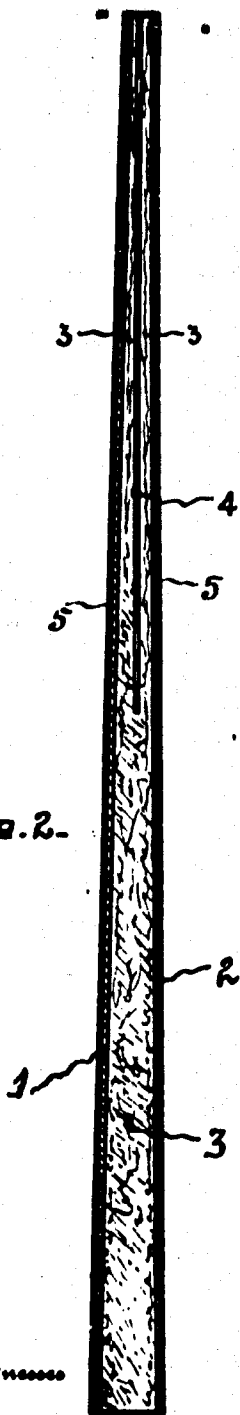


C. W. YOUNG.
COMPOSITE SHINGLE
APPLICATION FILED JAN. 29, 1909.

933,221.

Patented Sept. 7, 1909.

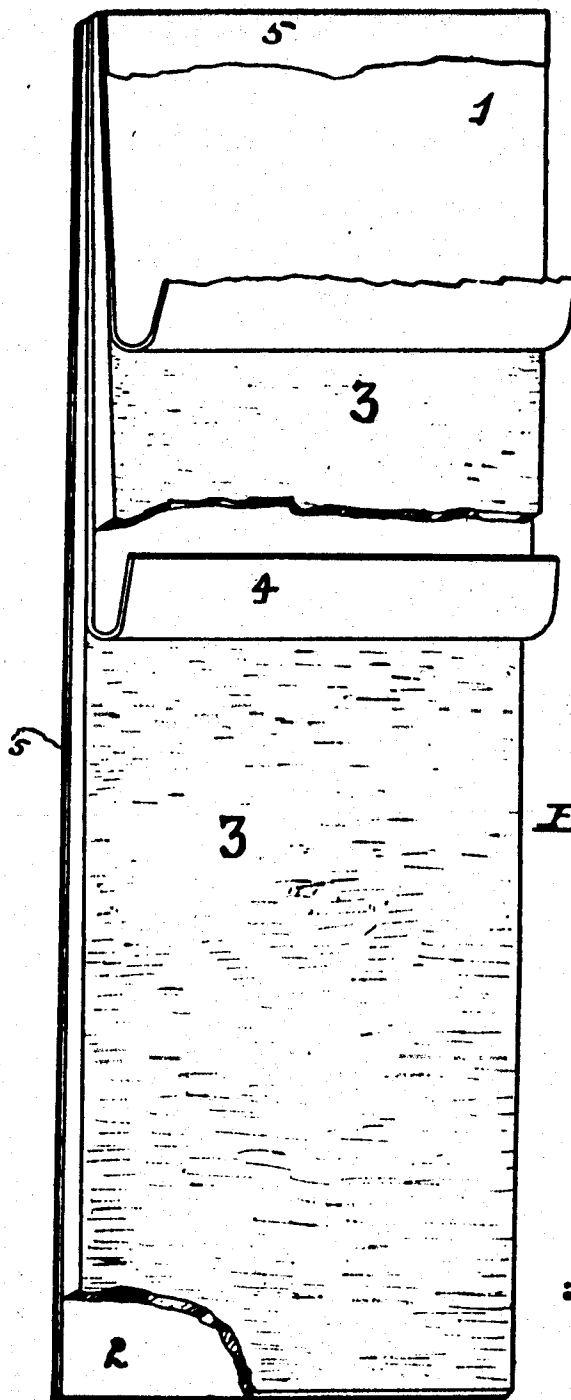
FIG. 2.



Witnesses

O. D. Bennett,
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FIG. 1.



Inventor

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UNITED STATES PATENT OFFICE.

CHARLES W. YOUNG, OF OMAHA, NEBRASKA.

COMPOSITE SHINGLE.

933,221.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed January 29, 1909. Serial No. 474,945.

To all whom it may concern:

Be it known that I, CHARLES W. YOUNG, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Composite Shingles, of which the following is a specification.

This invention relates to an improvement in composite shingles, or shingles formed of different parts and employing different ingredients in their composition.

The object of the invention, broadly, is to provide shingles composed of ingredients which are plentiful and cheap, but which, when combined and used in the novel manner herein explained, will result in the economical production of a superior article.

The invention has reference to a shingle made of exterior layers and an intermediate filler; a covering or coating for the exterior layers, the filler being traversed a part of its length with a leaf, so that its thinner end will not be rigid.

In the accompanying drawing Figure 1 is a perspective view of a shingle embodying my invention, parts thereof being broken away. Fig. 2 is a view of the shingle in longitudinal section.

Referring to the drawing for a more particular description, numerals 1 and 2 indicate the respective upper and lower layers, ordinary felt paper being preferably used, although I have employed cloth, straw and wood fiber paper to advantage for these layers.

As a filler 3 for deposit between layers 1 and 2, I employ a composition consisting substantially in weight of the following ingredients:

Stucco (derived from gypsum) -----	.60
Hair fiber -----	.005
Pulverized wood or wood pulp -----	.385
Graphite -----	.01

These ingredients are suitably mixed with water and stirred as a plastic mass, the consistency being substantially that of mortar, and the composition thus formed is then deposited between layers 1 and 2. The stucco is adhesive and fills all voids between the pulverized wood or pulp, and is non combustible, the graphite operating as a hardener; the wood pulp is porous, and by reason of its gravity materially reduces the weight

of the shingle, the hair operating to hold the parts together.

At the time of depositing the filler, a pliable member, or cloth sheet 4 is embedded therein, being interposed flatwise, midway between layers 1 and 2 to extend from the thinner end one-half to one-third the length of the shingle, the function of this sheet being to permit bending the shingle somewhat, at the time it is secured to the roof.

At the time the shingle is manufactured, means are employed for compressing it. Pressure is applied to its sides while the filler is plastic, so that its respective ends have thicknesses of substantially one-sixteenth and three-eighths of an inch, but this feature is not important in so far as exactness is concerned.

As a covering for the entire shingle, after it has been dried and becomes hardened, it is wholly immersed in a heated solution, consisting substantially of the following ingredients:

Water -----	100.00
Silicon dioxide -----	33.85
Aluminum oxid -----	22.32
Iron oxid -----	4.40
Calcium oxid -----	6.02
Potassium oxid -----	1.63
Sodium oxid -----	.06
Pulverized coal -----	31.72

The last named ingredients are thoroughly stirred, and an additional quantity of water may be added to graduate the heated mass to the consistency of ordinary paint, and I have used as a thinner either linseed oil, gasoline or cotton seed oil, for attaining a suitable consistency. The shingles are dried after being immersed in this heated solution, and are then ready for use, and to be laid in the ordinary way.

The coating or covering prepared in accordance with the above formula is particularly adhesive, impervious to the weather and durable. It furnishes a dry and somewhat polished surface to both sides of the shingle, of a black color. When other colors are desired I add any suitable pigment to produce the same while the solution is in the heated condition mentioned.

While the above formula has been used to advantage and is preferred for many reasons as a covering, it may be varied, and I do not limit myself to its use; and other suitable adhesive coverings may be employed.

Gypsum or cement shingles heretofore used have been unsatisfactory on account of their excessive weight, and are often injured during the process of nailing to the roof.

6 These objections have been overcome, practically, by the production of the herein described shingle. By reason of its construction, sawdust may be employed which is quite inexpensive, and its comparative light weight is an advantage in the cost of shipping; and its comparatively light weight allows a lighter construction of a roof support, than the kind referred to. Nails, in the present structure of the shingle, may be driven therethrough without injury, the wood pulp contributing a degree of elasticity which prevents the breaking or seaming of the stucco.

For roofs having a moderate pitch I have used shingles of lighter weight than heretofore described and with good results, the composition of the filler containing 40 to 50 per cent, only of stucco, the ingredient of pulverized wood being increased correspondingly to 58.5 and 48.5 per cent., in each instance using the solution first above mentioned to form the waterproof coating. These shingles, on account of their comparative light weight, are particularly adapted for use upon roofs less substantially supported or having less pitch, than others.

The solution above mentioned for completely covering the parts, may be used when cold, if desired, the shingles being immersed therein. When colors are added, it is an advantage to have the solution well heated.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is,—

40 1. A composite shingle, comprising an upper and a lower adjacent paper layer, a composition deposited intermediate said layers and comprising in weight substantially, stucco .60; hair fiber .005; wood pulp .385; graphite .01; said layers and composition being coated with an adhesive, waterproof covering.

2. A composite shingle, comprising an upper and a lower, adjacent layer of paper felt, 50 a composition deposited between said layers and comprising in weight substantially, stucco .60; hair fiber .005; wood pulp .385 and a hardening ingredient; said layers and composition being coated with an adhesive, waterproof covering.

3. A composite shingle, comprising an up-

per and a lower, adjacent paper layer; a composition deposited intermediate said layers and comprising in weight substantially, stucco .60; wood pulp .385; a hardening ingredient; a binding ingredient; said layers and composition being covered with an adhesive, waterproof coating. 60

4. A composite shingle, comprising an upper and a lower, adjacent layer of paper, 65 a composition deposited intermediate said layers and comprising in weight substantially, stucco .60; hair fiber .005; wood pulp .385; graphite .01; said layers and composition being coated with a solution comprising, 70 in weight, substantially: silicon dioxide 33.85; aluminum oxide 22.32; iron oxide 6.02; potassium oxide 1.63; sodium oxide .06; pulverized coal 31.72 and a lubricating ingredient.

5. A composite shingle, comprising an upper and a lower adjacent layer of felt paper, 75 a composition deposited intermediate said layers and comprising in weight, substantially: stucco .60; hair fiber .005; wood pulp .385 and a hardening ingredient; said layers 80 and composition being coated with a solution comprising, in weight, substantially: silicon dioxide 33.85; aluminum oxide 22.32; iron oxide 6.02; potassium oxide 1.63; sodium oxide .06; pulverized coal 31.72 and a water 85 solvent.

6. A composite shingle, comprising an upper and a lower adjacent layer of paper; a composition disposed intermediate said layers and comprising in weight substantially: stucco .60; wood pulp .385; a hardening ingredient; a binding ingredient; said layers and composition being coated with a solution comprising, in weight, substantially: pulverized coal 31.72; silicon dioxide 33.85; 95 aluminum oxide 22.32; iron oxide 6.02; potassium oxide 1.63; sodium oxide .06, and a water solvent.

7. A composite shingle, composed of two layers of straw paper and a one-third layer 100 of cloth alternating with layers of a composition in weight, substantially, stucco .60; pulverized wood .385; a hardening ingredient; a binding ingredient; the whole covered with an adhesive waterproof compound. 105

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES W. YOUNG.

Witnesses:

HIRSH A. STURGES,
RAYMOND G. YOUNG.