

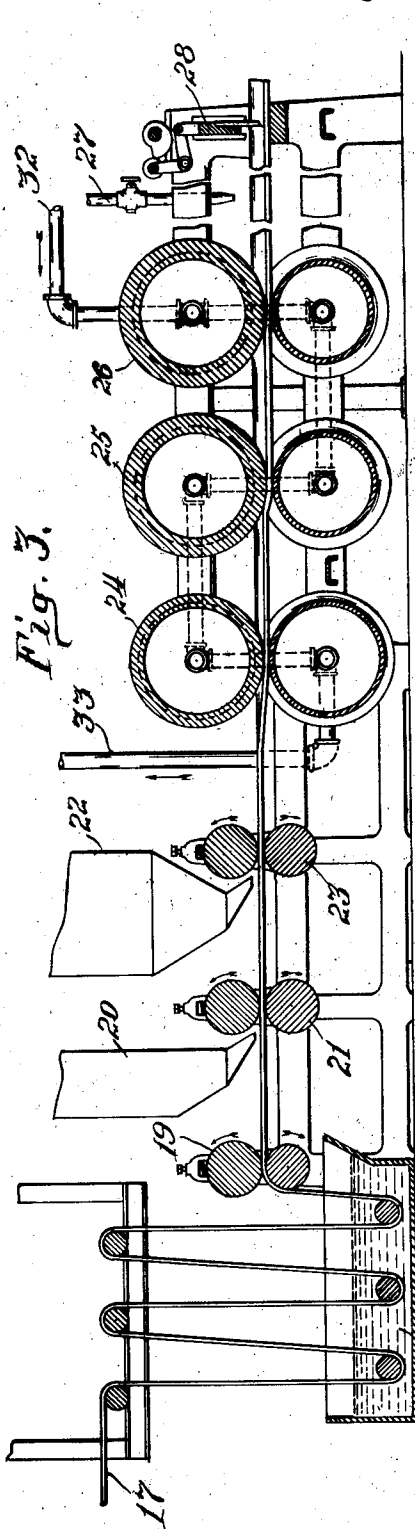
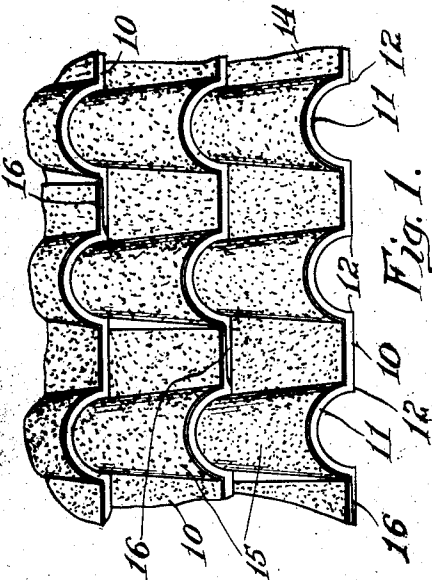
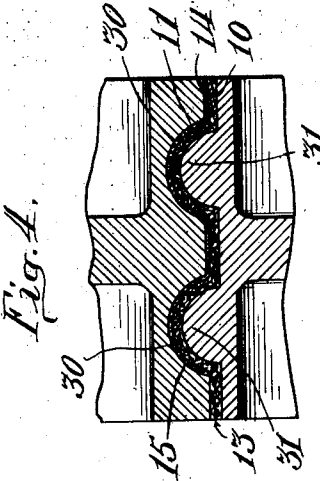
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ROOFING AND PROCESS OF MAKING THE SAME

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UNITED STATES PATENT OFFICE

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ROOFING AND PROCESS OF MAKING THE SAME

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This invention relates to building material commonly called prepared roofing and the process of making the same. Its principal object is to produce such material with form and character that will permit its use in substitution for and imitation of roofing tile.

In the accompanying drawings—

Fig. 1 is a plan view of a portion of the roof embodying the invention;

10 Fig. 2 is a side elevation of one of the strips used in making the roof shown in Fig. 1;

Fig. 3 is a diagrammatic side elevation illustrating the process of producing the strip shown in Fig. 2; and

15 Fig. 4 is a sectional view of fragments of the forming rollers.

The roof shown in Fig. 1 is composed of a plurality of strips, or units, each of which includes flat portions 10 and convex or concave ridges 11 between the flat portions. In this preferred form the ridges are circular and join the flat portions so as to make relatively sharp corners 12.

Each strip is composed of a foundation layer of felt 13 impregnated with a filler stiff at summer sun temperature, preferably an asphaltic water proof compound. Over this is a coating of adhesive asphalt 14, and embedded in the asphalt is a layer of grit 15. 30 The adhesive coating and grit are omitted from one of the marginal flat portions 10 which is to be covered by the corresponding marginal portion on the next adjacent strip, thus making joints corresponding with those indicated at 16, Fig. 1.

The strips are nailed to the roof through each of the flat portions where they are covered by the corresponding portions in the next course. In two of the flat portions of the strip shown the nails are confined to approximately one-half the width of the strip, but on the uncoated flat portions additional nails may be added where they will be covered by the overlapping portion of the next adjacent strip in the same course.

50 In Fig. 3, 17 indicates a continuous sheet of foundation felt which, in the process of manufacture, is passed successively through the impregnating asphaltic compound 18, wringer rolls 19, under a source of coating

compound 20, through wringer rolls 21, under a source of grit 22, through wringer rolls 23, through a series of forming rolls 24, 25, 26, under a spray of cold water 27, and finally under a knife 28.

The felt may be of the so-called "rag" variety, commonly used in making prepared roofing, but should be 80 to 100 point, depending upon the stiffness of the impregnating compound and the span of the curved portions 11 of the finished product. The asphaltic impregnating compound best known at the present time consists of gilsonite No. 1, sixty percent (60%); resin, grade G. R. H., twenty percent (20%), and asphaltum oils of 100 penetration, twenty percent (20%). These ingredients may be mixed in any suitable manner, with any suitable apparatus, but the compound should be at about 400° F. when the felt is passed through it.

The adhesive coating of asphalt may be of the composition commonly used in the manufacture of prepared roofing and the grit may be of any desired character, a great variety of which is in common use.

In the process of manufacture the operations up to and through the rolls 23 will be of the same character as those performed in the manufacture of ordinary roofing.

The forming rolls 24, 25 and 26 are provided with complementary grooves and ribs 30 and 31 (Fig. 4) for producing the desired profile in the roofing, and this, of course, may be varied to suit individual preference as to appearance.

As a rule three sets of forming rolls, graduated, are necessary to properly form the profile without injuring the material. The rolls should also be cooled, and in the diagrammatic apparatus this is accomplished by water-pipes 32 and 33 with the intermediate connections necessary for a continuous flow in series from the rollers 26, through the rollers 24. Thus the successive pairs of rollers will be gradually cooled as the material proceeds. After leaving the rollers 26 the cooling spray 27 will practically complete the cooling.

The means 20 and 22 for supplying the adhesive coating and the grit may be readily ar-

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ranged to skip a marginal area corresponding to one of the flat portions 10.

The roofing produced in accordance with this invention is stiff and strong enough to retain its tile-like profile through summer temperature, and when being laid at normal temperatures it will support the workmen in substantially the same manner as earthenware tile.

By proper selection of grit the roofing may be given the colors ordinarily found in tile, and thus further simulate the appearance of tile.

It has heretofore been attempted to simulate the appearance of tile in prepared roofing by the use of shades on the surface in connection with ridges and depressions formed in the adhesive coating and grit, as shown for example in patent to McKay, No. 1,208,595 of December 12, 1916.

It has also been attempted to make felt roofing with corrugations by substituting for the asphaltic impregnating compounds a chrome-gelatine composition, as described in the patent to Knoch, No. 650,578 of October 30, 1900.

Also it has been proposed to form the foundation of imitation tile from metal and apply the adhesive coating and grit thereto as shown in patent to Smith, No. 1,513,940 of November 4, 1924.

The invention here disclosed is easily distinguishable from those and results in roofing so closely resembling tile roofing in appearance as to escape the detection of the ordinary observer and at the same time affording the advantages of economical manufacture and handling common to prepared roofing in its usual forms.

The roofing is made up in the form of strips, each comprising a plurality of tile-like units. A number of strips piled together bound in a bundle can easily be handled in commerce or upon the roof. In laying, a first course of ordinary rolled roofing may be placed along the lower edge of the roof and the first course of tile strips laid with its lower edge adjacent to our projecting from the lower edge of the roof deck. The several strips in a course will be overlapped on the flat portions and each course will be overlapped by the course above. Generally speaking, strips ten inches wide, lapped five inches, are to be preferred.

I claim as my invention:—

1. The process of making prepared roofing which includes impregnating a heavy felt with an asphaltic waterproof compound stiff at summer sun temperature, coating the impregnated felt with a layer of adhesive asphalt, embedding grit in said layer, and corrugating the sheet lengthwise into arcuate corrugations and cutting it transversely.

2. The herein described method of making roofing material, which comprises impreg-

nating a felt sheet with a fluid filler material stiff at summer sun temperature, forming a corrugation in the impregnated sheet before the filler material becomes stiff, and permitting the impregnated and corrugated sheet to cool to atmospheric temperature and the filler material to become stiff, whereby the filler material will render the corrugation self-supporting.

3. The herein described method of making corrugated roofing material, which comprises feeding a strip of felt through a bath of filler material which is stiff at summer sun temperature, then continuously forming a corrugation in the impregnated strip longitudinally thereof, then cutting the impregnated and corrugated portion of the strip transversely of the corrugation into sections, and then permitting the impregnated and corrugated sections to cool to atmospheric temperature, whereby the filler material will render the corrugations self-supporting at summer sun temperature.

4. The herein described method of making corrugated roofing material, which comprises impregnating a felt sheet with a fluid waterproofing material that is stiff at summer sun temperature, forming a corrugation in the impregnated sheet before the waterproofing material becomes stiff, and permitting the impregnated and corrugated sheet to cool to atmospheric temperature and the waterproofing material to become stiff, whereby the waterproofing material will render the corrugation self-supporting.

5. The herein described method of making corrugated roofing material, which comprises feeding a strip of felt through a bath of waterproofing material which is stiff at summer sun temperature, then continuously forming a corrugation in the impregnated strip longitudinally thereof, then cutting the impregnated and corrugated portion of the strip transversely of the corrugation into sections, and then permitting the impregnated and corrugated sections to cool to atmospheric temperature, whereby the waterproofing material will render the corrugations self-supporting at summer sun temperature.

6. The herein described method of making roofing material, which comprises continuously feeding a strip of felt through a bath of waterproofing material maintained at about 400° Fahrenheit and which is stiff at summer sun temperature, then continuously feeding the impregnated strip through forming rolls having a pass including a convexo-concave portion and straight portions at opposite sides of the convexo-concave portion and lying in one and the same plane, then cutting the impregnated strip transversely into tile sections, and then permitting the sections to cool to atmospheric temperature, whereby the corrugation formed by the

convexo-concave portion of the pass will be self-supporting at summer sun temperature.

7. The herein described method of making roofing material which comprises continuously feeding a strip of felt through a bath of filler material stiff at summer sun temperature, then rolling longitudinal open-ended and spaced corrugations longitudinally of the impregnated strip, then cutting the strip transversely into sections, and then permitting the sections to cool to atmospheric temperature, whereby the corrugations will be self-supporting at summer sun temperature.

8. Corrugated felt roofing material impregnated with a filler material stiff at summer sun temperature, each corrugation being in the form of a hollow open-ended convexo-concave bend extending from one edge to the opposite edge of the material, and flat flange portions extending longitudinally of the corrugation at opposite sides thereof and through the length of the corrugation and lying in one and the same plane and constituting the base of the roofing, the filler material rendering the corrugated portion self-supporting at summer sun temperature.

9. Corrugated felt roofing material impregnated with a filler material stiff at summer sun temperature, and including about sixty per cent. gilsonite, each corrugation being in the form of a hollow open-ended convexo-concave bend extending from one edge to the opposite edge of the roofing, flat flange portions extending longitudinally of the corrugation at opposite sides thereof and through the length of the corrugation and lying in one and the same plane and constituting the base of the roofing, the filler material rendering the corrugated portion of the tile self-supporting at summer sun temperature.

10. Corrugated felt roofing material impregnated with a water-proofing material stiff at summer sun temperature and including gilsonite sixty percent., resin twenty per cent. and asphaltum oils of 100% penetration, twenty percent, each corrugation being in the form of a hollow open-ended convexo-concave bend extending from one edge to the opposite edge of the roofing, flat flange portions extending longitudinally of the corrugation at opposite sides thereof and through the length of the corrugation and lying in one and the same plane and constituting the base of the roofing, the filler material rendering the corrugated portion of the tile self-supporting at summer sun temperature.

11. The herein described method of making roofing material, which comprises continuously feeding a strip of felt through a bath of water-proofing material maintained at about 400° Fahrenheit and which is stiff at summer sun temperature and including gilsonite sixty percent., resin twenty percent. and asphaltum oils of 100 penetration twenty

per cent., then continuously feeding the impregnated strip through forming rolls having a pass including a convexo-concave portion and straight portions at opposite sides of the convexo-concave portion and lying in one and the same plane, then cutting the impregnated strip transversely into sections, and then permitting the sections to cool to atmospheric temperature, whereby the corrugation formed by the convexo-concave portion of the pass will be self-supporting at summer sun temperature.

12. As an article of manufacture, a prepared corrugated roofing strip comprising a thick strip of felt impregnated with a compound consisting of sixty percent. gilsonite, twenty percent. resin, and twenty percent. heavy asphaltum oils, said impregnating compound being stiff at summer sun temperature and thereby rendering the corrugated portion self-supporting.

13. Roofing material comprising a corrugated felt sheet impregnated with a fluid water-proof filler stiff at summer sun temperature, said filler rendering the corrugated portion stiff and self-sustaining at summer sun temperature and also stiff enough at normal temperatures to support workmen walking thereon.

14. Roofing material comprising a corrugated felt sheet impregnated with a fluid water-proof filler stiff at summer sun temperature and including gilsonite sixty per cent, resin twenty per cent and asphaltum oils of 100% penetration twenty per cent, said filler rendering the corrugated portion stiff and self-sustaining at summer sun temperature and also stiff enough at normal temperatures to support workmen walking thereon.

15. Roofing material comprising a corrugated felt sheet impregnated with a fluid water-proof filler stiff at summer sun temperature, each corrugation being in the form of a hollow open-ended convexo-concave bend of arcuate cross-section extending from edge to edge of the sheet, there being flat flange portions extending longitudinally of the corrugation at opposite sides thereof and throughout the length of the corrugation, the flanges lying in one and the same plane and constituting the base of the roofing material, said filler rendering the corrugated portion stiff and self-sustaining at summer sun temperature and also stiff enough at normal temperature to support workmen walking thereon.

16. The continuous method of making roofing material, which consists in passing a continuous sheet of roofing felt continuously and successively through a filler bath which is stiff at summer sun temperature, then between wringer rolls, then to an adhesive coating compound, then through wringer rolls, then to a discharge of grit, then between wringer rolls, then through

forming rolls having passes shaped to produce corrugations longitudinally of the sheet, then to a spray of cooling water, and then to means for cutting the sheet transversely of the corrugations.

In testimony whereof I affix my signature.

LOWELL F. LINDLEY.