June 5, 1956 H. M. DUFFORD 2,748,443

METHOD OF APPLYING A BUILDING WALL FACING

Original Filed Jan. 4, 1950 2 Sheets-Sheet 1

FIG. 1.

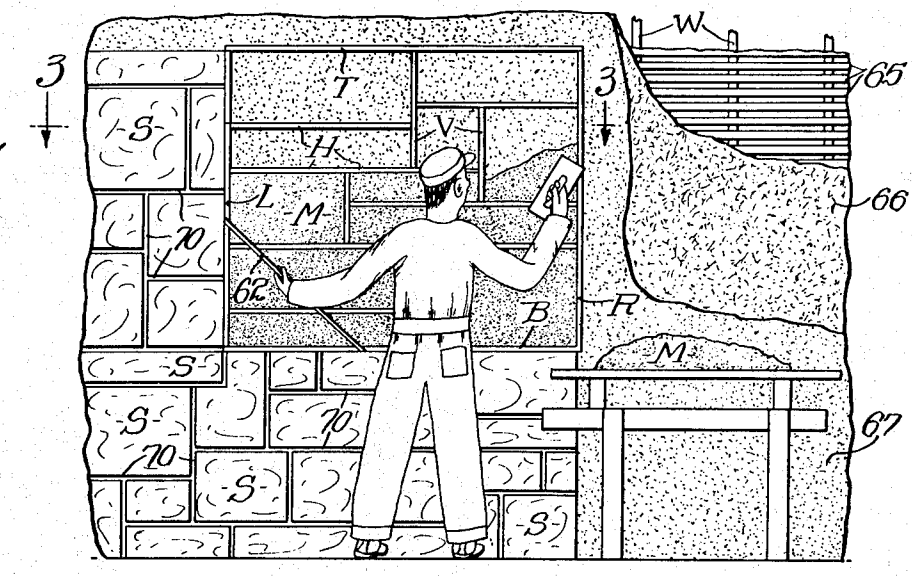
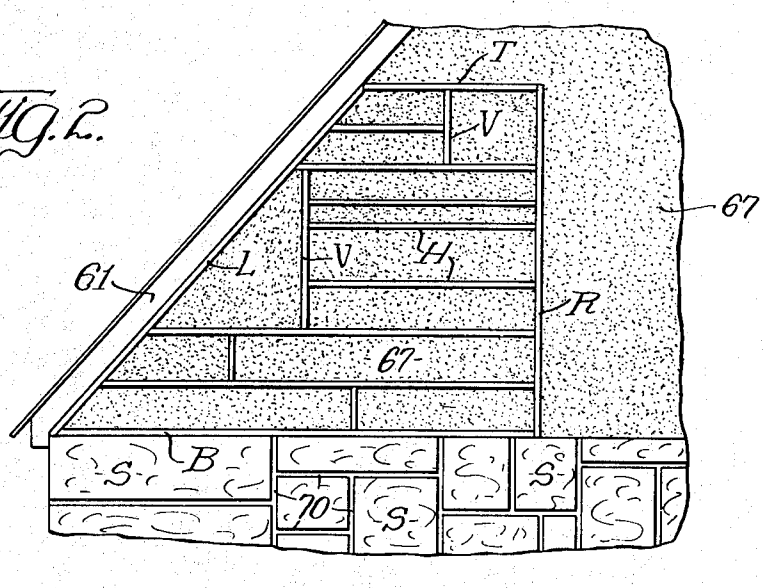


FIG. 2.



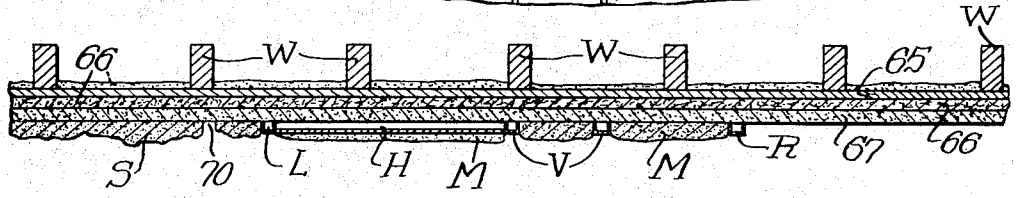


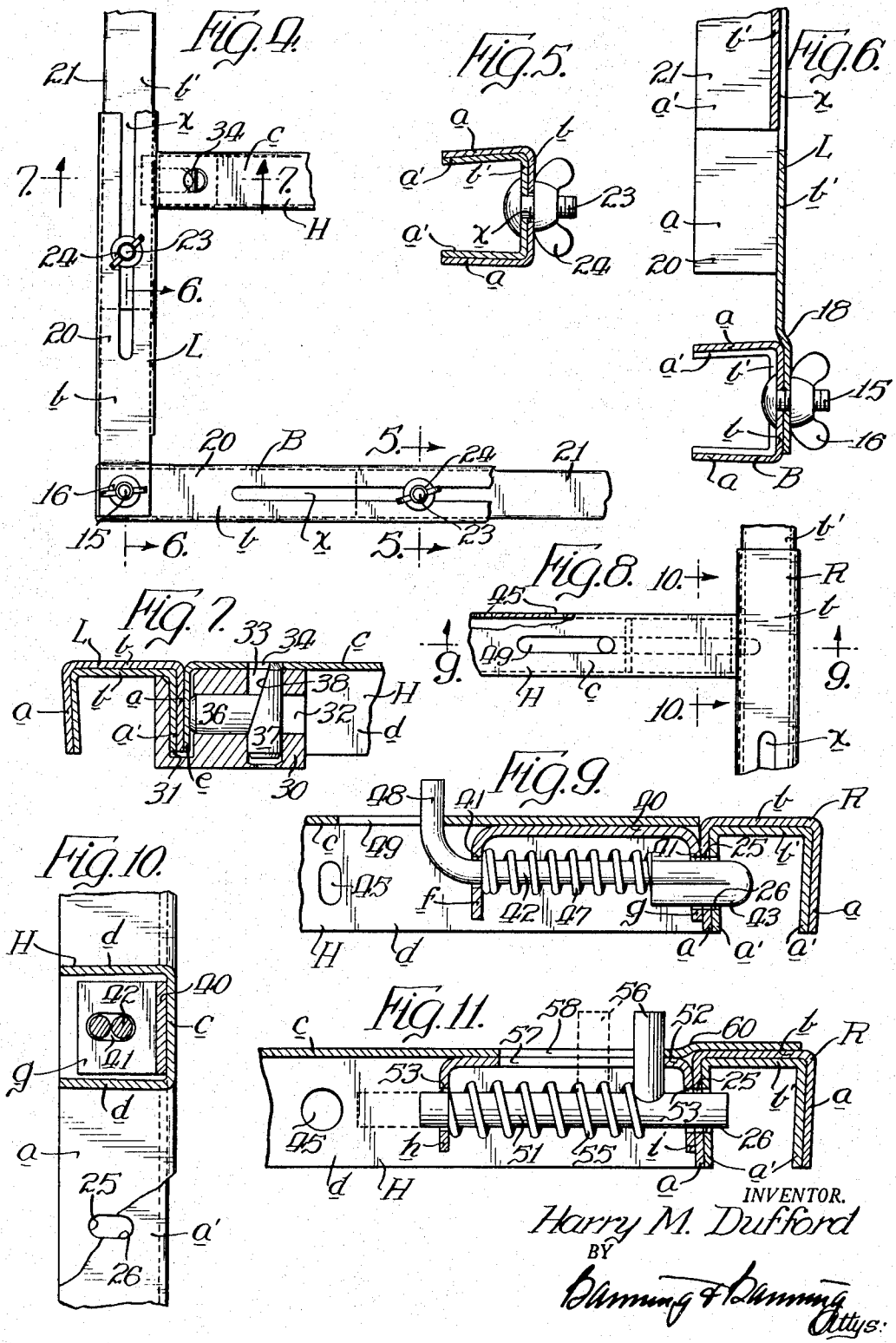
FIG. 3.

INVENTOR.
Harry M. Dufford
BY
Blumm & Blumm
Attys.

June 5, 1956 H. M. DUFFORD 2,748,443

METHOD OF APPLYING A BUILDING WALL FACING

Original Filed Jan. 4, 1950 2 Sheets-Sheet 2



United States Patent Office 2,748,443
Patented June 5, 1956

2,748,443

METHOD OF APPLYING A BUILDING WALL FACING

Harry M. Dufford, Chicago, Ill.

Original application January 4, 1950, Serial No. 136,690, now Patent No. 2,616,145, dated November 4, 1952. Divided and this application May 8, 1952, Serial No. 286,797

2 Claims. (Cl. 25—154)

This invention relates to a facing for building walls, and is concerned primarily with the method of applying thereto a plastic mix, such as mortar, in a predetermined pattern whereby to simulate a structure of stone blocks having a natural and artistic texture. More particularly I aim by this invention to produce a simulated stone appearance characterized by a complete lack of repetitiveness insofar as concerns the arrangement of stones in the pattern and the texture of their exposed faces. A previous disclosure of this invention is contained in my application for patent filed January 4, 1950, under Serial No. 136,690, now Patent No. 2,616,145 of which this case is a division.

In the past various expedients have been employed for applying to the wall of a building or elsewhere a facing which is intended to simulate a stone structure. All such finishes are monotonous in that they display a regular repetition of the pattern and of the texture of the stones incorporated therein, due largely to the fact that a step of impression is employed in the process. The molds used in all such practices with which I am familiar do not permit of any extended variation either in the pattern, or in the texture of the finish applied to the stones comprised in the pattern, the result being that any such facing is deficient in naturalness of appearance and is unacceptable for many purposes.

The finish made according to my invention utilizes a changeable-pattern stencil of unusual characteristics. This stencil is open from front to back, and its size and shape may be varied within wide limits. Likewise the network of partitions which is comprised in the stencil to form the desired pattern may also be varied widely. The stencil is used when applying a mortar coating to the wall face to provide a series of interconnecting grooves which simulate joints between the blocks of stones that are regularly comprised in a building structure. The mortar face in each of the areas defined by the grooves may then be worked over by hand to produce a desired texture. Not only is the pattern produced upon the wall with the aid of this changeable stencil entirely variable at will, but the areas between the groove-joints are rendered susceptible of individual treatment so as to acquire a surface texture which in each case may differ interestingly from those in other like areas. In this manner a facing may be built up on the wall with a large number of simulated stones of natural and interesting appearance, and the texture of the stones over the entire wall face will be sufficiently varied by the individual hand treatment so as to avoid any suggestion of repetition or sameness.

My invention is concerned here with the process by which such a wall facing is produced. The design incorporated into the stencil is changeable at will and this is readily accomplished by means which permits of releasable connections between certain bars comprising the stencil frame and other bars comprising the partitions therewithin. In addition, the frame bars are optionally extensible so that the size and shape of the stencil may

readily be varied. A suggestive means that may be utilized in carrying out the method herein disclosed is set forth in detail in the following description wherein reference is made to the accompanying drawings in the manner following:

Figure 1 is an elevation of a portion of a building wall whereon the application of a simulated stone facing is in process;

Fig. 2 is a similar view showing the portion of a wall adjacent the eave of a gable roof;

Fig. 3 is a fragmentary sectional view, taken on line 3—3 of Fig. 1;

Fig. 4 is a fragmentary elevational view showing a portion of the stencil frame adjacent its left lower corner;

Figs. 5, 6, and 7 are transverse sectional views, taken respectively on lines 5—5, 6—6, and 7—7 of Fig. 4;

Fig. 8 is a fragmentary detail in elevation showing a modified stencil partition bar at its point of end connection with a second partition bar (or frame bar);

Figs. 9 and 10 are sectional views, taken respectively on lines 9—9 and 10—10 of Fig. 8; and

Fig. 11, which is a view similar to Fig. 9, shows a modification in the locking means in which one of the partition bars is releasably locked to another such bar (or to one of the frame bars).

The stencil that may be advantageously employed in carrying out this invention comprises a four sided frame having a pair of vertical bars R and L interconnected at top and bottom by horizontal bars T and B, in combination with a plurality of partition bars some of which, designated as V, are vertically disposed while the remainder, designated as H, are extended horizontally. The cross sectional form of each of the frame and partition bars is desirably that of a channel whose open side is faced toward the work.

At the frame corners (see Figs. 4 and 6) the channel legs *a* of one bar, the vertical bar L, for example, are cut away to allow the connecting web *b* to project endwise for overlying the webs *b* of the adjacent horizontal bars T and B, the distance of this web projection being sufficient to permit of a limited rotative movement about a pivot which is here shown as a bolt 15 which traverses registering holes formed in the overlapped webs, with a wing nut 16 or other pressure device coacting therewith in the usual way. Each projecting web *b* may be outset slightly to form a shoulder 18 at about the point where it overlies the web of the adjacent bar, this shoulder assisting in the maintenance of a right angle at the frame corner. For a different angle the pivotal connection is first relaxed to allow one or both the frame bars to swing into another rotative position.

The size of the stencil frame will be determined in the light of experience. For convenience in description we may assume it is 32" x 36", with the long dimension horizontal. The size of the channel bars is also relatively narrow, a width of ½" or so being suggested. The frame bars, both vertical and horizontal, are desirably extensible, this being accomplished (see Figs. 4 and 5) by utilizing for each bar a pair of channel sections 20 (outer) and 21 (inner) of slightly different cross-sectional size so that one section may slidingly interfit with the other. Into an elongated slot *x* in the web *b* of one of the channel sections is projected a securing bolt 23 based on the web *b* of the other interfitted section, the bolt being equipped with a wing nut 24 whereby to tighten one bar section to the other in any selected position of endwise adjustment.

So that neither bar section may separate transversely from the other, the interfitting legs *a* and *a'* of the outer and inner channel sections may be slanted inwardly to a slight extent; this convergence of the legs also facilitates withdrawal of the stencil from the surrounding

mortar as will be hereinafter explained in detail. There is also provided, according to Figs. 8–11, a plurality of closely spaced holes **25**, about 1" apart, in the inner legs *a* of the several outer bar sections **20**, other complementary holes **26** then being formed in the adjacent legs *a'* of the inner bar sections **21** so as to register therewith in each of the lengthwise adjusted positions of the frame bars, all for a purpose that will presently appear.

The partition bars now to be described are illustrated in detail in Figs. 4 and 7. At opposite ends of these bars, also of channel cross section, the webs *c* may be extended sufficiently beyond the legs *d* to provide end walls *e* when bent laterally (see Fig. 7). According to the construction of these figures, a block **30** having a deep slot **31** is fitted within the channel of the partition bar; the end wall *e* of the bar is received within this slot as are also the inside legs *a* and *a'* of the frame bar sections to which the partition bar is to be joined. This block which projects inwardly of the legs *a* and *a'* but slightly is provided with a bore **32** whose axis is parallel with and extends lengthwise of the partition bar and with a cross bore **33** which aligns with a hole **34** in the web *c* thereof. A locking pin **36** is slidably fitted in the bore **32** so as to engage the end wall *e* of the partition bar and exert thereon a frictional clamping pressure which is transmitted to the adjacent legs of the frame bar. To advance and hold the locking pin in its effective position a wedge pin **37** is slidably fitted in the cross bore **32**, this pin having a tapered face **38** in engagement with a like tapered end face of the locking pin. When driven forwardly the wedge pin will advance the locking pin to frictionally lock the partition bar to the frame bar at a selected point; to release this lock the wedge pin is driven back again by a suitable implement which is entered into the hole **34**. With this type of lock no holes **25** and **26** need be provided in the legs of the inner and outer sections of the extensible frame bars.

The locking means illustrated in Figs. 8–10 makes use of elongated brackets **40** affixed, as by welding, near opposite ends of each partition bar within the channel thereof; the two spaced legs *f* and *g* of such a bracket will then lie transversely of the partition bar with the outer leg *g* adjacent the end thereof to provide an end wall therefor. In the legs *f* and *g* of such a bracket I provide aligned holes **41** through which a locking bolt **42** is slidably fitted. The acting end of this bolt is doubled back upon itself to provide a cross sectionally elongated head **43**, thereby requiring that the conforming hole **41** provided for its reception in the bracket leg *g* be elongated in the form of a slot. A plurality of keeper holes **25** and **26**, spaced closely apart, are also provided in the adjacent legs *a* and *a'* of the frame bar, each of these holes being elongated as indicated clearly in Fig. 10.

A spring **47** which is coiled around the bolt exerts opposing pressures on the bracket leg *f* and the bolt head **43**, tending to maintain the latter in an advanced position wherein it is engaged with one of the keeper holes **45**. The tail end **48** of the bolt is laterally turned to extend through a slot **49** in the web of the partition bar so as to provide means for manual retraction of the bolt.

In the construction of Figs. 4 and 7, the partition bar is clamped tightly to the frame bar so as to remain connected therewith during operative handling and use of the stencil frame. In addition, the partition bar is prevented from turning about an axis longitudinally of itself, and this is an important point. The same objectives are attained by the construction of Figs. 8–10, the cross-sectionally elongated form of the bolt head assuring a non-rotative mounting of the partition bar in the frame.

In Fig. 11 a generally similar bolt connection is provided, but in this case the bolt **51** is straight from end to end so as to preserve a round contour at every point. The bolt is supported by two spaced legs *h* and *i* depending from a bracket **52**, the bolt being slidably fitted through a pair of aligned holes **53** which are formed in these legs. A coiled spring **55** surrounding the bolt exerts a forward thrust upon a pin **56** which extends laterally therefrom and through a pair of registering slots **57** and **58** in the bracket and bar web *c*, respectively. This pin affords a means by which the bolt may be manually retracted against the tension of the spring **55**. The web *c* of the partition bar H in this construction is desirably extended beyond the outer bracket leg *i* so as to overlie and engage with the web *b* of the proximate bar R; and substantially at a point which is opposite the leg *i* the bar web *c* is humped out to provide a shoulder **60** for engaging the web *b*, thereby to correctly fix the angular position of one bar relative to the other. In this construction, a plurality of aligned holes **25** and **26** is provided lengthwise of the inner webs *a* and *a'* of the frame bars, each to receive the acting end of the bolt **51** to establish a releasable connection therewith. The extending end of the web *c* which overlies and maintains engagement with the outer face of the proximate bar web acts to prevent any rotative movement of the partition bar when mounted in place as just described.

A multi-sided stencil frame which is variously adjustable provides a mounting for a plurality of partition bars which also are adjustable to various positions so as to produce a changeable-pattern stencil. For example, Fig. 2 suggests a stencil pattern that is adapted for positioning adjacent an inclined eave **61** at one end of a building having a gable roof. Here the top frame bar T is shown as considerably shortened, and the left frame bar L considerably lengthened so as to extend obliquely in parallelism with the eave, the remaining frame components still remaining in their usual vertical and horizontal positions. The connecting means of Figs. 8–11 are such as to permit the partition bars to join with any frame bar that is obliquely disposed. It is manifest that the present stencil, because of its flexibility as to size and shape, will therefore be suitable for use in various places upon walls where irregular conditions are encountered. Also in Fig. 2 the pattern provided by the partition bars carried inwardly of the frame is somewhat different from that illustrated in Fig. 1. These two figures show two of many possible variations in the stencil pattern.

It will be noted that each partition bar is equipped at each of its ends with means for releasably securing it to one of the channel bars of the frame or to another partition bar. The same assortment of partition bars assembled into a stencil may be combined to produce any one of a number of different patterns; and by selecting partition bars of still different length either from the same or other assortments the pattern may be varied still further. These changes may be made readily in one and the same stencil, or several stencils may be made up, each having a pattern differing from the others, the several stencils to be used in any order—consecutively, alternately, at random, or otherwise. The point is that the pattern exhibited in each stencil is that of a desired arrangement of stones of varying size and shape to be reproduced by transference to a predetermined area upon the wall of a building in the manner now to be explained.

The stencil, completed and ready for use, is a unitary structure, open from front to back except for the several bars comprised in the frame and partitions. By using bars of channel cross section, the stencil is made light and rigid, and may be handled with ease and facility by a skilled workman, perhaps with the aid of a handle bar **62** as per Fig. 1. To the building wall W whereon the facing is to be placed is first secured a suitable lathing **65** to which is keyed a scratch coat **66** of plastic mix, and over this is spread and bonded the usual brown coat **67**. It is upon a foundation such as that that I build an outer coat of mortar M or the like which, with the aid of the present stencil is fashioned into simulated stones S having an entirely natural appearance. These

stones may appear at random, or at regular, irregular, symmetrical, or asymmetrical places, or according to any other desired arrangement, and be variously colored and textured. There is accordingly full opportunity for avoidance of repetition or sameness in design.

Having completed the foundation to which the simulated stonework to be affixed, the workman places the stencil against the wall at the first point of application. It will be noted that the open sides of the channel bars are faced toward the wall for engagement therewith, and that the channel legs are converged inwardly toward the wall. Mortar of an appropriate mix and color is then spread upon the wall foundation through the openings between the frame and partition bars of the stencil, and applied to the desired thickness. When done, the stencil is removed by an outward pull away from the wall. In this movement, the frame and partition bars are free to separate and draw away from the applied mortar, and the linear spaces which they formerly occupied in the mortar-applying operation then appear as grooves **70** of perhaps ½" or so in width. The location of these grooves is, of course, predetermined by the pattern that is built into the stencil, and they simulate perfectly the joints that regularly appear between adjacent stones in a masonry structure.

The same stencil with the same or a different pattern may again be applied to the next adjacent wall area that is to be operated upon. It is optional, of course, to use another patterned stencil instead. A further spread of mortar is applied through the re-positioned stencil to the foundation awaiting its application, and thereafter the stencil is again removed. This operation is repeated as often as necessary until the entire building wall has been covered, one or more stencil patterns being used in these operations. While this work is proceeding other workmen with the aid of trowels or other tools then go over each of the mortar areas defined by the grooves **70** to fashion the surface thereof into desired textures. Skill acquired in this operation will enable the workmen to proceed rapidly, and produce various texture finishes with great dexterity, the effect being wholly natural and very attractive to the eye.

It is optional to vary the procedure, within certain limits, from that hereinbefore described. For example, texture finishing of the applied mortar may take place while the stencil frame is maintained in its original position upon the wall; in other words, the order of the stencil-removing and texture-finishing operations may be reversed in case there should be any advantage in so doing.

When the stencil frame is to be placed in a second position immediately adjacent a position which it has previously occupied for a mortar-applying operation, it is desirable that each pattern to be produced on the wall should connect up with and appear as a continuation of the patterns already established. To assure of attaining this objective the frame bar proximate to a pattern already built up on the wall is positioned in the groove-joint along the border of that pattern. By so proceeding, there will be a single groove-joint along the common border of two immediately adjacent pattern applications, thereby maintaining the integrity of the overall pattern that is extended over the wall in its entirety.

For convenience in description, I have throughout this specification referred to "stones" as the building units to be simulated. This term should be construed to include any kind of blocks, or other equivalent units. Also in specifying a "wall" to which the present invention is applicable, I would have it understood that this term includes either the inner or outer side of the wall of a building, or of a partition interiorly thereof, or, in fact, of any wall whether or not it be structurally any part of a building.

I claim:

1. The method of applying a variable texture finish in a desired pattern to the surface of a wall whereon is a foundation suitable for its reception, which comprises positioning against the foundation a frame having partitions defining a plurality of openings arranged in accordance with a predetermined pattern, in applying a mortar mix through the stencil openings over the entire areas thereof and against the wall foundation for bonding thereto to form a layer of the mortar mix having a thickness greater than the thickness of the stencil, in then removing the stencil frame by a movement outwardly from the wall to leave intact, as grooves therein, joint impressions in the applied mortar layer formed by the frame and its partitions during the mortar-applying operation, and then working over the surface of said layer of mortar mix in each of the groove-enclosed areas individually to form the same into a desired texture.

2. The method of applying a variable texture finish in a desired pattern to the surface of a wall whereon is a foundation suitable for its reception, which comprises the steps of positioning against the foundation in a first position a stencil frame characterized by a plurality of openings of size and shape such as to form a desired pattern, in applying a mortar mix through the stencil openings over the entire areas thereof and against the wall foundation for bonding thereto, in removing the stencil frame by a movement outwardly from the wall to leave behind, as grooves therein, joint impressions formed in the applied mortar during the mortar-applying operation, in re-positioning the stencil frame in a second position immediately adjacent the first position with one of the frame sides rested in the next adjacent groove formed in a preceding mortar-applying operation, in then applying therethrough more of the mortar mix for bonding to the wall foundation, as before, and then removing the stencil frame, as before, and in repeating this operation until a desired portion of the wall area has been mortar-coated with a continuous pattern of groove-joints extended thereover, and in working over the surface of the mortar mix in each of the groove-enclosed areas individually to form the same into a desired non-uniform texture.

References Cited in the file of this patent

UNITED STATES PATENTS

1,341,528	Walling	May 25, 1920
1,564,578	Kennedy	Dec. 8, 1925
2,595,142	Herck	Apr. 29, 1952