

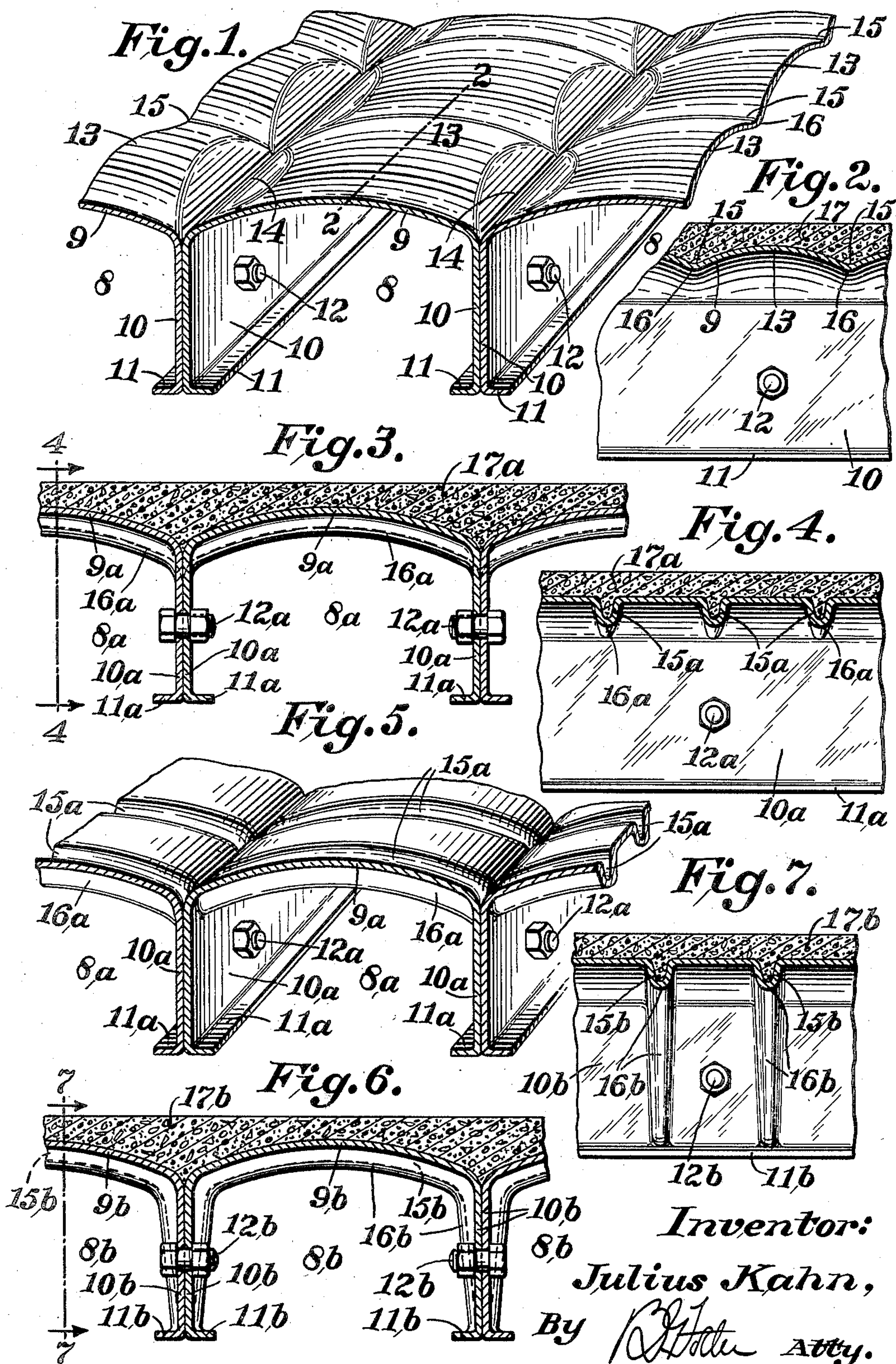
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FLOOR AND BEAM CONSTRUCTION

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FLOOR AND BEAM CONSTRUCTION

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11 Claims. (Cl. 72-66)

In an application for patent made by me, Serial No. 476,156, I have disclosed a self-supporting floor structure comprising units of formed metal having certain desirable characteristics.

5 The object of the present invention is to provide another embodiment of this invention in which the units may be of relatively light material and yet are strengthened and made rigid by peculiar conformation. The structure thus be-
10 comes available for use in buildings where the floor loads are relatively light, such as residences, office buildings, hospitals and the like.

In the accompanying drawing:

15 Figure 1 is a perspective view of portions of assembled units constructed in accordance with the present invention.

Figure 2 is a sectional view on the line 2-2 of Figure 1, and showing the tread material in place.

20 Figure 3 is a cross sectional view through another embodiment of the invention.

Figure 4 is a detail sectional view on the line 4-4 of Figure 3.

Figure 5 is a perspective view of portions of the assembled units shown in Figures 3 and 4.

25 Figure 6 is a cross sectional view of another embodiment of invention with the tread material in place.

Figure 7 is a detail sectional view on the line 7-7 of Figure 6.

30 Referring to the embodiment shown in Figures 1 and 2, the structure is made up of units designated 8. These are preferably of plate or sheet metal. Each is in the form of an elongated channeled structure, having a top bearing wall 9 with
35 integral side flanges 10 that terminate along their lower edges in inturned reinforcing ribs 11. The units are assembled by placing the side flanges 10 of one against the side flanges of the others on opposite sides and these flanges are suitably se-
40 cured together as by bolts 12 passing there-through. The result is a self-supporting structure in which the bearing walls are carried by beams formed by the flanges 10, these beams be-
45 ing in effect I-beams.

50 In the present embodiment the metal is preferably of relatively light gauge and in order that the top wall 9 shall be firm and rigid, it is transversely cambered or arched, as shown. In addition it is formed with a series of longitudinal
55 arched portions 13 that may be flattened at their ends, as shown at 14. This formation produces moreover in the upper side of each top wall a series of transverse channels 15 with correspond-
ing ribs 16 on the underside. Obviously there-
fore the wall is stiffened by the transverse arch-

ing and also by the series of longitudinal arches, and is further reenforced by the ribs 16. This wavy formation of the assembly is covered by a
5 suitable layer 17 of paving material, which forms what may be termed a tread surface that is flat.

In the structure shown in Figures 3 and 4, the units 8a are substantially of the same channel formation as above described, involving top bearing walls 9a, side supporting flanges 10a and in-
turned ribs 11a. The units are joined together by 10 bolts 12a. In this form of construction the top bearing wall 9a has more pronounced channels 15a located transversely at intervals in its upper side. The deformation of the metal in order to form
15 these channels results in underlying deeper ribs 16a. The paving material 17a that is laid over and upon the units of course is also located in the channels 15a, serving to cause an interfitting of the metal and paving material.

In the structure shown in Figures 6 and 7, the 20 units here designated 8b are as before of channel formation, involving top bearing walls 9b and side supporting flanges 10b with inturned reenforcing ribs 11b. Bolts 12b or other fasteners
25 serve to secure the units together by fastening together the supporting flanges. In this structure the transverse channels 15b are formed not only in the top bearing wall 9b, but extend down-
wardly and substantially the width of the side flanges. This produces arch ribs 16b from one 30
reenforcing rib 11b to the other reenforcing rib 11b of each unit, as will be clear by reference to Figure 6. The ribs 16b preferably taper to the ribs 11b. The paving material 17b, placed
35 upon the assembled units, enters the channels 15b and also fills the pockets formed by the associated ends of said channels, so that pegs are actually
40 formed of said paving material and are located between the flanges 10b, serving to effectively maintain the paving in position.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent
45 to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to with-
out departing from the spirit or sacrificing any of the advantages of the invention.

What I claim, is:

50 1. A flooring or like structure comprising an elongated channeled member having a top bearing wall and side flanges, said top bearing wall being arched both longitudinally and trans-
55 versely.

2. A flooring or like structure comprising an elongated channeled member having a top bearing wall and side flanges, said top bearing wall being arched transversely throughout its length and being also formed into a series of longitudinal arches.

3. A flooring or like structure comprising units of channeled form, each comprising a top bearing wall, side supporting flanges, said flanges having inturned ribs along their free edges, the bearing wall and the side flanges being transversely channeled on their outer faces, forming corresponding ribs on their inner sides that extend substantially from one inturned rib to the other and the portions of the bearing wall between the channels being longitudinally cambered into a series of arches.

4. A flooring or like structure comprising an elongated channel member having a top bearing wall and side flanges provided with inturned ribs along their free edges, the bearing wall and flanges being transversely channeled on their outer sides, forming corresponding ribs on their inner sides that extend from one inturned rib to the other.

5. A flooring or like structure comprising elongated units, each having an upper bearing wall and substantially parallel side flanges having transversely extended flat faced portions, said units being placed side by side with the adjacent parallel flanges of adjacent units conjointly acting as supports for the bearing walls, said bearing walls having transverse reinforcing ribs.

6. A flooring or like structure comprising units, each having an upper bearing wall and substantially parallel side flanges having transversely extended flat faced portions, said units being placed side by side with their flat faces having extended surface contact, the adjacent flanges of adjacent units conjointly acting as supports for the bearing walls, said bearing walls being arched

and having transversely disposed reinforcing ribs of less widths than the flat faced portions.

7. A flooring or like structure comprising an elongated channeled unit forming a top bearing wall with substantially parallel supporting side walls having transversely extended uncorrugated flat faced portions, said top bearing wall having portions longitudinally arched.

8. A flooring or like structure comprising an elongated channeled unit forming a top bearing wall with supporting side walls that are disposed in substantially parallel relation and have transversely extended uncorrugated flat faced portions, said top bearing wall comprising a series of integrally joined longitudinally arched portions.

9. A flooring or like structure comprising units having an upper bearing wall and substantially parallel supporting side walls having transversely extended uncorrugated flat faced portions, said units being placed side by side with the flanges conjointly acting as supports for the bearing walls, said flanges being provided with reinforcing ribs.

10. A flooring or like structure comprising units having an upper bearing wall and substantially parallel side flanges having transversely extended flat faced portions, said units being placed side by side with the adjacent flanges of adjacent units conjointly acting as supports for the bearing walls, said flanges including the flat faced portions being provided with reinforcing ribs on their inner sides.

11. A flooring or like structure comprising units having an upper bearing wall and substantially parallel side flanges having transversely extended flat faced portions, said units being placed side by side with the adjacent flanges of adjacent units conjointly acting as supports for the bearing walls, said flanges including the flat faced portions and the bearing walls having transverse ribs.

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