

No. 844,709.

PATENTED FEB. 19, 1907.

W. C. BURRELL.  
BLOCK FORMING MACHINE.  
APPLICATION FILED AUG. 23, 1906.

5 SHEETS-SHEET 1.

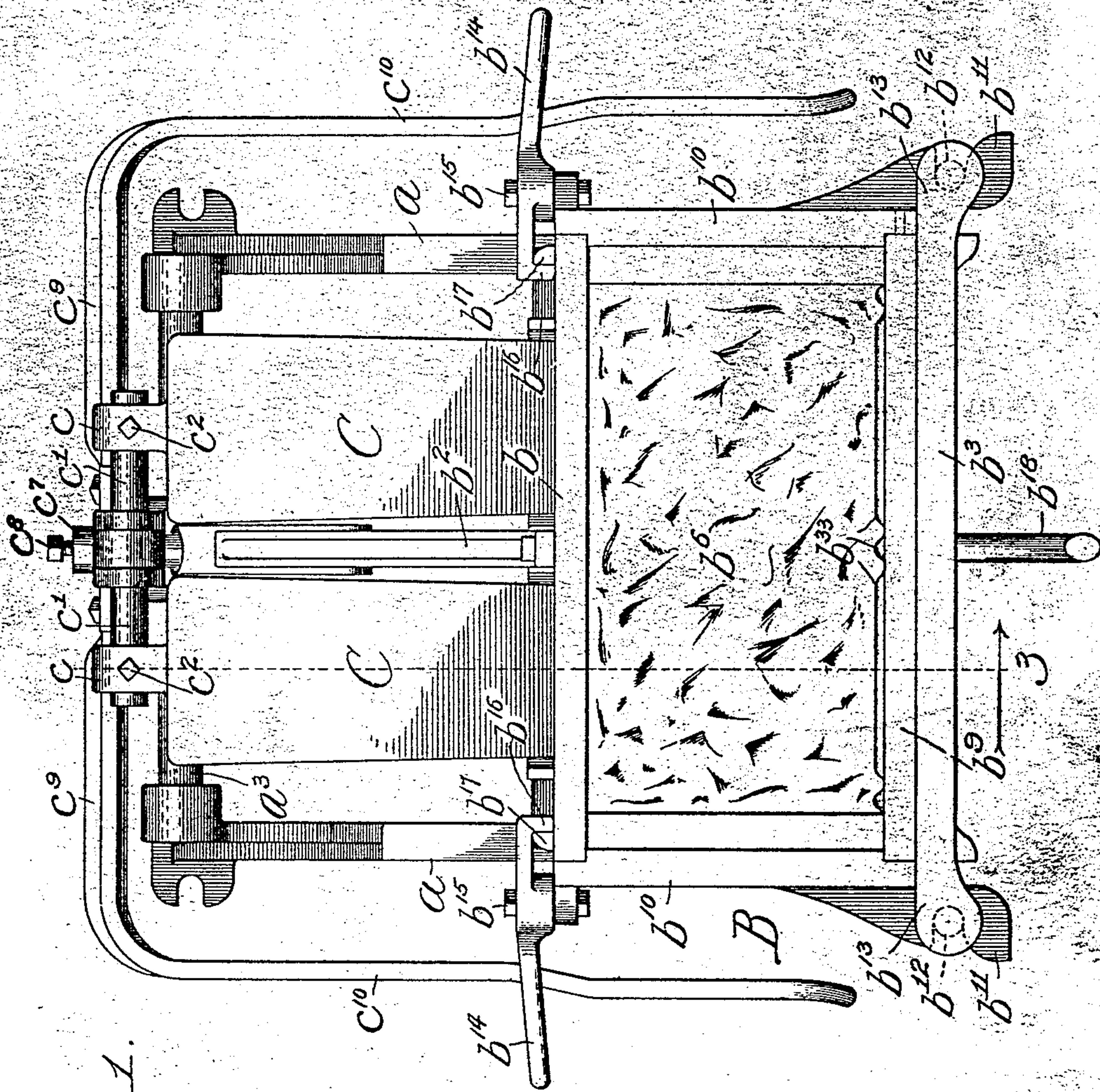


Fig. 1.

Witnesses:

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*John Enders.*

Inventor:

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By *Dyrenforth, Dyrenforth, Lee & Wilson*  
Attys.



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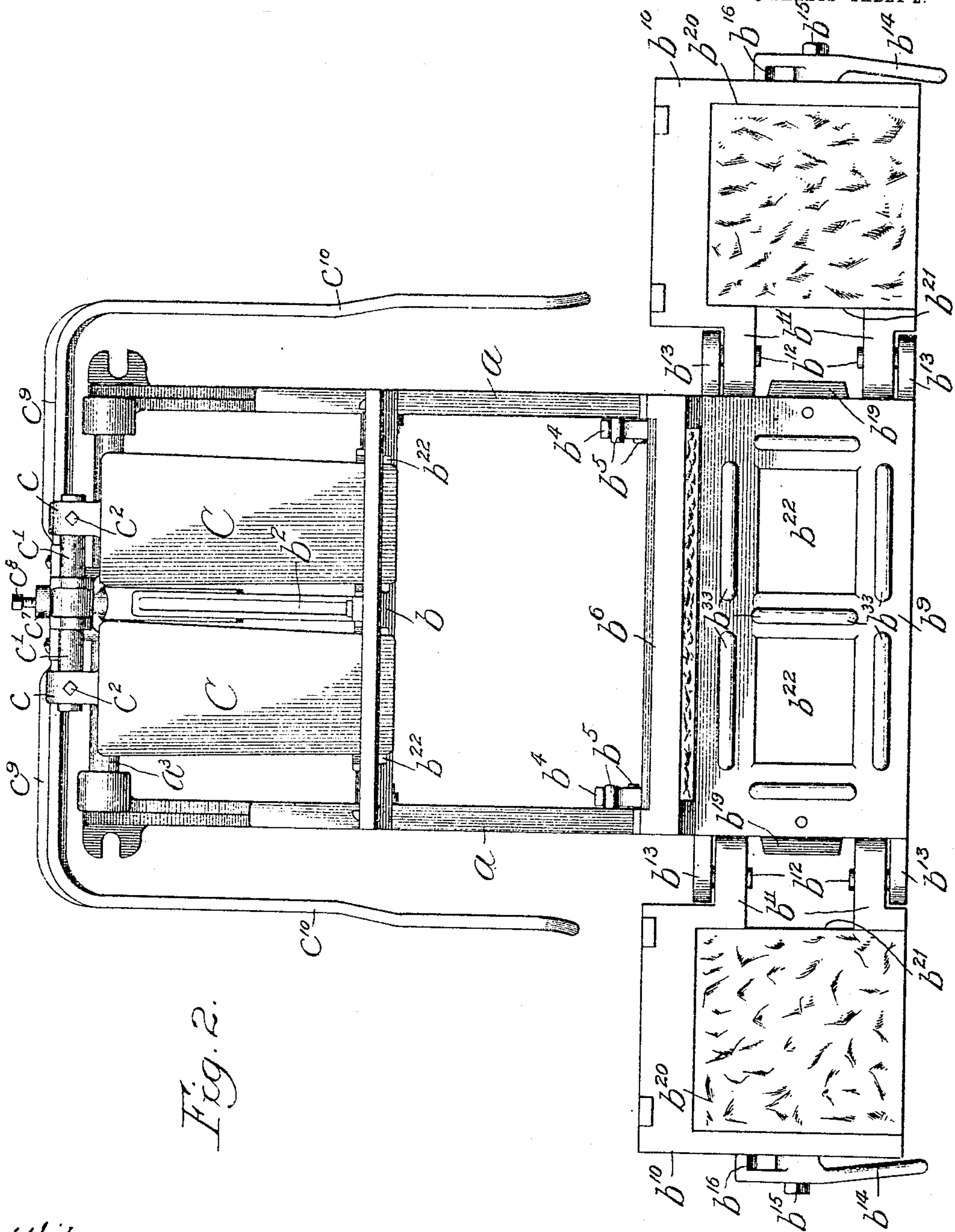


Fig. 2.

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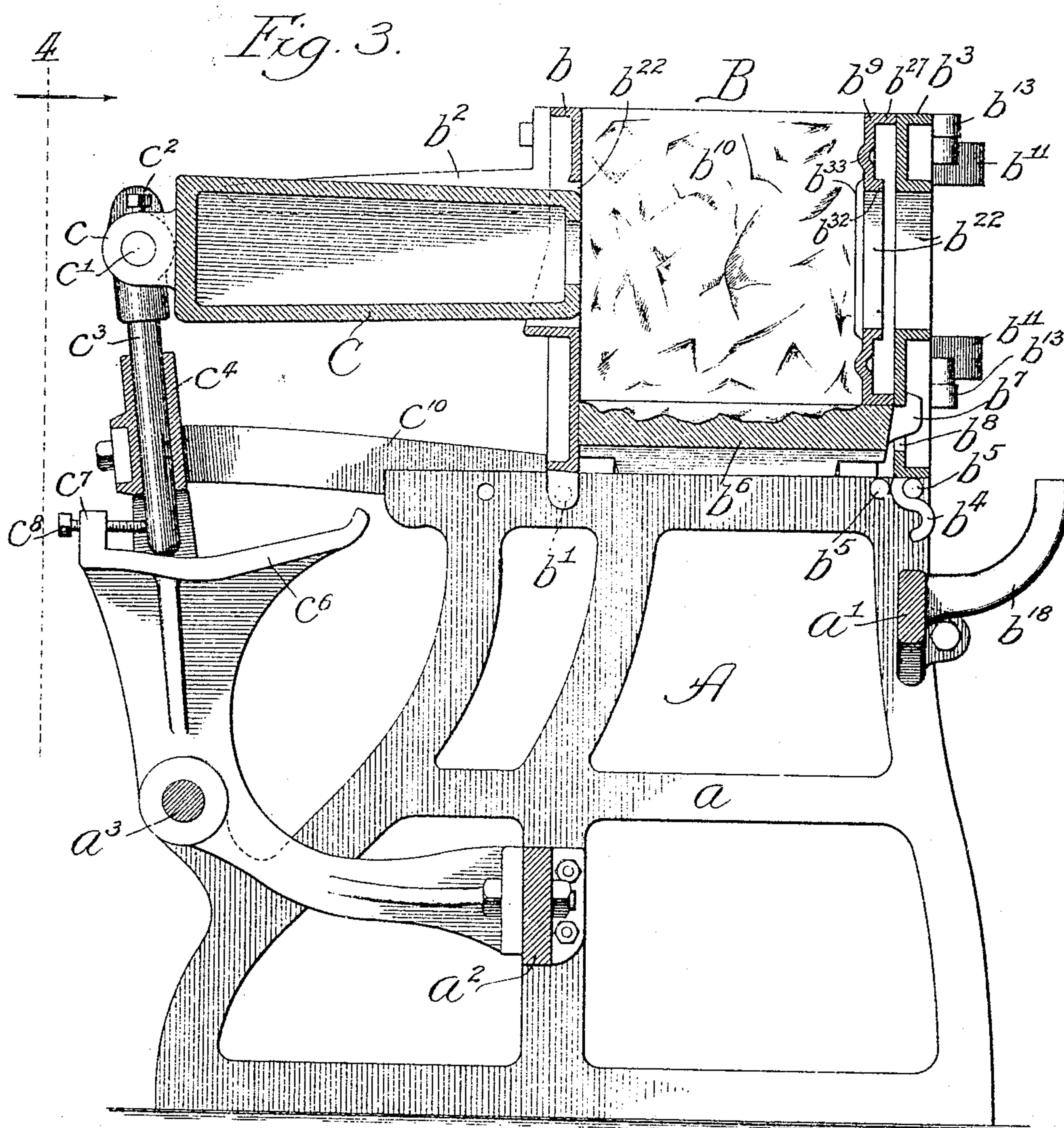
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5 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

Fig. 4.

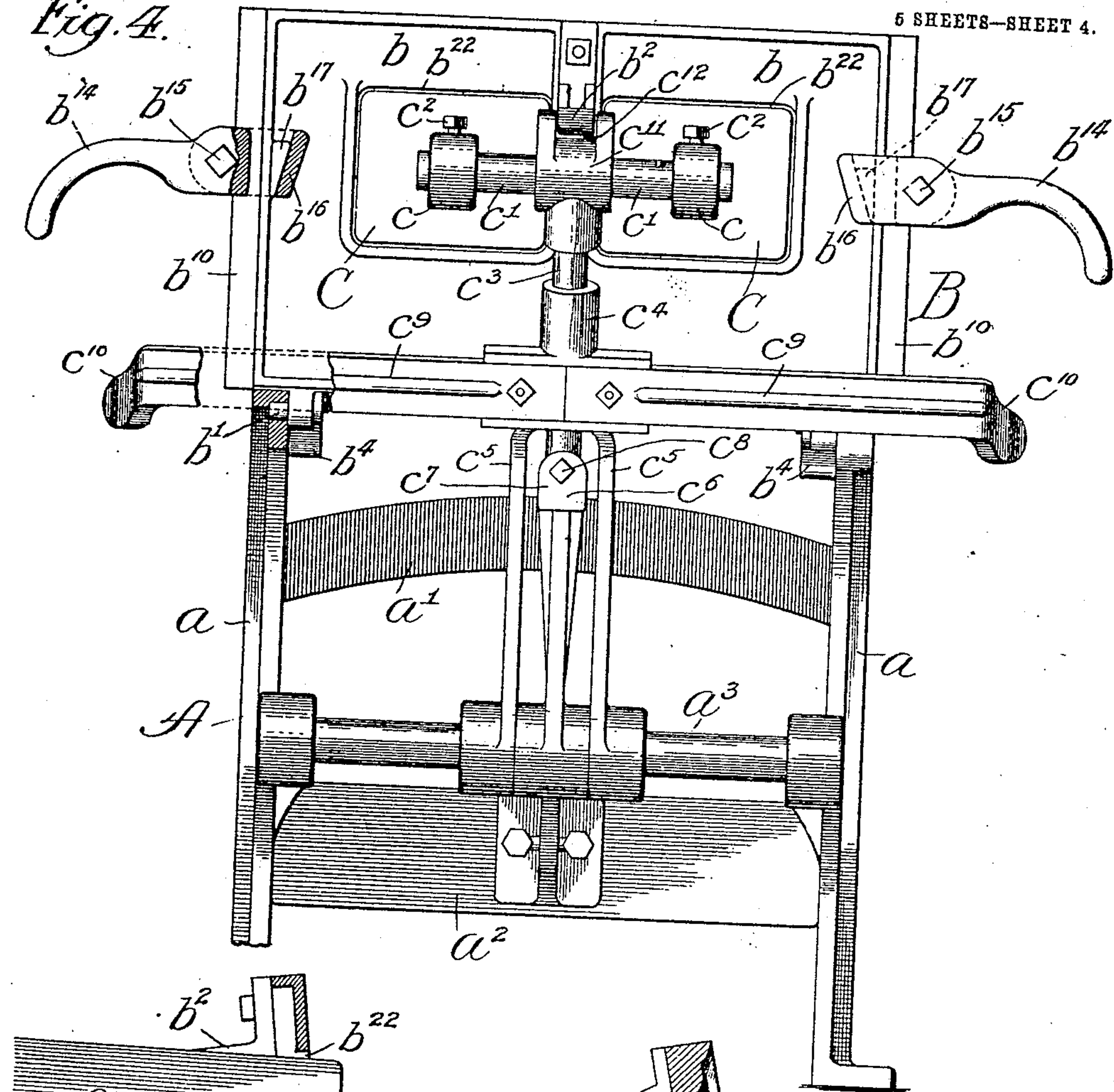
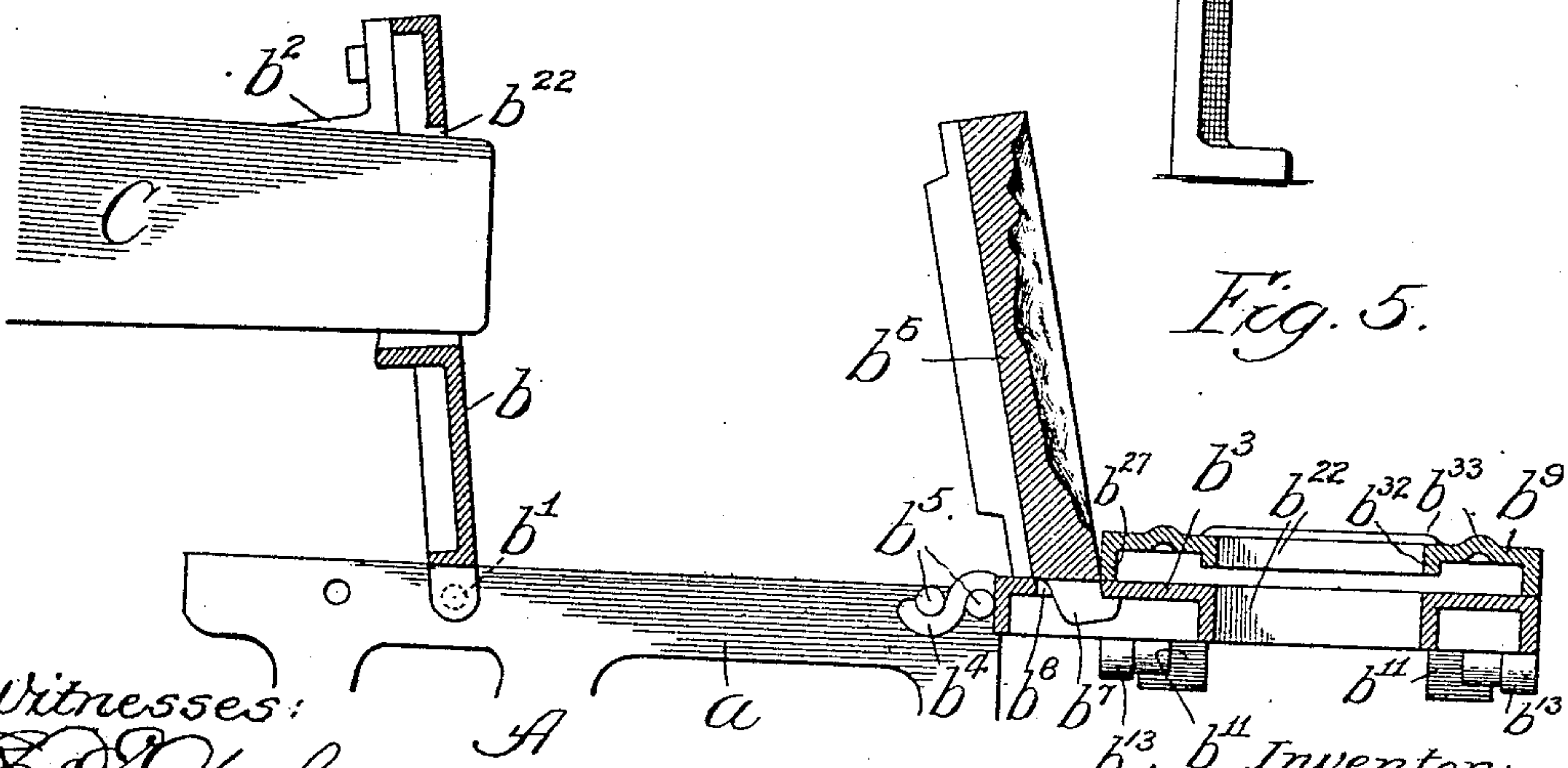


Fig. 5.



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Block forming machines

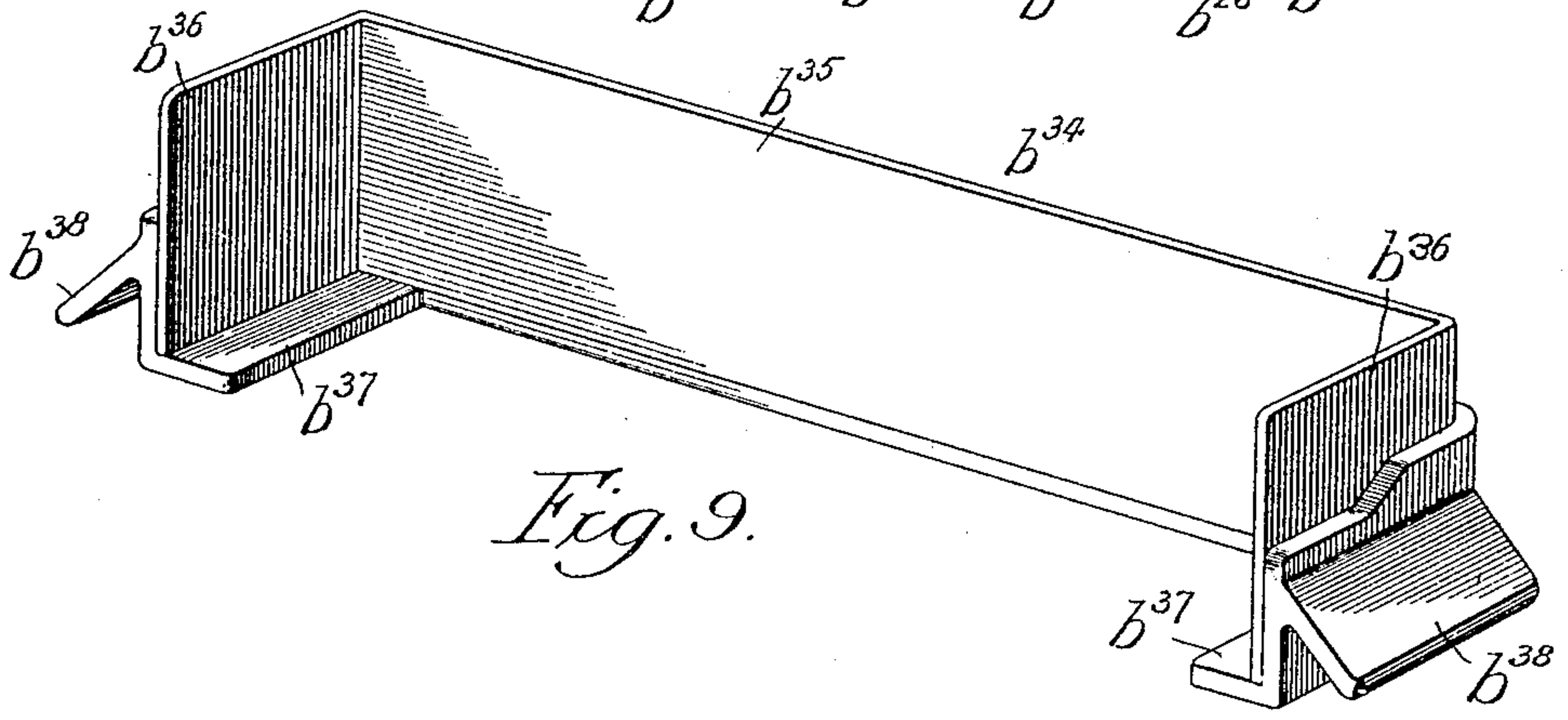
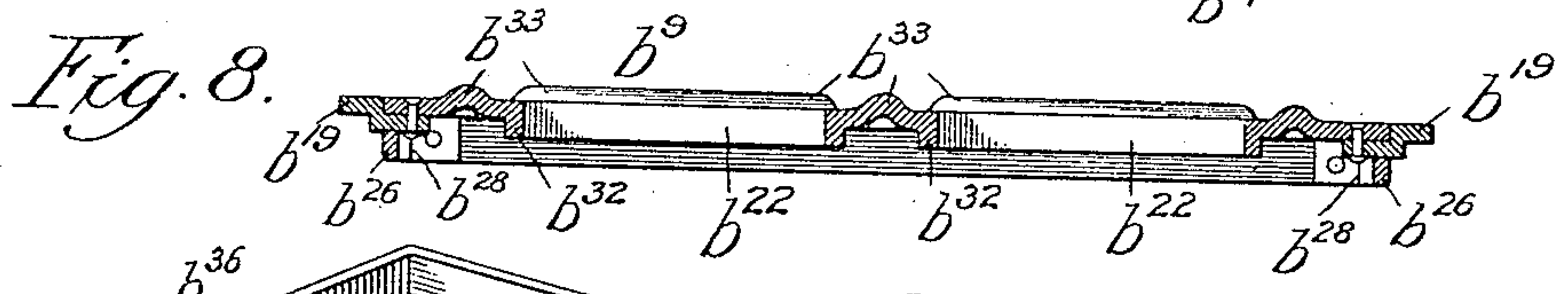
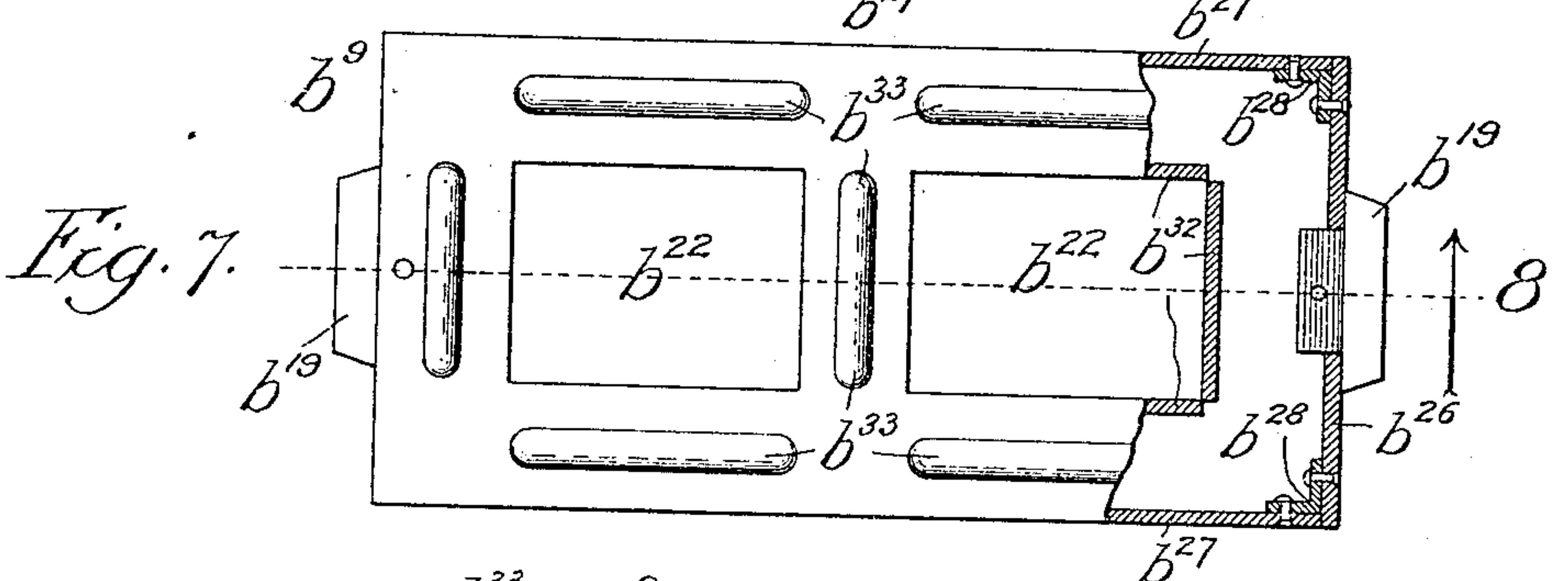
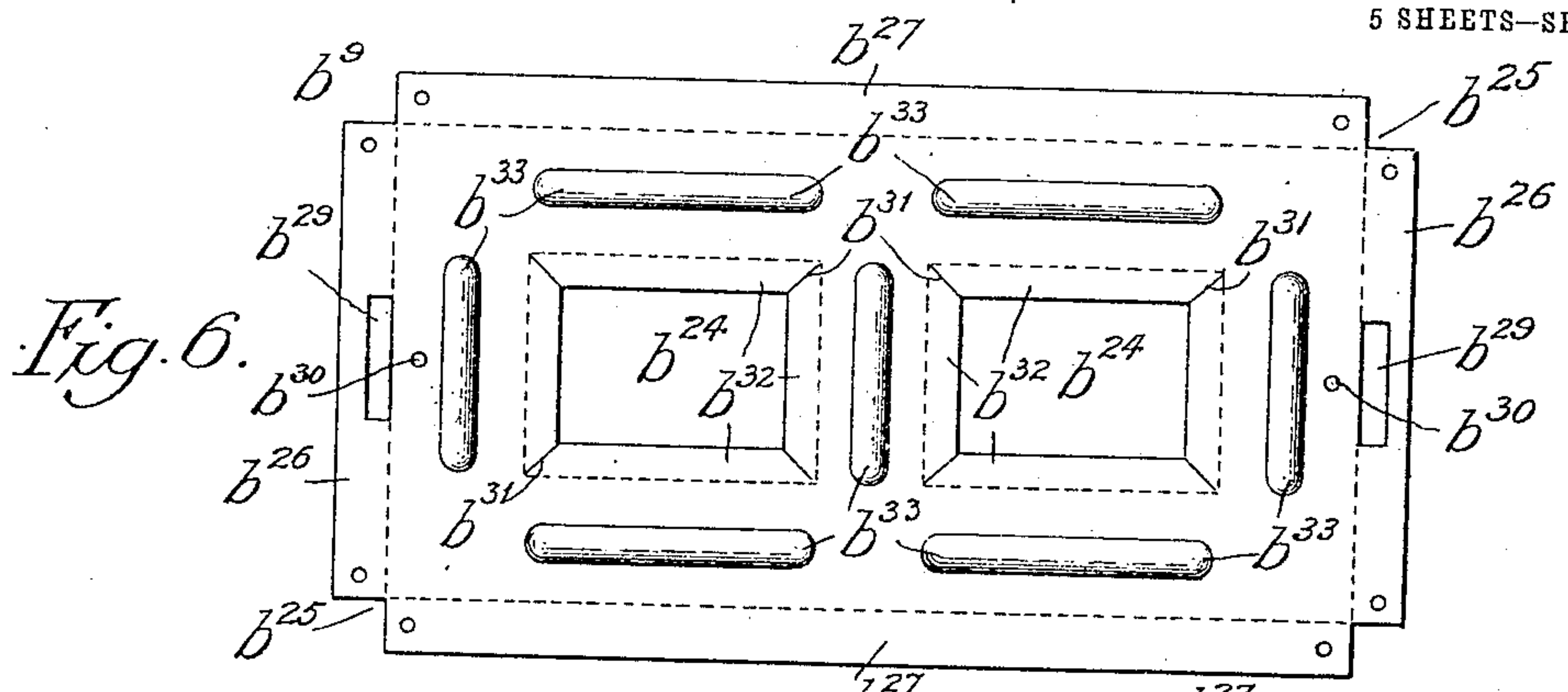
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5 SHEETS—SHEET 5.



Witnesses:  
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William C. Burrell,  
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Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM C. BURRELL, OF BRADLEY, ILLINOIS.

## BLOCK-FORMING MACHINE.

No. 844,709.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed August 23, 1906. Serial No. 331,724.

*To all whom it may concern:*

Be it known that I, WILLIAM C. BURRELL, a citizen of the United States, residing at Bradley, in the State of Illinois, have invented a new and useful Block-Forming Machine, of which the following is a specification.

My invention relates particularly to machines for forming hollow concrete blocks; and my primary object is to provide a machine of this character of improved general construction, durable in character, and handy in operation.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a plan view of the improved machine in its closed condition; Fig. 2, a plan view of the machine in its open condition; Fig. 3, a vertical sectional view taken as indicated at line 3 of Fig. 1; Fig. 4, a rear elevational view, partly broken, taken as indicated at line 4 of Fig. 3; Fig. 5, a broken sectional view similar to the section shown in Fig. 3, but showing the mold in its open condition; Fig. 6, a plan view of a blank employed in forming a removable pallet; Fig. 7, a view of said pallet in its completed condition, the view being partly in section; Fig. 8, a section taken as indicated at line 8 of Fig. 7, and Fig. 9 a perspective view of a carrier employed for removing the pallet and the artificial-stone block from the machine.

In the preferred construction illustrated, A represents a frame, which may be of any suitable form; B, a mold mounted on the frame, and C a pair of horizontally-reciprocable cores movably mounted on the frame. The frame A preferably comprises end standards *a*, a bar *a'* joining the end standards at their front portions near their upper ends, a bar *a''* joining the end standards intermediately near their lower portions, and a shaft *a'''* joining the end standards at their rear portions at a distance above the bases thereof.

The mold B preferably comprises a rear vertical plate *b*, joined at its lower edge by pivots *b'* to the upper portions of the frame-standards *a* and equipped centrally at its upper portion with a rearwardly-extending arm *b''*, which serves the double purpose of tilting the plate *b* rearwardly and limiting the rearward movement of said plate when the mold is opened; a front plate *b'''*, provided at its lower edge with hooks *b''''*, which engage studs *b'''''*, with which the end standards are provided, whereby the front plate is pivotally

and removably connected with the frame; a bottom plate *b''''''*, equipped at its front edge with hooks *b'''''''*, entered in slots *b''''''''*, with which the plate *b'''* is provided near its lower edge, whereby the bottom plate may assume the relation to the front plate shown in Fig. 5 when the front plate is thrown to its horizontal position; a removable pallet *b''''''''*, normally held in a vertical position adjacent to the front plate *b'''* when the mold is in the closed condition shown in Fig. 3; a pair of end plates *b''''''''''*, equipped with hooks *b'''''''''*, engaging the normally vertical pivots *b''''''''*, carried by projections *b'''''''''*, extending from the end edges of the front plates *b'''*, and a pair of locking-levers *b''''''''''*, mounted on normally horizontal pivots *b'''''''''*, projecting rearwardly from the rear edges of the plates *b''''''''''*, as shown in Fig. 1, said levers having cams *b''''''''''''* engaging cam-locks *b'''''''''''''* on the rear face of the rear plate *b*, near the end edges thereof.

The rear plate *b* is capable of swinging rearwardly slightly to the position indicated in Fig. 5. The hooks *b''''* of the front plate *b'''* are doubly curved to enable the front plate to drop to the horizontal position shown in Fig. 5 and be supported in said position by the hooks engaging the studs *b''''''*. As an additional support the frame member *a'* is equipped centrally with a bracket-arm *b''''''*, upon which the plate *b'''* rests when in the position shown in Fig. 5. The bottom plate *b''''''* is readily removable from the front plate, as will be understood from Fig. 5, and the front plate is readily removable from the frame, as appears from the same figure. The pallet *b''''''''* has its lower edge supported on the front margin of the bottom plate *b''''''*, as shown in Fig. 3, and said pallet is equipped at its end edges with lugs *b''''''''''*. The plates *b''''''''''* are equipped on their inner surfaces with enlargements or embossments *b''''''''''''*, whose inner surfaces may be given any desired contour. These embossments are of a suitable size to fit between the pallet *b''''''''* and the rear plate *b* when the mold is closed and have the lower edges *b''''''''''''*, which overlap the lugs *b''''''''''* of the pattern in the folded condition of the mold. The rear plate *b*, the front plate *b'''*, and the pallet *b''''''''* are provided with aligned apertures *b''''''''''''*, there being two sets of these apertures in the same horizontal plane, serving to receive the cores C. The construction of the pallet *b''''''''* is preferably that illustrated in Figs. 6 to 8, inclusive. A rectangular sheet-metal blank is formed with apertures *b''''''''''''* and cut-away cor-



ners  $b^{25}$ , affording end wings  $b^{26}$  and lateral wings  $b^{27}$ , which are folded downwardly along the dotted lines adjacent thereto and connected at their ends by angle-form members  $b^{28}$ . The end flanges  $b^{29}$  are provided with perforations  $b^{30}$ , which receive the shanks of the lugs  $b^{19}$ , said shanks being connected with the body of the plate by rivets passing through perforations  $b^{30}$  in the body of the plate. At the corners of the apertures  $b^{24}$  the metal is severed along oblique lines  $b^{31}$  and struck rearwardly, thereby forming flanges  $b^{32}$ , forming margins about the apertures. The metal of the body of the pallet is struck inwardly, as indicated at  $b^{33}$ , thereby forming recesses in what constitutes the lower surface of the building-block. The pallet is adapted to be removed from the mold by means of a carrier  $b^{34}$ , comprising a vertical plate  $b^{35}$  and plates  $b^{36}$ , at right angles thereto, intumed flanges  $b^{37}$  at the lower edges of the plates  $b^{36}$ , and handles  $b^{38}$  on the outer surfaces of the plates  $b^{36}$ . The flanges  $b^{37}$  are adapted to be inserted beneath the lugs  $b^{19}$  at the ends of the pallet, thereby enabling the pallet and the building-block thereon to be removed from the mold.

The cores C have their rear ends equipped with perforate lugs  $c$ , which fit upon a shaft  $c'$  and are firmly secured thereon by set-screws  $c^2$ . The shaft  $c'$  is formed integrally with or rigidly secured to a stem  $c^3$  at right angles to the shaft and movable in a guide  $c^4$ , carried by arms  $c^5$ , pivoted at their lower ends on the shaft  $a^3$ . The lower end of the stem  $c^3$  moves on a cam  $c^6$ , which has an angular stem supported at its angle on the shaft  $a^3$  and with its forwardly-projecting member firmly secured to the cross member  $a^2$  of the frame A. The member  $c^6$  is equipped at its rear portion with a perforate threaded lug  $c^7$ , which receives a set-screw  $c^8$ , serving to limit the rearward movement of the cores. The member  $c^4$  is equipped with laterally-extending arms  $c^9$ , having their extremities bent upwardly to form handles  $c^{10}$ , by means of which the member  $c^4$  may be swung up on the shaft  $a^3$  as a center, in which movement the stud  $c^3$  rides upon the cam  $c^6$ . The cam  $c^6$  is of suitable form to cause the cores C to move to pursue a substantially horizontal movement when the member  $c^4$  is swung about the shaft  $a^3$  as a pivot, it being understood that the cores are supported in this movement by the stem  $c^3$ . At the junction of the stem  $c^3$  and the shaft  $c'$  is an enlargement or head  $c^{11}$ , formed with a bifurcation or recess  $c^{12}$ , which serves to receive the arm  $b^2$ .

The operation of the improved machine will be readily understood from the foregoing detailed description. Assuming the mold-box to be in the closed condition indicated in Fig. 3, the lower portion of the mold may be filled, thereby forming the face of the build-

ing-block, and thereafter the handles  $c^{10}$  may be depressed, thereby inserting the cores C. The operation of filling the mold may then be completed and any surplus material scraped off with a straight-edge drawn across the top of the mold. The cores C may then be withdrawn by returning the handles  $c^{10}$  to the position indicated in full lines in Fig. 3. The locking-levers  $b^{14}$  may then be swung up to release the end plates of the mold from the rear plate thereof, thus allowing the rear plate of the mold to tilt backwardly to the position shown in Fig. 5. The body of the mold may then be swung forwardly until the bottom of the mold assumes the standing position shown in Fig. 5, the connections being such as to permit said bottom in its standing position to incline rearwardly slightly. The end plates of the mold may then be dropped to the horizontal position shown in Fig. 2, leaving the pallet or platen  $b^9$  free to be engaged by the carrier  $b^{34}$  for the purpose of removing the pallet and the block resting thereon from the machine.

It is obvious that the pallet and end plates of the mold may be removed at will and replaced by other similar parts bearing any suitable designs.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a machine for the purpose set forth, the combination with a mold having a core-receiving aperture, of a suitable frame, a member mounted to swing with relation thereto, a core actuated by said member, and adapted to move into said aperture, and cam connections between the frame and core, for the purpose set forth.

2. In a machine for the purpose set forth, the combination of a mold having a core-receiving aperture, of a suitable frame, a member mounted to swing with relation thereto and equipped with a guide, a core equipped with a stem movable in said guide, and a cam supporting said stem.

3. The combination of a frame, a mold having a pivoted rear plate provided with an aperture, a swinging member mounted on the frame in the rear of said plate, means for actuating said swinging member, a cam, and a core having a stem slidably connected with said swinging member and bearing upon said cam.

4. The combination of a frame, a mold supported thereon and provided with two sets of core-receiving apertures, a pair of cores movable in said apertures and mounted upon a stem, a swinging member mounted on the frame and equipped with a guide receiving said stem, and a cam mounted on the frame and supporting said stem.

5. The combination of a frame, a mold supported thereon and provided with two sets of apertures, a pair of cores movable in said apertures and equipped with a stem, a



member pivoted on the frame and equipped with actuating-arms extending forwardly at the ends of the frame, said stem having sliding connection with said swinging member, and a cam supporting said stem.

6. In a machine for the purpose set forth, the combination of a frame and a mold-box mounted on the frame comprising a rear plate, a front plate having detachable pivotal connection with the frame serving to permit the front plate to drop into a horizontal position and be sustained in said position, and a bottom plate having hooked connection with the front plate near the lower edge thereof for the purpose set forth.

7. A machine for the purpose set forth comprising a frame, and a mold-box mounted thereon comprising a rear pivotally-supported plate, a front plate equipped at its lower edge with doubly-curved hooks engaging suitable sockets with which the frame is provided, a bottom plate having hook connection with the front plate near the lower edge thereof, and a pallet adjacent to the front plate having an edge resting upon the bottom plate adjacent to the hook thereon.

8. The combination of a frame, a pair of rearwardly-movable cores supported thereon, and a mold in which said cores extend, said mold comprising a pivotally-supported rear plate having a core-receiving opening, a front plate having detachable pivotal connection at its lower edge with the frame and equipped at its ends with pivots projecting a distance from the ends of the front plate, and plates having hooks engaging said pivots, a pallet having lugs projecting from its ends

which underlie the end plates in the closed condition of the mold, and means for securing the free edges of said end plates to the rear plate for the purpose set forth.

9. The combination of a frame, a rearwardly-movable core mounted thereon, and a mold-box mounted on the frame and in which said core is entered, said mold-box comprising a rear movably-extending plate equipped with a rearwardly-extending arm, a pivotally-supported front plate, a bottom plate detachably connected with the front plate, and plates pivotally connected with the front plate, and means for securing the end plates to the rear plate.

10. A pallet for the purpose set forth comprising a rectangular sheet-metal member having notched corners and the flanges thereby formed bent at right angles to the body of the plate, the body of the plate having apertures therein, with the metal adjacent to the apertures struck outwardly to form flanges for the purpose set forth.

11. A pallet for the purpose set forth comprising a rectangular sheet-metal plate having notched corners and the flanges thereby formed struck outwardly at right angles to the body of the plate, clips joining said flanges, lugs connected with the end flanges, apertures through the body of the plate with the bordering metal struck outwardly, and embossments on the body of the plate struck inward for the purpose set forth.

WILLIAM C. BURRELL.

In presence of—

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C. W. WASHBURNE.