Nov. 25, 1930. L. KIRSCHBRAUN 1,782,535

METHOD OF EDGE FINISHING FABRICATED ROOFING ELEMENTS

Filed July 31, 1926

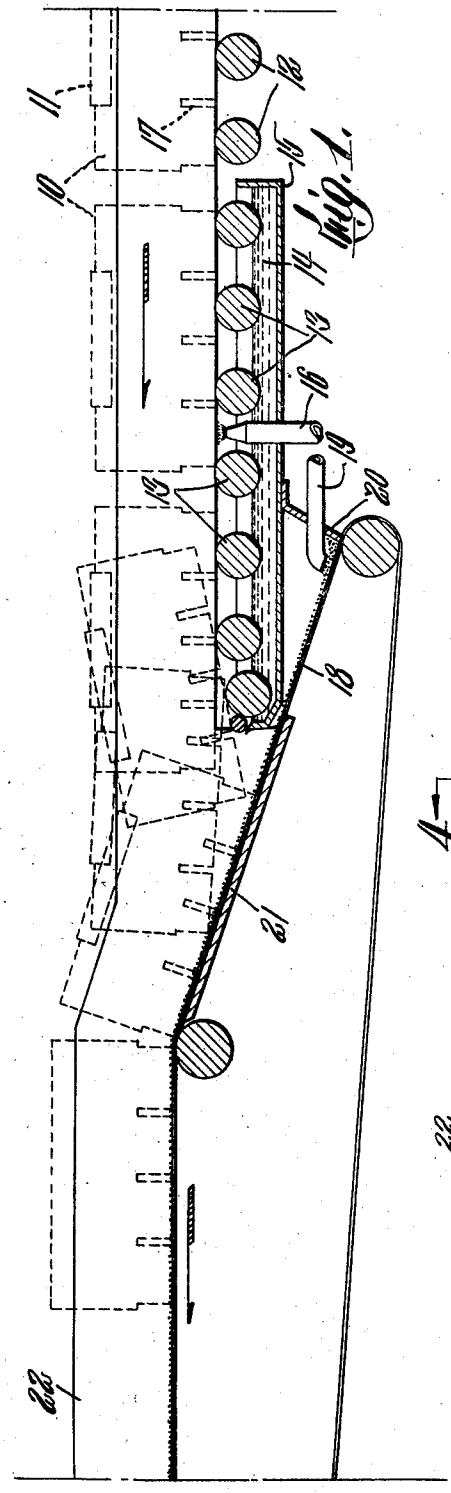


Fig. 1.

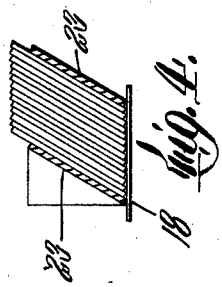


Fig. 4.

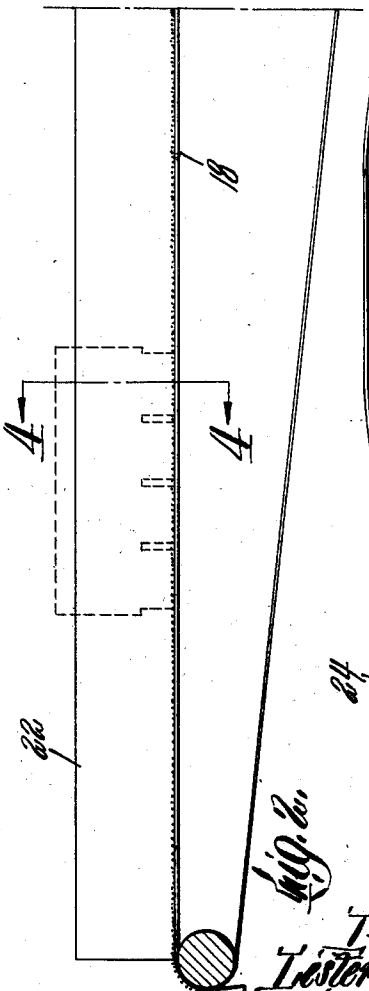


Fig. 2.

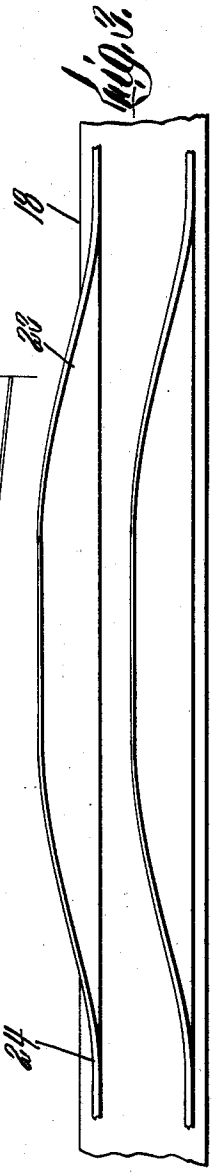


Fig. 3.

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UNITED STATES PATENT OFFICE

LESTER KIRSCHBRAUN, OF LEONIA, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PATENT AND LICENSING CORPORATION, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

METHOD OF EDGE FINISHING FABRICATED ROOFING ELEMENTS

Application filed July 31, 1926. Serial No. 126,277.

This invention relates to fabricated roofing elements, and more particularly to a method for finishing such elements by sealing and slating the cut edges of the material which are to be exposed to the weather when the element is laid.

Roofing of the type referred to is ordinarily manufactured of felted fibrous sheet material such as is made on a paper-making machine of rag or asbestos fiber or the like. This felted sheet base is impregnated with liquefied asphalt and is thereafter coated on one or both sides with a layer of blown asphalt which by reason of its tough rubbery consistency and relatively high melting point affords a high degree of waterproof protection to the sheet. To protect the asphalt coating from the action of the weather, a masking layer of comminuted material is customarily applied, the material for this purpose usually employed being crushed slate, grit or other suitable granular material. This grit is applied to the asphalt coating while the latter is still hot and sticky so as to form a firm bond between the grit and the asphalt which will hold the grit firmly in place on the surface of the sheet. The grit is at the same time rolled or otherwise pressed into intimate contact with the asphalt and the sheet is thereafter cooled, whereupon it is ready to be cut into individual elements of suitable shapes by slitting, slotting or otherwise. According to present practice, individual roofing elements which are thus cut from the coated and grit-covered sheet are packaged and sold in that condition as finished articles ready to be laid on a roof. Such elements, however, by reason of their cut edges expose ends of cut fibers to the weather along the butt edges of the elements, through which moisture may be absorbed or dried out together with residual volatile constituents of the impregnating compound in the sheet. These effects coupled with the action of varying temperatures and frost cause the elements to warp and curl, and the fibrous base to "sponge" or "bulk", greatly shortening the life of the roofing. In order to prevent the access of moisture to the interior of the elements through the exposed cut edges and to prevent the drying out of moisture and the volatile constituents in the same way, it is desirable to seal these edges with a layer of waterproof material such as asphalt and to surface the edge-sealing layer of asphalt with grit both to protect the asphalt on the edge from the action of light and to improve the appearance of the finished roofing element. By using asphalt having a sufficiently low melting point, e. g., approximately 150° F., and applying a sufficiently thick edge coating, a further advantageous effect is obtained after the roof has been laid due to the adhesion of the edge coating with the course beneath under the action of solar heat. It is found that an edging of such asphalt will sag sufficiently to rest against the course next below and make a tighter and more weatherproof roof, but that the amount of asphalt present in such an edging will not be sufficient to run down the face of the underlying course.

In carrying out my invention, I manufacture roofing elements in the manner described by cutting them to any desired shape from the impregnated, coated and grit-covered sheet. These individual units are then gathered together in face-to-face relation in much the same manner as they are now collected for packaging. Packaging boards may also be assembled with groups of the roofing elements. These groups of elements, with or without packaging boards, are then pressed tightly together either by the use of clamps or by wires, clips, or packaging strands of any kind. These package-sized groups of elements may be handled singly, or a number may be combined together in a single batch for treatment. The butt edges and the surfaces of the recesses cut into the butt edges of the shingles in each batch are then coated with hot asphalt having a melting point of approximately 150° F. While the asphalt is still hot and sticky, it is surfaced with grit or other suitable comminuted material. The bundles or packages may then be considered finished and may be shipped in such condition, the consumer breaking apart the shingles from the package as they are used. Since the face coating of the shingles is usu-

ally of asphalt having a melting point of 220°, when the shingles are broken away from each other, the lines of fracture will be through the edge coating of 150° melting-point asphalt, and the face coatings will not be broken, this effect being due to the different cohesive properties of the two kinds of asphalt. If, however, it be desired to have the edge coatings on each shingle set and hardened while separated from the edge coatings on the next adjacent shingles, I may separate individual shingles or distort the bundles to separate the edges. The shingle edges thus separated are again evened up flush after the edge coatings have sufficiently hardened, and the shingles may then be packaged for shipment.

The invention will be more completely understood by reference to the drawing, of which:—

Figures 1 and 2 are a diagrammatic side elevation of apparatus capable of carrying out the invention.

Figure 3 is a plan view of a portion of the apparatus shown in Figure 2.

Figure 4 is a section taken on the line 4—4 of Figure 2.

Referring to the drawing in detail, bundles or batches of strip shingles are represented at 10, each bundle being held together by any suitable means, such as a clamp 11. Figures 1 and 2 illustrate in dotted lines successive portions assumed by the bundles 10 in progressing through the apparatus. Instead of clamps or clips 11, the bundles may be held together by straps, wires, or any binding means, with or without thin boards on either side such as are customarily used in packaging strip shingles for shipment. The clamps conventionally indicated in the drawing are preferably extended downwardly to grip the bundle as near the butt edge as possible so as to hold the butt portions of the shingles in the bundle firmly together and thus to prevent the infiltration of edge-coating material between faces of adjacent shingles. The use of packaging boards helps to stiffen the bundle and to press the shingles together. The bundles 10 may be moved forwardly as by a series of driven rollers 12, from which they pass over a similar series of rollers 13 which are arranged to dip into a pool 14 of molten asphalt or other suitable waterproofing material contained in a suitable receptacle 15. The rollers 13 pick up a quantity of the coating material 14 on their peripheral surfaces and deposit the same on the butt edges of the shingles which pass thereover, the bundles of shingles being placed upon the rolls with butt edges down. The rolls 13 are also preferably driven in order to cause the bundles 10 to advance thereover. At one or more points between the ends of the receptacle 15, I provide a nozzle or series of nozzles 16, through which molten asphalt or other liquid waterproofing material is forced under pressure, so that jets of the coating material are thereby projected upwardly against the butt edges of the shingles and into the recesses 17 which may be cut in the shingles to extend upwardly from the butt edges thereof in order to define shingle-simulating tabs. Thus all the cut edges of the exposed portion of each shingle, including the butt edges and edges of the cut-outs, are thoroughly coated with waterproofing material. The nozzles are preferably disposed so that the jets therefrom will not play on the faces of the outer shingles of the bundles passing thereover. So also the outer faces of the boards, if used, will not be smeared with asphalt from the nozzles, but can be retained in the finished package for shipment. The bundles 10 then proceed to travel over the further edge of the receptacle, the rolls 13 at that end of the receptacle being positioned to assist in the transfer of the bundles 10 to the surface of a traveling belt 18 which is covered with a substantial layer of loose grit as by any suitable means such as conventionally indicated at 19. A shield plate 20 may be provided to prevent the grit from sliding off the belt as it emerges from the feed line 19. A suitable table or support 21 may be supplied to back up the belt at the point where the bundles are deposited thereon in order to prevent undue sagging of the belt. The weight of the bundle against the belt will thus serve to press sufficient of the loose grit into contact with the hot sticky coating on the butt edges to surface the coating completely with grit. The bundle may then be delivered to a suitable conveyor or packaging machine to be made up for shipment. To keep the bundles in line during their passage through the apparatus, I may provide a pair of guide plates 22 between which the bundles are adapted to travel over the rolls 12, 13 and on the conveyor 18. If it is preferred to have the individual edge coatings on the strip shingles harden when out of contact with each other, I may provide means for separating the butt edges temporarily to allow time for such hardening while setting. To this end, I twist the guide plates 22 as indicated in Figures 3 and 4 so that instead of being in vertical planes, they are both tilted to one side by the same angle as at 23, so that they retain their mutually parallel relation. When the coated edges of the shingles are to be separated, it is necessary to remove the clamps or clips 11 from the bundles after they have passed the nozzles 16. This may be done by hand or by apparatus suitable for the type of clamp employed. The tilting of the guide plates 22, as shown in Figure 4, causes an equal tilting and consequent distortion of the package of shingles, the latter being thereby caused to slide widthwise each upon the next, and thus to separate their butt edges. Since this separation of the butt edges

takes place while they are in contact with a body of loose grit, the lines of separation of the coating material on the edges will be surfaced with grit. The tilted portions of the guide plates 22 may be made as long as desired in order to give a sufficient time interval during the travel of the shingles therethrough to enable the edge coatings to set firmly. The guide plates 22 are then straightened to vertical position as at 24, thus restoring the edges of the shingles to their previous flush position and putting the bundle in condition for packaging for shipment.

Having thus described an embodiment of my invention, it should be evident to those skilled in the art that many changes and modifications may be made therein without departing from its spirit or scope as defined by the appended claims.

I claim:

1. A method of edge-finishing strip shingles, which comprises bundling a plurality of shingles in face-to-face relation with edges flush, coating the butt edges of the bundled shingles with plastic asphalt, surfacing the butt edges with grit, and separating the edges of adjacent shingles before the asphalt coating thereon sets.

2. A method of edge-finishing fabricated roofing elements, which comprises bundling a plurality of elements together in face-to-face relation with butt edges down, projecting jets of molten asphalt against said butt edges from below, and depositing the bundled elements on a body of loose grit, the coated butt edges being in direct contact therewith.

3. A method of edge-finishing fabricated roofing elements, which comprises bundling a plurality of elements together in face-to-face relation, clamping the bundled elements tightly together, projecting jets of molten asphalt against the butt edges from below, and surfacing said edges with grit while the coating is hot.

4. A method of edge-finishing strip shingles, which comprises bundling a plurality of shingles in face-to-face relation, coating the butt edges of the bundled shingles with molten asphalt, depositing the shingles on a body of loose grit, and causing each shingle to slide widthwise on the next adjacent shingle before the asphalt on the edges sets.

5. A method of edge-finishing strip shingles, which comprises bundling a plurality of shingles in face-to-face relation, coating the cut edges of the butt portions of the shingles with molten asphalt, depositing the bundled shingles on a body of loose grit, the butt edges being in contact therewith, and separating the coated edges by distorting the bundle while the butt edges remain in contact with the grit.

6. A method of edge-finishing strip shingles, which comprises bundling a plurality of shingles together in face-to-face relation with edges flush and butt edges down, clamping the bundled shingles tightly together, projecting molten asphalt upwardly against the bottom edges, depositing the bundle on a body of loose grit, unclamping the bundle, and tilting the shingles with respect to the plane of the grit while their butt edges remain in contact with the grit.

7. A method of edge-finishing strip shingles, which comprises bundling a plurality of shingles together in face-to-face relation with edges flush and butt edges down, advancing said bundled shingles in an edgewise direction, applying molten asphalt to said butt edges, depositing the bundle on a moving body of loose grit, and tilting the shingles while moving in contact with the grit to separate their butt edges.

In testimony whereof I have affixed my signature.

LESTER KIRSCHBRAUN.