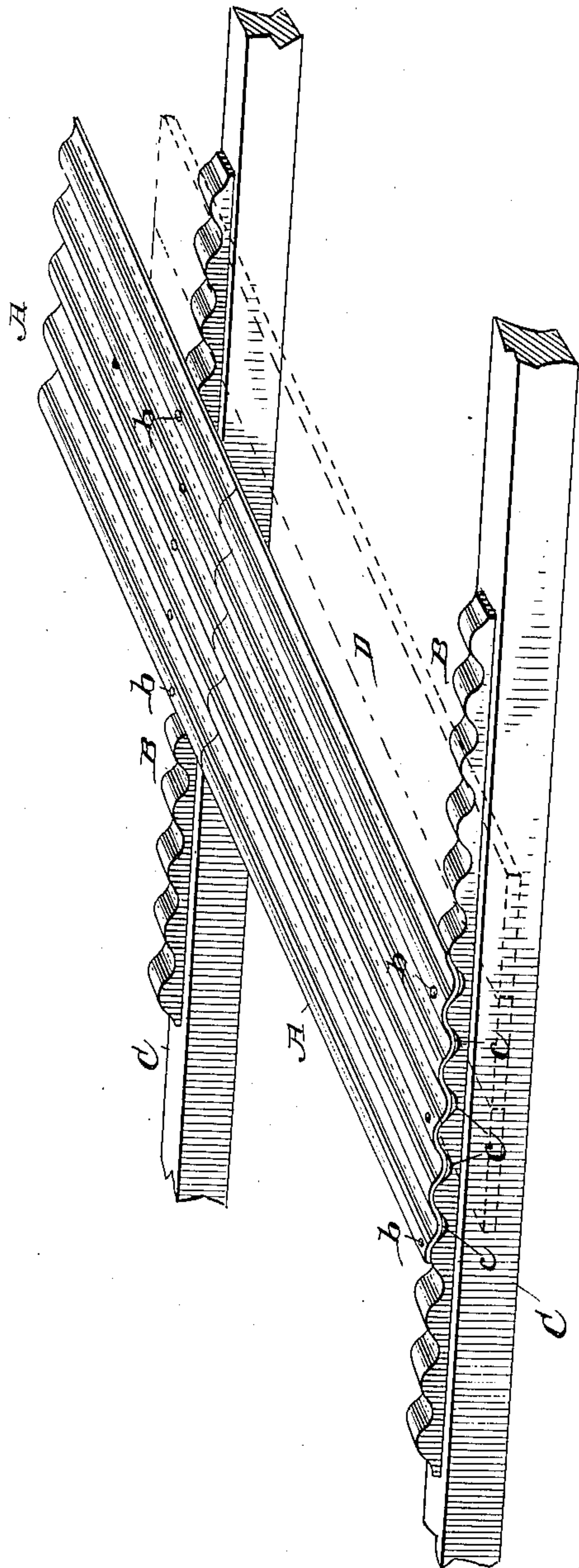


(No Model.)

J. MITCHELL.  
CORRUGATED STRUCTURE.

No. 429,937.

Patented June 10, 1890.



WITNESSES:

*W. R. Davis.*  
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# UNITED STATES PATENT OFFICE.

JOHN MITCHELL, OF AUCKLAND, NEW ZEALAND.

## CORRUGATED STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 429,937, dated June 10, 1890.

Application filed May 28, 1889. Serial No. 312,385. (No model.) Patented in New Zealand May 22, 1888, No. 3,000; in Victoria September 27, 1888, No. 6,217, and in New South Wales October 1, 1888, No. 972.

*To all whom it may concern:*

Be it known that I, JOHN MITCHELL, of Auckland, New Zealand, have invented a new and useful Improvement in Corrugated Structures, (for which I have obtained Letters Patent in New Zealand, dated May 22, 1888, No. 3,000; in New South Wales, dated October 1, 1888, No. 972, Book 2, and in Victoria, dated September 27, 1888, No. 6,217,) of which the following is a full, clear, and exact description.

This invention, while more particularly designed to be applied to corrugated metal roofing, and it will here be described more especially with reference to such use, is suitable for any structure or portion of structure in which corrugated sheets of iron, brass, steel, paper, or other material is required to be fixed or supported in place by under or backing strips, on or against which said corrugated sheets rest, and to which they may be secured by any suitable means. Thus the invention may not only be applied to the roofs of buildings, but also to car-roofs, ceilings, walls, fences, and other structures, regardless of their shape, which and the corrugated sheets used in the structure may either be of a plane, curved, or spherical form.

The object of the invention—as, for instance, applied to iron roofing for buildings—is to provide a solid support for the corrugated sheets composing such roofing, in order to give them firmness and strength and to lessen the liability of their spreading, being depressed, dented, or shaking with the wind, or of being bruised, either when punching holes in the sheets for the introduction of retaining screws or nails or by treading on them, erecting a superstructure on them, or by subjecting them to pressure of different kinds from any cause. These are more particularly the objects of the invention; but there are others or further special advantages, as hereinafter referred to, which are also obtained.

The invention consists in the peculiar construction and arrangement of the corrugated sheets upon the corrugated battens, which will hereinafter be fully described in the annexed specification and particularly pointed out in the claim.

Reference is to be had to the accompanying drawing, which represents a view in perspective of a corrugated-metal roof in part with my invention applied.

A A indicate certain of the corrugated-metal sheets used in the construction of the roof, and B B the corrugated battens, upon which said sheets at their under or rear sides are secured and supported, said battens being arranged to cross the corrugations in the sheets and being themselves corrugated transversely of their length. The corrugations in sheets A are of a less depth than the corrugations in the battens, whereby an open space, as c, is formed at the base of the corrugations for a purpose hereinafter explained.

C C are purlins carrying the battens; or they may be supported by boards D, (shown by dotted lines,) or be otherwise carried and secured in place.

The battens B, having a corrugated surface, as described, may be made of wood or any other suitable material, and the corrugations be formed in them by any suitable means or in any desired manner. Nails b, screws, or other fastenings may be used to hold the corrugated sheets to their places upon the corrugated battens. The corrugated sheets being thus solidly supported upon and secured to the corrugated battens, they will not only be better protected against disturbing and deflecting influences, as hereinbefore named, and leakage, shaking, and destruction, or alteration in shape be guarded against, but passage of wind and fire and entry of birds and vermin will be more effectually avoided; also, the nails or fastenings used to secure the corrugated sheets to the corrugated battens will be less liable to rust, and may be fewer in number, and better provision consequently be made for expansion and contraction of the sheets.

The corrugated battens may be made in any convenient or desired lengths and of any suitable size and shape, and be fixed to the purlins, framing, rails, studs, rafters, or boarding by nails or otherwise.

The attachment of the corrugated sheets to the corrugated battens may be by nails or by any other means—such, for instance, as corrugated roofing has been heretofore se-



cured by to different supports; but in my invention the corrugations in the sheets are arranged so that they will correspond with and nearly fit the corrugations of the battens, and  
5 thus cause the latter to give the necessary support at every fastening, and to receive the indents or burrs caused by punching the sheets, with holes adapted to receive the securing means, such as screws or nails, and  
10 which by my invention may be driven close home.

In practice I make the corrugations in the battens a little wider spaced than the corrugations in the sheets to allow for lateral  
15 stretching of the corrugated sheets in handling and fixing, thereby reducing trouble or labor in applying the sheets, and to a certain extent saving metal. Furthermore, by making the depressed portions of the battens  
20 a little deeper than the depressed portions of the sheets, as shown at c in the drawing, the sheets will rest only on the raised portions of the battens, and a space will be left between the depressed portions of the sheet and battens for the unobstructed passage of condensed moisture or "sweat" into the eaves-spout of the building. Such construction also

permits of ample ventilation beneath the corrugated sheets.

Numerous other advantages might be named for my invention; but it is unnecessary to do so here.

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

The hereinbefore-described improvement in corrugated structures, consisting of a series of purlins or supports, as C, corrugated battens, as B, supported thereon, having transverse coincident corrugations or depressions, and corrugated sheets, as A, supported on said battens, the corrugations in said sheets being of a less depth than the corrugations in the battens, whereby an open space, as c, is formed at the base of the corrugations for the passage of condensed moisture or sweat and for ventilation, substantially as and for the purpose described.

JOHN MITCHELL.

Witnesses:

IRITHEN CONNELL,  
*Justice of the Peace, Auckland.*  
ARTHUR M. EAMANDS,  
*Clerk, Auckland.*