(No model.)

A. SIEBEL.

ROOFING AND ISOLATING MATERIAL.

No. 441,036. Patented Nov. 18, 1890.

Fig. 1.

Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR SIEBEL, OF DÜSSELDORF, GERMANY.

ROOFING AND ISOLATING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 441,036, dated November 18, 1890.

Application filed April 7, 1890. Serial No. 346,969. (No specimens.) Patented in Germany April 19, 1888, No. 45,509; in Belgium June 24, 1889, No. 86,751; in Switzerland July 22, 1889, No. 1,245, and in Austria-Hungary November 29, 1889, No. 29,278 and No. 56,956.

To all whom it may concern:

Be it known that I, ARTHUR SIEBEL, a subject of the King of Prussia, residing at Düsseldorf, in the Kingdom of Prussia, Germany, have invented an Improved Roofing and Isolating Material, (for which Letters Patent have been granted in Germany April 19, 1888, No. 45,509; in Belgium June 24, 1889, No. 86,751; in Switzerland July 22, 1889, No. 1,245, and in Austria-Hungary November 29, 1889, No. 29,278 and No. 56,956,) whereof the following is a specification.

The subject of my invention is an improved roofing and isolating material for building purposes, which consists in a combination of a base or core of sheet metal and one or two firmly-adhering layer or layers of substances adapted to protect the metal against corrosion by atmospheric influences, gases, (such as sulphurous acid contained in the air,) acid vapors, moisture rising from the ground, &c., while, on the other hand, the metal imparts to the compound material complete impermeability.

In the annexed drawings, Figure 1 shows the said material in section, *a* being the metallic core, and *b b'* two protective layers. Fig. 2 is a sectional view representing a mode of uniting two pieces of the material.

For the metallic base or core I prefer to use lead on account of its property of being easily bent and of retaining the shape imparted to it, and also because it is particularly resistant to chemical action.

The substances from which I form the said protective layers consist in asphalt or preparations thereof, tar, whether crude or prepared for tarring roofs and walls, and other hydrocarbons adapted to become sufficiently hard; moreover, pitch, rosin, ozocerite, refuse of stearine-works, and bituminous schist or any mixtures thereof. Such of these substances or mixtures as have in themselves body enough may be employed alone. In the contrary case I add thereto fibers of asbestus, powdered minerals, hairs, caseine, sand, sawdust, or mixtures of the same capable of forming a plastic mass with the former. The layers, after having been brought onto the metal, are united therewith by pressure. On the outside these layers may be strewn over with powdered minerals or covered with a fabric or with paper impregnated with tar or the like. Such fabrics, paper, pasteboard, or felt may, however, also be incorporated into the body of the said layers. If tar or any substitute or preparation thereof is employed, an advantageous mode of proceeding is to impregnate sheets of pasteboard or felt-like fabrics of vegetable or animal fibers or asbestus with the tar, to apply them to one or both sides of the metal, and to unite them therewith by pressing or rolling, or a number of sheets of paper or any suitable fabric are thus impregnated and laid one upon the other and pressed on the metal. In some cases I cover the layers with metal foil, or I coat them with metal by galvano-plastic means.

The described material possesses various qualities which render it valuable for building purposes. It is capable of being bent so that it may be brought into various forms, while it possesses the requisite stiffness to retain such forms. It may thus, for instance, be employed for making gutters therefrom. If used as isolating material, it has the superiority of being absolutely impermeable to moisture. If applied to roofs, it unites the advantages of asphalt roofing with those of metal roofings, while its durability and its impermeability are greater and its weight is less. It may also be formed or divided into plates adapted to be used as roofing-tiles.

In view of obtaining a perfect union of juxtaposed sheets or plates at their edges, an advantageous mode of proceeding is as follows: During the manufacture of the sheets or plates the edges of the protecting-layers are prevented from uniting with the metal—for instance, by inserting strips of paper between the said edges. When such sheets or plates are to be joined together, the non-adhering edges of the protecting-layers are bent off a little from the metal, a suitable cement is laid on the surfaces thereby exposed, (either with or without removal of the strips of paper,) and the sheets or plates are pushed together with their open opposite edges, so that the metal of the one bears on that of the other, and the protecting-layers

overlap each other, as shown by Fig. 2. Finally the sheets or plates are firmly united by pressure along the line of junction. A very tight sixfold joint is thus obtained.

I claim as my invention—

A pliable roofing and isolating material for building purposes, consisting of metallic foil or thin sheet-lead having united thereto on both sides a protective layer composed of a fabric such as paper or felt impregnated with tar, asphalt, pitch, or the like, substantially as and for the purposes hereinbefore set forth.

In testimony whereof have I hereunto set my hand in the presence of two subscribing witnesses.

ARTHUR SIEBEL.

Witnesses:
F. H. THOMAS,
A. SCHNIEWIND.