(No Model.)

L. B. SNOW.

FLEXIBLE ROOFING TILE.

No. 320,979. Patented June 30, 1885.

Fig. 1.

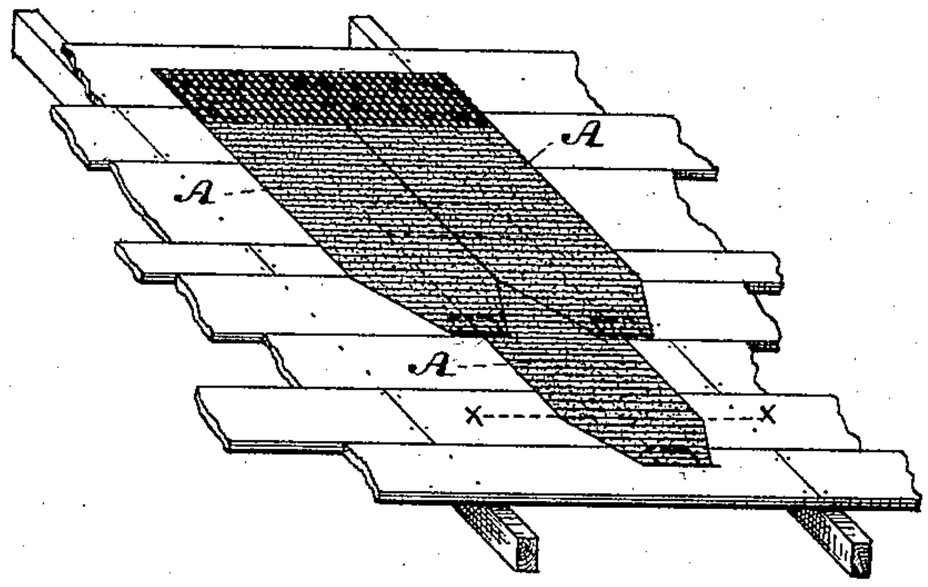


Fig. 2.

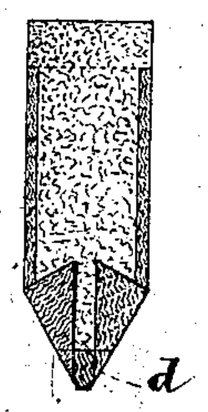


Fig. 3.

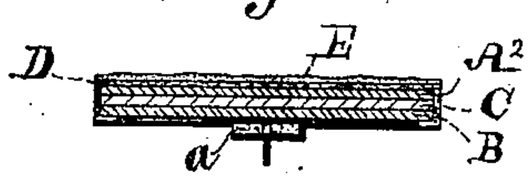


Fig. 4.

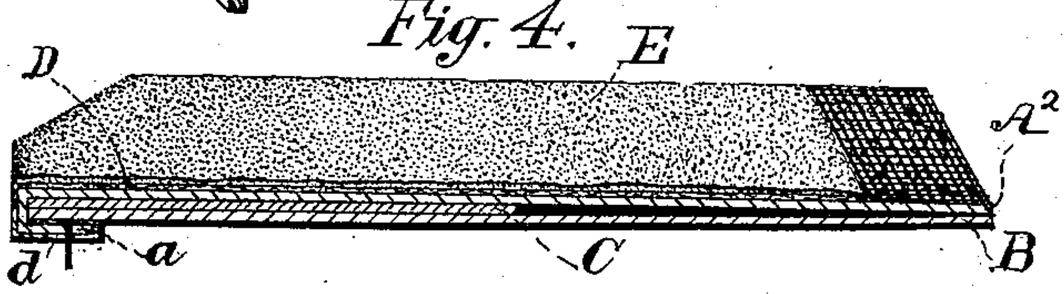


Fig. 5.

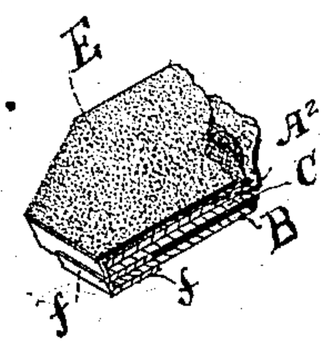


Fig. 6.

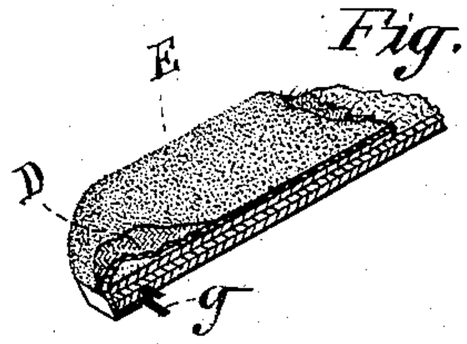
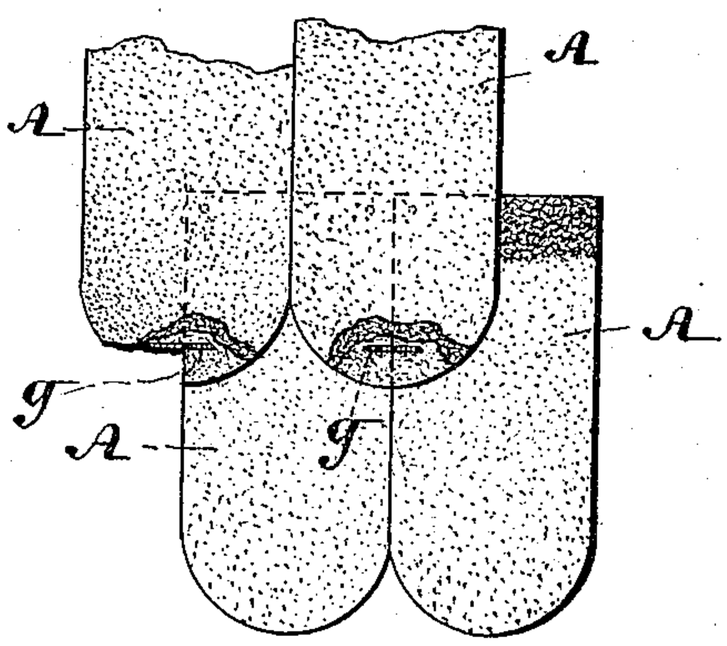


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

LEXOR B. SNOW, OF CLEVELAND, OHIO.

FLEXIBLE ROOFING-TILE.

SPECIFICATION forming part of Letters Patent No. 320,979, dated June 30, 1885.

Application filed November 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEXOR B. SNOW, a citizen of the United States, residing at Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Flexible Roofing-Tiles; and I do hereby declare the following to be a description of the same, and of the manner of constructing and using the invention, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, forming a part of the specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

My invention is of a flexible roofing-tile, fabricated and treated with a protecting and preserving solution, and provided with a fastener at its weather or lower end, as hereinafter more fully described.

In the drawings, Figure 1 is a plan view of the tile as located on the roof. Fig. 2 is a detail bottom view of the outer layer, showing a lip on its weather end. Fig. 3 is a cross-section of Fig. 1, on the line of *x x*, showing the various layers and the fasteners. Fig. 4 is a longitudinal vertical section of one of the tiles. Fig. 5 shows a modification, with a metallic fastening. Fig. 6 is another modification, in longitudinal section, showing a T-fastening. Fig. 7 is a detail of tiles located on the roof, with portions of the upper layers broken away to show the application of the T-fastener.

In Fig. 1 A is a located tile. In Fig 3 A^2 is the outer layer; B, the under layer of all, and C a sectional layer located between the other two said layers. These layers are composed of paper, pulp, straw-board, felt, or other equivalent material, and treated with a weather-resisting and fire-withstanding solution, as hereinafter described, said solution also adapted to fasten and compact said layers together. Layer A^2 is provided at its weather end with the lip *a*, whose use is hereinafter mentioned. Fig. 3 also shows D, a textile covering of the outer one of said layers, and also shows a layer of sand cemented upon the outer face of said textile. Said textile covers all the portions of said layer that are exposed to the weather, and extends slightly upward beyond the line of said exposure, and is also folded over the side edges and lapped upon the under face of said layer. A portion of said textile also covers the outer face of lip *a*, or it may, independently of *a*, form of itself the lip *d*.

The process of the manufacture of my tile is substantially as follows: The body-layers specified, being suitably prepared of material mentioned, are thoroughly saturated or treated with a solution of asphalt or coal-tar or equivalent mixed with ground mica, plumbago, soapstone, fire-clay, asbestus, or the like, so that they are adapted thereby to resist both moisture and fire, and also to adhere together as one compact fabric. Before, however, the outer layer, A^2, is applied to the other layer or layers the textile D is stretched over the weather-exposed portions of said layer, and its edges are folded over the edges of said layer and lapped on to its under surface, and the lip *d* of the textile covers lip *a*, thereby affording additional protection to itself and to *a*. When said textile is so applied to said layer and made to adhere to it by means of the mixture mentioned, the said layer is laid normally upon the other layers, forming thereby a compact tile. After this the textile is treated with an exterior coat of the same mixture, upon and into which is embedded an adequate coating of sand, which adds to the good wearing and protecting surface of the tile. The tile so made, covered, saturated, and dried, is ready for location on the roof. In its application to the roof, the tile is first placed with its normal upper end downward and with its normal under side uppermost, and in that position the lip is nailed to the roof, whereupon the tile is turned over upon said lip to its normal place, when it is itself nailed to the roof. In this way also the nail that holds the lip is shielded from the weather. The special function of said lip is to hold the weather end of the tile tight down upon the roof to prevent the tile to which it is attached from being lifted at said point by wind, storm, frost, heat, or other cause.

Of a tile so made and applied, the advantages are manifest. In the first place, its flexibility is of great importance, as it fits it to

conform to inequalities of surface, and so protects it from the easy fractures that are so common in slate tile; also my tile is impervious to water, and highly incombustible, and being so saturated with the lasting substances specified and covered with sand, it is adapted to be especially durable. Moreover, the tiles being so tightly bound at their weather ends to the roof, in addition to the ordinary nailing, they form a roof unusually safe from the disturbance of winds, driving storms, or other agencies; and, also, the whole fabric is of comparatively small cost.

It is to be understood that in practical use I am not confined to any definite and exclusive number of the layers that compose the tile; nor to any exclusive form or shape of the tile; nor to any particular textile for the outer covering; nor to any exclusive dimensions of the intermediate layer or layers; nor to a textile lip as an indispensable part of my invention. In lieu of said textile lip I may use a strip of tin or other flexible metal, said strip being partially inserted between any two of the layers, and then bent and nailed to the roof in the same manner as is the lip. Such a metallic lip is shown at *f* in Fig. 5; or, dispensing with a lip, I may use a metallic T-fastener, *g*. (Shown in Fig. 6.) Said fastener has one portion of it inserted vertically through one of the body-layers of the tile, and said portion being provided with divergent prongs, said prongs are then bent horizontally, by which means the said fastener is securely held in place. Said fastener, by its divergent prongs at its operating end, forms open slideways for the edges of the contiguous tiles, into which the said edges are slid or fitted, as the superposed tile with its fastener is normally located; or said fastener may be secured to the said layer or layers of the tile in any other suitable way. Said T-fastener and said other metallic fastener fulfil the same function that does the textile lip described.

The special functions of the partial interior layer are to increase the thickness of the wearing portions of the tile, and to leave the upper and protected portions of the tile more in a tapering form, whereby the tile is adapted to lie in more compactly or closely with its connected tiles.

I am aware that heretofore roofing material has been made flexible and treated with dressings to protect it from moisture and fire; but I am not aware that such material or materials so treated has or have been formed into distinct and separate tiles like mine, adapted to be placed upon a roof as shingles or slates are placed, and to be nailed as they are nailed; also, I claim my weather-end devices for fasteners as new.

What I claim is—

1. A roofing-tile composed of layers treated with a protecting and preserving solution, the exposed surface of the tile having an independent covering, substantially as set forth.

2. A roofing-tile composed of three or more layers, an interior layer being of less length than the tile, substantially as set forth.

3. A roofing-tile composed of layers treated with a preserving and protecting solution, the exposed surface of the tile having a covering of cloth, or its equivalent, provided with a rough wearing coating, substantially as set forth.

4. A tile provided at its lower or weather end with a projecting flexible lip, for purposes as set forth.

5. A roofing-tile consisting of layers suitably attached to each other and protected by a solution against moisture and heat, the outer one of said layers provided with a flexible lip at its weather end, for purposes substantially set forth and described.

6. A roofing-tile consisting of layers of felt, or its equivalent, said layers saturated and cemented together by a water-resisting and a heat-resisting solution, said tile covered in all its weather-exposed portions with a textile saturated with the same mixture that is applied to the said layers, said tile being provided at its weather end with a flexible lip, substantially as set forth.

7. A roofing-tile composed of three or more layers, saturated with a preserving and protecting solution, one interior layer or more being partial and extending rearward only slightly beyond the line of the weather-exposure of the tile, the exterior one of said layers being covered in all its weather portions by a painted and sanded textile, said textile being provided with a projecting and flexible lip, substantially as set forth.

8. In a roofing-tile, the combination, with two or more layers saturated and cemented together by a protecting solution and an exterior weather covering of cloth, paint, and sand, of an intermediate layer between these said other portions, said layer also treated with a similar protecting solution and provided with a projecting flexible lip at its weather extremity, said lip also saturated, painted, or covered, substantially as set forth.

9. A roofing-tile made as described and provided at its weather end with a device whereby said end may be tightly bound down to the roof or to a subjacent tile, for the purposes set forth.

10. A flexible roofing-tile composed of a material that adapts it to receive a solution by which it powerfully resists fracture, moisture, and heat, substantially as set forth.

In testimony that I claim the foregoing to be my invention, I have hereunto set my hand this 29th day of October, A. D. 1884.

LEXOR B. SNOW.

Witnesses:
THOS. B. HALL,
JNO. G. HALL.