L. HENKLE.

METAL ROOF.

No. 188,012. Patented March 6, 1877.

Fig. 1.

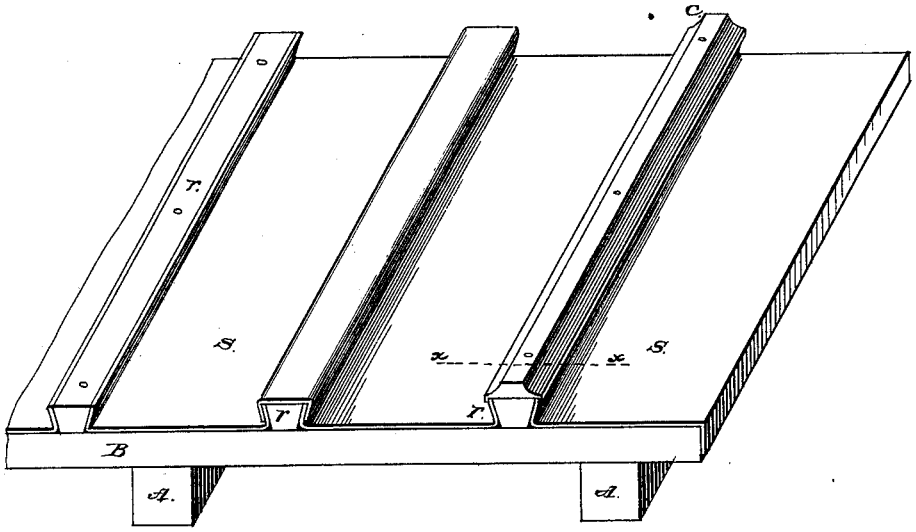
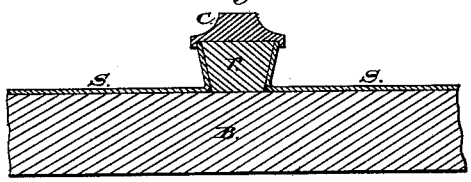


Fig. 2.



Attest:

Frank L. Kingsley

Peter B. Brothers

Inventor:

Leonard Henkle

UNITED STATES PATENT OFFICE.

LEONARD HENKLE, OF ROCHESTER, NEW YORK, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO EDWIN C. SMITH, OF SAME PLACE.

IMPROVEMENT IN METAL ROOFS.

Specification forming part of Letters Patent No. **188,012**, dated March 6, 1877; application filed September 14, 1876.

To all whom it may concern:

Be it known that I, LEONARD HENKLE, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Covering Roofs; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, sufficient to enable those skilled in the art to which it appertains to construct and make use of the invention, reference being had to the drawing accompanying this specification, and to the letters and figures of reference marked thereon, in which like letters refer to like parts throughout the same, and on which—

Figure 1 represents a section of a roof in perspective, having my invention applied to the same. Fig. 2 is an enlarged section on line *x x* of Fig. 1.

My invention relates to sheet-metal coverings for roofs.

Heretofore there have been three objections to solid-seamed metal coverings, viz: The seams have broken apart, from the expansion and contraction of the metal, the covering has blown off, and, once used, the metal was of no more account; and the object of this invention is to remove these difficulties by, first, (without strain on the seams,) providing for the expansion and contraction of the metal; second, to provide for the escape of any air between the sheathing and metal without strain on the fastenings; third, to fasten the metal to the sheathing without perforating the metal, and either for painting on the under side or use on another building; to provide for its removal and replacement without injury to the same.

It consists in sections of covering whose upturned edges, at a greater than a right angle, fit in under an overhanging slope of a beveled rib, the rib being covered by a novel-shaped wood cap fastening the covering in position, at the same time leaving it so confined that it may be easily removed entirely or in sections without damage to the metal.

In the drawing, A A represent the rafters; B, the sheathing; S, sections of the metallic covering; *r*, ribs, and *c* the caps; but as this invention relates only to the metal covering this description will be limited to that alone. The width, thickness, and bevel of the ribs are as desired, although I make them about two inches wide, seven-eighths thick, and beveled at from twenty-five to thirty degrees inward from the top. The width of the sections is the width of the ordinary roofing-plate, having their edges turned up to suit the bevel and depth of the rib, leaving a curve at the angle for the escape of any air generated or otherwise finding admission between the sheathing and covering.

The cap is of wood, molded on top or plain, as preferred, and grooved out on the under side to fit the rib, and at the same time leave a flange or lip falling below the top of the upturned metal edge of the section, but still leaving a space of about an eighth of an inch between the inside of the flange and rib to prevent the water from being conveyed over the upturned edge of the metal by capillary attraction.

The operation of my invention is as follows: In applying the sections to the sheathing, the first one has its outer edge turned down for the purpose of fastening it to the same, but the other edge is turned up to fit the bevel of the first rib, which is pressed close to the upturned edge of the section, and nailed to the sheathing, thereby fastening, by its overhanging slope or beveled edge, the edge of the metal section without nails, screws, or other fastening devices other than the said beveled rib. Then another section is applied, and its edge pressed to the last rib; then another rib is laid, being pressed to the last section, and nailed as before, continuing in this way to completion, and securing the sections against blowing off, because the sections are so narrow that sufficient air for blowing them off cannot be admitted under and between the covering and boards, on account of the spaces at the angles of the upturned edges of the metal provided for its escape, thus fastening the covering to the sheathing without nails or other means of attachment than the said beveled ribs so applied, yet leaving the covering loose enough to be removed and replaced without removing any attaching device, and with-

out making any perforations in the metal or doing any other damage, thus leaving the same in a condition to be applied to any other structure desired.

What I claim as my invention is—

In a sheet-metal covering, the wood cap *c*, having its flanged edges project below the top edges of the upturned sections S, in combination with the ribs *r* and sections S, as and for the purposes specified.

In testimony whereof I have hereto, in presence of these two witnesses, set my hand this 11th day of September, A. D. 1876.

LEONARD HENKLE.

Witnesses:
B. F. PARSONS,
P. R. BROTHERS.