

No. 662,597.

Patented Nov. 27, 1900.

P. H. JACKSON.
FLOOR, SIDEWALK, OR THE LIKE.

(Application filed Dec. 4, 1899.)

(No Model.)

Fig. 1.

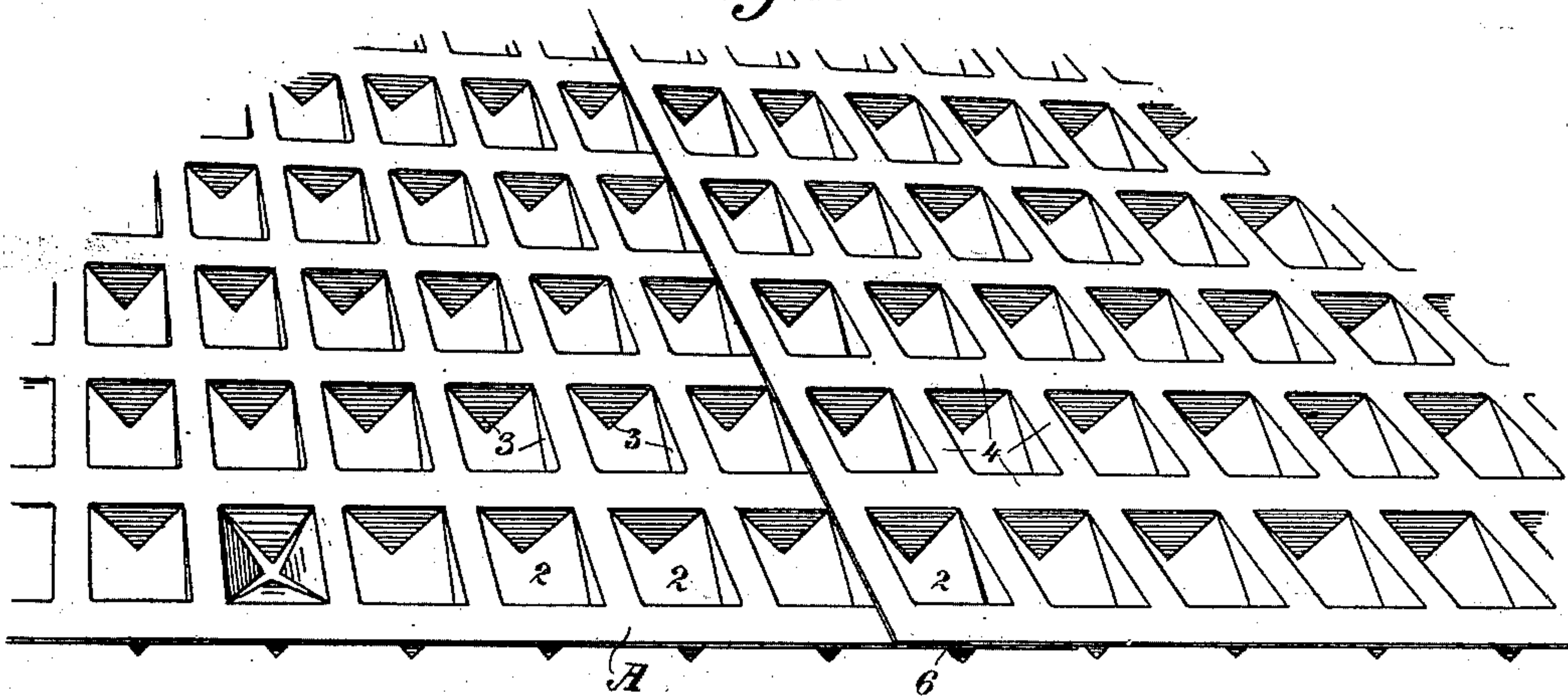


Fig. 2.

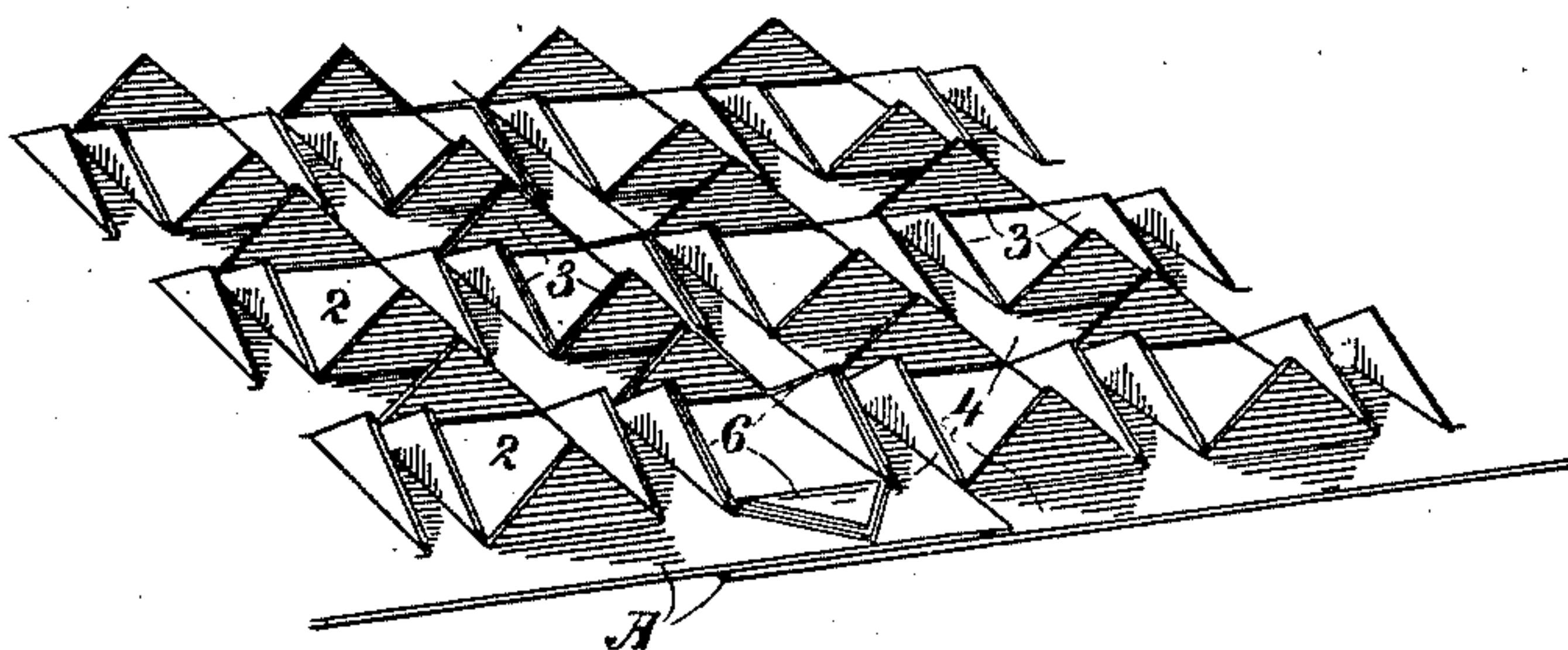


Fig. 4.

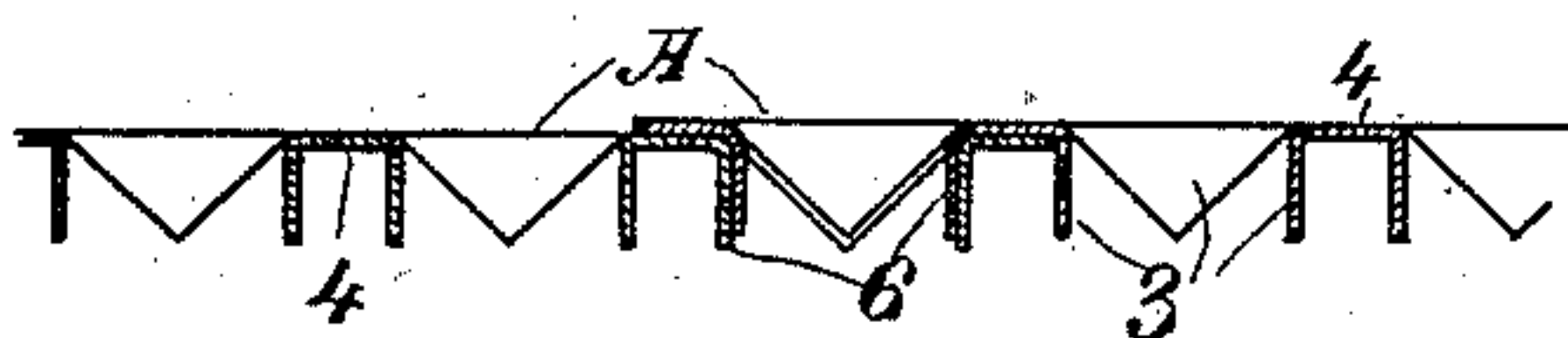
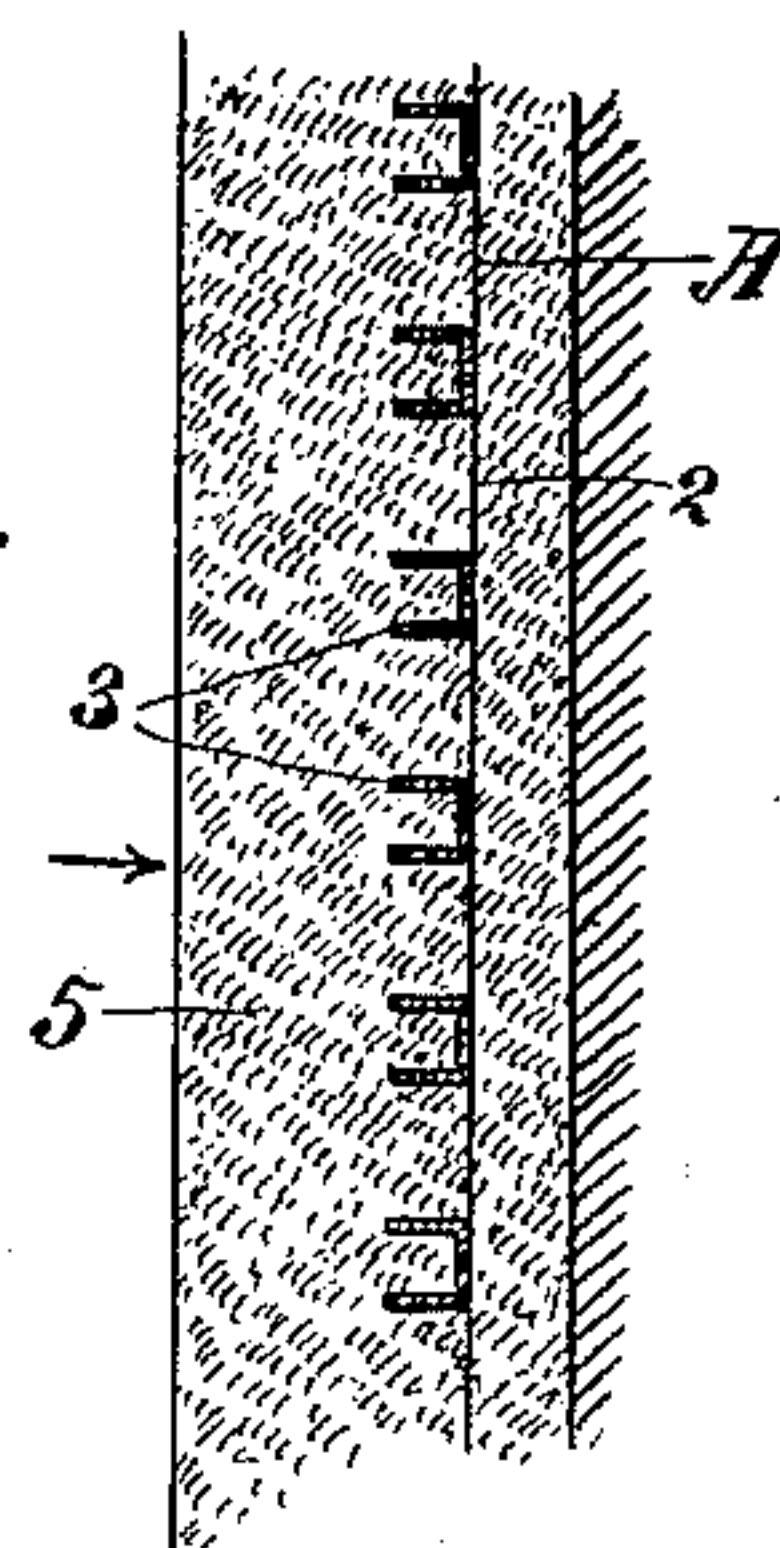


Fig. 3.



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UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

FLOOR, SIDEWALK, OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 662,597, dated November 27, 1900.

Application filed December 4, 1899. Serial No. 739,164. (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, Wall, Roof, or Like Structures; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in fireproof floors, roofs, sidewalks forming roofs to vaults or rooms beneath, also walls and the like; and its object is to provide an inexpensive fireproof roof, floor, wall, or like construction to resist tensile or lateral pressure.

It consists of a web formed of sheet metal punched so as to form openings with burs or walls projecting approximately at right angles with the surface of the sheet, the ribs intermediate between said openings forming continuous direct lines approximately at right angles with each other and forming, essentially, straight and continuous linear bars to resist tensile and other strains and in combination therewith of a coating of plastic material which will solidify and harden by age, within which the metal structure herein described is embedded and of which it forms an integral part.

The invention also consists in the arrangement and combination of parts, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of a section of a plate, showing one arrangement of the openings and burs. Fig. 2 is a view of the opposite side, showing contiguous sheets overlapping and the burs interlocked. Fig. 3 shows the completed structure with the concrete or equivalent material in which the metallic frame is embedded. Fig. 4 is a section through the sheet metal.

A is a sheet of metal having apertures 2 punched through it in such a manner that upturned burs 3 project from the sheet surrounding the apertures and extend away from the sheet on one side. These openings may be made of any suitable shape, but preferably rectangular, as here shown, and in line with each other, so that between each row of openings and transversely to each other are formed a line of connecting strips or ribs 4,

and these ribs being in direct line with each other directly resist any tensile or other strain brought upon them independent of the concrete or equivalent material in which the structure is embedded. 5 represents this body of concrete or other material, which is applied to the metal structure when in a plastic state and covers it upon both sides, passing through the interstices, so that the material upon both sides unites and with the metal forms an integral structure having the combined virtues of the metal and the covering material. The burs from the sheet may project either into the thicker or main body of the concrete material, or they may project in the opposite direction into the thinner portion. The former construction is preferred. When the plastic material is solidified and hardened, the sheet metal is incorporated with the concrete body and largely increases the strength of the floor or other structure to bear loads.

When applied to concrete walls to resist lateral pressure, the bur sheet metal is preferably placed to one side of the center of the thickness of the wall, preferably farthest away from the side on which pressure is exerted, so that the thickness of coating material will resist compressive strain, while the metal nearer to the opposite side resists the tensile strain which would tend to separate the opposite side of the wall. These metal burs may be formed by punching the holes and at the same time turning them up in any suitable inexpensive manner, and these burs surrounding the weaker concrete that projects through the holes and unites with the body upon the other side coats or shoes the concrete with metal walls upon all sides, which act like a metal band having considerable width, and this prevents the metal from slipping with relation to the concrete body when subjected to tensile strain and also prevents its cutting into the weaker concrete. By making these holes, of whatever shape, in direct lines the metal between the holes also extends in direct lines, forming ties which resist tensile strain. These metal ribs or ties being straight, there are no kinks or bends in it in a direct line with the force exerted, and when the sheet metal presses against the softer concrete material there is

a wide band surrounding this material to prevent the metal crushing into it. The metal being cut or punched in this manner, differs from metal which is slit and afterward stretched apart or expanded in that it presents the direct resistance of the straight ribs to any tensile strain and is not dependent upon the concrete filling to prevent the tendency of the metal to stretch and contract its width with a tendency to close the openings which must be resisted by the cement or filling which passes through the apertures. No strain is brought upon the metal by thus stretching it, and it presents its full strength to resist any strain brought upon it.

When sheets are to be united so as to form a considerable surface, the burs formed upon the outer row of each sheet may be interlocked with those upon the next adjoining sheet, either remaining vertical like the others or parts of them may be bent over after being interlocked, as at 6. In this manner an inexpensive continuous concrete-strengthened floor or wall may be made.

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

1. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming the body, and plates of flat sheet metal embedded therein, farthest from the surface from which the pressure is exerted, said plates having rectangular openings in the direct line of strain, and said openings being filled with pillars of concrete forming

continuations of the bodies upon opposite sides of the plate, and upturned metal flanges surrounding and inclosing the concrete pillars.

2. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming the body, and plates of flat sheet metal embedded therein in planes within that portion which is subjected to tensile strain, said plates having rectangular openings, two sides of which are at right angles with the lines of strain, and through which the body of concrete or like material above and below the plates is united, said openings having vertical upturned walls surrounding and inclosing the concrete pillars which extend through them.

3. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming a body, plates of sheet metal embedded therein, said plates having rectangular openings with the sides parallel with the edges of the sheets, and upturned walls surrounding the openings, the edges of contiguous sheets being overlapped and the projecting walls of a line of openings of one sheet entering the openings of the other, said walls being afterward folded or interlocked.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:

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JESSIE C. BRODIE.