

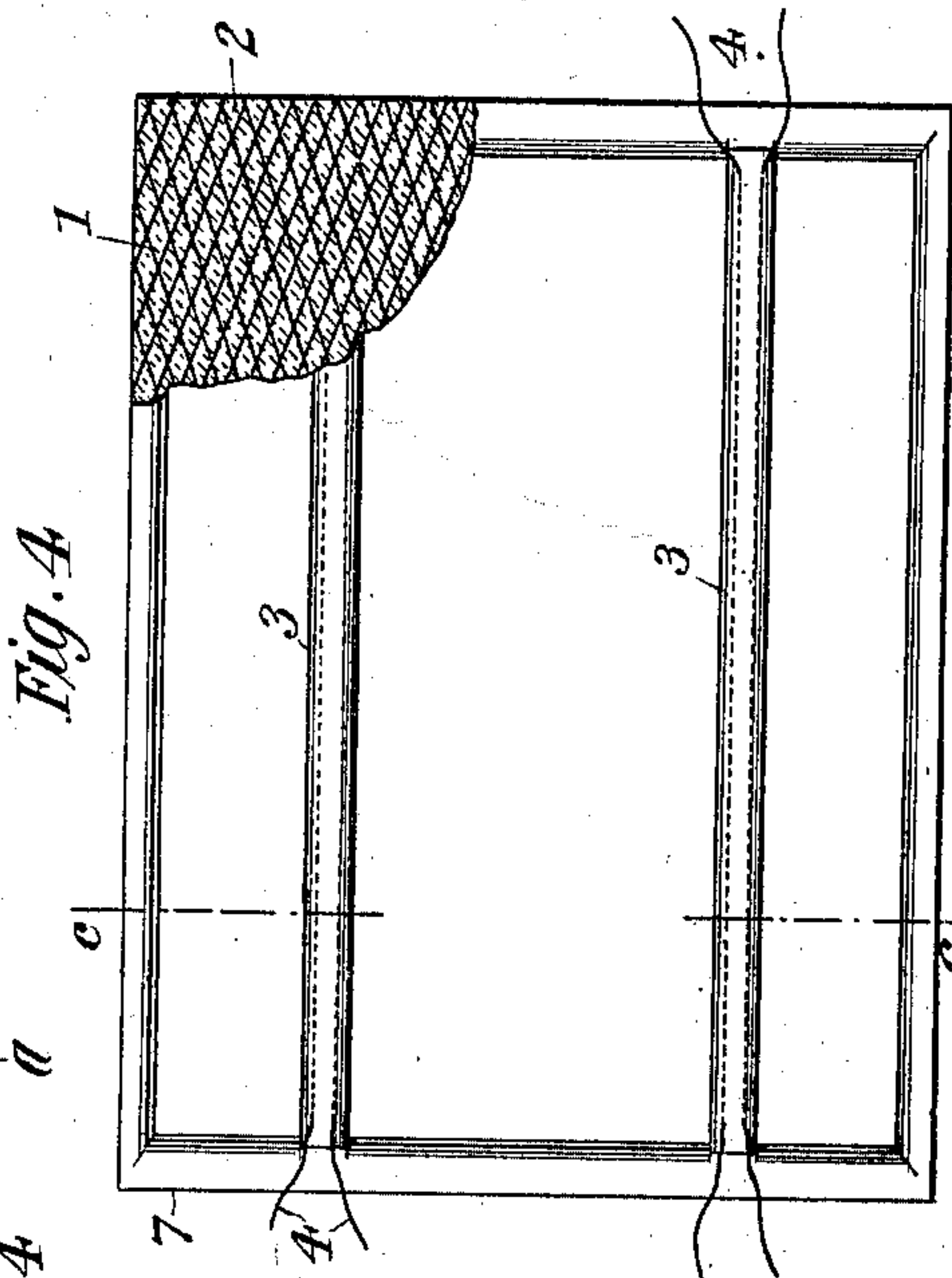
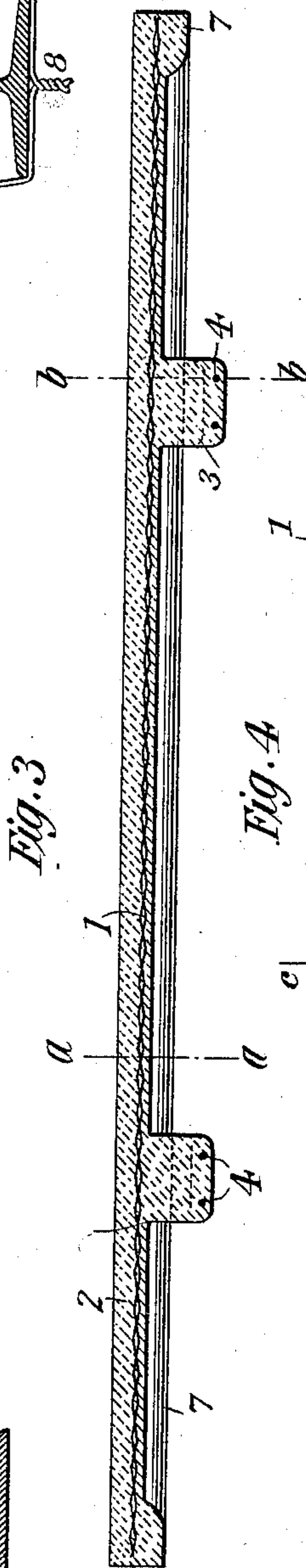
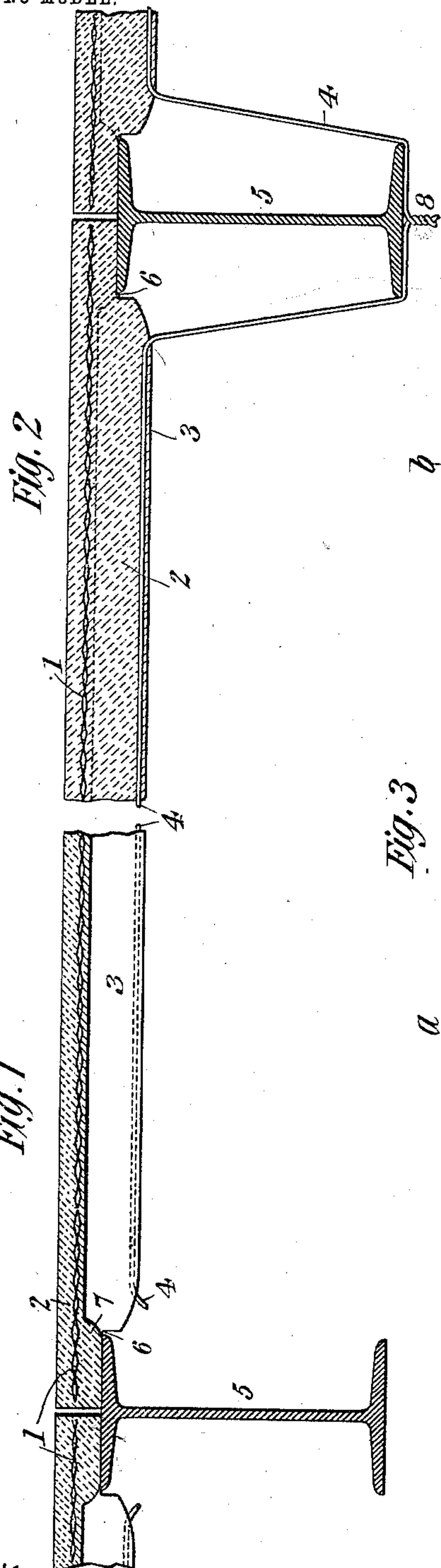
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M. WATSON & W. H. HAM.
SLAB FOR BUILDING CONSTRUCTION.

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NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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SLAB FOR BUILDING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 719,396, dated January 27, 1903.

Application filed September 12, 1902. Serial No. 123,119. (No model.)

To all whom it may concern:

Be it known that we, MERRILL WATSON, residing at East Orange, county of Essex, State of New Jersey, and WILLIAM H. HAM, residing at New York, county and State of New York, both citizens of the United States, have invented certain new and useful Improvements in Slabs for Building Construction, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

Our invention has to do with the broad class of material for use in the construction of buildings in which cement, concrete, or other material is molded or otherwise shaped into sections or plates to be used chiefly for roofing purposes. In the class just mentioned it has been proposed to form the sections or slabs over a metallic foundation for the obvious purpose either of additional strength or reduction in weight, or both. The metallic foundation is generally meshed, and in one example with which we are familiar what is known as "expanded metal" is used. To that extent our plate or slab resembles the one mentioned, in that we have a sheet of meshed—as, for example, expanded—metal embedded in a cement-like mass. Our invention goes further, however, and embodies other features and characteristics which are novel and useful; and it consists, essentially, in the construction hereinafter described, and more particularly pointed out in the claims.

Referring now to the drawings, Figure 1 represents a section on line *a a*, Fig. 3, of our slab. Fig. 2 is a section on line *b b*, Fig. 3, showing our slab with an additional feature. Fig. 3 is a transverse section of Fig. 4 on line *c c*. Fig. 4 is a plan view.

As can be clearly seen from the drawings, our slab consists, first, of a sheet of metallic meshed fabric 1, covered with cement, concrete, or any other substance 2, preferably possessing similar properties, such as hardness, incombustibility, &c. This covering should in most cases be on both sides of the fabric, as shown; but in numerous instances the material may with good results be used on one side only, depending, of course, on

the use to which the article is to be put. We prefer to use expanded metal as the foundation, chiefly for the reason that from the nature of its method of manufacture it can be practically made only from steel of a very high grade.

In order that the slab may have greater strength, and consequently be able to withstand greater strains and shocks than engineers have been willing to subject the previously-known articles to, we provide our plate with one or more strengthening ribs or webs 3, arranged longitudinally, as shown, or in any other convenient plan. These ribs are formed on what may for convenience be termed the "under side" of the plate and are made integral with the rest of the covering.

For many purposes we find the strengthening means just described sufficient; but to secure greater safety still the ribs or webs may be provided with longitudinal stiffening bars or wires 4, likewise preferably embedded in the cement. The bars 4 not only stiffen the plate against fracture or bending, but in case it is broken by excessive stress hold it together, thus obviating the necessity of immediately substituting a new plate. In fact, in many instances the mere cracking of the plate would be of no material consequence as long as the rods 4 keep it from falling out of position.

By extending the wires 4 for a short length beyond the ends of the ribs 3 they may serve an additional purpose, as illustrated, for example, in Fig. 2. There the slab is shown in use in roof construction, 5 representing a roof-beam. For this purpose the ends of the ribs 3 are cut away to provide shoulders 6, which are intended to abut against the purlins, as shown in Figs. 1 and 2. The slabs having been placed in position, the extending wires 4 of adjacent ends are brought down and under the beams and twisted tightly together, as shown at 6, or otherwise fastened, thus preventing displacement, while at the same time permitting ready removal of individual slabs without disturbing any others.

We are aware that slabs having a metallic mesh embedded therein and strengthening

wires or bars extending a distance beyond the edges are broadly old, and we therefore do not claim such as our invention. Our article, however, differs materially from the prior art in several particulars. In the first place the metallic foundation 1, as is clearly shown in the drawings, extends to the edge of the slab, and therefore strengthens the edge against shearing strain at that point where the slab rests on the supporting beams or purlins, the load being from above and the pressure downward. The mesh thus performs this important function in addition to that of resisting bending and tensile stress. This reinforcement against shear is increased by thickening at the edge 7 the cement or other plastic material of which the slab is composed, and by extending this thickening all around the article the unsupported edges are protected against fracture. The strengthening-wires embedded in ribs 3 not only add to the tensile resistance of the slab, but also being under tension when secured to those of the adjoining slab or to the supporting beam resist load or force acting against the under side and tending to displace the plates. It will thus be seen that the metal reinforcements on account of their novel arrangement each performs two functions—the mesh resisting tensile strains and shear at the edge of the support, the strengthening-wires also resisting tensile strains and in addition holding the slab against stresses exerted against the under side. The novel arrangement by which these new results are secured we regard as the essence of our invention.

Our device is obviously capable of wide application. We have already mentioned its use in roofing; but it can as well be used for flooring, side walls, sidewalks, and the like. By properly dressing and finishing the plane side an excellent imitation of stone can be produced, which at the same time is more durable, particularly when the strengthen-

ing-bars are used. Its fireproof nature is of course another valuable characteristic.

Having now fully described our invention, what we claim is—

1. As a new article of manufacture, a cast slab for roof construction, having embedded therein a metallic mesh to resist tensile and bending strains, extending to the edges of slab to resist shear of the plastic material at the point of support, ribs carrying strengthening-wires extending beyond the edges of the slab to give additional tensile strength and to resist displacement of the slab by force applied from below the point of support, and a reinforcing-rib extending around the slab to further resist shear and to protect the side against fracture, substantially as and for the purposes set forth.

2. In roof construction, the combination with supporting means, of a slab of plastic material having a metallic mesh embedded therein to resist tensile strains, extending to the edges of the slab to resist shear of the plastic material at the point of support, and strengthening wires or rods embedded in the slab to give additional tensile strength, extending beyond the same under and secured below the point of support to resist displacement of the slab by force exerted from below, substantially as and for the purposes set forth.

3. In roof construction, the combination with supporting means, of a slab of plastic material having strengthening-wires embedded therein extending beyond the edge of the slab and secured below the point of support to resist force exerted against the under side, substantially as and for the purposes set forth.

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