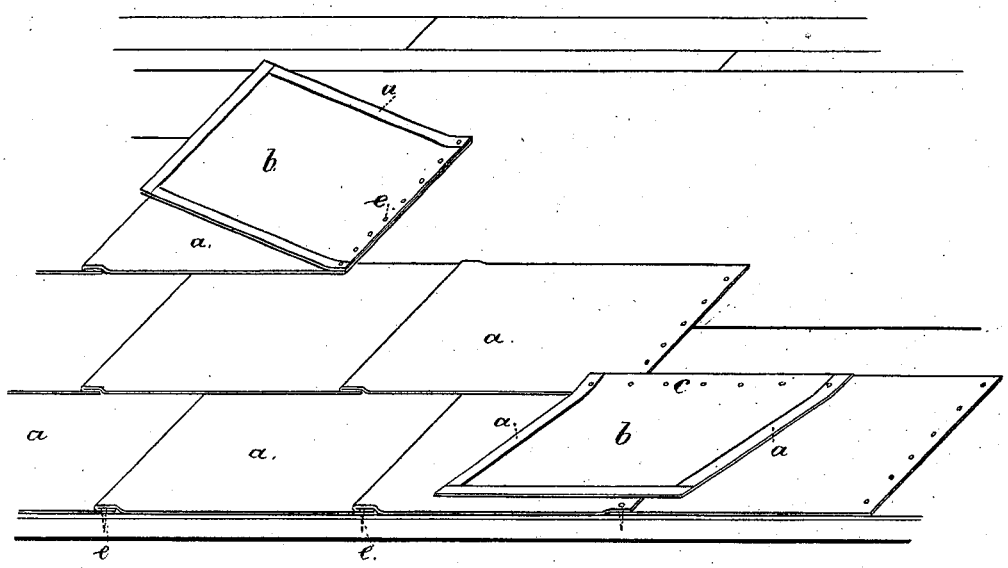
J. MACARTHY.

Roofing for Building.

No. 209,906. Patented Nov. 12, 1878.



Witnesses

Chas H. Smith

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UNITED STATES PATENT OFFICE.

JOHN MACARTHY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN ROOFING FOR BUILDINGS.

Specification forming part of Letters Patent No. **209,906**, dated November 12, 1878; application filed March 18, 1878.

To all whom it may concern:

Be it known that I, JOHN MACARTHY, of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Roofing for Buildings, of which the following is a specification:

Roofing has been made of tarred paper and laid upon the wooden roof and secured by nails, and the edges have been lapped and cemented with asphalt. Roofs have also been made of lead laid upon planking and secured by nails, and the seams have been lapped, folded, and soldered.

In roofs made of lead the sheets have to be sufficiently thick to retain their places, otherwise the sheets become warped and stretched out of position and the seams ruptured. When made of this necessary thickness they are heavy and expensive. With tarred-paper roofing the asphalt with which the paper is covered has to be sufficiently thick to give a protecting body, and in hot weather the asphalt often softens and runs, carrying with it the sand or gravel with which it may be covered.

My invention is made for combining the advantageous features of the lead and the asphalt roofing and avoiding the disadvantages of both kinds of roofing.

In the drawing I have represented my improvement by a perspective view.

The foundation of my roofing is prepared paper or felt rendered durable and waterproof by tar, asphalt, or other similar material. It is preferable to employ paper that is sufficiently thick to obtain the necessary strength, and the fibers should run in different directions in respective layers that are cemented together by the asphalt.

The surface of the felt is covered with a thin sheet of lead or other tenacious and comparatively cheap metal, and this is caused to adhere by means of melted asphalt or pitch applied between the metal and felt or paper. Care is to be taken to have the sheets pressed into intimate contact, so as to be united throughout, and to have adhesive material that will not melt except at a sufficiently high temperature, so as not to lose its adhesive qualities under the action of the heat to which it may be exposed upon the roof. The felt may be covered on both sides with the thin sheet metal, if desired.

This roofing material is a new article of manufacture. It can be prepared by suitable machinery and sold in rolls, sheets, or strips.

For corner strips and gutters the sheet metal may be lapped around the edges of the felt or paper.

For sheets that are to be laid as shingles, the surfaces exposed are to be covered with sheet metal; but the felt extending up beneath the upper sheets need not be covered with the sheet-lead.

In the drawing the lead is shown at *a* upon the paper or felt *b*. At *c* the lower edge of the sheet is shown as nailed. This is to be done when the sheet is upside down upon the previously-laid sheet, and then the sheet is to be turned over and folded.

It will generally be preferable to nail the sheets at the seams that run up and down the roof, as indicated at *e*.

Where the sheets lap they should be cemented together by asphalt, and, if desired, the sheets of lead can be folded together at the edges in a manner similar to the sheets of tinned iron upon an ordinary roof.

It is generally preferable to fold the sheet-lead around the edge of the felt wherever the same would otherwise be exposed.

This roof is very durable. The felt forms a stiff backing to the lead to hold it in position. The lead forms a protecting surface to the felt, and confines the asphalt, and prevents disintegration by atmospheric action, and the metal surface can be protected by paint if desired.

The asphalt or other bituminous material made use of may be mixed with finely-pulverized coal-ashes, so as to promote the drying and hardening of the same, and to give body to the material.

I am aware that iron roofs and corrugated and plain sheet-iron for roofs have been made with a lining of canvas, felt, or other equivalent fibrous material, having in view the interposition of a non-conducting material between the under side of the metal and the atmosphere of the building, to lessen condensa-

tion, as seen in Letters Patent No. 164,749. My roofing material cannot be used except upon a complete surface of boards or similar material, and I employ a fiber with bituminous material, which has not before been coated with thin sheet-lead or similar material.

I claim as my invention—

A material for roofing composed of a layer of fibrous material, a thin sheet of lead or its alloys, and bituminous material with which the fibrous layer is prepared, and which causes the sheet of metal to adhere, as and for the purposes set forth.

Signed by me this 8th day of March, A. D. 1878.

JOHN MACARTHY.

Witnesses:
W. C. DRUMMOND,
L. GERHARD.