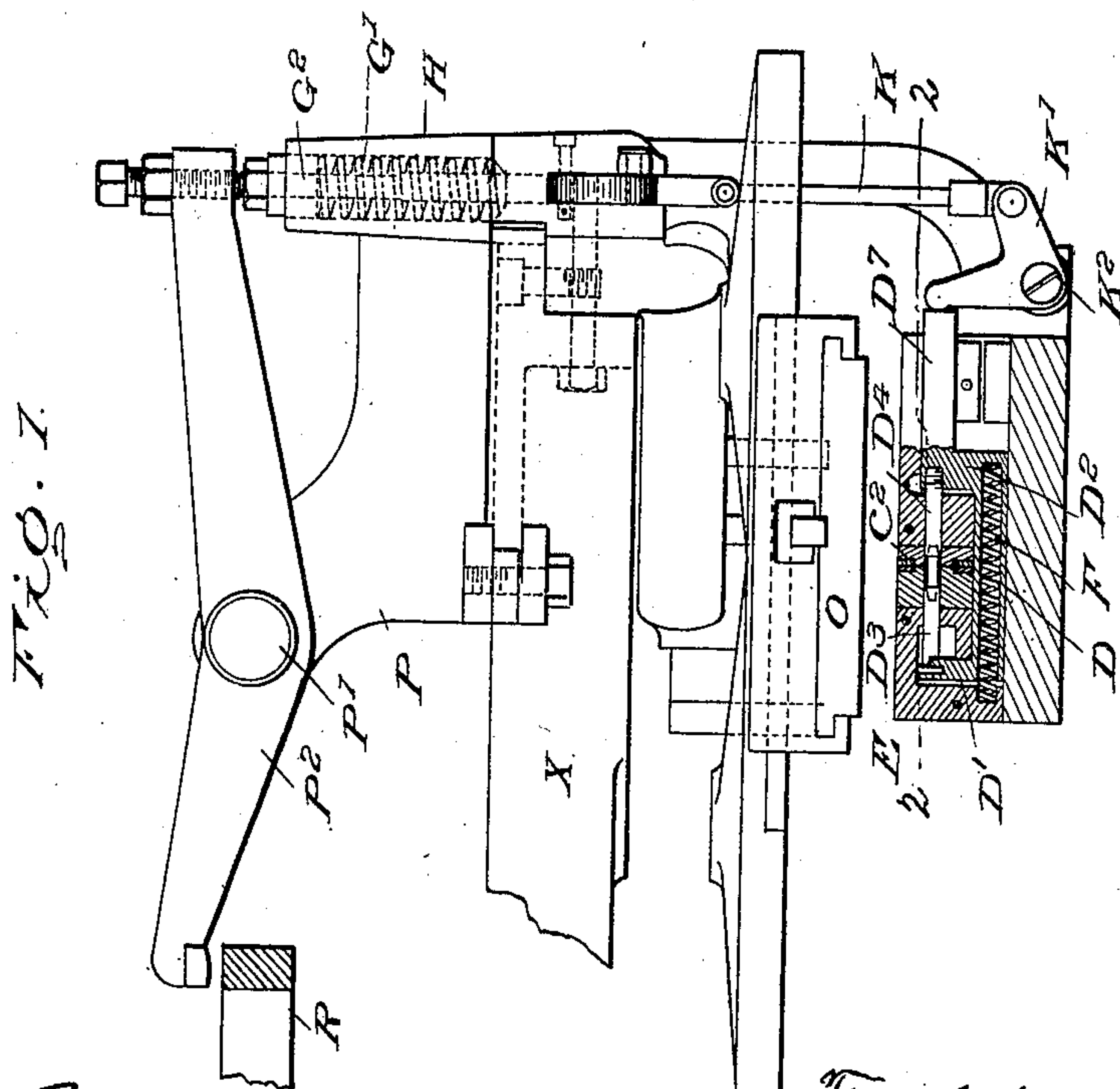
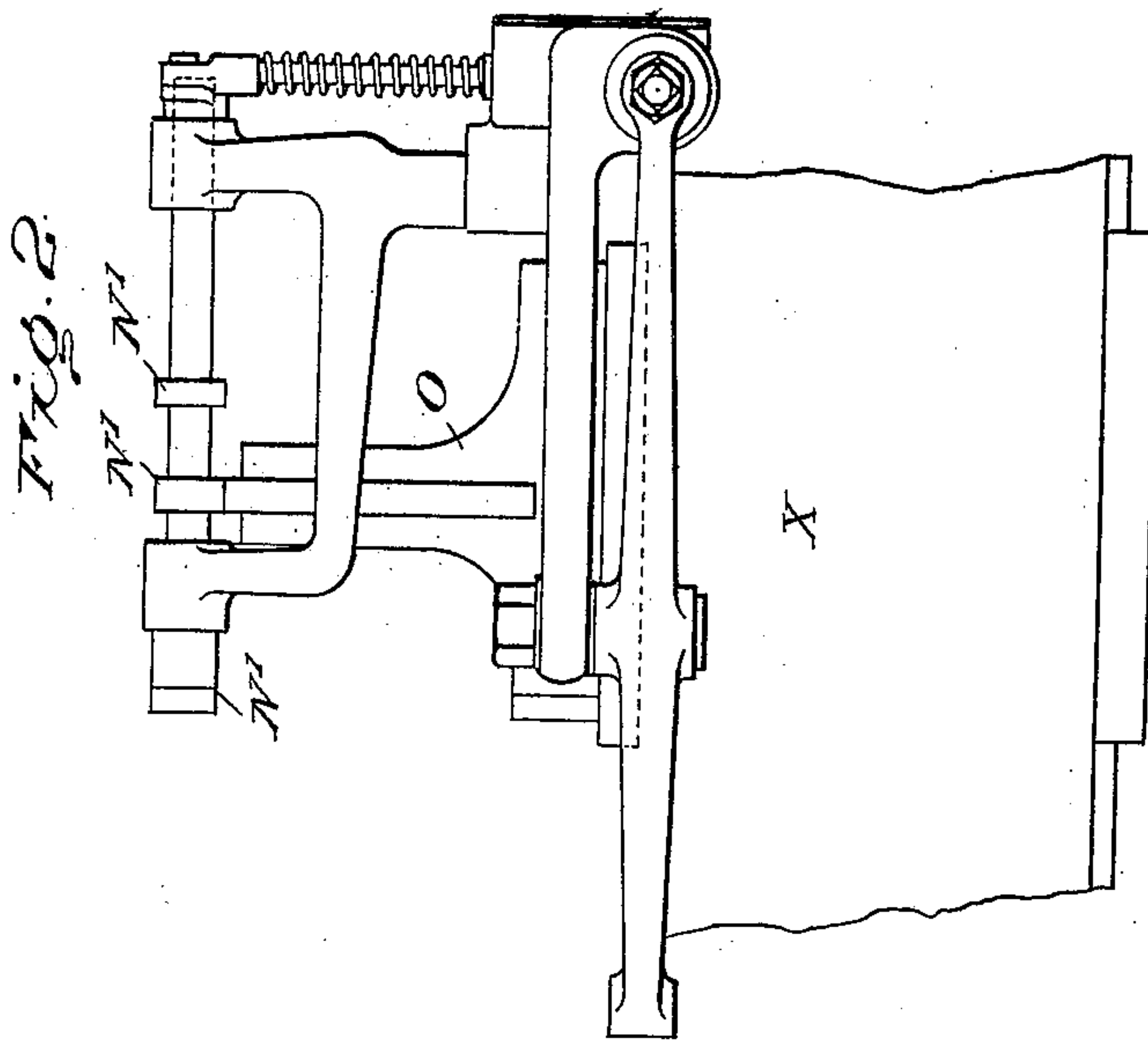


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MOLD ACTUATING MECHANISM FOR TYPE MACHINES.  
APPLICATION FILED OCT. 14, 1907.

925,023.

Patented June 15, 1909.

2 SHEETS—SHEET 1.



Witnesses

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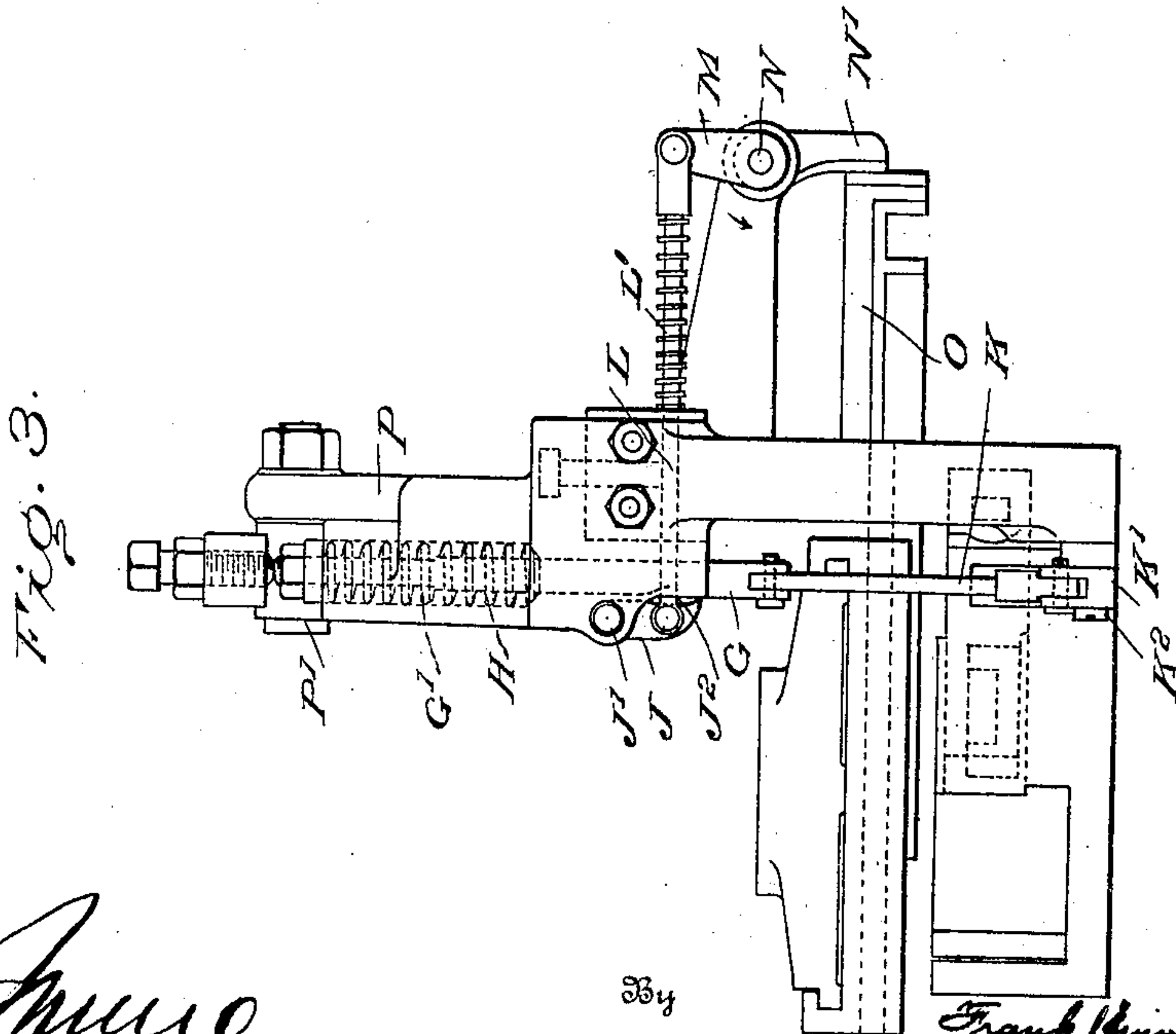
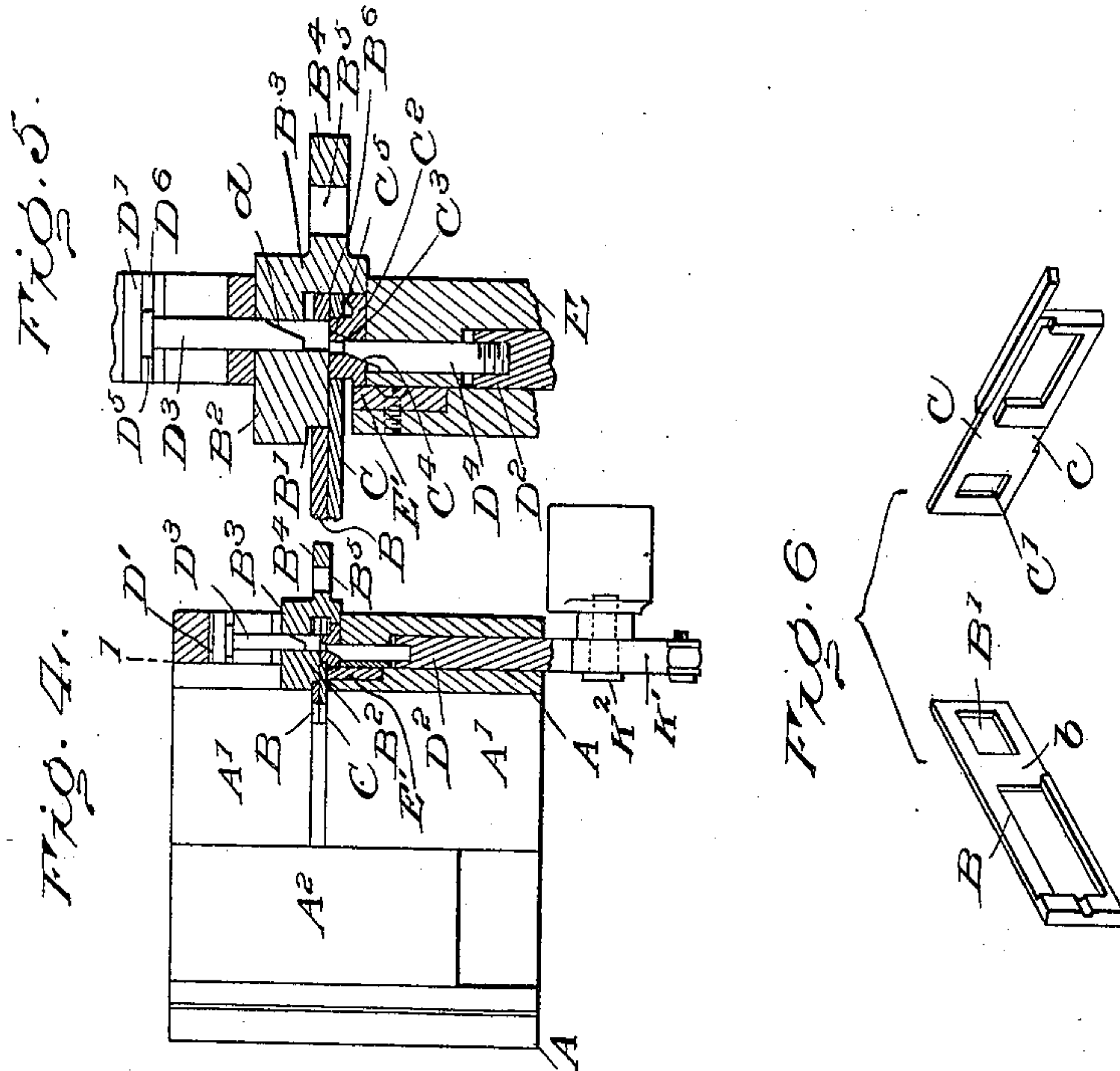
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# UNITED STATES PATENT OFFICE.

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## MOLD-ACTUATING MECHANISM FOR TYPE-MACHINES.

No. 925,023.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed October 14, 1907. Serial No. 397,408.

*To all whom it may concern:*

Be it known that I, FRANK HINMAN PIERPONT, a citizen of the United States, temporarily residing at Horley, county of Surrey, England, have invented a certain new and useful Improvement in Mold-Actuating Mechanism for Type-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to that class of type casting machines wherein the mold is equipped with a divided mold-blade the sections whereof are independently movable for the production of low body type, and it has for its object to improve the mold and simplify and render more certain the actuating mechanism controlling the relative positions or adjustments of the mold-blade sections, as hereinafter described, the novel features being pointed out in the claims.

In the accompanying drawings illustrating a preferred form of embodiment, Figure 1 is a side elevation of a portion of a type casting machine with the improved actuating mechanism applied thereto, a portion of the latter being in section on the line 1—1, of Fig. 4. Fig. 2 is a top plan view and Fig. 3 is a right hand side elevation of the devices, Fig. 1. Fig. 4 is a top plan view, partly in section, showing the mold equipment. Fig. 5 is an enlarged sectional view of the hold taken on line 2—2, of Fig. 1. Fig. 6 is a perspective view of the mold-blade sections detached and separated.

Like letters of reference in the several figures indicate the same parts.

As illustrated, the improvements although equally applicable to other forms, are specially designed for use in connection with the type casting machine of Patent No. 625,998, dated May 30, 1899, whereof X is a portion of the bridge supporting the centering pin (not shown) and die-case O. The type mold is preferably like that of Patent No. 752,814, dated Feb. 23, 1904, of which A represents the frame or base plate, A' the side blocks, and A<sup>2</sup> the cross-block, and the divided mold-blade with which it is equipped is similar to that of a companion application, Serial No. 397,409, filed October 14, 1907, of which B is the body or main

section and C the overlying or cut-off section provided with a web or plate *c* extending along one side of the body section within the mold-blade channel. Instead, however, of providing the main section B with a rear extension for the cross-pin, and the cut-off section C with a vertical extension for the attachment of its actuating mechanism, both sections are formed of the same length over all so that when their rear ends are in the same vertical plane their front or casting faces will be in alinement. The main blade B is also furnished in its rear portion with an opening B' in which is fitted a shouldered portion B<sup>2</sup> of an actuating block or head B<sup>3</sup>, the latter riding in a seat formed in a fixed member E and provided with a rear extension B<sup>4</sup>, preferably in alinement with the mold-blade channel, for the reception of the actuating and adjusting mechanism of the casting machine proper. As illustrated said extension B<sup>4</sup> is provided with an orifice B<sup>5</sup> for the reception of the usual cross pin. The cut-off section C is in like manner provided with an opening C' in which is fitted the shouldered portion of a block C<sup>2</sup>. When the sections B, C, are assembled with blocks B<sup>3</sup> and C<sup>2</sup> in position, as indicated in Figs. 4 and 5, said blocks are held from lateral displacement by the engagement of their outer faces with the walls of a groove or channel formed in member E affixed to or formed integral with the rear flange of base plate A, which flange is also preferably cut away as shown for the accommodation of head B<sup>3</sup>.

Block C<sup>2</sup> with its shouldered portion fitted to and filling the opening C' in cut-off section C is formed with a transverse orifice provided with opposite beveled surfaces C<sup>4</sup> C<sup>5</sup> for the reception of the correspondingly beveled surfaces of oppositely disposed bolts D<sup>4</sup>, D<sup>3</sup> arranged to reciprocate longitudinally in a direction transverse to the mold-blade sections.

Bolt D<sup>4</sup> is mounted in bearings in fixed member E and when advanced to enter the orifice in block C<sup>2</sup>, its beveled end engages the beveled surface C<sup>4</sup> and operates by its wedging action to advance the cut-off section C against cross-block A<sup>2</sup> thereby closing the end of the mold-cavity when a short body type is desired. Bolt D<sup>3</sup> is mounted upon and takes its bearing in block B<sup>3</sup> and enters the orifice in block C<sup>2</sup> on the opposite



side from bolt  $D^4$ , and it engages beveled surface  $C^5$  in a manner to retract the cut-off section C and seat its rear end against the gaging surface  $B^6$  of head  $B^3$ , thus holding the two mold-blade sections with their casting faces in alinement, which is the position they assume when full body or character type are desired. The projection and seating of bolt  $D^4$  while restraining movement of the cut-off section C, does not interfere with the movement of the body section B, which latter is free to respond to the regular adjusting devices applied to head  $B^3$ , and the withdrawal of bolt  $D^4$  and engagement of bolt  $D^3$  with block  $C^2$  has the effect of locking both mold-blade sections upon the head  $B^3$  for simultaneous adjustment, said head  $B^3$  providing an ample bearing for bolt  $D^3$  as well as a shoulder or gage  $B^6$  for alining the casting faces of the two sections. The front stop for the mold-blade sections is with a hardened block  $E'$  detachably applied to the rear flange of bed plate A in position to be engaged by block  $C^2$  when the mold blade sections or either of them are advanced into contact with the face of cross-block  $A^2$  thus permitting shorter mold-blade sections to be employed and avoiding the presence of the usual front stop opening.

It is the intention that bolts  $D^3$   $D^4$  should alternately engage block  $C^2$ , to which end they are connected to a member D supported to reciprocate transversely of the mold-blade sections in bearings formed between fixed member E and base plate A. This member D is furnished with upwardly extending cheek pieces  $D'$   $D^2$  on opposite sides of blocks  $B^3$  and  $C^2$ . The cheek piece  $D^2$  is provided with a socket for the reception of the threaded end of bolt  $D^4$ , while cheek piece  $D'$  is provided with a groove  $D^6$  in which is received a flange or collar  $D^5$  on bolt  $D^3$ . The groove  $D^6$  is in parallel with the mold-blade channel, to permit independent lateral movement of bolt  $D^3$ , the latter being supported in and moving with block  $B^3$  seated in the body section B.

A spring F is applied to member D in a manner to normally project bolt  $D^3$  into engagement with its seat in block  $C^2$  and at the same time retract bolt  $D^4$ , thereby causing bolt sections B, C, to be locked upon head  $B^3$ . This is the position for casting full body or character type. When short body type or quads are desired, it is only necessary that member D shall be advanced against the tension of its spring F, to withdraw bolt  $D^3$  and engage bolt  $D^4$ , thereby advancing and locking cut off section C and releasing body section B so that it alone responds to the dimension adjusting devices.

The actuating mechanism for automatically advancing member D whenever a low quad or space is called for includes as its

principal elements a motor device arranged to act upon said member D in opposition to its retracting spring; means for restraining or suspending the action of said motor device; tripping devices for said restraining or suspending means operating to release or energize the motor device and means for returning or restoring the energy of said motor device.

In the preferred form of embodiment illustrated the motor device is represented by a plunger G supported in guides on a bracket P, the latter detachably secured to the bridge X or other suitable part of the casing machine frame; a motor spring H interposed between the bracket and an adjustable head  $G^2$ ; and a lever  $K'$  pivoted at  $K^2$  and having one arm in position to engage a projecting portion  $D^7$  of member D and the other arm coupled by a link K to plunger G. The arrangement is such that the superior tension of motor spring H, if unrestrained, will overcome retracting spring F and shift member D in a direction to engage bolt  $D^4$  and disengage bolt  $D^3$ .

The restraining or suspending means for the motor device is represented by a latch J pivoted at  $J'$  to the bracket P in position to engage a shoulder  $J^2$  on plunger G, and thereby prevent movement of said plunger in a direction to actuate member D, said latch J being advanced by suitable means to engage shoulder  $J^2$ , as by a spring  $L'$  interposed between the bracket and a shoulder on rod L, the latter pivotally connected to said latch. The tripping device for rendering the motor active is represented by a shaft N mounted in bearings on bracket P and provided with an arm M coupled to rod L, and one or more arms  $N'$  in position to be engaged by die case O when the latter is brought to the position or positions assigned to low quads or spaces. The motor restoring means is represented by a lever  $P^2$  pivoted at  $P'$  on the bracket with one arm in position to engage plunger G in a direction to compress its motor spring and restore latch J, the other arm of said lever extending above and in position to be engaged by a moving part of the casting machine, such as the centering pin lever R.

The operation is as follows:—As is well known the matrix carrier or die-case O is movable in two directions in a horizontal plane to bring its various matrices successively into position opposite the mold, and when moved into position to cast spaces it contacts with one of the arms  $N'$  thereby rocking shaft N in the direction indicated by the arrow in Fig. 3. The effect of this is to withdraw latch J from shoulder  $J^2$  thereby releasing plunger G which is immediately driven upward by spring H and causes the advance of member D against the pressure of its retracting spring F. Bolt  $D^3$  is there-



by withdrawn from and bolt D<sup>4</sup> advanced into engagement with block C<sup>2</sup> whereby the cut-off section C is advanced to close the mold. This advance of the cut-off section C takes place during the first part of the descent of centering pin lever R while the adjusting devices are operating to position the body section B, and is completed before the selected matrix is seated upon the mold. The cast having been made, upon the rise of lever R, incident to the withdrawal of the matrix from the mold, lever P<sup>2</sup> is engaged to return plunger G into position to reengage latch J, thereby not only restoring the power of motor spring H but positively withdrawing connecting lever K<sup>7</sup> so that member D, responding to its spring, is automatically shifted back to normal position, with the two mold-blade sections locked in position on head B<sup>3</sup>. If the next succeeding type called for is a full body or character type the shifting of the die case incident to the selection of the matrix permits latch J to engage shoulder J<sup>2</sup> so that upon the next descent of lever R the action of motor spring H will be suspended, and the two mold-blade sections being locked to block B<sup>3</sup> with their casting faces in alinement will be moved in unison by the adjusting devices connected to said block.

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

1. A mold for type casting machines such as described, provided with a divided mold-blade the independently movable sections whereof are connected for simultaneous adjustment by an actuating head detachably applied to one section and provided with a gage to receive the other section for alining the casting faces of the two sections.

2. A type mold provided with a divided mold-blade the independently movable sections whereof are connected for simultaneous adjustment by an actuating head or block detachably applied to one section and provided with a gage for positioning the other section and a bolt mounted upon said head and operating to hold the last named section in contact with said gage.

3. In a type mold provided with a divided mold-blade including independently movable body and cut-off sections and in combination therewith an actuating head or block guided to reciprocate in bearings on the mold and provided with an extension in alinement with the mold-blade channel for the reception of the adjusting devices, said head being also provided with a positioning gage for the cut-off sections, an attachment for the body section and a locking bolt engaging a bearing carried by the cut-off section for maintaining the latter in contact with the gage on said head.

4. A type mold provided with a divided

mold-blade including a body section and a cut-off section, the latter furnished with a web or plate in parallel with the body section, and in combination therewith, an actuating head provided with a shouldered portion fitted to an opening in the body section and provided with a gaging surface, a block fitted to an opening in the cut-off section, and provided with reversed bearings, a locking bolt mounted upon the actuating head in position to engage one of said bearings, and a bolt mounted upon the mold in position to engage the other of said bearings.

5. In a type mold the combination of the following elements, to wit, a divided mold-blade comprising independently movable body and cut-off sections; an actuating head provided with a shouldered portion on one side fitted to an opening in the body section and with a gaging surface; a block fitted to an opening in the cut-off section and provided with opposite bearing surfaces; a bolt mounted upon the actuating head in position to engage one of said bearing surfaces for holding the cut-off section to the gaging surface of the actuating head; a bolt mounted upon a fixed portion of the frame in position to engage the other of said bearing surfaces; and means for shifting said bolts to cause the engagement of one and the disengagement of the other.

6. In a type casting machine provided with a divided mold blade, and two bolts connected to move in unison, the one operating to lock the mold-blade sections for simultaneous adjustment and the other to hold the cut-off section in its advanced position and in combination therewith the following elements, to wit; yieldable means coupled with the locking bolts for maintaining them in normal position; a motor device arranged to operate in opposition to said yieldable means; a latch for restraining the motor device, and tripping devices for said latch.

7. In a type casting machine provided with a divided mold-blade and alternately engaging locking bolts, the one for connecting the mold-blade sections for simultaneous adjustment and the other for restraining movement of the cut-off section and in combination therewith means for advancing said bolts in one direction; a motor device arranged to operate in opposition to said advancing means; means for restraining or suspending the action of said motor device and means for withdrawing said restraining or suspending means to liberate the motor device.

8. In a type casting machine provided with a divided mold blade and means operating to successively connect both mold-blade sections to the mold dimensioning mechanism, for simultaneous adjustment and for disconnecting the sections and holding the cut-off section in advanced position



- for dissimultaneous adjustment and in combination therewith the following elements, to wit; yieldable means for advancing said operating means in one direction; a motor device arranged to act in opposition to said yieldable means; a latch for said motor device; a trip for said latch; and means controlled by a moving part of the casting machine for restoring said motor device.
9. A self contained actuating mechanism for the divided mold-blade of a type casting machine, the same including in combination a detachable bracket carrying a reciprocatory plunger, a motor spring, a latch and an actuating lever coupled with the plunger.
10. An actuating mechanism for the cut-off section of a divided mold blade including in combination a frame or bracket, a reciprocatory plunger provided with an impelling motor, a latch for said plunger, a restoring member engaging the plunger and adapted to be operated upon by a moving part of the casting machine and a rock shaft coupled with the latch and provided with means adapted to be engaged by a moving part of the casting machine, to withdraw the latch and permit the advance of the plunger by its motor.
11. An actuating mechanism for the cut-off section of a divided mold blade including the following elements, in combination, to

wit; a motor device including a plunger and a propelling spring, the latter interposed between a fixed support and said plunger and exerting constant pressure to advance the plunger; a tripping device for alternately engaging and releasing the plunger; means coupled with a moving portion of the machine for controlling the action of the tripping device; and means also coupled with a moving portion of the machine and engaging the plunger to move it in opposition to the motor spring, thereby restoring the latter and reengaging the tripping devices.

12. In a type casting machine provided with a divided mold blade and in combination therewith an actuating mechanism for the cut-off section of the mold including the following elements, to wit; a plunger; a motor spring exerting constant pressure upon the plunger to advance the latter; means for restraining the advance of the plunger; a trip for said restraining means; and means coupled with a moving part of the machine and acting in opposition to the motor spring to return the plunger and reengage the restraining means.

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Witnesses:

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R. WILLIAMS.