Aug. 16, 1938. H. AUSTHOFF 2,127,199

CEMENT SHINGLE

Filed April 26, 1937

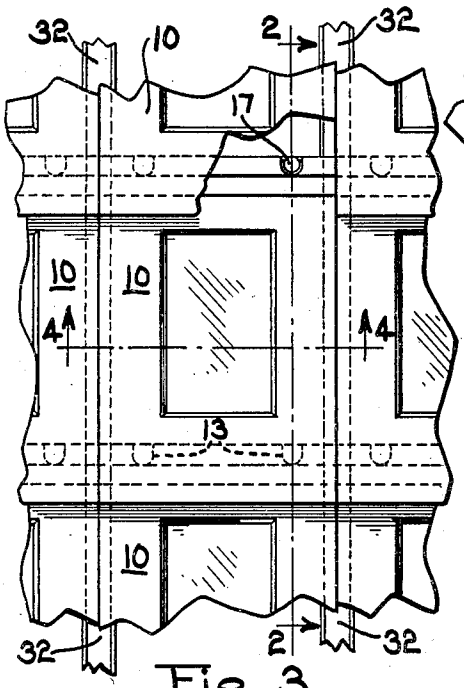


Fig. 3.

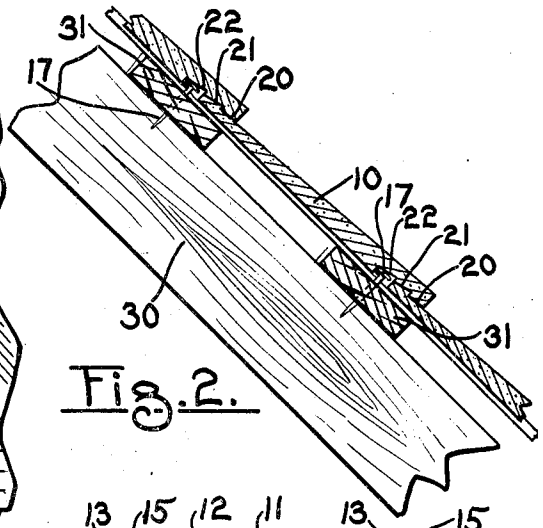


Fig. 2.

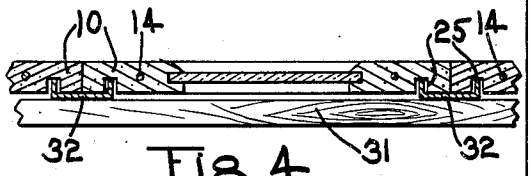


Fig. 4.

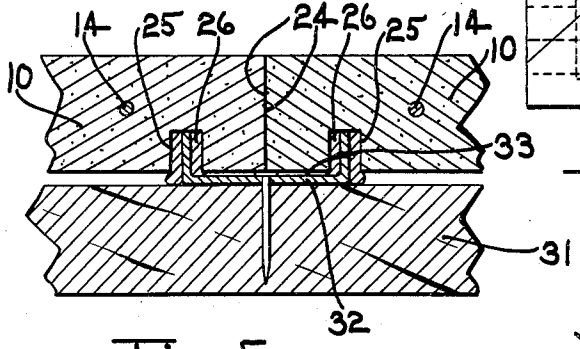


Fig. 5.

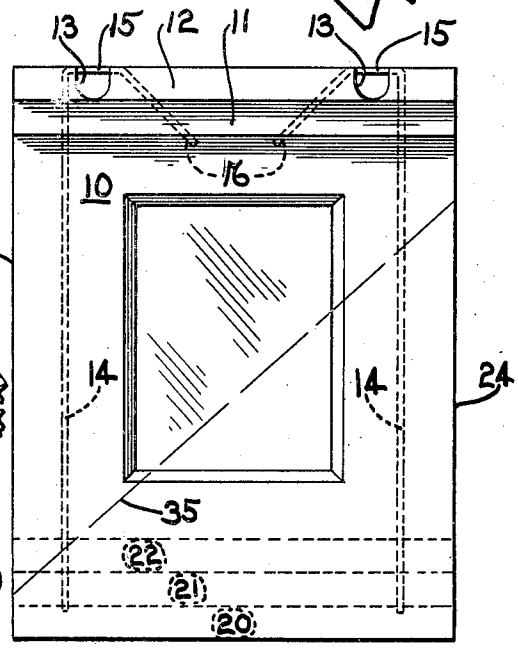


Fig. 1.

Inventor
Henry Austhoff
By Lancaster and
Van Antwerp
Attorneys

Patented Aug. 16, 1938

2,127,199

UNITED STATES PATENT OFFICE

2,127,199

CEMENT SHINGLE

Henry Austhoff, Grand Rapids, Mich.

Application April 26, 1937, Serial No. 138,979

1 Claim. (Cl. 108—10)

This invention relates generally to roofing and more particularly to a roofing tile or concrete shingle. Also, the joint construction is claimed to be novel.

One of the main advantages of my invention resides in its economy, this resulting from two reasons. First, it is economical to manufacture in the first instance because it is of relatively simple configuration, and second, it is long lived and consequently need not be replaced during the life of the structure to which it is applied.

Another main advantage resides in its assembly whereby it may be replaced. That is, in the event that one of the shingles or the transparent member therein is cracked or broken, it is only necessary to tilt the shingle immediately thereabove, unhook the broken shingle from its attaching means and insert and hook the new shingle. Thus a replacement is quickly and easily made.

Another advantage resides in the simple and plain edge construction of the shingles, the edges being of flat construction and abutting one another. The water which leaks therebetween is taken care of by the channel shaped member located below the joint. This involves an entirely new principle which has several advantages. One of these is the simplicity of edge construction of the shingle, previously mentioned, another is the triple use of the channel member, this serving to maintain the shingles abutting together to carry away the seeping water, and to support the shingles and yet another is the ease of detaching the individual shingles.

Another advantage lies in my use of non-hardening plastic or frangible material which is received within the underside grooves of the shingles and which surrounds the flanges of the channel members.

Yet another advantage resides in the novel means of reinforcing the several shingles together with the utilization of these reinforcing means as part of the attaching means. The reinforcing means are exposed from the concrete but this is taken care of by the protection of the overlapping shingle. Thus the danger from exposure is eliminated or minimized.

Another advantage of my invention resides in the use of a transparent member whereby a shingle may admit light to points immediately underneath the roof. The cross members are so positioned across the rafters as to not interfere with the transparent members and thus the transparent or translucent members are 100% effective in this respect. The reinforcing means extend alongside on each side of the shingle and then substantially across the thin end of the shingle. The transparent member is medially located with respect to these reinforcing members as is clearly shown in the drawing. The thickened end of the shingle does not need any reinforcing means.

Other advantages will become apparent as the description proceeds.

For the purpose of illustrating my invention I have shown in the accompanying drawing one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

In the drawing:

Fig. 1 is a plan view of one of my novel shingles.

Fig. 2 is a cross sectional view taken along the line 2—2 of Fig. 3.

Fig. 3 is a fragmentary view of a roof formed of my shingles.

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 3, no plastic being used.

Fig. 5 is a fragmentary enlarged view showing the side joint between the shingles together with the water carrying channel.

Similar numerals refer to similar parts throughout the several views.

As is clearly shown in Fig. 1, my improved shingle, designated generally by the reference numeral 10, is preferably rectangular in shape.

Referring to Fig. 2, it will be seen that the upper half of the shingle is gradually decreased in thickness toward its upper portion and ridges 11 and 12 extend across its upper edge.

The ridges 11 and 12 are tapered and shouldered as shown with respect to the flat under surface of the shingle.

The ridge 12 is formed with slots 13. Elongated members 14, shown in dotted lines in Fig. 1, are embedded at opposite sides of the shingle and are bent inwardly so as to extend at 15 across each of the open ended slots 13, to thereby close the same. These members serve to reinforce the shingle and terminate as indicated at 16. Thus it will be understood that the slots 13 are changed into closed openings. These openings are adapted to receive the fastening nails 17. See Fig. 2 of the drawing. The reinforcing members 14, 15 and 16, are preferably formed of round rods so

that the portion **15** may turn readily underneath the head of the nail **17**. The part **15** lies immediately under the head of the nail holding the same. This is clearly shown in Fig. 2 of the drawing.

The lower end of the shingle has its underside cut away and formed to provide a substantially flat portion **20** which is received against the upper side of the shingle immediately therebelow. Also, the underside of the shingle is cut away at **21** and **22** to receive the ridges **11** and **12**, respectively, of the adjacent shingle. These interlocking members will prevent any leakage of water between the shingles.

The sides of the shingles are indicated at **24**, these being in abutting relation as clearly shown in Figs. 4 and 5 of the drawing. The underside of each of the shingles has spaced parallel grooves **25** positioned adjacent the flat edge portions **24**.

Referring to Fig. 2, the rafters **30**, support the cross members **31**. It is to be noted that these members **31** are supported in spaced relationship and are of narrow construction and receive the nails **17** therein. Please see Figs. 2 and 5.

Channel members **32**, see particularly Fig. 3, extend at right angles to the members **31** and have their flanges received in the grooves **25** of the several shingles.

The flanges support the shingles along both sides of each individual shingle and for the entire length thereof. Thus a full support is had which lessens breakage. Moreover, the straight or flush side connections between the shingles prevent twisting strains therebetween.

If desired, a non-hardening plastic or a frangible substance **26** may be placed in the grooves **25** prior to the placing of the shingle in position, and this squeezes downwardly, as shown in Fig. 5 of the drawing. This makes for a seal between the shingle and the channel members whereby the seepage of water cannot take place so as to enter underneath the roof. Care is taken to prevent entry of the plastic above the web of the channel inasmuch as the channels provide passages for the water which may seep between flat edge portions **24** of the several shingles.

If desired, the shingle may be broken along the dotted line **35**, Fig. 1, and the lower portion thereof removed with the exception of the reinforcing elements **14**. Thus the shingle is made adaptable for use adjacent the valley of a roof, the free ends of elements **14** serving as tie elements.

The invention is defined in the appended claim and is to be considered comprehensive of all forms of structure coming within its scope.

I claim:

A concrete shingle of the character described having a tapered longitudinal cross-section, a plurality of lateral ridges across the upper side of the thinner end, a plurality of lateral ridges across the bottom side of the thicker end for interlocking engagement with said first named ridges, a channel member, a plurality of longitudinal grooves in the bottom side adjacent and parallel with the edge of said shingle adapted to receive the upturned portions of said channel member, a plurality of cut-away portions at the thinner end of said shingle, a metallic reinforcing member extending longitudinally and substantially the entire length of said shingle at either side thereof, bent to extend across said cut-away portions then rebent to extend inwardly from the thinner edge of the shingle and there terminated.

HENRY AUSTHOFF.