Nov. 25, 1930. L. KIRSCHBRAUN 1,782,536

METHOD OF EDGE FINISHING FABRICATED ROOFING ELEMENTS

Filed July 31, 1926

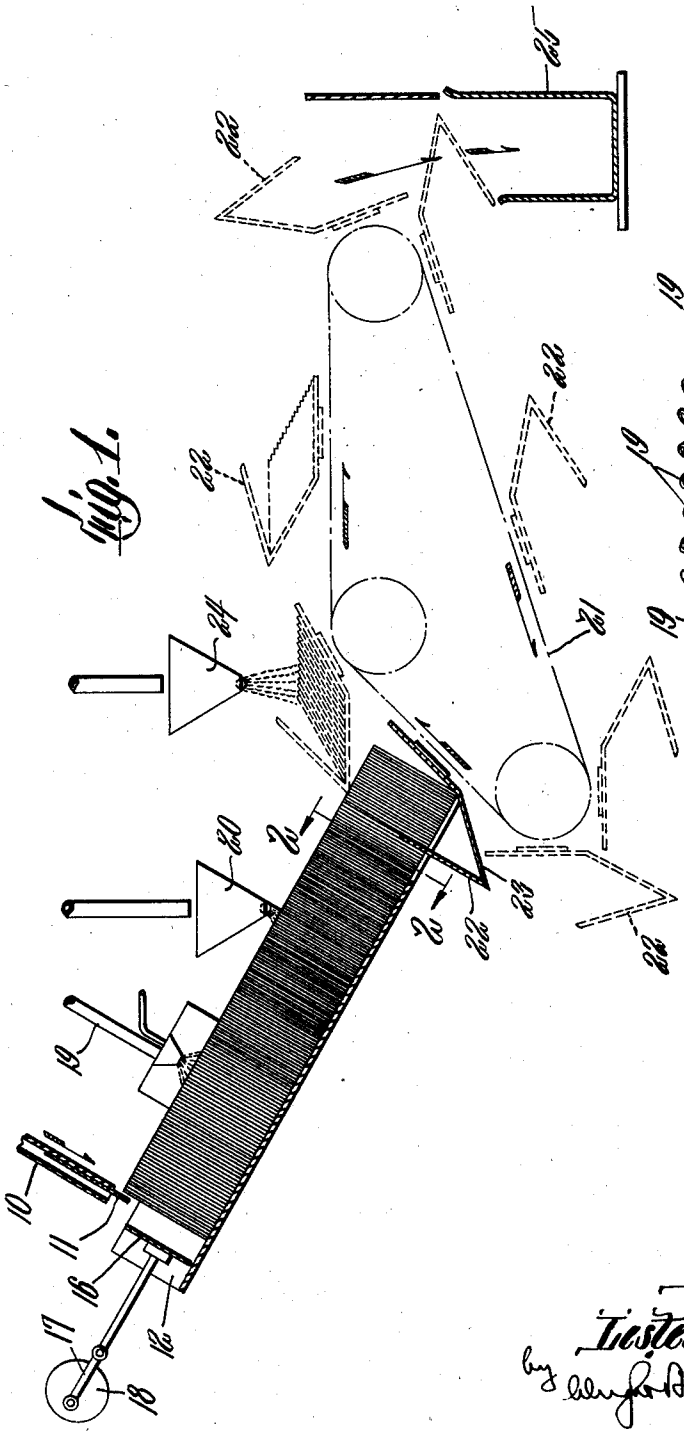


Fig. 1.

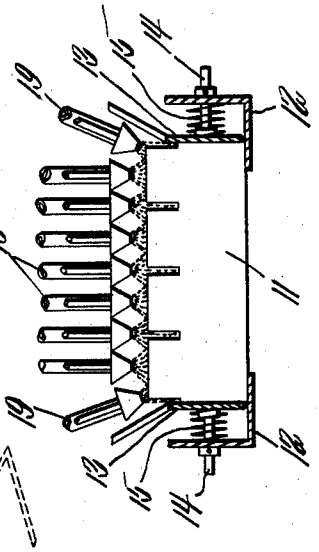


Fig. 2.

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UNITED STATES PATENT OFFICE

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METHOD OF EDGE FINISHING FABRICATED ROOFING ELEMENTS

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This invention relates to fabricated roofing material such as is usually made of felted fibrous sheet which is impregnated with a waterproofing compound and subsequently coated with an impervious material, such as blown asphalt, and surfaced with grit, crushed slate, tile or brick, or other equivalent comminuted material. The invention relates more particularly to a method for finishing individual roofing elements which have been cut from such roofing material by coating and surfacing with grit the cut edges which result from the operation of cutting the sheet into elements of the desired shape.

Heretofore it has been customary to put on the market strip shingles or roofing elements of various shapes as they are cut from sheets of roofing material which have been manufactured as previously described. The cut edges, however, where exposed to the weather are found to afford access of moisture to the interior of the element through the cut ends of fibers at the exposed edges. This permits the absorption of considerable moisture in wet weather and a similar drying out of moisture and residual volatile constituents of the impregnating compound from the elements in dry weather. These effects greatly shorten the life of the element and tend to cause curling of the edges which makes a roof composed of such elements unsightly and less weatherproof.

By my invention, I provide a method for sealing the cut edges of the individual elements in a manner to form impervious envelopes enclosing the exposed portions of the element. In order to protect the coating applied to the edges from the action of light and weather, I surface the coated edges with grit or similar granular material, this grit being preferably the same as that used to surface the sheet.

For a more complete understanding of my invention, reference may be had to the drawing, of which:—

Figure 1 is a diagrammatic representation of apparatus for carrying out the invention, some of the apparatus being indicated in section.

Figure 2 is a section on the line 2—2 of Figure 1.

On the drawing, 10 represents a chute or other device by which fabricated strip shingles 11 which have been cut from a saturated, coated and slated sheet, as described, may be deposited edgewise in a trough 12. The strip shingles 11 are received in the trough in face-to-face relation with their edges flush and their butt edges upward, their head edges resting on the bottom of the trough. Side bars or plates 13 extending substantially the entire length of the trough may be provided to press resiliently against the ends of the shingles 11 and to provide a considerable frictional resistance to motion thereof down the trough. These side bars 13 may be provided with short guide rods 14 projecting laterally therefrom and extending through suitable apertures in the upright side portions of the trough 12. Adjustable compression springs 15 around the guide rods 14 and between the side bars 13 and the sides of the trough 12 serve to provide the resilient pressure of the bars 13 against the end edges of the shingle elements. The side bars 13 are preferably somewhat flexible and are provided with springs 15 at frequent intervals to permit regulation of pressure against the ends of the shingles at a number of points along the trough. In order to feed the shingles down the trough 12, any suitable mechanism may be provided. As shown in the illustration, a reciprocating pusher element 16 may be connected by a crank 17 to a driven wheel 18, whereby the pusher 16 is given reciprocating motion. By timing the introduction of shingles 11 into the trough with the reciprocations of the pusher 16, the whole body of shingles in the trough will be pushed down by the thickness of the shingles introduced into the trough between strokes of the pusher. The function of the side plates 13 is to provide sufficient resistance to the action of the pusher 16 to insure the shingles being held with their faces closely pressed together while they are in the trough. This is necessary to prevent the infiltration between the shingles of coating material which is applied to the edges. As the body of shingles

is moved down the trough, the butt edges which as shown in Figure 2 are held uppermost, are sprayed as by a series of atomizers 19 with an emulsion or solution of a suitable waterproofing material. The atomizers are preferably arranged to cover thoroughly all the cut edges of the butts of the shingles and of the cut-outs, if any, the supply of coating material fed to the atomizers being preferably adjusted to be sufficient for a uniform coating of the desired thickness over all the exposed edges of the shingles without excess. Among the various materials which can be atomized in this manner, a preferred form is an aqueous emulsion as asphalt, pitch, or other bituminous compound, known in the art as "K—B". An emulsion may comprise a dispersion of asphalt of about 150° melting point with a dispersing agent such as clay, bentonite, or other colloidal mineral powder, and can be supplied in any desired consistency. For this purpose, it is found that a somewhat heavy creamy consistency is preferable since in this condition the emulsion readily forms a reasonably thick coating which dries out in a short space of time and thus becomes permanently fixed. It is a characteristic of the dry film resulting from the removal of water from this type of emulsion that it will not run or be affected by solar heat of a degree which would cause the asphalt prior to dispersion to flow. After the edges have been sprayed with emulsion so as to coat them completely, grit may be applied thereto as from a suitable hopper 20. This grit is preferably preheated in order to hasten the drying out of the layer of emulsion. The grit when dropped upon the emulsion layer will partially embed itself in the creamy material and when the latter is dry will be firmly held in place. It is preferable to separate the edge coatings during their final stage of drying out to avoid sticking together of the edges when adjacent shingles are removed from the bundle, and also to allow the edge coatings to set in better shape and to permit the application of grit to the fractured surfaces of the emulsion caused by such separation of the edges. This separation may be readily carried out by hand, if desired, the operator taking a convenient number of elements from the trough 12 and causing each shingle to slide widthwise a small distance upon the next adjacent one so that the coated edges of the shingles taken assume an echelon formation and the individual edge coatings are separated from each other. In this position, additional hot grit may be applied to the fractured surfaces of the edge coatings which are then allowed to complete their drying and setting, after which the elements may be packaged for shipment. Instead of carrying out these steps by hand, suitable mechanism may be provided for accomplishing the same result. As shown, a conveyor 21 may be provided with one or more carriers 22 secured thereto, these carriers having sloping bottoms 23. In Figure 1, a carrier is shown in the act of picking up a number of the shingles from the trough 12. In the same figure, subsequent successive positions of the carrier 22 are indicated in dotted lines. Toward the lower end of the trough 12, the central portion of the floor of the trough is cut out as indicated in Figure 2 to enable the carrier 22 to pass between the two sides of the trough 12 and to pick up a number of shingles therefrom without interfering with the trough. The sloping bottom 23 of the carrier 22 as will be seen from the drawing, is adapted to engage the individual shingles successively in its upward path so that they will be spread out into echelon formation as indicated. At a suitable point in the travel of the carrier 22, additional grit may be deposited as from a suitable hopper 24 to coat the fractured surfaces of the edge coatings and thus to provide a continuity of grit surfacing over the face and exposed edges of each shingle. This grit is also preferably preheated to hasten the drying out of the emulsion. The carrier 22 with its load of shingles after travelling a sufficient length of time to insure a complete drying out of the edge coating deposits the shingles in a suitable conveyor 25 which may be of any convenient type, the shingles then being ready for packaging for shipment. If preferred, the carrier 22 may be constructed to pick up groups of shingles without causing them to slide on each other. In such case, the edge coating on a package of shingles would dry and set as a unitary covering on the edges. This stiffens the package to some extent. The boards customarily used in packaging shingles to protect the side faces of the outermost shingles and to stiffen the package may be inserted at this point or if desired may be supplied at the upper end of the trough, in the latter case two boards being inserted together periodically in the trough after a desired number of shingles for a package have been deposited therein.

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-coating fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation, applying a coating of waterproof material to the butt edges, and separating the coated edges of the elements before packaging.

2. A method of edge-coating fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-

face relation, applying to the butt edges an aqueous dispersion of heat-liquefiable waterproofing material containing a colloidal powder, and separating the edges of said elements before the emulsion thereon is set.

3. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation, applying a coating of waterproofing material to the butt edges, separating the coated edges before the coating material has set, and allowing the coating material to set while the edges are so separated.

4. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation, coating the butt edges with aqueous emulsion of bitumen, separating the coated edges while the emulsion coating is wet, and allowing the coating to dry while the coated edges are separated.

5. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of elements in face-to-face relation with edges flush, coating the butt edges with an aqueous emulsion of asphalt, applying grit to the coating, and causing each element to slide widthwise on the face of the adjacent element before said coating dries.

6. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation with edges flush, spraying the butt edges with an aqueous emulsion of asphalt, applying grit to said edges while the emulsion thereon is wet, separating said edges, applying additional grit to the separated edges, and allowing the emulsion on the edges to dry while the edges are separated.

7. A method of edge-finishing fabricated roofing elements, which comprises assembling said elements successively in face-to-face engagement with edges flush, pressing said elements firmly together, applying a coating of waterproofing material to the butt edges thereof, surfacing the coating with grit, removing a group of edge-coated shingles from the assembly, separating the coated edges of the shingles in the group, applying additional grit to the separated edges, and allowing the coating material to set while the edges are so separated.

8. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation, applying a coating of waterproofing material to the butt edges of the assembled elements, and causing each of said elements to slide on the face of the next adjacent element before the coating on the edges sets.

9. A method of edge-finishing fabricated roofing elements, which comprises assembling a plurality of said elements in face-to-face relation, applying a coating of waterproofing material to butt edges of the assembled elements, surfacing said coating with grit, and causing each of said elements to slide on the face of the next adjacent element before said waterproofing material sets.

In testimony whereof I have affixed my signature.

LESTER KIRSCHBRAUN.