May 26, 1936. J. G. HITZMAN 2,041,929

ROOF CLEAT AND GUARD

Filed Sept. 26, 1935

Fig. 1.

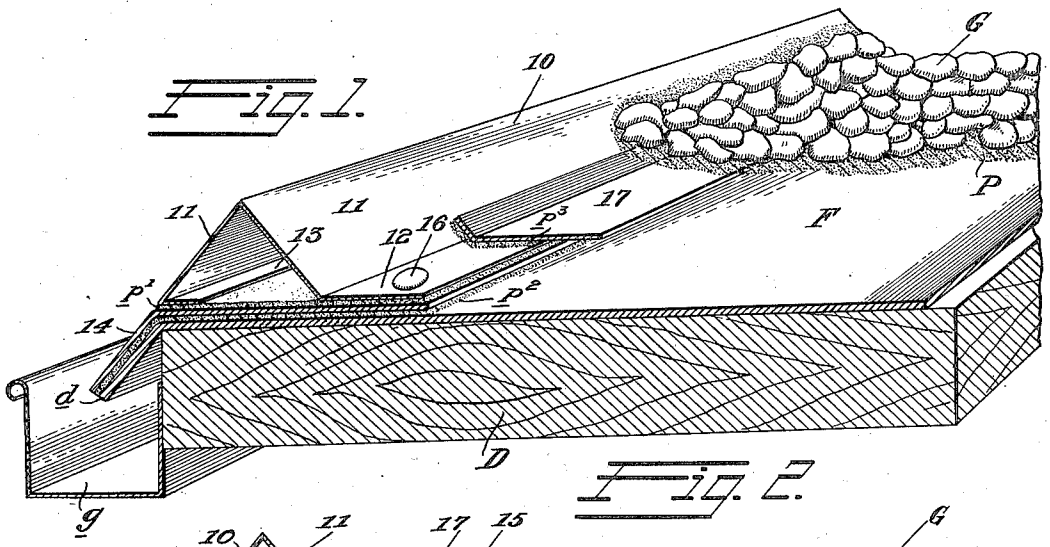


Fig. 2.

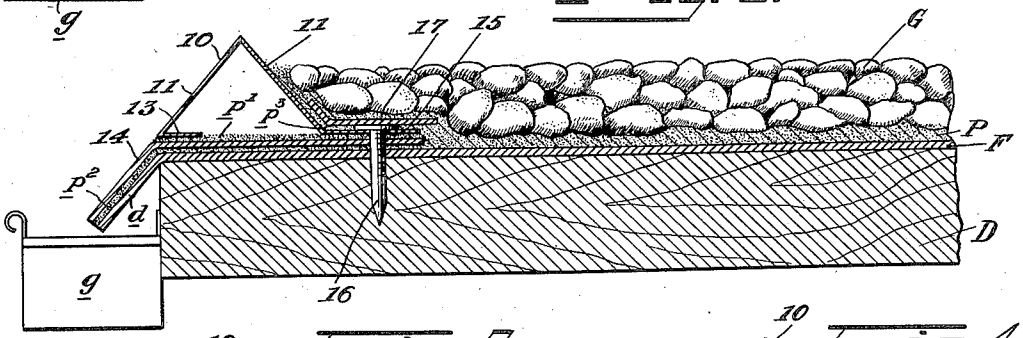


Fig. 3.

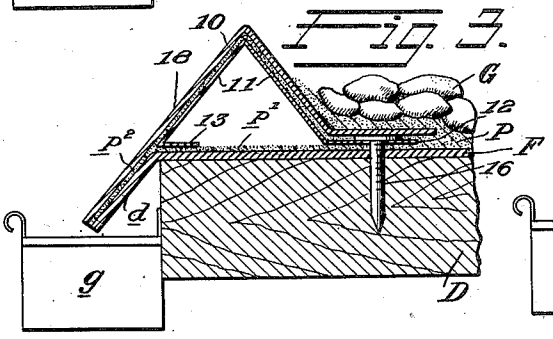


Fig. 4.

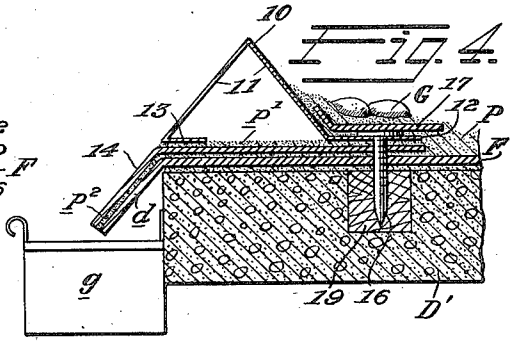


Fig. 5.

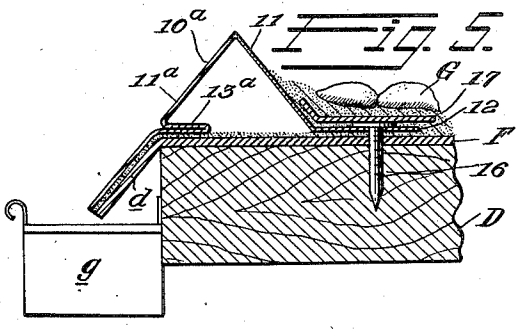
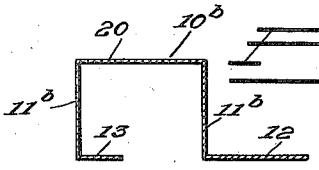


Fig. 6.



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ROOF CLEAT AND GUARD

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Application September 26, 1935, Serial No. 42,322

10 Claims. (Cl. 108—6)

The present invention relates to improvements in roofing construction.

More specifically, the invention relates to an improved construction for securing and protecting the edge of the base layer or matrix of a gravel roof, as well as positively precluding the gravel being washed over the edge of the roof into the gutter adjacent thereto.

Most gravel roofs as now and heretofore constructed consist in a wood or concrete deck, a layer of felt being loosely supported on the deck through an intervening dry paper layer (in the case of the wood deck) and secured to the deck by coal-tar pitch (in the case of a concrete deck). The felt layer serves as a base or matrix for a superposed layer of gravel intermixed with pitch. The felt layer projects beyond the edge of the deck to provide a downwardly inclined drip for directing the water away from the adjacent wall and into a gutter secured to the edge of the deck. The roof further includes a wooden cleat disposed directly upon the felt layer and secured in position by cut nails extending into the deck when the same is of wood, as it is in most cases. The wooden cleat extends longitudinally of the adjacent edge of the deck with the outer edge thereof substantially flush with the edge of the deck.

While the body portion of the felt layer is securely held in position by the weight of the superposed layer of gravel, nevertheless the edge of the layer adjacent the drip is subject to becoming loose and the cleat, as now used, is for the purpose of securely holding the felt to the deck adjacent the edge thereof.

In this form of roof construction the cleat which, in most instances, is one quarter of an inch in thickness provides a wall of the same vertical dimension and forms a backing for the base portion of the gravel and pitch layer. However, most of the gravel layer is disposed above the plane of the top surface of the cleat and this portion of the gravel layer is extended over the top of the cleat to the outer edge thereof.

While in this form of roof construction the gravel particles are mixed with pitch, most of the pitch settles to the base of the layer resulting in the gravel particles adjacent the top of the layer being loose or soon becoming so upon weathering of the roof. Although in this form of roof construction, the gravel and pitch layer is substantially flat, it has sufficient inclination to permit water to readily drain into the gutter adjacent the drip, and this movement of water toward the gutter washes the loose gravel particles off the top of the cleat as well as much of the gravel over the entire roof. As the gravel is gradually washed off, the pitch at the exposed surface softens permitting further washing of the gravel particles over the edge of the roof into the gutter and associated down spouts which become clogged and thus seriously impair the effectiveness of the roof. Furthermore, the pitch or tar with which the cleat and felt drip were originally coated gradually softens and by the combined action of gravity and the continued washing of gravel particles thereover finds its way into the gutter, causing the wooden cleat to warp and rot, nails to rust out and the drip to dry out and break off, thus resulting in serious impairment of the roof.

Efforts have heretofore been made to overcome this weakness in gravel roof construction by providing a member conjointly functioning as a cleat and a gravel guard. This member, however, was of such formation that it was not adaptable to roofs as usually constructed and which includes the drip, said member being so constructed that the drip could not be utilized in new roofs and had to be cut off from old roofs when applying such combined cleat and guards. Furthermore, this form of cleat and guard was difficult to apply due to interference offered by the gutter straps.

A primary object of the present invention is the provision of means for effectively overcoming the above noted deficiencies in gravel roofs as at present constructed.

A still further object of the invention is the provision of a combined cleat and gravel guard which is readily applicable to new or old gravel roofs having felt drips and which effectively secures the gravel supporting felt to the roof deck adjacent the drip, prevents the gravel from being washed into the gutter and protects the drip.

A still further object of the invention is the provision of a combined cleat and guard construction for gravel roofs which is relatively simple in construction, easy to install, and which can be made and sold at relatively low cost.

With these objects in view as well as others that will become apparent during the course of the following disclosure reference will be had to the accompanying drawing forming part of same, and wherein:

Figure 1 is a sectional perspective view disclosing the application of my invention to a gravel roof including a wood deck.

Fig. 2 is a transverse sectional view of the construction illustrated in Fig. 1.

Fig. 3 is a transverse sectional view disclosing a modification of the invention.

Fig. 4 is a similar view showing the application of the invention to a gravel roof including a concrete deck.

Fig. 5 is a similar view disclosing a still further modification of the invention.

Fig. 6 is a transverse sectional view of a modified form of combined cleat and guard.

Referring to the drawing by reference characters, and in which like characters designate like parts, D designates the roof deck which, in most instances, is a wooden structure supported by the walls in a more or less inclined position to properly provide drainage of water from the top surface of the finished roof.

Applied to the deck D is a tarred felt layer F which provides a suitable base or matrix for the gravel G intermixed with pitch P which secures the gravel layer to the felt F, as is clearly shown in the drawing, and which further serves to hold the gravel particles together. The felt layer F extends beyond the edge of the deck D and the projecting portion of the felt layer is turned downwardly to provide a tarred felt drip *d* for effectively carrying the water from the surface of the roof into the gutter *g*.

The construction so far described is that commonly employed in gravel roofs, the edge of the roof being provided with a wood cleat in the manner above mentioned.

The present invention relates to means for securing the felt layer adjacent the gutter, precluding the washing of gravel into the gutter and protecting the felt drip, and is designed to replace the commonly used wooden cleat hereinbefore described.

The present invention comprises a combined gravel guard and cleat as well as associated means for protecting the felt drip and includes a sheet metal member **10** which, in the preferred form, is constructed from sheet copper and is substantially triangular in cross section. The member **10** comprises opposite downwardly diverging side walls **11**, one of which merges into a relatively wide supporting and attaching base flange **12** and the other of which merges into a somewhat narrower supporting base flange **13**. The flange **13** not only aids in supporting the member **10** but also adds rigidity and prevents an otherwise sharp edge.

The member **10** when constructed of copper is supported on a strip of asphalt roofing or similar material **14** preferably through the intervention of a coat of pitch p' which is coextensive with the pitch P in the gravel layer. The strip **14** runs lengthwise of the edge of the roof and is of a width equal to the combined width of the drip *d* and member **10**. The strip **14** is preferably united to the felt layer F by means of an intervening pitch coating p^2 which also is co-extensive with the body of pitch P.

The strip **14** at its free edge terminates flush with the free edge of the felt drip *d* and accordingly functions to protect the drip against the weather elements as well as the constant washing effect of water draining from the roof.

The base **12** of member **10** is provided with a series of longitudinally spaced apertures **15** for receiving galvanized roofing nails **16** which extend through the strip **14**, layer F and into the wooden deck D for positively securing member **10**, strip **14** and layer F to the deck D. The heads of the nails **16** are protected by means of a strip of asphalt roofing or like material **17**, a coating of pitch p^3 separating the strip **17** and base **12**.

It is, of course, to be understood that the construction above described is applied previous to the spreading of the gravel when constructing new roofs. In the case of old roofs, however, the gravel adjacent the gutter edge of the roof must be broken away to admit application of the combined cleat and guard after which the surface of the roof can be readily completed by filling in the necessary amount of gravel mixed with pitch.

It will be seen that the construction, above described, provides an efficient means for securing the felt layer to the roof deck and the side wall **11** adjacent the flange **12** provides a shoulder against which the gravel layer abuts throughout the thickness of the layer whereby the washing of gravel into the gutter is positively precluded. Furthermore, the strip **14** protects the felt drip *d* and the strip **17** protects the heads of the nails **16**. The construction is not only efficient when newly applied but will maintain its effectiveness for a period approximating the life of the roof. In addition, the construction is such that a standard size is adaptable for application to the edges of all roofs of this character and does not need to be made special for particular jobs, and accordingly the construction can be provided at relatively low cost.

While copper is preferred in the construction of the member **10**, due to its great resistance to the weather elements, a cheaper material such as sheet iron may be used, and when utilizing a member **10** constructed of such or similar material the nail head protecting strip of asphalt roofing **17** is preferably continued over the member **10** as well as the felt drip *d*, as is indicated at **18** in Fig. 3.

By utilizing a wide strip **18** the member **10** and drip *d* are conjointly protected and the strip **14** is accordingly eliminated.

While the roof deck D is, in most instances, constructed of wood, there are or may be instances in which the deck is constructed of concrete, as is indicated at D' in Fig. 4.

In order to afford means to receive the securing nails **16** a wood strip **19** is preferably embedded in the concrete in the position of the longitudinal series of nails **16**.

In the case of roofs where the deck D' has already been constructed, thus making it difficult to apply the nailing strip, the member **10** can be installed by embedding same in plastic cement over the roofing felt.

In Fig. 5 is disclosed a modified form of the member **10** and which is designated as **10a**. This form is similar to that already described in which one side wall **11** merges into the supporting and securing base flange **12** as in the previous form, but the other side wall **11a** is substantially wider and is provided with a return bend intermediate its opposite edges to provide a supporting base flange **13a**, the side wall **11a** extending over the full width of the drip *d* for protecting same. In the use of this form of the invention the strip **14** is not required. The member **10a** should, of course, be constructed of copper.

While it is preferred to form the member **10** of generally triangular form in cross section it may be constructed substantially rectangular in cross section, as indicated in Fig. 6 and wherein the member designated **10b** comprises opposite vertical side walls **11b**, a horizontal top wall **20** and the supporting flanges **12** and **13** parallel with the top wall **20**. The member **10b** may be constructed of copper or other and cheaper material and used as above described.

While, with this form of the invention, the wall

11b adjacent base 12 would possibly be more effective in holding the gravel layer against washing action, the opposite wall 11b would provide a vertical drop immediately above the guard d which would not be as desirable as having the wall substantially co-planular with the drip d as in the other forms.

While I have disclosed certain physical embodiments of my invention the same are to be considered as illustrative and not restrictive, since I am at liberty to make such changes in form and materials as fairly fall within the scope of the subjoined claims.

What I claim and desire to secure by U. S. Letters Patent is:—

1. The combination with a gravel roof including a deck, a felt layer supported on the deck with one edge thereof overhanging an edge of the deck and inclined downwardly to provide a drip, and a layer of gravel combined with pitch secured to the felt layer; of a combined cleat and gravel guard secured to the deck adjacent said drip for securing the felt layer to the deck and preventing gravel being washed over said drip, and means associated with said combined cleat and guard for protecting said drip.

2. The construction defined in claim 1 wherein said combined cleat and gravel guard comprises a wall forming a backing for said gravel layer throughout the full depth thereof and a second wall co-extensive with said drip.

3. The construction defined in claim 1 wherein said means comprises a strip of protecting material having one edge thereof disposed between said combined cleat and gravel guard and said felt layer and the other edge thereof disposed upon and secured to said drip.

4. The construction defined in claim 1 wherein said means comprises a strip of protecting material extending over said combined cleat and gravel guard and said drip and adhesively secured to both.

5. The construction defined in claim 1 wherein said means comprises an extension on said combined cleat and gravel guard extending over said drip and adhesively secured thereto.

6. A combined cleat and gravel guard for gravel roofs comprising a side wall provided with a supporting and securing flange at one edge thereof, a second wall angularly disposed relative to said first wall, and a supporting and strengthening flange intermediate the width of said second wall.

7. Means for finishing the lower edge of a gravel roof including a deck, a felt layer supported on the deck and provided with an angularly disposed drip, and a layer of gravel secured to the felt layer; comprising a sheet metal combined cleat and gravel guard provided with a perforated flange for receiving securing means for securing same to said deck adjacent said drip, a drip protecting strip held in position by said combined cleat and gravel guard, and a protecting strip disposed over said flange for protecting the securing means.

8. A gravel roof construction comprising a deck, a felt layer supported on said deck and provided with a downwardly inclined drip adjacent an edge of said deck, a combined cleat and gravel guard having a supporting and strengthening flange disposed on said layer adjacent said drip, said combined cleat and gravel guard having a perforated flange spaced from said first flange and parallel therewith, securing means extending through the perforations in said flange and into said deck for securing said combined cleat and gravel guard in position, a drip protecting strip secured in position by said securing means, a protecting strip disposed over said securing means, and a layer of pitch and gravel secured to said felt layer with the front edge thereof backed by said combined cleat and gravel guard.

9. In a gravel roof including a deck, a base layer supported on the deck with one edge thereof overhanging an edge of the deck to provide a drip, and a layer of gravel and pitch supported on the base layer; a combined cleat and gravel guard secured to the deck adjacent said drip, said combined cleat and gravel guard having a wall for backing the layer of gravel and pitch and a wall having one edge thereof adjacent said edge of the deck and extending away from said drip in continuation thereof.

10. A combined cleat and gravel guard for gravel roofs comprising a pair of spaced side walls interconnected at corresponding edges thereof, said walls at the opposite corresponding edges thereof each being provided with a base flange, said flanges projecting in the same direction from the respective side walls and each having a free edge in spaced relation to said walls.

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