April 16, 1968 A. W. SKELTON, JR 3,377,761

ROOFING SHINGLE

Filed Jan. 13, 1965

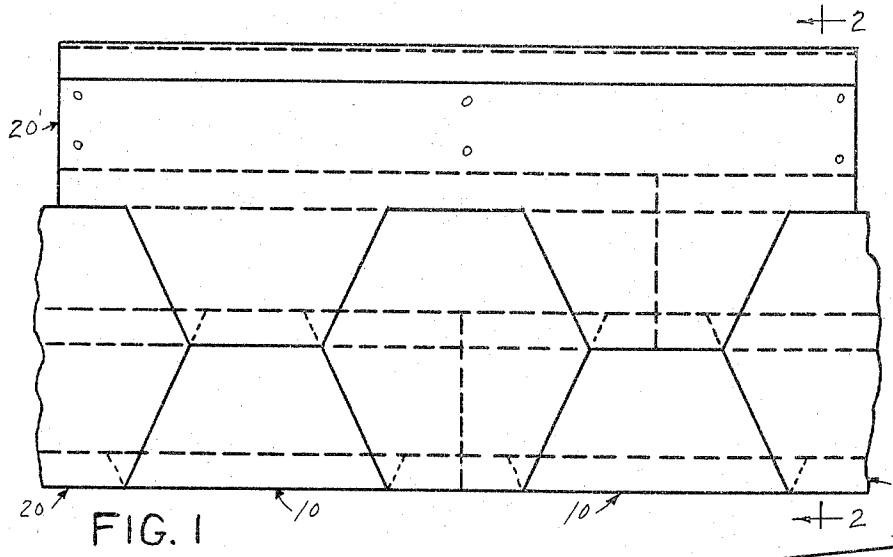

FIG. 1

FIG. 2

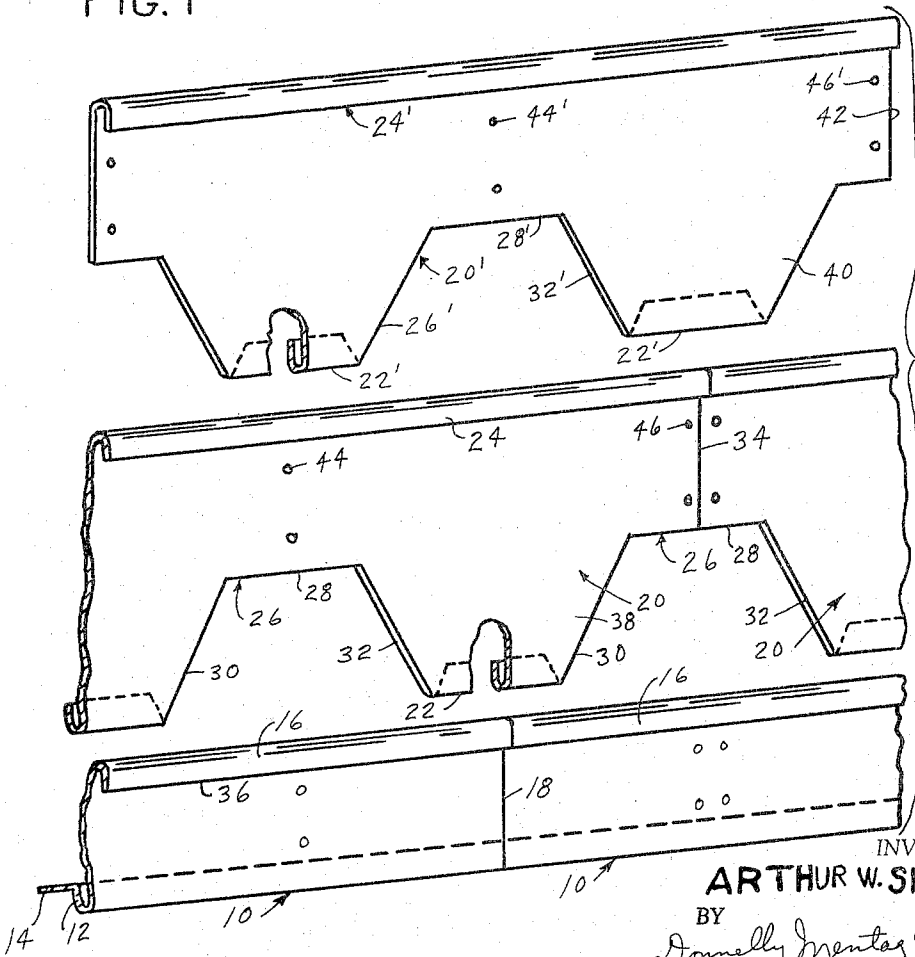

FIG. 3

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ROOFING SHINGLE

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2 Claims. (Cl. 52—530)

My invention relates generally to permanent shingles for use with dwellings and other buildings, and more particularly to a permanent roof shingle construction that will provide an interlocked, self-sealing shingle covering.

The permanent shingles of my invention avoid many disadvantages that are inherent in conventional shingle designs such as asphalt shingles with embedded surface granules. For example, when such conventional shingles are used on roofs, snow and ice accumulate on the roof thereby adding considerable weight. This requires the use of reinforcing members in the roof structure in order to accommodate the weight of the ice and snow. The added load tolerance, in itself, is one disadvantage in using known roofing constructions.

If the ice and snow were to slide under the force of gravity from a roof having a conventional shingle covering, it might pull the surface granules from the asphalt material. Thereafter, during the warm months of the year the heat of the sun would be absorbed by the exposed portion of the asphalt material. Even aside from this undesirable result, the loss of the surface granules detracts from the esthetic quality of the shingle design.

It has been found also that when conventional roofing material is employed, there is a tendency for moisture to accumulate under the shingles thereby causing a fungus-type growth. This growth results from a lack of evaporation of the accumulated moisture between the roofing material and the wood understructure.

The provision of a permanent type roof that will overcome such inherent shortcomings in conventional roofing materials is a principal object of my invention.

It is another object of my invention to provide a shingle design made of permanent roofing material wherein undesired vibrations of the material due to wind currents are eliminated.

It is a further object of my invention to provide a roof shingle design which is formed of permanent material and which will not result in an increased roof load in comparison to the roof load experienced with conventional roofing. I contemplate that although the weight of the roofing of my invention may be equal to or only slightly less than the weight of conventional asphalt roofing, the maximum design roof load that must be accommodated by the roof is less than the design roof load that would be necessary if a conventional roofing material were employed. This is due to the fact that snow and ice will tend to slide off the roofing of my invention due to the slope of the roof thereby preventing a unit weight build-up.

It is a further object of my invention to provide a shingle design capable of acting as an inherent insulator and which will reflect heat by radiation from the interior of the dwelling back into the interior. I contemplate also that my improved roofing will reflect sunlight and prevent an excessive heat build-up inside the dwelling due to the absorption of sun heat.

It is another object of my invention to provide a roofing design that lends itself to accept any of a variety of decorative colors.

It is a further object of my invention to provide a shingle design for use in covering the roofs of dwellings wherein the shingle material is used economically with a minimum amount of overlapping.

According to a principal feature of my invention, provision is made for an interlock between the individual

shingles. The interlocking action occurs at spaced points along the margins of the individual shingles. The lower margin of one shingle is adapted to establish an interlocking connection between the upper margin of a first companion shingle and an intermediate region of a second companion shingle. This establishes a sealing action between the surfaces of the individual shingles and provides a rigid, interlocked assembly that is free of vibrations. Nails may be used for attaching the interlocked shingles to the roof sub-structure. The overlapping of the shingles entirely prevents removal of the nails. The provision of a shingle construction of this type is another object of my invention. The novel overlapping construction of the shingles provides rapid lateral or endwise alignment of the shingles during assembly.

Further objects and features of my invention will become apparent from the following description and from the accompanying drawings, wherein:

FIG. 1 shows an assembled view of the interlocked shingles of my invention;

FIG. 2 is a cross-sectional view taken along the plane of section line 2—2 of FIG. 1; and,

FIG. 3 is an exploded view showing the elements of the interlocked shingle assembly of my invention.

In the drawings, numeral 10 indicates generally the first or starter strip shingle of a shingle assembly. It includes an underlapping lower margin 12 and a transversely disposed flange 14. The flange 14 is adapted to be assembled in flush relationship with respect to the edge of the roofing boards for the roof of a dwelling. This is best indicated in FIG. 2.

The starter strip shingle 10 includes also an upper margin that is bent over the outer surface of the starter strip shingle 10 in overlapping relationship. This upper margin is designated generally by reference character 16. The underlapping margin 12 is bent over the lower side of the starter strip shingle 10. The starter strip shingles 10 are assembled in end to end relationship as indicated in FIG. 3. Numeral 18 indicates a parting line at the juncture of two starter strip shingles 10.

The second or master shingle of the shingle assembly of my invention is designated generally by reference character 20. Like starter strip shingle 10, shingle 20 has an overlapping upper margin and an underlapping lower margin which are designated by reference characters 24 and 22 respectively. The margin 24 is folded over the outermost side of shingle 20 in overlapping relationship. The margin 22 is folded over the innermost side of the shingle 20 in underlapping relationship.

Formed in the lower margin of the shingle 20 are recesses 26. These recesses in the embodiment shown are of trapezoidal shape, although I contemplate that they also may be rectangular in shape or any other suitable geometrical shape depending upon the shingle pattern that is desired after the shingles are assembled.

The recesses 26 include an upper margin 28 and two side margins 30 and 32. The shingles 20 are assembled in end to end relationship. They form parting lines 34 at the junctures of the individual second or master shingles 20.

The next succeeding or third shingle in the assembly is designated by reference character 20'. This may be substantially identical to shingle 20, and for this reason the corresponding parts have been designated by similar reference characters, although prime notations are added. Shingles 20' include upper and lower margins which correspond respectively to margins 24 and 22 of the shingle 20.

In FIG. 1, I have illustrated an assembly view with the shingles assembled in this fashion. The lower margins 22 of the upper second shingles 20 overlap the margins 12 of the starter strip shingle 10. The sides 28 of each of

the recesses 26 in the second shingles 20, following assembly, overlap the edge 36 of the upper margin 16 of the starter strip shingles 10. The lower margins 22' of the second shingles 20' overlap and join together in a secure fashion the edges 36 of the starter strip shingles 10 and the side 28 of the recesses 26 in the second shingles 20, thereby forming a three-element joint.

The shingle portion 38 of the second shingle 20 overlies the parting line 18 for the starter strip shingles 10 following assembly. The lower margin 22 of the second shingle 20 secures together the juxtaposed starter strip shingles 10 to form a sealed assembly. In a similar fashion, the third shingle portion 40 of the shingle 20' overlies the parting line 34 for the second shingles 20. The next succeeding shingle, not shown, includes a portion that will overlie the parting line 42 for the third shingles 20'. The shingles then are assembled in this fashion in a repetitive manner until the entire roof is covered. The lower margin of each succeeding shingle seals together the upper margin of the second preceding shingle and the sides 28 of the recesses 26 for the immediately preceding shingle. The joint thus established creates an effective weatherproof seal which will prevent vibration of the shingles under the influence of wind forces. It also will prevent entry of water into the roof understructure.

The individual shingles 20 can be nailed in place by using roofing nails at locations indicated by reference characters 44 and 46. After assembly, these roofing nails are covered by the overlapping parts of the next succeeding shingle. This overlapping arrangement locks the shingle nails in place and prevents their removal.

I contemplate that any of several materials can be used for forming the shingles. Also appropriate colors can be used so that the shingles will blend into any decorating scheme. Sheet aluminum alloy material has a weight advantage over other metals that would be appropriate. In any event, the total load for which the roof must be designed will be less when the shingle construction of my invention is used if it is compared to the design roof load that it necessary when conventional asphalt shingles are employed. This is due to the fact that snow and ice will tend to slide off the roof that has my improved shingle construction and will not be allowed to accumulate as in the case of conventional asphalt shingles.

My shingle construction also acts as an insulator. It is effective to reflect back into the dwelling by radiation a substantial portion of the heat that otherwise would escape through the roof. It also reflects, during warm months of the year, the heat due to sunlight thereby maintaining the dwelling at a cooler temperature than would be possible if asphalt shingles were employed.

Having thus described a preferred form of my invention, what I claim and desire to secure by U.S. Letters Patent is:

1. An interlocking shingle assembly comprising: a starter strip having an overlapping upper margin and an underlapping lower margin, said lower margin being adapted to be secured to the lower edge of the roof of a dwelling, a second shingle having an underlapping lower margin and an overlapping upper margin, the lower margin of said second shingle overlapping the lower margin of said starter strip shingle, recesses formed in the lower margin of said second shingle at spaced locations to form a regular pattern, each recess having an upper edge that is parallel to the upper and lower margin, and a third shingle having a shape that is similar to the shape of said second shingle, said third shingle being staggered with respect to said second shingle so that it is displaced relative to said second shingle in the direction of the upper and lower margins, the lower margin of said third shingle underlapping the upper margin of said starter strip shingle and the upper edge of the recesses of said second shingle to form an interlocked assembly, fastening means for securing said shingles to a roof understructure at a location between the upper margin thereof and the upper edge of the recesses thereof whereby the next succeeding shingle will overlie the fastening means that is employed.

2. A permanent interlocked shingle assembly for the roof of a dwelling comprising: a starter strip shingle having an overlapping upper margin, said starter strip shingle being adapted to be secured to the lower edge of the roof of a dwelling, a plurality of said starter strip shingles lower margin, the lower margins of said second shingles having an overlapping upper margin and an underlapping lower margin, the lower margins of said second shingles overlying the lower margins of said starter strip shingles, recesses formed in said lower margins of said second shingles, the portion of each of said second shingles intermediate the recesses thereof overlying the abutting edges of said starter strip shingles, third shingles that are substantially similar in shape to said second shingles, said third shingles being offset relative to said second shingles in the direction of the margins thereof, said second shingles being arranged in end to end abutting relationship, a portion of said third shingles intermediate the recesses thereof overlying the abutting edges of the second shingles, the lower margin of said third shingles overlapping the upper margin of said starter strip shingles and the upper edge of the recesses in said second shingles thereby defining an interlocked shingle assembly, fastening means for securing said shingles to a roof understructure at a location between the upper margin thereof and the upper edge of the recesses thereof whereby the next succeeding shingle will overlie the fastening means that is employed.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,377,761 April 16, 1968

Arthur W. Skelton, Jr.

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 3, line 40, "it" should read -- is --; line 56, after "strip" insert -- shingle --. Column 4, line 22, cancel "lower margin, the lower margins of said" and insert -- being assembled in end to end relationship, --.

Signed and sealed this 19th day of August 1969.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents