

D. RYAN.
Attaching Slates to Roofs.

No. 145,529.

Patented Dec. 16, 1873.

Fig. 1.

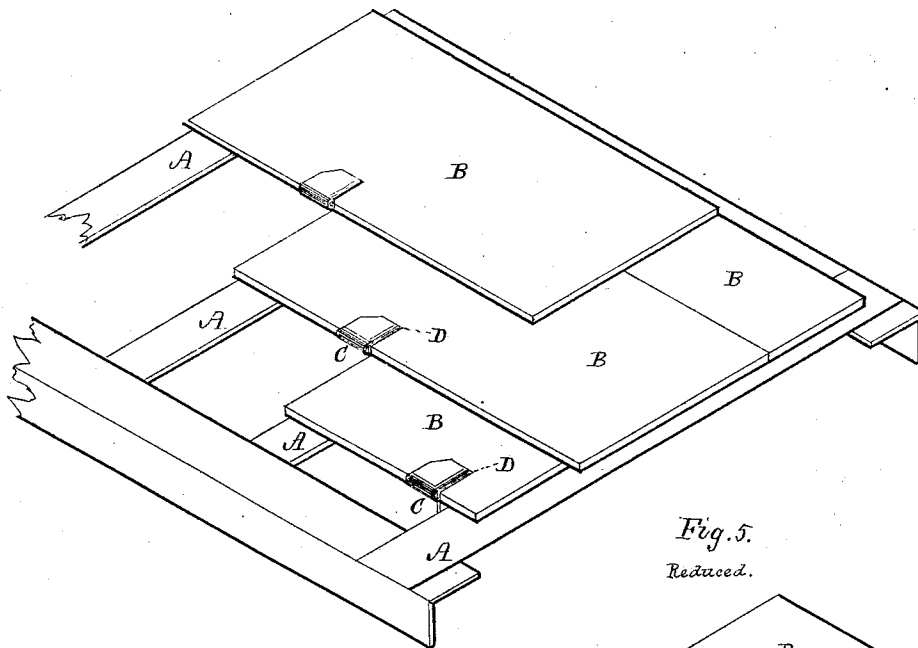


Fig. 5.
Reduced.

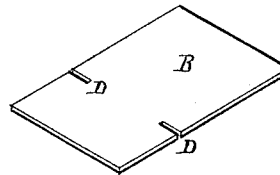


Fig. 4.

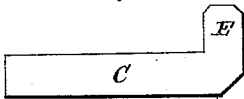


Fig. 2.

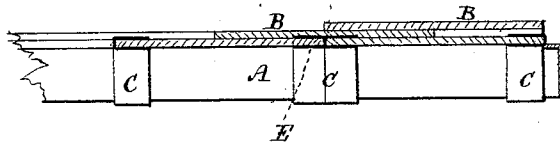
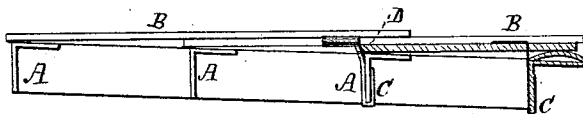


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

DANIEL RYAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ATTACHING SLATES TO ROOFS.

Specification forming part of Letters Patent No. **145,529**, dated December 16, 1873; application filed November 10, 1873.

To all whom it may concern:

Be it known that I, DANIEL RYAN, of Boston, Suffolk county, Massachusetts, have invented a certain Mode of Attaching Slates to Roofs, &c., of which the following is a specification:

This invention relates to improvements in attaching slates to roofs or sides of buildings whose character is such that nails cannot readily or possibly be used, and consists in the employment of a flat strip of thin ductile metal, formed at one end with a lateral offset or spur, which is bent under and about the edge of the slate, as hereinafter explained, the opposite end of the strip being bent about the rafter or stringer, or inserted between two courses of bricks, as the case may be.

This invention, while being adaptable to roofs having wooden rafters or stringers, is more especially applicable to iron roofs, or brick roofs, or walls, where nails cannot be driven.

The drawings accompanying this specification represent in Figure 1 a perspective view of a portion of a roof with my improvements embodied therein, Figs. 2 and 3 being vertical sections of several slates inserted in the manner proposed in my improvements. Fig. 4 is a perspective view of one of the fastening-strips, to be hereinafter explained. Fig. 5 is a view of a slate prepared to meet the conditions of my invention.

In these drawings, A A, &c., represent a series of stringers or rafters composing part of the roof of a building, these stringers being composed of angle-iron or other suitable metal or material, in accordance with the general practice in building metal roofs. B B, &c., represent a series of slates laid upon the stringers A in the manner now generally adopted, by which the joints between the slates of one row are covered by the slates of the next succeeding row.

In carrying my improvement into practice, I provide a large number of thin strips, C C, &c., of any proper ductile metal, copper being preferred, these strips being usually about three-quarters of an inch wide, and straight throughout, with the exception that at one

end I form a lateral offset or lip, E, of a length and width about equal to the width of the strip, though this size is not in any sense arbitrary. The length of the entire strip varies in accordance with the locality in which it is to be employed. Having provided a sufficient number of the strips C, I next cut in opposite edges of each slate a saw kerf or slot, D, of a length equal to the width of the strip, these slots being at right angles to the longest plane of the slate and opposite each other, as shown in Fig. 5 of the drawings. The lowermost or first course of slates is now laid, each slate being confined to the metal stringer A below it by inserting in each slot D the end of the metal strip which contains the lip E. The outer end of the strip is now bent down upon outside of the slate, the line of the bend being coincident with the inner edge of the lip E, and the said lip is next bent down about the edge of the slate and lapped upon its under side, which confines the slate to the stringers, the opposite end of the strip C being bent about the bottom of the stringer. Another course of slates is now laid upon the first, and secured to the stringers by means of the strips C in manner as last stated, and this proceeding is repeated until the roof is covered, the slates of each succeeding course, as they are laid, entirely covering and concealing from sight the strips which secured the last preceding course.

By the employment of a strip of ductile metal to secure the slate to a roof, as I contemplate, the character of the metal allows of contraction or expansion, or any change in the condition of the roof which might ensue, without fracturing or cracking the slates, or detaching the fastenings. In addition to this advantage, which is one of great importance, I obtain the strips at very small cost, as compared with a plate of stout iron bent into the form of a hook, practically, and provided with a screw or bolt to confine it in place, as has been used heretofore to some extent.

I am also enabled to apply my invention to walls or roofs of brick, as the strips C may be inserted between each alternate course of bricks and cemented therein by the mortar

or bent over upon their rear sides, as may be found desirable.

A roof composed as shown in the drawings is literally fire-proof, as no combustible material whatever enters into its construction.

I claim—

1. The herein-described improvement in methods of attaching slates, the same consisting of a thin strip of ductile metal, one end of which enters a slot in the slate and is bent about the edge of the latter, while the other end of the strip is bent about or otherwise suitably secured to the stringers, or laid be-

tween corners of brick, substantially as and for purposes stated.

2. The fastening-strip herein shown, consisting of a straight flat plate provided with the lip or offset E, or its equivalent, substantially as and for purposes stated.

3. The slate provided with saw kerfs or incisions on its opposite edges, in combination with the fastening-strips, substantially as shown and set forth.

Witnesses:

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