

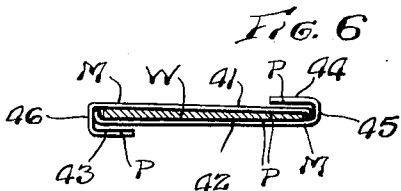
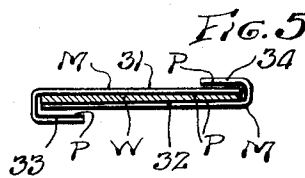
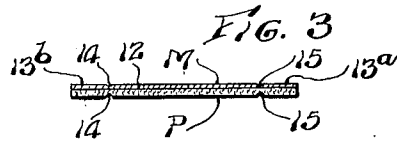
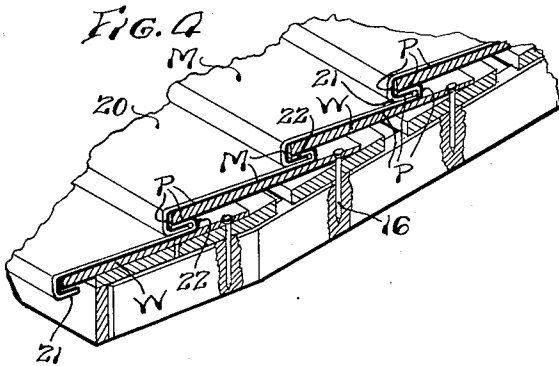
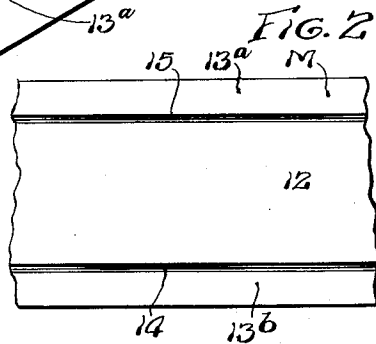
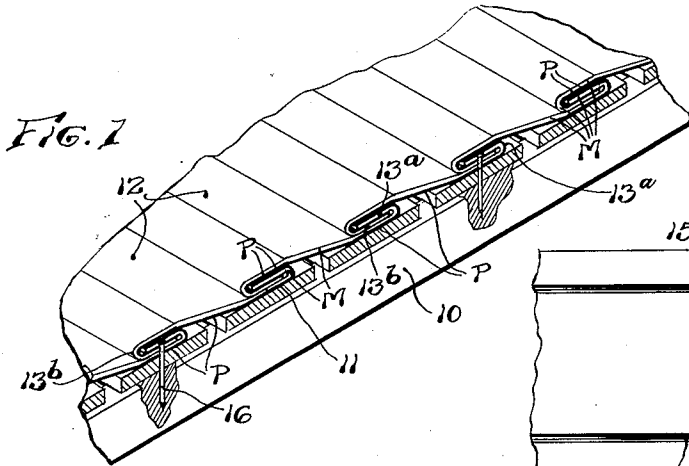
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ROOFING

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# UNITED STATES PATENT OFFICE

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## ROOFING

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The present invention relates to roofing materials such as shingles, roofing strips, and the like. The invention is directed to the provision of a roofing element of an improved structure and composition, which is unaffected by climatic or weather conditions, and which will not warp, shrink or expand detrimentally. In illustrated embodiments, it is substantially fire and vermin-proof, is light in weight, possesses excellent heat insulating properties, may be cut and nailed, and may be economically manufactured from inexpensive materials and installed at low cost.

The objects set forth are attained by the provision of a roofing element comprising a base, a moldable body, and a metallic coating upon this body and adhering thereto, the body to be applied to the base in a number of different ways.

The base employed may be of a composition which may be molded into form and hardened; it may be wood; it may be a laminated structure; in fact, it may be of any sheet material which should be thoroughly dry so that it will not warp, and which may be sawn as may be necessary for laying and which has body sufficient to be nailed in position.

A body particularly suitable for the present invention is one comprising relatively thin boards which do not make good lumber because of the presence of knots or knot holes or both. Such a base is not expensive and if thoroughly dry when prepared, is non-warping. Wood tends to make a roof more desirable by conserving in cold weather the heat within the building on which used, and resisting the radiation of heat in hot weather. It will not deteriorate to any great extent should defects in the metallic coating exist; and the fact that it will not readily warp when employed in this manner increases the endurance and life of the roof under the most severe exposure.

The coating for the base is a combination, in suitable proportions, of paper and asphalt. The paper is saturated with asphalt and is particularly suitable as a body for a metal roofing sheet to be applied to wood, because its coefficient of expansion with variations in temperature and moisture is practically zero.

In a roofing element of the character hereinafter described and constituting the present invention, a metallic coating is applied directly to the surface of the body, or vice versa. It is quite important that the coefficient of expansion of the body or backing with changes of temperature be low so as to eliminate the danger of detaching the metal coating from such body as a result of expansion and contraction of the metal with changes of temperature. The expansion of the wood base is practically nil, also.

The base may be of any form suitable for application of the body and metal covering to a roof; preferably, the base is shaped into the form of a rectangular shingle of decreasing thickness as its top is approached. This is not a necessary requirement to the success of the invention, however.

The body of saturated paper has a coating of metal applied to it in such a manner as to cause it to adhere directly to the surface of the body. A most efficient metal is zinc, rolled into sheets. For the purpose of applying such a body to the sheet zinc, the surface of the metal is brought into intimate contact with the saturated paper. Heat or pressure or both may be applied. The asphalt possesses an adhesiveness sufficient to hold the body and sheet metal together.

The metal applied to the body, and the body applied to the base, allows for the irregularities of the base, and becomes, for the closely adherent thin metallic coating, a protection as well as a reinforcement for the base.

Several embodiments of the invention are shown in the accompanying drawings. In the drawings:

Figure 1 is an elevational view partly in section showing my improved roofing element applied to a standard roof.

Figure 2 is a plan view of a strip which is employed in the preparation of the roofing element before such strip has been applied to the roofing.

Figure 3 is a section of the strip shown in Figure 2.

Figure 4 is a modified form of the invention.

Figures 5 and 6 are sectional views through

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an element wherein modifications in the grouping of the parts of the element are employed.

Like reference characters are used to designate similar parts in the drawing and in the description which follows.

Reference should be had to the details of Figures 1, 2 and 3 of the drawings. The numeral 10 designates the section of a roof of a building over the gable end upon which roof my improved roofing has been placed. The roofing is designated 11 and comprises a middle or wide section 12, an upper section 13<sup>a</sup> and a lower section 13<sup>b</sup>. In this particular embodiment, there is no base. The metal portion is designated M and the body or packing by the letter P. The edge or the lower section 13<sup>b</sup> of strip 12 is turned under. The upper strip or section 13 is turned over and back.

Strip 12 may be made in rolls of material having longitudinal scores like those shown in Figure 2, and having a cross section as illustrated in Figure 3. The scoring 14 at the lower edge of the material is to permit ready folding under of section 12, and that, 15, at the upper edge permits the turning of the section 13 upwardly and over. When so made, cuts of proper length are removed from the roll and laid in the manner shown in Figure 1, the articulations in the material being made subsequent to cutting it to a proper length.

Naturally, the material illustrated in Figure 1 may be cut in predetermined lengths during the process of manufacture, and such predetermined lengths may be secured, when desired, to a wooden or other base before being laid. The coating may be adhesively or otherwise applied to such base.

In Figure 1, the method of joining strips is principally illustrated. For example, section 13<sup>a</sup> of an upper strip 11 is secured to section 13<sup>b</sup> of the contiguous lower strip 11, so that the sections 13<sup>a</sup> and 13<sup>b</sup> interlock and prevent leakage in the jointure therebetween. Nails 16 may be driven through sections 13<sup>a</sup> and 13<sup>b</sup> before the upper strip is articulated upon the score 15.

The precise physical operation of laying is unimportant, but no matter how laid, there is economy of operation in employing the material illustrated, and when the material is supplied in rolls, there is not only a marked saving in freight and in production costs, but also in the labor for laying, for there is nothing for the mechanic to do but cut the material to proper length and nail. Nails 16 disposed as they are illustrated avoid leakages and present upon the roof an unbroken slanting surface of strips which is free from punctures.

The body P permits of making a very tight seam between strips. This material P is compressible, being paper saturated with asphaltum, and therefore lends itself to sealing the joint. The asphaltum in the paper provides cohesiveness which will cause the abutting sections of the paper to eventually unite from mere contact. The application of heat to the metal will tend to hasten such unison of the backing P.

It is proper to describe a modified form of this embodiment of the invention. A most serviceable roof comprises a plurality of strips M united at their joints by a low melting solder. In fact a thin sheet of solder may be used as a backing, making it possible to seal the seams between interlocking sections by mere external application of heat by blow torch or otherwise.

A joint between strips having a paper or other backing may be sealed by cementing with a waterproof glue.

In Figures 4, 5 and 6, a base W is shown. This is a strip of wood like or comprising a weather board, a shingle, or another relatively thin member, and which may be wedge shaped as illustrated, or otherwise.

In Figure 4, the strip W is but partly covered by a metal sheet M upon a body P. The covering for the strip W comprises a body 20, a folded under loose or unattached extension 21 at the bottom thereof, and a folded back portion or section 22 at the top. The metal M and backing P extend but part of the way toward the top of strip W, and the metal and backing are arranged to interlock in the same manner as the embodiment illustrated in Figures 1, 2 and 3. In this arrangement, nails may be driven through the strip W and need not be inserted through the metal M or paper P. This provides a series of unpunctured metal strips as the exposed surface of the roof.

In Figures 5 and 6, a completely covered strip is shown. Upon a wood or other base W, are two separate and independent cut portions of material, 31 and 32, the body P and the covering M. The major portion of each cut section 31 and 32 of the coating of P and M is upon the flat side of the strip W, both sections 31 and 32 having extension portions. The extension portion 33 of the material 31 at the top extends downwardly and underneath the strip W where it provides a loose flap, and the bottom portion of material 32 has an extension section extending upwardly and over the top of strip W to provide the loose flap 34.

In laying the strips W shown in Figure 4, the flaps 33 and 34 are made to interlock, and the nails or other means used to secure the strips W may be driven through the interlocked flaps 33 and 34, and the lower strip W. Leakage could not possibly occur with such a secure jointure as described, and an entirely covered strip possesses marked advantages of long life and great strength, while the core W of such a roofing material may

be of unsightly wood or other material, and hence cheaply procured. It may be so full of knots and knot holes that it would be useful for no other purpose.

5 In Figure 6, the strip W provides a core, and parts 41, 42, 43 and 44 correspond to the parts 31, 32, 33 and 34 of Figure 5. At the inner ends of the cut sheets 41 and 42, respectfully, are extensions 45 and 46, which  
10 cover the narrow edges of strip W. These extensions, 45 and 46, thus provide a more complete protection for the core W and greater strength for the complete unit. The manner of laying the strip shown in Figure 6 is  
15 the same as described for the strip illustrated in Figure 5.

It should be quite manifest that all the forms which the invention may take are not illustrated in the single sheet of drawing,  
20 hence, there is no intention to be limited to the precise embodiments shown in this application, but on the contrary, to be bound only by the limitations, expressed in the appended claim.

25 It is worthy of note that the roofing material may be laid without puncture. When punctured, the perforated part is remote from exposure to rain water or thawing snow or ice. As illustrated, the expansion and contraction due to changes in temperature are negligible, because zinc is the preferred metal coating, and because the metallic sheet is relatively thin. There are no exposed edges  
30 when the roof is laid.

35 The material is economical to make. Only the lowest grades of wood need be employed and the metal coating exceedingly thin. There is no rust or oxidation of zinc to cause it to become thin or leaky, and it is seemingly everlasting.  
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I claim:

1. A roofing strip adapted to be made in rolls comprising a pliable but relatively thick treated fabric body portion, and a relatively  
45 thin metallic sheet of the same width as said body and adhering to the surface of said body portion, said body portion and said sheet having parallel longitudinal complementary scores providing edge sections adapted to be articulated to interlock with the  
50 adjacent articulated edge sections of strips of like material to effect a weatherproof joinder therebetween, the texture of the laminated and scored strip being such that when fasteners are being inserted through said  
55 overlapping and interlocking edge sections, said body portion may be unarticulated or in angular position in relation to said edge section so as to uncover the interlocked edge section of contiguous strips, the material of said body extending over such fasteners when said strip is in its articulated and laid position, the body portion being treated with  
60 a material effective to create a hermetic seal

of said strips at the interlocking edges thereof and about said fasteners responsive to the application of the pressure applied thereto during laying.

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