

June 6, 1933.

C. F. HUMPHREYS

1,912,581

MANUFACTURE OF MOLDED INLAID LINOLEUM

Filed May 17, 1929

2 Sheets-Sheet 1

Fig. 2.

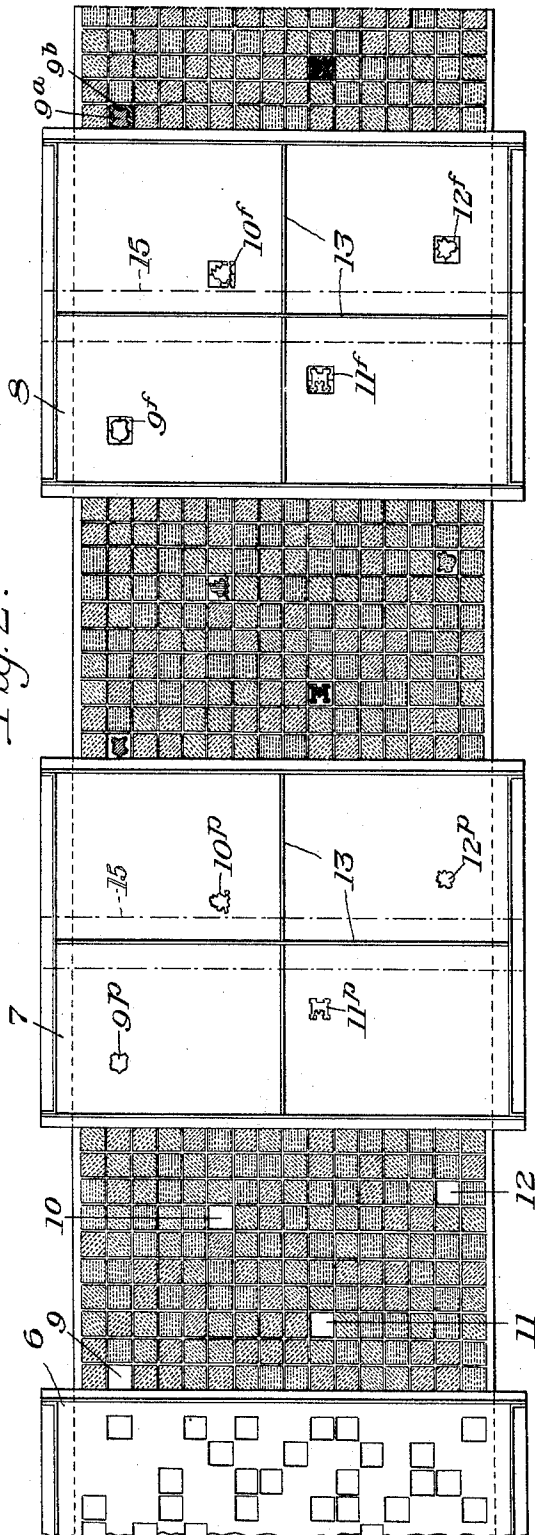
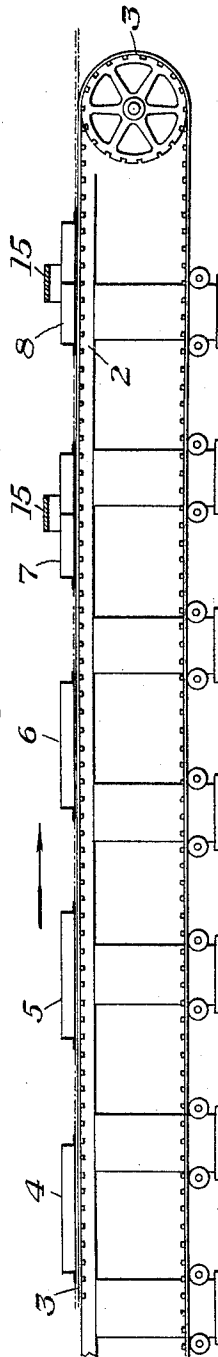


Fig. 1.



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Fig. 5.

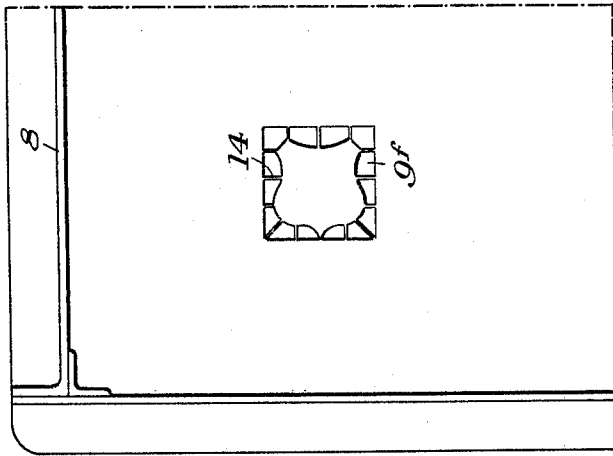


Fig. 3.

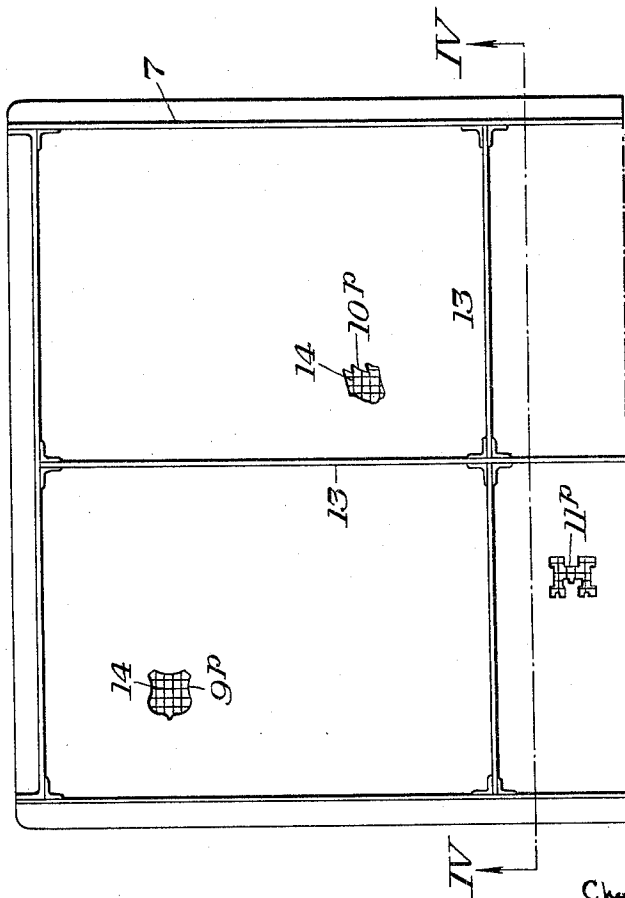
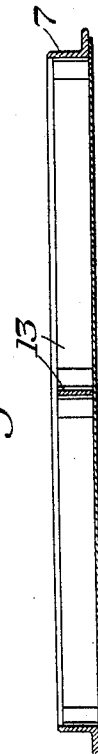


Fig. 4.



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MANUFACTURE OF MOLDED INLAID LINOLEUM

Application filed May 17, 1929. Serial No. 363,753.

This invention relates to the manufacture of linoleum by the molded inlaid process. It is a continuation-in-part of my application, Serial No. 119,694, filed June 30, 1926.

5 In the manufacture of linoleum by the molded inlaid process, a burlap backing suitably supported is moved along a supporting bed in a step by step manner, and the various pattern elements are built up thereon by applying linoleum mix in granular form through suitable stencils. The linoleum mix employed has many peculiar properties. The granules or particles tend to cling together. They will not flow like dry sand 10 will flow, for example. If shaken or brushed through an opening they will build up in a shape corresponding to the shape of the opening, but will not spread sidewise. The stencils employed are spaced apart a distance 15 corresponding exactly to twice the distance moved by the burlap backing at each step forward, and are very carefully positioned so that the several mixes applied through the different stencils will be in proper relative position on the backing. After the mixes have all been applied, the goods are subjected to high pressure to compact the mixtures. Up to the time that the pressure is applied, the linoleum mixes lie on the 20 backing as a loose furry mass, and the goods must be very carefully handled. Any vibration tends to tumble the placed mixes over into shapeless piles, and the design is destroyed.

25 By reason of the fact that the material must be handled so carefully, provision is made for very gradually accelerating and decelerating the burlap in its step by step movement, and in order to secure registration it is desirable that the number of stations be as few as possible having in mind the particular design to be produced.

30 In practice it is found to be most desirable to brush or "strickle" the mixture through the stencils by hand labor. On some designs it is possible to have one plate man operate two stencils, but ordinarily one man is employed for each stencil on narrow goods and two men are employed for each 35 stencil on the wider material.

There is a great demand for linoleums having bright haphazard spots in the designs. For example, there may be a bright spot of a particular color only once in each 54 inches of material. There may, however, 55 be several spots of this character but of different color. Heretofore, it would have been necessary to provide a separate stencil for each of these bright colors. If the haphazard spots in the design each consisted of two colors, each separate from the base colors and from one another, it would be necessary to provide twice as many additional stencils as if only one color were employed 60 in each of the several haphazard spots. All of this would greatly lengthen the machine and increase the cost thereof, and would also increase the operating expense.

I provide for applying a plurality of colors at a station or for applying a plurality of colors at several stations. In general, the main body of the pattern will be made up in the usual way, there being a number of stencils each adapted to supply one color to the base. The haphazard spots in the design 65 will be applied at one or more stencil stations, the plates of which are sub-divided into compartments so that different colors may be brushed through different stencil openings. In wide material it may be impossible for one man to reach entirely across the material and brush in the color, and I therefore provide a supporting platform over the stencil so that a man may work thereon and brush in 70 all of the colors.

In the accompanying drawings, which illustrate the present preferred embodiment of my invention as applied to the making of a tile design, 75

Figure 1 is a vertical longitudinal section, largely diagrammatic, illustrating a machine embodying the invention; 80

Figure 2 is a top plan view to enlarged scale of a portion thereof; 85

Figure 3 is a top plan view of one of the divided stencils, a part being broken away;

Figure 4 is a section on the line IV—IV of Figure 3; and

Figure 5 is a view showing a portion of 100

another divided stencil to be used with the stencil of Figure 3.

A molded inlaid machine comprises a supporting bed, indicated generally by the reference character 2, having an endless carrier 3 extending therealong. This carrier is of the form generally employed in machines of this type and needs no detailed description. On its upper run the carrier supports a strip of burlap which forms the backing for the linoleum.

The stencil trays are arranged at spaced intervals along the bed 2. The trays at one end of the machine are indicated at 4, 5, 6, 7 and 8, in Figure 1. The material moves in the direction of the arrow of Figure 1. The trays are mounted in the usual manner on lifting devices, not shown, so that they may be raised when the burlap backing is advanced. As is well known, color is strickled through the stencils, the stencil plates are then lifted, the material is moved forward a distance corresponding to the repeat length of the pattern, and the stencils are then again lowered for the application of additional color.

The stencils 4, 5 and 6, as well as those preceding them in operation in the machine, are arranged each to supply a single color to the backing. Figure 2, at the left hand end thereof, shows the material as it appears when it is on its way from the stencil 6 to the stencil 7.

It will be noted that there are four blank spaces, numbered 9, 10, 11 and 12, in this particular design. The space 9 is to be filled with a design consisting of a shield 9a and a surrounding field 9b, the colors of the design elements 9a and 9b differing from the colors of the tiles in the background. Similarly, the space 10 is to be filled in with a conventional design of a ship; the square 11 with a conventional design of a castle, and the square 12 with a conventional design of a helmet. It is desirable that various colors be used in these different designs and the fields therefor. The stencil 7 is provided to fill in the designs proper in the squares 9 to 12 inclusive.

The stencil plate is divided into four parts by vertical partition walls 13 so that each of the stencil openings 9p to 12p for forming the brightly colored patterns lie in separate compartments. The stencil plate 8 is similarly divided by partition walls 13 so that the field stencils 9f to 12f inclusive lie in separate portions of the stencil plate. It will be noted that in each case the stencil opening is spaced away from the partition walls and is of a shape corresponding to the design element to be laid down. This is important as there must be a clear space around the stencil opening to allow the plate man to run a scraper thereover and scrape off the material to the height of the stencil plate.

Figures 3 and 5 show the stencil openings with the usual wires 14 therein.

Platforms 15 are arranged above each of the stencil plates 7 and 8. It will be noted from Figure 2 that the platform lies over a partition wall 13 and is clear of any of the stencil openings so that one man can work from this platform with all of the openings in his charge in clear view. In wide material it is impossible for a man to reach all the way across the machine and fill in color through the stencil openings. However, the amount of work which is done in applying color through these small openings is so little that two men operating a single stencil are not kept busy. By providing the platforms shown, one man can operate the entire plate successfully.

As above stated, the stencils are raised so as to permit of the movement of the material thereunder. The platforms 15 may be fixed or may move upwardly with the stencils as desired. Ordinarily they will be supported from the ground and will be spaced a sufficient distance above the bed 2 to permit of the stencils being raised in the desired amount. The only movement of the stencils is in the vertical direction. They are fixed against horizontal movement because the adjustment of the stencils so as to insure proper register must nearly always be preserved. Therefore, while they may be preliminarily adjusted on their elevating mechanism so as to properly fix their position relative to the other stencils, they do not move horizontally during operation.

By the use of my invention highly desirable effects may be obtained at relatively low machine and operating costs. I have illustrated and described a present preferred embodiment of the invention. It will be understood, however, that it is not limited to the form shown but may be otherwise embodied or practiced within the scope of the following claims.

I claim:

1. In the method of making molded inlaid linoleum, the steps consisting in moving a supporting backing under successive stencil stations, and applying a plurality of colors at a station.
2. In the method of making molded inlaid linoleum, the steps consisting in moving a supporting backing under successive stencil stations, and applying a plurality of colors at each of a plurality of stations.
3. In the method of making molded inlaid linoleum, the steps consisting in moving a supporting backing under successive stencil stations, there being a stencil at at least one of the stations having different openings therein, and applying different colors through the different openings.
4. In the method of making molded inlaid linoleum, the steps consisting in moving a

supporting backing under successive stencil stations, applying a single color at some stations, and applying a plurality of colors at another station.

5 5. In the method of making molded inlaid linoleum, the steps consisting in moving a supporting backing under successive stencil stations, applying a plurality of colors at one of said stations, and holding the stencils and the backing stationary during the stenciling operation.

10 6. In an apparatus for making molded inlaid linoleum, a support for a backing and a plurality of stencils along the support, at least one stencil being divided into compartments whereby separate colors may be applied.

15 7. In an apparatus for making molded inlaid linoleum, a support for a backing and a plurality of stencils along the support, at least one stencil being divided into compartments each having a stencil opening and a relatively large unperforated plate surface whereby separate colors may be applied through the several stencil openings and excess color may be retained on the plate surface.

20 8. In an apparatus for making molded inlaid linoleum, a support for a backing and a plurality of stencils along the support fixed against horizontal movement, at least one of said stencils being divided into compartments whereby separate colors may be applied.

25 9. In an apparatus for making molded inlaid linoleum, a carrier for a backing and a plurality of stencils along the carrier and divided into compartments whereby separate colors may be applied.

30 10. In an apparatus for making molded inlaid linoleum, a carrier for a backing and a plurality of stencils along the carrier and divided into compartments whereby separate colors may be applied, there being corresponding compartments in the several stencils, the stencils having corresponding openings, whereby they cooperate to form multi-colored design portions.

35 11. In an apparatus for making molded inlaid linoleum, a support for a backing, a stencil over the support divided into compartments whereby separate colors may be applied, and an operator's platform over the stencil, the platform being so positioned as to enable a workman thereon to supply color to the compartmented stencil.

40 12. In an apparatus for forming molded inlaid linoleum, including a supporting carrier on which a backing is adapted to be carried, a plurality of stencils arranged over the carrier at predetermined intervals, each of said stencils having stencil openings therein extending substantially across the entire width of the carrier, and another stencil divided into a plurality of separate

compartments for applying different colors across different portions of the width of the carrier.

70 13. In an apparatus for forming molded inlaid linoleum, including a carrier on which a supporting backing may be mounted, a plurality of stenciling stations along the carrier, each of said stations being adapted to apply a color to the backing different from the color applied by any preceding station, each of these stations being adapted to apply material across substantially the entire width of the carrier, and another stenciling station having a plurality of stencils each of which extends across only a part of the width of the carrier whereby a plurality of separate colors may be applied to different portions of the backing at the said station.

75 14. In an apparatus for forming molded inlaid linoleum, including an endless carrier on which a supporting backing is adapted to be mounted, a plurality of uniform stencils arranged at uniform intervals along the carrier, one of said stencils having a plurality of separate compartments each of which is less than the width of the carrier, each of said compartments being adapted to apply a different colored mix to different portions of the backing.

80 15. In an apparatus for forming molded inlaid linoleum, including an endless supporting carrier, a plurality of stencils arranged therealong at regularly spaced intervals, some of the stencils being adapted to apply linoleum mix to a backing on the carrier across substantially the entire width of the backing, another one of said stencils being divided into compartments of less width than the width of the backing, whereby a different color may be applied to a different part of the backing from each of said compartments.

85 16. In an apparatus for making molded inlaid linoleum, a carrier for a backing and a plurality of stencils along the carrier, the stencils having openings therethrough adapted for the supplying of color to the backing over a major portion of the area thereof, whereby to form the body of a pattern, and a plurality of other stencils along the carrier divided into compartments whereby separate colors may be applied, the last-mentioned stencils being so placed along the carrier as to operate successively on the same areas of the backing, said stencils having corresponding openings whereby they cooperate to form multi-colored design portions in the pattern.

90 17. In a machine for making molded inlaid linoleum, means for advancing a backing through the machine in a step-by-step manner, a plurality of stencils having openings therethrough adapted for the supplying of color to the backing over a major portion of the area thereof, whereby to form the body of a pattern, and a stencil having a plurality of openings therein adapted for the supply-

ing of color to the backing so as to form further pattern elements thereon, the last mentioned stencil having upstanding partition walls separating different openings from one another, whereby different colors may be supplied to different openings without contamination of one color by the other.

In testimony whereof I have hereunto set my hand.

10 CHARLES F. HUMPHREYS.

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