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METHOD OF PREPARING SELF-SEALING SHINGLES

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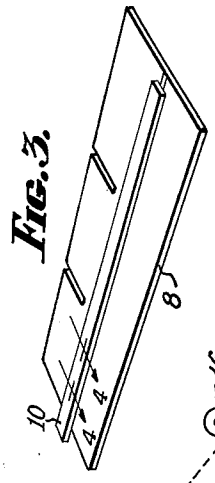
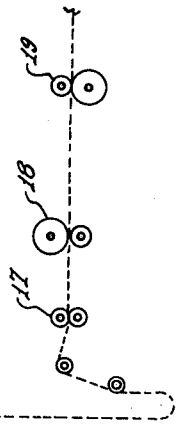


Fig. 3.



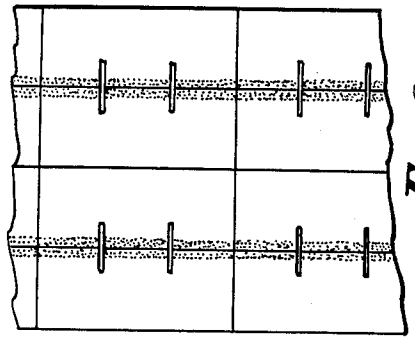


Fig. 6.

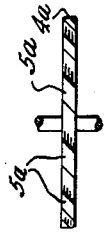


Fig. 5.



Fig. 4.

Fig. 2.

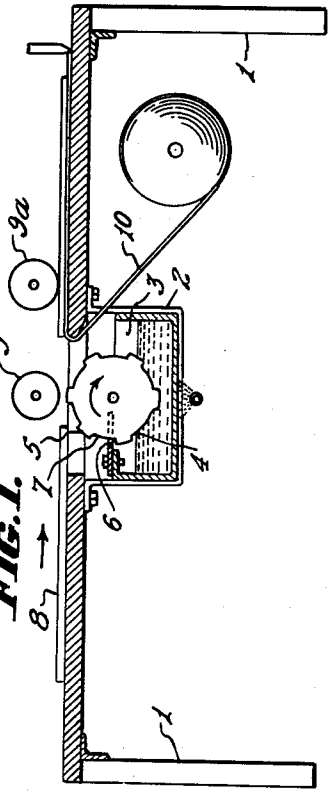


Fig. 1.

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METHOD OF PREPARING SELF-SEALING SHINGLES

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In our application, Serial No. 506,796, filed May 9, 1955, now abandoned, we have disclosed various modifications of seal-sealing shingles. These various modifications involve shingles having unexposed portions and exposure portions, the unexposed portions having pressure sensitive shingle cement extending across these unexposed portions in various patterns, usually consisting of bands formed from spaced gobs of cement, although the bands may be continuous stripes. Whatever the pattern a layer of a detachable covering is temporarily secured on the areas having the pressure sensitive shingle cement on them.

In laying the shingle the detachable coverings are pulled off and the shingles laid in the usual manner. Then the pressure sensitive cement in the unexposed areas of an underlying course of shingles forms a bond with the undersurface of overlying courses of shingles to seal them down against curling up or being affected by wind and weather. The adhesive bands are composed of spaced gobs, so that water will not be entrapped and may drain down and out between the gobs.

It is the object of our invention to provide a method and mechanism for mechanically preparing such self-sealing shingles which will permit their manufacture in accordance with practical large scale production manufacturing technique, and to provide a method and mechanism for preparing such self sealing shingles, if desired, after the shingles have been cut into individual shingles.

Our process as developed in its several modifications is adapted for commercial use in large scale continuous commercial manufacture. It enables us to produce these self-sealing shingles by inexpensive modifications of shingle cutting machines so that self-sealing shingles may be produced at no great additional expense.

In the drawings in which we have illustrated several modifications of our invention:

FIGURE 1 is a diagrammatic layout in side elevation of one form of apparatus which may be employed to carry out our method.

FIGURE 2 is a diagrammatic layout of a somewhat more complicated mechanism for carrying out our method.

FIGURE 3 is a perspective view of a shingle showing the way the tape is cut off spaced from the shingle edges.

FIGURE 4 is a section view taken along the lines 4—4 of FIGURE 3.

FIGURE 5 is a side elevation of a coating wheel which applies the adhesive in spaced gobs of parallelepipedous shape to form the sealing joint.

FIGURE 6 is a plan view of a section of shingle felt 48 in. wide showing how bands of sand or other gritty material are applied to make quick tack joints and how strip shingles may be cut from the web.

Referring first to FIGURE 1, the machine is mounted on table like supports **1**. Mounted on brackets **2** extending from the table frame there is a heated mastic applicator reservoir **3**. Within this reservoir there is a supply roll **4** preferably rotatable clockwise. On the roll **4** which dips into the supply reservoir there are arcuate elevated portions **5** which are wiped by a scraper **6** as the roll rotates. In Figure **5** there is illustrated a wheel **4a** having elevated portions **5a** which cause the

adhesive to be deposited in spaced gobs of parallelepipedous shape on the granule coated surface of the shingles.

The mastic or adhesive is carried by the unscraped arcuate areas **7** of the roll and as the shingles **8** are moved along on the upper surface of the table, granule coated surface down, bands of adhesive are deposited on the unexposed areas of the shingles. It will be obvious why the bands of adhesive are always applied to nonexposure areas of the shingles. While the adhesive may be applied underneath the butt ends of the shingles so that the butt ends will be sealed down when the shingles are laid, we find it preferable to apply the adhesive to unexposed areas of the granule surfaced face of the shingles. This offers less of a problem in laying because it does not require that the shingles be handled in more than one position. The roofer puts the shingle in position, pulls off the tapes and then lays courses over the shingles already laid and the cement holds down the overlying exposed portions of each successive course.

FIGURE 6 illustrates a portion of a 48 inch web of shingle material. Lines indicate the plan of cutting out two double rows of strip shingles butt to butt. When the web is being formed lengthwise bands of sand or other gritty material are applied to the web lengthwise thereof. The bands will be about three inches wide thereby allowing each shingle butt to be coated with gritty material in an area extending up about 1½ inches from the bottom of the shingle. This gritty area is on the under surfaces of the shingles and they form quick seals with the adhesive bands of underlying shingles.

We have further found that to prepare the under surface of the shingles for the best adhesive bond with the adhesive strips when the tapes are removed that it is good practice to apply a coating of sand or grit to cover those areas of the under surfaces of the shingles which are to make the bonds with the adhesive strips of the underlying shingles. This sanded area usually extends up at least an inch and a half from the lower exposed edges of the shingles. This sand is applied in bands lengthwise of the web.

Driven rolls **9** and **9a** cause the shingles to be fed along and, as noted, the shingles will be spaced apart.

As the shingles move away from the mastic band applicator roll a strip **10** of a detachable covering of slightly greater width than the adhesive band is fed into alignment with the adhesive coated areas of the shingle units.

It will be observed that the shingles are fed in spaced sequence along the table granule surface down. This makes it possible to cut the tape a short distance outwardly from the side edge of each shingle so that each piece of tape has an end tab which permits the roofer to easily pull off the tape before each shingle is laid. The pull off flaps will be on one side of the shingles. The roller illustrated in FIGURE 5 causes parallelepipedous gobs of cement to be deposited. When the tape is pulled off its withdrawal is smoother without a series of little jerks.

In FIGURE 2 there is illustrated a somewhat more complicated machine. In this modification the adhesive strips and tape are applied to asphalt roofing shingle unit material before the web of material is cut into shingles. Thus it will be noted that our process may be used on continuous webs of roofing material or on the shingles after they are cut. We refer to either the webs or individual shingles as shingle unit material.

The web of shingle unit material **8A** composed of a web of shingle felt coated with asphalt and having mineral granules applied to the surface of the web is fed along over the roller **9b** and then hangs down in the loop **11**. The web then passes to a driven roll which moves the web along to the guide roll **12**. Here the

granule coated surface of the web is down and does not become the upper surface until after the adhesive band is applied to the granule coated surface.

The band of sand or other gritty surfacing material is applied to the under or smooth surface of the material at that step in the web manufacture when the mica coating or other surfacing is applied to the balance of the area.

The mastic supply reservoir 3A has an applicator roll 4A which may be of similar construction to the roll 4 in FIGURE 1, or it may be constructed like the roll in FIGURE 5. A scraper blade 6A scrapes off the film from the raised arcuate areas and the adhesive in spaced splotches is applied to the unexposed granule coated surface of the web.

The web then passes over the feed roll 13 in which position the tape 10A is fed from one or the other of supply rolls 14, 15 of tape.

Thus the web is provided with spaced bands of adhesive covered with tape and pass to the pull rolls 16. It is preferable to apply spaced gobs of adhesive to form the band because a solid band would trap water under the overlying shingles.

The web again is draped in the form of loops and pass to the slitter knives which slit the web lengthwise into desirable widths such as 12 inch widths. Thus a 48 inch web makes four sets of shingles 12 inches wide. A diagram of such a cutting plan is shown in FIGURE 6. The slit webs then pass through the feed rollers of the tape cutting unit in which the knife blade carried by the cutter roller 18 cuts the tape in a position which will be slightly offset from the shingle edge so that the tape will extend from the side edge of the shingle as a pull tab which assists the roofer in pulling off the tapes as he applies the shingle to a roof. This, of course, may leave a small gob of adhesive at one edge of each shingle not covered with tape but this does not make the shingle units stick together.

The shingle cutter 19 which cuts the web into the usual strip shingles is the last operation before the shingles are stacked into bundles.

It will thus appear that our process and mechanism involves the application of adhesive bands normally consisting in a spaced series of gobs, as the roofing shingle unit material, be it a continuous web, or individual shingles, feeding in spaced position, move along, the subsequent application continuously of temporarily adherent tape to cover the band of adhesive and the subsequent cutting of the tape slightly offset from the shingle edge to provide pull tabs.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A method of preparing self-sealing granule surfaced asphalt roofing shingles, which includes the steps of moving a sheet of granule surfaced asphalt roofing material along a path, applying an adhesive in a lengthwise stripe to said sheet as it moves along said path, and subsequently as said sheet continues along said path

applying to said stripe a readily detachable tape, cutting said tape at a point slightly offset from the point at which said sheet material will be cut to define the shingle unit edge, and then cutting said sheet material into shingle units, whereby to provide a pull tab for removing the tape from each of said shingle units during the application thereof to a roof, the edge of each shingle unit opposite said pull tab having an exposed adhesive stripe portion of a length substantially equal to the length of said pull tab.

2. The method of claim 1, wherein the adhesive is applied to said sheet material in a stripe of spaced gobs.

3. A method of preparing self-sealing granule surfaced asphalt roofing shingles, which includes the steps of moving a sheet of granule surfaced roofing material along a path, applying a band of gritty mineral surfacing material lengthwise to the back surface of said sheet, applying a pressure sensitive adhesive in a lengthwise stripe to the granule surface of said sheet as it moves alog said path, and subsequently as said sheet material continues along said path, applying to said adhesive stripe a readily detachable tape, cutting said tape at a point slightly offset from the point at which said sheet material will be cut to define the shingle unit edge, and then cutting said sheet material into shingle units, whereby to provide a pull tab for removing the tape from each of said shingle units during the application thereof to a roof, the gritty band on the back surface of each shingle unit affording a quick seal with the adhesive stripe of a lapping shingle when a plurality of similar shingles are laid in lapping courses as a roof covering.

References Cited in the file of this patent

UNITED STATES PATENTS

1,265,315	Ford	May 7, 1918
1,376,215	Millard	Apr. 26, 1921
1,586,892	Fischer	June 1, 1926
1,592,760	Fischer	July 13, 1926
1,848,076	Fischer	Mar. 1, 1932
1,849,869	Fischer	Mar. 15, 1932
1,939,004	Fischer	Dec. 12, 1933
1,943,686	McGrew	Jan. 16, 1934
2,030,135	Carpenter	Feb. 11, 1936
2,142,194	Karfiol	Jan. 3, 1939
2,248,318	Van Cleef	July 8, 1941
2,255,123	McGee et al.	Sept. 9, 1941
2,284,563	Dillman et al.	May 26, 1942
2,334,381	Bronander	Nov. 16, 1943
2,484,045	Morgan	Oct. 11, 1949
2,552,159	Eason	May 8, 1951
2,588,580	Scruggs	Mar. 11, 1952
2,597,868	Hogue et al.	May 27, 1952
2,608,503	Meyer	Aug. 26, 1952
2,616,482	Barnes	Nov. 4, 1952
2,667,131	Clarvoe et al.	Jan. 26, 1954
2,744,046	Ware et al.	May 1, 1956
2,863,405	Leibrook et al.	Dec. 9, 1958