

No. 795,404.

PATENTED JULY 25, 1905.

B. MILLER & O. F. SMITH.  
MACHINE FOR FORMING CEMENT BLOCKS.

APPLICATION FILED AUG. 4, 1904.

2 SHEETS—SHEET 1.

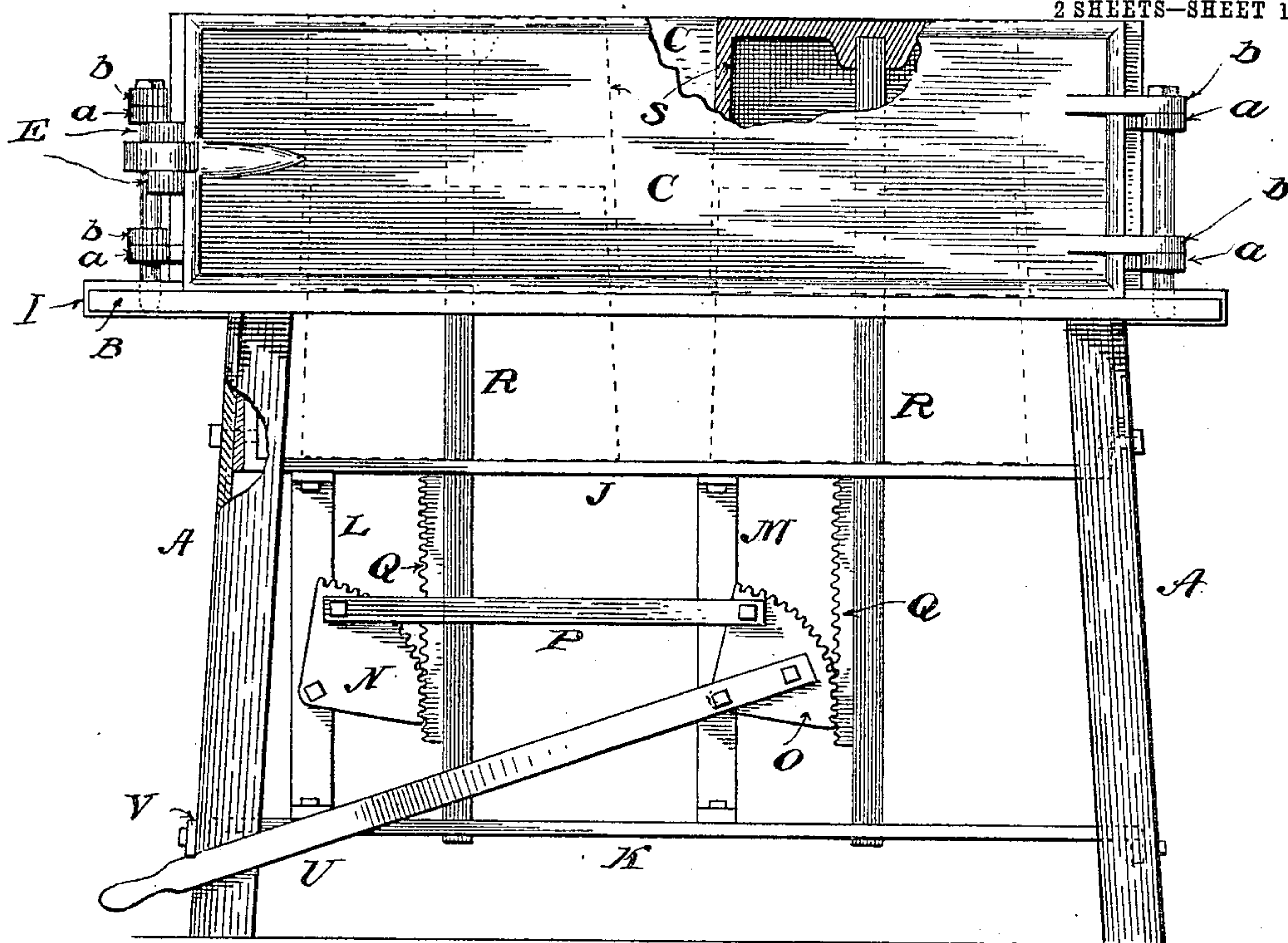


FIG. 1.

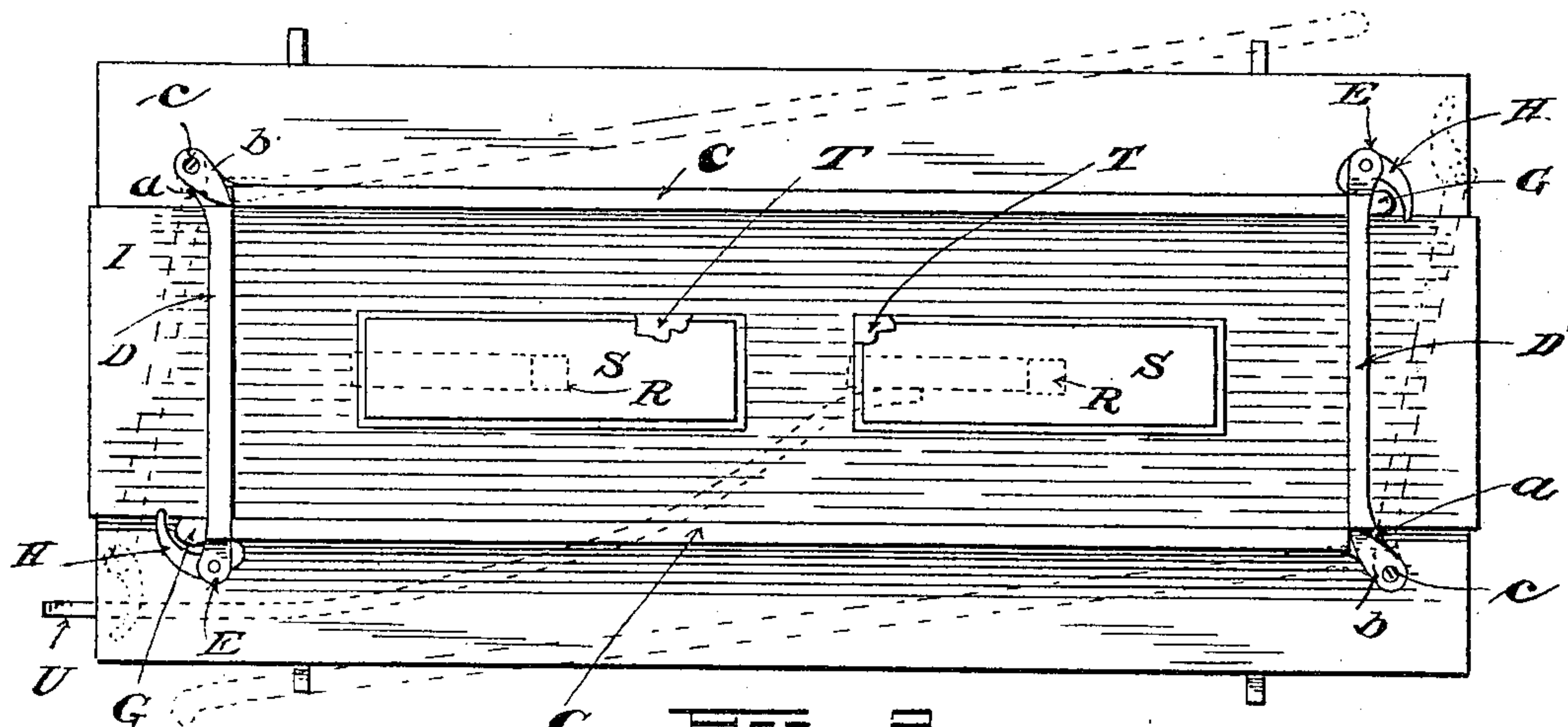


FIG. 2.

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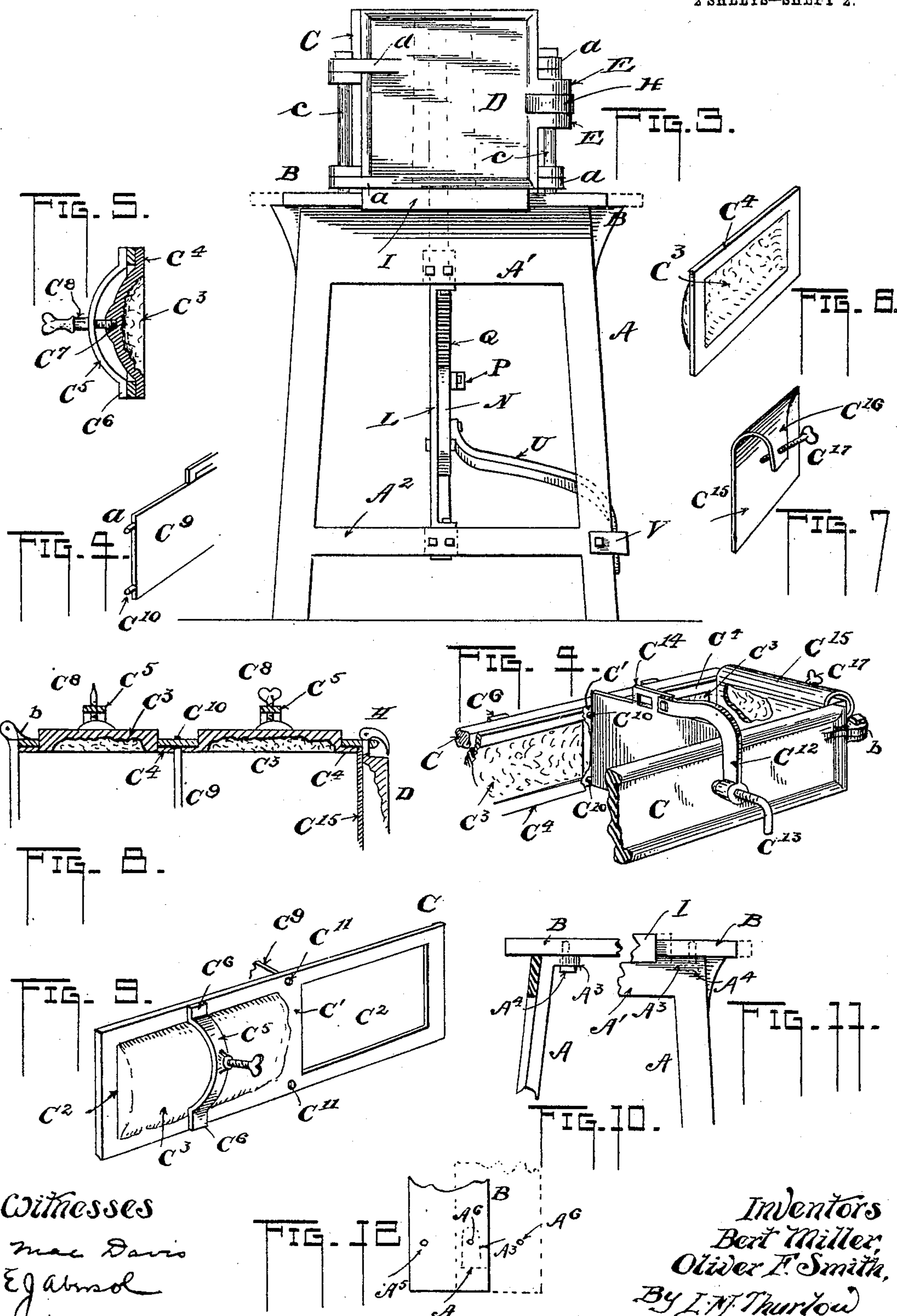
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# UNITED STATES PATENT OFFICE.

BERT MILLER AND OLIVER F. SMITH, OF PEORIA, ILLINOIS.

## MACHINE FOR FORMING CEMENT BLOCKS.

No. 795,404.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed August 4, 1904. Serial No. 219,421.

*To all whom it may concern:*

Be it known that we, BERT MILLER and OLIVER F. SMITH, citizens of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Machines for Forming Cement Blocks; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to a machine for the manufacture of cement blocks for building purposes, and has for one of its objects to provide a machine of this kind that will be much simpler in construction and operation than most of those heretofore used.

A further object is the provision of certain partitions, by the use of which several blocks may be formed at one time within the machine.

Another object is the provision of removable roughened plates for forming "rock-faced" blocks and a new means of securing them in place.

The invention relates, further, to certain details of construction, which will be brought out in the following specification, aided by the accompanying drawings, in which—

Figure 1 is a side elevation of our improved machine. Fig. 2 is a plan view thereof. Fig. 3 is an end elevation of the machine. Fig. 4 is a perspective view of a portion of the molding portion of the machine. Fig. 4<sup>a</sup> is a perspective view of a portion of a plate or partition for use in the mold. Fig. 5 is a vertical section of a rock-faced plate and means for securing it to the side of the mold. Fig. 6 is a perspective view of the said plate. Fig. 7 is a perspective view of a plate used with the plate shown in Figs. 5 and 6. Fig. 8 is a longitudinal section of a portion of the mold and the rock-faced plates secured in place in one of the sides. Fig. 9 is a perspective view of the back of one of the sides of the mold, showing the rock-faced plate held therein. Fig. 10 is a side view of a portion of the machine. Fig. 11 is an end view of a portion, also of the machine, showing an adjustable bed-plate therefor. Fig. 12 is a top view of that shown in Fig. 11.

A indicates the legs of our machine, which support the top consisting of two separable plates B. Pivoted on said plates are the vertical sides C C of the mold and the ends D D thereof. As shown in the several figures,

these members are provided with ears *a* and *b* for the ends and sides, respectively, the ears for all these being located at diagonally opposite corners of the rectangle formed by the sides and ends, as shown, the bolts *c* serving as the pivot for the ears and secured in the plates B B. By this means the sides and ends are independent and free to swing on the said bolts *c*, the free ends having provision for locking all of the members together to form a rigid inclosing box. The ends D have projecting lugs E, between which a single lug G on the side C is designed to enter. The said lugs E carry between them a locking-lever H in form of a cam at the pivoted extremity, by which when the said lugs G are entered the sides and ends can be firmly locked. As shown in Fig. 3, a removable plate or false bottom I is provided, which rests on the top reach A' of the legs A, the same extending above the top surfaces of the side plates B, as shown, to form a stop for the sides C to meet when closed. The ends are slightly narrower than the sides, for the reason that while the top surfaces must be flush with the sides the lower edge must pass over the elevated false bottom I to allow the ends and sides to come together, as will be understood.

Two horizontal braces J K (shown in Figs. 1 and 3) are secured to the end supporting members, the former to the portion A' and the latter to a lower reach A<sup>2</sup>, and between said braces J and K are two vertical members L M, on which are pivoted segment-gears N and O, respectively, which are connected by a bar P, as shown. Adjacent to each said gear is a rack-bar Q, secured to vertical bars R, adapted to have vertical movement in openings through the braces J K, which openings are not shown, however, since this will be readily understood. The braces thus serve as guides to the movement of the said bars R, whose upper ends of the latter carry hollow cores S, which rise through openings T in the false bottom and serve to make or rather leave openings through the completed cement blocks formed in the inclosure or "mold" formed by the sides and ends C and D described. To the gear O is secured a hand-lever U, whose free end is designed to be placed beneath a projection V on the leg A, as shown in Fig. 3. It will be observed that in the position shown in Fig. 1 the lever is down, while the cores S are raised to their full height within the mold. In said figure the cores are shown in broken lines



resting upon the top brace J, this resulting from a raising movement of the said lever U to allow the gears to turn to lower the rack-bars Q. It is intended that a number of the false bottoms I shall be employed, upon which the cement blocks are formed, and that as each block is formed it is removed from the machine after lowering the cores, as described. The latter members are tapered toward the top, so that they will "draw," and in lowering them the said false bottom can be readily removed after unlocking the members H, which serve to hold the sides and ends together, after which another false bottom is placed within the mold, the cores are raised, and the members C and D closed, ready for a new block to be formed.

We have shown the sides and ends in Figs. 1, 2, and 3 perfectly smooth on their inner surfaces; but we may use what is termed as the "rock-faced" sides and ends, if desired, and, in fact, we make provision for the same, the figures following Fig. 4 clearly illustrating the idea. Fig. 9 shows one of the sides in the form of an open frame having a central vertical stop C', which, however, may be dispensed with when making full or longer lengths of stone than that for which the figures are illustrated. The said stop by being used in the present instance leaves a rectangular hole C<sup>2</sup> at each side, within each of which is designed to rest a member C<sup>3</sup>, having a flange C<sup>4</sup> entirely around it. Said member is hollowed out, and its inner surface is roughened to represent stone. Its back is now entered through one of the openings C<sup>2</sup>, so that its flange C<sup>4</sup> bears against the frame C, Fig. 5. A yoke C<sup>5</sup> is now provided, its extremities C<sup>6</sup> resting upon the outer side of C, and a hand-screw therein enters a threaded hole C<sup>7</sup> in the back of the member C<sup>3</sup>, whereby the tightening of said screw draws said member C<sup>3</sup> firmly and immovably against C, as will be understood. It is also to be understood that the screw is loose in the said yoke C<sup>5</sup>, an enlargement C<sup>8</sup> thereon bearing against said yoke. The flange C<sup>4</sup> of the member serves to give the smooth margin to the stone, as is customary, said flange as a matter of course being flush with the upper and lower edge of C in order to make the full depth of stone perfectly smooth and with no rough corners or edges. The central stop C' is for the purpose of separating the blocks being formed in the mold in conjunction with a partition C<sup>9</sup>, Fig. 4<sup>a</sup>, having a lug C<sup>10</sup> near the top and bottom edges, on the end thereof, for entering holes C<sup>11</sup> in C. When the mold is a long one, several blocks may be made at one time, and for this reason we provide the members C<sup>3</sup> and the partitions C<sup>9</sup> for separating them, the end flanges of the latter abutting against the said partition, as shown in Fig. 8. When the mold is only of a length sufficient for one stone, the side C is itself rock-faced and mounted, as

shown in Fig. 3, to remain or be replaced at will by a smooth-faced side, as in the figure last referred to. Also, if desired, the members C<sup>3</sup> described may be replaced by one member equal to the combined length of those members. By this it is desired to make it understood that we may use a pivoted side, either smooth or rock-faced, or may use removable rock-faced members of full length for forming a single block or shorter ones to form several blocks in the same mold. Likewise we may substitute a rock-faced end member D for the smooth one, so that a stone having a roughened side and a roughened end may be constructed.

The partition C<sup>9</sup>, hereinbefore described, besides being provided with the lugs C<sup>10</sup> has a rigid arm C<sup>12</sup> secured thereto, as shown in Fig. 4, said arm passing over the side C and having a screw C<sup>13</sup> to bear against the side. This arm and screw serve to hold the plate in rigid position, and a handle C<sup>14</sup> at the top permits of the plate being easily inserted and removed.

When the end D of the mold is a stationary member—that is, remains hinged to the machine, as described—and it is desired to make a smooth stone, a plate C<sup>15</sup> may be used, which has an overhanging extension C<sup>16</sup>, provided with a screw C<sup>17</sup>. This may be slipped over the end within the mold, so that the screw will be outside and when tightened will firmly secure said plate in position. The cement may be filled in against it, and a smooth end is thus had. Again, if it is also desired to make a smooth side while a rock-faced side is also pivoted on the machine a plate of sufficient length to completely fill in between the ends may be used similar to C<sup>15</sup>. In addition to these advantages provision is made for making a wider block in the same mold. To accomplish this, the top members B of the machine are made separable in order to place greater width between them. With the legs A at the top and just beneath B a lug A<sup>3</sup> is cast, having a bolt-hole therethrough for receiving a bolt A<sup>4</sup> from below, which latter enters a threaded hole A<sup>5</sup> or A<sup>6</sup> in said member B. It will be observed that near each side of the latter one of the said holes is placed and that a sidewise adjustment of said member B can be had equal to the distance between the holes. However, a series of holes will give a series of different adjustments, so that various widths of block may be made, if wanted. It is to be understood that when these adjustments are made it is required that the false bottoms must likewise be exchanged for ones of a proper width to just fill in between the members B and that the ends D must be replaced by others of the proper size.

In bringing out our device we have aimed at simplicity, using as few parts as can be gotten along with and making the various adjustments quite easy and simple.



The height of the blocks may be varied by raising the false bottom upon blocks; but this of course does not come within our invention necessarily. It will be seen that the removal of the bolts *c*, that form the hinge-pivot for the sides and ends C and D, will admit of changing the latter for the roughened members described to be pivotally supported in the same way. It will be noted, further, that the pivots for the said members C and D being on the parts B are separated when the said parts are separated to give any width of blocks desired, this of course necessitating the employment of longer ends, as has been heretofore intimated.

We claim—

1. A machine for forming cement blocks comprising independently-movable sides and ends forming an inclosing mold when locked together and adjustable bed-plates on which said sides and ends are pivoted the adjustment of said plates permitting widening or narrowing of the mold to make blocks of different widths.

2. A machine for forming cement blocks comprising a mold of rectangular form, the sides and ends constituting said mold, separately-adjustable plates forming the top of the machine and to which the said sides and ends are pivoted to swing horizontally thereon, said adjustment permitting change in the width of the mold for the purposes set forth.

3. A machine for forming cement blocks comprising the supporting-frame, separable plates adjustably secured on the frame, a side and end pivoted to each plate, said sides and ends forming the mold within which the block is formed, and means for locking the sides and ends together to constitute a solid inclosing mold.

4. A machine for forming cement blocks comprising a support, a pair of plates horizontally mounted thereon and adjustably secured thereto the same adapted for adjustment toward and away from each other, a mold within which the cement blocks are formed consisting of a side and an end, pivoted to each plate at a common point, the pivots being at the diagonals of the mold thus formed and locking means at the other diagonals for locking the free ends of the sides and ends together, and a removable false bottom within the mold upon which the block is formed.

5. A machine for forming cement blocks comprising a support, a pair of plates mounted thereon and adjustably secured thereto, the same adapted for adjustment toward and away from each other, a mold within which the cement blocks are formed consisting of a side and end pivoted to each plate at a common point, the pivots being at the diagonals of the mold thus formed, locking means at the other diagonals for locking the free ends of the sides and ends together, a removable false bottom

within the mold upon which the blocks are formed, and removable cores adapted to enter through the said false bottom from below for the purposes described.

6. In a machine for forming cement blocks, the sides and ends forming the mold, a bottom for the mold upon which the blocks are formed within the mold, one of the sides of the mold having a substantially smooth surface, the other side constituting an open frame for the purposes set forth but having a vertical stop connecting the upper and lower limbs of said frame, a partition vertically placed within the mold to rest upon the bottom of the latter, its ends fitting snugly between and abutting against the said sides, projections on one end of the partition there being holes in the vertical stop for receiving the projections, a rigid outwardly and downwardly extending arm secured to the top of the partition and extending outside the mold and a screw carried horizontally in said arm to engage the side of the mold as described for further assisting in holding the partition rigid.

7. In a machine for forming cement blocks, the sides and ends forming the mold, a bottom for the mold upon which the blocks are formed within the mold, one of the sides of the mold having a substantially smooth surface, the other side constituting an open frame for the purposes set forth but having a vertical stop connecting the upper and lower limbs of said frame, a partition vertically placed within the mold to rest upon the bottom of the latter and fitting snugly between the said sides, the ends of said partition abutting against the sides, lugs on one end of the partition, there being apertures in the said vertical stop for receiving said lugs for the purposes explained, a rigid outwardly and downwardly extending arm secured to the top of the partition and rigid therewith and extending outside the mold, and a screw carried at the free end of the arm for clamping the said arm firmly to the mold to hold the partition rigid substantially as described.

8. In a machine of the character described, the mold within which the blocks are formed, cores adapted for vertical movement within the mold for the purposes explained, a vertically-movable member for carrying each core, a rack-bar for each said member, a segment-gear pivoted on the machine-frame near each rack-bar and in engagement with said bars, both segments lying in the same plane, a rod connecting both segments substantially as shown by which movement of one is imparted to the other as described and a hand-lever secured to one of the segments in the same plane with the said segments and connecting-rod by which movement may be imparted to the cores in a vertical manner by transmission of movement from one segment to the other through the said connecting-rod.



9. In combination with a mold for forming cement blocks the same having a roughened or rock-faced inner side and end for the purposes explained, a plate having a flat, smooth surface adapted to be inserted in the mold from above for covering the said roughened end for the purposes described, said plate having a downturned extension overhanging the said end at the outside, and a screw in said extension for bearing against the end at the outside for securing said plate in position when inserted in the mold.

10. The combination of a mold of the character described having inclosing walls certain of which are roughened on their inner surfaces for making rock-faced stones as described, a plate substantially in the form of an inverted J, the long extension thereof adapted to enter the mold from above for covering the said roughened surface of the inclosing wall, the short extension of the plate overhanging the wall, and a screw carried horizontally by said short extension the same

adapted to clamp the plate to said wall substantially as described.

11. A mold of the character described having the sides and ends, two bed-plates for the mold upon each of which a side and an end are pivoted substantially as shown and described, the said bed-plates being adjustable toward and away from each other for forming blocks of varying size substantially as described.

12. A mold of the character described having the sides and ends, a support for the sides and ends comprising two separate plates on each of which a side and an end are pivotally mounted as described, and means for rigidly securing said plates in any adjustment desired.

In testimony whereof we affix our signatures in presence of two witnesses.

BERT MILLER.  
OLIVER F. SMITH.

Witnesses:  
E. J. ABERSOL,  
L. M. THURLOW.