

C. M. WARREN.
SLATE AND SHINGLE ROOF.

No. 175,532.

Patented March 28, 1876.

Fig. 1.

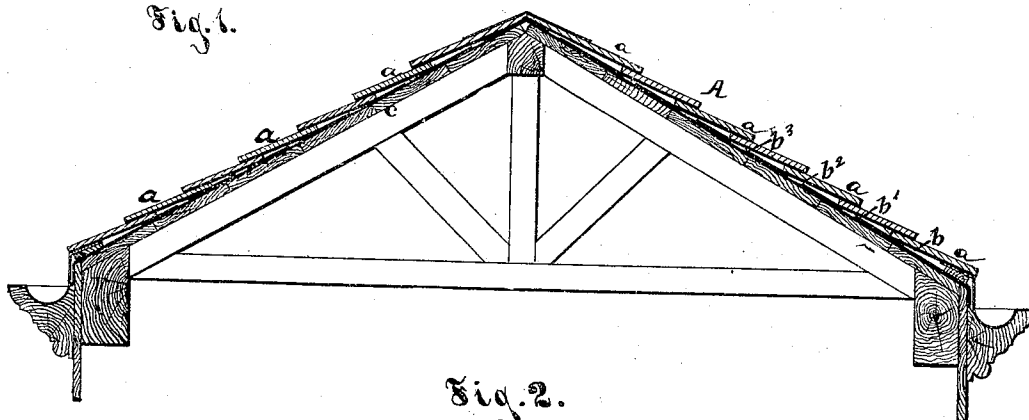
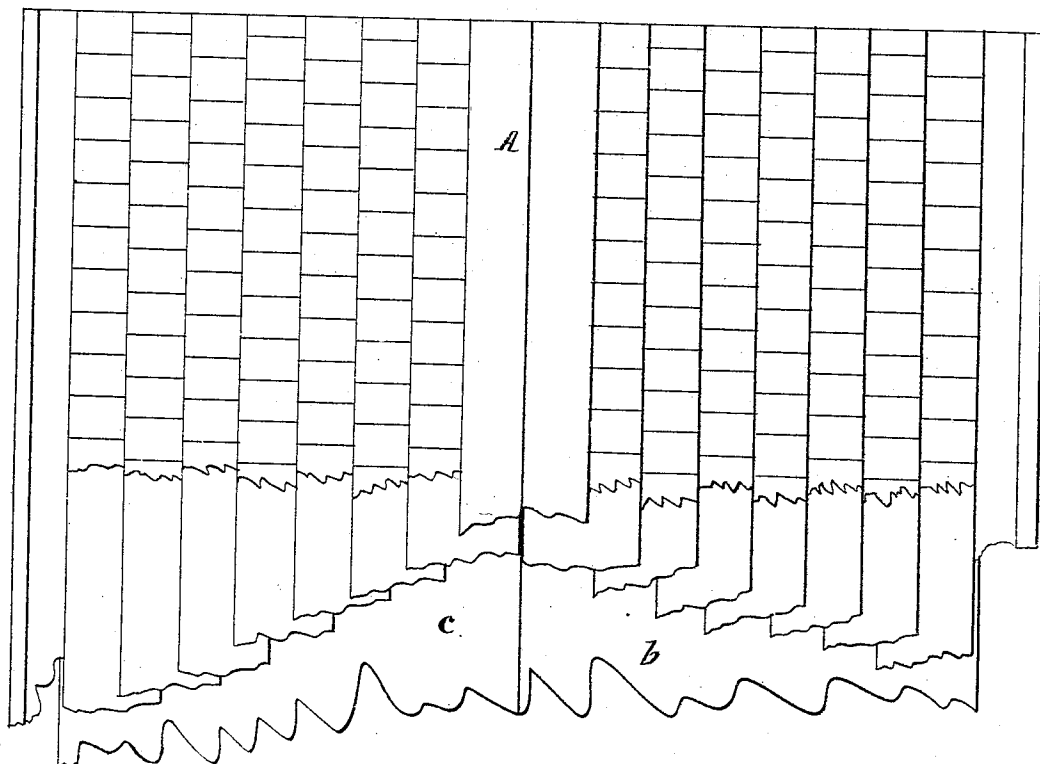


Fig. 2.



Witnesses.

Chas. Wählers.
Otto Stufeland

Inventor.

Cyrus M. Warren
by Vandewater & Hauff
his attys

UNITED STATES PATENT OFFICE.

CYRUS M. WARREN, OF BROOKLINE, MASSACHUSETTS.

IMPROVEMENT IN SLATE AND SHINGLE ROOFS.

Specification forming part of Letters Patent No. **175,532**, dated March 28, 1876; application filed October 13, 1875.

To all whom it may concern:

Be it known that I, CYRUS M. WARREN, of Brookline, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Slate, Tile, or Shingle Roofs, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a transverse vertical section. Fig. 2 is a plan or top view.

Similar letters indicate corresponding parts.

This invention consists in a slate, tile, or shingle roof, composed of alternate layers of water-proof felt and layers of slate, tile, or shingles, so that short slates, tile, or shingles can be used, the cost and the weight of the roof are reduced, and at the same time a water-tight roof of superior durability is obtained.

In the drawing, the letter A designates my roof, which is composed of alternate layers, *a*, of slate, tile, or shingles, and layers, *b* *b*¹ *b*², of water-proof felt or other equivalent material.

In constructing my roof, I first cover the sheathing-boards *c* with a layer of roofing-felt, and on this I nail, at its upper edge, along the eaves or gutter, a strip, *b*, of water-proof felt or other material of similar nature, said strip being made of greater width than the first or bottom layer of slates, tiles, or shingles, and being made to extend the entire length of the roof. The first layer of slates, tile, or shingles is then applied, and made to extend slightly into the gutter, these being secured to the roof by nailing at the upper end of each slate, tile, or shingle, in the usual manner. A second strip, *b*¹, of the water-proof felt is now laid on and secured like the first, overlapping the same and the first course of slates, tile, or shingles, and extending to the line to be reached by the bottom edge of the second layer of slates, tile, or shingles, which is laid on and secured like the first.

In the same manner the subsequent strips

*b*² *b*³, &c., of the water-proof felt, and the alternating courses of slate, tile, or shingles, are laid and fastened, each being made to overlap the previous course, in the manner described for the first and second courses.

By thus combining the strips *b* of water-proof material with the slates, tile, or shingles, I am enabled to reduce the length of the same, since no water which may by any means get under the slates, tile, or shingles can leak through the roof, and a perfectly water-tight roof is obtained, although the slates, tile, or shingles themselves overlap each other but a short distance.

By reducing the length of the slates, tile, or shingles, a great reduction of the cost of the roof is secured, and also, in the case of slates and tile, of its weight.

The combination of the strips *b* with the slates, tile, or shingles also affords the great advantage that even if one of the slates, tile, or shingles becomes detached or broken, the tightness of the roof is still maintained, and no damage ensues even by heavy rains, so that the roof can be repaired at leisure.

Strips of galvanized iron or other metal may be substituted for the water-proof felt; but I prefer the latter for its cheapness, with equal efficiency.

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

A slate, tile, or shingle roof, composed of alternate layers or strips of water-proof felt or other equivalent material, and layers of slate, tile, or shingles, said layers being arranged in relation to each other substantially in the manner herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 6th day of October, 1875.

C. M. WARREN. [L. S.]

Witnesses:

MOSES WITHINGTON,
THOS. B. HALL.