Oct. 14, 1958 E. B. SPRINGER 2,855,870

ROOFS

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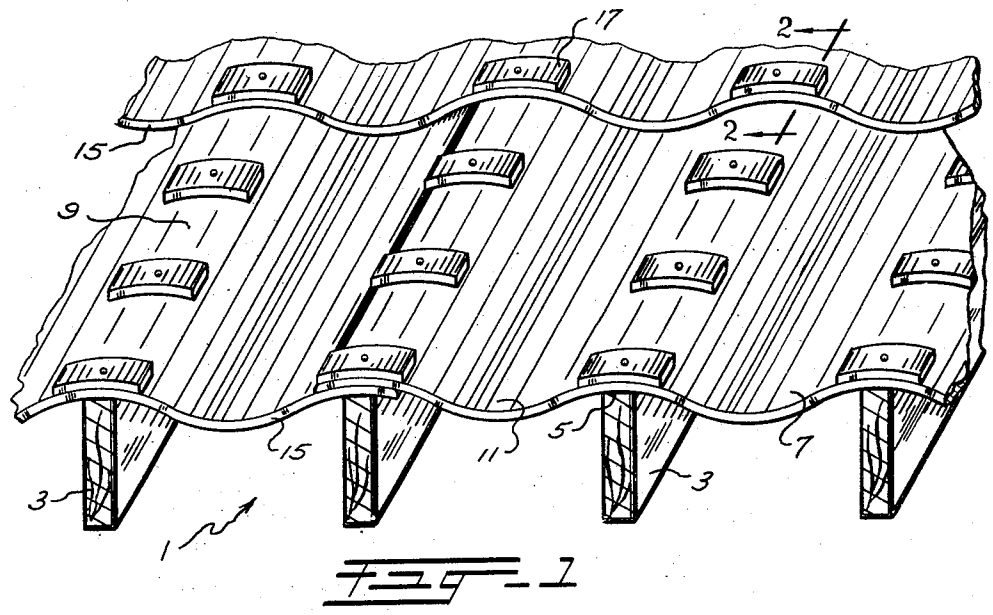


Fig. 1

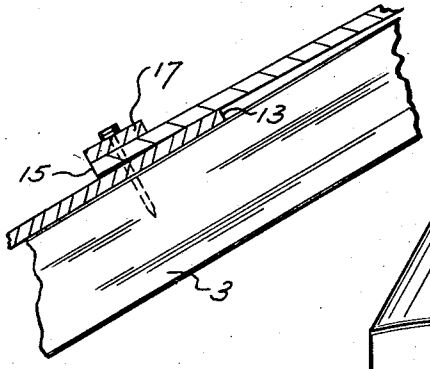


Fig. 2

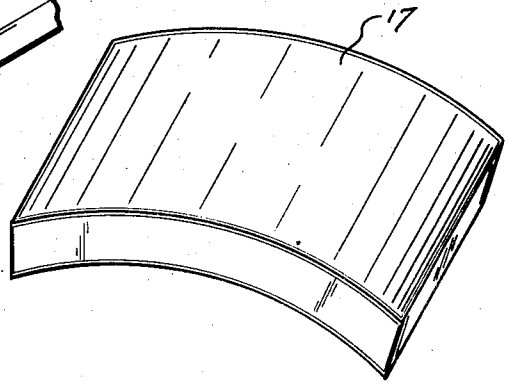


Fig. 3

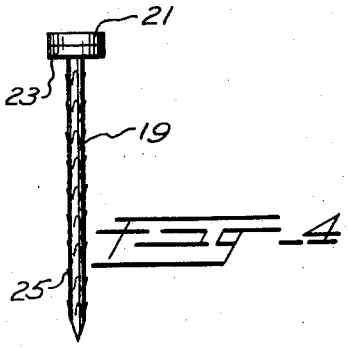


Fig. 4

INVENTOR

EDWIN B. SPRINGER

BY ROBERT J. PATTI

ATTORNEY

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Edwin B. Springer, Miami, Fla.

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1 Claim. (Cl. 108—13)

The present invention relates to roofs, and more particularly roofs which can be applied directly to rafters.

It is an object of the present invention to provide a roof which may be directly applied to rafters and which will brace the rafters in a new and improved manner.

A further object of the invention resides in a roof having novel reinforcing means for attachment of the roof to rafter structure.

Still another object of the invention is the provision of a roof which will be simple and inexpensive to manufacture, which may be installed quickly and easily by unskilled labor, and which will be rugged and durable in use.

Other objects and advantages of the invention will become apparent from a consideration of the following specification, taken in conjuction with the accompanying drawings, in which:

Figure 1 is a perspective view of a fragmentary section of roof according to my invention, as seen from above;

Figure 2 is a fragmentary transverse section taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged detail perspective view of a cleat according to the invention; and

Figure 4 is an elevational view of a roofing nail for use with the roof comprising my invention.

Referring now to the drawings in greater detail, I have shown in Figure 1 a roof generally designated at 1, comprising a plurality of parallel rafters 3, which may have a typical cross-sectional size of 2 inches by 8 inches with the longer cross-sectional dimension disposed vertically and their upper edges 5 coplanar and disposed at the slant of the roof.

Mounted on the upper edges 5 of rafters 3 are a plurality of integral sheets 7 which may be of a well known roofing material such as sheets pressed from cement and asbestos fiber. Sheets 7 have a limited resiliency, for a purpose to be described later, and are mounted transversely of rafters 3 on the upper edges 5 thereof. Sheets 7 have a sinuous form defined by a plurality of alternately disposed upwardly curved portions 9 and downwardly curved portions 11. Portions 9 and 11 are contiguous to each other; and since each sheet 7 is integral as aforesaid, portions 9 and 11 are also integral with each other. Inasmuch as sheets 7 are disposed on a slant defined by the pitch of the roof, it will be seen that each sheet 7 has an upper edge 13 and a lower edge 15, and that edges 13 and 15 are disposed transverse to rafters 3. It will be noted that upper edge 13 of one sheet underlaps lower edge 15 of an adjacent sheet by about 6 inches, and that each upwardly curved portion 9 contacts upper edge 5 of the associated rafter 3 along the highest part of the underside of that upwardly curved portion. It should also be noted that there is but a single downwardly curved portion 11 between each two adjacent rafters 3.

Means for retaining sheets 7 on rafters 3 are provided, comprising a plurality of cleats 17, each cleat 17 comprising an upwardly curved member of substantially the same curvature as upwardly curved portions 9, and being

of generally rectangular form, with dimensions, for example, of ½" thickness, 2½" length, and 6" width. Each cleat 17 overlies an upwardly curved portion 9 and the associated rafter 3, the assembly of these three elements being held together by a fastener 19 which fastener may be in the form of a lead headed roofing nail or the like. It will also be noted that cleats 17 are spaced apart upwardly of the rafter they overlie, with the lowermost transverse row of cleats on each sheet 7 having the lower edges thereof aligned with the lower edge 15 of the associated sheet. Laterally adjacent sheets 7 are held together by overlapping of their adjacent side edges above a rafter 3 for a distance of overlap of about 6 inches; and cleats 17 overlie these overlapping side edges with fasteners 19 passing through the cleats, two thicknesses of sheet 7, and into the rafter. The overlapping side edges of one transverse sheet row are not aligned with the overlapping side edges of the next adjacent transverse rows of sheets 7, so that at no point will more than three thicknesses of sheet 7 lie atop a rafter 3.

Fastener 19 is best seen in Figure 4 to comprise an elongated nail having a shank tapering to a point and a lead covered head 21. A lead washer 23 may be slipped over fastener 19 against the underside of head 21; and the lead in the vicinity of the head will deform somewhat when the nail is driven so as to seal the nail hole against leakage. The shank of fastener 19 is provided with barbs 25 which open toward head 21 and insure that the nail will not pull loose from the rafter under stress.

It is of course to be understood that all roof joints in the vicinity of the overlapping side and upper and lower edges of sheets 7 are to be sealed with a caulking compound to make them weathertight.

As stated above, the material of each sheet 7 has a limited resiliency; and the particular configuration of sheets 7 assures that this limited resiliency will serve to strengthen and brace the roof structure. Specifically, it will be seen that sinuous sheets 7, mounted as shown with the rafters in the curve of the upwardly curved portions and with but a single downward portion between each pair of adjacent rafters, will have a limited accordion movement upon the imposition of strain on the roof. Thus, two adjacent rafters 3 may move slightly toward or away from each other and the material of sheets 7 will adjust to the deformation accordingly. Moreover, it is not necessary with the construction of roof shown in the drawings that the rafters be spaced precisely evenly on centers nor is it necessary that the roof be applied with the greatest accuracy, since the configuration of sheets 7 permits a limited adjustment to irregularities in the location of the rafters or of the sheets on the rafters. Rafters 3 are commonly mounted 16 inches apart on center; and hence, it will be obvious that large areas of roof may be completed in a comparatively short time by unskilled labor.

Moreover, it must be noted that cleats 17 distribute the stress adjacent fasteners 19 over a comparatively broad area of sheets 7. Furthermore, by virtue of the fact that the cleats have substantially the same curvature as upwardly curved portions 9, it will be seen that cleats 17 need not be separately supplied, but may be cut from an end of a sheet 7 as needed. Thus, once the rafters are in place, the only roofing materials needed are sheets 7 and fasteners 19, since the cleats may be cut from the sheets as desired.

From a consideration of the foregoing disclosure, it will be obvious that I have achieved all of the initially recited objects of my invention.

Although the present invention has been described in conjunction with prefrered embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the inven-

tion, as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and appended claims.

I claim:

A roof comprising a plurality of straight parallel rafters of rectangular cross-sectional configuration and a plurality of sheets of resilient material of uniform thickness mounted on the upper edges of said rafters and extending transversely of said rafters, each said sheet having a sinuous form defined by a plurality of alternately upwardly and downwardly curved portions contiguous to and integral with each other, one edge portion of each said sheet overlapping the adjacent edge portion of an adjacent said sheet, each said upwardly curved portion which does not overlap an adjacent edge of an adjacent sheet contacting the upper edges of a said rafter at the highest part of the underside of said upwardly curved portion, there being but a single downwardly curved portion of each said sheet between each two adjacent rafters, a plurality of cleats comprising upwardly curved members of substantially the same curvature as said upwardly curved portions, said cleats overlying the overlapping edges of each said upwardly curved portion, and headed fasteners passing through said cleats and overlapping edge portions and terminating downwardly in securement in said rafters, whereby said cleats urge said overlapping edge portions into resilient contact with each other and with said rafters.

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