Oct. 17, 1933. H. F. GEIST 1,930,970

METHOD AND APPARATUS FOR FORMING BUILDING BLOCKS

Filed April 27, 1931 2 Sheets-Sheet 1

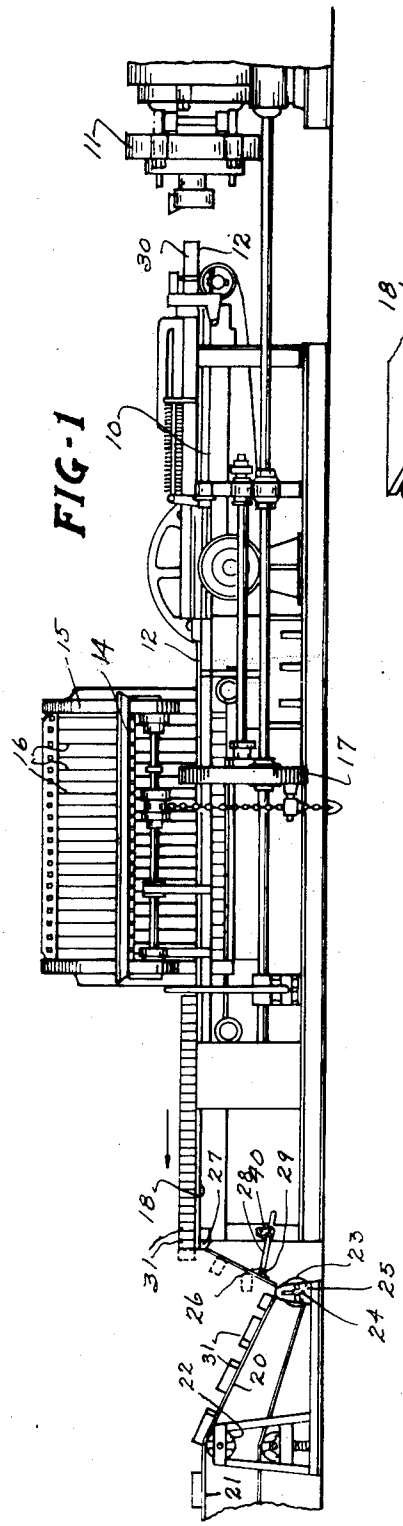


FIG-1

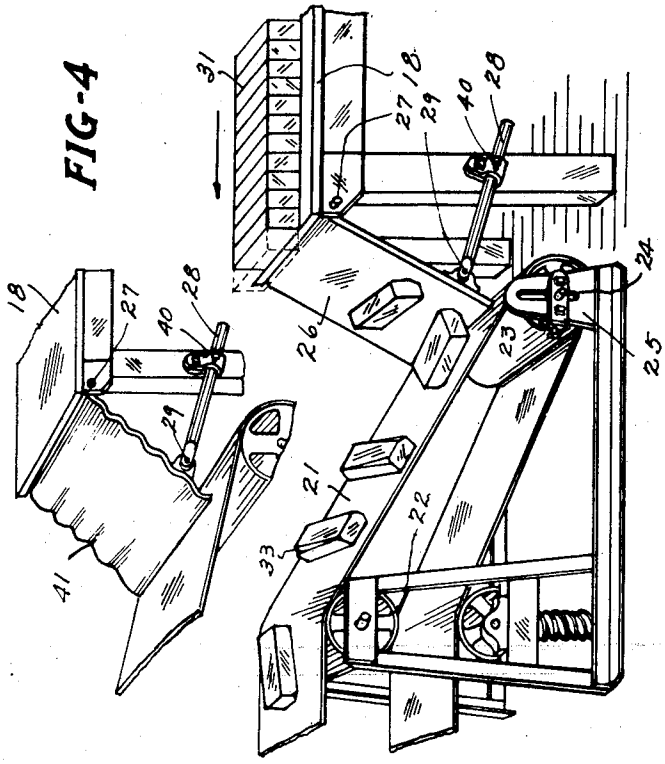


FIG-4

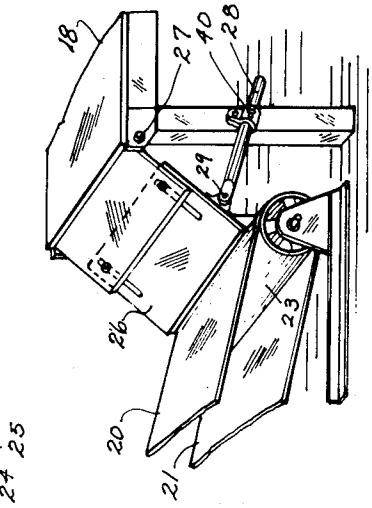


FIG-3

FIG-2

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METHOD AND APPARATUS FOR FORMING BUILDING BLOCKS

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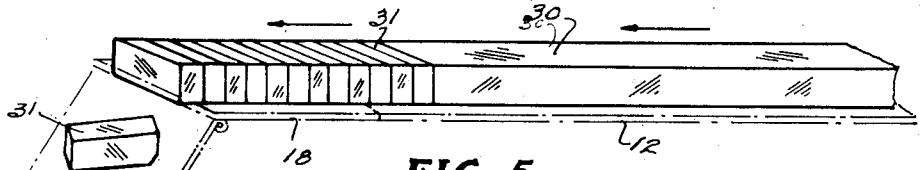


FIG-5

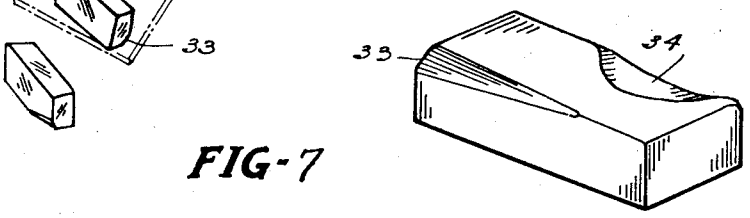


FIG-7

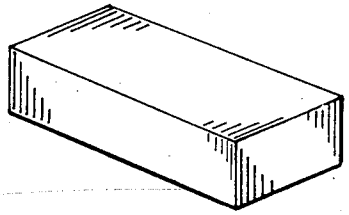


FIG-6

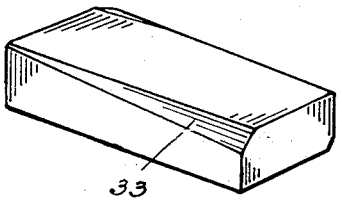


FIG-8

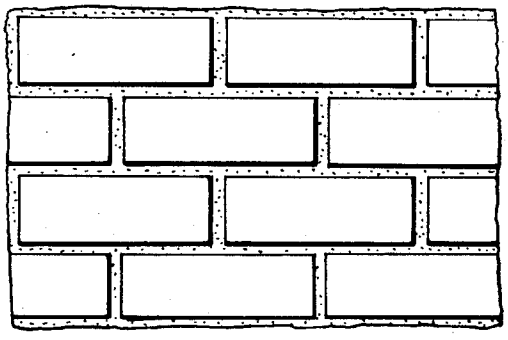


FIG-9

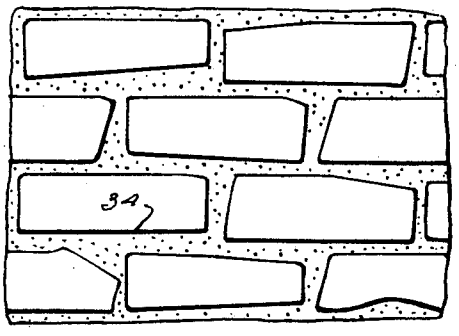


FIG-10

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Patented Oct. 17, 1933 1,930,970

UNITED STATES PATENT OFFICE

1,930,970

METHOD AND APPARATUS FOR FORMING BUILDING BLOCKS

Herbert F. Geist, Cleveland, Ohio

Application April 27, 1931. Serial No. 533,034

13 Claims. (Cl. 25—104)

This invention relates to a method of and apparatus for the manufacture of building blocks and is especially directed toward the manufacture of building blocks or bricks which may be used in wall constructions.

The general object of this invention is to provide a method and an apparatus for the manufacture of a building block which block will enhance the appearance of the exposed faces of walls in which the blocks are used.

A further object is to provide a method and apparatus to produce building blocks for use in wall construction, which blocks will present faces of non-uniform contour on the exposed surface of the wall when the blocks are set therein, but wherein the faces of adjacent blocks will present substantially flat, vertical and horizontal surfaces to the mortar joints, thereby securing a wall which will have the advantages of standard block construction, but wherein the appearance of the exposed surfaces of the wall will be greatly improved by the breaking up of the continuity of contour of the units and mortar joints.

Other objects of this invention will become apparent from the following description, referring to the accompanying drawings, and the essential novel characteristics will be set forth in the claims.

In the drawings, Fig. 1 is a side elevation of an apparatus used to carry out my improved method; Fig. 2 is an enlarged detail of a portion of the apparatus; Figs. 3 and 4 are modified forms of that portion of the apparatus illustrated in Fig. 2; Fig. 5 is a diagram illustrating the progress of the material through the different steps of operation, which steps may be performed by the apparatus shown in Fig. 1; Fig. 6 is a perspective of a standard block; Figs. 7 and 8 are perspectives of a block manufactured by my improved method; Fig. 7 illustrates a block formed by the apparatus shown in Fig. 4; Fig. 8 illustrates a block formed by the apparatus shown in Fig. 2 or 3; Fig. 9 is an elevation of a portion of a wall constructed of standard block; Fig. 10 is an elevation of a portion of a wall constructed of blocks manufactured by my improved method, and illustrating the unevenness of contour of the exposed faces of the mortar joints and blocks.

Heretofore, when it was desirable to construct a building wall wherein the contour units and mortar joints were purposely irregular for artistic effects, rough stone or small boulders were generally used. This required a comparatively great amount of mortar as the units were invariably exceedingly irregular. This irregularity and excess mortar detracted materially from the strength of the wall. Walls constructed of such units were costly, as much manual labor was required in placing the units. Likewise, the units could not easily be packed or handled, due to the extreme variations and irregularities in size and contour. Hence, the handling and transportation costs of such units were abnormally high.

To overcome the disadvantages above mentioned, I propose to provide an improved method of manufacturing building blocks, which comprises forming a mass of moistened clay or similar material into rectangular blocks or bricks by the usual methods, but I thereafter subject the blocks to an impact which deforms at least one of the marginal edges of the block to provide the block with at least one face, the marginal edges of which are irregular in contour. Such method provides a block, the opposite faces of which are substantially parallel, but the contours of certain of the faces are irregular.

Referring again to the drawings, and especially to Fig. 1, where I illustrate one form of apparatus which may be used to carry out my method of manufacturing building blocks, moist clay is supplied either manually or by a mechanical conveyor to a forming apparatus, generally indicated at 10. This forming apparatus may comprise an extruding machine 11, which may be of any of the well known types at present in common use for extruding clay in the manufacture of bricks, tile and the like. This extruding mechanism 11 is adapted to extrude the clay in a compact, rectangular shaped column, as indicated by 30 in Figs. 1 and 5.

After the clay has been extruded into the column form, it is next cut into comparatively small rectangular units or blocks 31. The column 30 is fed by the extruding mechanism 11 onto a conveyor 12, which progresses the column into a shearing device indicated at 14. This shearing mechanism may comprise, as shown, an open-ended cylindrical frame 15, through which the column is fed. The frame 15 carries a number of cutter wires or blades 16, which are equally spaced to sever the column into individual rectangular units or blocks. When the column has been fed to within the confines of the frame 15, the latter is rotated either manually or by means of suitable gearing 17, thereby carrying the cutter wires through the column. To facilitate this cutting operation, the progress of the column may be stopped by the stopping of the extruding machine 11 and the conveyor 12, or the frame 15 may be advanced at the same speed as the column during

the cutting operation, and then returned to its starting position while the column is being fed.

After the column 30 has been severed into units 31, it is next subjected to an impact to cause at least one of the marginal edges of each unit to be slightly deformed. It is to be noted that the blocks or units 31, after they have been severed, are still moist, and because of the nature of the material these units adhere one to the other. The units 31 are forced from the cutting mechanism onto a table 18, by the progress of the column 30, which feeding movement further increases the tendency of each unit to adhere to the other.

Adjacent the rearmost end of the table 18, is a conveyor 20, which serves to carry the formed units to a suitable loading point, where they may be loaded onto trucks or cars in the usual manner and placed in a kiln to be dried and hardened. The foremost end of the conveyor 20 is so located that the units 31, as they reach the rearmost end of the table, will drop from the table onto the conveyor. This dropping causes at least one edge of the unit to be deformed, due to the weight of the unit and the dropping action.

To prevent the units from dropping in such a manner that one of the flat faces will land on the conveyor 20 parallel with the top thereof, the latter is sloped and is adjustable so that this slope may be varied. To this end the conveyor 20 comprises a belt 21, supported by rollers 22 and 23, the latter roller being at the foremost end of the conveyor and being adjustable vertically in ways 24 of the bearing brackets 25.

To further insure the fact that the unit will land in such a manner as to deform the corners, I prefer to interpose a plate 26 between the table 18 and the conveyor 20. This plate is preferably pinned or pivoted to the table 18, as at 27, and slopes downwardly toward the conveyor 20. The angle of slope is adjustable and is held in adjustment by means of a bar or rod 28 pivoted to the plate as at 29, and secured to the table 18 by suitable securing mechanism 40.

It will be noted, as shown in Figs. 1 and 6, that the units 31 due to their adherence one to the other, project to a great extent beyond the end of the table 18, before they drop. As the units are progressed they drop from the table to the conveyor, striking the plate 26 which extends into the path of the falling unit between the table and the conveyor, thereby deforming at least one edge of each unit. This insures the fact that one edge will always be deformed. Due to the fact that adherence between the units varies, partially because they are cut by different cutting members, and because of various inconsistencies in material from which they are made, it has been found that no two units fall in exactly the same manner. Hence, no two units are deformed the same, one unit adhering greater at one end than the other, it drops at an angle, which causes the unit to be deformed as shown at 33, in Fig. 8, while another unit may drop causing a more or less parallel deformation, as shown at 34, in Fig. 10.

The plate 26 may be made in such a manner that its length may be adjustable, so that the roller 24 of the conveyor may be raised or lowered without interference with the plate. Likewise the plate may be constructed as shown at 40 in Fig. 4, wherein the face of the plate is irregular to further deform the units.

From the foregoing description, it is apparent that I have provided a method and apparatus for forming a novel building unit, which unit is substantially rectangular in form but the contour of certain of its faces are deformed, thereby providing a unit which may be used to materially enhance the artistic appearance of a wall in which the blocks are used without detracting from the strength of the wall. It is also evident that I have provided a very simple method and apparatus whereby my novel building unit may be readily manufactured, shipped and handled at a minimum cost.

I claim:

1. The method of manufacturing a building unit, comprising extruding a mass of clay into a substantially continuous rectangular column, severing the column into rectangular units of substantially regular contour, and thereafter subjecting each unit to an individual deforming impact to alter the regularity of the contour of one face thereof.

2. The method of manufacturing a building unit, comprising extruding a mass of clay in a substantially continuous rectangular column, severing the column into rectangular units of substantially regular contour while the clay is plastic, subjecting each unit to an individual deforming impact to alter the regularity of the contour of one face thereof while the mass of clay comprising the unit is still plastic, and thereafter treating the units to dry them and thus prevent further deformation.

3. The method of manufacturing a building unit, comprising forming a composition including clay into rectangular units, of substantially identical and regular contour, subjecting each unit to a deforming impact to deform a marginal edge thereof and wherein the deformation of one unit will vary from the deformation of other units, and thereafter treating the units to prevent further deformation.

4. The method of manufacturing a building block unit, comprising extruding a mass of material including clay into a substantially continuous rectangular column, thereafter severing the column into rectangular units of substantially regular contour, each unit being substantially identical with the other units so formed, thereafter subjecting each unit to an individual deforming operation to deform the continuity of one of the marginal edges of each unit, and thereafter treating such deformed units to prevent further deformation.

5. The method of manufacturing a building block unit, comprising extruding a mass of material including clay into a substantially continuous rectangular column, thereafter severing the column into rectangular units of substantially regular contour, each unit being identical with the other units so formed, thereafter subjecting each unit to an individual deforming impact to deform one of the marginal edges of each unit, the deformation of one unit varying from the deformation of the other units severed from the column, and thereafter treating such deformed units to prevent further deformation.

6. The combination of a forming mechanism adapted to form material into substantially rectangular units, means to progress the material through such forming mechanism, a guideway for the formed units, said guideway being interrupted whereby the formed units may drop therefrom, and means to interrupt the dropping movement of said units and cause them to be deformed, and wherein the deformation of one unit will vary from the deformation of other units.

7. The combination of an extruding mechanism

adapted to extrude material into substantially rectangular column, means to sever the column into rectangular units, means to progress the material through such extruding and severing mechanisms, a guideway for the severed units, said guideway being interrupted whereby the severed units may drop and a planular surface adapted to interrupt the falling of such units and cause them to be deformed.

8. The combination of an extruding mechanism adapted to extrude material into substantially rectangular column, means to sever the column into rectangular units, means to progress the material through such extruding and severing mechanisms, a guideway for the severed units, said guideway being interrupted whereby the severed units may drop and an irregular surface adapted to interrupt the falling of such units and cause them to be deformed.

9. The combination of a forming mechanism adapted to form material into substantially rectangular units, means to progress the material through such forming mechanism, a guideway for the formed units said guideway having an abrupt declivity therein, whereby the formed units will drop, and thereby be deformed a comparatively small amount.

10. The combination of a forming mechanism adapted to form material into individual units, with a guideway through which the formed units are progressed, means to feed the formed units through said guideway, said guideway having a declivity therein, a deforming member associated with the guideway and forming the wall of the declivity and against which the units impact due to gravity; thereby slightly deforming said units in a manner wherein the deformation in one unit will vary from the deformation in other units.

11. The combination of a forming mechanism adapted to form a material including clay into individual units, a guideway having a declivity therein for the formed units, a deforming member associated with the guideway and forming said declivity, said deforming member secured to the guideway, means to vary the slope of said deforming member whereby the angle of impact between the unit and the member may be varied.

12. The method of forming a building block comprising forming a clay composition into rectangular blocks, irregularly deforming marginal edges of said blocks, and thereafter treating the unit to prevent further deformation.

13. The method of forming a building block comprising forming a clay composition into substantially even marginal edges, deforming a marginal edge of each unit in such a manner that the deformation of one unit will vary from the deformation of other units, and thereafter treating the units to prevent further deformation.

HERBERT F. GEIST.