

(No Model.)

P. H. JACKSON.

PAVEMENT, SIDEWALK, FLOOR, &c.

No. 371,845.

Patented Oct. 18, 1887.

Fig. 1.

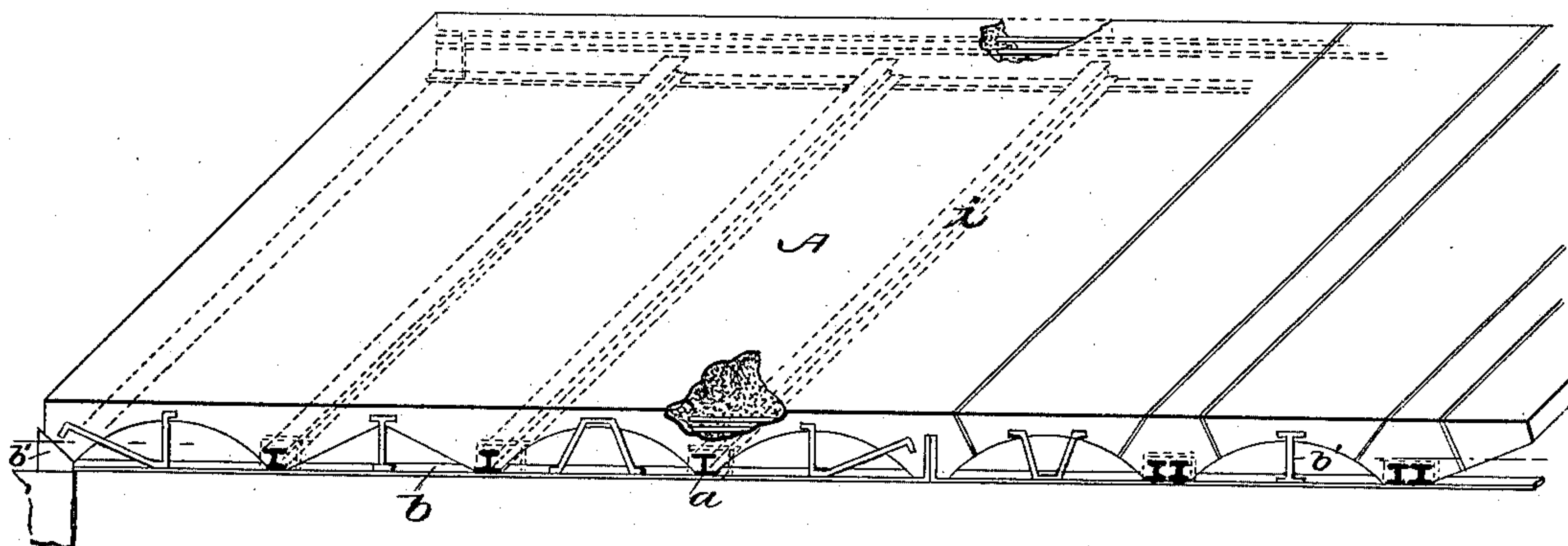


Fig. 2.

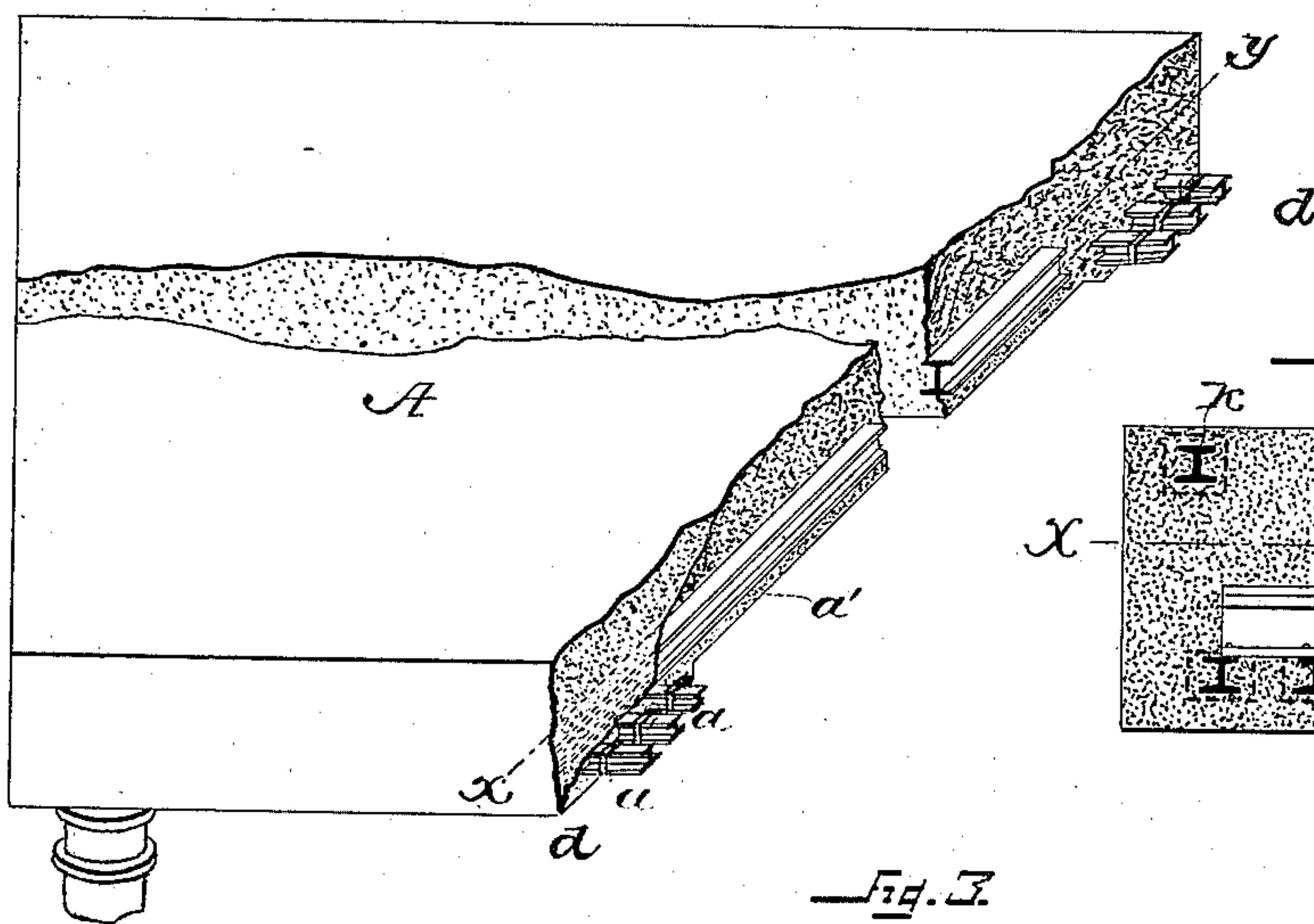


Fig. 4.

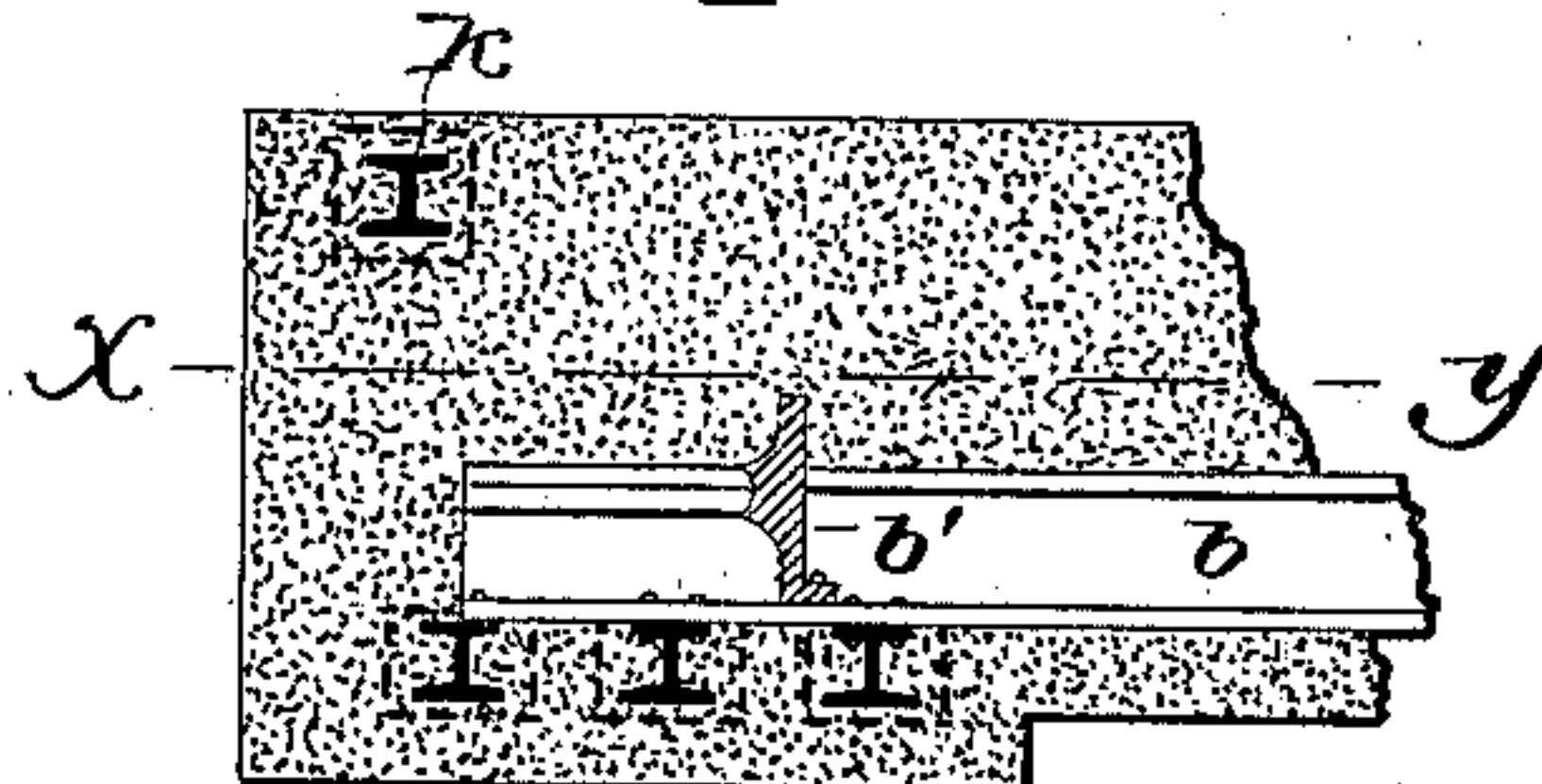
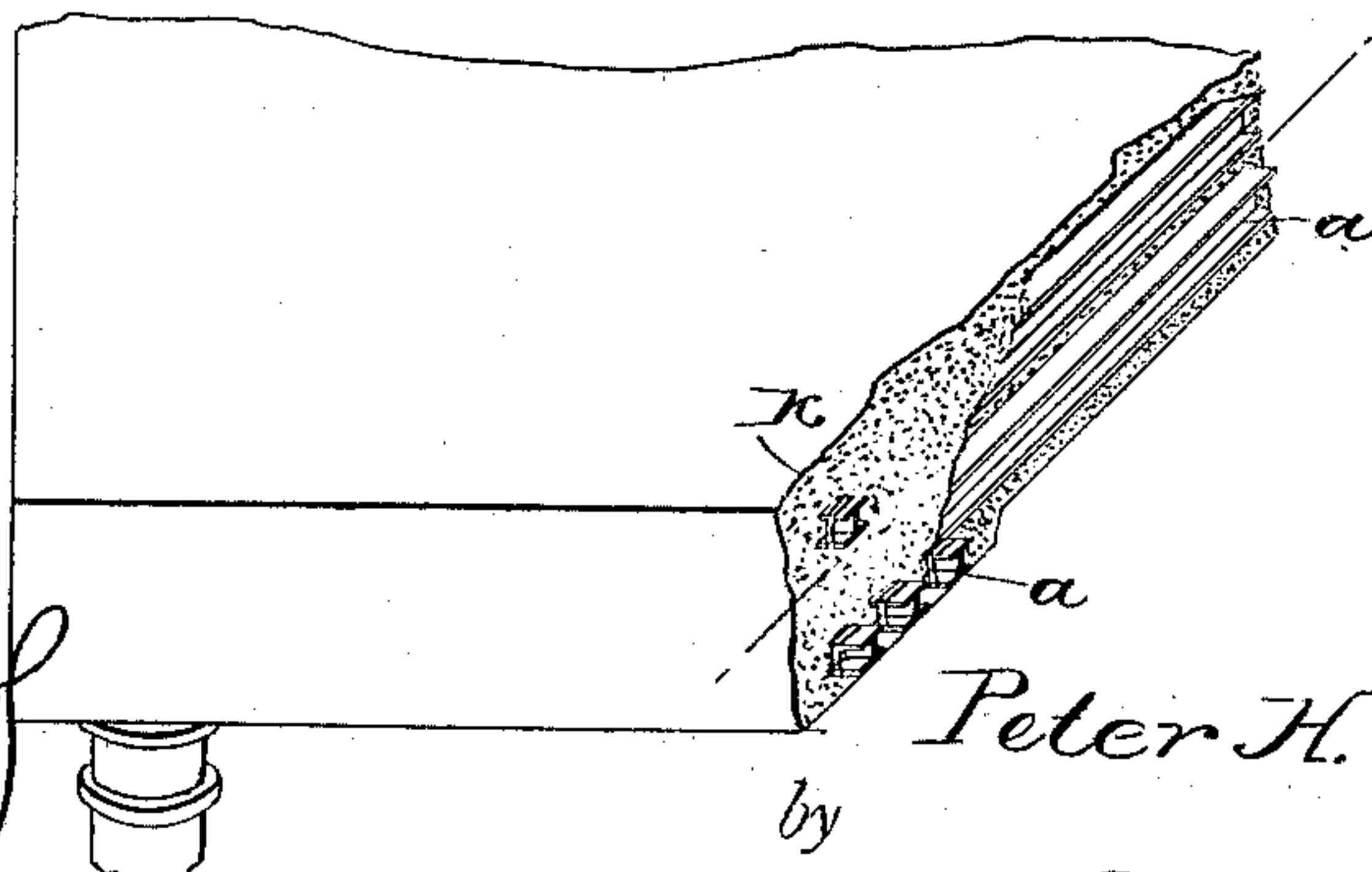


Fig. 3.



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UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

PAVEMENT, SIDEWALK, FLOOR, &c.

SPECIFICATION forming part of Letters Patent No. 371,845, dated October 18, 1887.

Original application filed January 7, 1886, Serial No. 187,930. Divided and this application filed April 19, 1887. Serial No. 232,456. (No model.)

To all whom it may concern:

Be it known that I, PETER H. JACKSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Pavements, Sidewalks, Floors, and Similar Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to pavements, sidewalks, floors, and similar structures.

The object is to prevent pavements, sidewalks, &c., when made in large pieces or bodies of artificial stone or similar material, from cracking while drying out from a plastic to a solid state, and also to increase the strength and durability of a sidewalk, floor, or like body of artificial stone or similar material, and at the same time reduce the cost of the structure.

With these objects in view my invention resides, essentially, in a pavement, sidewalk, floor, or like structure, of artificial stone or similar material, resting on end supports and covering a chamber, vault, or other space below, and having embedded and cemented in it below its neutral line, and extending both longitudinally and transversely through the material of the body, small flanged metallic beams or bars having upright resistance-plates, that part or those parts of the body in which the longitudinal flanged beams are embedded and cemented forming a girder which is integral with the body of the pavement; furthermore, in strengthening those parts of the body near its edges by a small flanged metallic beam or flanged beams or a bar or bars having end resistance-plates embedded and cemented therein above the neutral line; and, finally, the invention consists in embedding and cementing in a body of artificial stone or similar material, both below and above its neutral line, small flanged metallic beams or bars having resistance-plates, the said beams or bars extending in both directions—that is, longitudinally and transversely through the body.

In the accompanying drawings, in which

like letters of reference indicate corresponding parts, Figure 1 is a perspective view of a sidewalk, bridge, or like structure, of artificial stone or similar material, constructed in arches or bays and supported on end supports, showing small flanged metallic beams or bars having upright resistance-plates embedded and cemented in the footings of the arches below the neutral line of the structure, and similar beams or bars embedded and cemented in the body near the upper edge above its neutral line. Fig. 2 is a perspective of a sidewalk, of artificial stone or similar material, supported on end supports over a vault or chamber, showing small flanged metallic beams embedded and cemented both longitudinally and transversely in the body below the neutral line thereof, to resist tensile strain in both directions, the flanged metallic beams being thus a part of the body of the sidewalk integral therewith, the material of the body above the neutral line thereof resisting compressive force in all directions. Fig. 3 is a perspective view, partly in section, of a sidewalk, bridge, or like structure, of artificial stone or similar material, supported on end supports, preferably located at the house and the curb, showing small metallic beams embedded and cemented in the body below its neutral line both longitudinally and transversely, and showing also similar flanged beams embedded in the body above its neutral line near its upper edges. Fig. 4 is a sectional detail view of one end of a structure similar in construction to that shown in Fig. 3, and showing also an upright resistance-plate bolted to a transverse beam or bar near one of its ends.

This application forms a division of the original application filed by me January 7, 1887, Serial No. 187,930.

The great objection to sidewalks of artificial stone and the like as heretofore constructed has been that when such a pavement was made in large pieces it would crack on its upper surface while drying out from a plastic to a solid state, presenting a very unsightly appearance, and breaking and wearing out much sooner than would be the case if the upper surface of the sidewalk were intact. Where the beam is separate from the sidewalk or

body the compressive force spreading over the top surface of the sidewalk ceases at the line where the beam joins the body, and the upper surface of the sidewalk cracks and separates itself from the girder at that point.

In order to resist the tensile strain in the lower part of the sidewalk or other body, which extends from the neutral line xy down to and is greatest at the bottom surface of the body, I embed in the body A below its neutral line, both longitudinally and transversely, small flanged metallic beams a and a' and bars b , having upright resistance-plates b' bolted or otherwise secured to them near their ends, so that when the sidewalk is deflected under any weight the beams cemented in the body below its neutral line, or the bars having the upright resistance-plates over which the material cannot slip, and which are practically integral with the body, will hold and strengthen the sidewalk against tensile strain in both directions. The compressive force above the neutral line xy (see Fig. 2) operates from the inner side of the sidewalk toward the curb d , and from the curb toward the inner side, and also acts from the transverse beams a' toward the center of the arch or space between each pair of transverse beams. The compressive force thus acting from every direction to compress the upper surface of the sidewalk and effectually prevent it from cracking, that part of the body which forms a concrete girder having the longitudinal flanged beam or beams a embedded in it below its neutral line not being separated from the body A, but forming an integral part thereof, the compressive force is enabled to exert itself uninterruptedly throughout the whole upper surface of the sidewalk, gradually diminishing toward the center i .

It will be seen that by constructing the girder integral with the sidewalk or other body I prevent the upper surface of the body from cracking at the point or line where it joins the girder.

In order to strengthen the upper edges of the body A, I embed therein, above the neutral line thereof, small flanged metallic beams k , only one of which is shown in Figs. 3 and 4, or rods or bars having end resistance-plates secured upon them in like manner as they are shown applied to beams h' in Fig. 4. A side-

walk, bridge, or other body of artificial stone or similar material may have flanged metallic beams or bars having resistance-plates embedded and cemented in it both longitudinally and transversely, either below or above its neutral line, or both above and below the said line or plane.

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

1. A pavement, sidewalk, or like body, of artificial stone or similar material, supported on end supports, and having a girder or girders formed integral therewith, with flanged metallic beams or bars having end resistance-plates embedded and cemented in it below its neutral line both longitudinally and transversely, substantially as described.

2. A pavement, sidewalk, or like body, of artificial stone or similar material, supported on end supports, having a girder or girders formed integral therewith, with one or more flanged beams or bar or bars having end resistance-plates embedded and cemented in it below its neutral line, and a flanged beam or bar or bars having end resistance-plates embedded and cemented in the body above the neutral line thereof, substantially as set forth.

3. A pavement, sidewalk, bridge, or like body supported on end supports and composed of artificial stone or like material, with a flat or arched lower surface, and having flanged metallic beams or bars provided with upright resistance-plates embedded and cemented in it both longitudinally and transversely below its neutral line, and a flanged beam or bars having end resistance-plates embedded and cemented in the structure above its neutral line, substantially as shown and described.

4. A pavement, sidewalk, bridge, or like body supported on end supports and composed of artificial stone or similar material, with a flat or arched lower surface, and having flanged metallic beams or bars provided with upright resistance-plates embedded and cemented in it both longitudinally and transversely below and above, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PETER H. JACKSON.

Witnesses:

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