June 19, 1928. 1,674,210

J. F. LOUCKS

CLAMPING DEVICE

Filed Feb. 13, 1925

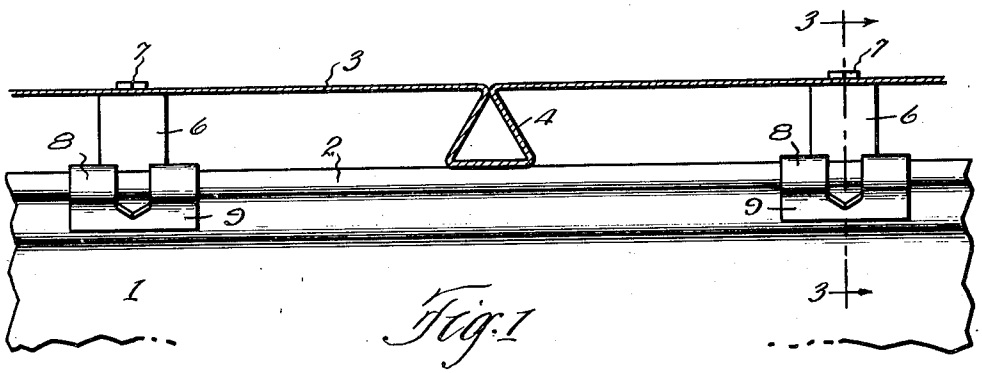


Fig. 1

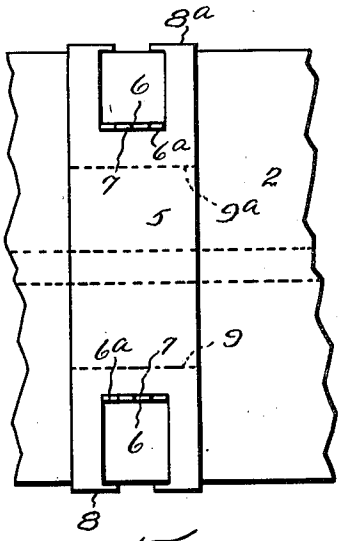


Fig. 2

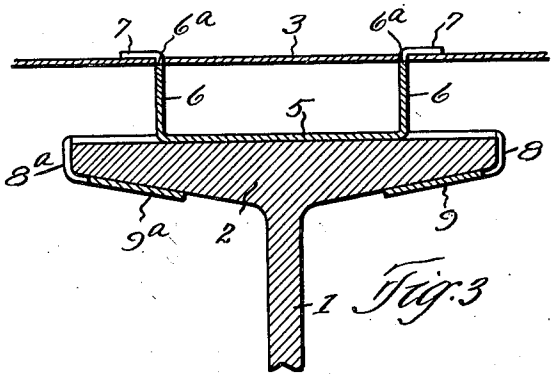


Fig. 3

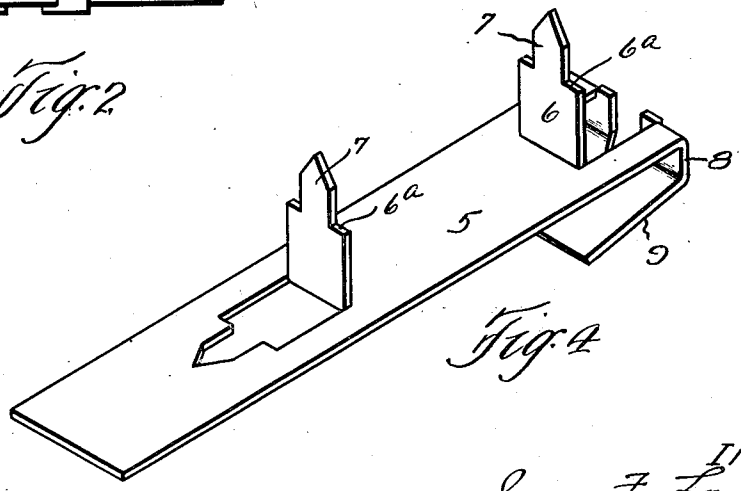


Fig. 4

Inventor
James F. Loucks
By Hull, Brock & West.

Attys.

Patented June 19, 1928. 1,674,210

UNITED STATES PATENT OFFICE.

JAMES F. LOUCKS, OF CLEVELAND, OHIO, ASSIGNOR TO HOLORIB, INC., OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CLAMPING DEVICE.

Application filed February 13, 1925. Serial No. 8,892.

This invention relates to clamping devices and, while capable of use in other relations, is peculiarly adapted for the purpose of securing to metal beams sheet-metal structural units of the general type shown in application No. 686,493 filed jointly by myself and Harry Gillett on January 16, 1924. The general object of the invention is to provide a simple, economical, and efficient means for securing or clamping such sheet-metal constructions to structural beams. Further and more limited objects of the invention will appear hereinafter and will be accomplished and realized in and through the construction and arrangement of parts shown in the drawings, wherein Fig. 1 represents a sectional view through a sheet metal structure showing the same secured to a beam by means of clamps embodying my invention; Fig. 2 a plan view of the beam and one of the clamps shown in Fig. 1; Fig. 3 a detail in section corresponding to the line 3—3 of Fig. 1; and Fig. 4 a detail in perspective of one of the clamps.

Describing the various parts by reference characters, 1 denotes the web and 2 the top flange of an I-beam. Supported by this beam is a building-construction unit, the same comprising a metal sheet 3 having hollow ribs 4 projecting downwardly therefrom, each of the said ribs being triangular in section and the tops of the ribs being substantially closed, whereby the upper surface of the sheet 3 will be substantially continuous or uninterrupted while the bottom of the sheet will be provided with triangular ribs which are adapted to be supported on the tops of structural beams. The details of construction of the said unit and the purposes and advantages of the same are fully set forth in the aforesaid application, the clamping means shown herein being particularly designed for securing units or sheets of this general character to the structural beams upon which they are supported by the hollow ribs.

Each clamp is made of sheet metal and comprises generally a base which is adapted to rest upon the top flange of a structural beam and having one end formed into a hook which is adapted to engage an edge and the underside of the flange, with combined sheet-supporting and securing projections struck from said base, the opposite end of the base being adapted to be bent into engagement with the opposite upper edge of the beam.

5 denotes the base of one of my clamping members. This base has struck therefrom a pair of posts 6 each provided with shoulders 6^a adapted to engage the undersurface of the sheet 3 and with the tongues 7 extending upwardly from the shoulders and adapted to be projected through slots or openings provided therefor, or formed thereby, in the sheet.

It will be noted that the clamp has one end bent into a loop or hook to receive therewithin one of the side edges of the flange 2, the end portion of the clamping member being bent downwardly, as shown at 8, and then inwardly, as shown at 9, the part 8 being arranged to engage one lateral edge of the flange 2 and the part 9 being arranged to bear against the bottom of such flange.

In using my invention, the clamping members will be hooked over one lateral edge of an I-beam—the upper edge of a beam where one edge is higher than the other. The opposite edge portion of each clamping member is then bent around the opposite edge of the beam-flange, as shown at 8^a and 9^a. The sheets 3 are then applied to the beams, on top of the clamping members. By means of a proper punch, the sheets will be driven down upon the tongues 7, which will puncture the sheets, after which the tongues will be bent over and flattened down, as shown on Figs. 1 and 3 of the drawings.

It is preferred to make the posts 6 of slightly less height than the depth of the ribs 4, making it necessary to spring the metal sheets downwardly to a slight extent when applying them to the tongues 7 and seating them upon the shoulders 6^a. This results in giving the sheets a firmer support upon the beams.

By making the clamping members 5 of proper length, the same may be applied to the flange of a channel beam, the hook 8, 9, being applied to the projecting edge of the flange while the opposite end portion can be bent down alongside the web of such beam.

Having thus described my invention, what I claim is:—

1. The combination, with a structural beam, of means for securing a metal sheet in spaced relation thereto, said means comprising a sheet-metal spacing and clamping

member having a base adapted to rest on top of a flange of such beam and provided with a pair of posts struck therefrom, each post having a tongue, with a shoulder between each tongue and the body of its post, the said member having a hooked portion engaging an edge of the flange of such beam, the opposite end of the member being extended beyond the post adjacent thereto and bent into engagement with the portion of said beam which is opposed to said hooked portion.

2. The combination, with a structural beam, of means for securing a metal sheet in spaced relation thereto, said means comprising a sheet-metal spacing and clamping member having a base adapted to rest on top of a flange of said beam and provided with a pair of posts struck from said base and extending upwardly therefrom, the said member being provided with end portions beyond said posts and one end of the said member being formed into a hook, beyond the post adjacent thereto, engaging an edge and the bottom of a flange of said beam and the opposite end of the said clamping member extending beyond the post adjacent thereto and bent into engagement with the cooperating portion of said beam, the posts being provided each with a tongue and a shoulder at the base of each tongue.

3. The combination, with a beam having a web and a flange extending on both sides of said web, of means for securing a metal sheet in spaced relation thereto, said means comprising a sheet metal spacing and clamping member adapted to rest on top of a flange of said beam and provided with upwardly projecting posts, each post having a tongue at its upper end and a shoulder at the base of said tongue for said sheet, one end portion of the said member being shaped to engage an edge of such flange and the lower surface of the flange adjacent to such edge, the opposite end of the said member being bent about the opposite edge of the said flange and into engagement with the under surface thereof.

4. The combination, with a beam having a web and a flange extending on both sides of said web, of means for securing a metal sheet in spaced relation thereto, said means comprising a sheet-metal spacing and clamping member adapted to rest on top of a flange of said beam and provided with upwardly projecting posts, each post having a tongue at its upper end and a pair of shoulders at the base of such tongue, one end portion of the said member being shaped to engage an edge of such flange and the lower surface of the flange adjacent to such edge and the opposite end of the said member projecting beyond the post adjacent thereto and bent about the opposite edge of said flange and beneath the lower surface of said flange adjacent to such edge.

5. A sheet-metal spacing and clamping member for securing metal sheets to beams and comprising a base portion adapted to rest on a beam and having a pair of posts struck therefrom, each post having a tongue adapted to be projected through a sheet, the ends of the base extending beyond said posts, and one end of the base, beyond its post, being formed into a hook adapted to engage one lateral edge of the beam, the opposite end of the base extending beyond the post adjacent thereto a sufficient distance to enable it to be bent into engagement with the opposite edge of the beam.

6. A sheet-metal spacing and clamping member for securing metal sheets to structural beams and comprising a base portion adapted to rest on a beam and having a pair of posts struck therefrom, each post having a tongue adapted to be projected through a sheet, the ends of the base extending beyond said posts and one end of the base, beyond its post, being formed into a hook shaped to engage one edge of the beam and the under surface of the beam adjacent to such edge, the opposite end of the base extending beyond the post adjacent thereto a sufficient distance to enable it to be bent into a hook engaging the corresponding portions of the opposite edge of the beam.

7. A sheet-metal spacing and clamping member for securing metal sheets to beams and comprising a base portion adapted to rest upon a beam, one end of such base portion being formed into a hook adapted to engage one lateral edge of the beam, the opposite end of the base being adapted to extend beyond and to be bent about the other lateral edge of the beam, and a pair of posts struck from the base portion, intermediate of such end portions, each post having a tongue adapted to be projected through a sheet, with a seat for said sheet at the base of said tongue.

In testimony whereof, I hereunto affix my signature.

JAMES F. LOUCKS.