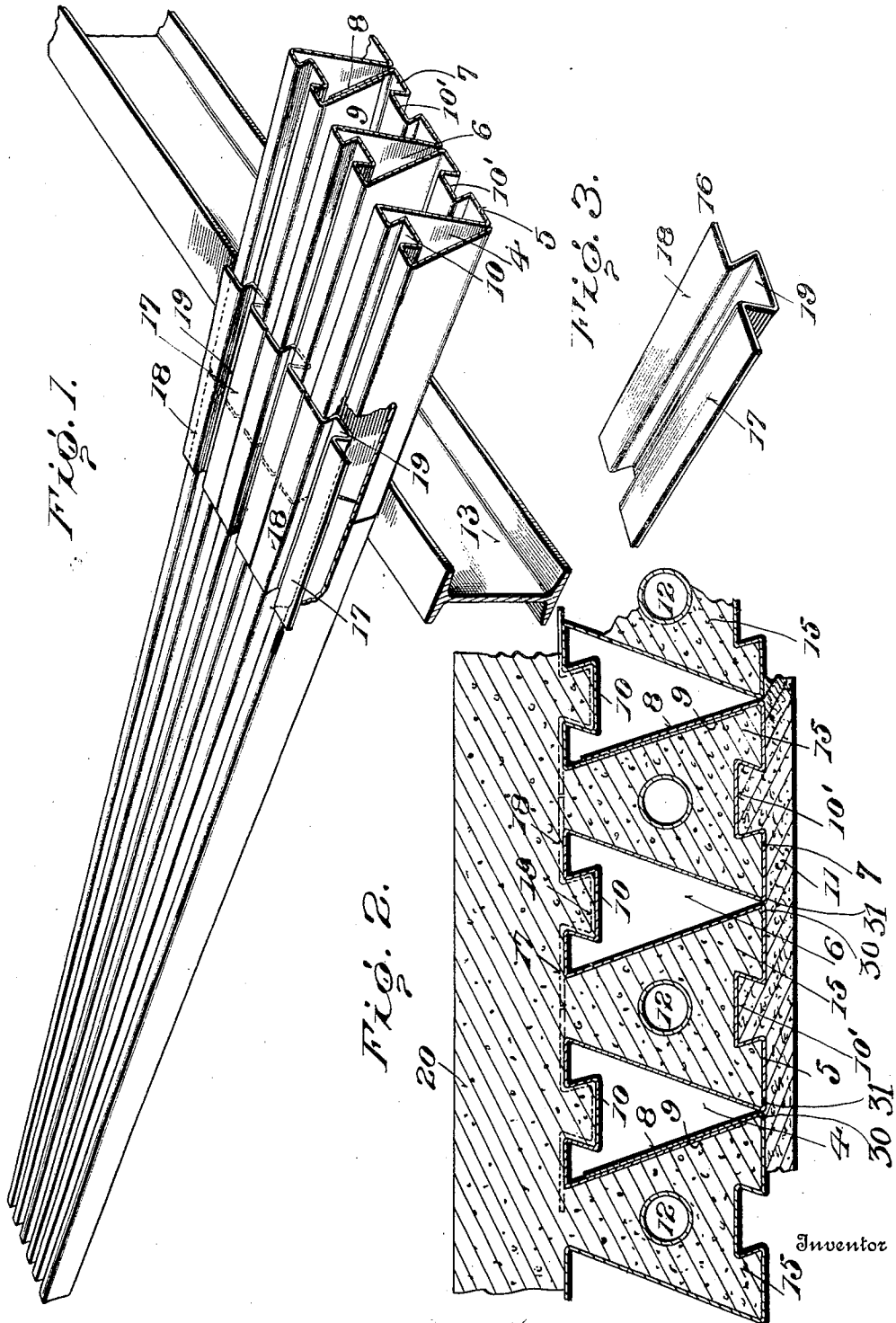


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FLOOR OR LIKE CONSTRUCTION.  
APPLICATION FILED JULY 15, 1907.

910,757.

Patented Jan. 26, 1909.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## FLOOR OR LIKE CONSTRUCTION.

No. 910,757.

Specification of Letters Patent.

Patented Jan. 26, 1909.

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*To all whom it may concern:*

Be it known that I, HENRY NEILL WILSON, of Pittsfield, Massachusetts, have invented a new and useful Floor or Like Construction, which invention is fully set forth in the following specification.

This invention relates to improvements in the construction of floors, partitions, walls, doors, etc., and may be most readily explained and understood by reference to the accompanying drawings, illustrating what is now believed to be the preferred embodiment thereof as applied, for example, to a floor of a fireproof building.

Figure 1 is a perspective view of part of the metallic portion of the floor, one of the supporting girders or beams being also shown; Fig. 2 is a transverse section through a portion of the finished floor; and Fig. 3 is a perspective view of a connection-device.

The floor illustrated in the drawing comprises metallic sections, each composed of a single sheet of metal, preferably galvanized sheet steel, bent to form a succession of preferably triangular cells such as 4, 5, 6 and 7, for example, the upper and lower faces of the cells presenting approximately parallel surfaces to which plaster, concrete or the like may be applied as hereafter explained.

Thus, in Fig. 2, for example, the lower faces of alternate cells 5 and 7 present a surface approximately parallel to the surface presented by the upper faces of alternate cells 4 and 6; it also follows, as clearly shown, that the positions of succeeding cells are reversed, one cell, such as 4, pointing toward one surface the next cell toward the other surface, and so on. In assembling a number of such sheet metal cellular sections side by side, the

side cells are preferably interlocked by engaging the edge 8 of one section within the edge 9 of the adjacent section, as shown for example in Figs. 1 and 2. In order to provide suitable grip for the plaster, cement or the like, each cell is provided at its surface with a dove-tailed groove 10, which forms a key for the covering of plaster, cement or the like. As shown in Fig. 2, alternate cells 5 and 7 are left open along their upper or narrow edges for the reception of a filling of cement, mortar, concrete or analogous material (for convenience, hereafter designated "stone-like material") capable of setting to form within said cells stone-like connecting bars 15 between the floor above and the ceiling below, said stone-like bars preferably al-

ternating with hollow air-filled cells, such as 4 and 6, for example. These air-filled or dead-air cells, instead of being left open for the reception of a filling of cement, mortar or analogous material, as in the case of cells 5 and 7, are closed, the bends or angles 30 and 31 in the sheet metal being in contact. Concrete, mortar, or analogous material, applied to the lower surface of the metal in Fig. 2, for example, is thus excluded from the cells 4 and 6, which are intended to remain hollow and constitute dead-air cells. Furthermore, the closing of intermediate cells by contact of angles 30 and 31 with each other, adds strength and rigidity to the structure.

When the construction is used for the floor of a building, as illustrated in the drawing, plaster 11 forming the ceiling may be applied to the under surface of the metallic cellular sections, being held securely in place by engaging the key-grooves 10. The floor surface may be composed of a covering of concrete or other stone-like material 20, preferably the same as used to form the filling for the cells 5, 7, etc., applied to the upper surface of the metallic sections and filling into the key-grooves 10 of said surface. The final floor covering, wood, tile, or the like, may be superimposed on the stone-like base. In filling the cells 5, 7, etc., I may, if desired, introduce tubes or pipes 12, to be used as conduits for electric wires, or for any other purpose which the convenience or character of the building may suggest. These pipes are preferably of such size as to pass into the cells through the openings along the upper edges thereof through which the stone-like filling is introduced.

In a floor, partition or the like, constructed as above described, the stone-like bars 15 constitute rigid, strong and durable connecting and supporting ribs between the opposite surfaces of the partition, or floor, reinforced on either side by the metallic walls of the cells. Some of the cells being hollow, spaces are thus afforded to permit all necessary expansion and contraction without injury to the construction, while the presence of the stone-like bars at the same time prevents collapse, buckling or the like of the cellular metallic part of the structure, particularly under severe strains, variations in temperature, etc.

In Fig. 2 I have illustrated a number of sections abutting end to end upon a supporting beam or girder 13, and held in proper relative position by connection devices 16,

which forms a part of my present invention. The connection-device 16, see Fig. 3, consists of a piece of sheet-metal, preferably galvanized steel, bent to form wings or flanges 17 and 18 separated by an interposed dove-tail rib 19. This rib is of such exterior dimensions as to slide into the ends of the undercut key-grooves 10, permitting the connection-devices to be brought to the positions shown in Fig. 2, the wings or flanges 17 and 18 of adjacent devices closely approaching each other to hold the cells of the metallic sections in proper relative upright positions until the intermediate open sided cells are filled with the stone-like material which sets to form the bars 15.

What I claim is:—

1. A floor, partition or the like, having sheet-metal bent to form a succession of side-by-side approximately triangular cells presenting opposite floor, wall or like surfaces, the position of succeeding cells being reversed and some of the cells being closed and hollow and other cells being open and filled with a stone-like material forming between said opposite surfaces connecting and sustaining bars separated by the hollow closed cells.

2. A floor, partition or the like, having sheet-metal bent to form a succession of side-by-side approximately triangular cells presenting opposite floor, wall or like surfaces, the position of succeeding cells being reversed and some of the cells being closed and hollow and other cells being open and filled with a stone-like material forming between said opposite surfaces connecting and sustaining bars separated by the hollow closed cells, and a covering of plaster, cement or the like applied to one or both of said surfaces.

3. A floor, partition or the like, having sheet-metal bent to form a succession of side-by-side approximately triangular cells presenting opposite floor, wall or like surfaces, the position of succeeding cells being reversed and all of the cells being closed at one of said surfaces but intermediate cells being open at the other surface, said intermediate

cells being filled with a stone-like material forming between said opposite faces connecting and sustaining bars separated by hollow closed cells.

4. A floor, partition or the like, having sheet-metal bent to form a succession of side-by-side approximately triangular cells presenting opposite floor, wall or like surfaces, the position of succeeding cells being reversed and all of the cells being closed at one of said surfaces but intermediate cells which present narrow edges at the other surface being open at said surface, said intermediate cells being filled with a stone-like material forming between said opposite faces connecting and sustaining bars separated by hollow closed cells.

5. The combination with opposing ends of two cellular sections, each section formed of sheet-metal bent to form a succession of hollow cells presenting opposite floor or wall surfaces, said sections each having at one of said surfaces one or more key-grooves adapted to be brought into alinement, of a connection-device having thereon a rib adapted to fit into the adjacent ends of two alined grooves of the two sections.

6. The combination with opposing ends of two cellular sections each section formed of sheet-metal bent to form a succession of hollow cells presenting opposite floor or wall surfaces, said sections each having at one of said surfaces one or more key-grooves adapted to be brought into alinement, of a connection device having a rib adapted to fit into the adjacent ends of two alined grooves of the two sections and one or more wings each adapted to approximate contact with a similar wing of another such connection-device.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY NEILL WILSON.

Witnesses:

JONATHAN HAIGHT,  
CHARLES H. WRIGHT.