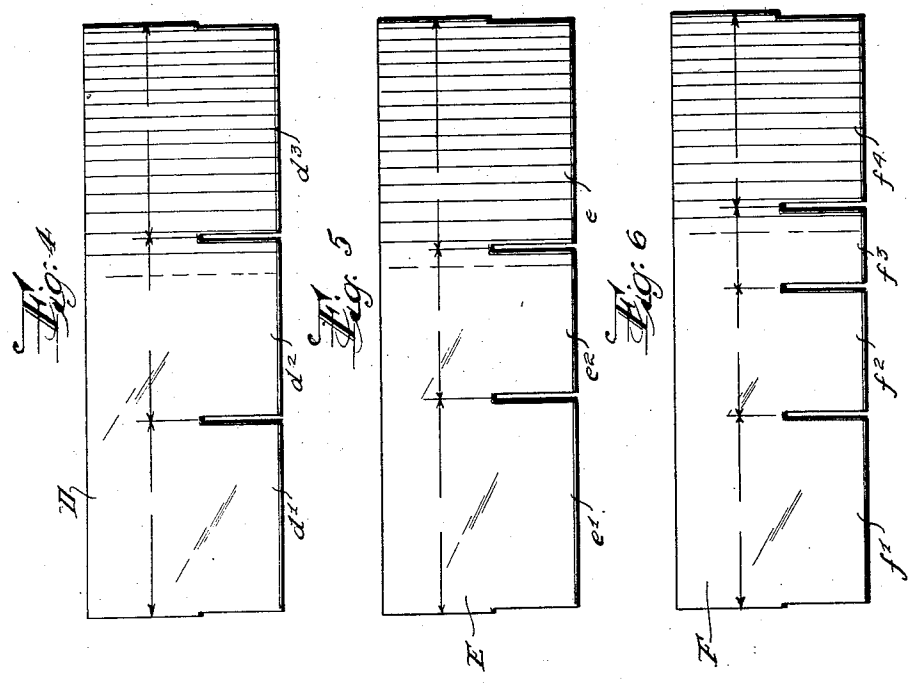
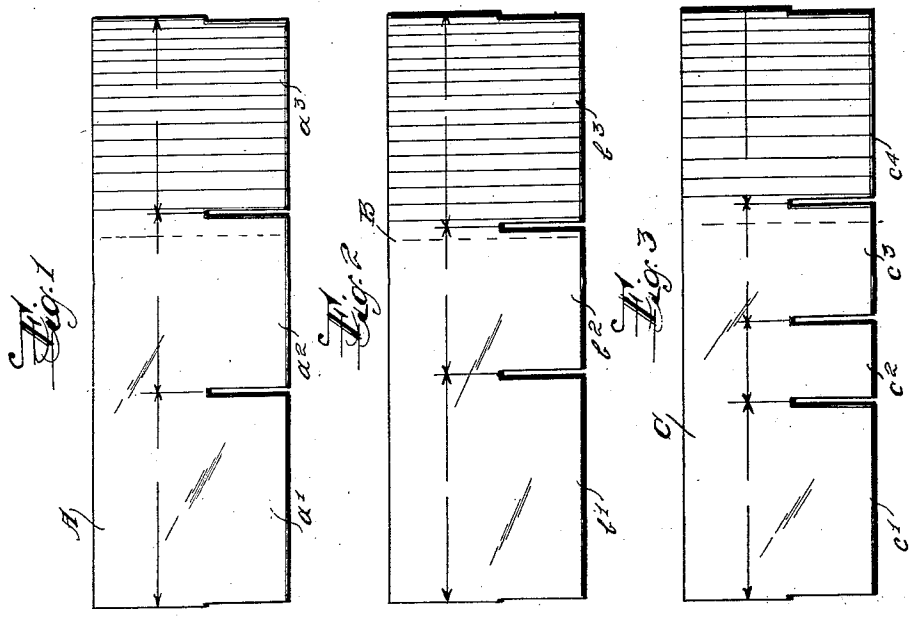
Aug. 9, 1932. H. L. LEVIN ET AL 1,870,414

ROOFING STRIP

Filed May 17, 1929 2 Sheets-Sheet 1





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ROOFING STRIP

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Fig. 8

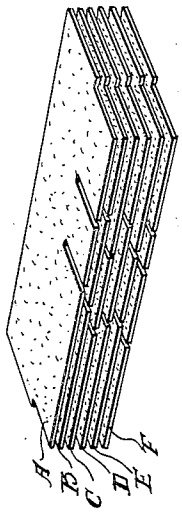


Fig. 9

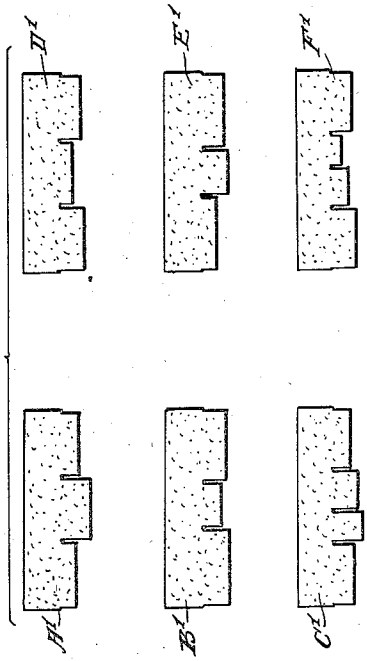
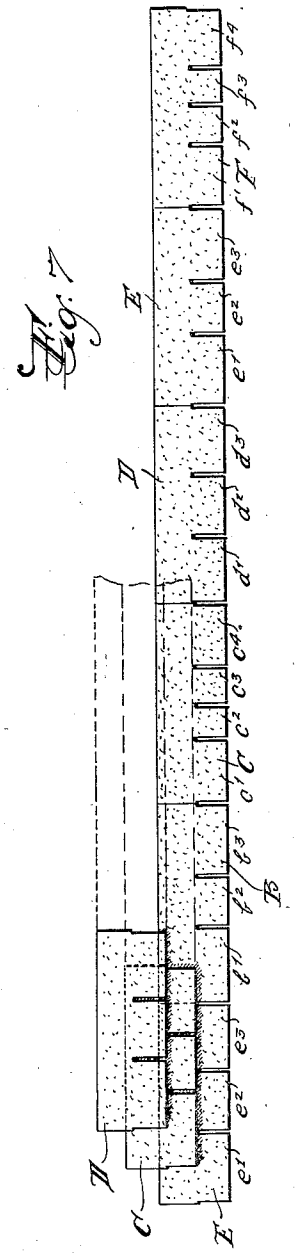


Fig. 7



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UNITED STATES PATENT OFFICE

HAROLD L. LEVIN, OF NUTLEY, NEW JERSEY, AND FRANK H. NEHER, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE PATENT AND LICENSING CORPORATION, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

ROOFING STRIP

Application filed May 17, 1929. Serial No. 363,751.

This invention relates to improvements in roofing strips and is concerned particularly with the production of roofing elements in the form of strips in which shingle-simulating tabs are defined by slots extending into the body portion of the strip from the lower or butt-edges thereof. Roofing strips in this form, generally, referred to as square-butt strips, and made from waterproof felted sheets, have long been known and used. In this form, however, the strips, when laid, present a somewhat monotonous appearance due to the regularity of outline of the tabs or shingle portions thereof. This monotonous appearance may be alleviated to some extent by means of variegated or multi-color effects, such as is afforded by the use of crushed mineral of various contrasting and/or blending shades, as the surfacing for the strips. Even with this expedient, however, the ultimate appearance of the roof is not all that is to be desired from an architectural point of view, and it has been proposed to further decrease the monotonous appearance by employing strips formed with tabs of different butt edge configuration so that when the strips are laid on the roof, there will be somewhat of an irregular outline along the exposed shingle portions, which to the eye of the observer, does not present that monotony or regularity characteristic of the usual form of strip shingles.

In order to secure the benefits accruing from the use of tabs that vary in outline or dimension, it is manifest that there should be quite a diversity between some of the tabs as they appear on the roof and that there should also be some mean variation of the tabs between the extremes that are employed. For example, this result can be achieved by the use of strips with tabs that vary in width and in order to secure the most desirable results, it is necessary that some of the tab portions appearing on the roof be much wider than others, and that there shall also be certain proportion of tabs of a width intermediate that of the widest and narrowest tabs employed. In designing shingle strips of this type, therefore, the aim has been to form tabs of different width in the strips, and to so arrange the tabs thereon that when a number of the strips are laid on a roof, the tabs of the several widths will be distributed thereon in more or less haphazard fashion, which produces upon the eye of the observer a haphazard or non-tedious irregularity of outline. With this end in view, it would appear that shingles of this character might be formed with the tabs arranged thereon in any one of a wide variety of ways to give the desired effect on the roof. We have found, however, that when strips of this character, are laid up on the roof there is serious danger of leakage occasioned by the fact that the tab-defining slots in one shingle may be too close or may even overly, a joint between underlying shingles in the preceding course. As is known strip shingles of the usual uniform-width-tab variety are customarily laid in successive courses, the succeeding courses being offset or broken laterally by a distance substantially one half of the width of a tab so that the end tab of the overlying strip shall conceal the joint between adjacent shingles in the preceding course.

Hence, in the present commercial form of square-butt strip shingles, the danger of leakage is automatically taken care of, since these tabs, in practise, are each at least nine inches wide, so that when the strips are applied with those of one course offset from those of the preceding course by one-half the width of a tab, the slots in each strip are spaced at least four and a half inches laterally of the joints between adjacent strips in the preceding course, and this distance is entirely sufficient to provide the requisite side-lap and protection. Where the tabs vary in width, however, and some of the tabs are relatively narrow, there is liability that the slots between tabs of some of the strips will be too close to the joints between adjacent shingles in the preceding course to provide the necessary minimum side-lap, and in many instances, the slots may actually coincide, or their position may accumulate horizontally across the roof to such an extent that they finally coincide with the joints between underlying strips in the preceding course, thus exposing the joints at numerous points on the roof.

According to our invention, the strips are formed with tabs that vary in width, and in order to avoid the difficulties above referred to, the tabs are so dimensioned and so positioned in the strips that at no place on the roof shall a slot in a strip be closer than a certain minimum distance to the joint between an underlying pair of strips in the preceding course. The provision of this minimum distance which we term "side-lap", is most essential at every point on the roof where there is a joint between adjacent shingles in one course. We consider that for all practical purposes, a minimum side-lap of 3" is sufficient, but this minimum must be preserved over the entire roof in order to prevent leakage. It will be understood that the strips, as will be hereinafter more fully described, may be designed so as to afford a side-lap in excess of three inches, but whatever the minimum side-lap determined upon may be, this will be preserved throughout, by following the principles to be hereinafter explained. Broadly speaking, therefore, the invention is concerned with the utilization of certain definite mathematical principles and arrangements in conjunction with the manufacture of strips of the character outlined.

The invention will be more clearly understood from the following description and the accompanying drawings in which;

Figures 1 to 6 inclusive, represent shingle strips that may be used as a set in carrying out the invention,

Figure 7 illustrates the arrangement of a section of roof showing several sets of strips of the type illustrated in Figures 1 to 6 applied thereon,

Figure 8 represents a set of strips such as shown in Figures 1 to 6, as they may appear in a package thereof,

Figure 9 is a view showing another set of shingle strips, embodying the essential features of the invention.

In the preferred embodiment of the invention illustrated, we employ a set composed of six different strips, the tabs of each of which vary in width from one or more of the others and from some of the tabs of the other strips in the set, and each of the strips in the set is also characterized by the dimensioning of the tabs thereof in accordance with the mathematical principles herein outlined. The strips of the set according to the preferred embodiment of the invention, are shown individually in Figures 1 to 6 of the drawings. These strips may be severed from a sheet of prepared roofing, such as asphalt saturated and coated and mineral surfaced roofing felt, by any suitable form of cutting mechanism. For purposes of economy of manufacture, we prefer that the several strips of the set shall comprise a plurality of complemental pairs of strips. Thus, as shown, the shingle strip A of Figure 1 is complemental to the shingle strip D of Figure 4, and similarly, the strips B and C of Figures 2 and 3 are complemental respectively to the strips E and F of Figures 5 and 6. In each of the strips, however, the end tabs are of such width that the difference between the width of one end tab and one-half the width of the other end tab, shall at least correspond to the distance representing the minimum side-lap above referred to. Not only is this true of each of the strips in the set, but where the end tab or tabs of one strip in the set vary from any of the end tabs of the other strips in the set, the end tabs of the several strips in the set must be so dimensioned that the difference between the width of any end tab in the set, and one half the width of any other end tab in the set shall also meet the aforementioned requirement.

It follows from this, therefore, that the width of all of the end tabs in entire set must be at least twice the minimum side-lap. By thus dimensioning the tabs of the strips, it becomes possible to apply strips in either direction horizontally of each course, with equal safety as to the requisite protection against leakage.

As shown on the drawings, some of the strips in the set, namely, strips A, B, D, and E, are formed with three tabs. In each of these strips, we prefer that the middle tabs of each strip shall be narrower than the end tabs thereof.

Although desirable effects may be procured with four strips such as typified in Figures 1, 2, 4 and 5, we prefer, in order to obtain a greater diversity of outline of the tabs or shingle portions as they appear on the roof, to use in conjunction with some or all of the strips A, B, D and E, an additional pair of strips C and F, shown in Figures 3 and 6, wherein four tabs instead of three occur, one of the tabs being very narrow in comparison with other tabs of these strips as well as with tabs of the strips A, B, D and E. When using such strips, these narrow tabs will, in practice, be confined to the inner portions of the strip as shown in Figures 3 and 6.

While we prefer to use a set comprising a plurality of complemental pairs of strips, this is obviously not essential to the main features of the invention. Thus, instead of forming the strips in complemental pairs, the several strips of the set may have tabs that vary in width without necessarily being complemental as long as the critical value in the dimensioning of the end tabs thereof is preserved. It will be understood, of course, that the tabs of one strip in the set need not be different in width from all of the tabs in the other strips of the set, and that although complemental pairs of strips may be used in which the width of the tabs in each strip of the pair is the same but with the tabs arranged in a different order across the strip,

the desirable ornamental effects will be produced, and the danger of leakage will be eliminated in applying such strips in successive courses on the roof, if the end tabs of each of the strips in the set conform to the mathematical principles herein set forth.

By way of example, in the set of strips illustrated in Figures 1 to 6, each of the strips being 36″ long, the tabs a_1, a_2 and a_3 of strip A may be thirteen, eleven and twelve inches wide, respectively, measuring from the ends of the strip to a line intersecting the mid-portion of the slots therein. The tabs b_1, b_2 and b_3 of strip B may be fourteen, nine, and thirteen inches wide, respectively, and the tabs c_1, c_2, c_3 and c_4, of strip C may be twelve, four, nine and eleven inches wide respectively. Where, as in the preferred embodiment of the invention, the strips D, E and F are complementary to strips A, B and C respectively, the width of the tabs on strips D, E and F would be the same as that of the tabs on their respective complements but arranged in the opposite order longitudinally thereof. If desired therefore, the strips of each complemental pair may be cut from the sheet of roofing material in butt-to-butt and head-to-head fashion, transversely of a sheet which is as wide as the shingle strips are long, and if desired, the other complemental pairs may be formed from the same sheet of material by using a rotary cutting drum with blades disposed thereon so as successively to cut the several complemental pairs of strips comprising the set during each revolution of the drum. It will be understood, however, that like strips or pairs of strips may be severed individually or in pairs from separate sheets of roofing by any suitable cutting mechanism operative to sever the strips with the long axis thereof either parallel to or transverse of the longitudinal edges of the sheets. The strips are packaged in bundles, each bundle preferably containing approximately an equal number of each of the strips composing the set. In Figure 8 is shown part of a bundle of strips such as those forming the set illustrated in Figures 1 to 6.

In laying the strips on a roof, they will be taken from the bundles and applied to the roof in successive courses, with the strips in each course offset laterally from an underlying strip in the preceding course, by a distance equal to one-half the width of the end tab on the underlying strip, as shown in Figure 7. In this way, with a set of strips each conforming to the principles herein established, a very attractive appearance may be secured by virtue of the diverse dimensions of the tabs or shingle-simulating portions, without any possibility of the tab-defining slots coinciding with or even lying so close to an underlying joint in the preceding course as to subject the roof to possible leakage.

Although highly desirable artistic effects may be achieved by using sets of strips such as illustrated in Figures 1 to 6, wherein the strips have tabs differing only in width, further enhancement of the irregularity of outline may be secured by compounding with the aforesaid feature, a variation in the length or vertical extent of the tabs. The length of the tabs, however, obviously does not affect the necessary side-lap, for no matter how far the lower edge of one tab may project below that of other tabs in the strip, the vulnerability of the roof, in respect to the proximity of the tab-defining slots to underlying joints, is governed solely by the width of the tabs. Accordingly, a set of strips such as shown in Figure 9, wherein there is a diversity in length as well as in width of the tabs, may be employed, it being understood, of course, that the tabs of the strips in such a set are of such widths as to conform to the essential principles above set forth for the strips of Figures 1 to 6.

The lower edges of some of the tabs in the set may also, if desired, be cut at an inclination to the rear edge of the strip, thus introducing still further departures from the regularity of outline characterizing the present commercial form of square-butt strip shingles.

Having thus described several preferred embodiments of the invention, it will be manifest that numerous variations and changes may be made therein without departing from the spirit of the invention as set forth in the appended claims.

We claim and desire to secure by Letters Patent:

1. A roofing set comprising a plurality of strips, each strip of the set being provided with a plurality of slots defining shingle simulating tabs, the end tabs of each strip in the set differing in width from each other and from corresponding end tabs of other strips in the set and being of such a width that the difference between the width of any end tab in the set and one-half the width of any other end tab in the set shall be in excess of the minimum required side-lap between the joints of adjacent strips and the most proximate slot in the strip overlying said joint when the strips of a number of said sets are laid in overlapping courses, and whereby the end tabs of the strips in one course will overlie the end tabs of the course below.

2. A roofing set comprising a plurality of roofing strips, each strip of the set being provided with a plurality of slots defining shingle simulating tabs, the end tabs of each strip in the set differing in width from each other and from the end tabs of other strips in the set and being of such width that the difference between the width of any end tab in the

set and one-half the width of any other end tab in the set shall be in excess of the minimum required side-lap between the joints of adjacent strips in one course and the most proximate slot in the strip overlying said join when the strips of a number of said sets are laid in successive overlapping courses, and whereby the end tabs of the strips in one course will overlie the end tabs of the course below.

3. A roofing set comprising a plurality of roofing strips, each strip of the set being provided with a plurality of vertical slots defining shingle simulating tabs, the inner tabs of each strip differing in width from the end tabs thereof and the end tabs of each strip differing in width from corresponding end tabs of other strips in the set, and the end tabs of all of the strips in the set being of such width that he difference between the width of any end tab in the set and one-half the width of any other end tab in the set shall be sufficient to provide the requisite side-lap between joints of adjacent strips in one course and the most proximate slot in the strip overlying said joint when the strips of a number of said sets are laid in successive overlapping courses, and whereby the end tabs of the strips in one course will overlie the end tabs of the course below.

4. A roofing set comprising a plurality of roofing strips, each strip of the set being provided with a plurality of tab-defining slots, said set being composed of complemental strips, the end tabs of each strip being different in width from each other and from the corresponding end tab of another strip in the set, the wider tabs of each pair lying on opposite sides of the narrowest tab thereof, the said tabs of the strips comprising the set being so dimensioned in width and arranged in the strip as to prevent any of the slots coming in close proximity to joints between underlying strips when the shingles composed of the sets are laid upon the roof and with the end tabs of the strips of one course overlying the end tabs of the course below.

5. A roofing set comprising a plurality of roofing strips, each strip of the set being provided with a plurality of tab-defining slots, said set being composed of a plurality of pairs of complemental strips, the inner tabs of each complemental pair being narrower than the end tabs thereof and the end tabs of each pair being of such width that the difference between the width of any end tab in the set and one-half the width of any other end tab in the set shall be sufficient to provide the requisite side-lap between the joints of the adjacent strips in one course and the most proximate slot in the strip overlying said joint when the strips are laid in overlapping courses with the end tabs of the strips in one course overlying the end tabs of the course below.

6. A roofing set comprising a plurality of roofing strips, each strip of the set being provided with a plurality of tab-defining slots, said set being composed of a plurality of pairs of complemental strips, the tabs of one of said pairs differing in width from the corresponding tabs of another of said pairs, and the end tabs of each pair being of such width that the difference between the width of any end tab in the set and one-half the width of any other end tab in the set shall be sufficient to provide the requisite side-lap between joints of adjacent strips in one course and the most proximate slot in the strip overlying said joint when the strips of a number of said sets are laid in successive overlapping courses, with the end tabs of the strips of one of said courses overlying the end tabs of the course below.

Signed at Rutherford in the county of Bergen and State of New Jersey, this thirtieth day of April, A. D. 1929.

HOWARD L. LEVIN.

Signed at Boston, in the county of Suffolk, and State of Massachusetts, this 6th day of May, 1929.

FRANK H. NEHER.