(No Model.)

W. LORENZ.

LINING FOR CORRUGATED SHEET METAL ROOFS.

No. 396,824. Patented Jan. 29, 1889.

Fig: 3.

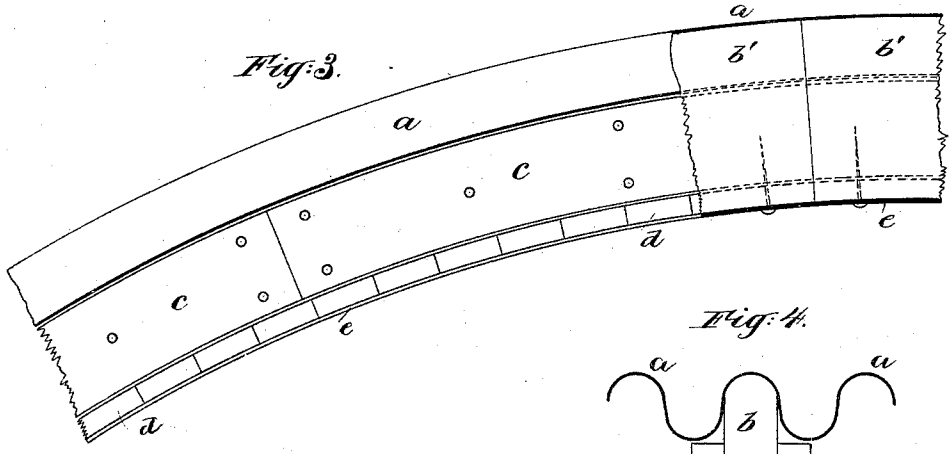


Fig: 4.

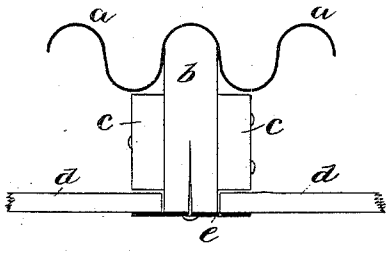


Fig: 2.

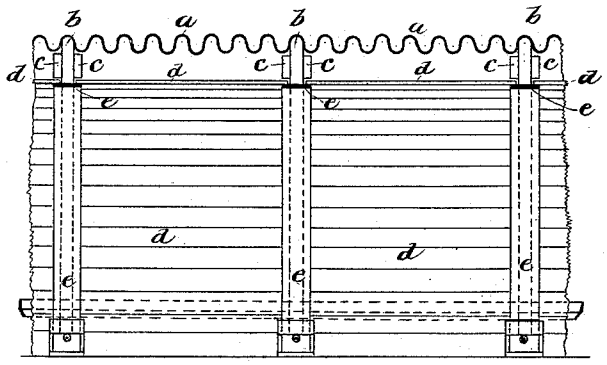
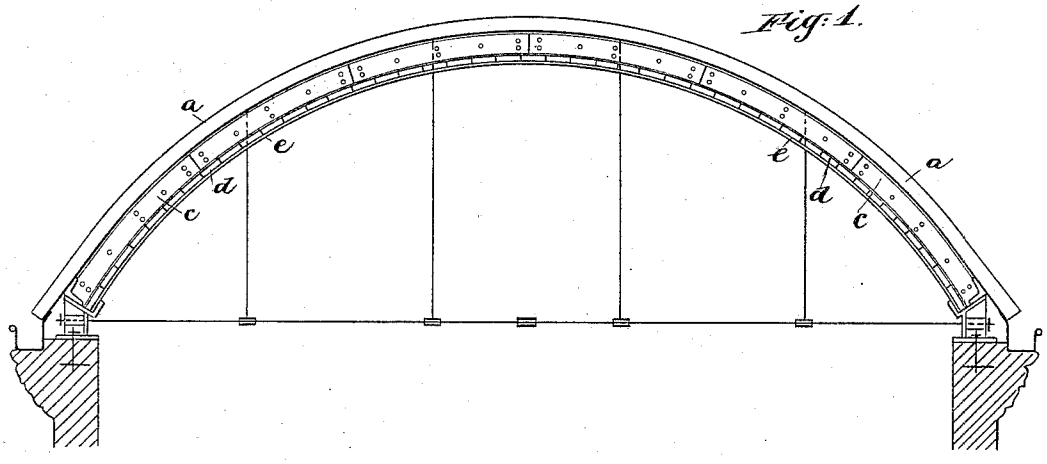


Fig: 1.



Witnesses:
Charles R. Searle,
H. A. Johnstone.

Inventor:
Wilhelm Lorenz
by his attorney
Thomas Drew Stetson

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILHELM LORENZ, OF CARLSRUHE, BADEN, GERMANY.

LINING FOR CORRUGATED-SHEET-METAL ROOFS.

SPECIFICATION forming part of Letters Patent No. 396,824, dated January 29, 1889.

Application filed November 10, 1888. Serial No. 290,474. (No model.)

To all whom it may concern:

Be it known that I, WILHELM LORENZ, residing at Carlsruhe, Grand Duchy of Baden, in the Empire of Germany, have invented a certain new and Improved Lining for Corrugated-Sheet-Metal Roofs, of which the following is a specification.

I have devised a construction of lining which is self-supporting and non-conducting, and may be economically applied. The invention contributes to the appearance and strength of the roof, and avoids all the difficulties due to the loss of heat through the roof and condensation of moisture by the low temperature of the metal in cold weather.

The accompanying drawings form part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is an end view showing an entire roof with its lining. Fig. 2 is a longitudinal vertical section through a portion. The remaining figures show details on a larger scale. Fig. 3 is an elevation, and Fig. 4 a cross-section.

Similar letters of reference indicate like parts in all the figures where they occur.

In the undulations of the roof *a* the bearers *b* are adjusted in certain distances—about four feet apart. These bearers consist of single pieces *b' b'* butt-jointed. A band-iron, *e*, projecting to the right and the left, is nailed below. On each side I nail or otherwise secure splice-pieces *c c*, so that a coherent arch is formed, which, without any fastening or connection to the corrugated sheet metal or its strutting, freely bears against the timbers of the roof, being strong enough in itself to bear the lining and also contribute to the general strength of the roof.

This lining consists of boards *d*, forming a close and continuous layer. Their ends are inserted in the grooves or spaces left between the splice-pieces *c* and the band-iron *e*. When these are properly in place, the entire roof is closed or lined. A fastening of these boards or this lining will not be required; but screws or other fastenings may be applied at various points. For better appearance, the lower visible surface is to be painted or otherwise provided with a light-colored fire-proof coating. The entire wood may, before or after the parts are shaped, be made fire-proof by saturation with a suitable liquid. The spaces between the corrugated sheets and the lining may, according to requirement, be filled up with bad-conducting material—as, for instance, with slag, wool, or any other suitable material.

This lining offers the advantage that it may be made entirely of waste wood, and that it does not require any other fastening than the said nailing. It presents a lining for protection against the collection and dropping of moisture due to condensation. The lining supports itself freely, and may be quite independent of the sheet-metal roof.

Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention. I can dispense with the splice-pieces *c*, using other means—as a strip of angle-iron—to stiffen the ribs formed by the bearers *b* and keep the lining-boards *d* reliably in place. I can use screws instead of nails at some or all the points. I have shown tie-rods and supporting-rods therefor, but these may be varied or omitted.

I claim as my invention—

A lining for corrugated-sheet-metal roofs, consisting of bearers *b*, applied in the undulations, with splice-pieces *c c*, band-iron *e*, and the lining-boards *d*, inserted in the grooves between *c* and *e*, as herein specified.

In testimony whereof I have hereunto set my hand, at Carlsruhe, this 19th day of September, 1888, in the presence of two subscribing witnesses.

WILHELM LORENZ.

Witnesses:
FRIEDRICH LORCH,
ADOLF LEHNE.