

Aug. 8, 1961

H. B. BOWMAN

2,995,222

METAL FLOORING

Filed May 4, 1959

2 Sheets-Sheet 1

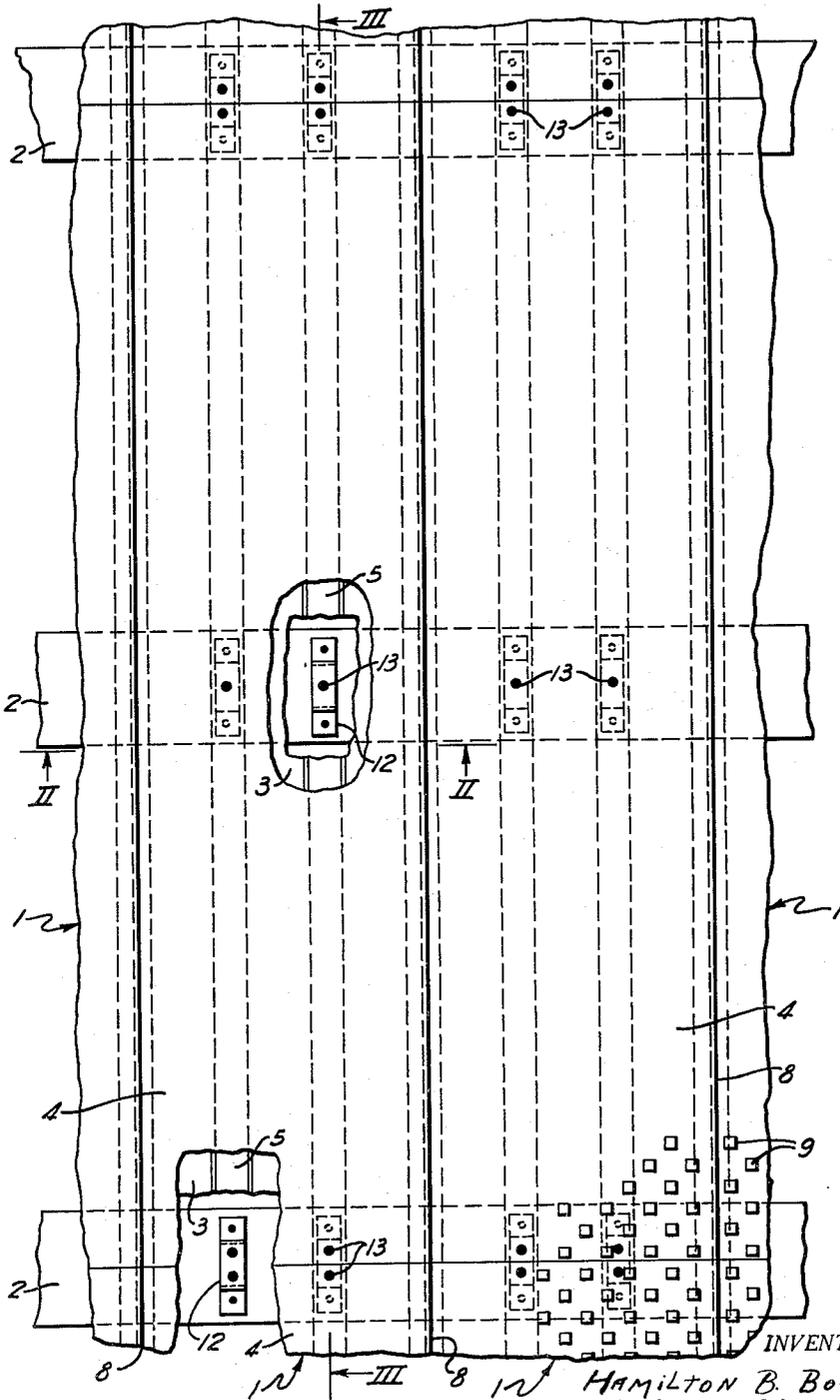


Fig. 1

INVENTOR.
HAMILTON B. BOWMAN
BY Brown, Critchlow,
Glick & Peckham
His ATTORNEYS.

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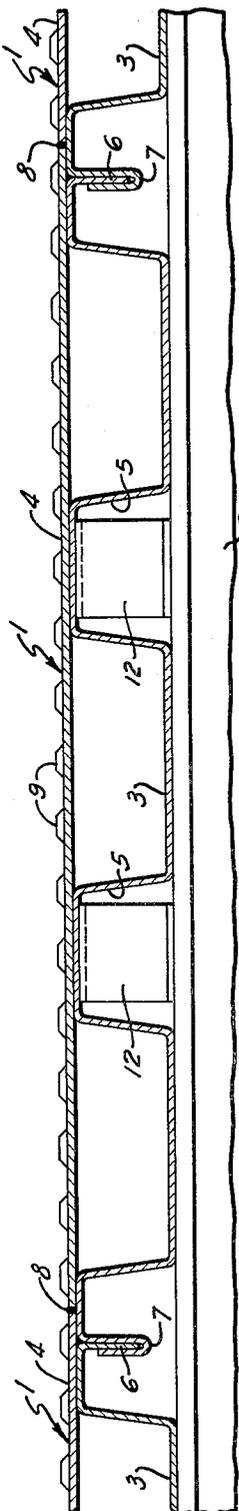


Fig. 2

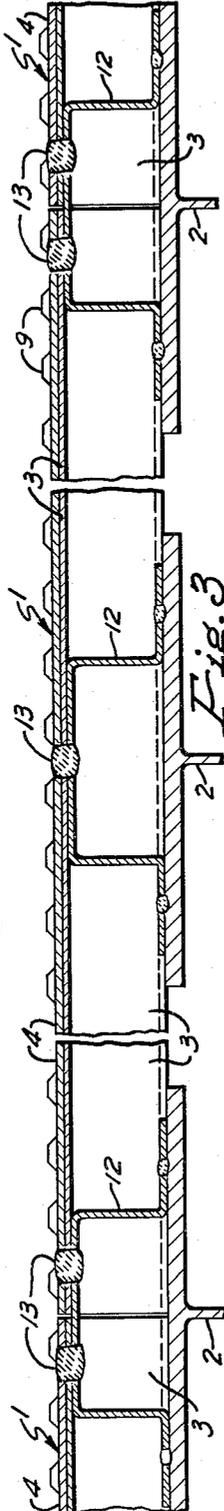


Fig. 3

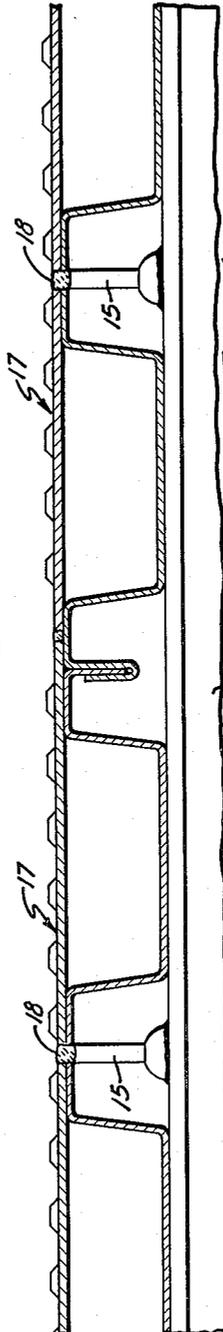


Fig. 4

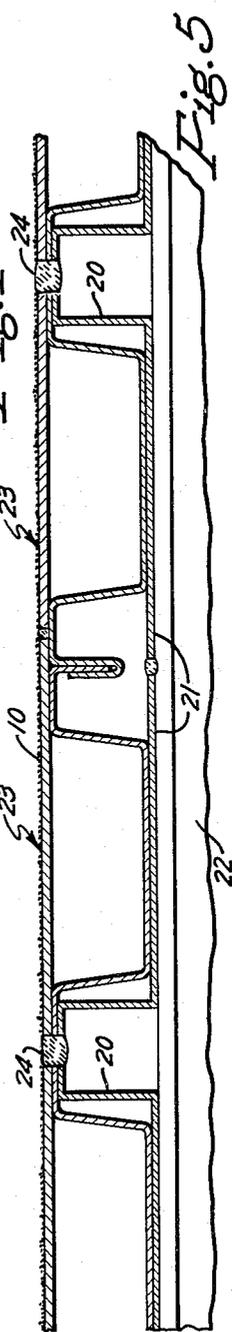


Fig. 5

INVENTOR.

HAMILTON B. BOWMAN
BY Brown, Critchlow,
Pulick & Beckham

HIS ATTORNEYS.

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2,995,222

METAL FLOORING

Hamilton B. Bowman, Pittsburgh, Pa., assignor to Bowman Steel Corporation, Pittsburgh, Pa., a corporation of Delaware

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4 Claims. (Cl. 189-34)

This invention relates to metal flooring, and more particularly to the type in which composite metal panels are supported by horizontal beams.

It is among the objects of this invention to provide metal flooring which is strong and durable, which has a non-skid surface, which is relatively light in weight, and which can be easily secured in place.

In accordance with this invention, laterally spaced anchor members are rigidly mounted on spaced beams, from which they project upwardly. The beams are spanned by prefabricated floor panels disposed in side by side relation above them. Means are provided for securing the panels to the tops of the anchor members. Each panel includes a metal sheet formed with laterally spaced inverted longitudinal channels that receive the anchor members, and a floor plate covering the sheet and secured to it. The upper surfaces of the plates are of a non-skid type. Preferably, the panels are fastened to the anchor members by welds extending down through openings in the plates and sheets directly above the anchor members. The sheets may be interlocked, with the plates projecting from one side of the sheets to overlap adjoining panels.

The invention is illustrated in the accompanying drawings, in which

FIG. 1 is a fragmentary plan view of my flooring, with parts of the panels broken away to show the underlying anchors;

FIG. 2 is an enlarged fragmentary cross section taken on the line II—II of FIG. 1;

FIG. 3 is an enlarged fragmentary longitudinal section taken on the line III—III of FIG. 1; and

FIGS. 4 and 5 are views similar to FIG. 2 of two different modifications of this invention.

Referring to the first three figures of the drawings, prefabricated floor panels 1 are laid side by side across suitable supporting beams 2, such as metal I-beams. The panels may be any desired length and width. Each panel is formed from a corrugated metal sheet 3, to the top of which a metal plate 4 is secured in any suitable manner, such as by welding. Although an ordinary corrugated sheet may be used, it is preferred to bend the sheet in such a manner as to form corrugations or inverted channels 5 having flat upper surfaces and joined at the bottom by flat areas of the sheet that are wider than the channels. As shown in FIG. 2, one edge of the sheet is turned down to form a vertical flange 6 that also serves as a shortened side wall of the channel at that side of the sheet. The opposite edge of the sheet is turned up to form a hook 7 that likewise serves as a shortened side wall of the channel at that particular side of the sheet. The hook is shaped to snugly receive the flange 6 of an adjoining panel sheet to hold them together side by side.

Each sheet 3 rests on the underlying beams and supports the heavier metal plate 4 that completely covers the sheet, except at the hook side of the sheet, where the edge of the plate is located about half way across the underlying channel. The opposite edge of the plate projects from the corresponding side of the sheet in order to overlie the outer half of the side channel of the adjoining panel. Each panel, although relatively light weight, is very strong and rigid when laid across the beams. After the panels have been assembled on the

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beams, it is desirable to join the edges of the plates by means of seam welds 8, so that a solid metal surface is formed.

One of the features of this invention is that the top of each panel is non-skid. For this purpose the plates are provided with closely spaced integral projections 9 on their upper surfaces, or are covered with an abrasive grit 10, as shown in FIG. 5. This feature enables the panels to be used in many places where smooth panels would be unacceptable.

Another feature is that the panels are quickly and easily fastened in place by attaching them to anchor members mounted on the beams. Preferably, the anchor members are U-shaped sheet metal members such as stirrups 12 having outwardly projecting ends that are welded or otherwise attached to the tops of the beams. The stirrups are secured to the beams before the panels are laid down, and are positioned so that the unobstructed channels of the panels will fit over them. The stirrups are of such height that their flat tops will be engaged by the panels at the tops of the channels. After the panels have been laid over the anchor stirrups, they are fastened to them by welding. This is done by first drilling holes down through the panels and stirrups and then making plug welds 13 to join them together. The welds do not obstruct the surface of the floor. A rigid nonskid floor is thus produced which can be laid relatively rapidly and held securely in place.

In the modification shown in FIG. 4, the anchor members are in the form of vertical studs 15, the lower ends of which are welded or otherwise secured to the tops of the beams 16. The channels of the panels 17 receive the studs, the upper ends of which substantially engage the tops of the channels. The panels are attached to the studs by drilling holes through them directly above the studs, and then welding them together by means of plug welds 18. Of course, the studs and holes must be accurately located, which is not so true of the stirrups previously described.

In the further modification shown in FIG. 5, U-shaped members again are used, but instead of being in the form of individual stirrups they are U-shaped portions 20 of metal strips 21 that extend lengthwise of the beams 22. Each strip may be as long as desired and provided with a number of the U-shaped portions that extend up into the channels of the floor panels 23. Here again, the panels are attached to the anchor members by drilling holes through the panels and then making plug welds 24 with the adjoining tops of the underlying strips.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. The combination with spaced beams, of laterally spaced sheet metal U-shaped members rigidly mounted in inverted position on top of each beam, prefabricated floor panels spanning the beams in side by side relation and supported thereby, and welds extending through openings in said panels directly above said members and securing said panels to the tops of said members, each panel comprising a metal sheet formed with laterally spaced inverted longitudinal channels receiving said U-shaped members, and a floor plate covering the sheet and welded thereto.

2. The combination with spaced beams, of laterally spaced sheet metal stirrups having laterally projecting lower ends secured to the tops of the beams, prefabricated floor panels spanning the beams in side by side relation

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and supported thereby, and welds securing said panels to the tops of the stirrups; each panel comprising a metal sheet formed with laterally spaced inverted longitudinal channels receiving the stirrups, and a floor plate covering the sheet and welded thereto said plate and sheet being provided with openings therethrough receiving said welds.

3. The combination with spaced beams, of sheet metal strips extending along the tops of the beams and secured thereto, each strip being provided with a plurality of longitudinally spaced upwardly projecting inverted U-shaped portions, prefabricated floor panels spanning the beams in side by side relation and supported thereby, and welds securing said panels to the tops of said U-shaped portions; each panel comprising a metal sheet formed with laterally spaced inverted longitudinal channels receiving said U-shaped portions of the strips, and a floor plate covering the sheet and welded thereto.

4. The combination with spaced beams, of metal sheets spanning the beams and supported thereby, each sheet being formed with laterally spaced inverted longitudinal

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channels having flat tops, said channels including an inverted channel at each side of the sheet, metal plates covering said sheets and welded thereto, each plate projecting laterally from one side of the underlying sheet and extending only part way across the channel at the opposite side of the sheet, anchor members secured to the tops of said beams and extending up into some of said channels, the plates and sheets being provided with openings therethrough above the anchor members, and welds in said openings securing said plates and sheets to the tops of said members.

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