July 7, 1931. T. ROBINSON 1,813,084

METAL CLAD FLASHING MATERIAL

Filed March 22, 1929

Fig. 1.

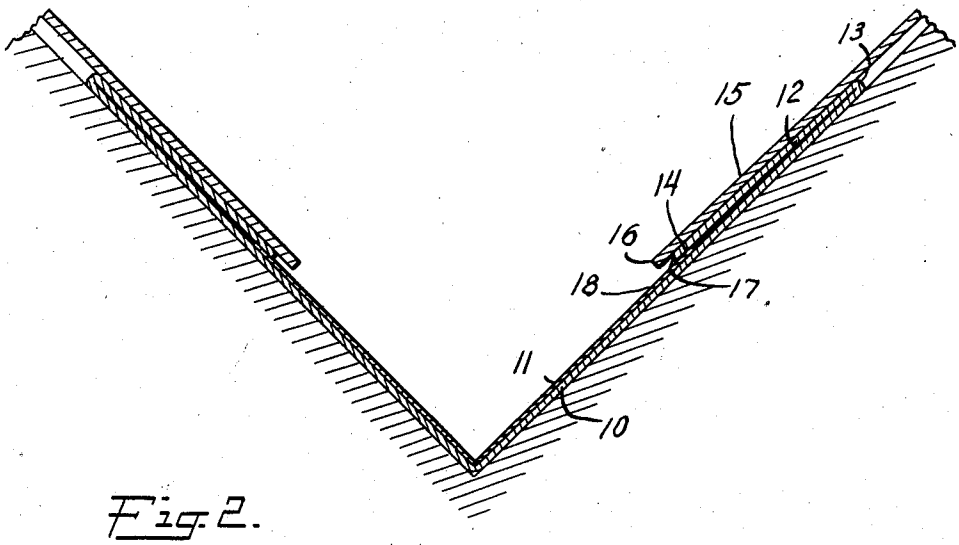


Fig. 2.

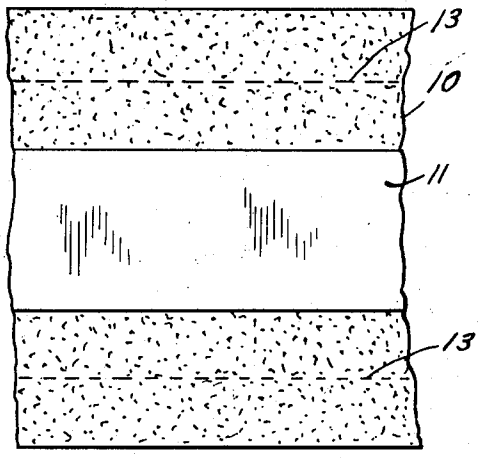


Fig. 3.

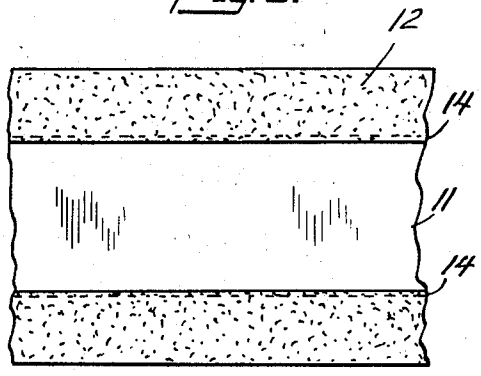
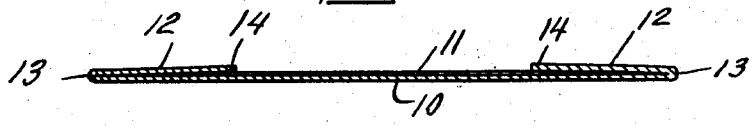


Fig. 4.



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UNITED STATES PATENT OFFICE

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METAL-CLAD FLASHING MATERIAL

Application filed March 22, 1929. Serial No. 349,072.

This invention relates to roofing products of the composite type which consists of a base of non-metallic material resistant to water, for example, asphalt-impregnated felt, and a thin layer of metal affixed thereto, the metal being of insufficient mechanical strength to be used alone but receiving the necessary support from the base which it in turn protects against the action of the elements. More particularly, the present invention is concerned with a metal-clad product which is especially useful as a flashing strip, and in valleys and the like, and a method by which it can be made.

In laying roofs it is standard practice to use metal for flashing strips around chimneys, etc., and also in valleys and in similar angular locations. In roofs of the better grade, sheet copper was used for that purpose for a long time because of its resistance to corrosion, but the cost of such sheet material used alone was too high to permit its use on cheaper structures. To reduce the cost without sacrificing any of the advantages of the copper sheet, there was devised the roofing material described and claimed in my prior Patent No. 1,663,565 of March 27, 1928, which material is of the composite type and consists of a thin flexible felt web with a layer or strip of metal affixed thereto to cover a central zone narrower than the web. In this material, the metal is much thinner than the copper sheet previously used and is supported by the felt. The uncovered selvage edges of the felt provide means for securing a good joint where adjacent roofing elements overlap the material since the joint is felt to felt or wood to felt instead of felt or wood to metal. The patented material is in general satisfactory and offers the building owner the opportunity to obtain all the advantages of sheet copper flashings or valleys at greatly reduced cost.

The material of the present invention is an improvement over the product of the patent in the respect that the new product is so constructed that the metal is more securely bound to the base and the possibility of the seepage of water between the base and metal is overcome. The means by which these results are achieved also strengthen the material along its edges and serve to prevent water from creeping into the roof beyond the edge of the material.

For a better understanding of the invention, reference may be had to the acoompanying drawings, in which

Fig. 1 is a transverse sectional view through a valley in which the new material is employed;

Fig. 2 is a plan view of a portion of the new material at one stage of its manufacture;

Fig. 3 is a plan view of the completed material, and

Fig. 4 is a transverse sectional view of the completed material.

Referring to these drawings, the new material is shown to consists of a web 10 of thin, flexible, non-metallic material. I prefer to make this web of thin roofing felt, preferably rag felt impregnated with asphalt. The felt used is of the grade known as "cap sheet" and a suitable felt for the purpose is one having a weight of 26 lbs. per square. This felt is readily flexible both longitudinally and transversely. For use as a flashing and in valleys and the like, the finished material may be approximately 20″ wide, although the dimensions and weight of the felt may be varied according to the requirements of the particular uses to which the material is to be put. For a finished product 20″ wide, I employ felt 30″ in width.

One face of the felt web is partly covered by a strip of metal 11. I prefer to use copper for the purpose by reason of its resistance to corrosion and because of its flexibility. The copper employed is of light weight and of much less mechanical strength than would be required were this metal to be used alone for flashing and valley purposes. Preferably, I employ electrodeposited metal since metal strips of the desired weight may be made much more cheaply by electrodeposition than by rolling. While electrodeposited copper is relatively weak, that is a matter of no consequence in

the present instance because the metal is in contact with the felt throughout its extent, is firmly secured thereto and thus is strengthened and supported by the felt. The metal employed is so thin that it does not stiffen the felt to an extent such as to interfere with the normal use of the product.

The metal strip to be used in a product of 20″ width is approximately 10½ to 11″ in width and the metal is disposed along the central axis of the felt so as to cover a central zone thereof, a selvage edge of felt on each side of the web being unprotected by the metal. This metal may be affixed to the felt by means of a thin film of hot asphalt and the application of pressure. This asphalt film binds the metal and felt together with sufficient strength to prevent their separation and since the metal is highly flexible there is little tendency for the metal and base to separate when the asphalt is used as the adhesive. If desired, the metal may be electroplated directly on the surface of the felt, although I prefer to produce the metal strip in a separate operation and affix it to the felt thereafter.

At each edge of the finished product, as indicated at 12, the felt is of double thickness and for this purpose, the felt is folded back upon itself along the lines 13, the portions at each side of the line of folding being firmly secured together by asphalt and pressure and so folded that the edge of the felt overlies the edge of the metal as indicated at 14. Where the finished product is to be approximately 20″ wide and the strip of metal is about 10½″ wide, the felt employed will be about 30″ in width, and the line of folding 13 will lie about 5″ from the outer edge of the felt.

With the arrangement described, the portions of double thickness felt at the edges of the product strengthen the material and since the felt overlies the edges of the metal strip, the seepage of water between the metal and the felt is prevented. The additional thickness of felt along the edges does not interfere with the use of the product, since in most uses, as for example, in the valley illustrated in Figure 1, the product is bent long its median line. The new product may, therefore, be readily bent to conform to the roof surfaces on which it is to be laid, and, while flexibility about a transverse axis is somewhat reduced, this is not important since even where the felt is of double thickness, it is still sufficiently flexible to permit such bending as is ordinarily required.

The presence of the portions of double thickness along the edges of the product serves a further useful purpose. The material is usually laid to cover a part of the roof, on one or both sides of which ordinary roofing elements 15 are laid. These roofing elements are placed to overlie the selvage edges 12 and the joint between the roofing elements and the new product is provided in part by a felt surface. If the roofing elements 15 are of felt, the joint is felt to felt, which is much superior to a joint between felt and metal obtained, for example, when sheet metal is used in a valley.

In laying the roofing elements they are placed so that their edges 16 project beyond the inner edges 17 of the folded portions of the felt and these inner edges 17 thus provide a dam against the entrance of water. When rain beats up the surface 18, it encounters the inner edge 17 of the portion 12 of double thickness. The water cannot enter between the two folded parts of the felt, since these parts are bound firmly together by asphalt. Entrance of the water into the roof can, therefore, occur only by seepage through the joint between an element 15 and the upper surface of the new material which it overlies. Water can only reach this joint with difficulty because the joint lies above the surface of the metal by the thickness of the felt. The inner edge 17 of the felt consequently forms an abutment which makes it more difficult for rain to enter the roof and leakage is thus avoided.

The new material is preferably made in the form of rolls of convenient length and it may be employed as illustrated in Fig. 1 for valleys, gutters and the like, or it may be cut lengthwise and the half portions thus formed used for flashing purposes. Also, a web of the new product may be cut into individual units which may be employed for purposes illustrated and described in my patent above mentioned.

A convenient method of producing the new material involves the preparation of the felt in the ordinary way. The felt and a strip of copper of the desired width and of indefinite length are moved endwise and the felt is passed into contact with a roller dipping below the surface in a tank of hot asphalt. The roller applies a coating of asphalt to the surface of the felt and thereafter the metal strip is placed in contact with the coated surface along the median line, and the projecting edges of the felt are folded back upon themselves by suitable folding means. Pressure is applied to force the folded portions of the felt into close contact and pressure is similarly applied to press the metal into the adhesive film. This pressing operation may be accomplished by rollers of suitable construction, the production of the new material thus being carried on continuously with the material cut into suitable lengths and rolled up for packaging and delivering.

While the method thus described provides a convenient and easy manner for producing the new material, it will be apparent that it can likewise be made by hand or that ap-

paratus other than that described may be employed for coating the felt, folding the edges and securing the metal thereto.

What I claim:

1. A material for roofing and similar purposes which comprises a web of flexible water-resistant material, and a strip of thin flexible metal extending lengthwise of the base spaced inwardly from the edges thereof, the portions of the base projecting beyond the edges of the metal strip being turned back upon themselves to give the web a double thickness at each side of the area covered by the metal.

2. A material for roofing and similar purposes which comprises a web of flexible, fibrous, water-resistant material, a strip of thin flexible metal on the base extending lengthwise thereof, the metal being of less width than the base and spaced from the extreme edges thereof, the portions of the base which project beyond the edges of the metal being folded back upon themselves to provide strips of double thickness, the inner edges of these strips partially overlying the metal.

3. A method for producing a material for roofing and similar purposes which comprises moving a web of base material endwise, applying an adhesive to one face of the web, moving a strip of metal in the same direction as the web and at the same rate of speed, placing the metal strip in contact with the coated face of the web, folding the portions of the web which project beyond the edges of the metal back upon themselves substantially along their median lines, and subjecting the base and a web to pressure to cause the folded portions of the web to adhere firmly to one another and to affix the metal to the web firmly.

In testimony whereof I affix my signature.

THOMAS ROBINSON.