

No. 749,440.

PATENTED JAN. 12, 1904.

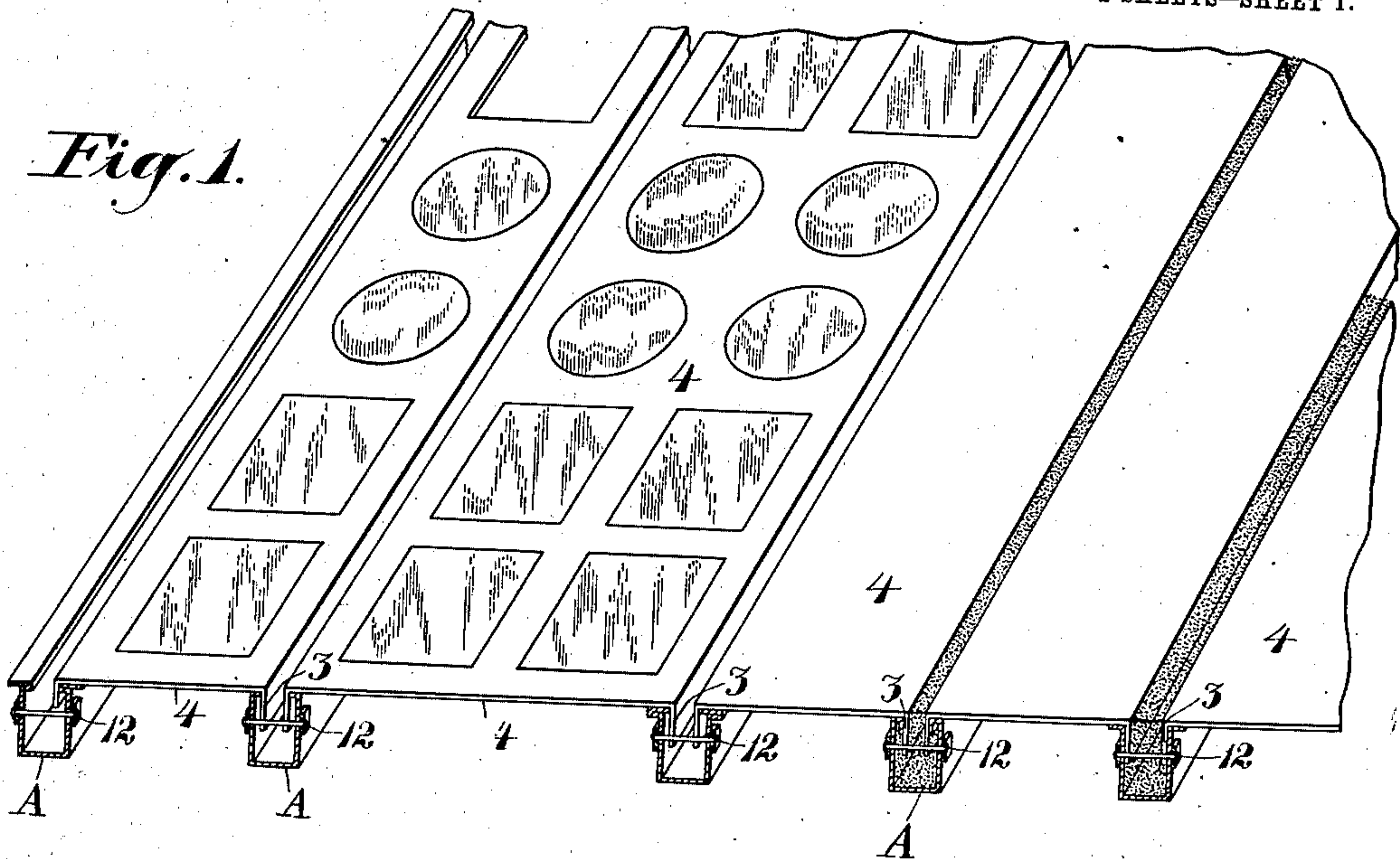
P. H. JACKSON.  
FLOOR, SIDEWALK, ROOF, OR LIKE SUPPORTS.

APPLICATION FILED MAY 13, 1903.

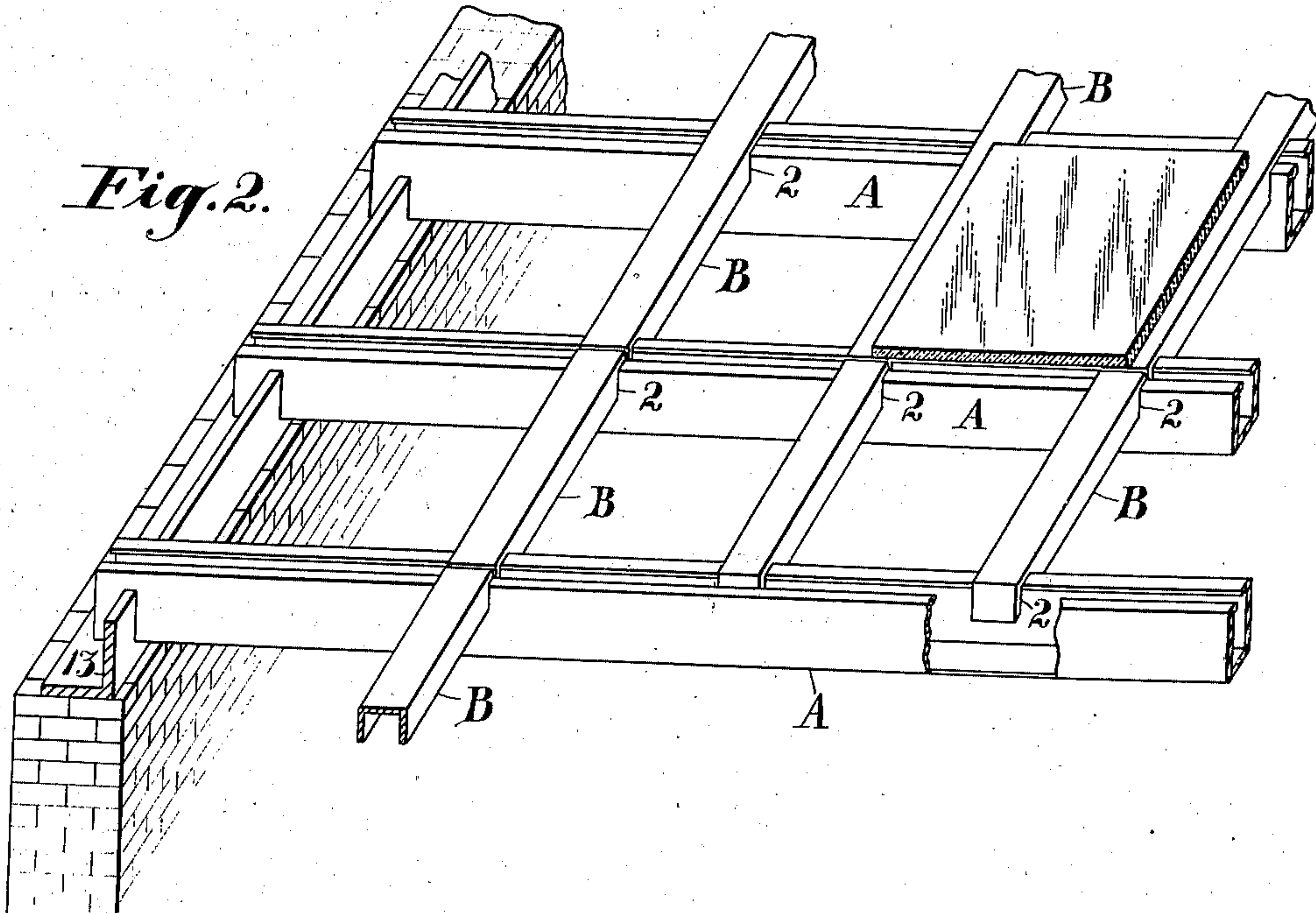
NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:-

F. C. Fliedner  
J. H. Hume

Inventor:

Peter H. Jackson  
By Geo. B. Strong atty

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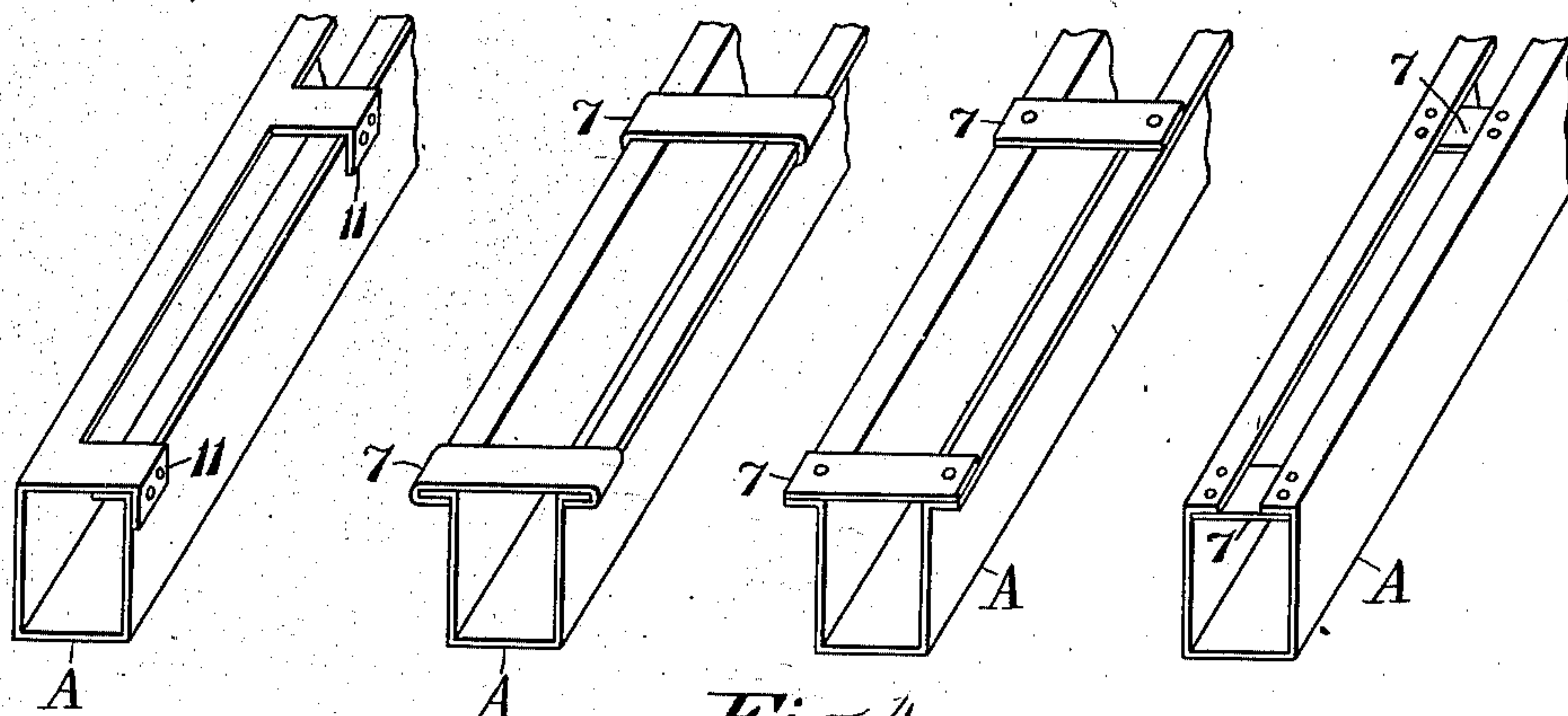
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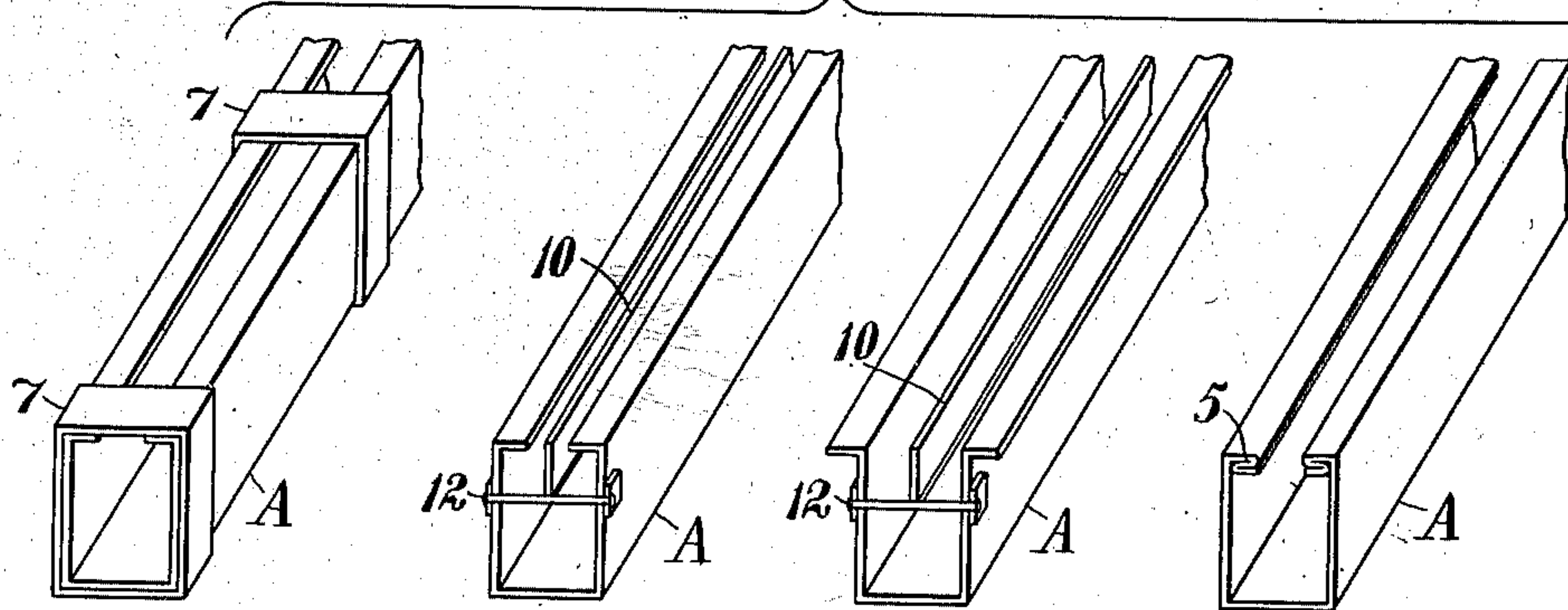
NO MODEL.

2 SHEETS—SHEET 2.

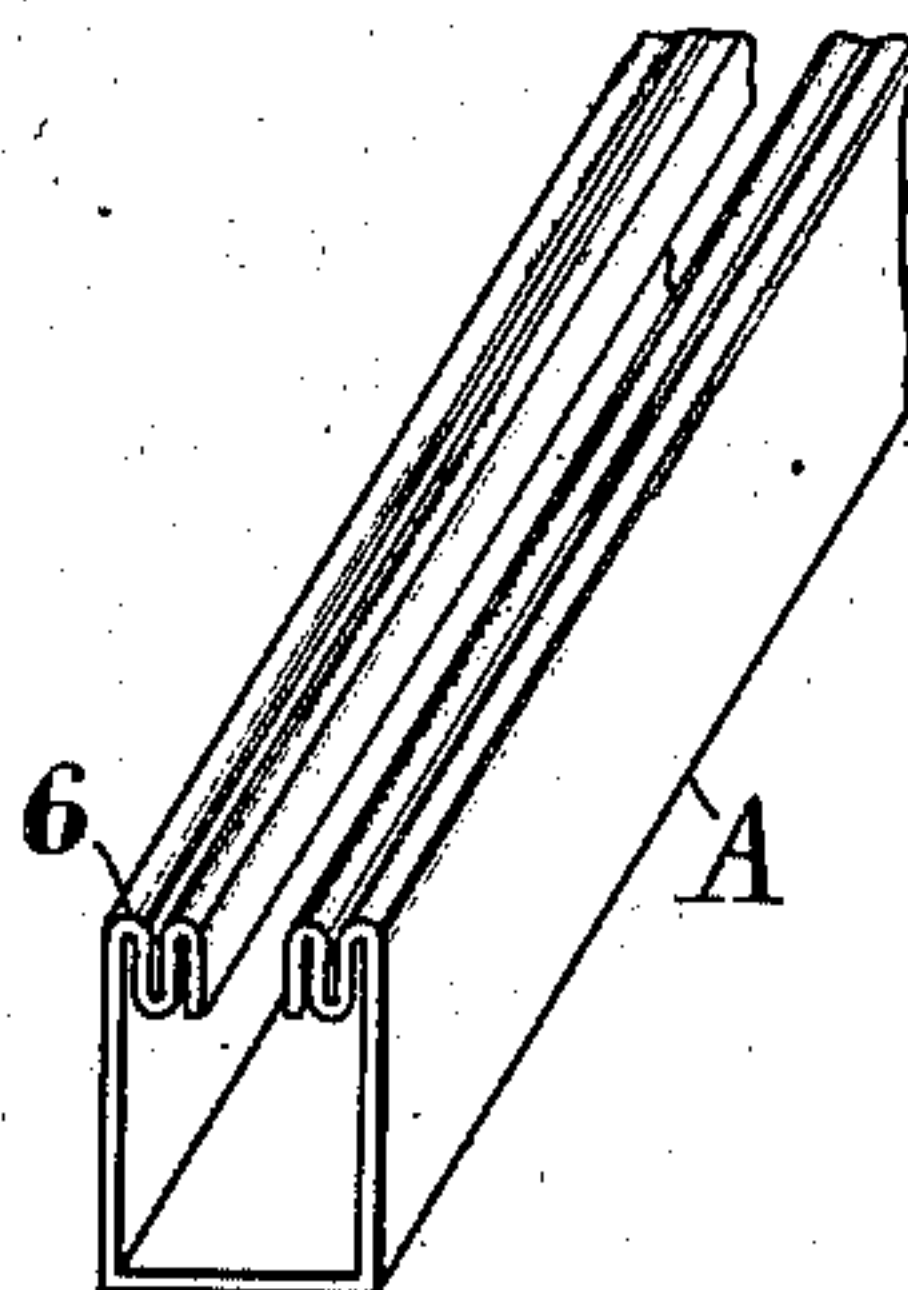
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses:  
*F. C. Fiedner*  
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## UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

## FLOOR, SIDEWALK, ROOF, OR LIKE SUPPORT.

SPECIFICATION forming part of Letters Patent No. 749,440, dated January 12, 1904.

Application filed May 13, 1903. Serial No. 156,888. (No model.)

To all whom it may concern:

Be it known that I, PETER H. JACKSON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Floor, Sidewalk, Roof, or Like Supports; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to supports of various descriptions, such as are employed in floors, roofs, sidewalks, &c., and made up in sections to facilitate repairs, which may be confined to the injured parts without disturbing the remainder of the surface, such injuries being caused from heavy weights falling upon them or from portions being cut out in case of fires.

It consists of sheets or plates of metal forming independent channel-shaped bearers filled with cement with transversely-crossing inverted channel-strips interlocking with the bearers, bracing them against lateral deflection and forming sections into which the top surfaces, made of plates of glass or lenses, may be fixed.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing my invention with sheet connections between bearers. Fig. 2 is a similar view with independent transverse beam connections. Figs. 3 and 4 show means to prevent buckling or separation from the cement filling. Fig. 5 shows vertical folds and reinforcement of channeled beam.

The object of my present invention is to provide a construction which will increase the stiffness and strength of the metal-supporting parts, using a minimum amount of metal, also to facilitate the laying up of the parts and reducing the cost thereof and in a means for preventing leakage.

The bearers A are formed of sheets or plates of metal bent into a channel form which have a bottom and may either have parallel vertical sides, or these sides may be made convergent or diverging from the bottom upwardly.

Upon these bearers are laid transverse supports, which may be formed by bending plates of metal into a channel form, and these chan-

neled beams B are inverted and are cut out where they cross the bearers A, so as to interlock therewith, the open faces of these transverse beams being presented downwardly, as shown in the drawings. They brace and strengthen the bearers and prevent their spreading and breaking away from the cement filling. The channel-bearers are filled with cement, and when the top of surfaces 4 is leveled evenly with the cement mixture by pressing the downturned edges into said mixture plates of glass or lenses are set in them either with or without projections extending down into the open spaces between the bearers and cross-pieces.

It will be understood that the cross-pieces B may be of such length as to extend across a number of the bearers, interlocking and bracing with each at the point of crossing by means of the notches 2, or these cross-pieces may be made short and of sufficient length to extend from one bearer to the other, having the notches formed near the ends, so that each cross-bar will rest upon and interlock with two adjacent bearers A.

In some cases the space between the bearers may be covered by flat sheets or plates of metal having holes made through them intermediate between the bearers to receive the glass either in the form of plates or lenses, Fig. 1. In such cases the ends of these plates are bent downward at right angles, so as to hook over the edges of the channeled bearers, and after the latter have been filled with cement in a plastic state these turned-down edges 3 are forced into the cement mixture, thus interlocking the plates and the bearers and maintaining the whole in place. The bearers are thus in the form of deep gutters filled with the hydraulic cement, which is an absorbent of water, and any water entering between the edges of the plates thus laid will be led off in the channeled bearers and may be discharged over the outside walls, so that it cannot leak down through to the inside surface of the wall. (Shown in Fig. 2.)

Where the bearer is employed to support a load the strain upon it is similar to that common to loaded beams, the bottom part being subjected to a tensional strain and the upper



or top portion to compression, and to give the proper strength, the metal in the bottom and top portion should be so proportioned that their strengths will be nearly equally  
5 balanced.

When bearers are constructed as herein described the bottom portion will have much greater tensile strength than the resistance to compression of the upper thin edges of these  
10 channeled bearers. This weak resistance of the top portion would cause it to buckle outwardly and break away from the cement in case of heavy weights or deflection, thus destroying the strength. To overcome this difficulty, I reinforce the top portion by bend-  
15 ing the metal on the top at right angles, making one or more folds, as shown at 5, or it may be bent over to form a plurality of vertical folds, as shown at 6, this reinforcement of the thin upper edges giving a greatly-in-  
20 creased strength to resist compression. In order to further maintain the integrity of bearers constructed in this manner, I clamp the sides together near the top either by  
25 straps, bolts, rivets, or other equivalent devices, as shown at 7, and in some cases I may reinforce the top of the bearer by longitudinally-disposed bars of iron or steel, as shown  
30 at 10, or the parts of one side being lapped over and riveted on the opposite side, as at 11.

The disposition of the plates 4, extending from one bearer to the other, having their edges turned down into the cement filling of the bearers, is well shown in Fig. 1, and the  
35 sides of the bearers at the top are bolted through at regular distances apart to prevent their spreading, as shown at 12.

As shown in Fig. 2, the sidewalk, roof, or floor, which may have a slight inclination, is  
40 so formed with the channeled cement-filled beams lying in the direction of the descent, that any water entering between the edges of the plates or superposed covering will pass into these channeled bearers, the outer ends  
45 of which may be supported on angle-iron of any thickness, as at 13, this angle-iron having channels cut out to correspond with the position of the bearers A, so that they may rest in these cut-out portions and extend far  
50 enough through to discharge the water on to the horizontal exterior portion of the angle-iron, thus leading it away from the inside surface of the wall beneath. If the illuminating tile or surface is level, these angle-irons may  
55 be employed at both ends.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A structure for floors, roofs, sidewalks  
60 and the like consisting of straight channeled, trough-shaped bearers closed at the bottom, open at the top and having a filling of cement mixture, said bearers having the upper edges bent or folded and approximately at right  
65 angles with the sides to resist the compressive

strain and tendency to buckle, and filled with cement mixture.

2. A surface for floors, roofs, sidewalks and the like consisting of sheet metal bent into the form of a channel with closed bottom and up-  
70 wardly-extended sides, said sides having the upper edges bent or folded with relation thereto to resist compressive force, a filling of cement within the troughs thus formed and transverse plates connecting said bearers and  
75 forming a support for illuminating-surfaces which are fixed thereon.

3. A surface for floors, roofs, sidewalks and the like consisting of sheet metal bent into the form of a channel with closed bottom and up-  
80 wardly-extended sides, said sides having the upper edges bent or folded with relation thereto to resist compressive force, a filling of cement within the troughs thus formed, transverse plates connecting said bearers and  
85 forming a support for illuminating-surfaces which are fixed thereon, said plates having their edges turned downwardly and embedded in the cement within the troughs and forming a substantially level surface with the body of  
90 cement exposed between the contiguous edges of the plates.

4. A floor sidewalk or like surface consisting of channeled bearers closed at the bottom having the upper edges bent or folded at the  
95 top to resist compressive force, and a filling of cement, transversely-disposed plates extending between adjacent bearers having their edges bent and adapted to enter the cement filling of the bearers and to interlock there-  
100 with and form a substantially level continuous surface, and lighting-surfaces or lenses fixed in said plates between the bearers.

5. A sidewalk, floor or roof lighting structure consisting of channeled bearers open at  
105 the top and having a filling of cement, transverse bars or plates connecting said bearers and forming supports for lighting-surfaces or lenses, said bearers having bolt or strap connections between their sides whereby they are  
110 prevented from spreading and becoming disengaged from the cement filling.

6. A sidewalk, floor and roof construction consisting of channeled bearers formed of sheet metal with close bottoms and open tops  
115 and a filling of cement, said bearers having the upper edges folded or corrugated to resist compressing strains, and bolts or straps by which opposite sides are connected together, and transversely-disposed plates or beams hav-  
120 ing downturned folds and extending between adjacent bearers, said downwardly-extending folds entering and being fixed by the cement contained in the channel-bearers, said plates having openings adapted to receive and sup-  
125 port the illuminating tiles or lenses substantially as described.

7. A floor, roof and sidewalk structure consisting of channeled trough-shaped bearers closed at the bottom and open at the top, with  
130



a filling of cement mixture, connecting-plates forming a top therefor having their meeting edges in line above the channels, slotted angle-iron outer supports through which the  
5 bearers extend and act as water-conductors.

8. A floor roof or sidewalk structure consisting of straight channeled bearers formed of sheet metal with closed bottom and open  
10 per edges to resist compression, and strips or bars 10 fixed vertically between the sides of the bearers, a filling of concrete within which

said bars are embedded and flat plates or bars extending transversely between the bearers, said plates having their edges turned down- 15  
wardly at right angles and embedded in the cement or concrete filling of the bearers.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:

S. H. NOURSE,  
JESSIE C. BRODIE.