

No. 778,344.

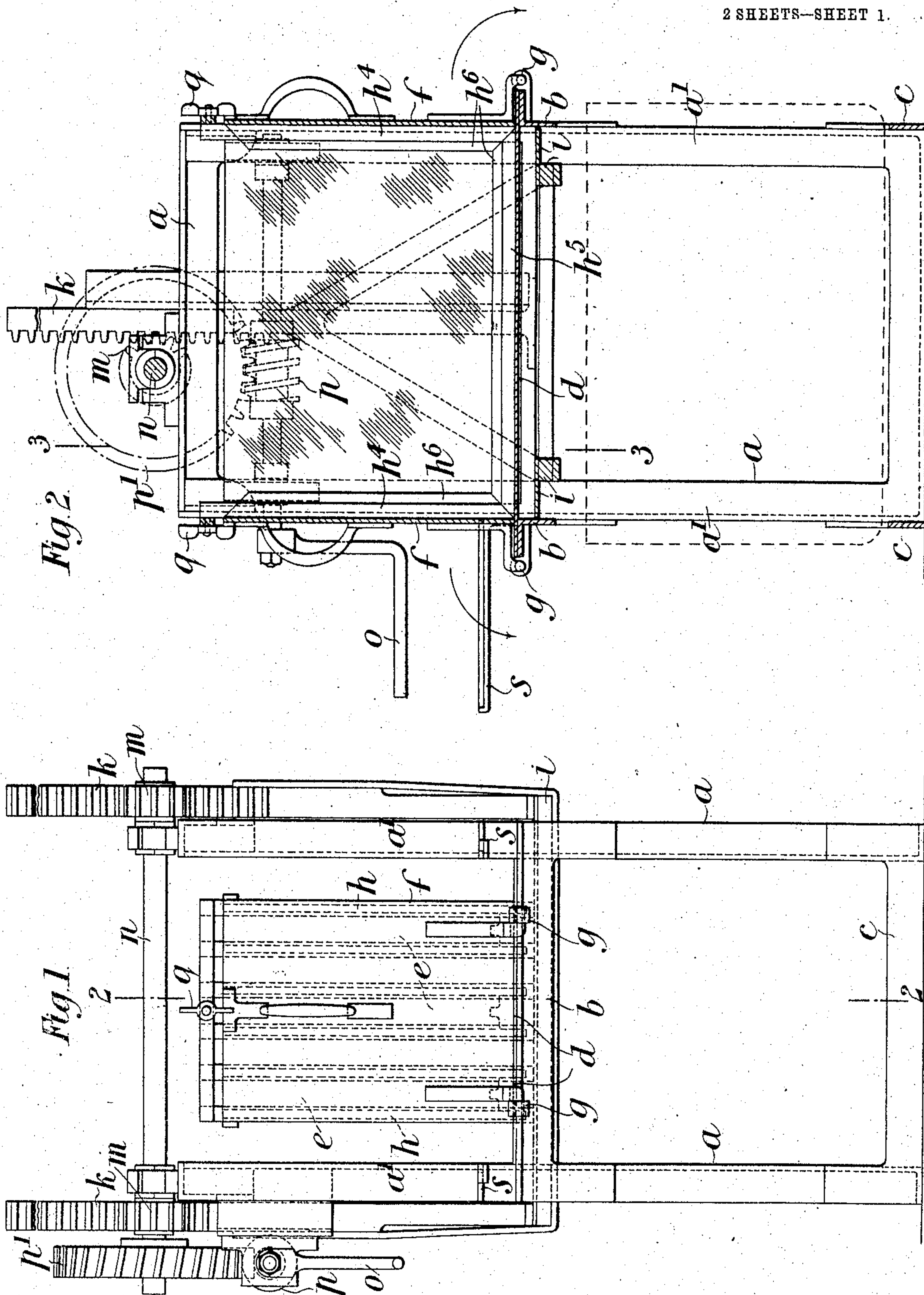
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APPARATUS FOR THE MANUFACTURE OF CEMENT BLOCKS OR SLABS.

APPLICATION FILED JUNE 11, 1904.

2 SHEETS—SHEET 1.



Witnesses  
 John E. Dousfield.  
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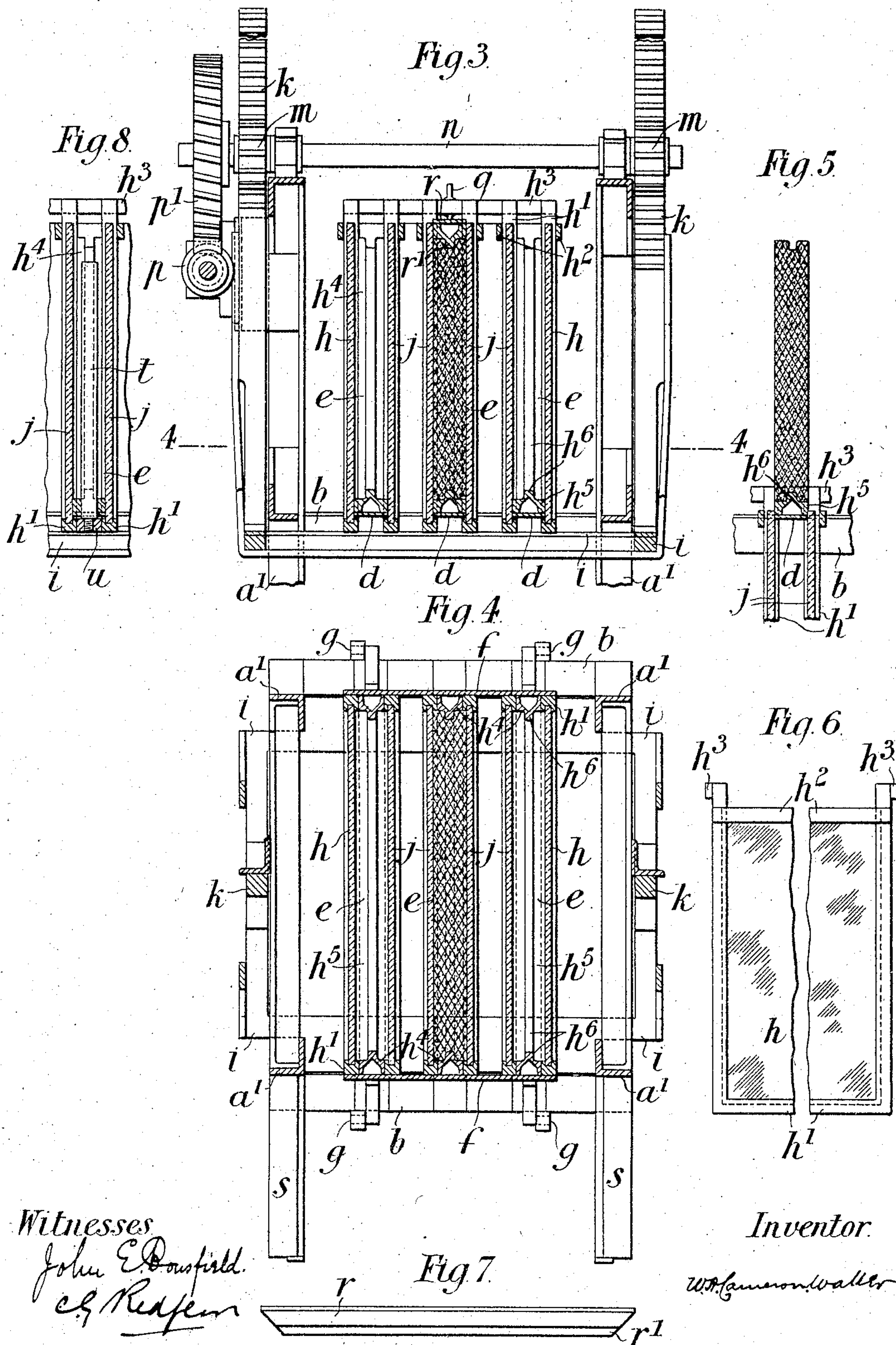
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# UNITED STATES PATENT OFFICE.

WILLIAM ARTHUR CAMERON WALLER, OF LONDON, ENGLAND.

## APPARATUS FOR THE MANUFACTURE OF CEMENT BLOCKS OR SLABS.

SPECIFICATION forming part of Letters Patent No. 778,344, dated December 27, 1904.

Application filed June 11, 1904. Serial No. 212,106.

*To all whom it may concern:*

Be it known that I, WILLIAM ARTHUR CAMERON WALLER, a subject of the King of Great Britain, residing at 41 St. John's Park Mansions, Pemberton Gardens, Upper Holloway, London, England, have invented new and useful Improvements in Apparatus for the Manufacture of Cement Blocks or Slabs, of which the following is a specification.

My invention relates to improvements in apparatus for the manufacture of concrete or cement blocks or slabs chiefly designed for use as partitions in buildings and which are provided in the edges with grooves or channels for the reception of keys or fillets for fixing the said blocks or slabs in position.

In the accompanying drawings, Figure 1 is a side elevation of apparatus for molding slabs in accordance with my invention; and Fig. 2 is a sectional end elevation of the same, the section being taken on the line 2 2, Fig. 1. Fig. 3 is a vertical section on the line 3 3, Fig. 2; and Fig. 4 is a horizontal section on the line 4 4, Fig. 3. Fig. 5 is a sectional view illustrating the operation of the apparatus, and Figs. 6 and 7 are elevations of details. Fig. 8 is a section illustrating another detail.

*a a* are two end frames or standards, which are braced together by the angle-irons *b b* at about the center of their height and by bars or plates *c c* at the base. On the angle-irons *b b* are supported a number of bars *d d*, Figs. 2, 3, and 5, which form the bottom of the mold-box, which is represented as having three chambers *e e e*, each of the bars *d* forming the bottom of one of the said chambers.

*f f* are the sides of the mold-box, which are hinged at *g g* to the angle-irons *b b* of the frame, so that they can be turned down, and *h h* are the end plates of the mold-box, the said plates each serving as one of the walls of the two outermost mold-chambers *e* and being mounted upon the horizontal rectangular frame *i*, which is designed to be raised and lowered, as hereinafter described, the said frame being guided in its movements by the legs *a'* of the standards *a a*. This rectangular frame also carries the partitions *j j*, which are arranged to lie in planes parallel to the ends *h h*, the said partitions forming the inner walls

of the outermost chambers *e e* and also the walls of the inner chamber *e*. These walls and partitions, which are preferably composed of glass sheets mounted in U-shaped metal frames *h'*, tied together at their upper ends by bars *h''*, as shown in Fig. 6, are collectively connected to tie-bars *h'''* at the ends for the purpose of holding the walls and the plates rigidly and in absolute parallelism. The side walls *f f* are provided with fillets *h<sup>4</sup>*, and fillets *h<sup>5</sup>* are also laid upon the bottom plates *d d*, these fillets corresponding in thickness with the thickness of the frames *h'* to provide for the formation of square corners at the sides of the slabs.

The raising and the lowering of the frame *i* relatively with the bars *d d* can be effected in any suitable manner. In the drawings I have represented the said frame as being provided at each end with a rack *k*, engaging with a pinion *m* on a shaft *n*, carried in bearings on the upper ends of the side frames *a a*, the said shaft receiving its motion from a crank-handle *o* through the medium of a worm *p* and worm-wheel *p'*.

In using the apparatus the walls and partitions *h* and *j* are raised to their highest positions, and the side doors *f f* are closed against them, as shown in Figs. 1 to 4, the said doors being secured by any suitable means—such, for instance, as turnbuckles *q q*, Figs. 1 and 2. The mold-chambers are then filled with the composition of which the slabs are to be composed. When these chambers have been filled, the upper side of each chamber is closed by a fillet, such as *r*, Fig. 7, which is inserted between the faces of the mold and supported on the fillets *h<sup>4</sup>*, their end being mitered to lie upon the corresponding mitered ends of the said fillets *h<sup>4</sup>*. These bars *r* serve to mold the upper edges of the slabs. When the material has sufficiently set in the molds, the fillets *r r* are taken out, the side doors *f f* are opened out, and the frame *i* is lowered, together with the walls *h* and partitions *j j*, so that the molded slabs are left supported upon the bottom bars *d d*, as clearly shown in Fig. 5. They can then be lifted off and removed to any suitable position for drying.

The upper edges of the partitions and walls



are in some cases roughened or serrated, so that as they are lowered the surfaces of the slabs or blocks will be roughened.

*s s* are brackets projecting from the side frames *a a* and which serve for supporting a plate upon which the molded slabs can be laid as they are removed from the bars *d d*. These brackets *s s* may be extended for any desired length and provided with rails, so as to facilitate the removal of the plate and slabs upon it.

In order to form the grooves or channels around the edges of the slabs, ribs *h<sup>6</sup>* are provided upon the fillets *h<sup>4</sup>* on the side doors *f f* and on the fillets *h<sup>5</sup> h<sup>5</sup>*, and the loose fillets *r r* are also formed with corresponding ribs *r'*.

When it is required to form the slabs hollow, I advantageously provide the arrangement illustrated in Fig. 8—that is to say, I employ rods *t*, supported on cross-bars *u* on the frame *i*, the said rods passing through holes in the lower fillets *h<sup>5</sup>* and projecting upward within the chambers *e e*. By this arrangement when the frame *i* is lowered, as hereinbefore described, to remove the partitions *j* and walls *h* from the slabs the rods *t* will also be withdrawn from the slabs leaving holes therein.

I sometimes provide for dropping the walls and partitions *h h* and *j j* into a tank, whereby the surfaces thereof will be lubricated to facilitate the movement of the walls and partitions from the slabs, as shown in dotted lines in Fig. 2. This, however, is not necessary, as lubrication can be otherwise applied, if required.

It is to be understood that, if desired, the walls and partitions *h h* and *j j* instead of being arranged to move vertically downward through the bottom of the mold-box may be arranged to be moved upward or laterally to draw them off the slabs which remain at rest. It is also to be understood that although I have described the apparatus as applicable for molding partition-slabs it is equally applicable for molding slabs or blocks for other purposes and with or without grooves or channels in the edges. Furthermore, it will be understood that an apparatus can be constructed for molding any desired number of slabs or blocks simultaneously, the three shown in the drawings being merely given as an example.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In apparatus for the manufacture of cement blocks or slabs, a mold comprising among its members vertical side plates, rigidly connected and capable of movement in their re-

spective planes, a stationary bar interposed between said plates and forming the bottom of the mold, movable end plates forming the ends of the mold when in operative position, and a removable top plate, substantially as described.

2. In apparatus for the manufacture of cement blocks or slabs, a mold comprising among its members vertical side plates rigidly connected and capable of movement in their respective planes, a stationary bar interposed between said plates and forming the bottom of the mold, movable end plates forming the ends of the mold when in operative position, and a removable top plate, said bottom plate, end plates and top plates being provided with a projecting rib for forming grooves or channels in the edges of the block, substantially as described.

3. In apparatus for the manufacture of cement blocks or slabs, a mold for making a plurality of the same simultaneously, comprising among its members a plurality of vertically-disposed plates rigidly connected and capable of joint movement in their respective planes, stationary bars interposed between said plates, and forming the bottoms of the molding-chambers, movable end plates each of which when in operation forms the end wall of a plurality of molding-chambers and a top plate, substantially as described.

4. In an apparatus for the manufacture of cement blocks or slabs, a mold comprising among its members, two side frames provided each with a plate forming one side of the molding-chamber, said frames being connected rigidly for joint movement, a stationary bottom plate between said frames, movable end plates and a removable top plate, said bottom plate, end plates and top plate being provided with fillets, substantially as described.

5. In apparatus for the manufacture of cement blocks or slabs a mold having a fixed bottom, walls or partitions designed to move through slots in the said bottom, hinged plates for closing the sides of the mold and detachable strips forming the top of the mold, substantially as described.

6. In apparatus for the manufacture of cement blocks or slabs a mold having a fixed bottom, walls or partitions and one or more rods designed to move through slots or holes in the said bottom, hinged plates for closing the sides of the mold and detachable strips forming the top of the mold, substantially as described.

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