

(No Model.)

P. H. JACKSON.

FLOOR, ROOF, OR SIDEWALK CONSTRUCTION.

No. 583,685

Patented June 1, 1897.

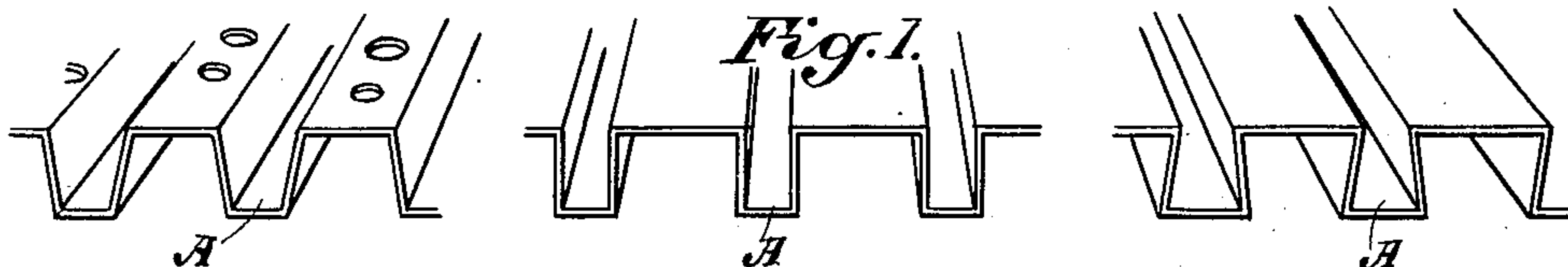


Fig. 2.

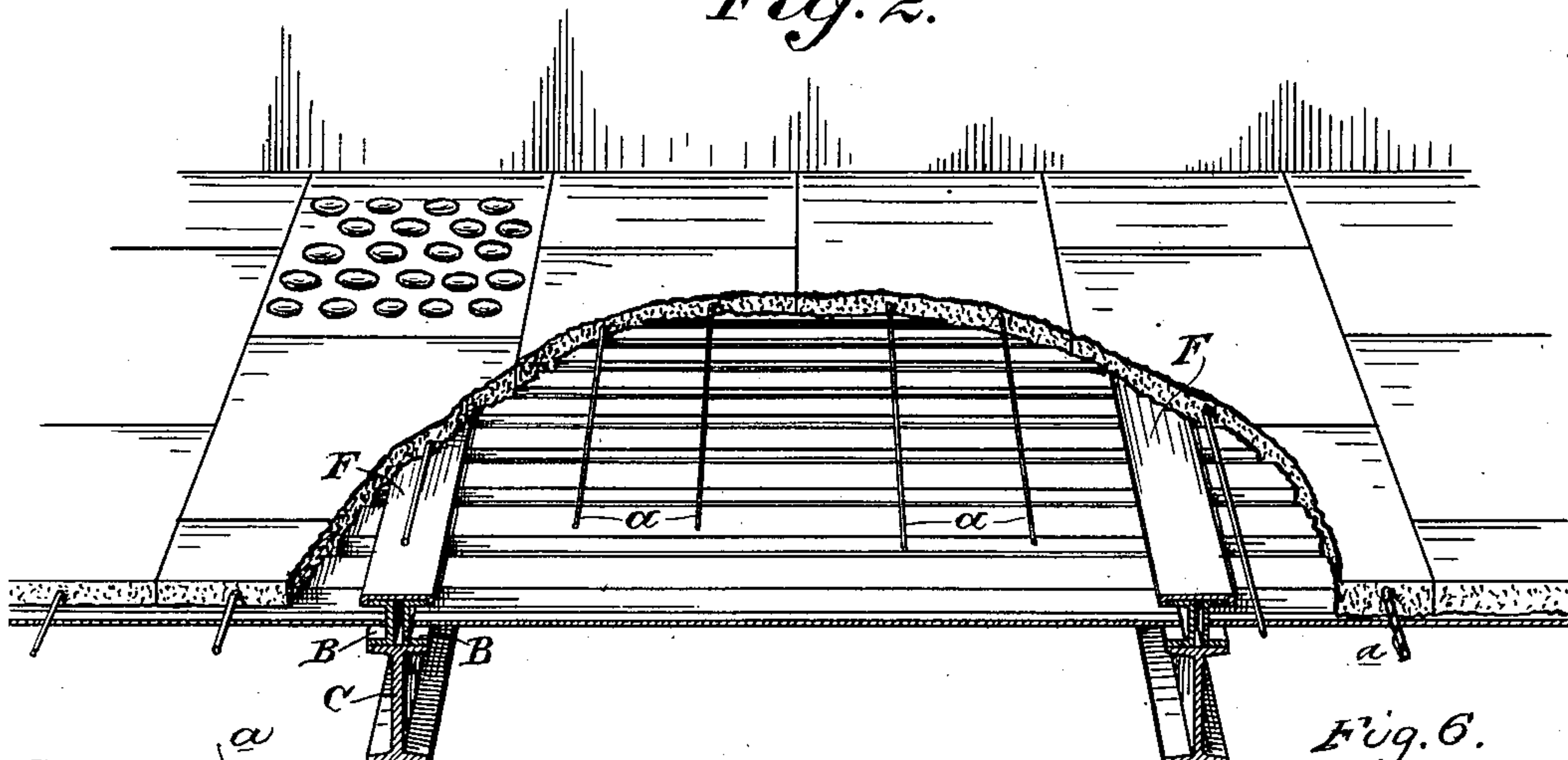


Fig. 3.

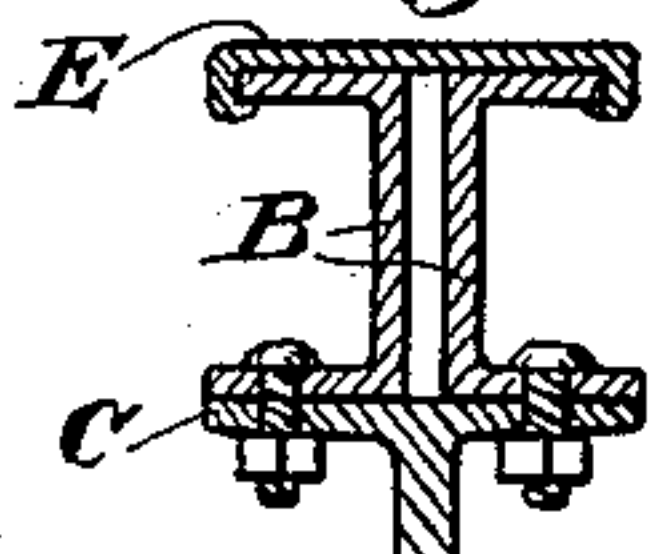


Fig. 4.

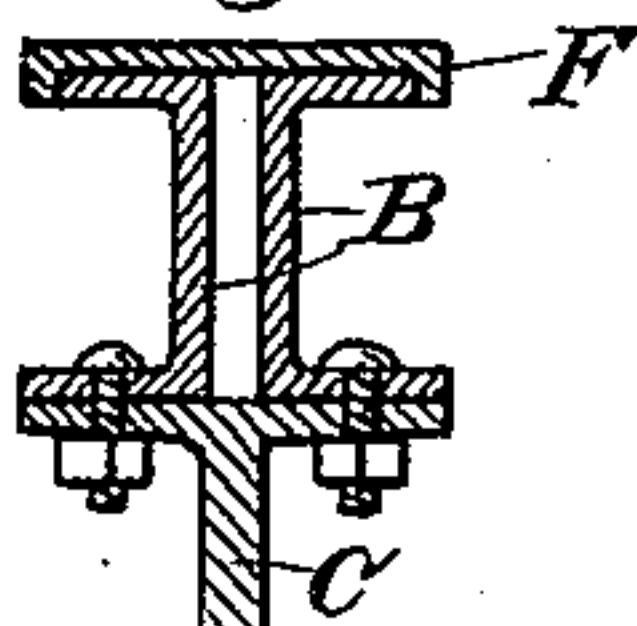


Fig. 6.

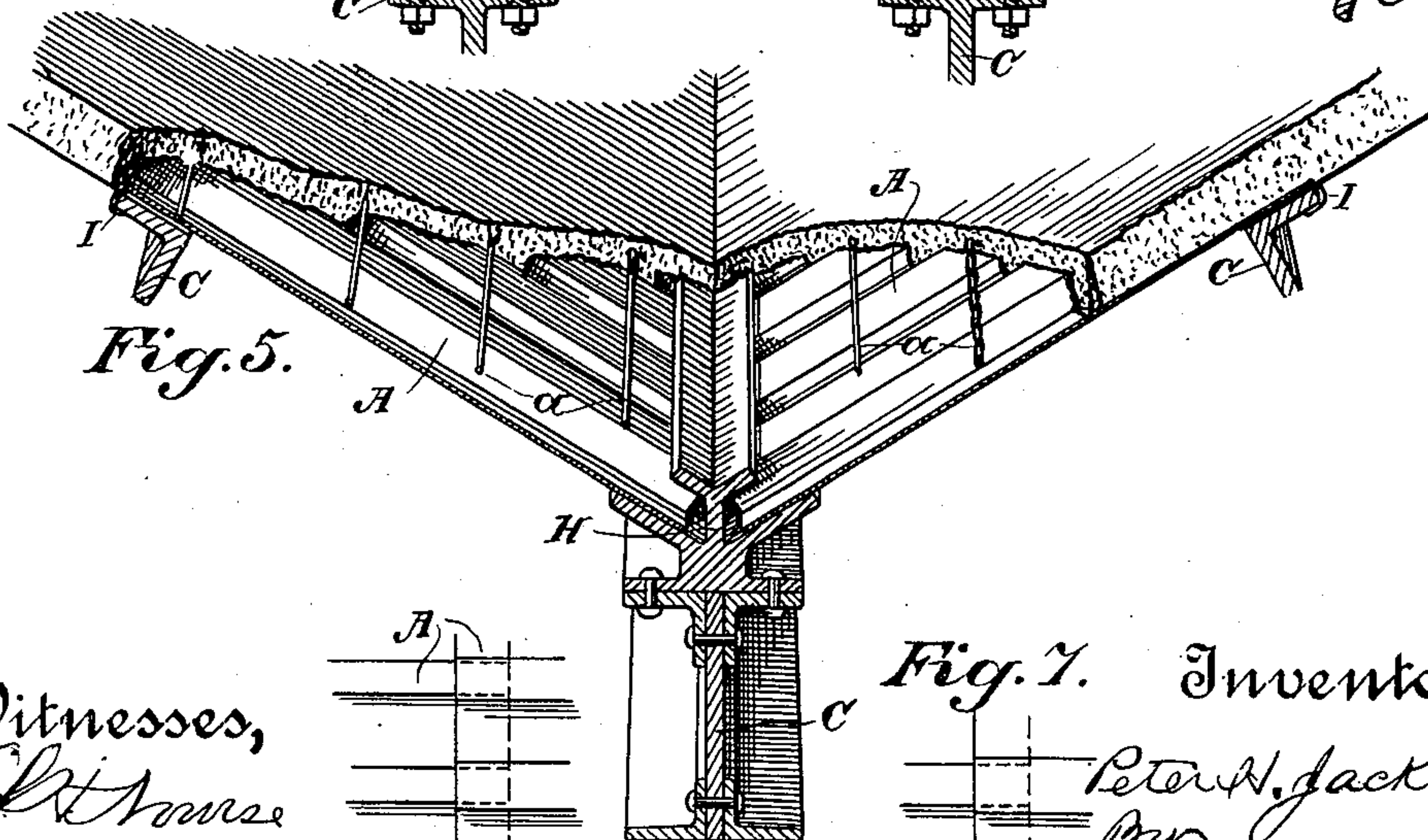
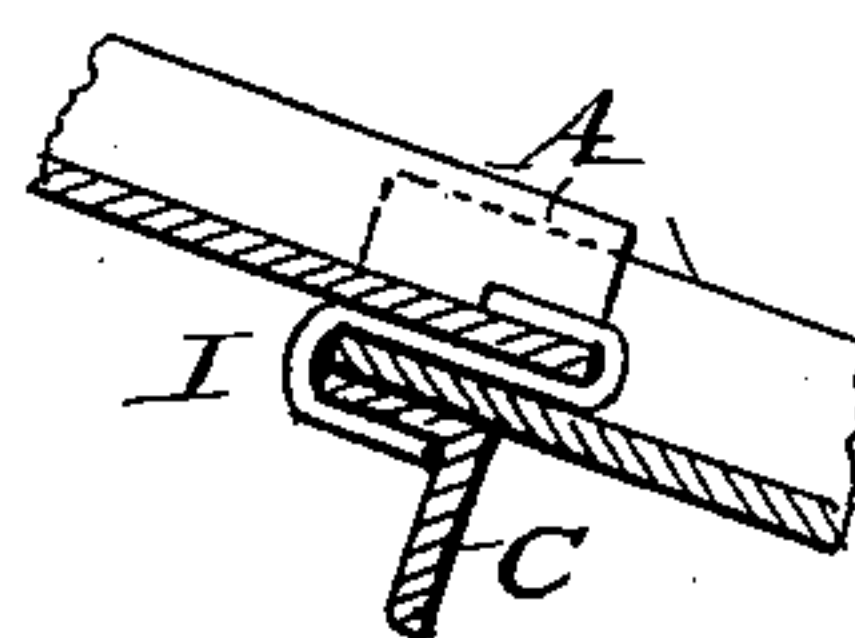


Fig. 5.

Fig. 7.

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UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

FLOOR, ROOF, OR SIDEWALK CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 583,685, dated June 1, 1897.

Application filed July 23, 1896. Serial No. 600,291. (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, Roof, or Sidewalk Construction; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in fireproof floors, roofs, sidewalks forming roofs to vaults beneath, and the like; and it consists in the parts and the constructions and combinations of parts which I shall hereinafter describe and claim.

Figure 1 shows a series of retaining-channels. Fig. 2 shows the application to a sidewalk. Fig. 3 is a section through one of the joints, with clamp. Fig. 4 is a similar view with a cap. Fig. 5 shows the application to a valley in a hipped roof. Fig. 6 shows the hook-clamp applied to roof-plates. Fig. 7 is a plan showing the telescoping plates.

The object of my invention is to provide a covering-surface either for roofs, floors, sidewalks, or other covered or vaulted spaces in which corrugated-metal plates or sheets form the bottom and are adapted to resist tensile strains when loaded, said sheets also being so constructed as to form retaining-channels, which are filled with artificial stone, concrete, or Portland cement, and which may have a superposed covering of slabs of natural stone cemented thereon, these being wholly (or nearly so) above the neutral axis line, so that while the lower metal portion below this line is adapted to resist tensile strain the upper surface is in like manner adapted to resist the compressive strains which take place above this neutral axis when there is a load upon the surface.

In the construction, I have shown metallic plates A which are formed with alternate channels and surfaces, these channels being either V-shaped, rectangular, or dovetailed and of such relative depth and width that they will cause the material used as a filling and covering to form a bond with the sides of these retaining-channels. It will be understood that the upper flat portion of the plate or sheet may be made with perforations or

openings for the reception of glass for illumination, this being used whenever an artificial-stone surface completes the floor or roof, but when natural blocks of stone, marble, or other material are employed these surfaces will remain unperforated. They will, however, be covered with any suitable adherent cement, into which the blocks which form the upper surface will be embedded, and to which they will be properly cemented, the edges of the blocks being also cemented together, so as to form a complete surface and bond. In order to prevent these corrugated-metal sheets from spreading in the direction transverse to the channels, I have employed small metal rods *a* with roughened surfaces or wire twisted or otherwise arranged so as to be embedded in the cementing material and assist as well in holding that in place. The sheets thus formed of corrugated or channeled metal are united at the ends by means of channeled-iron bars B, which are adapted to rest upon the purlins or supports C, with the channeled sides facing the ends of the corrugated plates. These channeled-iron strips are forced strongly upon the corrugations, which thus fit tightly within the channels, and as the channel-irons are essentially straight these corrugated plates are also maintained in a straight position by the strips.

The channel-irons may be either bolted to the supporting-beams C or they may be held together by clamps, as shown at E, these clamps preventing them from moving laterally in case of any movement or settlement of the beams and thus preventing any leak taking place at that point. In order to still further protect these meeting-joints, I have shown sheet-metal clasps F, which are fitted over the two abutting channel-iron beams B, so as to completely close any space or opening between them. When this metal base has been completed, it is filled in with the cementing material to a point above the highest projecting part of metal, and the slabs are then laid on and pressed into the cementing material when natural or other slabs are used. In case the artificial-stone filling is used this will be built up to the proper depth to form the top surface, the wires or tie-rods *a*, pre-

viously described, serving to bind the whole together and to prevent cracking of the cement or artificial-stone filling. This construction is of value because it costs less to sustain equal loads as compared to brick or concrete arches with artificial-stone sidewalks on the top, there being no extra expense for the arches, cost of centers, &c. It also allows of a comparatively shallow covering-surface, which is important wherever the underground spaces, excavations, or chambers are not deep, as it gives a good distance between the floor and the roof of such subterranean chambers without unduly increasing the depth of the chamber. This is especially important where the surface of the ground is but little above tide or other water. Where this construction is used for a roof-surface in which there are "valleys," so called, I finish the meeting ends of the corrugated retaining-channels by connecting them with a metal socket-piece, as shown at H, this piece being formed with channels similar to the channel-iron connecting-strips B, previously referred to, but standing at the same angle as the pitch of the roof toward the valley. The ends of the retaining-channels are then forced or crowded into this space, and as no holes or openings are made there is no chance for leakage at this point, the cast-iron piece being in itself waterproof without reference to the cement or other filling which may be applied upon it. This iron support is bolted or otherwise secured to the beam or purlin upon which it is to rest. The meeting ends of the corrugated sections A may also be united by overlapping, the sheets being so rolled that those at the highest point of the slopes will be made the narrowest, the next below with the corrugations enough wider to receive the lower ends of the uppermost ones, the channels in all cases being straight and gradually increasing in width, so that each set above will fit into the next surface below until the lowest point is reached. In order to hold these overlapping sheets in place and prevent their slipping, I have shown clamps I, which are adapted to hook over the upper edges of the beam or purlin upon which the joint is supported, while the lower ends are turned upward and backward upon themselves, so as to form a sort of a hook into which the lower ends of the sections are received and by which they are prevented from slipping downward and getting out of place.

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

1. A composite sidewalk floor or roof consisting of metal sheets forming a lower surface having retaining-channels for the reception of a plastic filling of cement and a top surface cemented directly to the said plastic filling and adapted to resist compressive force, said metallic surface being formed in sec-

tions, and channel-irons forced upon the ends of the corrugated metallic sheets; the backs of said channel-irons meeting and being supported as described.

2. A sidewalk, floor or roof consisting of metal sheets forming a lower surface having retaining-channels, and supporting either a surface of artificial stone or concrete, or a plastic filling of cement and a top surface of natural slabs or blocks cemented directly thereto and to each other, at the edges and adapted to resist compressive force, said metallic surface being formed in sections, and channel-irons forced upon the ends of the corrugated metallic sheets with clamps or bolts to retain them in position.

3. A sidewalk floor or roof consisting of a bottom formed of metal plates or sheets having retaining grooves or channels formed therein, channel-irons forced upon the ends of these plates, beams upon which the channel-irons are supported in line with the beams, clamps or bolts whereby they are retained and prevented from separating along their line of contact, and a filling or covering of plastic material cemented thereto and forming a superposed upper surface.

4. A composite sidewalk, floor, or roof, consisting of metallic sections having retaining channels or grooves formed therein to receive a filling of plastic cement, channeled-iron plates forced upon the ends of these corrugated sheets supported on beams or purlins, and a sheet-metal covering fitting over the junction of channel-plates with a superposed filling of artificial stone or concrete forming a top surface.

5. A composite sidewalk floor or roof consisting of metallic sections having retaining channels or grooves formed therein to receive a filling of plastic cement, channeled-iron plates forced upon the ends of these corrugated sheets and supported upon beams or purlins, bolts or clamps by which they are secured together to prevent the separation along their line of junction, and a sheet-metal covering fitting over the junction-line of said channel-plates, in combination with a filling of cement and superposed surface.

6. In a sidewalk floor or roof, corrugated metal plates or sheets having deep retaining channels or grooves, the ends of the corrugated sheets or plates resting on supporting-beams or purlins, clamps by which they are held, two or more wires twisted together forming a strand, or wire, rods, or plates, with roughened or uneven surfaces stretched transversely across the top of the corrugated sheets, a filling of plastic cement within the channels of the corrugated sheets and extending above the twisted wires, rods, or plates which are embedded therein to form a transverse bond within the surface of the material.

7. A sidewalk, floor or roof, consisting of a bottom formed of metal plates or sheets hav-

ing retaining grooves or channels formed therein, a filling of artificial stone, cement, or concrete within the grooves and extending up and forming a top surface, two or more
5 wires twisted into a single strand or plates, rods, or wires having roughened or uneven surfaces built in beneath the top surface of the artificial stone, cement, or concrete in a cross-direction to the grooves to keep the

metal grooves from spreading when subjected to strain.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:

S. H. NOURSE,
WM. F. BOOTH.