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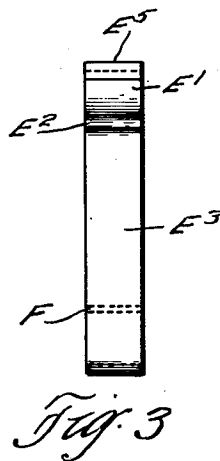
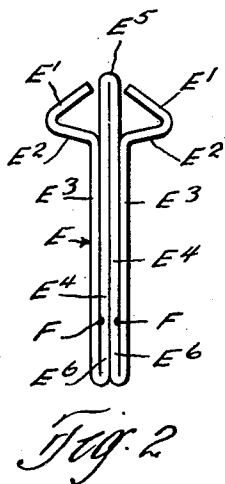
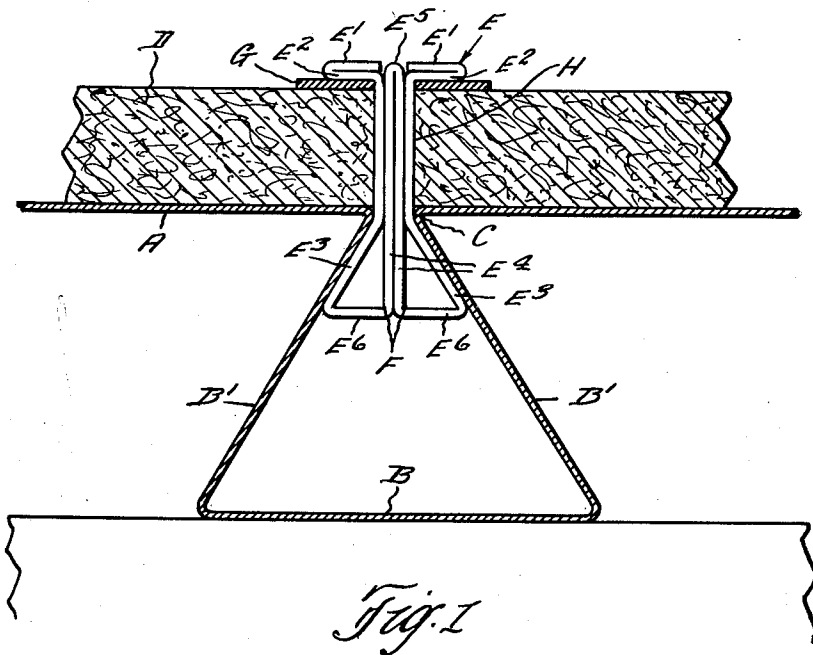
J. F. LOUCKS

1,783,248

BUILDING CONSTRUCTION UNIT

Filed Nov. 12, 1928

2 Sheets-Sheet 1



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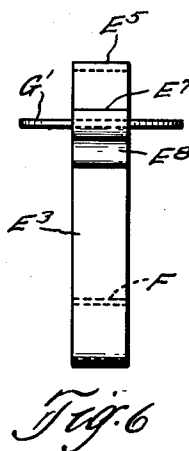
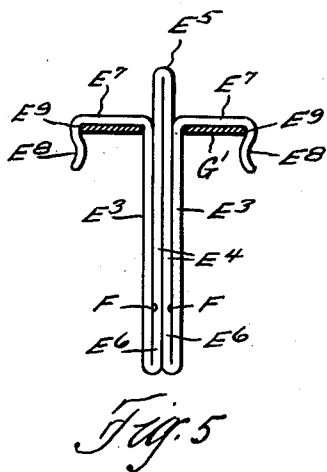
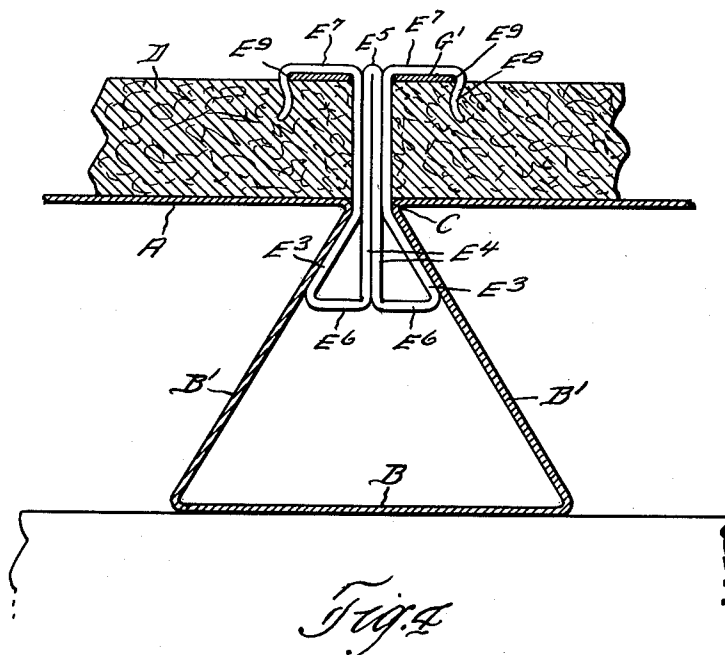
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BUILDING CONSTRUCTION UNIT

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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BUILDING-CONSTRUCTION UNIT

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This invention relates to the construction of deck units comprising each a sheet metal foundation having hollow ribs projecting from one side thereof, with a covering applied to the face or side of the sheet which is opposite said ribs. The general purpose and object of the invention is to provide simple and effective means for securing the covering in place and to that end consists of a special type of fastener cooperating with the said covering and the said ribs in a manner to enable the cover to be applied quickly to a sheet metal foundation and at the same time secure the covering to the foundation in an efficient manner.

With the foregoing general objects in view, the invention consists further of the combinations of elements embodied in the claims hereto annexed and shown in the drawings, wherein Fig. 1 represents a sectional view through a deck unit embodying my invention; Fig. 2 an elevation of one of the fastening devices prior to its application to the deck unit; Fig. 3 a view similar to Fig. 2, taken at right angles thereto; and Figs. 4, 5 and 6 are views similar, respectively, to Figs. 1, 2 and 3 and showing another embodiment of my invention.

Describing the various parts by reference characters, and first in connection with Figs. 1 to 3 inclusive, A represents a portion of a sheet metal foundation, the material employed for the foundation being preferably sheet steel and having formed therewith and projecting from one side thereof hollow triangular ribs each having a base B adapted to rest upon a supporting beam, and sides B' which extend from the sheet to the base, there being a slot C at the junction of the two sides and the base.

D represents a covering for the sheet, the said covering being indicated herein as of insulating material.

In order to secure the covering to the base, I employ special fasteners, one of which is indicated at E. Each of these fasteners is made of a continuous strip of soft flat steel bent to provide two opposed head members, each of which consists of an upper portion E' connected by a bend with a lower portion E²

from which depends a shank comprising shank members E³. Extending upwardly from the bottom of each shank member and forming part of the complete shank is a tongue member E⁴, the two tongue members being connected by a bend E⁵ at the top of the said members and the said members jointly forming a tongue the upper end of which projects above the upper portions E' of the head.

At a distance above the junction of each tongue member with the bottom of its shank member, said tongue member is provided with a weakened or bending line F, each line being conveniently formed by removing some of the metal in such member, as by horizontally grooving the same. The grooves F are arranged at such a distance from the junction of each tongue member E⁴ with its cooperating shank member E³ that, when the tongue is driven down into the plane of the head of the fastening device, the grooves F will be in the plane of the bottoms of the members E³, and the parts E⁵ of the tongue members which are below the slots F will extend horizontally outwardly, in the manner shown in Fig. 1. To secure this result, the downward movement of the tongue whereby its upper end is brought into the plane of the flattened head is approximately equal to the distance of the bending lines F above the junctions of the members E with the shank members E³.

In adapting the fastening device for use with the hollow ribs, the lengths of the parts E⁵ will be such that, when spread horizontally as shown in Fig. 1, the lower portions of the shank members E³ will be in forcible engagement with the inner walls of the sides B' of the rib to which the fastener is applied.

In practice, a fastening device is inserted through a washer G and through an aperture H in the covering and thence through the slot C into the interior of the hollow rib below said slot. The operator then strikes the upwardly projecting end of the tongue with a hammer, simultaneously flattening the parts E' and E² of the head in the manner shown in Fig. 1 and bringing the top of the tongue

into the plane of the top of the head. The downward movement of the tongue causes each member E^4 to bend at the groove F and to straighten the parts E^6 therebelow horizontally and spread the lower parts of the shank into forcible locking engagement with the interiors of the ribs to which they are applied. The parts E^6 then constitute a horizontal brace which holds the lower ends of the members E^3 spread apart and retains the lower portions of said members in contact with the inner surfaces of the sides B' .

The fastening devices are comparatively inexpensive of production and, by constructing and applying them in the manner described, the covering for the sheet metal foundation may be secured thereon with great rapidity and efficiency. Furthermore, the closed bottoms of the ribs prevent access to the locking portions of the devices located therewithin.

In Figs. 4, 5 and 6 I have shown another form of my invention wherein the parts A to D inclusive are identical with the like-identified parts in Figs. 1 to 3. The fastener in Figs. 4 to 6 inclusive is identical with the fastener shown in the preceding views with the exception of the manner in which the head is formed. The side shank members E^3 , the tongue members E^5 and E^6 , and the bending lines F are identical with the like-designated parts in Figs. 1—3. However, the head is formed by a substantially horizontal flange E^7 extending outwardly from the top of each of the shank members E^3 , there being a curved flange E^8 extending downwardly from the outer end of each flange E^7 , the construction being such that a concave seat E^9 is provided at the junction of the flanges E^7 and E^8 for diametrically opposite portions of a washer G' . The washer will be applied to the fastening device by slipping the same upwardly along the side shank members E^3 , the diameter of the washer being somewhat greater than the smallest distance between the flanges E^8 , whereby the said flanges will be sprung outwardly as the washer moves upwardly along the shank of the fastening device, after which the flanges E^8 move or snap inwardly thereby to hold the washer in its seat. Because of this construction and arrangement, the washers are assembled with their respective fastening devices, forming therewith a self-contained structure.

In applying the fastening device shown in Figs. 4 to 6 to a sheet metal foundation and covering of the character shown herein, the shank is inserted through an opening in the covering and through an opening in the foundation A into the upper portion of a rib projecting from said foundation. Where the slots are provided at the tops of the ribs, the shanks will be inserted through said slots; if slots are not so provided, they, as well as the shanks shown in Figs. 1—3, will be inserted

through suitable apertures to be formed in the foundation. When in place, the upwardly projecting portion E^5 of the tongue is struck, the tongue is driven down substantially into the plane of the head flanges E^7 , and the flanges E^8 are embedded in the covering D. The downward movement of the tongue E^5 spreads apart the lower portions of the shank side members E^3 in the same manner as shown in Fig. 1.

For convenience of description, it has been assumed that the deck unit and the fastening devices are used in the positions in which they are shown in the drawings, and the terms "upper" and "lower" and "top" and "bottom" have been employed to define the positions of such parts as well as the positions of the parts of the fastening member — but without any intention thereby to limit the use of the invention to installations wherein the deck and the fasteners may be employed only in the positions shown in the drawing.

Having thus described my invention, what I claim is:

1. A building unit comprising a foundation having hollow triangular ribs projecting from one side thereof, each rib having a base connected by converging sides to the foundation, and a covering for said foundation secured thereto by a plurality of fasteners extending through the said covering and across the foundation and into the ribs projecting therefrom, each fastener comprising a head adapted to bear upon the covering and a shank extending through said covering and across the said foundation and into a rib projecting therefrom, the shank having a pair of side members and the fasteners also comprising means for spreading the bottoms of the side members apart thereby to bring the lower portions of the said members into engagement with the inner surfaces of the sides of said rib.

2. A building unit comprising a foundation having hollow triangular ribs projecting from one side thereof, each rib having a base connected by converging sides to the foundation, and a covering for said foundation secured thereto by a plurality of fasteners extending through the said covering and across the foundation and into the ribs projecting therefrom, each fastener comprising a head adapted to bear upon the covering and a shank extending through said covering and across said foundation and into a rib projecting therefrom, the shank comprising a pair of metallic side members, and a central tongue arranged between the side members and extending above the head and having means whereby, when depressed into substantially the plane of said head, it will have spread apart the lower ends of the shank members into engagement with the inner faces of the rib into which the said fastening device is

inserted, thereby to retain the fastening device within the said rib.

3. A building unit comprising a foundation having hollow triangular ribs projecting from one side thereof, each rib having a base connected by converging sides to the foundation, and a covering for said foundation secured thereto by a plurality of fasteners extending through the said covering and across the said foundation and into the ribs projecting therefrom, each fastener comprising a head adapted to bear upon the covering and a shank extending through said covering and across the foundation and into a rib projecting therefrom, the shank comprising a pair of flat metal side members with a central tongue projecting upwardly between said side members and above the said head, the tongue comprising a pair of side members integrally connected with the bottoms of the shank members, each tongue member having a bending line above the bottom thereof so arranged that, when the central upwardly projecting portion of the tongue is depressed into substantially the plane of the head, the parts of the tongue members below said bending line assume a substantially horizontal position thereby to force the lower ends of the shank members into engagement with the inner faces of the sides of the rib.

4. A building unit comprising a foundation and a covering of insulating material for said foundation secured thereto by a plurality of fasteners, each fastener comprising a head adapted to bear upon the covering and a shank extending through said covering and across the said foundation and beyond the side thereof which is opposite said covering, the shank comprising a pair of metallic side members and a central tongue arranged between the shank members and extending above the head, the tongue comprising a pair of side members integrally connected with the bottoms of the shank members, each tongue member having a bending line above the bottom thereof so arranged that, when the central upwardly projecting portion of the tongue is depressed into substantially the plane of the head, the lower ends of the shank side members will be spread apart thereby to prevent the withdrawal of the said fastening device.

5. As a means for fastening a covering to a foundation having a triangular rib projecting from one side thereof, a fastening device comprising a head adapted to bear upon the covering and a shank adapted to extend through said covering and across said foundation and into the rib projecting therefrom, the shank having a pair of side members and said device also comprising means whereby, on driving the said device, the bottoms of the side members will be spread apart thereby to bring the lower portions of the said members

into engagement with the inner surfaces of the sides of said rib.

6. As a means for fastening a covering to a foundation having a triangular rib projecting from one side thereof, a fastening device comprising a head adapted to bear upon the covering and a shank adapted to extend through said covering and across said foundation and into the rib projecting therefrom, the shank comprising a pair of metallic side members and a central tongue arranged between the shank members and extending beyond the head and having means whereby, when depressed into substantially the plane of said head, it will spread apart the lower ends of the shank members into forcible engagement with the inner faces of the rib into which the said fastening device is inserted, thereby to retain the fastening device within the said rib.

7. As a means for fastening a covering to a foundation having a triangular rib projecting from one side thereof, a fastening device comprising a head adapted to bear upon the covering and a shank adapted to extend through said covering and across said foundation and into the rib projecting therefrom, the shank comprising a pair of flat metal side members with a central tongue projecting upwardly between said side members and above the said head, the tongue comprising a pair of side members integrally connected with the bottoms of the shank side members, each tongue member having a bending line above the bottom thereof so arranged that, when the central upwardly projecting portion of the tongue is depressed into substantially the plane of the head, the parts of the tongue members below said bending line assume a substantially horizontal position thereby to force the lower ends of the shank members into engagement with the inner faces of the sides of the rib.

8. As a means for fastening a covering to a foundation, a fastening device comprising a head adapted to bear upon the covering and a shank adapted to extend through said covering and across said foundation, the shank comprising a pair of flat metal side members with a central tongue projecting upwardly between said side members and above the said head, the head comprising an outwardly extending flange integrally connected to the upper end of each shank side member with a downwardly extending flange at the outer end of each of the first mentioned flanges, the tongue comprising a pair of side members integrally connected with the bottoms of the shank side members, each tongue member having a bending line above the bottom thereof so arranged that, when the central upwardly projecting portion of the tongue is depressed into substantially the plane of the head, the bottoms of the shank side members will be forced apart thereby, and a washer

surrounding the upper portions of the shank side members and retained in place by and between the downwardly extending head flanges.

- 5 9. As a means for fastening a covering to a foundation, a fastening device comprising a head adapted to bear upon the covering and a shank adapted to extend through said covering and across said foundation, the shank
- 10 comprising a pair of flat metal side members with a central tongue projecting upwardly between said side members and above the said head, the head comprising an outwardly extending flange integrally connected to the
- 15 upper end of each shank side member with an inwardly and downwardly extending flange at the outer end of each of the first mentioned flanges, the tongue comprising a pair of side members integrally connected
- 20 with the bottoms of the shank side members, each tongue member having a bending line above the bottom thereof so arranged that, when the central upwardly projecting portion of the tongue is depressed into substantially the plane of the head, the bottoms of
- 25 the shank side members will be forced apart thereby, and a washer surrounding the upper portions of the shank side members and seated at the junctions of the outwardly and
- 30 downwardly extending head flanges.

In testimony whereof, I hereunto affix my signature.

JAMES F. LOUCKS.

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