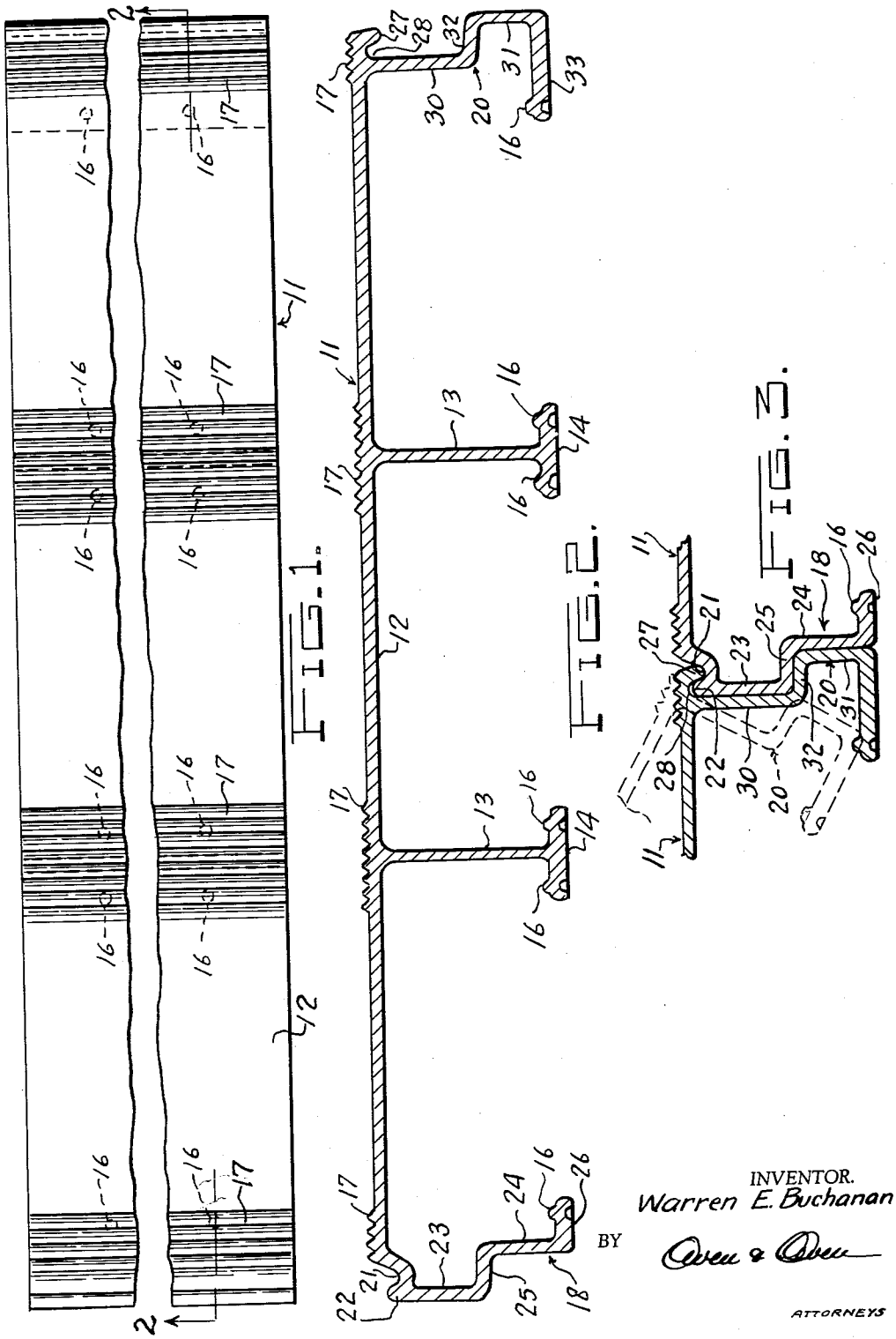


FIG. 1.

FIG. 2.

FIG. 3.

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FIG. 4.

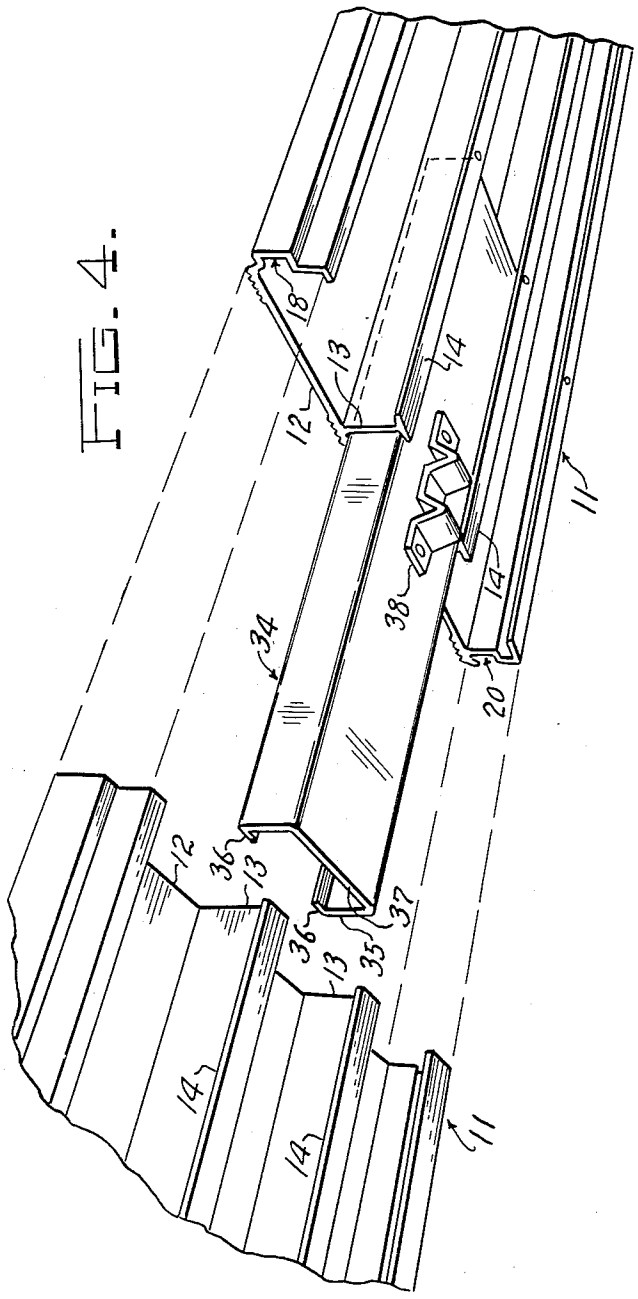
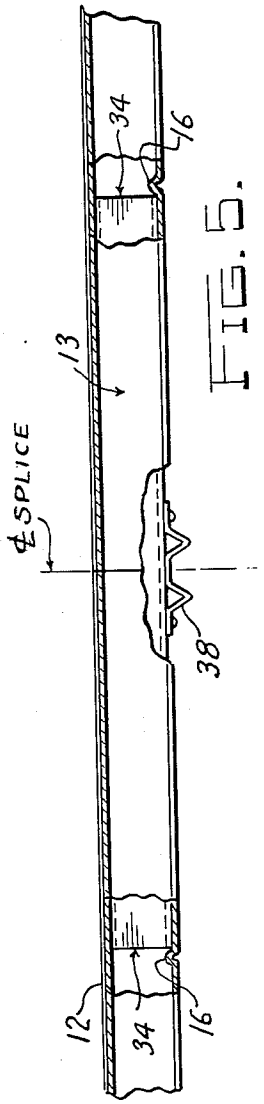


FIG. 5.



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PRE-FORMED SECTIONS FOR PLATFORMS OR THE LIKE

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2 Claims. (Cl. 182—223)

This invention relates to pre-formed sections which may be integrated into scaffold and other platforms or the like, said sections having shaped edges that permit two or more sections to be securely joined in an easy, quick manner.

Heretofore, platforms have generally been made of wooden planks that are comparatively heavy and hard to handle. Planks are also resilient and tend to bend when a weight is applied thereto, thus affording an uneasy footing for workmen thereon. Also, the planks are laid across the scaffolding structure and frequently tend to shift. Occasionally metal sections have been employed in such use, telescoping into one another to provide various longitudinal extents but having no adequate means for laterally joining the sections. Hence, these metal sections have been made in a width equal to the width desired for the platform or have been laterally joined by nuts and bolts or similar fasteners. When of a single width, the sections are difficult to handle and when joined by nuts and bolts or other fasteners, their assembly and disassembly are tedious and time consuming particularly when done at a considerable distance above the ground on the platform structure.

A basic problem thus arising in connection with such sections is achieving proper design to form a joint between two sections that will permit easy assembly and disassembly yet still provide a structurally safe unit.

In view of the aforementioned and other problems, new sections have been developed of light-weight extruded metal that may be easily and securely assembled into various structures such as scaffolding platforms, floors or walls.

It is an object of the invention to provide a platform or the like of sections that may be easily assembled and disassembled.

It is another object of the invention to provide a structurally sound platform made of separable sections.

Further objects and advantages will appear in the following detailed description of a preferred embodiment of the invention, reference being made to the accompanying drawings, in which:

FIG. 1 is a fragmentary plan view of a light-weight section embodying the invention;

FIG. 2 is a cross-sectional view on line 2—2 of FIG. 1;

FIG. 3 is a detailed, cross-sectional view of a portion of the apparatus of FIGS. 1 and 2 shown connected to a portion of another section, and in dotted lines partially connected;

FIG. 4 is an isometric view showing how two sections of the type of FIGS. 1 and 2 may be longitudinally connected; and

FIG. 5 is an elevational side view showing two longitudinally connected sections and their joining member, with parts broken away.

Section **11** of FIGS. 1 and 2 comprises a generally planar plate **12** and a series of ribs **13** which may be integrally connected thereto. Each rib has a sub-flange **14** at its lower extremity which contains projections **16** on that surface of the flanges closer to plate **12**, the purpose of which will be subsequently explained. Cleats **17** are formed on the upper portion of plate **12** above each of the ribs **13** and adjacent the lateral edges of the plate.

These preferably extend the length of the plate to provide secure footing thereon.

At each of the lateral edges of the plate **12**, specially shaped flanges **18** and **20** extend downwardly and may be integrally connected to the plate. Flange **18** has a generally semi-cylindrical groove **21** formed by a lip or ridge **22** having a generally semi-cylindrical contour, and portions **23** and **24** normal to plate **12** and connected in laterally spaced relation by a portion **25** generally parallel to the plate. The lower surface of portion **25** has a slight radius approximately equal to the distance it is disposed from the axis of groove **21** which is disposed substantially directly above this portion. The lower extremity of flange **18** has a sub-flange **26** extending inwardly in the same plane as, and substantially similar to, flanges **14**. It also has a similar projection **16**.

Flange **20** has at its upper edge a ridge or downturned lip **27** having a generally semi-cylindrical contour, and forming a semi-cylindrical groove **28**. It also has portions **30** and **31** normal to plate **12** and connected by portion **32** generally parallel to the plate. The upper surface of the portion **32** has a radius substantially equal to that of the lower surface of portion **25**. A sub-flange **33** extends inwardly from the lower extremity of portion **31** and in the same plane as sub-flanges **14** and **26**. It also contains a projection **16** which is at the same distance from a plane extending through the inner surface of portion **30** as the other projections are from the adjacent surfaces of ribs **13** or portion **24**. All of the projections are disposed at equal distances from the longitudinal edge of the section.

Referring to FIG. 3, two portions of two laterally adjacent sections **11** are shown connected at their lateral edges by means of flanges **18** and **20**. Flange **20**, also shown by dotted lines, is initially disposed at an angle to flange **18** with lip **27** coacting with groove **21**. Flange **20** and its corresponding section are then moved into position adjacent flange **18** by being pivoted about the superimposed axes of groove **21** and lip **27**. As flange **20** is pivoted toward flange **18**, ridge **22** nests with groove **28** and portions **30**, **31**, and **32** nest with portions **23**, **24**, and **25** respectively. The lower surface of portion **25** may be at a slightly greater distance from the axes of groove **21** and lip **27** than is the upper surface of portion **32**. In this manner, the two surfaces nest in a friction fit and hold lip **27** and groove **28** in firm, secure relationship with groove **21** and ridge **22** and prevent lateral displacement of the sections that would separate the respective grooves and lips.

By forming portions **25** and **32** with their adjacent surfaces having substantially equal radii with common centers superimposed with the axes of groove **21** and lip **27**, the two portions fit together smoothly and with minimum effort. Furthermore, all portions of the surfaces are in contact to provide a maximum contact area and a more secure friction fit. In addition, any force exerted is spread over a larger area and is uniformly applied.

The longitudinal edges of two sections may also be joined as illustrated in FIGS. 4 and 5 where two sections are shown aligned and ready to be joined. Accordingly, a connecting member **34**, generally U-shape in cross-section, is inserted into the longitudinally extending channel or space formed by ribs **13** and plate **12** of each section with side walls **35** of the member adjacent the ribs and with edge flanges **36** of the member adjacent the plate. The member is inserted into this space until the end of wall **37** of the member, whose lateral edge portions contact flanges **14**, abuts projections **16**. These projections are spaced from the longitudinal ends of sections **11** a distance equal to half the length of member **34**. When the other section is moved into place, its projections will abut the opposite end of member **34** to maintain it

symmetrical with respect to the splice line of the two sections and prevent the possibility of longitudinal movement. Similar members are inserted in the spaces formed by the ribs **13**, plate **12**, and flanges **18** and **20** and abut the other projections **16** in a similar manner. A single member **34** is shown in FIG. 4 for clarity of illustration.

It will be understood that the number of sections which may be laterally and longitudinally secured to one another is practically unlimited. Also, each section may have additional or fewer ribs **13** and be of correspondingly greater or narrower width.

A member **38** is attached to the central portion of wall **37** of member **34** and is adapted to fit on a cross bar of the scaffolding structure. This prevents longitudinal shifting of the sections with respect to the structure.

The invention thus basically comprises platform or the like made by joining two or more sections. The sections have a flange along each of the lateral adjacent edges with at least a lip or ridge on one section adapted to nest with a groove on the other. The flanges have portions that coact with one another to prevent displacement of the sections in a manner separating the lip and groove.

The above detailed description has been intended to serve in a descriptive and not a limiting sense, the scope of the invention being limited only by the appended claims.

I claim:

1. A scaffold platform or the like comprising a plurality of sections, each of which sections comprises a rectangular plate, a first flange attached to said plate adjacent an edge thereof, a second flange attached to said plate adjacent a second edge thereof parallel to said first edge, a ridge on each of said sections adjacent the first edge, said second edge having a groove adjacent thereto, said first flange having a portion generally parallel to said plate and said second flange having a portion generally parallel to said plate, said groove, ridge, and parallel

portions cooperating with mating portions of other sections to prevent lateral separation thereof, at least one reinforcing web parallel to said flanges and attached to the under side of said plate, a first sub-flange at the lower edge of said first flange and extending inwardly toward said web, a second sub-flange at the lower edge of said second flange and extending inwardly toward said web, a third sub-flange at the lower edge of said web extending outwardly toward both of said flanges, the distances from the extremities of said third sub-flange to said web all being equal, said sub-flanges, flanges, webs, and plate defining channels, at least one connecting member in slidable contact with said sub-flanges, flanges, web, and portions of said plate of at least one of said channels, and which fits into a corresponding channel defined by a similar section aligned with said platform section in end-to-end relationship, and a U-shaped bracket on one side of said connecting member extending away from the plates of the sections which it connects and beyond the flanges and sub-flanges thereof to receive a cross bar of a scaffolding structure.

2. A platform according to claim 1 and stop means on the surfaces of said sub-flanges toward said plates, said stop members being aligned with said connecting member to limit movement thereof into the channels.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 168,946	Liskey	Mar. 3, 1953
1,706,924	Kane	Mar. 26, 1929
2,485,165	Pollman	Oct. 18, 1949
2,588,243	Irving	Mar. 4, 1952

FOREIGN PATENTS

536,347	Great Britain	May 12, 1941
656,901	Great Britain	Sept. 5, 1951