

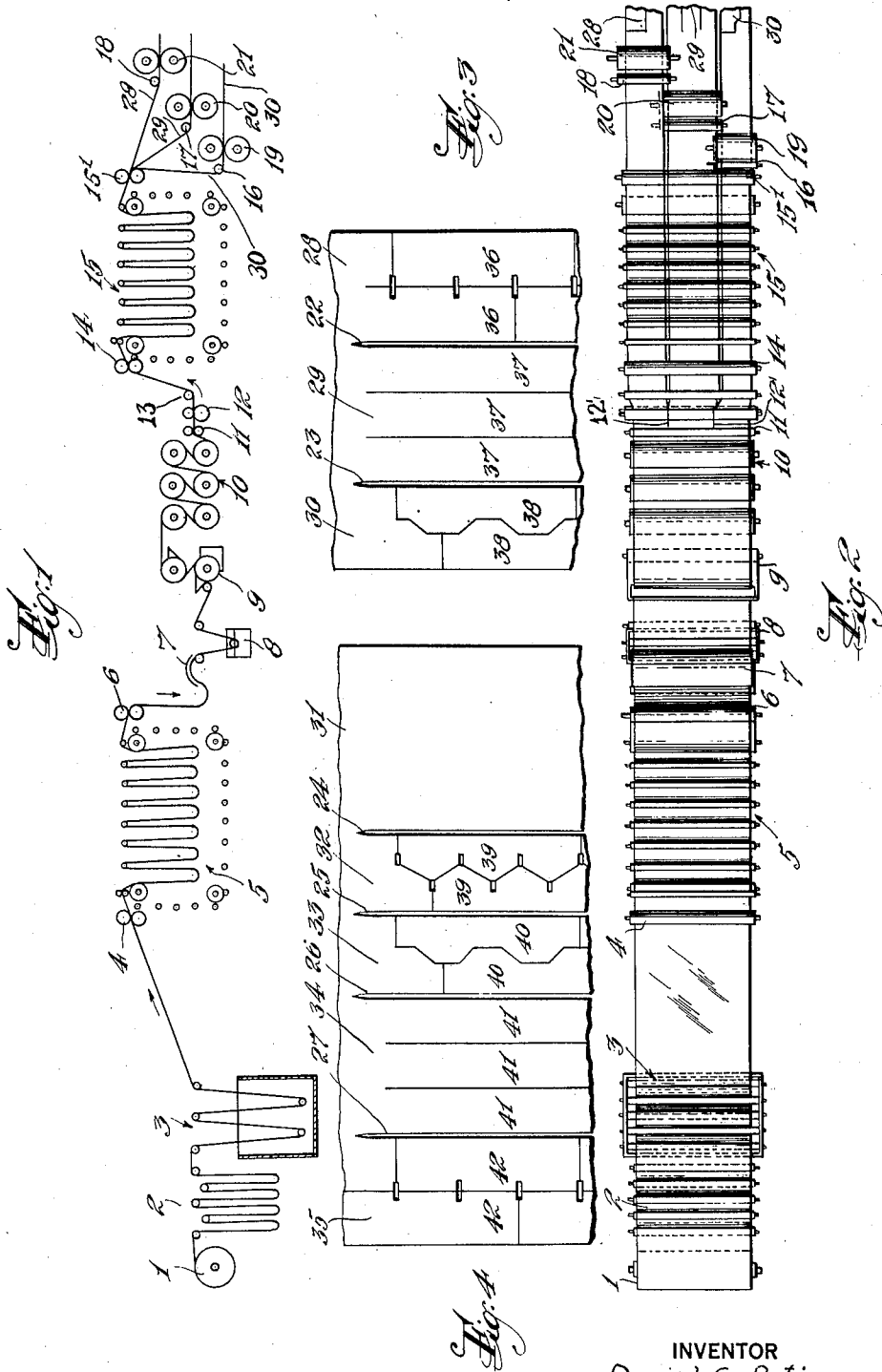
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METHOD AND APPARATUS FOR MAKING ROOFING

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METHOD AND APPARATUS FOR MAKING  
ROOFING

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This invention relates to a method of and apparatus for simultaneously producing a plurality of differently designed shingles, shingle strips and roll roofing from a single sheet of flexible fibrous material.

The initial cost of machinery and building space is considerable where several independent machines are used for cutting roofing of different forms or variety. If one machine could be made to serve to simultaneously produce shingles of various sizes and shapes, an enormous saving in production would be realized.

One of the objects of my invention is to provide a method and apparatus for simultaneously producing a variety of flexible building elements by means of a single machine.

Another object of my invention is to provide a method and apparatus which permits flexibility in operation whereby the proportions of the various elements being produced can be readily changed and controlled.

Other advantages attending my invention will be manifest from the following description and from the accompanying drawing of which,

Figure 1 is a diagrammatic side view of the apparatus;

Figure 2 is a plan view of the apparatus shown in Figure 1;

Figure 3 illustrates a sheet of fibrous material cut into a variety of strips; and

Figure 4 illustrates a wider sheet of fibrous material than shown in Figure 3 cut into a variety of shingle strips.

Referring to Figures 1 and 2, the numeral 1 indicates a roll of flexible fibrous material, 2 is a looper or festooning device, 3 is a saturator, 4 designates draw rolls, 5 is another looper, 6 represents another set of draw rolls, 7 is a guide table, 8 is the coating device, 9 is a device for surfacing the sheet with granular material and 10 designates the cooling drums. Up to this point the apparatus is conventional and saturating and coating steps may either be carried out with hot asphalt or cold asphalt emulsion while the surfacing may be effected with slate or other gritty surfacing material.

From the cooling drums, the web passes between guide rolls 11 to a slitting mechanism 12 carrying the slitting knives 12' which slit the web longitudinally into a plurality of separate sheets. The circular slitting knives 12' are movably mounted on a shaft in order that their positions on the shaft may be changed and thereby change the widths of the several sheets slit from the initial web. The number of knives may also

be varied if it is desired to slit the web into a larger or smaller number of sheets. The sheets pass under idle roll 13 to draw rolls 14 through the looper or accumulator 15. The sheets are fed between guide rolls 15' around individual guide rolls 16, 17 and 18 and to the cutters 19, 20 and 21 respectively. There is a pair of these rolls 15' for each cutting member used. The number of feed rolls and cutting members may be larger or smaller than shown. The looper 15 is provided to allow for variations in the speed at which the individual sheets pass through the individual cutters and also to permit any individual cutter to be stopped temporarily. Any device which will serve the same purpose may be substituted for the looper. Individual cutting machines may be placed behind each other to allow clearance for each sheet or the cutting machines may be placed above each other. As shown in Figure 2, the individual cutting devices and feed rolls are of the same width as the sheets threaded therethrough. However, the individual feed rolls and cutting devices may extend the entire width of the machine. The latter arrangement provides greater flexibility in operation since any one or combination of the several sheets may be threaded through any desired cutting device. All the cutting members may be mounted on a single frame structure with the individual cutting members arranged above or behind each other or both above and behind each other in order that each sheet may be threaded through the cutter to which it is fed without interference from the adjacent sheets or cutters. The finished strips or shingles issue from the cutters and are conveyed away to be packed or subjected to further treatment.

Referring to Figure 3 it will be apparent that the web need not necessarily be slit into sheets of equal widths but may be slit along lines 22 and 23 to form sheets 28, 29, 30 of different widths, or when a wider web is used as indicated in Figure 4, it may be slit along lines 24, 25, 26 and 27 to form sheets 31, 32, 33, 34 and 35. Shingles or strips of any desired design may be cut from each sheet and several laterally adjacent rows of shingles or shingle strips of the same design may be cut from each sheet as shown at 36, 37, 38, 39, 40, 41 and 42.

It is obvious that when each cutting device extends across the entire width of the machine the apparatus offers great flexibility since the relative amounts of strips or shingles of different designs can be varied at will either by changing the distance between the slitting knives 12 and thereby changing the width of the sheets threaded through respective cutters, or by causing a smaller

number of sheets to pass through one cutter than through another of different design or by changing both the width and the number of sheets passing through respective cutters.

- 5 The various cutting devices and the looper are well known in the art and require no detailed description.

The apparatus and method of cutting shingles or shingle strips by my invention is designed to substitute one machine, with its attendant saving in installation, maintenance and labor, for the plurality of machines now in use for accomplishing the same result. In some instances it may be necessary to use a wider web than previously and the apparatus must necessarily be constructed of greater width.

The apparatus shown is merely diagrammatic and this invention is intended to cover any method, apparatus or combination of apparatus which will produce simultaneously and continuously from a single flexible web of material, a plurality of shingles or shingle strips of different shapes or sizes.

I claim as my invention:

- 25 1. A roofing machine comprising, in combination, a web conveying device, a slitting device and a plurality of differently designed cutting devices each of said design-cutting devices being arranged to operate upon a predetermined portion of the widthwise dimension of said web.

30 2. A roofing machine comprising, in combination, a web conveying means, a plurality of slitting devices and a plurality of differently designed cutting devices each of said design-cutting devices being arranged to operate upon a predetermined portion of the widthwise dimension of said web.

3. Apparatus for simultaneously cutting flexible building elements of different designs, from a continuous web of flexible material comprising, web conveying means, a plurality of slitter knives, a plurality of cutting devices of different designs and means for feeding sections of the web slit therefrom by said slitter knives to any

- 45 4. In a system for simultaneously cutting a plurality of differently designed building elements from a single continuous web of flexible material, the combination of slitting knives to divide the web longitudinally into a plurality of sheets, an accumulator, feed rolls intermediate the slitting knives and accumulator, cutting devices and a plurality of guide rolls for feeding individual sheets from the accumulator to selected ones of said cutting devices.

5. In a roofing machine, the combination of means for conveying a continuous web of flexible material, slitting knives for slitting the web longitudinally into a plurality of sheets, a looper, means for feeding the sheets from the slitting knives to the looper, a plurality of cutting elements of different designs and guiding means intermediate the looper and cutting elements to guide the sheets slit from the web by said slitting knives to selected ones of said cutting elements.

6. In a roofing machine, the combination of means for conveying a continuous web of flexible material, slitting knives for slitting the web longitudinally into a plurality of sheets, an accumulator, means for feeding the sheets from the slitting knives to the accumulator, a plurality of differently designed cutting elements and a plurality of guide rolls for feeding individual sheets slit from the web by said slitting knives to selected ones of said cutting elements.

7. The method of simultaneously producing a plurality of shingles or shingle strips of different designs from a single continuous web of flexible material comprising, slitting the web longitudinally into a plurality of sheets and simultaneously cutting shingles or shingle strips of different designs from selected ones of said sheets slit from the web.

8. A method of simultaneously producing a plurality of differently designed shingle strips from a single continuous web of flexible material comprising longitudinally slitting the web into a plurality of sheets, looping the sheets to provide for variations in speed at which they are fed to individual cutting elements and simultaneously cutting differently designed shingles or shingle strips from selected ones of said sheets slit from the web.

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