Feb. 24, 1970 E. J. TAYLOR-SMITH 3,497,580

METHOD AND APPARATUS FOR MAKING FACED CONCRETE BLOCKS

Original Filed Aug. 31, 1964 4 Sheets-Sheet 1

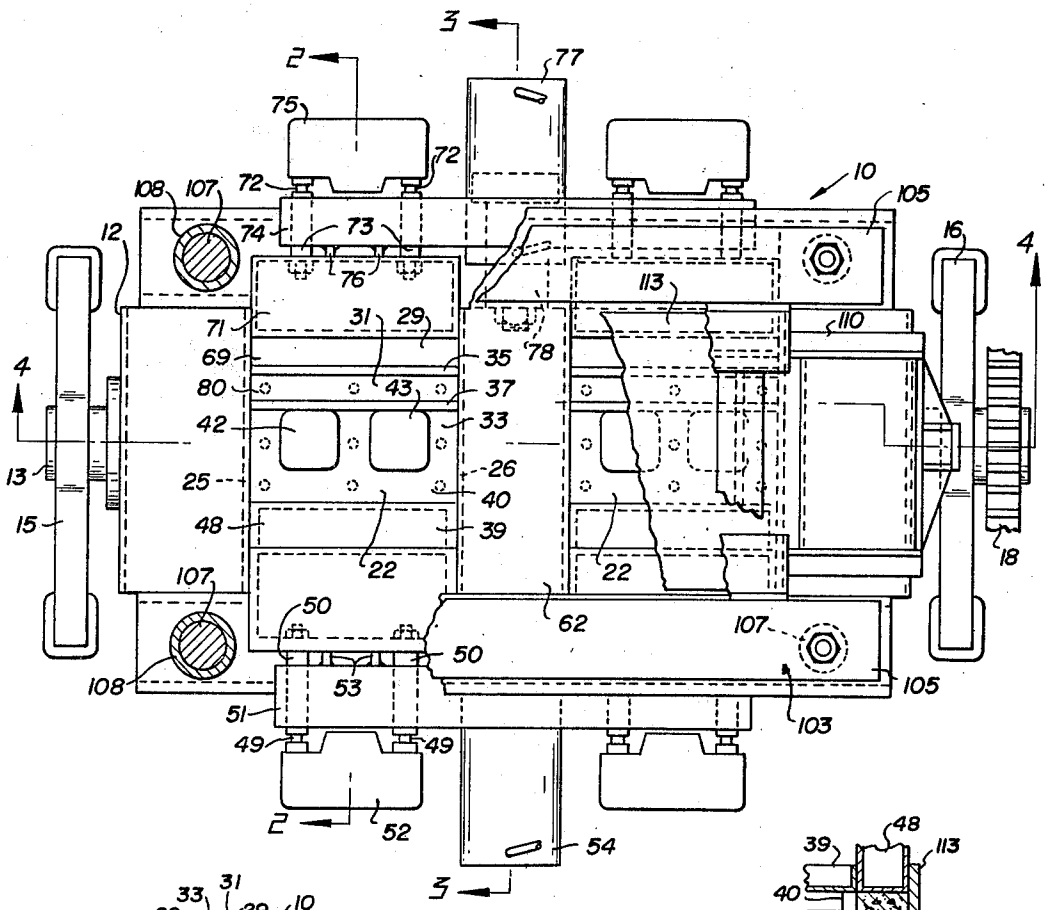


FIG. 1.

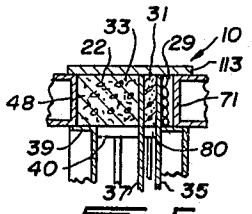


FIG. 5.

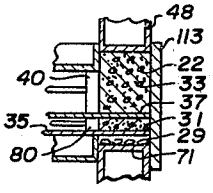


FIG. 6.

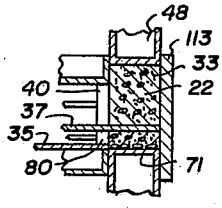


FIG. 7.

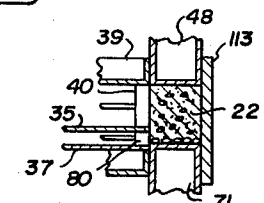


FIG. 8.

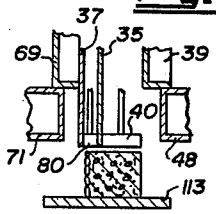


FIG. 9.

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METHOD AND APPARATUS FOR MAKING FACED CONCRETE BLOCKS

Original Filed Aug. 31, 1964 4 Sheets-Sheet 2

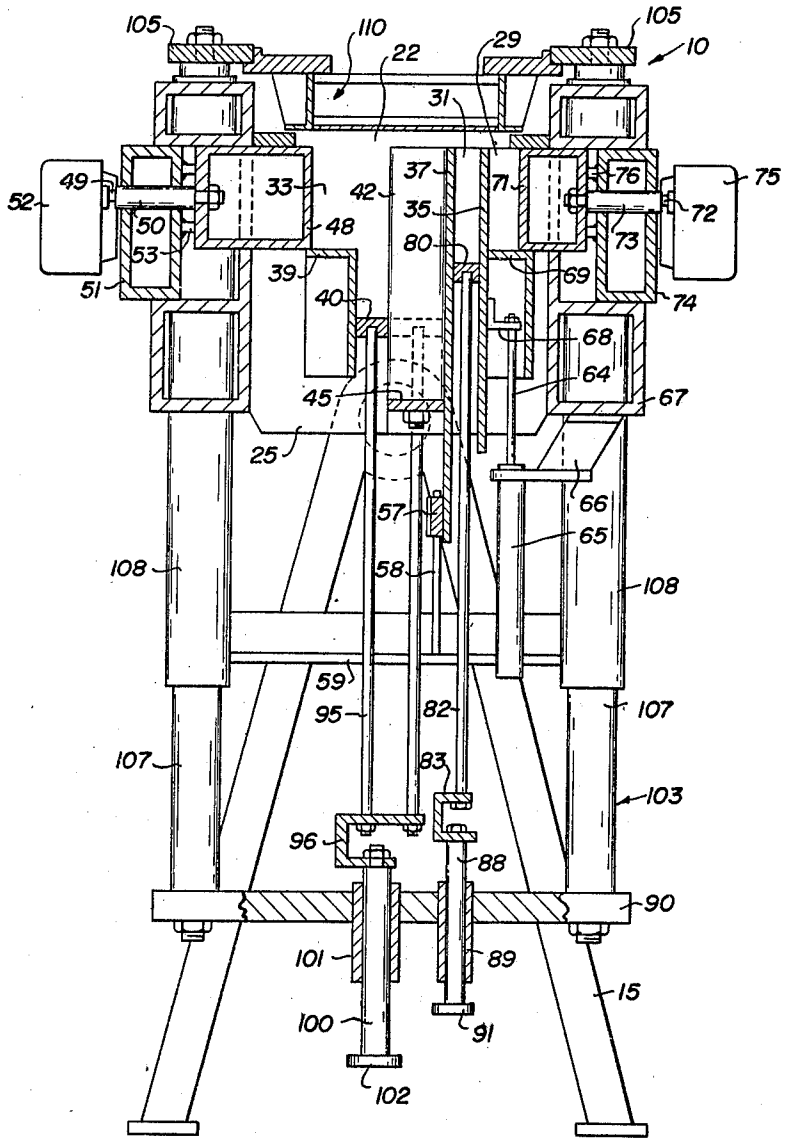


FIG. 2.

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METHOD AND APPARATUS FOR MAKING FACED CONCRETE BLOCKS

Original Filed Aug. 31, 1964 4 Sheets-Sheet 3

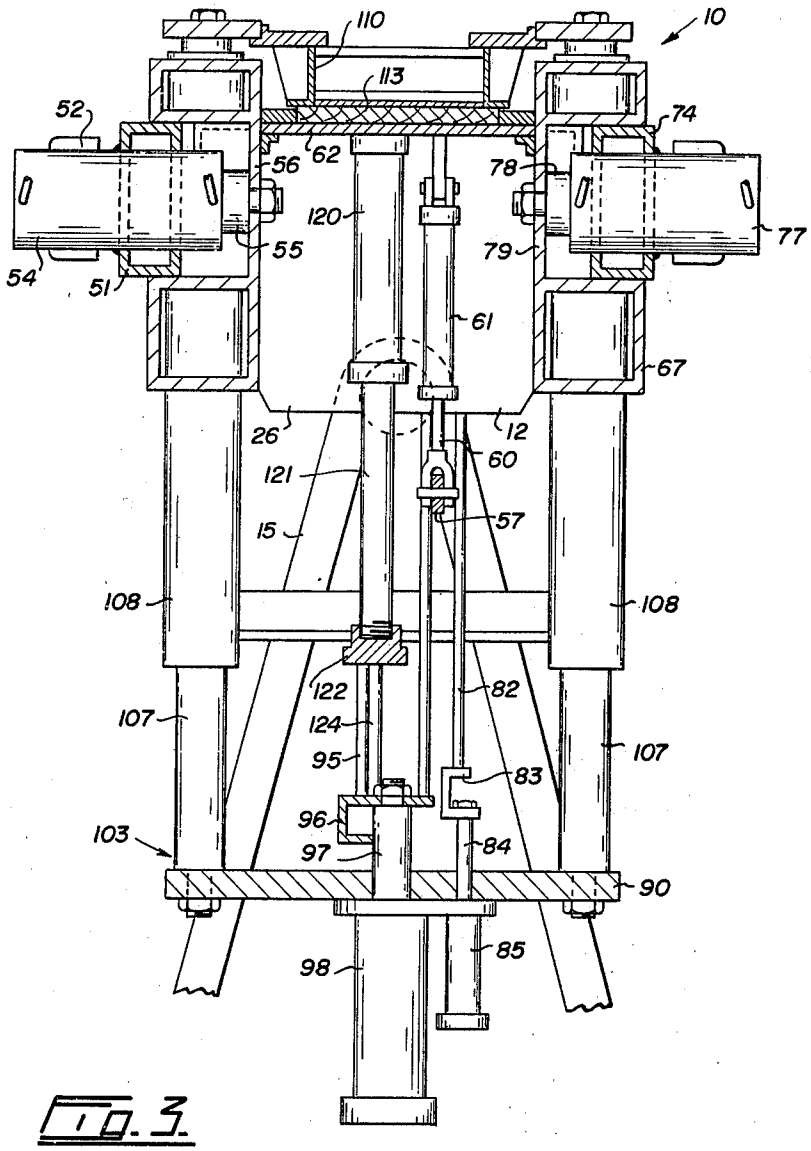


FIG. 3.

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METHOD AND APPARATUS FOR MAKING FACED CONCRETE BLOCKS

Original Filed Aug. 31, 1964 4 Sheets-Sheet 4

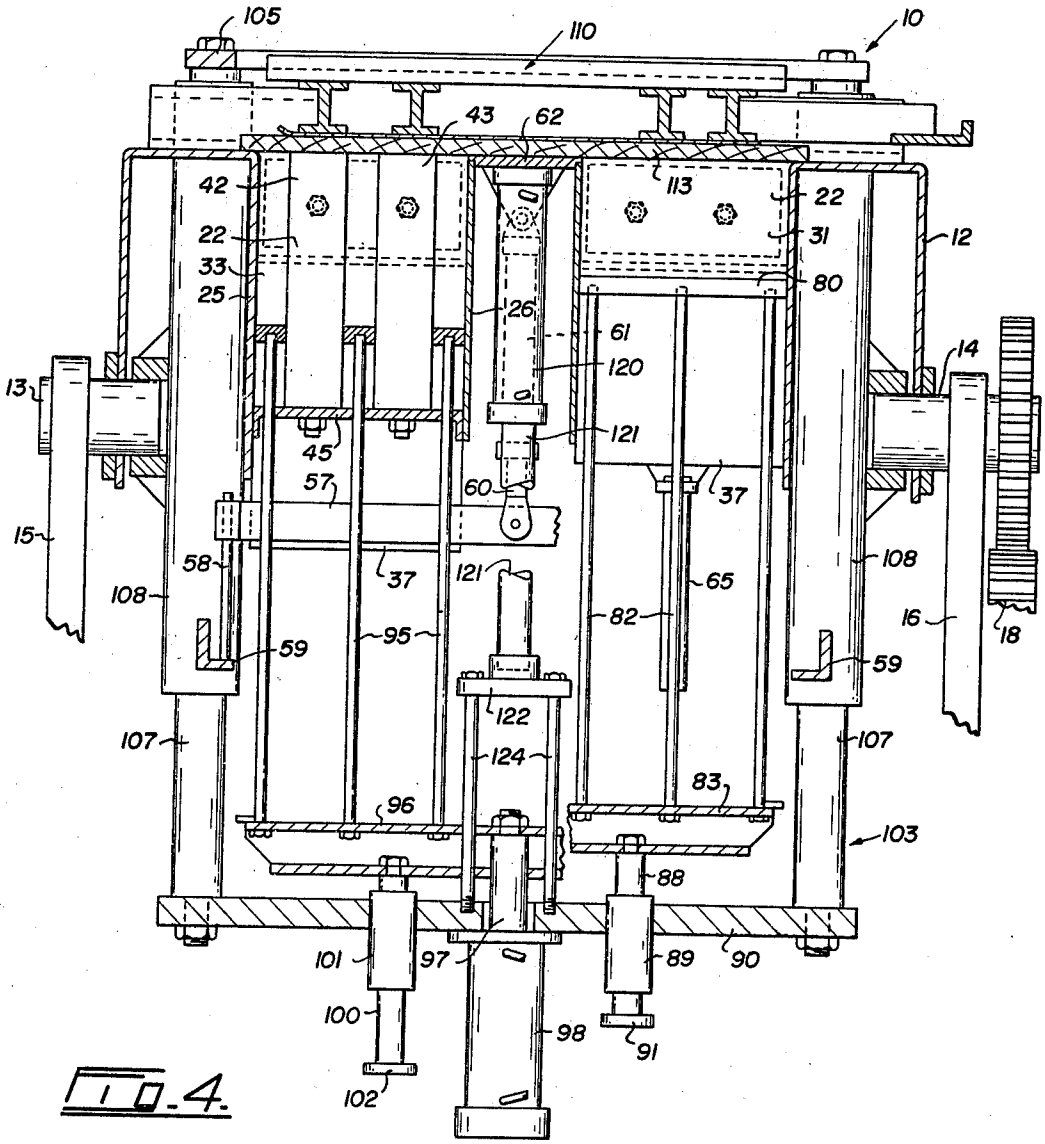


FIG. 4.

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United States Patent Office 3,497,580 Patented Feb. 24, 1970

3,497,580

METHOD AND APPARATUS FOR MAKING FACED CONCRETE BLOCKS

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Continuation of application Ser. No. 393,014, Aug. 31, 1964. This application Jan. 10, 1967, Ser. No. 608,459
Int. Cl. B28b 1/08, 1/16
U.S. Cl. 264—72 10 Claims

ABSTRACT OF THE DISCLOSURE

A method in the production of building blocks faced with rock-like particles. A faced slab is formed by moving a layer of rock-like particles into a layer of concrete of about the same thickness while subjecting the layer of rock-like particles to high frequency vibrations. A thicker block may be formed by applying additional concrete to the side of the slab opposite from that side containing the rock-like particles.

This invention relates to a method and apparatus for making concrete blocks having a facing of particulate material, such as stones or rocks, marble, slate, lava, mineral ores, coal and many other materials.

This application is a continuation of my previous application, Ser. No. 393,014, filed Aug. 31, 1964, now abandoned.

The term "block" as used herein is intended to include slabs, bricks and the like, and these can be used for ornamental purposes or as weight-bearing structural units.

Many attempts have been made in the past to produce concrete blocks having facings of stones or rocks, and the like. This sounds as though it would be a relatively easy thing to do, but the prior processes and apparatus have not been very successful. The problem is how to produce faced blocks on a commercial basis. It is very difficult to obtain a proper bond between the facing material and the concrete. For the sake of convenience, this description will deal with stones or rocks as the facing material, but it is to be understood that other suitable particulate materials may be used.

The problems involved are created mainly by the nature of concrete in a soft or unhardened state. In addition to this, it is difficult to produce blocks of precise dimensions with particulate facings. If you attempt to press the stones into the concrete, you merely compress the concrete behind each stone so that it is compacted behind the stones and on setting becomes hard and brittle without much or any bond to the stones. In addition to this, very little of the compacted material moves between the stones, and this usually has a different consistency from that behind the stones with the result that the stones fall out of the blocks, and the concrete often cracks and breaks away between the stones.

Efforts have been made to shake the molds in an effort to work the concrete between the stones. The first problem is to get the stones evenly distributed in a single layer on the bottom of the mold. The next problem is to shake the mold sufficiently to shake the entire mass of concrete in it in order to have some of the concrete move between the stones. It has been found that if the mold is shaken hard enough to get movement of concrete between the stones, the fines of the concrete tend to consolidate very quickly, and these simply form a mat on the back of the stones with very little, if any, penetration between the stones. The stones make holes bigger than themselves so that the stones fall out of the concrete. This shaking vibration also tends to case harden the block so that you have a thin hard and brittle layer of concrete at the surfaces thereof, and a weak core in the middle because of the lack of cement therein.

The method according to the present invention eliminates these problems by providing means for forming an even layer of stones or other particulate material in a mold, providing only sufficient concrete to form a slab block, and using high frequency vibrations for a predetermined interval to insure complete and proper penetration of the concrete around the stones, if a structural block is required, additional concrete is added to the slab block, said additional concrete then being subjected to high frequency vibrations. The method includes a sequence of steps which make it possible to produce on a commercial scale slab blocks or structural blocks having a facing of stones or the like which are firmly bonded to the concrete. Apparatus is provided which is very efficient for carrying out this method, and it applies high frequency vibrations only where they are required, and not throughout the entire apparatus. This protects the machine from damage, make it possible to reduce the structure of the machine, and it permits the use of a minimum of power in order to produce the vibrations.

High frequency vibrations, for example something of the order of 3600 cycles per minute, are used in this method and apparatus in place of low frequency vibrations since the latter have somewhat the same effect as is produced by shaking the mold. High frequency vibrations have the effect of loosening the particles which constitute the concrete relative to each other to enable the concrete to flow. Without the loosening effect, the concrete tends to remain in a mass, and therefore does not flow into small spaces. Furthermore, high frequency vibrations applied to a surface upon which stones rest cause said stones to level out on the surface without piling up on each other. This also causes the stones to shift until the larger or heavy surfaces thereof are next to the supporting surface.

In the manufacture of a slab block or the slab or front portion of a structural block, rocks and concrete are placed in adjacent compartments with a removable dividing plate therebetween. It is preferable that the rocks be roughly the same size. There is a definite relationship between the thickness of the rock compartment and the average size of the rocks, and between the thickness of the concrete compartment and the average thickness or size of the rocks. For the sake of convenience in loading, it is preferable to have the compartments of the mold upright while the rocks and concrete are being placed therein. The mold is closed and then rotated approximately 90° to move the rock compartment beneath the concrete compartment. The thickness of the rock compartment should be the thickness of the largest rocks plus a little more. For example, good results have been attained by having a rock compartment which is about one and a half times the thickness of the largest stone to be used. The thickness of the concrete compartment should be about as thick as the rock size or a little thicker. The rock compartment has a face wall which is now the bottom thereof, and this wall preferably is subjected to high frequency vibrations for a short period in order to spread the rock throughout the compartment. The comparatively thin compartment prevents one rock from sitting on top of the others so that the vibration spreads the rock evenly throughout the compartment. The amount of rock should be metered before being supplied to the compartment in order to insure a proper face for the finished block. It is preferable that this face wall of the rock compartment be separate from the remaining walls thereof so that only this face wall is vibrated during the operation. Next, the dividing plate is withdrawn to allow the concrete to drop down on to the layer of rocks.

The face plate of the rock compartment is moved upwardly to press the rocks into the concrete and to press the concrete against the back wall of the concrete compartment. This traps the rocks so that they cannot move out of position during the following vibration period. The face plate is now subjected to high frequency vibrations for a predetermined period to insure complete and proper penetration of the rocks into the concrete. The high frequency vibrations cause the concrete to flow into the spaces between the rocks, but the vibrations are terminated before the concrete tends to case harden behind the rocks. If this case hardening were to take place, there would be little or no bond with the rocks. With this arrangement, a comparatively small body of concrete is subjected to vibrations so that these are distributed throughout the concrete and do not have to be violent enough to cause case hardening in the block. This is further helped by the fact that the concrete is pressed against the back of the concrete compartment which resonates with the vibrations so that the concrete is actually subjected to vibrations at the bottom and top thereof. Thus proper penetration can be obtained in a very short time so that the vibrations are not applied long enough to affect the concrete itself or, in other words, not long enough to cause consolidation of the fines or case hardening in the finished block. It has been found generally that approximately 2 seconds of vibration are required to break concrete away from the mold walls, and about 3 seconds for proper penetration. From experience, about 4 to 8 seconds of vibration are required at this stage for rock approximately 1½ inches and under, and up to about 12 seconds for rock over 1½ inches. The following chart provides an indication of approximate thicknesses of the concrete compartment and the finished slab relative to different rock sizes:

Rock sizes (inches)	Concrete compartment thicknesses (inches)	Finished slab, thicknesses (inches)
½-1½	1¾	1¾
1½-2	2	2
2-3	2½	4
4-5	3-3½	5

The slab block can be finally sized by moving the face plate inwardly of the mold or by means of a back plate movable inwardly of the mold towards said face plate. If a slab block only is required, it is now ejected from the mold. A convenient way to do this is to turn the mold through another 90° and to press the slab and block downwardly out of it on a pallet.

The formation of a structural block is roughly the same as the above and carried on a little further. The mold for a structural block has stone and concrete compartments separated by a divider plate as described above, and a main concrete compartment beside the slab concrete compartment and separated therefrom by a removable divider plate. Metered quantities of rocks and concrete are directed respectively into the rock and concrete compartments. Then the mold is closed and turned so that the rock compartment is on the bottom and the main concrete compartment is on the top. The face plate or wall of the rock compartment is subjected to high frequency vibrations in order to level the rocks in the rock compartment. The rock dividing plate is withdrawn to allow the concrete of the slab concrete compartment to drop on to the layer of rocks, and the face of the rock compartment is moved upwardly to press the rocks into the concrete and the concrete against the concrete dividing plate. The face plate is now subjected to high frequency vibrations for a predetermined time to ensure proper penetration of the rocks into the concrete without causing consolidation of the concrete constituents. The concrete dividing plate acts as a backing plate for the slab concrete during this vibration. The concrete dividing plate is withdrawn to permit the main body of concrete to drop on to the formed slab. However, it is preferable to move the face plate inwardly of the mold at this time to shift the slab concrete against the main concrete rather than have the latter dropping on to said slab concrete. It is preferable that the main concrete compartment has a back plate or press opposed to the face plate and which is now moved towards said face plate to press the concrete into the size of the final block. At this time, the back press or plate is subjected to high frequency vibrations which ensure a proper distribution of the concrete in the mold and a good bond between the main body of concrete and the preformed slab. The high frequency vibrations are applied only to the back press or plate and not to the rest of the apparatus. The formed structural block may now be discharged from the mold. This can be done by turning the mold another 90° and pressing the block downwardly on a pallet.

During the manufacture of a slab block and a structural block, it is helpful to have the concrete compartments larger than necessary when the concrete is poured into them so that the concrete can then be compressed into the desired density and size. This can be accomplished by providing the slab concrete compartment and the main concrete compartment with movable bottoms or bottom presses. These presses are located below their proper block-sizing positions when the concrete is poured into the compartments, and then the bottom presses are moved inwardly of the mold to the block sizing positions.

Different mixes of concrete may be used in order to produce blocks of desired strengths. An example of a good mix for this purpose is approximately 2½ cubic feet of gravel, 1½ cubic feet of sand, 1 cubic foot of cement, and ⅞ gallon of water. If desired chemicals may be added for aerating the concrete, decreasing the setting time, and curing the concrete in accordance with standard practice. It is desirable to use gravel of a size smaller than the facing stones.

The following is an example of this method of producing a slab block:

(1) A metered quantity of rock of from 1 to 1½ inches is directed into the rock compartment of a mold which is about 1¾ inches thick.

(2) A metered quantity of concrete is directed into the concrete compartment of the mold which is about 1¾ inches thick.

(3) A pallet is clamped in position over the mold.

(4) The bottom of the concrete compartment is moved inwardly to its block-sizing position.

(5) The mold is turned to 90° position with the rock compartment beneath the concrete compartment.

(6) The face press or wall of the rock compartment is vibrated to level and distribute the rock and shift the larger or heavy faces thereof downwardly on to said face press.

(7) The rock dividing plate is withdrawn from the mold to allow the concrete to drop on to the layer of rock.

(8) The face press is moved inwardly to press the rocks into the concrete and the concrete against the back face of the concrete compartment, forming a slab about 1¾ inches thick.

(9) High frequency vibrators are operated against the face press for about 8 seconds.

(10) The mold is turned to 180° position.

(11) The face press is moved outwardly to clear the rock face.

(12) The pallet is freed and the block pressed downwardly with the pallet moving with it.

The following is an example of a method of making a structural block; with the rock size, rock compartment size and concrete compartment size mentioned immediately above:

(1) A metered quantity of rock is directed into the rock compartment.

(2) A metered quantity of concrete is directed into the concrete and main compartments of the mold.

(3) The concrete dividing plate is moved into position to separate the concrete and main compartments, this preferably being done as the concrete is being directed into the mold.

(4) A pallet is clamped in position over the mold.

(5) The bottoms of the concrete and main compartments are moved inwardly to their block sizing positions.

(6) The mold is turned to a 90° position with the rock compartment beneath the concrete compartments.

(7) Face press high frequency vibrators are operated to level the rock in the rock compartment.

(8)The rock dividing plate is withdrawn to allow the concrete in the concrete compartment to drop on to the layer of rocks.

(9) The face press is moved inwardly to press the rocks into the concrete.

(10) The vibrators are operated to ensure a penetration of the concrete into the rock layer, this vibration continuing for about 8 seconds.

(11) The concrete dividing plate is withdrawn.

(12) The face press moves inwardly to its final position.

(13) The back press or wall of the main concrete compartment is moved into the final block sizing position while it is subjected to the operation of a high frequency vibrator for about 5 seconds.

(14) The mold is turned to 180° position.

(15) The face press is moved out to clear the rock face.

(16) The block and pallet are moved downwardly clear of the mold.

Although the methods set out above may be carried out with different forms of apparatus, the following is a description of very good apparatus for making slab blocks or structural blocks.

In the accompanying drawings,

FIGURE 1 is a plan view of apparatus for molding two faced blacks at a time,

FIGURE 2 is a vertical sectional view taken on the line 2—2 of FIGURE 1,

FIGURE 3 is a cross section taken on the line 3—3 of FIGURE 1,

FIGURE 4 is a longitudinal section taken on the line 4—4 of FIGURE 1, and

FIGURES 5 to 9 are diagrammatic views illustrating the various steps during the operation of this apparatus.

Referring to the drawings, block making apparatus **10** includes a rotating frame **12** having trunions **13** and **14** projecting laterally therefrom, said trunions being respectively journalled in suitable supports **15** and **16**. Frame **12** is adapted to be rotated to a 90° position from that shown in FIGURES 1 to 4, and then to a 180° position by suitable means, such as gears **18** rotated by a suitable source of power, not shown. Frame **12** returns to its zero or normal position by reversing the direction of rotation. The illustrated apparatus includes two open-top molds **22** mounted in frame **12**, and as these are identical, only one will be described in detail. It will be understood that there may be only one of these molds or many molds in the apparatus.

Mold **22** has fixed side walls **25** and **26** which are spaced apart a distance equal to the length of the block to be formed in this apparatus. The mold is divided into a rock compartment **29**, a slab concrete compartment **31** and a main concrete compartment **33** by transverse slidably-mounted rock dividing plate **35** and concrete dividing plate **37**. Compartments **29** and **31** are about the same thickness while compartment **33**, if provided, is considerably larger than the others. Part of the main concrete compartment **33** has a fixed bottom **39**, while the rest of this compartment has a vertically movable bottom or main press **40**. If the block is to be a structural block having core openings vertically therethrough, cores **42** and **43** are fixedly mounted in compartment **33**, preferably adjacent or against divider plate **37**, see FIGURES 1 and 2. In this example, cores **42** and **43** are fixedly secured to a base **45** carried by rotary frame **12** beneath movable bottom or main press **40**, said cores slidably extending through said bottom press.

The back end of main compartment **33** is closed by a movable wall or back press **48**, said back press slidably fitting on stationary bottom **39** and between side walls **25** and **26** of the mold. Back press **48** is connected to a pair of rods **49** which extend through guides **50** carried by a frame member or beam **51** slidably mounted in and for movement relative to rotating frame **12**, see FIGURES 1 and 2. Rods **49** extend freely through their respective guides which are mounted in beam **51**. These rods are connected to a high frequency vibrator **52** of well known construction, said vibrator being supported solely by these rods and the guides **50**. The beam **51** is connected to press **48** by rods **53** and is moved in and out relative to frame **12** by a cylinder **54** which is fixedly secured thereto, see FIGURES 1 and 3, said cylinder having a piston rod **55** projecting therefrom which is secured to a fixed part **56** of frame **12**.

Transverse dividing plate **37** is moved up and down in mold **22** in any convenient manner. In this example, the lower end of plate **37** is connected to a cross bar **57** slidably mounted at its opposite ends on vertical rods **58** having stops **59** at the lower ends thereof, said cross bar being connected to the piston rod **60** of a hydraulic cylinder **61** which hangs down from a bridge **62** which forms part of rotary frame **12**, see FIGURES 3 and 4.

Rock dividing plate **35** is moved up and down in mold **22** in any convenient manner. In this example, a bracket **68**, see FIGURE 2, is connected to plate **35**, and is also connected to the upper end of a piston rod **64** of a hydraulic cylinder **65** connected by a web **66** to a member **67** of the rotating frame.

Rock compartment has a fixed bottom **69** which is aligned with a fixed portion **39** at the bottom of main compartment **33**. A face wall or press **71** is slidably mounted on bottom **69** between mold walls **25** and **26**. Face press **71** is connected to a pair of rods **72** extending through guides **73** carried by a frame member or beam **74**, the outer ends of said rods being connected to a high frequency vibrator **75** which is supported solely by said rods and the guides **73**, see FIGURES 1 and 2. Beam **74** is connected by rods **76** to press **71** and is mounted in frame **12** for movement inwardly and outwardly with respect thereto, and this movement is accomplished by a cylinder **77** secured to said beam and having a piston rod **78** fixedly secured to a stationary part **79** of frame **12**.

Slab concrete compartment **31** has a movable bottom or auxiliary press **80** which is movable up and down in mold **22** between plates **35** and **37**. A plurality of rods **82** are connected to auxiliary press **80** and extend downwardly to a cross bar **83**, see FIGURES 2, 3 and 4. This cross bar is connected to a piston rod **84** of a hydraulic cylinder **85**, see FIGURE 3, which moves bottom press **80** up and down within the mold. Stop rods **88** extend downwardly from bar **83** and through sleeves **89** carried by a beam **90** of rotary frame **12**, each rod **88** having a stop **91** on its lower end which limits the upward movement of cross bar **83** and stops auxiliary press **80** in its correct position relative to mold **22**, which is aligned with fixed bottoms **39** and **69** of compartments **33** and **29**, respectively.

Main bottom press **40** is moved up and down in compartment **33** in the same manner as auxiliary press **80**. A plurality of rods **95** connected to main press **40** slidably extend through base **45** and are connected at their lower ends to a cross bar **96**. This cross bar, in turn, is connected to the piston rod **97** of a hydraulic cylinder **98** mounted on beam **90**, see FIGURES 2, 3 and 4. A plurality of stop rods **100** are connected to and extend downwardly from cross member **96**, and slidably extend through sleeves **101** mounted on beam **90**. Each stop

rod **100** has a stop **102** on its lower end which limits the upward movement of main press **40** which is in line with fixed bottoms **39** and **69** in the mold.

A clamping frame **103** is made up of lower beam **90** and an upper beam **105** interconnected at the corners thereof by four rods **107**, each rod slidably extending through a long sleeve **108** which forms part of rotary frame **12**. A sliding frame **110** is mounted on and suspended from upper beam **105**. A pallet **113** is moved into position beneath frame **110** in any desired manner.

Clamping frame **103** is moved up and down by a hydraulic cylinder **120** hanging from bridge **60** and having a piston rod **121** projecting downwardly therefrom, the lower end of said rod being connected to a head **122** which, in turn, has rods **124** extending downwardly therefrom, the lower ends of which are connected to beam **90**, see FIGURE 4.

The operation of apparatus **10** is as follows:

When the apparatus is ready to receive the rocks and the concrete, bottom presses **40** and **80** are in their lowermost positions, as shown in FIGURE 2, but pallet **113** is not yet in place, and concrete dividing plate **37** is in its lowermost position. A metered quantity of rock is directed into compartment **29** and at the same time, a metered quantity of concrete is directed into compartments **31** and **33**. Just before the total amount of concrete is directed into the concrete compartments, dividing plate **37** is moved upwardly to its upper position. A pallet **113** is moved over the molds, and cylinder **120** is operated to move clamping frame **103** downwardly. This causes upper beam **105** to press frame **110** against the pallet on top of the mold to close the latter. The main and auxiliary bottom presses **40** and **80** are moved upwardly by cylinders **98** and **89** into their final positions to establish the height of the block, these positions being aligned with stationary bottoms **39** and **69** of the mold. This arrangement of the various elements of the mold is illustrated in FIGURE 5.

Frame **12** is now rotated to the 90° position with rock compartment **29** beneath concrete compartments **31** and **33**, see FIGURE 6. Vibrator **76** of face press **71** is now operated to level the rock on said press in compartment **29**. After this has been done, dividing plate **35** is withdrawn from the mold so that the concrete in compartment **31** tends to drop down onto the layer of rocks in compartment **29**. Face press **71** is moved inwardly by cylinder **77** to embed the rocks in the concrete and shift the concrete against dividing plate **37**, and then vibrator **76** is operated again to vibrate the face press, and thereby cause the concrete to penetrate into the spaces between the rocks. Dividing plate **37** acts as a backing plate at this time, and it resonates with the vibrations to help transmit these vibrations completely through the concrete and rocks which are now formed into a slab, see FIGURE 7. If slab blocks only are required, no concrete would be directed into main compartment **33** and the slab block would now be finished. Furthermore, press **71** can be moved inwardly finally to size the slab before it is discharged from the mold.

During the manufacture of a structural block, concrete dividing plate **37** is now withdrawn to allow the concrete in compartment **33** to drop on to the preformed slab. It is preferable now to move face press **71** upwardly to compensate for the thickness of withdrawn plate **37**, and back press **48** is moved by cylinder **54** inwardly to complete the sizing of the block, vibrator **52** being operated at this time for a predetermined period to subject the main mass of concrete to high frequency vibrations to form a block of uniform consistency, and firmly to bind the slab to the main concrete body. FIGURE 8 illustrates the position of the various elements at this time.

Frame **12** is now rotated to the 180° position. Face press **71** is moved outwardly to clear the block and cylinder **120** is operated to move clamping frame **103**. This permits pallet **113** to move in the same direction as it is resting on frame **110** carried by beam **105**. As cylinders **85** and **98** are carried by beam **90** of frame **103**, bottom presses **40** and **80** move downwardly at this time to move the formed block through the mold on the pallet. With this arrangement, the block is firmly held between the pallet and the main and auxiliary bottom presses, see FIGURE 9. During the last part of the downward movement of frame **103**, bottom press **40** is moved upwardly relative to said frame to separate it from the block, and the latter may now be moved away on pallet **113**. The back and face presses **48** and **71** move to their outer positions, the bottom presses are moved to their positions for receiving concrete in compartments **31** and **33**, and rock dividing plate **35** is moved back into the mold while frame **12** is rotated back to the zero position.

What I claim as my invention is:

1. A method of making a faced building block having at least one face thereof formed with a plurality of rock-like particles which particles have a portion of their surfaces exposed to form a part of the exterior surface of said face, including the steps of:

(a) placing a plurality of said rock-like particles in a mold on a substantially flat horizontal face plate, the face plate being capable of movement within and relative to the mold,

(b) arranging the particles into a layer of a depth of about the size of the particles,

(c) forming a quantity of concrete into a layer immediately above but separated from the layer of rock-like particles, said concrete layer being of a thickness approximately equal to the thickness of the rock-like particle layer,

(d) depositing the said concrete layer onto the said particle layer, and then

(e) moving said face plate upwardly into the mold to move the rock-like particles into the concrete layer so that the upper parts of the rock-like particles penetrate the concrete to prevent the rock-like particles from moving out of position, and while restraining the concrete layer against upward movement, and

(f) subsequently, at a high frequency, vibrating only said face plate to vibrate only the layer of rock-like particles and the said layer of concrete, to cause the upwardly restrained concrete layer to move towards the upwardly moving face plate between the rock-like particles thereby forming a faced slab block.

2. The method as claimed in claim **1**, wherein the said step of arranging the particles includes vibrating the face plate to level the rock-plate particles into a single layer on said face plate.

3. The method as claimed in claim **1**, wherein: the step of placing a layer of facing material includes placing the facing material into a compartment having a thickness slightly greater than the size of the rock-like particles; the step of forming a layer of concrete includes placing the concrete into a compartment having a thickness approximately equal to the thickness of the facing material compartment and separated from said material compartment by a removable plate and being bounded at its upper side by a back wall substantially parallel to the removable plate; and the step of depositing the concrete layer includes removing the removable plate thereby allowing the concrete to fall onto the rock-like particles.

4. The method as claimed in claim **3** including the following steps before the step of placing the rock-like material onto the face plate; with the two said compartments arranged side-by-side and open at their tops, depositing the said rock-like particles and the said concrete into their respective compartments, covering the said open top of the compartments, and rotating the said compartments together to place the rock-like materal compartment below the concrete compartment.

5. The method as claimed in claim 1, including the steps of forming a second concrete layer immediately above and separated from the first said concrete layer, said second concrete layer being of a sufficient quantity to form the balance of the block onto the said slab, and following said vibrating step, depositing said second concrete layer onto said slab block, and pressing said seocnd concrete layer onto said slab block to form therewith a single block.

6. The method as claimed in claim 5 including the step of vibrating the second layer of concrete at a high frequency as said second layer is pressed against said slab block.

7. The method as claimed in claim 6 wherein the step of arranging the particles includes vibrating the face plate to level the rock-like particles into a single layer on said face plate; and wherein a vibrating backing plate bounds the upper side of said second concrete layer, and said step of pressing said second concrete layer includes moving said backing plate against said second concrete layer while, at a high frequency, vibrating only said backing plate.

8. The method as claimed in claim 5 wherein: the step of placing a layer of facing material includes placing the facing material into a compartment having a thickness slightly greater than the size of the rock-like particles; the step of forming the first said layer of concrete includes placing the concrete into a compartment having a thickness approximately equal to the thickness of the facing material compartment and separated from said material compartment by a first removable plate and being bounded at its upper side by a second removable plate substantially parallel to the first removable plate; the step of forming the second concrete layer includes placing said quantity of concrete into a main compartment immediately above and separated from said first concrete compartment by said second removable

plate; the step of depositing the first concrete layer includes removing the first removable plate to allow the first concrete layer to fall onto the rock-like particles; and the said step of depositing the second concrete layer on the slab block includes removing the second removable plate to allow the second concrete layer to fall onto the slab rock.

9. The method as claimed is claim 8 including the following steps before the step of placing the rock-like material onto the face plate; with the three said compartments arranged side-by-side and open at their tops, depositing the said rock-like particles and the said concrete into their respective compartments, covering the said open top of the compartments, and rotating the said compartments together to place the rock-like material compartment below the first concrete compartment, and the first concrete compartment below the second concrete compartment.

10. The method as claimed in claim 9 wherein the step of arranging the particles includes vibrating the face plate to level the rock-like particles into a single layer on said face plate; and wherein a vibrating backing plate bounds the upper side of said second concrete layer, and said step of pressing said second concrete layer includes moving said backing plate against said second concrete layer while, at a high frequency, vibrating only said backing plate.

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