J. E. BELT & F. E. PERKINS.

METALLIC COVERING FOR BUILDINGS.

No. 177,986. Patented May 30, 1876.

Fig. 1.

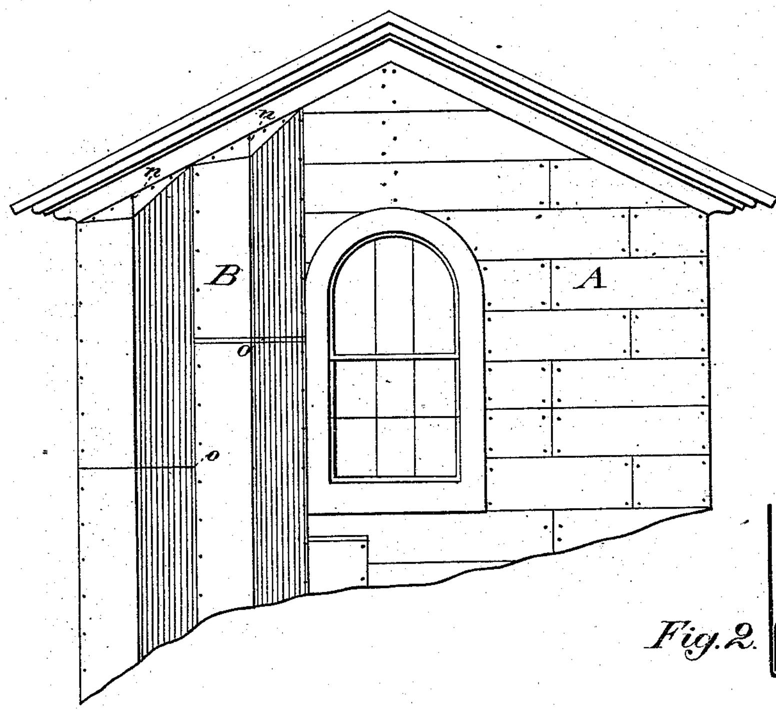

Fig. 2.

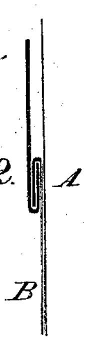

Fig. 3.

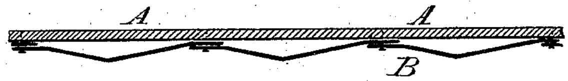

Fig. 4.

Fig. 5.

Attest:
Will H. Dodge
Donn I. Twitchell.

Inventor:
J. E. Belt & F. E. Perkins,
by Dodge & Son
Attys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JARED E. BELT AND FREDRICK E. PERKINS, OF ST. PAUL, MINNESOTA.

IMPROVEMENT IN METALLIC COVERINGS FOR BUILDINGS.

Specification forming part of Letters Patent No. **177,986**, dated May 30, 1876; application filed April 19, 1876.

To all whom it may concern:

Be it known that we, JARED E. BELT and FREDRICK E. PERKINS, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain Improvements in Metal Covering for Buildings, of which the following is a specification:

Our invention consists in a novel construction of metallic sheathing for buildings and similar structures; and is designed more especially to render the same fire-proof, although it is of great value as a protection against rain and snow.

In the drawing, Figure 1 represents a building with our improved sheathing applied to a portion of it; Fig. 2, a view, showing the manner of making the joint; Figs. 3, 4, and 5, sectional views, showing different forms of our improved device.

Great inconvenience has heretofore been experienced in applying metal sheathing to buildings, bridges, and similar structures, owing to the fact that the expansion and contraction of the metal cause the nails to work out, and the metal to draw apart or wrinkle. The shrinkage and swelling of the wood to which the metal is nailed also tends to produce the same result, while the metal coming against the wood forms but little protection against fire. In addition to these difficulties rain, snow, and even fire or flames often find their way in at the joints as they are at present constructed.

In order to obviate these difficulties and produce a sheathing which shall be proof against both water and fire, we make our sheathing of sheet metal, and provide each section with one or more corrugations, as shown in Figs. 1, 3, and 5; or it may be made of the form shown in Fig. 4, in which case the metal is turned directly backward at each side at a right angle to the face of the metal, and a flange then turned outward on each side parallel to the face of the sheathing. It will be observed that in each case a space is left between the metal and the boards to which it is secured, which space is, of course, filled with air. It will also be seen that only a very small surface of the metal comes in contact with the wood, and that, as the joints are formed by lapping the flange of one section over that of the adjoining section, there will, in every case, be a double thickness of metal at those points at which the metal and the wood do come in contact. The joints between sections falling one below the other are formed as shown in Fig. 2, in which the sections each have the metal turned backward upon themselves, and the flanges *o* thus formed are hooked or locked into each other, and hammered down to make a close joint. As the lower edge of the section is always turned inward toward the building in making the flange, as shown in Fig. 2, it will be seen that it is impossible for the water to beat into or through this joint, for the reason that the face of the sheathing comes below the joint, and thus protects it, and it will also be impossible for fire to find its way into the joint, because of its being so close. It would even be impossible for it to find its way through the same when made comparatively open or loose, on account of the circuitous passage which it would be obliged to make.

The manner of forming the joints at the ends of the different rows or sections of sheathing is shown in Fig. 1, in which A represents the boarding and B the metal. As there shown, the upper end is slit at the center of the corrugations, and the two parts drawn in and lapped one over the other, as shown at *n*, thus forming a beveled surface and a good joint.

It will readily be seen that this construction will form an excellent protection against fire and water, and that the expansion and contraction of the metal, and the shrinkage and swelling of the wood, are provided against by the corrugations in the metal, which will allow it to take up or give out, by reason of its elasticity, enough to entirely compensate for these difficulties.

It is obvious that, instead of running the sections up vertically, they may be placed horizontally, that being especially convenient and desirable when the corrugations are made of the form shown in Fig. 5, which, when placed in a horizontal position, would present the appearance of clapboards. It is also apparent that the joints which are here represented as simply lapped and nailed through, may be made as shown in Fig. 2, if desired.

This construction, as before stated, forms a very efficient protection against fire and water,

compensates for expansion and contraction of metal, and for shrinkage and swelling of wood, and presents, withal, a very neat and pleasing appearance.

If desired, the nail-holes at the joints may be made elongated, in order not to interfere with the nails in case of expansion or contraction lengthwise of the corrugations.

This invention is applicable to wooden structures of any kind, and we propose to use it on bridges, cars, and the like.

We are aware that buildings have been made in which the walls, both inside and out, were composed of corrugated sheet metal secured to metal bars and wooden frames, and we do not claim such; but

Having described our invention, what we claim is—

A metallic covering for wooden structures, composed of the metal sheets B, applied to the surface of the structure in the manner shown, whereby an air-space is left between the metal sheets and the wall or structure at all points, except at the edges of the sheets, substantially as and for the purpose set forth.

JARED E. BELT.
FREDRICK E. PERKINS.

Witnesses:
F. A. MECHADO,
N. P. R. HATCH.