Dec. 19, 1939. J. W. LEDEBOER 2,183,965

METHOD OF MAKING SHINGLES

Filed March 9, 1937

Fig. 1.

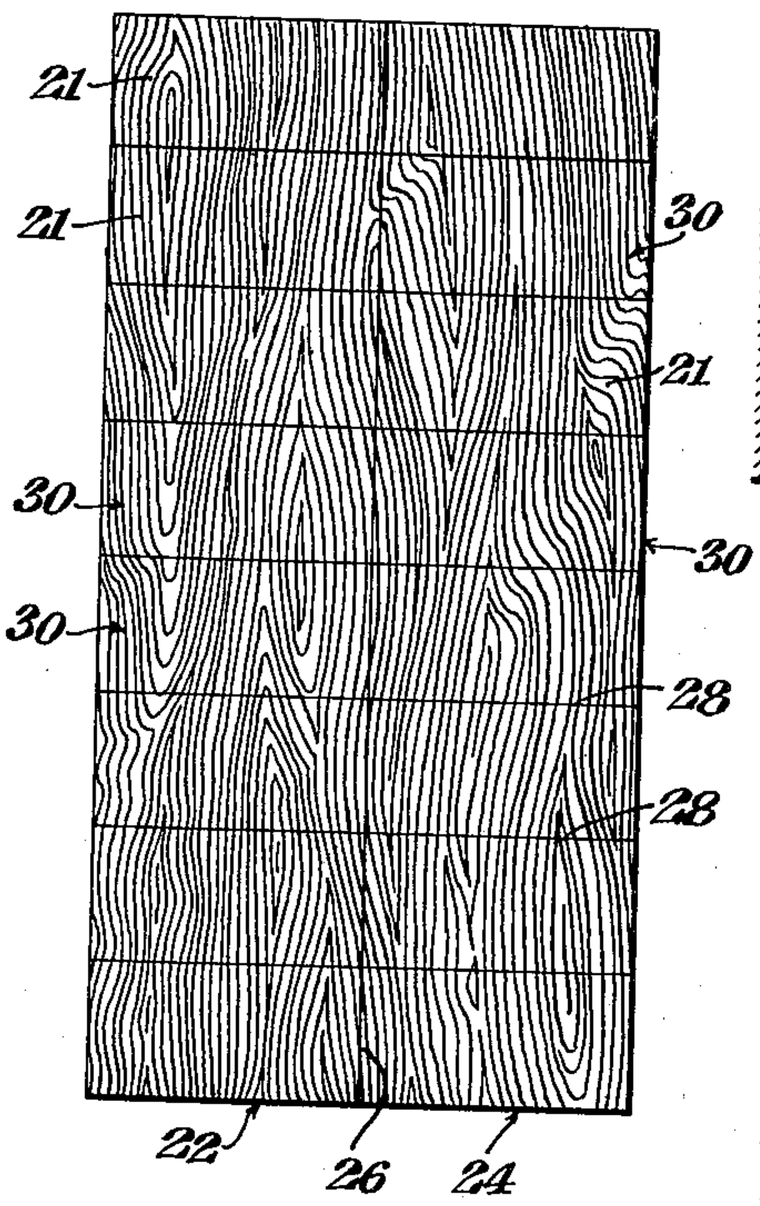


Fig. 2.

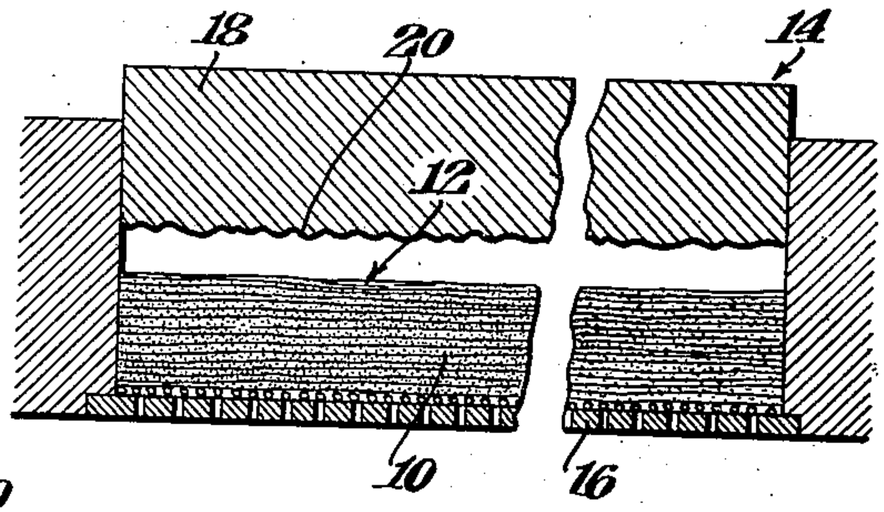


Fig. 3.

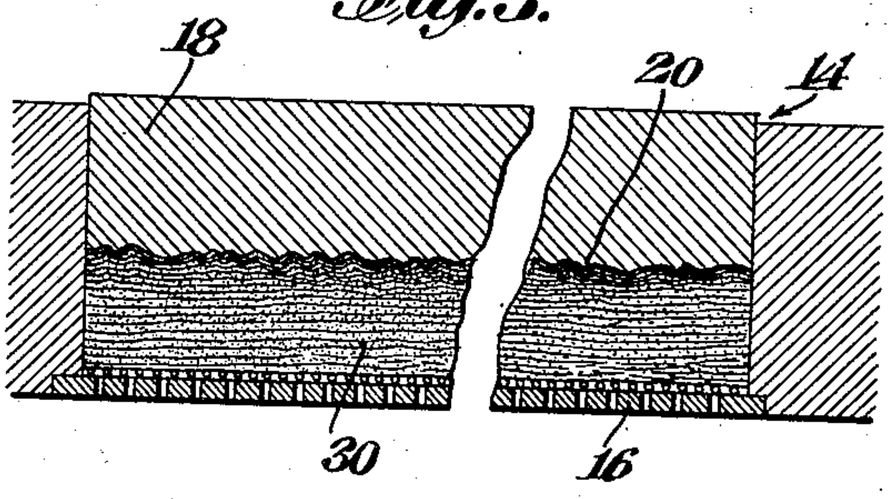


Fig. 4.

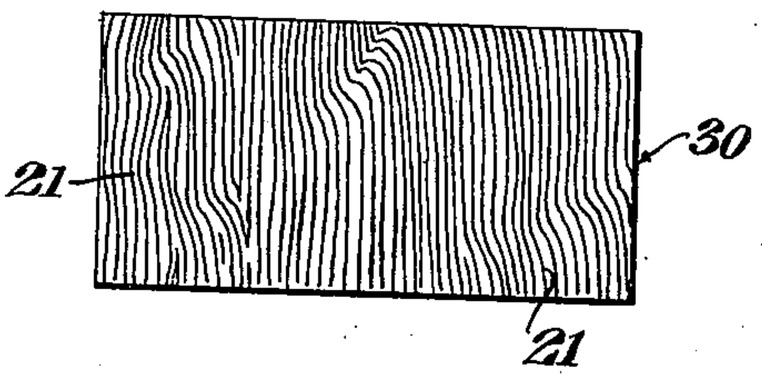
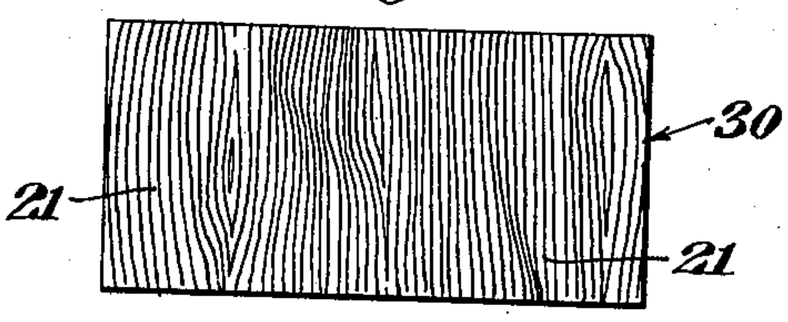


Fig. 5.



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METHOD OF MAKING SHINGLES

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1 Claim. (Cl. 92—54)

This invention relates to shingles of Portland cement and fiber composition.

The object of the invention is to provide composition shingles individually ornamental and which will give a pleasing appearance as a whole in assembled condition, as for example when a roof or like surface is constructed therefrom.

According to my invention cement fiber shingles are produced differing from each other but all simulating the surface graining of old or weathered wood. While the shingles have similar markings on their surface they are not duplicates, and in this way different pleasing effects are produced when a number of such shingles are assembled in building constructions, such as a roof.

A further object of the invention is to provide the shingles with embossed designs without reducing their strength. Using a laminated structure in the plastic composition the embossing undulations are developed to form the desired surface configuration while maintaining the laminations continuous and unbroken. Portions are relatively compressed but the integrity of the laminated structure is maintained throughout.

In the drawing:

Fig. 1 represents a plan view of a sheet or slab after pressing but before subdividing into a plurality of shingles, the sheet or slab being provided with an ornamental surface made according to the preferred form of my invention;

Fig. 2 represents a vertical cross section taken through a slab or sheet before the pressing operation;

Fig. 3 represents a vertical cross section taken through the slab or sheet shown in Fig. 2 after the pressing operation;

Fig. 4 represents a plan view of one shingle cut from the pressed slab or sheet; and

Fig. 5 represents a plan view of an adjacent shingle cut from the same pressed slab or sheet.

Referring now to the drawing (and especially to Fig. 2) the reference character 10 designates the laminated structure of a sheet or slab 12 preferably of a plastic composition containing asbestos fibres and cement. The sheet or slab has laminations or layers, and the asbestos fibers extend substantially in the plane of the sheet or slab.

Immediately after its formation, the plastic slab or sheet is subjected to a pressing operation in order to form a compact and strong structure and to remove excess water therefrom.

In the preferred form of my invention a die pattern is made by preferably sand blasting the surfaces of two boards to expose the grain of the wood. Instead of sand blasting the wood surfaces, I may use old or weathered wood having the grain exposed. The two boards are placed side by side and a single die is made from these boards. The grainings in the two boards are related but different and so the two portions of the die are different. In Fig. 1 the two portions of the slab or sheet corresponding to the halves of the die are shown at 22 and 24. The top surface of the sheet or slab is given a wavy and uneven surface of undulating curvature without sharp breaks. The rate of change of curvature of these undulations in their cross sectional contour is gradual enough from point to point to avoid any sharp shearing action. The result is that the laminations of the plastic sheet are compressed transversely, and shift or flow laterally to give the undulating surface contour without discontinuity of the laminations. Therefore, during the pressing the laminations of the sheet or slab are kept intact and unbroken. The strength of the sheet is substantially unimpaired and a building element is provided which has an impervious surface and there is no chance for water to enter into any crevices and cracks during use and later cause damage due to leaking, etc.

For this pressing operation a filter press 14 is preferably used having a pervious bottom 16 to permit escape of excess water from the plastic mass. The plastic mass of laminated material is forced against the pervious bottom by a metal die 18 which has a surface 20 formed with rounded ridges or veins to form an uneven surface of ridges or veins 21 on the top of the plastic laminated mass. This surface of the die is complementary to the pattern illustrated in the top surface of the pressed slab or sheet shown in Fig. 1. The arrangement of the ridges or veins in the pressed slab or sheet is made to simulate wood graining. The pressure in this pressing operation may run as high as 1500 pounds per square inch, applied for example, for one half of a minute.

After the sheet or slab has been pressed and the ridges or veins formed in the top surface thereof, it is placed under a cutter and cut along longitudinal line 26 and transverse lines 28 to obtain a plurality of shingles 30 with each shingle having a wood-like graining which is different from the rest of the group. In Fig. 4, we have shown one shingle taken from the upper left hand corner of the slab or sheet, and Fig. 5 represents the shingle beneath the one shown in Fig. 5. A comparison of those figures shows that shingles

having similar but not duplicate wood-like grainings are formed by my process. In practice we find that a sheet or slab of about 4 feet by 8 feet is satisfactory and when this is cut, sixteen blanks or shingles 30 of a size 12 inches by 24 inches are obtained. These dimensions are given only by way of illustration and are not meant to limit my invention thereto. It is only essential to have a die which will form a plurality of markings on the top surface of a sheet or slab so that when the sheet or slab is subdivided or cut into shingles or blanks, each shingle or blank will have a surface similar in character to the other shingles or blanks, but will not be a duplicate of the others. In this way a variety of surfaces on the shingles is obtained and when a roof or the like is constructed, the roof as a whole will have an ornamental surface.

After the shingles or blanks are cut, they are permitted to dry and season before being used. This drying and curing require preferably about ten days but the curing varies with conditions. After seasoning, the shingles may be painted or coated with colored coating compositions, if desired.

When the sheet or slab is cut into shingles or blanks, nail holes may be punched simultaneously with the cutting, or the nail holes may be punched later. Instead of making the cut blanks into shingles of final form, the blanks may be permitted to cure or harden and then later can be cut and trimmed to produce other styles of shingles.

Instead of cutting the sheet or slab after pressing, I may cut the shingles to final or approximately final form before pressing. Or the sheet or slab may be partly cut through before pressing. Then after pressing and curing or seasoning the sheet or slab may be broken into shingles on these weakened or scored lines. Or the sheet or slab may be partly cut through after pressing and then broken into shingles after seasoning or curing.

It is to be understood that the foregoing examples are given only by way of illustration and that the same may be modified in many particulars without departing from the spirit of my invention.

I claim:

A process for producing shingles comprising providing a large plastic slab or sheet of a size including a number of shingle blanks and composed of a number of thin laminations of fiber-Portland cement composition containing excess water and having its fibers lying in the planes of the laminations, placing said slab or sheet with one face on a pervious screen adapted for the escape of water under pressure, pressing the other face of said sheet or slab by an impervious die face having a series of rounded ridges thereon imitating wood graining or the like and of greater depth than the thickness of any of said laminations, compressing the slab or sheet to less thickness transversely of the laminations and causing the surface laminations in contact with said impervious die face to shift or flow laterally under the action of said die to an undulating surface contour without discontinuity of any of the laminations at any point, simultaneously with said pressure forcing the escape of water transversely through said sheet and said pervious die face, and then subdividing the pressed slab or sheet longitudinally and transversely into a plurality of shingles with each shingle from the same slab or sheet having different patterns of rounded ridges thereon.

JOHN W. LEDEBOER.