

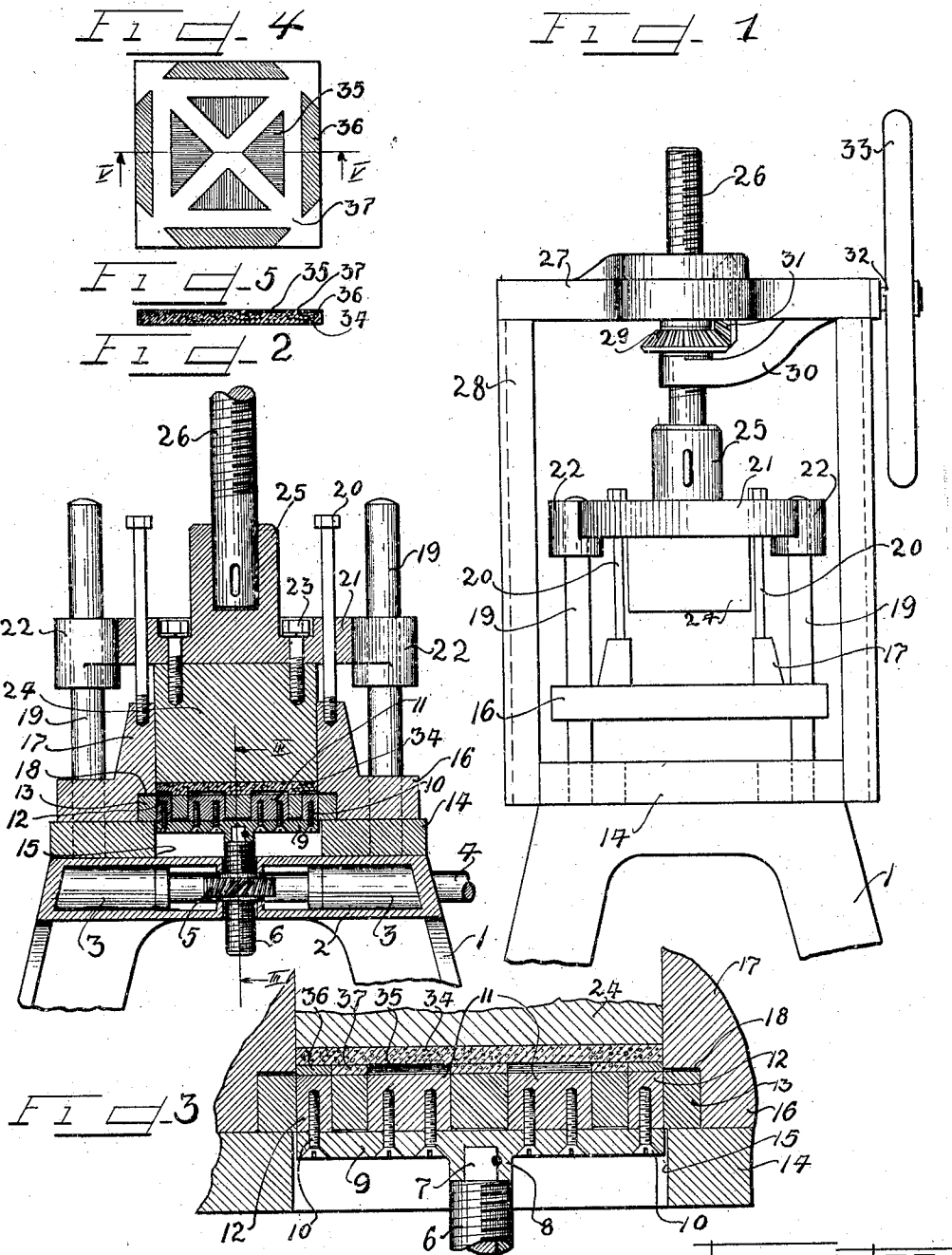
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METHOD OF FORMING CEMENT BLOCKS

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Analysis.

by

UNITED STATES PATENT OFFICE.

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METHOD OF FORMING CEMENT BLOCKS.

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This invention relates to an improved type of cement block having colored inlaid sections adapted to be produced in the forming of a block by an improved forming method, adapted to be accomplished by means of an adjustable die and a pressure producing mechanism.

It is an object of this invention to provide an improved method whereby cement blocks may be readily formed with colored sections arranged to produce a fanciful configuration in the face of the block.

It is also an object of this invention to provide a sectional die mechanism having a pressure producing mechanism co-acting therewith to permit colored inlaid sections of a cement block to be formed prior to the forming of the main body of the block.

It is a further object of this invention to provide an improved type of inlaid cement block by first forming colored cement inlay sections spaced from one another in the form of a selected design, after which the spaces between the colored inlay sections are filled with a dry cement, after which a cement mixture is deposited upon the inlay sections and the dry cement, and is pressed thereon to squeeze the moisture therefrom, causing the excess moisture to be absorbed by the dry cement, thereby forming a completed inlaid block.

It is an important object of this invention to provide an improved type of sectional die with which a pressure producing mechanism is adapted to co-act to permit cement inlay blocks to be rapidly and conveniently produced by an improved method, insuring the production of cement blocks having inlaid portions arranged to produce any desired fanciful configuration in the top surface of a block.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a fragmentary front elevation of a die and press machine for use in accomplishing the improved method of this invention.

Figure 2 is an enlarged detail vertical sec-

tion of the die and pressure mechanisms of the machine showing parts in elevation.

Figure 3 is an enlarged fragmentary vertical section of the die mechanism taken on line III—III of Figure 2.

Figure 4 is a plan view of an improved inlaid cement block.

Figure 5 is a transverse section of the inlaid block taken on line V—V of Figure 4.

As shown on the drawings:

The reference numeral 1 indicates a table or support provided with a hollow top section 2 within which bearing sleeves 3 are mounted for rotatably supporting a shaft 4 which projects outwardly from one side of the support 1 and is adapted to be operated manually by means of a crank or by any suitable source of power. Secured on the operating shaft 4 is a spiral gear which meshes with a spiral gear 5 which is internally threaded and engaged on a hollow screw 6 projecting through the top of the support 1. The hollow screw 6 is rotatably engaged on a pin or vertical stub shaft 7 projecting axially through the screw 6 and having the upper end thereof keyed or otherwise secured in a recessed shank or sleeve 8 integrally formed centrally upon the bottom of a die supporting disc or plate 9 having a plurality of countersunk passages therein, through which retaining screws 10 are engaged with the upper projecting ends of said screws threaded into suitable apertures provided in a plurality of adjustable blocks 11 and 12 of any desired or selected shape adapted to slidably fit upwardly into complementally shaped passages or recesses provided in a die plate 13 resting upon a table plate 14 secured upon the top of the support 1 and having a middle opening 15 therein through which the die supporting plate 9 is adapted to move to vary the position of the die blocks 11 and 12 with respect to the die plate 13. Mounted upon the die table plate 14 is a vertically adjustable or slidable upper die plate 16 having a guide sleeve or collar 17 integrally formed on the upper surface thereof. The lower middle portion of the upper die plate 16 is provided with a recess or groove 18 adapted to seat over the main die plate 13 when the upper die plate 16 is in its lowered position resting upon the upper surface of the lower table plate 14. The upper die plate 16 is provided with a plurality of openings to permit the same to slide upwardly on a

plurality of guide posts 19, the lower ends of which are secured in the table plate 14.

Secured to the upper end of the guide or collar 17 are a plurality of bolts 20 which project through suitable openings or passages provided in a pressure plunger 21 having a plurality of guide sleeves 22 formed thereon and slidably engaged on the guide posts 19. Secured to the bottom central portion of the pressure plunger 21 by bolts 23 or other suitable means, is a pressure or plunger block 24 which is adapted to slide downwardly into telescoping engagement with the guide sleeve 17. Formed centrally upon the top of the pressure plunger 21 is a boss or shank 25 in which is secured the lower end of an operating screw 26, adjustably projecting upwardly through a suitable opening in the top member 27 of a yoke or frame 28 mounted upon the support 1. Rotatably engaged on the plunger screw 26 below the top frame member 27, is an internally threaded bevelled gear 29 supported above a bracket 30 secured to the top frame member 27. The bevelled gear 29 is in mesh with a bevelled driving gear 31 supported on an operating shaft 32 journaled in the top frame member 27 and operable by means of a hand wheel 33 or any other suitable driving means.

Figures 4 and 5 illustrate an inlaid cement block comprising a body section 34, the upper portion of which is formed of a plurality of inlaid colored cement sections 35 and 36 arranged or grouped to provide a fanciful configuration with said inlaid sections 35 and 36 separated with a cement filling designated as a whole by the reference numeral 37 formed from a dry cement filling and moistened during the formation of the block from water squeezed or pressed from the body section 34 of the block during the formation thereof.

The improved method whereby inlaid cement blocks are adapted to be formed is adapted to be accomplished by means of the described machine in which the hand wheel which is adapted to be operated to raise the plunger plate 21 and the pressure block 24 upwardly to disengage said pressure block 24 from its engagement with the guide sleeve 17. With the continued raising of the plunger plate 21, said plate is moved into engagement with the heads of the bolts 20 thereby causing the upper die plate 16 to be raised out of engagement with the die mechanisms. The lower shaft 4 may now be rotated to cause rotation of the lower adjusting screw 6 to lower the die supporting plate 9 and the adjustable die blocks 11 and 12 mounted thereon an amount equal to the desired depth of the inlay sections 35 and 36 which are to be formed. After adjusting the die blocks 11 and 12 with respect to the main die plate 13, a cement mixture colored to any desired shade is poured into the recesses or

pockets formed in the main die plate 13 due to the result of the lowering of the adjustable die blocks 11 and 12. After the adjusted die has been filled with a colored cement, the deposited cement is leveled off flush with the upper face of the main die block 13, thereby forming the colored cement inlay sections 35 and 36. The hand wheel 33 is now operated in the reverse direction to cause a lowering of the plunger plate 21, permitting the upper die plate 16 to be lowered into a position in which the notched portion or groove 18 seats over the edge of the main die plate 13 with said upper die block or plate 16 resting upon the table plate 14, as clearly illustrated in Figure 2. This position of the upper die plate 16 and its guide sleeve 17 is reached before the pressure block 24 enters the die sleeve 17. At this stage in the operation, the lower shaft 4 is again rotated to cause the adjustable die supporting plate 9 to be raised or projected upwardly through the main die plate 13, thereby causing the adjustable die blocks 11 and 12 to push the formed colored inlay sections 35 and 36 out of said main die plate 13 within the opening provided within the die sleeve 17. In the raised position of the colored inlay sections, spaces are provided between the same which are now filled with a dry cement which is leveled off flush with the upper faces of said inlay sections 35 and 36. A wet cement mixture is next deposited in the guide sleeve or form 17 upon the colored inlay sections and said dry cement filling. The amount of wet cement mixture deposited in the block form 17 depends upon how thick a block is to be formed. After the wet cement mixture has been deposited, the hand wheel 33 is again operated to continue the lowering of the plunger plate 21, permitting said block 24 to slidably project into the form 17 thereby causing said block to compress the wet cement mixture to squeeze the moisture or water therefrom. During the pressing operation, the water squeezed from the wet cement mixture is absorbed by the dry cement filling between the colored inlay sections to form a cement filling 37 which serves to bind or unite the colored inlay sections with the main body portion 34 to form a cement block having colored sections inlaid in the upper portion thereof and separated by the cement filling 37, thereby giving the upper face of the formed block an artistic appearance with said sections forming a set design as illustrated in Figure 4 of the drawings. After a block has been formed as described, the plunger plate 21 and pressure block 24 are raised out of engagement with the form 17, after which said rising plunger plate 21 engages the heads of the bolts 20 to raise the form 17 and upper die plate 16 out of engagement with the formed block which remains upon the main die plate 13. With the pressure parts elevated above

the main die mechanisms, the formed block may be removed off of the main die plate 13 and placed in a convenient position to permit the cement to set and harden.

5 It will thus be seen that an inlaid cement block is adapted to be readily formed with the inlay sections formed of colored cement. The inlay sections may be of various shapes and of different colors as preferred. The
10 colored sections are formed first, after which the sections are raised above the level of the main die plate and the spaces between said sections are filled with dry cement, which is later covered by a wet cement mixture poured
15 into form 17 and compressed, permitting the moisture squeezed therefrom to be absorbed by the dry cement to form a solid inlaid block.

I am aware that many changes may be
20 made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than
25 necessitated by the prior art.

I claim as my invention:

1. A method of producing an inlaid cement block consisting of first forming a plurality of spaced colored cement inlay sections, then filling the spaces between said colored inlay sections with dry cement, and
30 covering the colored inlay sections and the dry cement with a wet cement mixture which is compressed to force the water therefrom, permitting said water to saturate the dry cement to form a solid cement block.
35

2. The method of producing an inlaid cement block consisting of forming spaced colored inlay sections, then filling the spaces
40 within said sections with a dry cement, leveling said cement even with the upper faces of said sections, then engaging a form around said colored inlay sections and depositing a wet cement mixture in said form above said
45 inlay sections, then compressing the wet cement filling causing the water pressed therefrom to be absorbed by said dry cement, and then removing the pressure producing means and the form from the compressed inlaid
50 block and removing said block from the supporting dies.

3. The method of producing an inlaid cement block consisting of forming colored cement sections, separating said sections with
55 a dry cement, depositing a wet cement mixture over the dry cement and said colored inlay sections, and then compressing the said colored inlay sections, the dry cement and

said wet cement mixture to form a solid cement block having the colored inlay sections 60 embedded in one face thereof.

4. The method of producing an inlay block consisting of forming a plurality of colored cement sections arranged in a fanciful configuration, filling the space between said 65 sections with a dry powder and covering the powder and said colored sections with a moistened mixture, and applying pressure to the entire mass to cause moisture from the moistened mixture to be pressed therefrom and 70 absorbed by the dry powder to form a solid block with the moistened powder, uniting said inlay sections with the compressed mixture to form an inlaid block.

5. The method of producing an inlaid 75 block consisting of forming a plurality of spaced colored inlay sections in a die, then elevating said formed inlay sections to provide spaces therebetween which are filled with a dry powder, and then covered by a 80 wet mixture, to which pressure is applied to squeeze the moisture therefrom to permit said moisture to be absorbed by the powder to convert the same into a binding mixture for uniting the formed colored inlay sections 85 with said compressed mixture to form an inlaid block.

6. The method of forming a fancy inlaid cement block consisting of forming a plurality of colored inlay sections arranged in a 90 fanciful configuration, depositing dry material therebetween and then covering the same with a wet mixture which is compressed to cause the moisture therein to be absorbed by the dry material to cause the same to act as 95 a filling and binding between the colored inlay sections and said compressed mixture to form a solid block.

7. The method of producing an inlaid block consisting of forming inlay sections of 100 a moistened colored mixture, separating said sections by a dry powder, and then covering said inlay sections and the powder by a wet mixture and compressing the entire mass to cause the moisture squeezed from the inlay 105 sections and said wet mixture to be absorbed by the dry powder to form the same into a binding material uniting the sections with the compressed material to produce a block having a fanciful colored design embedded 110 therein.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook county, Illinois.

MARCUS TOMARIN.