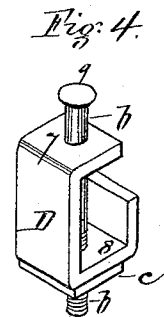
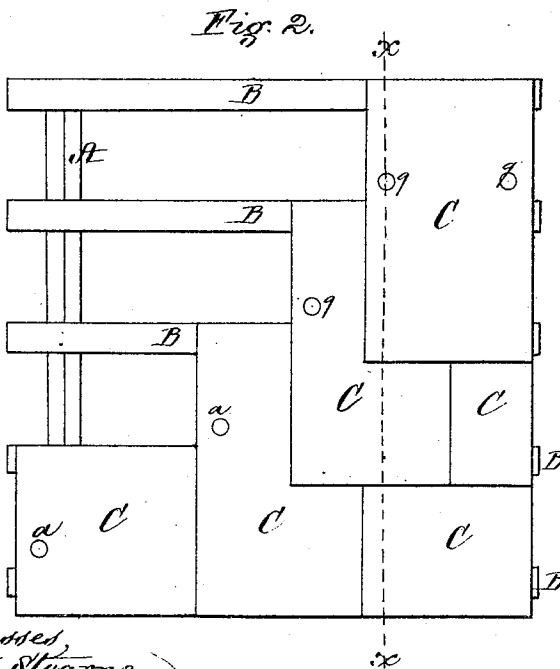
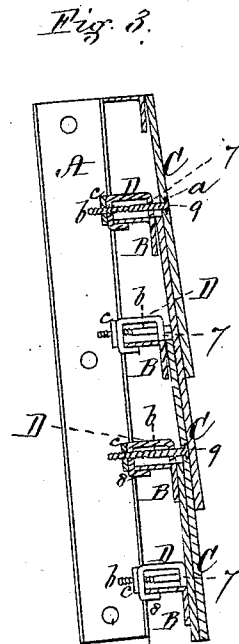
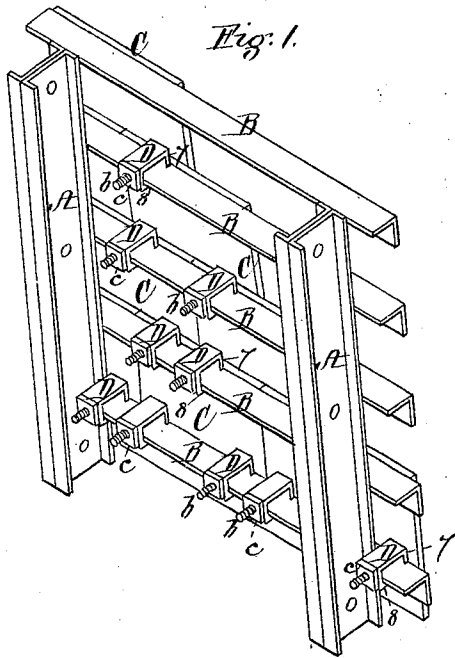


S. FARQUHAR.

Mode of Attaching Roofing Slates.

No. 138,999.

Patented May 20, 1873.



Witnesses,
N. W. Stearns
W. J. Cambridge

Inventor,
Samuel Farquhar.

UNITED STATES PATENT OFFICE.

SAMUEL FARQUHAR, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THE MODES OF ATTACHING ROOFING-SLATES.

Specification forming part of Letters Patent No. **138,999**, dated May 20, 1873; application filed April 4, 1873.

To all whom it may concern:

Be it known that I, SAMUEL FARQUHAR, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Method of Attaching Slates to Roofs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of a portion of the inner or under side of a roof of a building, representing my improved method of securing slates thereto. Fig. 2 is a plan of the outside of the same. Fig. 3 is a vertical section on the line *xx* of Fig. 2. Fig. 4 is a view representing my improved fastening device detached.

My present invention relates to the manner of securing slates to iron roofs. This has heretofore been accomplished by nails of lead, copper, or other soft metal, or by copper wire passing through the slates, and being clinched, bent, or turned around the purlins on which they rest. The employment of leaden or copper nails is objectionable, for the reason that when turned under or around the edge of the purlin they are cut thereby, and when much snow is on the roof the pressure thereof tends to draw out and straighten or stretch these nails, whereby the slates are loosened from their proper position; and where the copper wire is used the heads of the slates cannot be supported by the purlins, owing to the necessity of passing the wire around them, and the heads of the slates are consequently liable to be tipped down by the action of the wind, thus allowing rain to pass under their tails or lower ends, causing the roof to leak. My invention has for its purpose to remedy these objections; and consists in a bent plate, which hooks under or around the purlins on which the slate rests, and is provided with a bolt passing through it and the bent plate, one end of the bolt having a head, which is countersunk in the upper side of the slate, the other end of the bolt being secured by a nut or by screwing into the bent plate, or by clinching.

To enable others skilled in the art to understand and use my invention, I will proceed to

describe the manner in which I have carried it out.

In the said drawing, *A A* represent the iron rafters of a roof, to which are secured the iron purlins or angle-irons *B B*, upon which are laid the slates *C C*, each of which is provided with two countersunk holes, *a a*, situated just above the middle one of the three purlins over which it extends. Through each of these holes *a* passes an iron bolt, *b*, which also passes through the upper and lower portions 7 8 of a bent plate, *D*, which is hooked under the edge of the purlin, the upper end of the bolt being provided with a head, 9, which is countersunk flush with or below the upper surface of the slate, the lower end of the bolt having a screw-thread, over which turns a nut, *c*, by means of which the slate can be held securely in place. The portion 7 of the bent plate *D* rests upon the purlin, and prevents the slate from slipping down.

Where the construction of the building is such as to render it difficult or impossible to use screw-nuts, the lower portion of each bolt *b* is made to screw into the inner portion 8 of the bent plate, a groove being formed in the head of the bolt to allow of its being turned with a screw-driver.

Where purlins of various forms in cross-section are employed, the bent plates *D* must be so shaped as to admit of their being applied thereto.

By means of the above-described fastening I am enabled to so secure the slates that their heads will rest on the purlins without the liability of becoming loose, which is not the case where they are secured by lead or copper nails. Furthermore, the strength of my improved fastening admits of a larger and heavier slate being employed than has heretofore been practicable, and, consequently, the purlins can be placed further apart and their number reduced, as well as the labor of slating the roof, the saving thus effected more than compensating for the extra cost of the fastenings.

Instead of using a screw-bolt in connection with my bent plate, a leaden, copper, or iron bolt or nail without a screw-thread may be employed, one end of the bolt or nail being

clinched or turned down over the bent plate ; but I prefer the screw-bolt, as first described.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

The within-described fastening for slates, consisting of the bent plate D, so constructed as to hook over or around a purlin, in combination with a bolt, *b*, one end of which is pro-

vided with a head, 9, and the other end secured by a screw-nut, *c*, or otherwise, substantially as described.

Witness my hand this 31st day of March, 1873.

SAMUEL FARQUHAR.

Witnesses:

P. E. TESCHEMACHER,

N. W. STEARNS,

W. J. CAMBRIDGE.