No. 822,333.

PATENTED JUNE 5, 1906.

I. E. YARNELL.

CONCRETE BUILDING BLOCK MACHINE.

APPLICATION FILED MAY 13, 1905.

4 SHEETS—SHEET 1

Fig. 1.

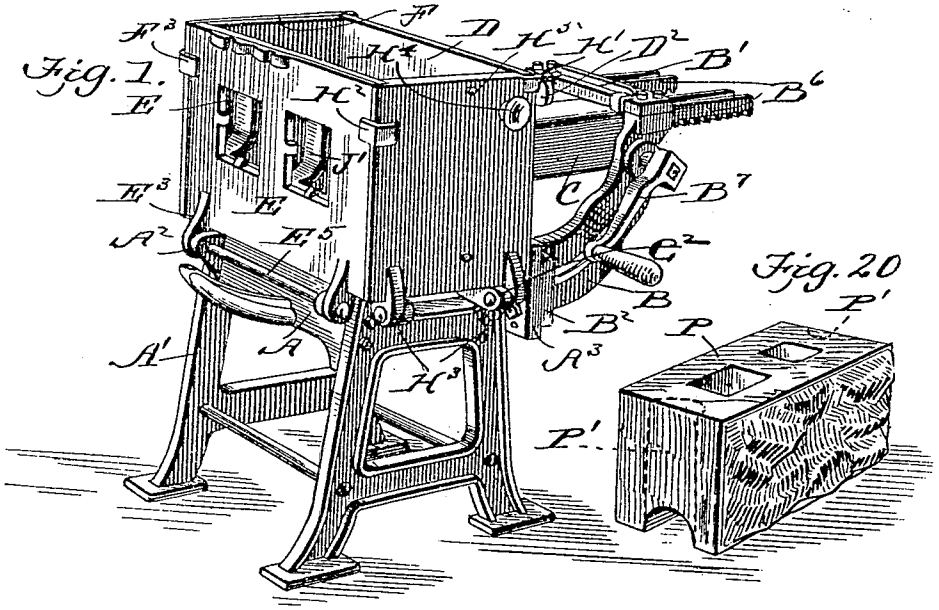
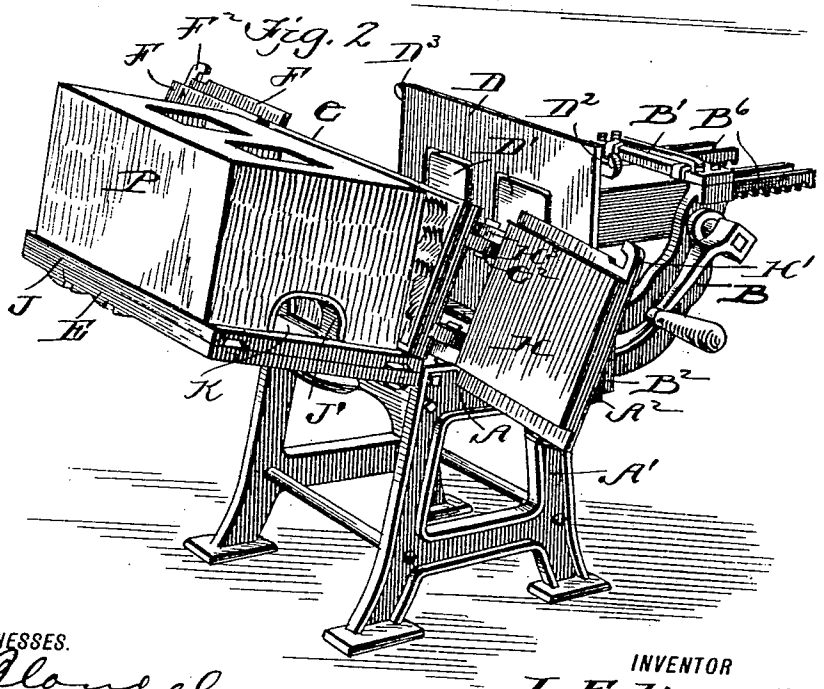


Fig. 2.



WITNESSES.

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C. B. McBath.

INVENTOR

I. E. Yarnell.

BY

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249-64 ... PARATUS. ... Draftsman.

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4 SHEETS—SHEET 2.

Fig. 3.

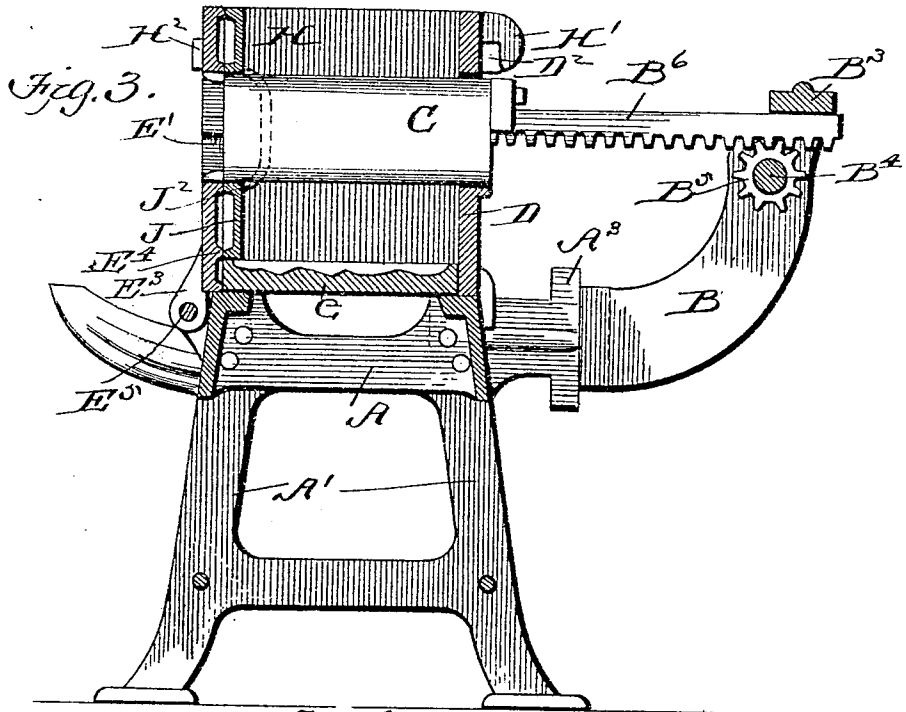
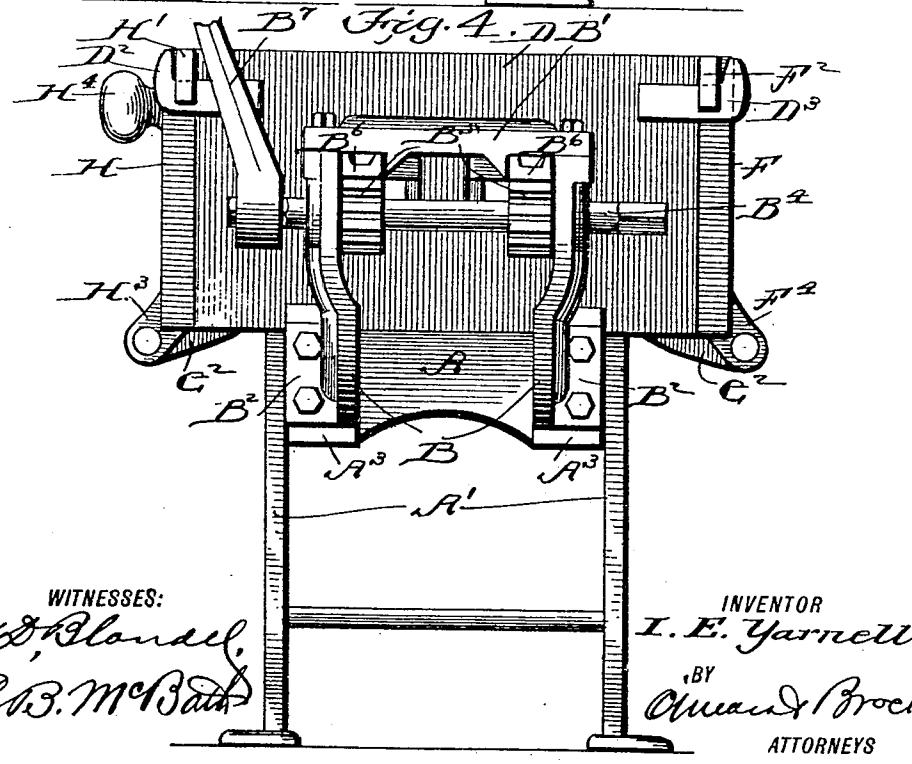


Fig. 4.



WITNESSES:

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4 SHEETS—SHEET 3.

Fig. 5.

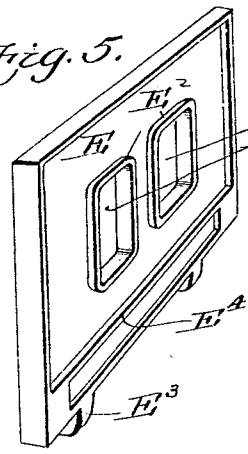


Fig. 7.

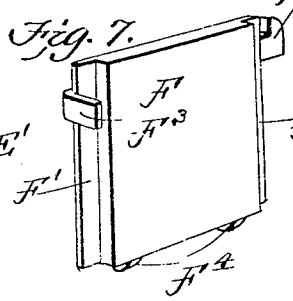


Fig. 6

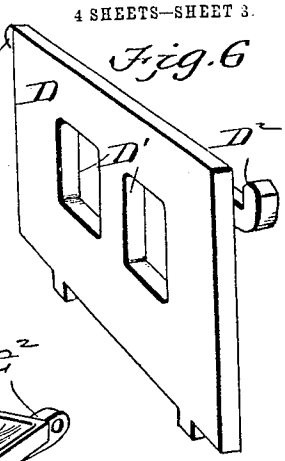


Fig. 9.

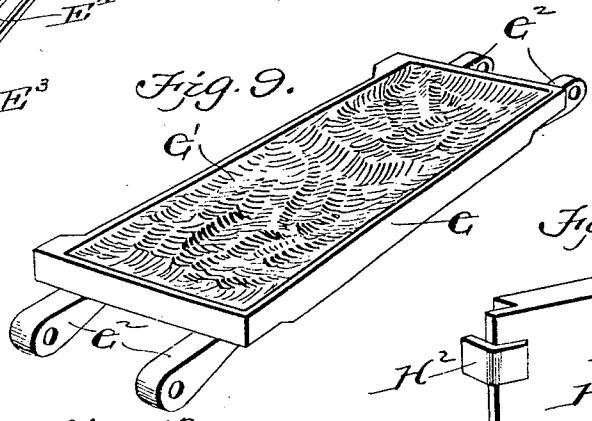


Fig. 8.

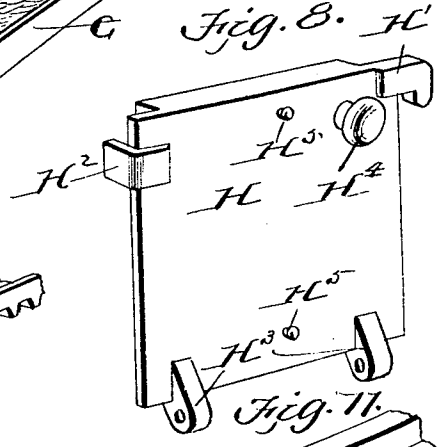


Fig. 12.

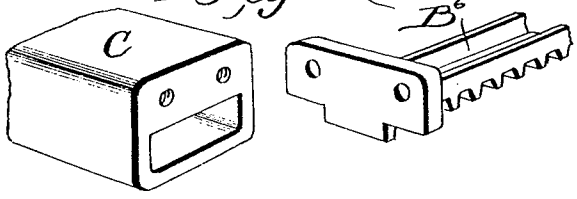


Fig. 11.

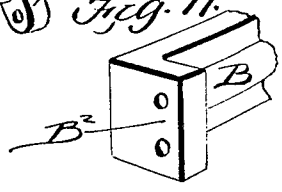
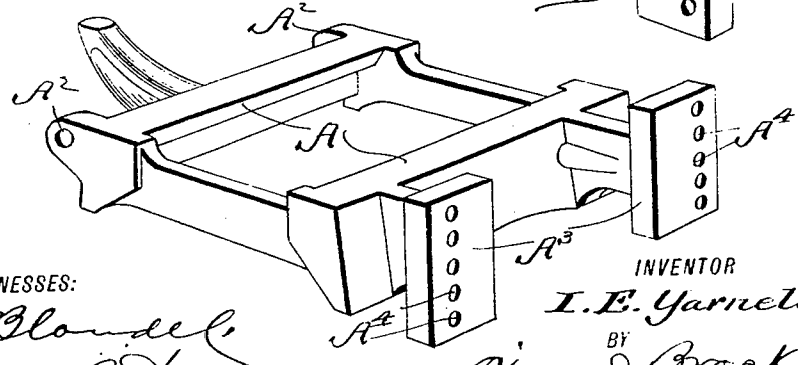


Fig. 10.



WITNESSES:

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4 SHEETS—SHEET 4

Fig. 13.

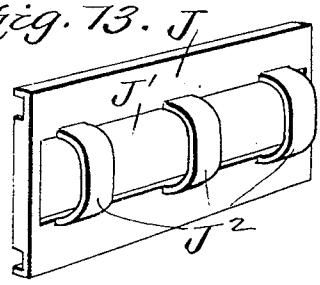


Fig. 14.

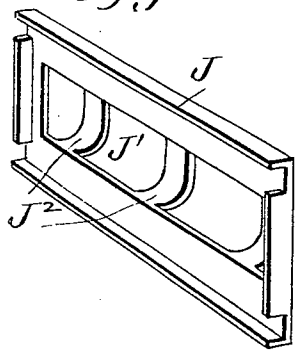


Fig. 15.

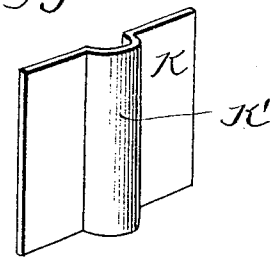


Fig. 16

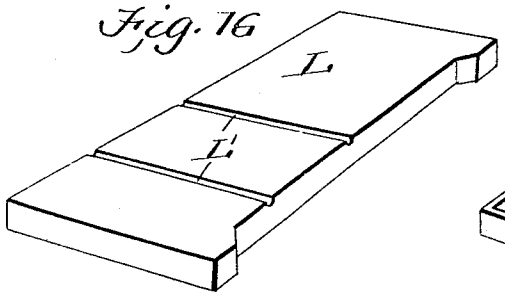


Fig. 17.

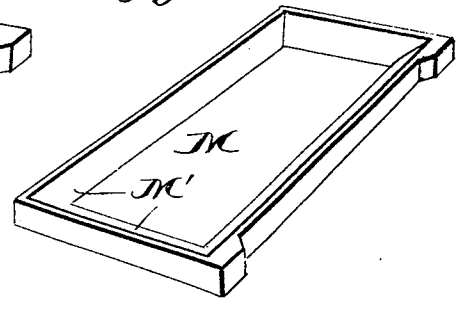


Fig. 18

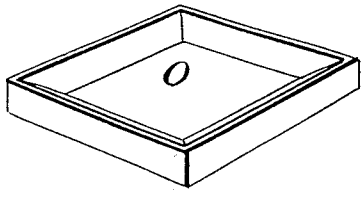
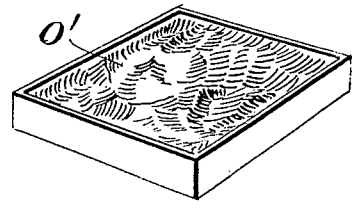


Fig. 19.



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UNITED STATES PATENT OFFICE.

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CONCRETE-BUILDING-BLOCK MACHINE.

No. 822,333. Specification of Letters Patent. Patented June 5, 1906.

Application filed May 13, 1905. Serial No. 260,263.

To all whom it may concern:

Be it known that I, ITHAMER E. YARNELL, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Concrete-Building-Block Machines, of which the following is a specification.

This invention relates to a mold for manufacturing building-blocks; and the object of the invention is a mold of this kind which is adjustable, so that a large number of sizes of blocks can be made therein and also blocks of various design, the machine being adapted for use in molding both solid and hollow blocks.

Another object is a mold of this type in which the cores are adjustable with respect to the mold to accommodate blocks of various sizes.

The invention consists in the novel features of construction and combination of parts hereinafter set forth, pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of the mold ready for use. Fig. 2 is a perspective view of the mold, showing the mold in open position and a finished block thereon. Fig. 3 is a transverse vertical section, a core being shown in elevation and in its innermost position. Fig. 4 is a front elevation. Fig. 5 is a perspective view of a rear side plate. Fig. 6 is a perspective view of a front plate. Fig. 7 is a perspective view of an end plate. Fig. 8 is a perspective view of the end plate used opposite the plate shown in Fig. 7. Fig. 9 is a perspective view of a bottom plate. Fig. 10 is a perspective view of the frame supporting the mold. Figs. 11 and 12 are perspective fragmentary detail views of a bracket, core, and rack. Figs. 13 and 14 are perspective views of an inner rear side plate. Fig. 15 is a perspective view of a supplemental end plate. Figs. 16, 17, 18, and 19 are perspective views of various forms of bottom or bed plates adapted to rest on the plate shown in Fig. 9. Fig. 20 is a perspective view of one form of block made by the machine.

In the drawings, A represents an open rectangular frame supported in a horizontal position by suitable legs or standards A′ and provided at its rear end corners with perforated ears A^2 and carrying on its front side vertical shoes A^3, having a plurality of perforations A^4 formed therein in vertical alinement. An upwardly-extending bracket B, angled at its lower end is carried by each shoe, each bracket having perforations B′ in the angled portion B^2, which aline with the perforations A^4 of the shoes A^3. The brackets are secured to the shoes by suitable bolts and can be adjusted vertically by shifting the bolts to higher or lower perforations A^4. At their upper ends the brackets B are connected by cross-pieces B^3, and below the cross-piece a shaft B^4 is journaled in the brackets B. Pinions B^5 are keyed or otherwise secured to the shaft, so that they can be removed therefrom, and the shaft is squared at each end, and a handle B^7 can be used on either end of the shaft. A rack-bar B^6 works horizontally between each pinion and the cross-bar, each rack-bar being engaged by the teeth of one of the pinions. When it is desired to operate but one bar, the pinion meshing with the other rack-bar can be removed or slid along the shaft B^4 out of mesh with the rack to remain idle. Each of these rack-bars is detachably connected to a core C, which works horizontally in the mold.

The mold proper comprises side and end walls D, E, F, and H and a bottom or bed plate G.

The front wall or plate D has opening D′, through which the cores C work, and at one upper corner or adjacent thereto is formed a projecting hook D^2 and at the opposite corner a projecting lug D^3. An end plate F is reduced in thickness along its vertical sides, as shown at F′, and is provided adjacent its front upper corner with a hook F^2 to engage the lug D^3 of the front plate and on the opposite side with a finger F^3. Depending perforated ears F^4 are formed on the lower edge of this plate.

The bed-plate G is sunken on its upper face and roughened to mold a block with a rough-dressed face finish and is provided with projecting perforated ears G^2 at each end. An end plate H has at an upper corner a hook member H′, adapted to engage and interlock with the hook D^2 of the front plate D. On the opposite edge the end plate H has a finger H^2, adapted to overlap and engage the adjacent portion of the rear plate E. Along its lower edge the plate H is provided with perforated ears H^3, and the plate is also provided with threaded apertures H^5, through which suitable set-screws can work.

The rear wall or plate E has opening E′ alining with the opening D′ of the front plate

D, and on its inner face a flange E^2 surrounds the openings E'. Along the lower edge of the plate E are depending ears perforated to aline with the ears A^2 of the frame A, and a rod E^5, passing through the ears A^2 and E^3, hinge the rear plate E to the frame A. Adjacent its lower edge and on its inner face the plate E has a longitudinal rib E^4 formed thereon. The front and rear walls rest on the frame A, and the bed-plate G also rests on said frame between the plates D and E. The end plates F and H rest on and transverse to the bed-plate G, and the ears F^4 aline with the ears G^2 at one end of the bed-plate, and the ears H^3 aline with the ears G^2 at the opposite end of the bed-plate, a suitable pivot pin or pintle connecting them.

It will now be obvious that the side and end plates of the mold are readily detachable and may also be swung open, as shown in Fig. 2.

In operating the machine the parts are placed in the position shown in Fig. 1. An inner rear plate J is placed in position resting on the rib E^4. This plate is longitudinally slotted, as shown at J', and on its inner face has three inwardly-curved bars J^2, arranged transversely to the slot J' and spanning the slot. When in place, the slot J' registers with the openings E' and the bars J^2 are upon one side of said opening, the central bar J^2 being between the openings E'. The machine is then filled two-thirds full of concrete and tamped, and the cores C are then driven through the mass by rotation of the handle B^7. The mold is then filled and the tamping operation resumed. The block is subsequently trimmed down with an edging-tool.

In order to make various sizes and shapes of blocks, supplemental bottom and end plates are provided, which fit within the molding-frame previously described. In Fig. 15 I have shown an end plate K having a central curved ridge K' stamped thereon. When plates K are set in each end of the mold, grooves P' are formed in the ends of a block P, as shown by the dotted lines in Fig. 20, whereas with the plates K omitted the stone would appear as shown in full lines in said figure.

The face of the stone is formed by the bed-plate G, and supplemental bed-plates may rest on this bed-plate, not only varying the size of the block in thickness, but also changing the face finish. In Fig. 16 I show a supplemental bed-plate L having transverse grooves L' and in Fig. 17 a bed-plate M having beveled sides M', thereby giving a smooth face and beveled-edge stone or block. In Figs. 18 and 19 are shown smaller bed-plates, used with supplemental end plates, the plate O being smooth and having beveled edges and the plate O' being rough-dressed and similar to the bed-plate G, except in size.

In making a block of less than the usual size but one core is required, and by moving the pinion B^5 along the shaft B^4, so as to throw it out of engagement with the rack, only one core C is operated. Reference has been made to threaded apertures H^5, through which a suitable screw can work. These are for the purpose of adjusting the supplemental end plate resting in the mold adjacent the end plate H, as will be readily understood. In making blocks of various size it is of course necessary that the core or cores be vertically adjustable, as heretofore described. When solid blocks are made for veneering, the cores C are not employed.

The machine herein described and shown in the drawings will make six sizes of blocks—two solid and four hollow.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a frame, a mold formed of detachable side, bed and end plates adapted to rest on the frame, means for locking the side and end pieces together and to the bed-plate, vertically-adjustable brackets carried by the frame, a shaft carried by the brackets, pinions thereon, rack-bars engaging the pinions, and cores adapted to work in the mold and connected to the rack-bars.

2. A machine of the kind described comprising a bed-plate, end plates hinged thereto, front and rear plates resting on the bed-plate and locked to the end plates, alining opening in the said front and rear plates, vertically-adjustable brackets in advance of the front plate, a shaft carried by the brackets, pinions slidably carried by the shaft, racks in engagement with the pinions, and cores carried by the racks, as and for the purpose set forth.

ITHAMER E. YARNELL.

Witnesses:
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RUPERT HOLLAND.