April 6 , 1926.

1,579,693

W. H. FINKELDEY ET AL

METALLIC SHINGLE

Filed April 4, 1923

2 Sheets-Sheet 1

Fig. 1.

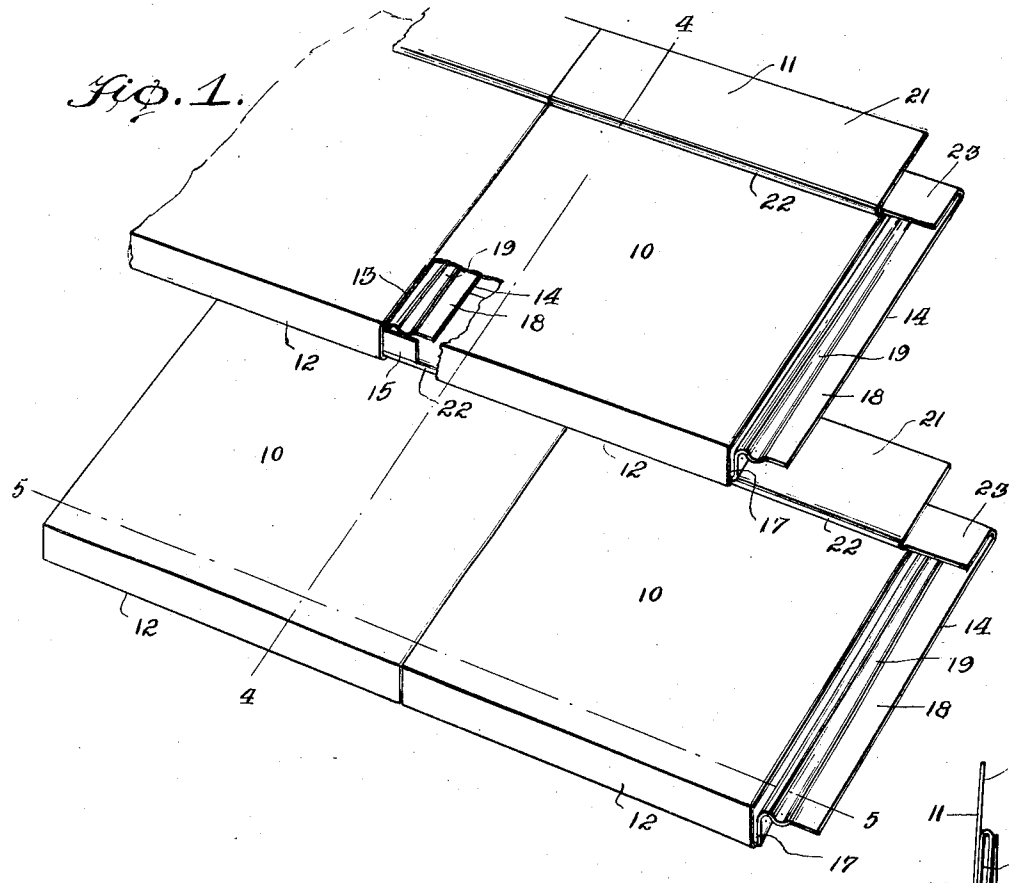


Fig. 2.

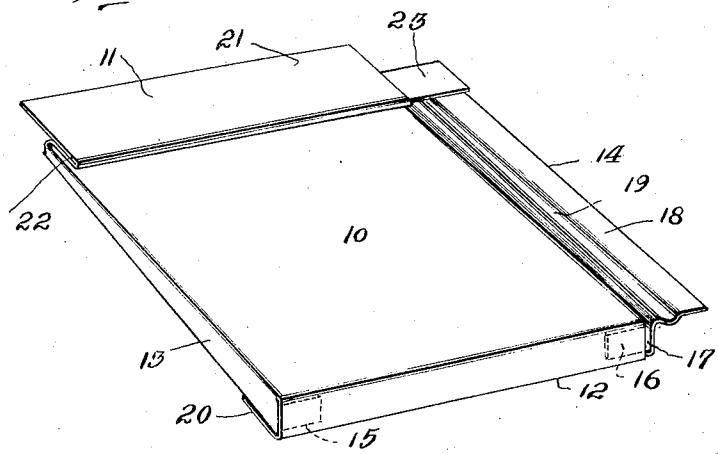
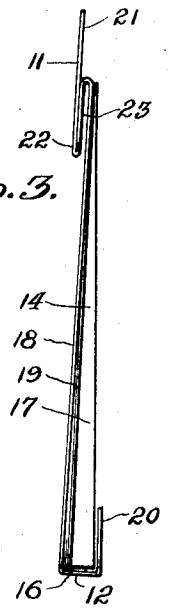


Fig. 3.



INVENTORS
William H. Finkeldey
BY Willis McG. Peirce
Bennie, Davies, Marmet & Amonds
ATTORNEYS

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Fig. 7.

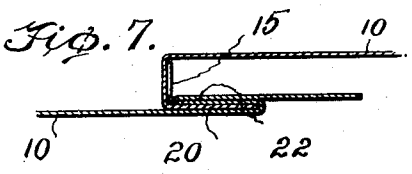


Fig. 9.

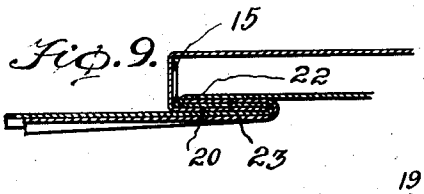


Fig. 4.

Fig. 8.

Fig. 5.

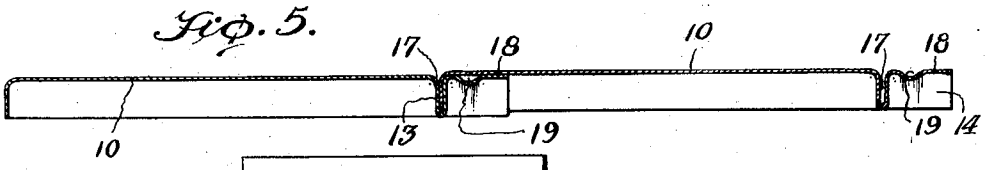
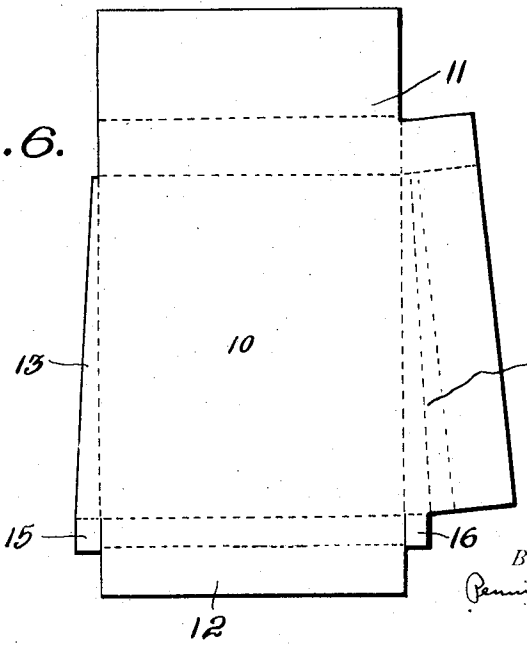


Fig. 6.



INVENTORS
William H Finkeldey
BY Willis McG. Peirce
Pennie, Davis, Marvin & Edmonds
ATTORNEYS

Patented Apr. 6, 1926. 1,579,693

UNITED STATES PATENT OFFICE.

WILLIAM H. FINKELDEY AND WILLIS McG. PEIRCE, OF PALMERTON, PENNSYLVANIA, ASSIGNORS TO THE NEW JERSEY ZINC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

METALLIC SHINGLE.

Application filed April 4, 1923. Serial No. 629,753.

To all whom it may concern:

Be it known that we, WILLIAM H. FINKELDEY and WILLIS McG. PEIRCE, citizens of the United States, residing at Palmerton, county of Carbon, and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Shingles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a roofing construction and particularly to the individual shingle of the overlapping or interconnected sheet or rolled metal type, which, when used collectively, constitutes a roof.

Sheet or rolled metal shingles are well known and various forms thereof have been constructed. Considerable difficulty has heretofore been experienced in obtaining a joint which will prevent the passage therethrough of water, particularly under such conditions as exist during beating and driving rains and the melting of snow and ice.

One object of this invention is the production of a shingle of relatively thin sheet material, preferably sheet or rolled metal so designed and constructed that when a number of the shingles are assembled to form a roof, the cooperating edges and overlapping joints thereof substantially preclude the entrance or passage of water therethrough; not only during the normal flow of the water over the roof in a downwardly direction, but also when rain and the like might be blown or driven across the roof in a direction opposite to the normal flow, or in cases when water might back up upon the roof as often happens owing to an accumulation of snow thereon.

Another object of the invention is to construct a shingle of the type indicated which presents a distinctive outline and an appearance of thickness similar to the tapered wooden shingle, at the same time permitting ventilation between the underside thereof and the roof boards or base.

A further object of the invention resides in providing novel means for connecting or assembling a number of shingles together to form a roof, said means being so constructed that while convenient to assemble and waterproof, the use of excessive metal is not required and bulky and unsightly joints are eliminated.

Other objects and advantages will be manifest from the specification when taken in connection with the accompanying drawings, in which;

Fig. 1 is a perspective view of a number of shingles constructed in accordance with the present invention, a part of the lower extension of one shingle being broken away to show more clearly the joint for connecting the side edges of adjacent shingles.

Fig. 2 is a perspective view of a shingle per se.

Fig. 3 is a side elevation of one of the shingles;

Fig. 4 is a longitudinal sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 1;

Fig. 6 is a plan view of the blank before being bent to form the shingle shown in Fig. 2;

Fig. 7 is an enlarged sectional view showing the connection between the top and bottom edges of adjacent shingles;

Fig. 8 is an enlarged sectional view showing the connection between the side edges of adjacent shingles; and

Fig. 9 is an enlarged sectional view illustrating the joint between the top and bottom edges of adjacent shingles at the intersection of the joint between the side edges of adjacent shingles.

Referring to the drawings in detail, the improved shingle comprises a blank preferably stamped from thin sheet or rolled metal, such as rolled zinc, consisting of a main body portion 10, top, bottom and side extensions 11, 12, 13 and 14 respectively. The side extensions 13 and 14 are provided with depending tongues or the like 15 and 16, for the purpose to be hereinafter more fully described.

In forming the shingle illustrated in Fig. 2 from the blank above referred to, the extension 13 is bent downwardly substantially at a right angle to the main body portion 10. The side extension 14 is similarly bent downwardly and then upwardly to form a groove 17 immediately adjacent the main body portion, the remaining portion of the extension being disposed laterally to form a flange 18 in a plane with the main

body portion of the shingle. The flange 18 is provided with a comparatively shallow groove 19, forming a stop-water in addition to the groove 17.

The tongues 15 and 16 carried by the side extensions 13 and 14 are then bent inwardly at right angles to said extensions and underlie the lower edge of the main body portion 10. The bottom extension 12 is bent downwardly a distance equal to the depth of the lower ends of the flange 13 and groove 17, overlapping the tongues 15 and 16, and thereafter turned under these portions to produce a hook member or flange 20 for engagement with the top edge of an adjacent shingle in a manner to be hereinafter described.

It is to be noted that the side flange 13 and groove 17 are gradually increased in depth from top to bottom so as to give a tapered form and thickness to the shingle, in addition to obtaining the desired connection between these flanges and grooves of shingles arranged side by side. This construction is obtained by sufficiently increasing the width of the flanges 13 and 14 from top to bottom as clearly shown in Fig. 6. In completing the shingle the top extension 11, together with a portion of the upper part of the side extension 14, is bent over the main body portion on a line with the upper end of the side extension 13. The top extension is then folded upon itself on a line with the lower edge of the folded portion of the side extension and extends beyond the first-mentioned fold to form a nailing flange 21. The folded portions of the said top flange produce a hook member 22, which is adapted to cooperate with the turned-under portion or hook member 20 of an adjacent shingle of an adjoining row. The construction of the upper edge of the shingle will result in a turned over lip or portion 23, formed by the upper part of extension 14, permitting an overlapping thereof by the flange 21 of an adjacent shingle when assembled side by side, and at the same time the turned over portion 23 will provide an absolute check or water-stop at the upper end of the joint.

In assembling the shingles to form a roof, beginning as usual from the lower edge of the roof and working upwardly, the first row of shingles is laid by working from left to right. The first shingle is secured in the usual manner and from there on the flange 13 of each successive shingle is inserted in the cooperating groove 17 of the preceding shingle, and thereafter moved bodily upwardly to a position where the lip 23 is forced between the folds of the top extension 11, the upper flange 21 thereof overlapping the top face of the lip 23 and abutting the edge of the flange 21 of the adjacent shingle.

In this final position of the assembled shingles the turned over lip 23 will completely close the upper end of the joint between the flange 13 of one shingle and the cooperating groove 17 of the adjacent shingle, and at the lower end of this joint, as clearly shown in the broken away portion of Fig. 1, the tongues 15 and 16 will substantially prevent any direct passage of water through the ends or corners of the shingle. At the same time, the groove 19 in the lateral flange 18 forms an additional safe-guard against the passage of water at the overlapping joint, and will convey any water that might pass the main groove 17 to the lower end thereof and discharge it. Thus any water which is discharged from the lower end of the groove, together with any water which may accumulate due to condensation, will seep through the corner joint between the tongue 15 and the vertical portion of the bent extension 12.

It is, of course, to be understood that the shingles are to be laid in staggered relation and the upper end of the overlapping joint will be bridged by the intermediate portion of the lower edge of the shingles of the adjacent upper row, the joint at this point being clearly illustrated in Fig. 9.

We are aware that metallic shingles of this general type are known in the art, but in the present construction certain features are disclosed and objects accomplished predicated upon and resulting from the particular arrangement set forth in the present specification and defined in the appended claims.

The present invention is applicable to metallic shingles made of zinc, copper, galvanized iron and other appropriate sheet metal. We prefer, however, to make the metallic shingle of the invention of rolled zinc. In manufacturing shingles of rolled zinc, we prefer to employ very high grade zinc, containing only about 0.03% lead, although common metal (zinc) containing around 0.3% lead may, if desired, be employed in the manufacture of zinc shingles embodying the present invention. Rolled zinc, in addition to its relatively low cost, is easily worked and fabricated into the shingle of the invention, and such zinc shingles, when assembled and laid as a roof, after weathering say for several months, present the appearance of a slate shingle roof. If desired, the zinc shingle may be preoxidized by dipping in a solution adapted to coat the surface of the shingle with a film resembling the film naturally acquired by the shingle after ageing in the atmosphere. By thus preoxidizing the zinc shingles, a newly laid roof may from the beginning be made to simulate a slate roof.

The improved metallic shingle of our invention can be advantageously applied to

roofs of any pitches heretofore satisfactorily protected by wooden shingles. In practice, we have found that under ordinary conditions the roof should have a slope of not less than about four inches to the foot if optimum protection against the penetration of water through the assembled shingles is to be secured.

The weakest and most vulnerable points (as respects the penetration therethrough of water) in an assembled metallic shingle roof are the junctions of three shingles. In the improved shingle of our invention, the construction is such that at the junction of three shingles the water meets a barrier in any and every direction. In fact, this is true of our entire shingle construction, since it is interlocking on all sides, and the course of water-flow is interrupted in every direction. In this connection, we wish to emphasize the advantage of the turned-over portion 23 of our shingle structure and to point out that this turned-over portion overlays the entire width of the shingle and provides a very effective barrier at the junction of three shingles to the upward flow of water. The width of the upper flange 21 is the same as the width of the exposed portion of the shingle, whereas the turned-over portion 23 extends at one side (the right hand side) as shown in the accompanying drawings (beyond the flange 21 and this extended portion engages in or locks with the hook member 22 of the next adjacent shingle.

In spite of the fact that our improved shingle interlocks on all sides with the adjacent shingle, the construction is such that the assembling and interlocking of the shingles is easily and speedily accomplished.

We claim—

1. A shingle comprising a main body portion and extensions carried by the top and side edges thereof, one of the side extensions comprising a U-shaped groove gradually increasing in depth and a laterally disposed flange, the other side extension being bent to form a downwardly extending flange of correspondingly increasing height, said top extension and the top portion of one of said side extensions being bent forwardly and the top then being bent backwardly on a line with the lower edge of the forwardly bent portion of the side extension.

2. A shingle comprising a main body portion and extensions carried by the side, top and bottom edges thereof, one of the side extensions comprising a U-shaped groove and a laterally disposed flange, said groove being of gradually increasing depth, the other side extension being bent to form a downwardly turned flange of correspondingly increasing height, said bottom extension being bent, first downwardly and then backwardly, and the top extension and the top portion of the side extensions being bent forwardly and then the top extension being bent backwardly on a line with the lower edge of the forwardly bent portion of the side extension.

3. A shingle comprising a main body portion and extensions carried by the side, top and bottom edges thereof, one of the side extensions comprising a U-shaped groove and a laterally disposed flange, a comparatively shallow groove in said flange, said grooves being of gradually increasing depth, the other side extension being bent to form a downwardly turned flange of correspondingly increasing height, said bottom extension being bent first downwardly and then backwardly, and the top extension and the top portion of one of the side extensions being bent forwardly, said top extension then being bent backwardly on a line with the lower edge of the forwardly bent portion of the side extension, and tongues carried by the side extensions substantially of the same width as the downwardly bent portion of the bottom extension, said latter extensions being bent behind the said downwardly bent portion of the bottom extension.

In testimony whereof we affix our signatures.

WILLIAM H. FINKELDEY.
WILLIS McG. PEIRCE.