Sept. 13, 1927. 1,642,088

T. M. SCARFF

ROOFING CLEAT

Filed July 21, 1924

Fig. 1

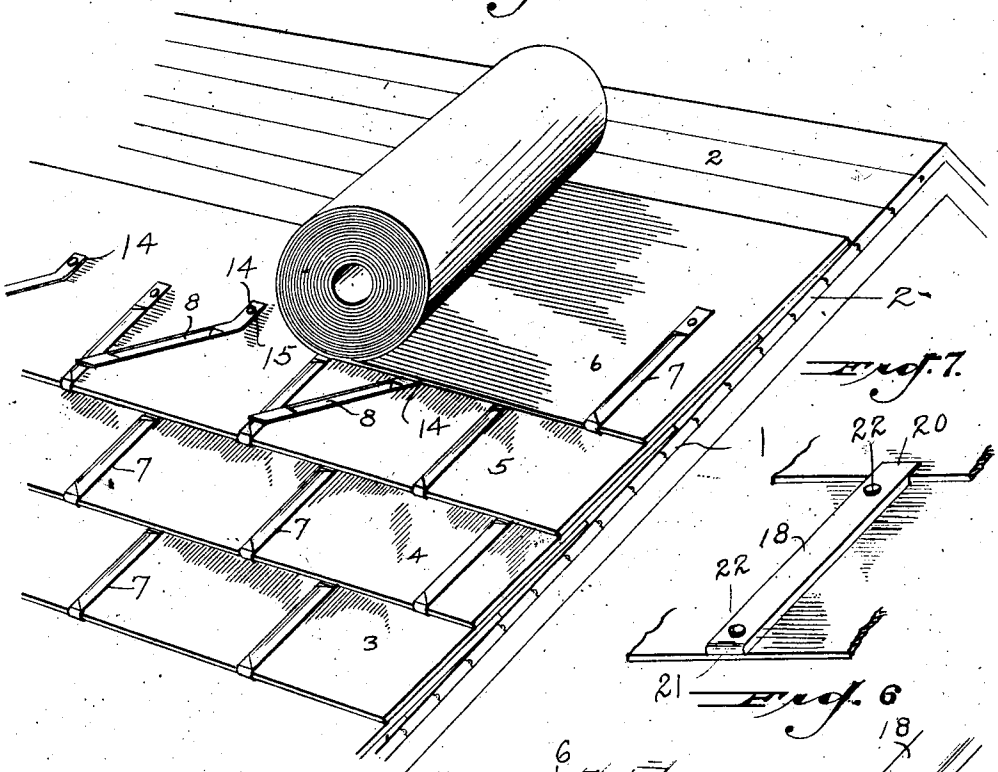


Fig. 7.

Fig. 6

Fig. 2

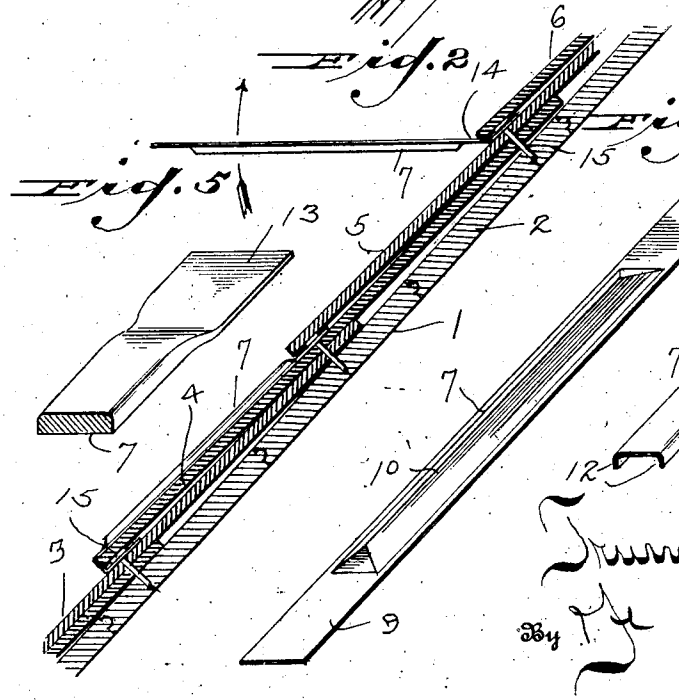


Fig. 3

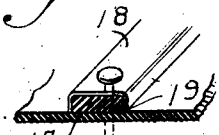
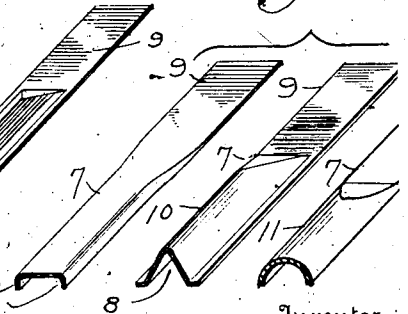


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE.

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ROOFING CLEAT.

Application filed July 21, 1924. Serial No. 727,389.

My invention relates to roofing and more particularly to an anchor cleat or batten for securing sheet roofing in place and the method of applying and anchoring overlapping roofing sheets by means of such cleats or battens.

In the present invention, superposed overlapping roofing sheets are secured in place by means of spaced cleats or battens, which overlie the exposed portions of such roofing sheet, firmly holding the sheet flat upon the roof, preventing their being raised or torn by the wind and preventing entrance of moisture. The opposite ends of the cleats or battens through which they are nailed to the roof are concealed and protected by the succeeding roofing sheet. The cleats or battens comprise strips of sheet metal or other suitable material, sufficiently stiff and inflexible throughout the greater portion of their length to resist bending movement, but having flat, flexible ends. These cleats or battens are preferably though not necessarily, reinforced and strengthened by being longitudinally corrugated, such corrugation terminating in spaced relation with the ends of the strip. The cleat or batten thus formed is of inverted channel shape, and is applied with its concave side downward, contacting the roofing sheet along its margin, and enclosing therebeneath a body of air, thus preventing the accumulation and retention of moisture beneath the retaining cleat. The lower end of such cleats are upturned and secured beneath the roofing sheet, while the upper portion of the cleat extends across the exposed portion of the overlapping roofing sheet and is secured beneath the succeeding sheet. The exposed portion of the overlapping roofing sheet subjected to extremes of temperature is thus held securely in place but free for expansion and contraction. The anchor cleats are arranged in spaced relation with those pertaining to succeeding overlapping sheets offset or staggered in relation with those securing adjacent sheets, giving the effect of a shingle roof with the cleats defining the width of the shingles and representing the intervening spaces.

The object of the invention is to improve the method of applying sheet roofing material whereby such roof will not only be cheapened in construction, but will be more efficient in use, of increased durability, capable of being easily and rapidly laid, and unlikely to get out of repair.

A further object of the invention is to provide means for securing sheet roofing wherein all attachment nails will be concealed and protected from the weather and wherein the exposed portion of the overlapping sheets will be free to expand and contract without subjecting the attachment nails to strain or tearing the roofing, enlarging the nail holes or otherwise inducing leakage.

A further object of the invention is to provide a roofing cleat, which while strong and resistant will possess minimum contact surface with the roofing sheet, thereby minimizing the retention of moisture and deterioration of the roofing sheet beneath the cleat.

A further object of the invention is to provide as an article of manufacture, an improved form of roofing cleat or batten.

A further object of the invention is to provide an improved method of laying sheet roofing as herein described and to further provide a roofing which will have the general appearance of a shingle roof.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents as hereinafter described and set forth in the claims.

Referring to the accompanying drawings, wherein is shown the preferred, but obviously not necessarily the only form of embodiment of the invention, Fig. 1 is a perspective view of a portion of a roof structure illustrating different stages or steps in the method of applying sheet roofing by the present process employing the improved form of anchor cleat or batten. Fig. 2 is an enlarged detail sectional view of a succession of superposed overlapping roofing sheets, applied by the present method and illustrating the use of the batten or cleat. Fig. 3 is a perspective view of a batten or cleat before being applied to the roof. Fig. 4 illustrates different forms of the cleat.

Fig. 5 is a detail perspective view of a further modification showing a solid cleat

having attachment ends of reduced thickness. Figs. 6 and 7 illustrate a further modification wherein a hollow cleat is filled with asphalt, or the like, and the attachment nails are driven through the exposed portion of the cleat.

Like parts are indicated by similar characters of reference throughout the several views.

In the accompanying drawings, 1 is an ordinary building roof covered with the usual sheeting boards 2, on which is laid the artificial sheet roofing. Commercial sheet roofing is made in a great many styles and qualities. The usual basis of such roofing, however, is a felt saturated in asphalt and covered with ground slate, small gravel or other silica pressed into the asphalt saturated felt. Such sheet roofing is flexible in character and ordinarily is sold commercially in rolls. However, the particular characteristics of the roofing per se forms no part of the present invention. In the present instance, this roofing of what ever character is laid in strips. These strips may be produced by cutting the commercial rolled roofing longitudinally. At the present time, such roofing is commercially sold in widths of thirty-two to thirty-six inches. Such standardized roofing is preferably split into two equal strips, by cutting the roll in halves. These strips are laid in superposed overlapping relation as shown at 3, 4 and 5. The strips are extended transversely across the roof, that is at right angles to its direction of inclination, and are overlapped one upon the other, to expose to the weather, a little less than one half the width of each strip. By this construction, the roof is of double thickness, except along the margins of the overlapping superposed strips, where it is of triple thickness, since each roofing strip extends for a short distance of an inch or two beyond the margin of the second succeeding strip as indicated at 6.

The cleats or battens 7, by which the roofing strips are held in superposed relation are preferably narrow strips of galvanized iron, zinc, copper or other suitable sheet metal. However, these battens or cleats may be made of fiber, composition, reinforced asphalted felt, or other suitable material having the requisite stiffness or rigidity to resist warping, and the characteristic of resisting atmospheric and climatic condition. The cleats or battens 7 when of sheet metal are preferably longitudinally corrugated or channeled as at 8, such longitudinal corrugations or channels terminating in spaced relation with the ends of the strip, leaving flat, flexible terminals 9. The longitudinal corrugations or channeled formation of the cleats renders the cleats stiff and resistant to bending strain throughout the greater portion of its length. The cross sectional contour of the reinforcement corrugations or channels may be varied as shown in Fig. 4. Such corrugation or channel may be of inverted V shape as shown at 10, or may be of oval or circular form as at 11, or in lieu of these shapes the margins of the cleat or batten may be downturned or flanged as at 12. Different shapes of the corrugations or reinforcement channel of the cleats may be utilized to afford variety of appearances of the roof applied in this manner. The purpose of corrugations or channels in any event is the stiffening and reinforcement of the sheet or batten. This might be achieved by making the cleat or batten of increased thickness, sufficient to resist bending strain, with its ends flattened or reduced in thickness, as shown at 13 in Fig. 5.

In applying the roofing, a plurality of the cleats or battens are nailed in inverted spaced relation as shown at 14 in Fig. 1, by driving the nails 15 through the flat flexible ends 9, and through the underlying roofing strip. The succeeding roofing strip 5 is then placed in position with its lower and exposed margin overlapping the nailed cleats or battens. The attached ends of the cleats or battens and the nails 15 are thus concealed and protected from weather beneath the margins of the overlying roofing strip 5. The cleats or battens 7 are then turned upwardly and backwardly over the superposed roofing strip 5, the attached extremity 8 of the strip being bent upon itself to parallelism with the bight enclosing the margin of the superposed strip of sheet roofing. The reverse end of the cleat or batten is then secured by a nail 16 driven therethrough and through the roofing sheet 5 at a point beyond the marginal line of the succeeding roofing sheet or strip. The cleats or battens pertaining to each succeeding roofing strip are offset or staggered, that is to say, those holding each strip are placed mid-way between the spaced cleats of the preceeding strip. While the reinforced cleats or battens are sufficiently stiff and rigid to clamp the exposed portion of each roofing strip or sheet in place, such exposed or overlapping portions of the roofing sheet are not positively attached, but are capable of expansion and contraction under varying temperature conditions without expanding the cleat or straining its attachment. When such sheet roofing is nailed through the exposed portion of the sheet, the buckling and wrinkling of the sheet when expanded by summer heat or the contraction and strain of the sheet when contracted during winter weather, not only strains the attachment nails, but tends to enlarge the nail hole, inducing leakage. The present method of applying the roofing overcomes this difficulty and obviates the danger of leakage by clamping the exposed portion of the overlapping sheets in place,

with sufficient pressure to prevent them from being raised or distorted by the wind and to prevent the entrance of moisture thereunder, yet leaving such exposed overlappng portions sufficiently free to compensate for expansion and contraction. Moreover, inasmuch as the attachment nails are in every instance concealed and protected by the superposed roofing strip, any enlarged nail holes will be protected against the entrance of moisture and the attachment nails are protected against rust and corrosion.

With the use of solid cleats or battens as shown in Fig. 5 or one making contact throughout an extended surface with the roofing, there might be a tendency for moisture to be drawn beneath the cleat or batten by capillary attraction. Such moisture would not readily be evaporated or the roof dried out beneath the cleat. However, by the use of corrugated or channeled form of cleat or batten shown in Fig. 4, and elsewhere, the contact area of the cleat with the roofing material is reduced to minimum, and a body of air is confined within the hollow interior or channel of the cleat, which will tend to prevent the collection and retention of moisture.

While not so efficient and desirable as the construction previously described, there is shown in Figs. 6 and 7 a modified form of cleat or batten, which is nailed directly through the exposed portion of the overlapping roofing strip. In this instance the batten consists of a strip 17 of asphalt and felt similar to the sheet roofing material, or other material of similar characteristics, which strip is enclosed in a covering 18 of sheet metal, the margins of which are downturned or flanged over the enclosed strip 17 of yielding material and preferably clenched thereon as at 19. The metal armor or casing 18 is extended at one end slightly beyond the yielding compressible strip 17, as shown at 20 forming a lip or ledge to overhang the margin of the next succeeding roofing sheet. The opposite end of this form of cleat or batten may be provided with an extended flexible tongue to be underturned or bent about the marginal edge of the particular roofing sheet which it secures, as in the construction shown in Figs. 1, 2 and 3. However, in lieu thereof, the batten may terminate flush with the secured roofing sheet, the armor or casing being down-turned over the edge of the yielding compressible interior strips of the cleat as shown at 21. The roofing sheets being laid in superposed overlapping relation the form of cleat shown in Figs. 6 and 7 is applied at spaced intervals with the lower end of the cleat flush with the secured sheet and the upper end of the cleat overlapping the succeeding roofing sheet as at 20, and the cleat or batten is secured in place by nails 22, driven directly through the cleat and underlying sheet of roofing material. The nails 22 penetrate the armor or casing and the interior compressible yielding strip 17. This strip 17 being of material of similar characteristics to the roofing will conform closely to the nails 22 driven therethrough, tending to seal the joint or nail hole and prevent entrance of moisture. Furthermore, during warm summer weather, the enclosed strip 17 and the roofing sheet will be sufficiently softened to unite or adhere one to the other, thus affording a further sealed joint.

The cleats or battens being located in offset spaced relation as before described, separate the succeeding roofing sheets into shingle like sections, which gives to the roof when viewed from a distance the appearance of a shingle roof, the crevices between succeeding shingles of which are represented by the cleats or battens.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprises the preferred form of several modes of putting the invention into effect and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. The herein described method of anchoring superposed overlapping roofing sheets, consisting in nailing to the portion of each sheet to be overlapped by the succeeding sheet, a plurality of inverted stay cleats, superposing the succeeding roofing sheet over the nailed portions of the inverted cleats, bending the nailed cleats upon themselves to a reverse position about the overlapping margin of the superposed roofing sheet, whereby the reversed portions of the cleats will overlap the superposed roofing sheet, nailing the free end of such reversed portions to the superposed sheet at a point removed from the margin of such sheet and in position to be overlapped by the succeeding roofing sheet these stay cleats pertaining to succeeding roofing sheets being offset in spaced relation from those per-

taining to preceding and succeeding roofing sheets.

2. The herein described method of anchoring superposed overlapping roofing sheets consisting in enclosing the margins of the overlapping portions of said sheets in the bights of hook shaped anchor cleats by securing one arm of the bight to the underlying roofing sheet and securing the other arm thereof to the overlying sheet in spaced relation with the overlapping margin and in such position that the point of attachment will be overlapped by the succeeding sheet, the anchor cleats pertaining to different roofing sheets being independent of each other.

3. A roof comprising a plurality of superposed overlapping roofing sheets and hook shaped anchor cleats enclosing within their bights the overlapping margins of the superposed sheets, with the underlying portion of the bight secured to the overlapped sheet and the overlying portion of the cleat secured to the superposed sheet and overlapped by the succeeding sheet, such underlying portions of the anchor cleats being of less thickness than the exposed intermediate portions thereof.

4. A roof comprising a succession of superposed overlapping roofing sheets and a plurality of anchor cleats attached at one end beneath one of said sheets and at their opposite ends beneath the succeeding superposed sheet, the attached portions of the cleat being of less thickness than the intermediate portions, the reduced portions being covered and concealed by the overlapping portions of successive sheets.

5. A roof comprising a succession of superposed overlapping roofing sections, and a plurality of inverted channel shaped anchor cleats overlying the successive sections with their ends concealed and covered by the overlapping portions of succeeding sections.

6. The herein described method of applying sheet roofing, consisting in laying a succession of superposed sections in overlapping relation, nailing a cleat through the first section beneath the overlapping portion of the second section, bending such cleat about the edge and over the top of said second section, nailing the opposite end of the cleat through said second section, and superposing the third section over the nailed second end of the cleat.

7. The herein described method of applying sheet roofing, consisting in laying a succession of superposed sections in overlapping relation, and applying attachment cleats by securing their opposite ends beneath the overlapping portion of succeeding sections whereby the points of attachment are concealed and protected from weather.

8. A roof structure comprising a succession of superposed overlapping roofing sheets and a plurality of cleats overlying each roofing section with one end of such cleats underturned beneath the section overlayed by the body of the cleat and the opposite end of the cleat extending beneath the next succeeding section of the series, said cleats being secured at their opposite ends.

9. As an article of manufacture, a channel shaped roofing cleat having flattened extremities.

10. As an article of manufacture, a roofing cleat comprising a longitudinally corrugated strip of material flattened at its extremities.

11. As an article of manufacture, substantially stiff roofing cleat terminating in a flexible extension.

12. As an article of manufacture, a roofing cleat or the like, comprising a strip of sheet material, reinforced to resist bending strain throughout its medial portion, such reinforcement terminating in spaced relation with its ends whereby the ends of the strip are more easily bent.

13. As an article of manufacture, a roofing cleat or the like, comprising an elongated strip of material having flexible extremities, the strip being reinforced to substantially inflexibility intermediate the flexible extremities.

14. A roof comprising a succession of superposed overlapping sheets, and a plurality of hollow cleats overlying the successive sheets, flat terminal extensions on said cleats, each cleat enclosing therebeneath a body of air.

15. A roof comprising a succession of superposed overlapping sheets, and a plurality of anchor cleats extending at right angles to the margins of the superposed sheets at spaced intervals with their opposite ends secured beneath the overlapping portions of succeeding sheets, the exposed intermediate portions of the cleats being of increased thickness, the anchor cleats pertaining to each sheet being offset in relation with those of adjacent sheets giving to the roof the appearance of comprising separate shingles.

16. A roof comprising a succession of superposed overlapping sheets and a plurality of anchor cleats overlying the succeeding sheets and having transversely spaced contact engagement therewith at the margins of the cleats and flat terminal extensions on said cleat being concealed beneath succeeding sheets.

In testimony whereof, I have hereunto set my hand this 16th day of July A. D. 1924.

TRUMAN M. SCARFF.