Sept. 17, 1963 E. R. WENGENROTH, JR 3,104,184

PROCESS OF MANUFACTURING INSULATION SIDING

Filed Dec. 26, 1957 2 Sheets-Sheet 1

Fig. 1.

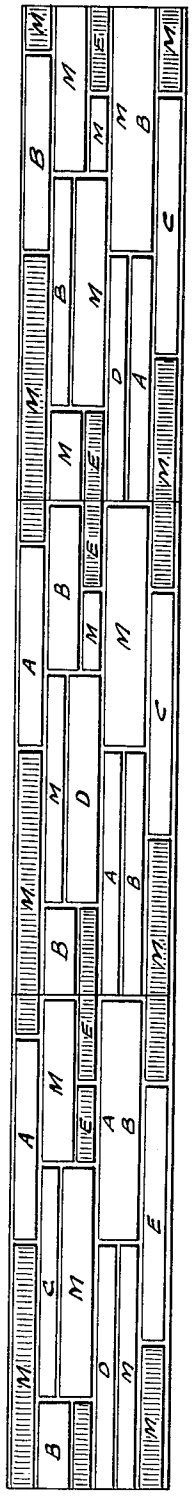
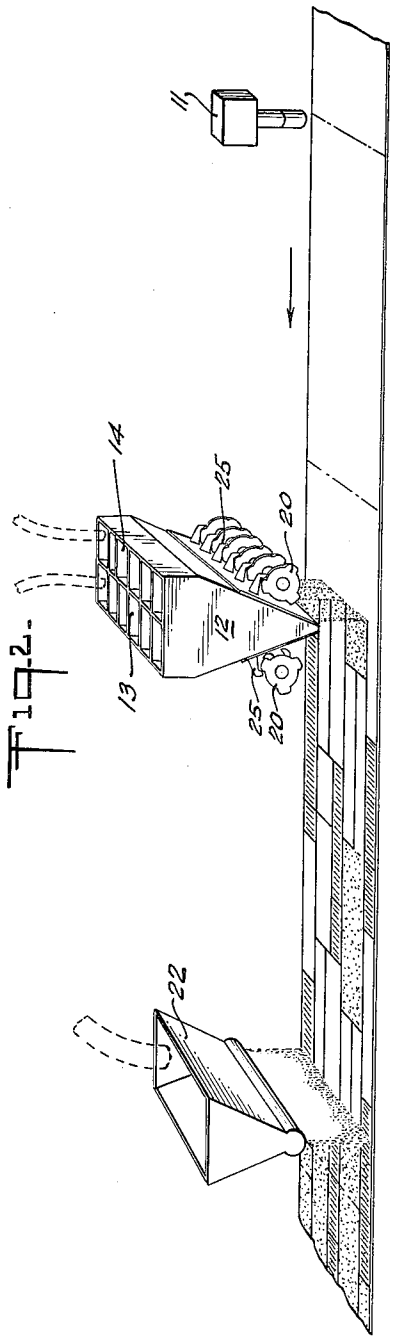


Fig. 2.



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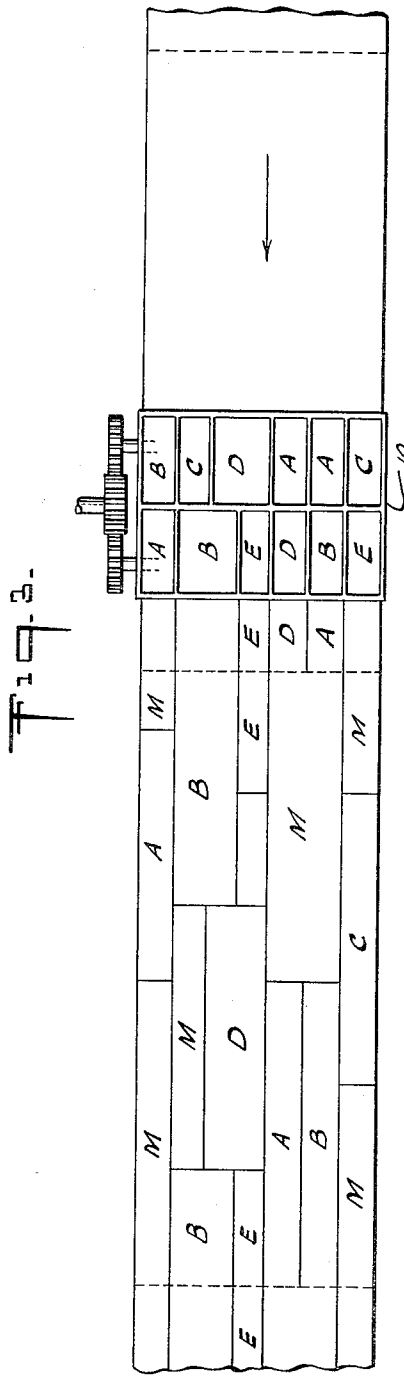


Fig. 3.

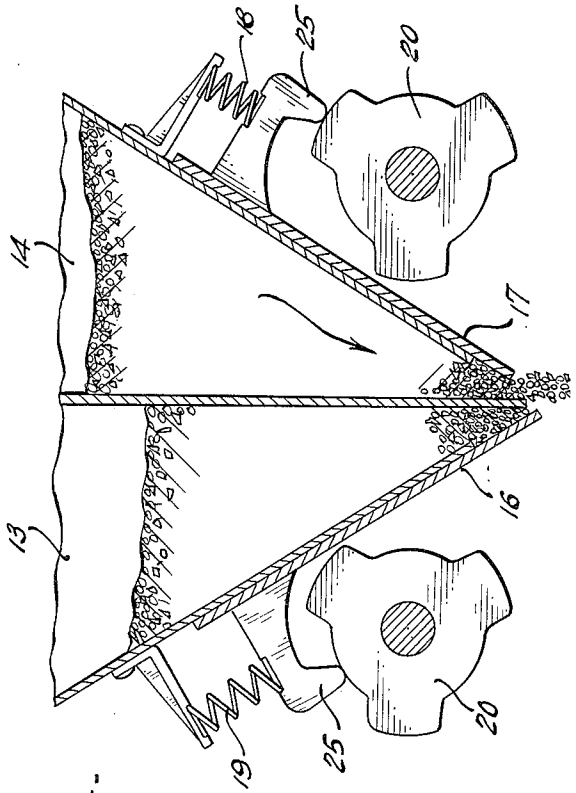


Fig. 4.

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United States Patent Office 3,104,184 Patented Sept. 17, 1963

3,104,184
PROCESS OF MANUFACTURING INSULATION SIDING

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Filed Dec. 26, 1957, Ser. No. 705,225
1 Claim. (Cl. 118—310)

This invention relates to insulation siding and particularly to insulation siding material for covering the walls of buildings and having a masonry-simulating design thereon.

Masonry-simulating insulation siding is well known. It usually comprises a base such as insulation board coated with plastic coating material, usually a coating asphalt and surfaced with building granules of various colors embossed in a design to simulate masonry such as bricks or pieces of stone having mortar joints between them. One of the problems with material of this type containing bricks or stones of different colors is that the repetition of any particular combination of colors in the panels in which insulation siding is ordinarily formed may cause an undesirable pattern on the wall of a house particularly when applied in the usual manner of alternate half and full panels up the wall. The panels are ordinarily made in sizes of about 12 inches by 36 inches and each panel may represent twenty-five or so bricks or stones which may be of irregular size or may be of various sizes. Regardless of the size or shape of the panel the process of manufacture ordinarily causes panels to be substantially identical leading to the problem of patterning.

In the normal production of the brick or stone simulated insulated siding panels the saturated insulation board is coated with the proper coating material covered with slate or other colored granules which are applied from one or more hoppers mounted over the path of the travelling panel. There may be, for example, five such hoppers if there are five colors and each hopper may be, for example, divided in five segments if there are five side by side bricks or stone simulating areas. In any case, they are designed to form a single panel and repeat thus forming a plurality of identical panels.

It is therefore an object of the present invention to provide an improved process for producing a multi-colored masonry-simulating insulation siding in which all of the panels are not identical.

It is a further object of the present invention to provide an improved process for producing a multi-colored masonry-simulating insulation siding in which the pattern is repeated in every fourth panel manufactured.

It is a further object of the present invention to provide an improved process for producing a multi-colored masonry-simulating insulation siding wherein a siding is formed which when placed on a side wall forms no objectionable pattern.

These and other objects are attained by the present invention which relates to an improved process for manufacturing multi-colored masonry-simulating insulation siding which produces a multiplicity of non-identical panels in the same process. This is accomplished by the use of an electrically controlled hopper causing specially designed cam shafts to complete one revolution in every two or more panel lengths instead of the usual single panel length. The invention may best be understood by reference to the accompanying drawings illustrating a preferred embodiment of the invention but it will be understood that variations and substitutions may be made within the scope of the claim.

FIG. 1 is a plan view of three panels made in accordance with the present invention;

FIG. 2 is a diagrammatic perspective view of some of the principal elements of the equipment used in carrying out the process;

FIG. 3 is a diagrammatic plan view of the granule drop pattern; and

FIG. 4 is a fragmentary detailed cross-section of the lower portion of the hopper device used in the present invention.

With reference to FIG. 1 there is shown a plan view of three panels made in accordance with the present invention. These panels are identical as to the configuration of the stone designs thereon. Color drops are not identical as will be seen from the colors designated "A," "B," "C," "D," and "E" for individual distinguishable colors and "M" for a mix of all of the colors together. Referring to FIG. 3, it will be seen how the granules are dropped from double hopper **10**.

Referring to FIGS. 2 and 4 there is shown a number of elements of the equipment used in carrying out the process. The panels pass first under an electric eye **11** whose purpose will hereinafter be described. The panels then pass under a granule drop **12** and then under a second granule drop **22**.

As will be seen from FIGS. 2 and 4, the granule drop **12** comprises a row of bins **13** and an opposite and parallel row of bins **14**. At their lower ends the bins are opened or shut by sliding plates **16** and **17**. The sliding plates are spring loaded by springs **18** and **19** so as to normally be in a lowered or closed position.

The drop pattern shown on the board at FIGS. 2 and 3 is merely a pattern of the granules since there are no actual simulated mortar lines at this stage, the mortar lines being subsequently embossed in the board at a point after the granules have been placed. Referring to FIG. 2 there is shown a granule drop **22** in which there is preferably a mixture of all of the granule colors which are dropped onto the whole face of the board. When the pressing in of the granules subsequently takes place, the colors put on by the hopper **12** will adhere to the coating and any overlay of mixed color granules will not adhere and will be removed by suction and returned to the mixed color hopper.

Referring to FIG. 4 showing a cross-section of the hopper **12**, granules **13** and **14** are shown in place in the opposite segments of the hopper. As shown in FIG. 4 the left-hand cam has released the door **16** so that due to the spring **19** it is in closed position. Meanwhile the right-hand cam **20** has struck dog **25** which has raised gate **17** so that the granules **24** are being applied to the door below.

A plurality of cams **20–20** are rotated by a motor. At the beginning of the operation the first panel to reach the granule drop **12** throws a switch which starts the rotation of the cams. Ordinarily the cams are related to the speed of travel of the panels such that the first one-third rotation of the cams takes place during the passage of the first panel, the second one-third takes place during the passage of the second panel and the final one-third takes place during the passage of the third panel thereunder. However, since there may be variations in the length of the boards the electric eye compensator **11** which is a device well known in the art as such, is placed so that it is able to detect the crack between successive panels and if a panel is either longer or shorter than normal, the operation of the electric eye either slows down or speeds up the motor controlling cams **20** so that one rotation of the cams takes place for three panels even if the panels are not all of the same length. In other words, the electric eye compensates for slight variation in the length of the panel. It will be appreciated that the cams **20** need not be driven from a motor separate from that which drives the conveyor but that in case one motor is used for these

purposes, then the electric eye is connected to a clutch permitting a slowing down or speeding up of the turning of the cams.

The granules may be selected from wide varieties of materials such as crushed brick and sand but they are preferably slate which is colored with pigments to the desired shade. The subsequent embossing steps, not a part of this invention, outline the various simulated stones with mortar lines.

Thus it will be seen that in accordance with the present invention the drop pattern is a cycle which is repeated more than once and preferably for every three panels. These panels are ordinarily shipped in the order in which they come from the machine and when arranged on the wall, even when vivid and highly contrasted colors are used, there is no patterning or unpleasant emphasis on certain colors or on the outlines of the panels thus making a wall which is much more realistic than the prior art conventional stone design insulating siding.

I claim:

An apparatus for producing masonry design insulating siding panels of multi-colors comprising means for moving the panels in end to end relationship, a granule drop located above said moving means, said granule drop comprising two parallel rows of bins at right angles to the travel of the panels, cam operated means for opening and closing the bins permitting dropping of granules on the said panels, said cams being of irregular shape such that side by side bins may be open for different times, whereby parallel masonry simulating areas may be formed of different lengths.

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