

Aug. 5, 1930.

J. C. BERGNER

1,771,990

ROOF COVERING

Filed Jan. 4, 1927

2 Sheets-Sheet 1

FIG. I.

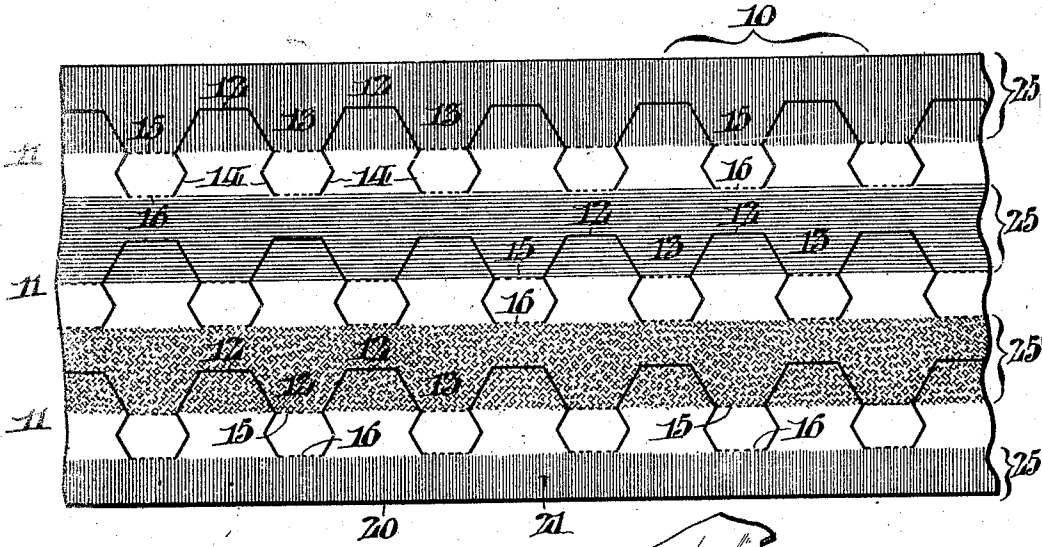


FIG. II.

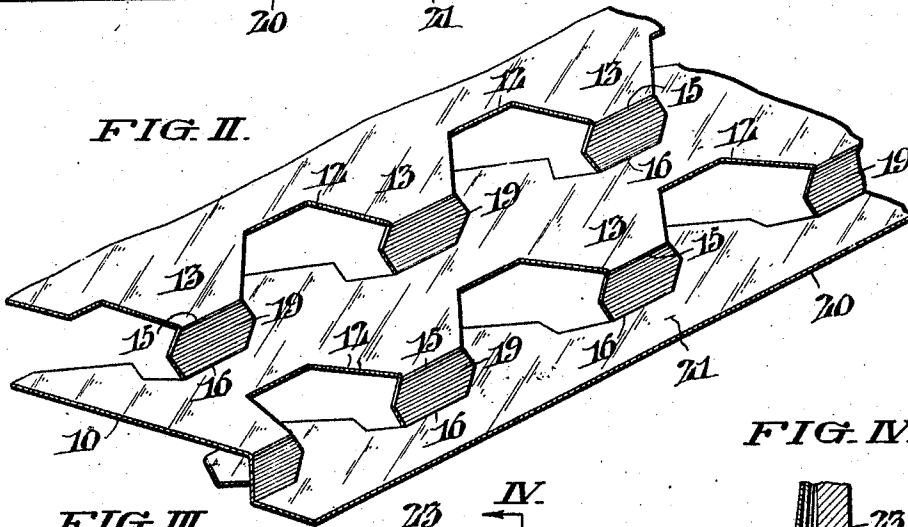


FIG. III.

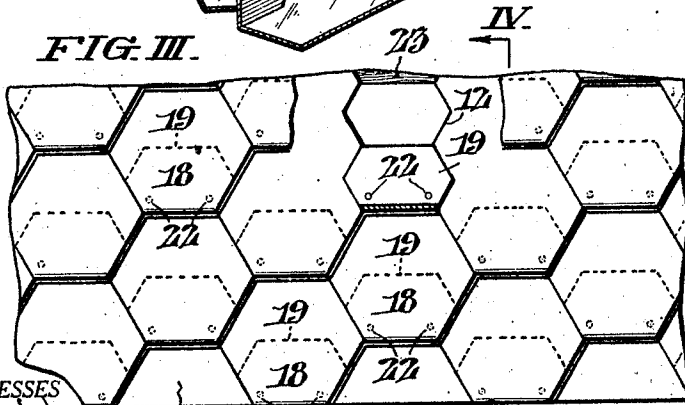
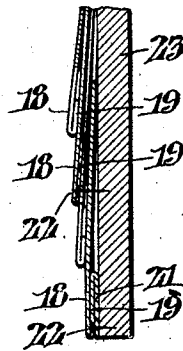


FIG. IV.



WITNESSES

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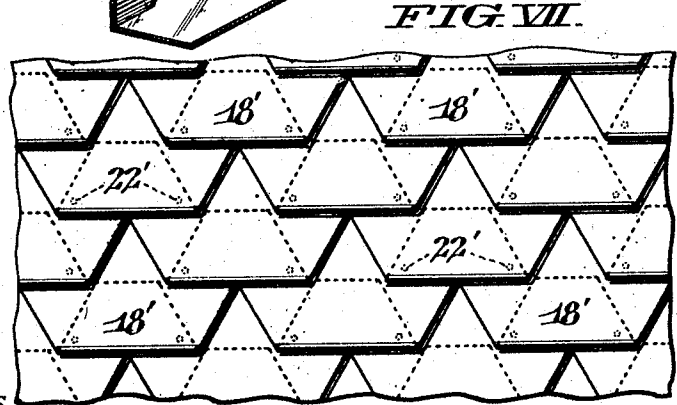
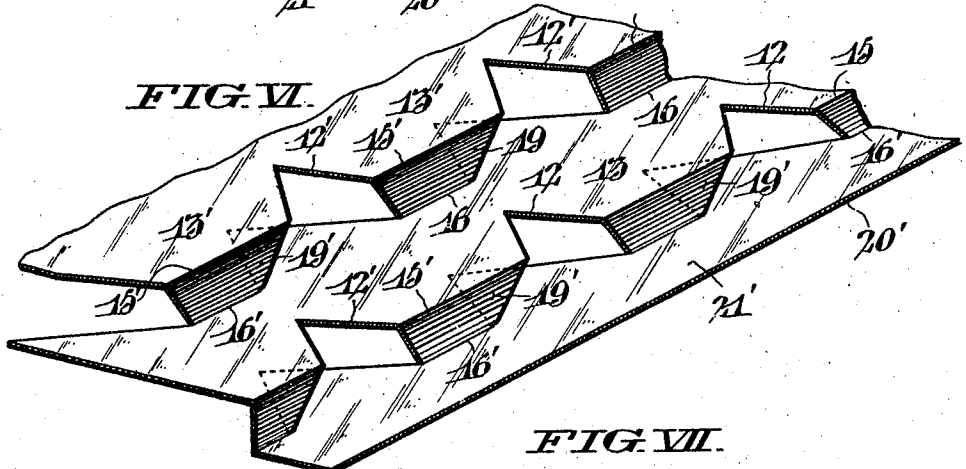
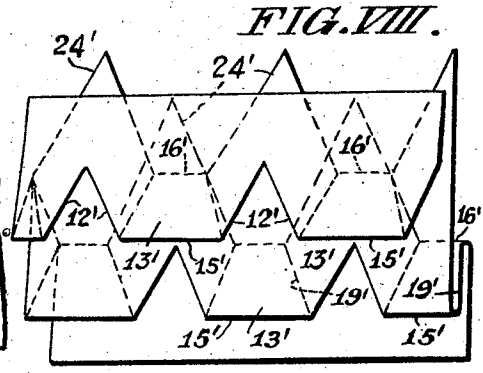
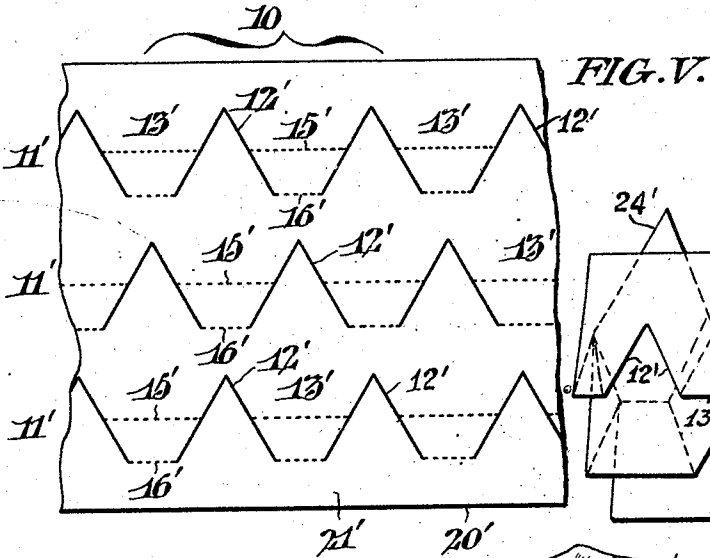
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ROOF COVERING

Filed Jan. 4, 1927

2 Sheets-Sheet 2



WITNESSES  
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# UNITED STATES PATENT OFFICE

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## ROOF COVERING

Application filed January 4, 1927. Serial No. 158,844.

This invention relates to roof coverings,— more particularly to so called “prepared roofings” fabricated from bitumen-impregnated sheet material, and coated with ornamental and weather-resistant granular mineral surfacing such as crushed slate, brick, etc., depending upon the color desired in the finished roof. Roofing of the kind referred to is ordinarily marketed in two different forms, to wit: in continuous sheets, and as separate (or strip) shingles of various shapes. The first mentioned variety lends itself to ready packing in rolls for convenience in shipping, and is easily laid; whereas the second variety, while giving a very much improved appearance in the finished roof, requires considerable skill and time in laying, and is comparatively more difficult and expensive to pack.

The main object of my invention is to retain the advantages of the continuous variety of prepared roofing, and at the same time to secure in the finished roof the artistic effects of the individual (or strip) shingle type. This desideratum I attain by providing continuous sheet material with spaced longitudinal rows of cuts separated by uncut intervals, and by folding the material, incidentally to laying, along longitudinal lines extending across the uncut intervals thereby to determine formation of successive courses of staggered overlappingly-arranged tips in simulation of a roof covering composed of individually laid shingles.

Other objects and attendant advantages of my invention will become apparent from the detailed description which follows in connection with the drawings, whereof Fig. I shows the roofing as it comes from the fabricating machine.

Fig. II is a perspective view of a fragment of the roofing showing the manner in which the folds are made incidentally to laying.

Fig. III is a fragmentary illustration of a completed roof covering in accordance with my invention.

Fig. IV is a sectional view taken as indicated by the arrows IV—IV in Fig. III.

Figs. V, VI and VII are illustrations similar to Figs. I, II, and III showing a slight modification of my invention.

Fig. VIII is a diagrammatic perspective view illustrating the relationships of the elements of the second modification.

Confining attention first to the embodiment shown in Figs. I—IV inclusive, 10 indicates the continuous flexible base sheet material which may be of suitably prepared bitumen-saturated paper ordinarily known in the art as “felt”. The sheet 10 may, moreover, be of any desired width, and, as shown, is formed with spaced parallel longitudinally-extending rows 11 of cuts 12 which are separated by uncut intervals 13. These cuts 12 are angular in configuration, resembling, in the instance under consideration, incomplete hexagons with divergent terminal spurs 14; and it will be noted that the cuts in one row alternate with those of immediately adjacent rows. Incidentally to laying the material on the substructure of a roof, it is folded, as illustrated in Fig. II, along lines 15—16 extending across the uncut intervals 13, one such fold being, in each instance made in one direction, and the other fold in the opposite direction. Such folding predetermines formation of successive courses of overlapping tips 18 (Fig. III) arranged in staggered relation as between the courses. It will be remarked that the three major edges of the cuts 12 are exposed after the folding, and define, in conjunction with the edges of tips 18 in subjacent courses, polygonal areas,— in the present instance in imitation of separately-laid hexagonal shingles as shown in Fig. III. It will also be observed that as a further consequence of the described manner of folding, the tips 18 are rendered double in thickness by virtue of the irregular hexagonal retroversions 19.

The roofing may be conveniently secured to the substructure of the roof as follows: The lower edge 20 of the strip 10 is first properly aligned, and the contiguous margin 21 made to serve as a starting strip. Then, upon completion of the first fold along the line 16, suitable fastening means, such as nails 22, are passed through retroversions 19 and the margin 21 (which they now overlie), into the substructure 23 of the roof. When the next fold is made in the opposite direction

along the line 15, the nail heads are overlapped and concealed by the top layer constituting the tips 18. With successive repetitions of the procedure just described a roof such as depicted in Fig. III is ultimately produced, the nails 22 used in securing the successive folds, not only passing through the retroversions 19, but also through underlying parts as will be manifest from Fig. IV. Aside from the protection afforded by the triple thickness of the material in the regions of the exposed tip areas, the lines of demarcation in the finished roof are sharply accentuated thereby greatly enhancing the shadow effect.

With regard to the mineral surfacing—this may be applied over the whole surface of the sheet 10, or, better still, over longitudinal bands 25 of a width to insure covering of those areas which are exposed after folding. If color contrast is desired between adjacent courses of the exposed tips, this may be had by employing surface granules of different materials in the respective bands 25 after the scheme conventionally shown by the line shading in Fig. I.

The embodiment of my invention illustrated in Figs. V, VI and VII, in which elements corresponding to those of the preceding modification are designated by corresponding numerals characterized by primes, is generally similar to the preceding except that here the cuts 12' have but two components meeting in acute angles. As before, the cuts 12' are staggered as regards adjacent rows; and the folding is similarly done along lines 15'—16' extending across the intervening uncut intervals 13'. The resultant geometric effect in the finished roof is however quite different as will be apparent from Fig. VII.

Reference to Fig. VIII will illustrate the features of the finished roofing common to both modifications, and also serves to illustrate such variations as may be made without departing from the spirit of the invention. It will be seen that each cut out portion between cuts 12' is backed up by a large upward extension of material 24' whereby any leakage of rain through the roofing is most effectively prevented. In the modifications cut and folded as shown, the upper tip of each cut out portion is on a level with a fold 16' so that water entering horizontally would not get over that fold. But it will be obvious that the material may be arranged with folds 16' below the tips of the openings with a resultant saving of material and still very little chance of leakage over the folds. At any rate it will be noted that portions 24' will at least partially underlie the folds.

One outstanding advantage of my improved roofing is that it can be readily manufactured with the usual type of machinery employed in this art, i. e., the blank base strip may be continuously passed, while still hot,

between cooperative die rollers with sharpened edges appropriately configured to make the cuts, and the differently colored surface granules concurrently applied through gravitation from separate compartments of an overlying transverse hopper. For the purpose of facilitating subsequent laying, the material may at the same time be creased or scored on opposite sides in accordance with the direction in which the bends are to be made. Such scoring may be accomplished by provision, on the cutting rollers, of suitable edges; or by a separate pair of rollers, as found most expedient in practice.

While I have herein shown and described but two alternative forms of the roofing, it is obvious that my invention is susceptible of numerous other variations capable of being attained through diversification in the shape of the cuts and in the order of folding.

Having thus described my invention, I claim:

1. A surface covering consisting of a sheet of material folded into at least three plies, one of the plies constituting a shingle strip having a plurality of shingle portions along its lower edge and having its lower edge cut away between a pair of adjacent shingle portions, a second ply forming connecting portions underlying the shingle strip and connected to the lower edge of the shingle strip, a third ply underlying the connecting portions and joined at its upper edge to the connecting portions along a fold line, and a section extending upwardly from the upper edge of the third ply beyond said fold line and beyond the upper extremity of the cut away zone between the adjacent shingle portions and underlying the shingle strip.

2. A sheet of material adapted to be folded to form a surface covering having a series of similar cuts therein the ends of which cuts lie in a line, the cuts extending to a line parallel to the first line, said sheet having a second series of similar cuts therein similarly located with respect to a second pair of lines parallel to the first pair, the cuts in the second series being in staggered relationship with the cuts in the first series, and the distance between adjacent lines of the pairs being no greater than the distance between the lines of a pair.

3. A surface covering consisting of a sheet of material folded into at least three plies, one of the plies constituting a shingle strip having a plurality of shingle portions along its lower edge and having its lower edge cut away between a pair of adjacent shingle portions, a second ply forming connecting portions underlying the shingle strip and connected to the lower edge of the shingle strip, said second ply being cut away to prevent the exposure of any portions thereof through the cut away zone in the shingle strip, and a third ply underlying the connecting por-

tions and joined at its upper edge to the connecting portions, the third ply having a free straight lower edge at the bottoms of said shingle portions and having portions exposed through the cut away zones in the shingle strip.

4. A surface covering consisting of a sheet of material formed with at least two successive folds resulting in a bottom ply, an intermediate ply, and a top ply, the top ply constituting a shingle strip having a plurality of shingle portions along its lower edge and having its lower edge cut away between a pair of adjacent shingle portions, the intermediate ply underlying the shingle strip and connected to the lower edge of said shingle strip at one fold and to the upper edge of the bottom ply at the other fold, and a section extending upwardly from the said upper edge of the bottom ply beyond said other fold and beyond the upper extremity of the cut away zone between the adjacent shingle portions of said strip so as to underlie the said strip.

5. A surface covering constructed from sheet material with parallel rows of longitudinally spaced cuts forming partially closed figures, said rows provided with two folds, one of the folds intersecting the cuts and the other fold passing through the cuts adjacent their ends.

6. A surface covering constructed from sheet material with parallel rows of longitudinally spaced cuts forming partially closed figures, said rows provided with two folds, one of the folds intersecting the cuts and the other fold passing through the cuts adjacent their ends, the said cuts in adjacent rows being staggered.

7. A sheet of material adapted to be folded to form a surface covering having a series of spaced cuts therein forming partially closed figures the ends of which cuts lie in a line, and having a similar second series of cuts the ends of which lie in a line parallel to the first line, the cuts in the second series being in staggered relationship with the cuts in the first series and extending more than half way from the said second parallel line to the first line, a portion of material extending between the ends of each cut from the line joining said ends inwardly of the figure formed by the cut.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 31st day of December, 1926.

JOHN C. BERGNER.