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E. W. STANLEY

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METHOD OF TRIMMING AND CUTTING IN REGISTER

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Fig. 1

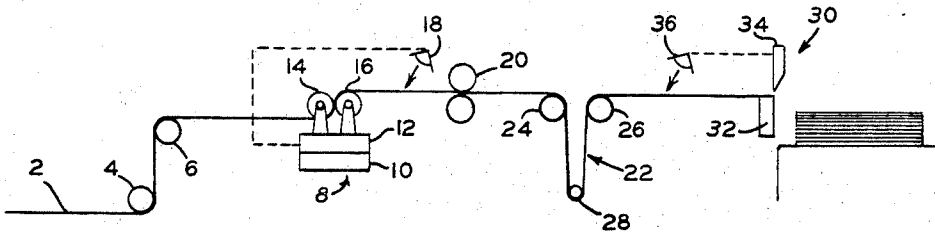
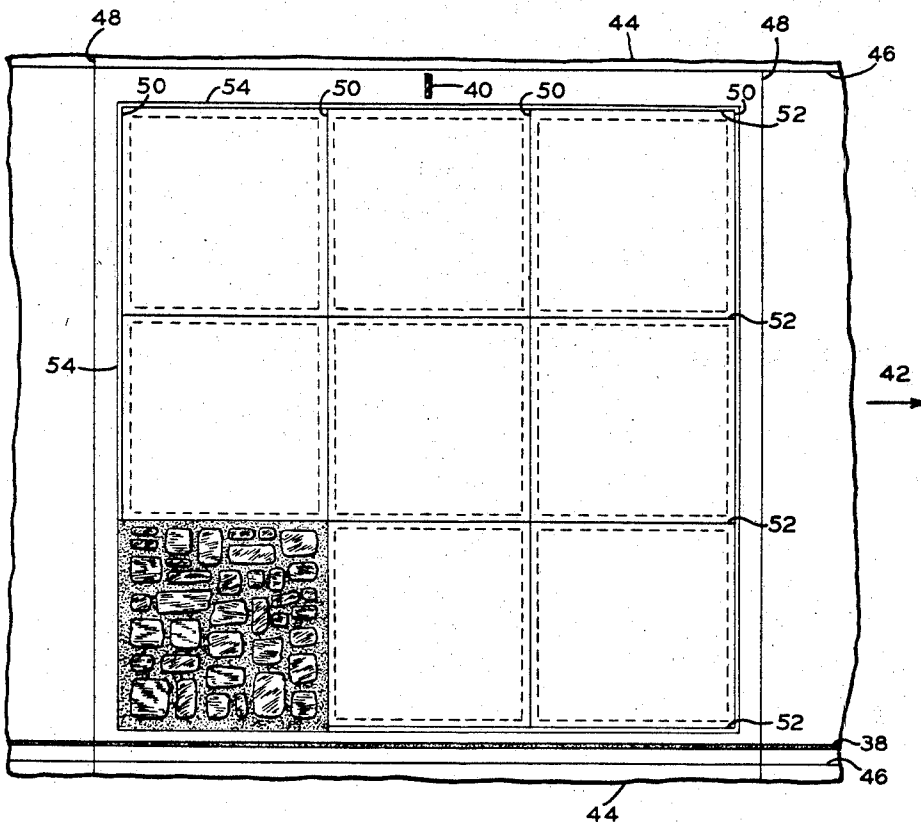


Fig. 2



INVENTOR
EDWARD W. STANLEY

BY

Clifford B. Price

ATTORNEY

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METHOD OF TRIMMING AND CUTTING IN REGISTER

Edward W. Stanley, Lancaster, Pa., assignor to Armstrong
Cork Company, Lancaster, Pa., a corporation of
Pennsylvania

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4 Claims. (Cl. 83—47)

ABSTRACT OF THE DISCLOSURE

A method of trimming and cutting into short sections a continuous length of sheet goods with impressions thereon. The short sections are trimmed and cut in register with the impressions. The continuous sheet goods is first trimmed on both longitudinal edges by a photocell controlled trimmer, then the short sections are cut off by a photocell controlled cutter. Register marks on the sheet goods operate the photocells which control the trimmer and cutter.

BACKGROUND OF THE INVENTION

Field of the invention

The invention relates to the trimming and cutting of continuous lengths of material and, in particular, to the trimming and cutting of sheets of floor tiles in register with embossing thereon.

Description of the prior art

Prior to this invention floor tiles were not of a design such that would require the critical placing of the embossing relative to the edges of the tile. Previous tile design did not have border arrangements or a layout configuration that required adjacent tile to be in proper alignment to provide an overall continuity in the design of the flooring.

Summary of the invention

The invention has as its primary object the accomplishment of the proper registration of the embossed pattern within the edge limits of the tile shape. This proper registration of the embossed area then provides for continuity of the design between adjacent tiles.

The invention further has the object of trimming and cutting continuous lengths of sheet goods with impressions thereon so that the sheet goods will have cut at least three accurate reference edges. These reference edges are later used to align other cutting machines which stamp out the individual tiles.

Brief description of the drawing

FIG. 1 is a schematic side view of the trimming and cutting apparatus; and

FIG. 2 is a view of the sheet material with the design thereon.

Description of the preferred embodiment

The apparatus of FIG. 1 is the trimming and cutting devices for providing the reference edges and cutting the continuous sheet material into easily handled and press size short sections. The sheet material or goods 2 is fed past rollers 4 and 6 to a guider device 8. The guider device has a fixed base 10, a movable section 12 carrying thereon support rolls 14 and 16. The sheet material passes under roll 14 and over roll 16. A photocell structure 18 senses a continuous register reference line on the edge of the sheet material and controls movement of section 12 relative to the fixed base 10. Movement of section 12 and its attached support rolls 14 and 16 will provide lateral shifting of the sheet material. Trimming

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cutters 20, placed on both longitudinal edges of the sheet material and a fixed distance apart, trim the sheet material to a constant width. The photocell sensing of the continuous register reference line has the guider place the sheet material so that the impressions thereon are held in proper register with the trimmed edges of the sheet material. The longitudinal trimmed edges form reference edges for later stamping operations which form the individual tiles.

A dancer roller structure 22, formed of two fixed rollers 24 and 26 and a movable roller 28, compensate for the continuous movement of the trimmer and the intermittent operation of the cutter assembly 30.

The cutter assembly 30 has an anvil 32 and cutting blade 34. Movement of the cutting blade 34 is controlled by photocell 36 operated by a second register reference mark on the sheet material. The cutter cuts the continuous sheet material into short sections of preferably three tile lengths and preferably three tile widths. These short sections are later fed to a press assembly where the trimmed and cut edges, usually three edges, position the short section relative to a multi-cavity cutting die. By accurately positioning the short section relative to the cutting die, the nine individual tiles in the short section are accurately cut to size and have the impressions thereon in proper register with the four sides of the individual tiles.

The register reference marks are shown on FIG. 2 as elements 38 and 40. Register reference line 38 is sensed by photocell 18 to control the movement of the guider device 8 and, consequently, the trimming by the trimmer 20. Register reference mark 40 controls the operation of photocell 36 and, consequently, the cutting by cutter assembly 30.

The sheet material moves in the direction of arrow 42 and has imprinted thereon a continuous tile pattern of three tile widths. The sheet material has imprinted thereon the individual tile designs in a repeated fashion so that there are three tile design repeats across the sheet material and one tile design repeat every approximately 12 inches along the sheet material. The raw edges 44 of the sheet material are trimmed off to form edges 46 by operation of the trimmer 20. The cutter assembly 30 cuts off the individual short sections along the cut lines 48. The short sections are then formed by sides along trim lines 46 and cut lines 48. These sides may then be used as reference edges for positioning the short section relative to the multi-cavity cutting die. The individual tiles are then stamped out along lateral lines 50 and longitudinal lines 52 to provide tiles with impressions thereon in register with the finished edges. Lines 54 show the pattern overprint which insures that the pattern must extend to the edge of the finished tile.

Although my invention has been described in considerable detail, such description is intended as being illustrative, rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim:

1. The method of trimming and cutting into short sections a continuous sheet goods with repeated impressions thereon and having longitudinal and lateral register references, comprising, the steps of: passing the sheet goods across a guider, sensing with a first register reference sensing means the longitudinal register reference, controlling by the sensing means the position laterally of the guider relative to a sheet edge trimmer, trimming said sheet goods so that the sheet is trimmed to a constant width with the edges at a precise distance from the impressions thereon, passing the sheet goods by a second register reference sensing means and sensing therewith the lateral register reference, controlling a

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cutter with the second sensing means and cutting said sheet goods so that the continuous sheet goods is cut into short sections with the cut edge of each section a precise distance from the impressions thereon.

2. The method of claim 1 wherein the register reference sensing means are photocells.

3. The method of trimming and cutting into short sections a continuous sheet goods having repeated floor tile pattern impressions thereon and having longitudinal and lateral register references, comprising, the steps of: passing the sheet goods across a guider, sensing with a first register reference sensing means the longitudinal register reference, controlling by the sensing means the position laterally of the guider relative to a sheet edge trimmer, trimming said sheet goods so that the sheet is trimmed to a constant width with the edges at a precise distance from the tile pattern thereon, passing the sheet

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goods by a second register reference sensing means and sensing therewith the lateral register reference, controlling a cutter with a second sensing means and cutting said sheet goods so that the continuous sheet goods is cut into short sections of plural individual floor tile patterns with the cut edge of each section a precise distance from the impressions thereon.

4. The method of trimming and cutting a floor tile according to the claim 3 wherein the sensing means is a photocell.

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JAMES M. MEISTER, *Primary Examiner.*