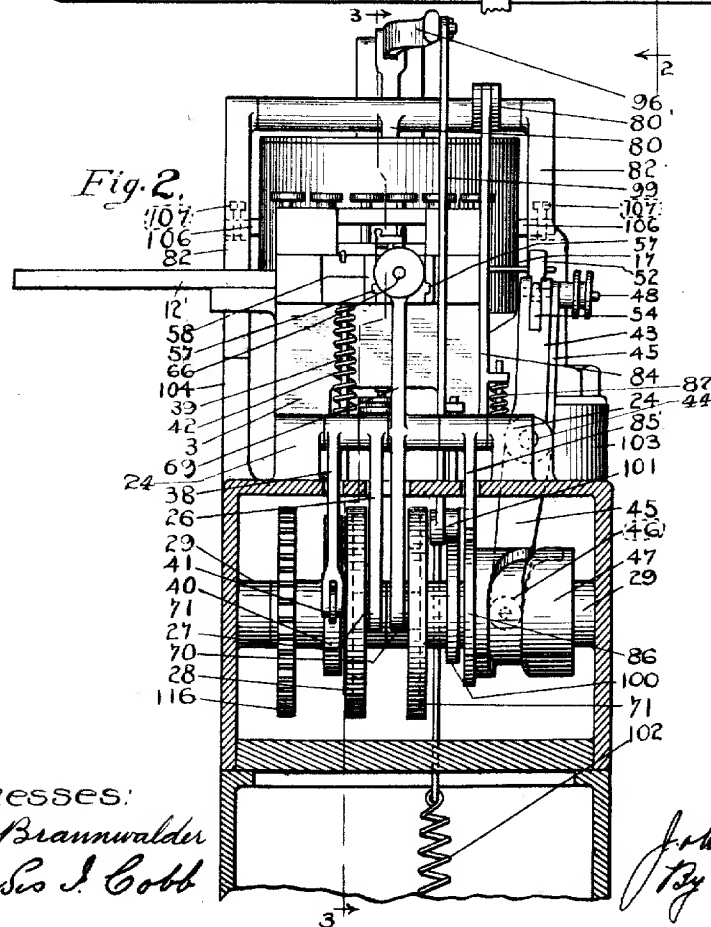
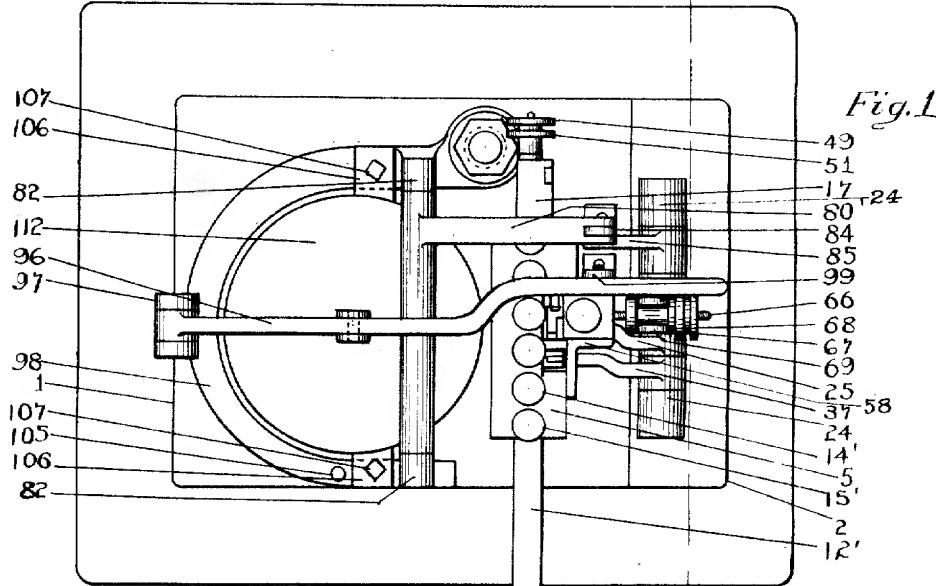


J. S. THOMPSON.  
TYPE CASTING MACHINE.  
APPLICATION FILED JAN. 31, 1907.

908,519.

Patented Jan. 5, 1909.

4 SHEETS—SHEET 1.



Witnesses:  
John Braunnwalder  
Charles J. Cobb

Inventor:  
John S. Thompson  
By Will D. Hill  
Atty.

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4 SHEETS—SHEET 2.

Fig. 3.

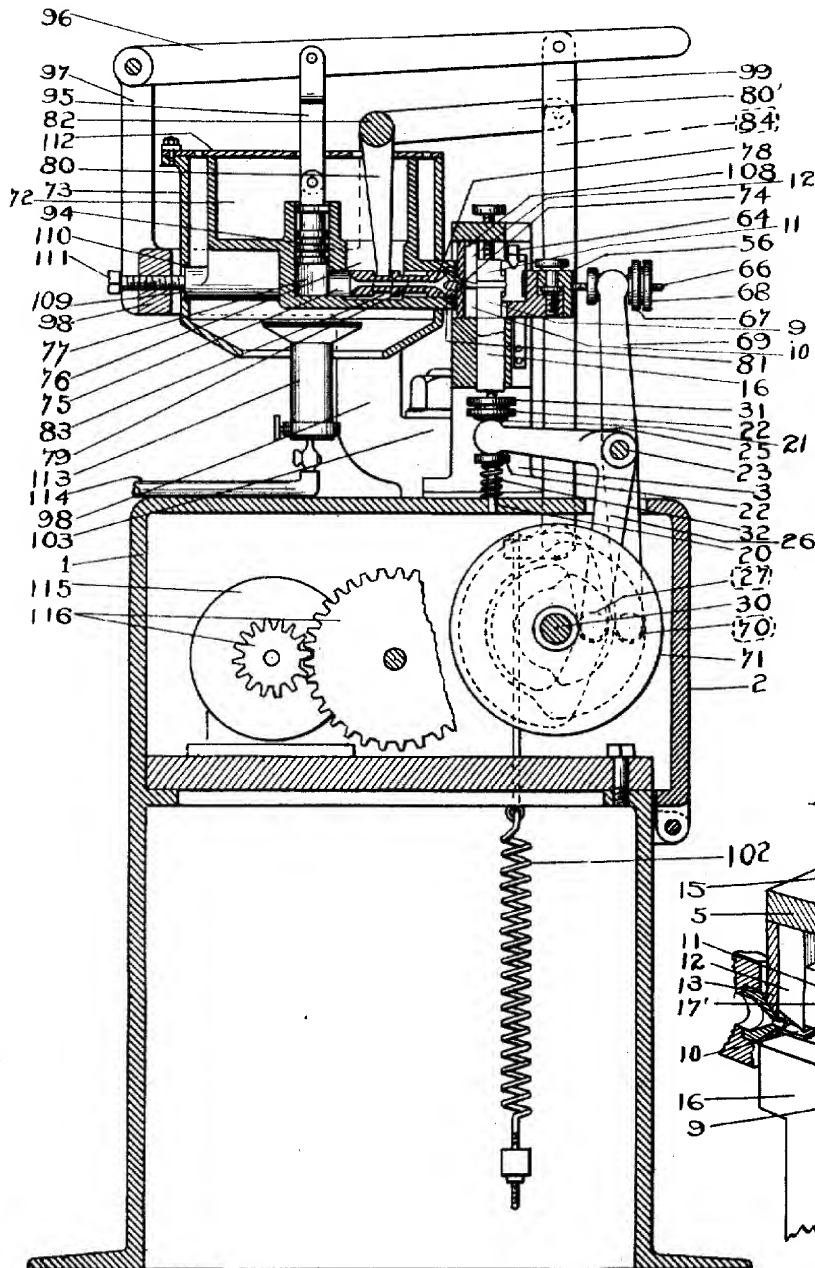
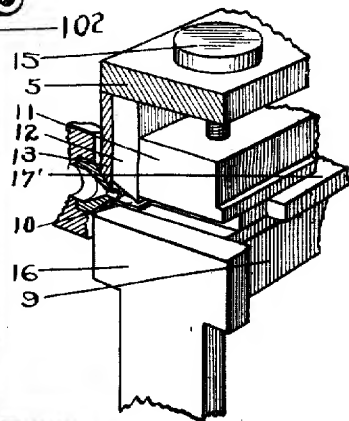


Fig. 10



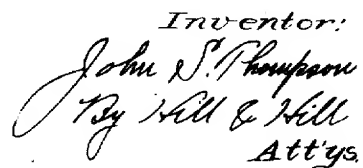
Witnesses:  
John Braunwalder  
Charles J. Cobb

Inventor:  
John S. Thompson  
By Hill & Hill  
Atty.

APPLICATION FILED JAN. 31, 1907.

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4 SHEETS--SHEET 3.



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4 SHEETS—SHEET 4.

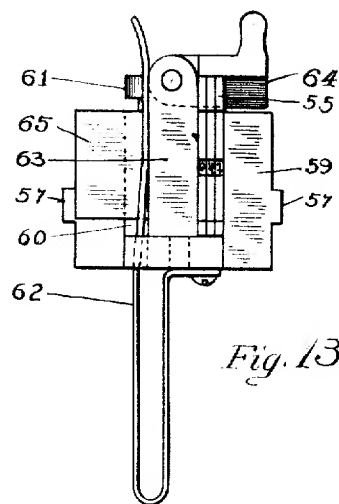


Fig. 13.

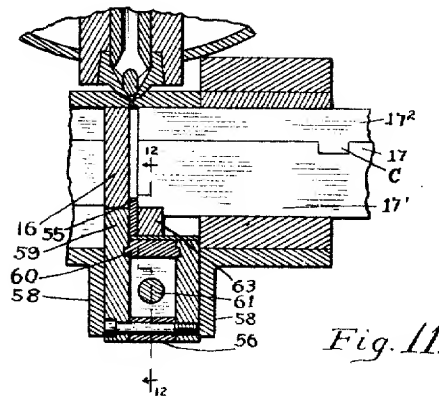


Fig. 11.

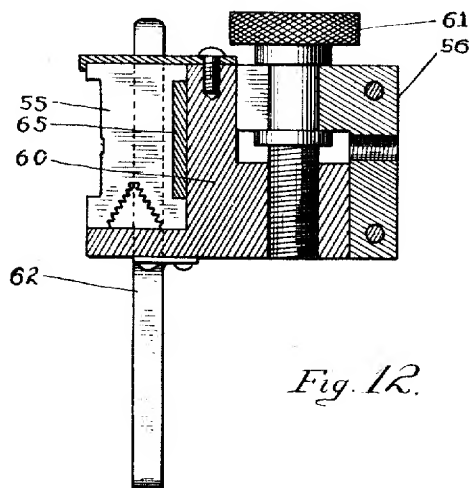


Fig. 12.

Witnesses:  
John Braunwalder  
R. C. Beaumont.

Inventor:  
John S. Thompson  
By Hill & Hill  
Att'ys.

# UNITED STATES PATENT OFFICE.

JOHN S. THOMPSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THOMPSON TYPE MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## TYPE-CASTING MACHINE.

No. 908,519.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed January 31, 1907. Serial No. 355,135.

*To all whom it may concern:*

Be it known that I, JOHN S. THOMPSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Type-Casting Machines, of which the following is a description.

My invention relates to that class of devices commonly employed in producing the various forms of type used in the art of printing, and may be employed by itself to produce type which are later set by hand in the usual and well known manner, or it may be combined with such other mechanism as may be required to produce type which is assembled or set and may be justified and manipulated as otherwise desired, by the associated parts of the machine.

The object of my invention is to produce an accurate and reliable device of the kind described which is substantially automatic in its operation, and which will produce an extremely accurate type with great rapidity.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, wherein like or similar reference characters indicate like or corresponding parts; Figure 1 is a plan view of my device. Fig. 2 is a partial section taken substantially on line 2—2 of Fig. 1. Fig. 3 is a section taken substantially on line 3—3 of Fig. 2. Fig. 4 is an enlarged section taken substantially on line 4—4 of Fig. 6. Fig. 5 is a section taken substantially on line 5—5 of Fig. 4. Fig. 6 is a section taken substantially on line 6—6 of Fig. 4. Fig. 7 is an enlarged section taken substantially on line 7—7 of Fig. 5. Fig. 8 is an enlarged detail of the liner movement adjusting mechanism. Fig. 9 is an enlarged detail of the matrix carrier shown in perspective. Fig. 10 is a perspective of the left hand end of the mold and associated parts partly in section. Fig. 11 is an enlarged partial section taken substantially on line 5—5 of Fig. 4 but showing a slightly modified form of mold and matrix holder. Fig. 12 is a section taken substantially on line 12—12 of Fig. 11 showing the matrix holder adapted to hold the matrix in an inverted position. Fig. 13 is a front elevation of the matrix holder.

In the form of my device shown in the drawings, a base or pedestal 1 is provided, at the top of which my mechanism is mounted. The pedestal 1 may be of any desired form or construction, preferably comprising a rectangular enclosure provided with a substantially flat top and if desired with any desired arrangement of doors 2 for affording convenient access to its interior.

The mechanism of my device consists of three principal elements, a mold, a matrix holder or carrier, and a metal pot, and operating means for each, preferably all controlled by a common power element, so arranged that the several parts will cooperate to successively cast type in the mold and finish each type before it leaves the machine.

As shown, a stand 3 is mounted upon the top of the base 1 and secured thereto in any desired manner. A longitudinal channel 4 is formed in the top of the stand 3, and a cover plate 5 is provided, rigidly attached to the marginal projections 6 and 7 in any suitable manner. The type mold is positioned within, and comprises a space of variable width inclosed between four substantially independent members, two of which are stationary and two movable. In the form shown, the stationary members form the top and bottom walls of the mold, and the movable members its sides, the several parts being formed to produce a jet or extension 8 upon the foot of the type. The several parts may be constructed in any desired manner. As shown, the stationary members are each formed of two parts, one for the body portion of the type and one for the jet. The bottom member is merely two flat strips or plates 9 and 10 of suitable material fitted to the bottom of the channel 4, the plate 10 forming a wall of the jet portion of the mold being slightly thicker than the plate 9 or body part, so that a slight offset is provided at the junction of the jet with the body of the type.

The top member of the mold is constructed somewhat similarly to the bottom member, and consists of a plate or part 11 for the body of the type and a part 12 for the jet, and while it is desirable to provide means for forming type of any desired height in my device, there is no necessity for changing the cross-section of the jet for each height of type, and for this reason any suitable means may be provided for adjusting the

relative position of the parts 9 and 11 while the parts 10 and 12 are rigidly connected in a fixed relation to each other. In the form shown, the part 11 is adjustably supported  
 5 by means of a cap-screw 14 which extends through the cover plate 5 and engages a suitable tapped hole in the part 11, and two set-screws 15—15 are positioned in suitable tapped holes through the cover plate 5,  
 10 preferably one on each side of the cap-screw 14, with their points engaging the part 11 in position to force the same downward, thus providing convenient means for adjusting the vertical position of the part 11,  
 15 and a lock for securing the same in its adjusted position.

The parts 10 and 12 may be rigidly connected and held in their proper relation to the remainder of the mold in any suitable  
 20 manner. In the form shown, the parts 10 and 12, when positioned with the desired space between them, fill the side of the channel 4 so that they are clamped in position between the cover 5 and the bottom of  
 25 the channel. The parts 10 and 12 are rigidly spaced from each other by means of a plate 13 rigidly attached to each in any desired manner.

Of the two movable members of the mold, the member 16 is preferably a suitably formed flat plate positioned in an opening in the bottom of the stand 3 at the end of the stationary members of the mold, the adjacent parts of which are suitably formed to coöperate with the member 16 to securely close  
 35 the space between the top and bottom members. The principal movement of the plate 16 is vertical, and its top face is suitably formed so that when the plate is in its depressed position its top is substantially even with, and forms a continuation of, the top face of the plate 9. When in its elevated position the plate 16 sufficiently overlaps the end of the plate 11, even when the plate is  
 40 adjusted to its highest position, to form a complete closure for the space between the stationary top and bottom members of the mold.

The member 17 is suitably formed to extend into and slide longitudinally between the top and bottom members hereinbefore described, forming a complete closure for the space between the stationary members, and an adjustable side to the mold which may be  
 55 held at any suitable distance from the member 16 to control the width of the type. The member 17 may be constructed in any desired manner, but in the preferred construction shown, as the space between the members 10 and 12 remains constant while the space between the members 9 and 11 is varied, the member 17 is preferably made up of two interlocking parts, the part 17<sup>1</sup> fitting the jet portion of the space and the part 17<sup>2</sup>  
 65 the type body portion, a separate part 17<sup>1</sup>

being provided for each height of type desired and each arranged to interlock with a single part 17<sup>2</sup>, so that the two will always move in unison when in operation. In the preferred form shown, the interlocking mechanism between the parts 17<sup>1</sup> and 17<sup>2</sup> comprises a substantially rectangular lug or projection C upon the part 17<sup>2</sup> coöperating with a corresponding recess formed in the part 17<sup>1</sup>.

In addition to serving as a side to the mold, the member 17 operates as an ejector to move each type as cast from the mold. For this purpose the member 17 is rigidly held at a predetermined distance, depending upon the width of the type to be cast, from the member 16 while the space is filled with metal, after which the member 16 is depressed and the member 17 is advanced, forcing the type just cast out of the mold and across the top of the member 16, into a space between the type-holding members 18—18<sup>1</sup> and 19—19<sup>1</sup>, in general corresponding exactly to the corresponding parts of the top and bottom type mold members.

The movements of the members 16 and 17 may be controlled in any desired manner. As shown, a depending stem 20 is provided upon the member 16 having a portion threaded and fitted with a sleeve-nut 21 provided with a pair of concentric parallel projections 22, which I have termed a "spool-nut" in this specification, and wherever the term "spool-nut" is employed I desire to be understood as referring to this particular nut or to other similar nuts. A shaft 23 is mounted in suitable bearings 24—24 upon the top of the pedestal 1. A bell crank 25—26 is loosely mounted upon the shaft 23 with the free end of the arm 25 preferably forked and suitably formed to snugly fit the space between the parallel projections upon the spool-nut 21. The arm 26 extends downward and is preferably provided at its free end with an anti-friction roller 27 positioned in operative relation to a cam 28 upon a shaft 30 rotatably mounted in suitable bearings 29—29 upon the upper portion of the base 1. A jam-nut 31 is preferably provided to lock the spool-nut 21 in position upon the stem 20 and a spring 32 or equivalent means is shown arranged to force the member 16 upward, thus taking up any slack or looseness between the cam 28 and member 16.

The above described mechanism controls the vertical movements of the member 16, and where the several parts are so fitted that the plate 16 is positioned tightly against the ends of the top and bottom members each time the plate 16 is raised into casting position, no other means is necessary to insure a sufficiently tight joint between the plate 16 and the top and bottom members. In the preferred form, however, the plate 16 is loosely fitted, and means are provided to engage the same and move it horizontally

into contact with the top and bottom mold members after it has completed its vertical movement. Any suitable mechanism may be provided to control the horizontal movement of the plate 16. As shown, a suitable recess 33 is provided in the under side of the member 18 at its end adjacent the plate 16. A block 34 provided with a threaded opening near its center is fitted to the open end of the recess, and a shaft 35 having a laterally extended arm 36 and one end fitted to the threaded opening in the block 34 is positioned within the recess with its free end resting against the inner wall thereof, so that a partial rotation of the shaft 35 will force the block 34 beyond the end of the member 18, thus engaging the plate 16 and forcing it firmly against the ends of the upper and lower members of the mold.

The movements of the shaft 35 may be controlled in any suitable manner. As shown, a bell crank 37—38 is loosely mounted upon the shaft 23 with the free end of its arm 37 connected by a rod 39 to the free end of the arm 36, and its arm 38 extending downward and provided with an anti-friction roller 41 adapted to operatively engage a cam 40 rigidly mounted upon the shaft 30. A spring 42 or equivalent means is provided, tending normally to elevate the free end of the arm 37 and forcing the roller 41 into operative engagement with the face of the cam 40.

Any suitable means may be employed to actuate and control the position of the member 17, and as the position of this member during the actual casting operation controls the width of the type cast, which ordinarily varies in the several characters composing a font to correspond with the character produced by the type, it is desirable that means be provided for accurately adjusting the mechanism so as to vary the casting position of the member 17 as desired.

In the form shown, an arm 43 is loosely mounted upon a shaft 44 or equivalent means upon the upper part of the pedestal 1 and connected at its free end to the member 17. A lever 45 is also mounted upon the shaft 44 and provided at one end with a suitable roller 46 adapted to operatively engage the groove of the cam 47 mounted upon the shaft 30. A threaded stem 48 is pivotally connected to the free end of the lever 45 and provided with a spool-nut 49 adapted to snugly engage a suitably formed lug 50 or equivalent means upon the arm 43. Thus by adjusting the position of the spool-nut 49 upon the stem 48, the position of the free end of the arm 43 relative to the lever 45 is controlled, a jam-nut 51 being preferably provided to lock the spool-nut 49 in its position upon the stem 48.

The free end of the arm 43 may be connected to the member 17 in any desired manner. As shown, a rectangular notch is pro-

vided near the outer end of the part 17' of the member 17, and a tongue 52, provided with a partly cylindrical portion 53 of suitable size to snugly fit the recess in the member 17, is pivotally mounted upon the end of the arm 43, with a spring 54 or other suitable means arranged to normally hold the tongue 52 in engaging position.

It is obvious that with the parts constructed as above described, the travel of the member 17 is substantially constant, and in order to provide for properly ejecting each type from the mold, the movement of the member 17 is sufficient to force the type well beyond the member 16 into the space between the members 18 and 19 even when the mechanism is adjusted for casting logotypes or other pieces of the greatest width possible in the machine, and when the narrower type are produced they are simply forced farther into the space between the members 18 and 19.

Any suitable form of matrix may be employed and held in position to cooperate with the mold in any suitable manner. As shown, the matrix 55 is of the general form usually employed with linotype machines, and is mounted upon a matrix carrier comprising a frame or carriage 56 provided with a rib or tongue 57 upon each side, or other suitable means adapted to cooperate with guides or ways 58 upon the stand 3 to accurately guide the movement of the carriage 56, preferably in a horizontal direction at substantially right-angles to the channel 4.

The vertical position of the matrix upon the carriage is preferably controlled by an inverted T-shaped block or matrix support 60, one arm of which is adapted to extend beneath and support the matrix. The block 60 is positioned in a suitable chamber or recess in the bottom and front of the carriage and provided with suitable means cooperating with the sides of the carriage to permit sufficient vertical adjustment of the block. A screw 61 or other suitable means connects the block and carriage to control the adjustment of the block, thus providing convenient means for accurately adjusting the position of the character upon the matrix to the mold, and, where two or more characters are provided upon a single matrix, for adjusting the position of the matrix to bring either character desired into position to cooperate with the mold.

Any desired means may be employed to positively locate the position of the matrix upon the block 60. As shown, one side wall of the carriage terminates substantially even with the back of the matrix seat upon the block 60 and the opposite side is extended as at 59 to serve as a fixed side wall against which the matrices may be clamped. In the preferred construction shown, a transverse slot 60' is provided in the arm of the

block 60 and a spring 62 is attached to the block 60 with a part extending upward through the slot into position to engage a loose or movable jaw 63 and resiliently force the same toward the side 59, thus providing means for securely clamping a single matrix or any desired number of matrices, within the capacity of the machine, between the fixed side 59 and the movable jaw 63.

In the preferred form, a latch or lock 64 is pivotally attached to the upper end of the jaw 63 and adapted to accurately fit the general form of the distributing notch in the upper end of a matrix positioned in the matrix carrier to more securely lock the matrices in place.

To bring the pressure holding the matrices in place at the mold directly opposite the character upon the matrix and to insure the accurate alinement of two or more matrices upon the matrix carrier, a plate 65 is provided of suitable size to accurately fill the space between the ears at the back of the matrix and of sufficient length to extend into or pass through a suitably formed recess at the back of the jaw 63, or the plate may be rigidly secured to the block 60, thus in addition to the functions performed by the loose plate, insuring the vertical position of each matrix upon the block and preventing their vertical displacement thereon. In this form, the recess in the back of the jaw 63 preferably extends to the lower face of the jaw, so that in assembling, the jaw may be slipped into place from above. In order to adjust the mold opening to the width of the matrix or matrices in the carrier, the machine is brought to a point just before the casting operation occurs, when the shoulder upon the inner end of the body piece 17' is brought to a bearing against the jaw 63 by means of the spool-nut 49 the total thickness of the matrix or matrices in the carrier determining the exact position which the member 17 will assume.

While I have shown the matrix mounted upon the block 60 with its serrated edge uppermost, the loose plate 65 enables me to invert the matrices when desirable without altering any of the functions of my machine. In this event, the lock 64 is swung out of position or removed. In this form also the matrix is shown supported on one side by the jaw 63 which is made the full width of the matrix, but it is obvious that this is not essential, and that I can equally as well support the matrix or matrices by a jaw extending no further forward than the wall 59 on the opposite side of the matrix. When so constructed the body piece 17' is not notched out as shown, but the inner end contacts directly with the side of the matrix, and thus controls the width of the mold opening.

Any preferred means may be employed to

operate the matrix carrier. In the form shown, a threaded stem 66 is rigidly attached to the carriage 56 and provided with a spool-nut 67 and a lock-nut 68 for adjusting the pressure of the matrices against the mold. A lever 69 is loosely mounted upon the shaft 23 with one end suitably formed to engage the spool-nut 67 and the other end provided with a roller 70 arranged to cooperate with a cam 71 mounted upon the shaft 30.

The metal pot may be of the usual or any preferred form or construction for storing a suitable quantity of metal, maintaining the same at a proper temperature, and may be arranged in any desired manner for periodically introducing a quantity of the metal into the mold. In the form shown, the metal pot comprises a reservoir or crucible 72 provided with a jacket or housing 73, a nipple or nozzle 74 projecting from the lower front side of the jacket, and means for controlling the discharge of metal from said nipple, the whole being preferably supported so that the nozzle opening will constantly be presented at a point between and substantially at the end of, the top and bottom mold members so as to always register with the mold when formed. The nipple 74 is connected to the reservoir 72 by a passage 75, a recess 76 and a well or cylinder 77. A suitable valve or choker 78 is positioned in the passage 75 to control the opening there-through and the discharge of metal from the reservoir.

The cylinder 77 is preferably circular, of uniform section, and positioned vertically near the center of the bottom of the reservoir with its upper end open. The passage 75 extends from the nipple to the cylinder and is also preferably circular in section. The recess 76 is formed in the bottom of the reservoir 72 near the cylinder 77 and extends downward to a point near the bottom of the passage 75, which communicates freely therewith. The valve or choker 78 is formed to snugly fit the passage 75 and is provided with a tip or point suitably formed to fit within and close the nipple opening. A duct 79 extends longitudinally of the choker 78 and terminates near the tip or outer end in two openings 81—81'. The choker 78 is preferably so formed that when in position closing the nipple, the tip of the choker will be just flush with the face of the nipple, and the passage 75 open to the recess 76, so that metal in the reservoir is free to pass into the lower portion of the cylinder 77. When the choker is retracted to open the nipple, the body of the choker extends across the lower portion of the recess 76 and completely cuts off communication between the passage 75 and the recess.

The operation of the choker 78 is preferably controlled by a bell crank 80—80' pivotally mounted at the top of the metal pot

upon suitable brackets 82—82. The arm 80 extends downward through the reservoir into the recess 76, where it is suitably formed to engage an annular rectangular groove 83 or other suitable means upon the choker for positively controlling its position. The arm 80' extends forward, and near its free end is connected by means of a rod 84 to the arm 85 of a ball crank 85—85' pivotally mounted upon the shaft 23 and with its arm 85' extending downward into the path of a projection or cam 86 upon the shaft 30, and a spring 87 or other suitable means is provided to normally hold the rod 84 in an elevated position and the choker 78 closed.

The cylinder 77 is fitted with a plunger 94 connected by means of the rod 95 passing upward through the reservoir to a lever 96 pivotally attached to a bracket 97 upon the metal pot supporting arm 98. A bar 99 is pivotally attached near the free end of the lever 96 and extends downward through a suitable opening in the top of the pedestal, where it is provided with a roller 101 arranged to cooperate with a cam 100 mounted upon the shaft 30. A spring 102 or other suitable means is also attached to the bar 99, tending to resiliently hold the bar and associated parts at the lower limit of its movement, while the cam 100 is formed to raise the plunger to the upper limit of its movement and hold it there until the parts are in position to receive a charge of metal from the pot, when the plunger is allowed to drop suddenly under the action of the spring 102.

The metal pot supporting arm 98 is preferably pivotally mounted at one end upon the pedestal 1 at 103 and formed to curve about the rear of the metal pot with its free end resting upon an upwardly extending bracket 104 and secured thereto by means of a suitable pin 105 or other convenient means, so that when desired the connections to the levers 80' and 96 may be released, the pin 105 removed and the complete metal pot swung back from the mold affording convenient access to the back of the mold and the front of the metal pot.

The metal pot may be mounted upon the arm 98 in any suitable manner. As shown, two lugs or brackets 106—106 are provided upon opposite sides of the pot 72 and projecting through the jacket 73 are adapted to rest upon the arm 98 to support the pot. Each lug is preferably provided with an adjusting screw 107 adapted to engage the arm and thus adjust the vertical position of the pot. A suitable opening may be formed in the plate 13 so that the face of the nipple will come exactly flush with the inner face of the plate or, if preferred the plates 13 and 13' may each be shortened as shown and a special nipple guiding plate 108 fitted between them with a suitable opening or nipple seat formed therein to accurately control the

position of the nipple and form the back wall of the mold.

A boss 109 is provided upon the back of the reservoir projecting through a suitable opening 110 in the jacket 73, and an adjusting or set-screw 111 is provided in the arm 98 positioned to engage the boss 109 and force the nipple firmly into its seat in the plate 108 and hold it in proper position at the back of the mold.

In the form shown, the metal pot is provided with the usual cover plate 112 and a burner 113 for oil, gas or other suitable liquid combustible is provided, and may be attached in any desired manner by means of a hose or pipe 114, to a suitable source of supply. (Not shown.)

Any suitable means may be employed to rotate the shaft 30. As shown, a motor 115 is mounted within the pedestal 1 and connected by the train of gears 116 to the shaft 30 so that the same will rotate at a suitable speed to produce the most desirable rate of operation of my device, the several parts of which are preferably so proportioned and timed that a single cast is made at each rotation of the shaft.

In operation, the plate 16 is first raised, then the matrix carrier is advanced until the matrix is firmly pressed against the top and bottom members of the mold. At the same time a projection upon the side wall 59 engages the plate 16 and presses it back against the plate 108. The plate 16 is now moved horizontally and locked up against the top and bottom mold members and a portion of one side of the matrix, and at the same time the member 17 is advanced and engages the side of the jaw 63, a corner of the part 17' being preferably cut away to permit the same to pass the jaw 63, and reach to the matrix in the carrier, the several movable parts being so formed and adjusted that each is pressed firmly against the other parts going to complete the mold, thus eliminating any variation caused by looseness of the joints, etc. When thus positioned, the metal pump and choker are operated and a charge of metal is forced into the mold. Immediately the members 16 and 17, are slightly retracted horizontally and the matrix carrier withdrawn while the member 16 is depressed. When this is accomplished, the member 17 is again advanced and the type is forced out of the mold, over the top of the member 16, and into the space between the members 18 and 19, where the type is held against longitudinal movement by the engagement of the members 18' and 19' with the jet 8 upon the type.

As each type is forced from the mold into the space between the members 18 and 19 the type previously positioned therein are forced along longitudinally of these members and pass under a nicking plow 117 positioned

in a suitable slot in the member 19 and clamped in place by means of screws or equivalent means 119 and provided with any desired number or arrangement of cutting blades 118 near its front end and a straight or guide part at its rear of suitable size and form to snugly fit the nick formed by the blades 118.

At a point where the nick in the type formed by the blades 118 is complete and fully engaged with the straight portion of the plate 117 the members 18' and 19' terminate and the jet portions of the type are left unsupported, and are easily broken off by any suitable means, after which the foot ends of the type as they are forced along as above described are engaged by a suitable stationary plow 120 adapted to form a slight groove in the foot of each type as it passes and thus insure the entire removal of any small portions of the jet which might otherwise remain upon the type. At the same time a pair of suitably formed trimming tools or scrapers 128—129 of the usual well known form are positioned to engage the heads of the type as they move along toward the type holder 121 and remove therefrom any protruding fins. The type now finished pass out between the members 18 and 19 and may be discharged onto a suitably formed stick or holder 121 clamped in place by the tail-nut 122, or otherwise disposed of as desired.

In the drawings, the jets are broken by means of a plunger 123 operating in a suitable opening in the plate 5 directly above the unsupported jets. The plunger 123 is attached to one end of a lever 124, pivotally mounted near its center upon a bracket 125 upon the cover plate 5. A second plunger 126 is attached to the opposite end of the lever 124 and extends through an opening in the cover plate 5 in position to be engaged and forced upward by the member 16 each time it is raised into casting position, thus forcing the plunger 123 downward, striking the jets and breaking them off. A spring 127 or equivalent means is provided to normally hold the plunger at the upper limit of its travel and out of the path of the advancing jets.

Obviously when the top member 11 of the mold is raised or lowered to vary the height of the type bodies, the block 19 should be correspondingly adjusted so that the final operations upon the type may be properly performed. For this purpose a cap-screw 14' and a pair of set-screws 15'—15' are shown engaging the part 19 arranged to control its position in substantially the same manner as the screws 14 and 15 control the position of the plate 11 herebefore described.

While I have described my improvement as a type casting machine, it is obvious that with immaterial modifications it is adapted to cast various small objects of many shapes.

Wherever in the specification and claims I say "type" it is intended to embrace and include such objects.

In the drawings and specification I have shown and described a means for nicking the type after they are cast, but it will be understood that this forms no essential feature of my apparatus. Any form of cutting tool, rotary or otherwise, may be employed to cut the nicks and plow the foot after the jets have been removed. Or in some cases, the nicking tools may be omitted entirely, and the nicks cast in the type as they are formed, by the employment of any of the well known forms of mold. Obviously these and various other immaterial modifications may be made in my device without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form and construction shown.

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

1. In a type casting machine, a mold comprising stationary top and bottom members, a horizontally movable member and a vertically movable member, in combination with means for adjusting the position of said movable members without altering the extent of their movement.

2. In a type casting machine, a type mold comprising top and bottom members, a vertical mold member and a horizontal mold member, means for positioning said vertical member to form one side of the mold, and means for locking said member in such position before the cast occurs and unlocking it afterwards.

3. In a type casting machine, the combination of a matrix and a type mold comprising top and bottom members a horizontal mold member and a vertical mold member, means for moving said vertical member against one side of the matrix to form one side of the mold, and means for moving said horizontal member towards the other side of the matrix to form the other side of the mold.

4. In a type casting machine, a type mold comprising stationary top and bottom members and horizontally and vertically movable side members, means for casting a type with a jet or extension thereon in said mold, and means operated by the movement of said vertically movable member for removing the jet from said type.

5. In a type casting machine, a type mold comprising two stationary members, and two movable members cooperating therewith, both of said movable members having shoulders projecting beyond the face of the mold, said shoulders being adapted to receive a matrix between them to gage the distance and determine the width of the mold opening.

6. In a type casting machine, a type mold

wherein type of various bodies may be cast, comprising a vertical member, a body piece and two horizontal members between which said body piece may be clamped, pressure devices for clamping said parts together, and a screw adapted to lift the top mold member to permit the body piece to be changed, and two screws adapted to adjust the pressure on said body piece.

7. In a type casting machine, a type mold comprising a cap, a base, two members movable at right angles to each other, a plurality of screws for lowering the cap and a single screw for raising the cap.

8. In a type casting machine, a matrix carrier comprising a carriage, a block adjustably mounted upon said carriage, a side wall formed upon said carriage and adapted to engage one side of a matrix upon said block, a movable jaw adapted to engage the opposite side of said matrix, and interlocking with said block, an overlying piece attached to said movable part adapted to interlock with said matrix, and resilient means tending to force said movable jaw toward said side wall to form a clamp.

9. A type casting machine, comprising an adjustable type mold arranged to cooperate with a matrix whose thickness determines the set-wise adjustment of the mold, a metal pot adapted to deliver metal substantially horizontally from the bottom of said pot into said mold, in combination with mechanism for operating the several parts.

10. In a type casting machine, a matrix carrier adapted to engage the projecting shoulders of one or more matrices to control their alinement, a block flexibly mounted upon the carrier adapted to support the matrix on one side, and a pivotally mounted part on said block adapted to engage a V-shaped depression in the top of said matrix to hold it securely on the carriage.

11. In a type casting machine, a matrix carrier adapted to cooperate with one or more matrices having casting faces on one edge thereof, the thickness of the matrices corresponding with the width of the character thereon, projecting alining shoulders on the edges of said matrices, a plate for engaging said alining shoulders to sustain the matrices vertically on the carrier, a movable block to support the matrices at one side, and an overlying part to sustain the matrices against displacement on the carrier.

12. A matrix carrier adapted to sustain a plurality of matrices side by side and preserve their vertical alinement, in combination with means for presenting said matrices between the projecting shoulders of type mold members, means for dimensioning the mold to conform to the set width of said matrices, and means for casting a logotype from said matrices.

13. A type mold comprising a plurality of

stationary mold members, a horizontally movable member, and a vertically movable member, means for positioning said vertically movable member in operative relation to said stationary members, means for retracting said horizontally movable member and pressing one or more matrices into contact with the other mold members, and means for finally pressing said horizontally movable member into operative relation with said matrices to complete the mold and dimension the same.

14. A type mold adapted to engage one or more matrices positioned in operating relation therewith and produce a type corresponding exactly in thickness with the thickness of said matrix or matrices, means for alining said matrices with said mold and means for repeatedly casting type in said mold when so positioned.

15. In a type casting machine, a type mold comprising two stationary members and two movable members having projecting shoulders and cooperating therewith, means for projecting a matrix between the shoulders of said movable members and into contact with said stationary members, means for adjusting each of said movable members horizontally against the sides of said matrix to control the width of the mold opening, and means for casting type therein.

16. In a machine of the kind described, a type mold comprising two movable parts and two stationary parts, a matrix, and means for dimensioning the mold by moving said movable parts into contact with the sides of said matrix.

17. A type mold, comprising two stationary members, a vertically moving member, cooperating therewith to form one side of the mold, a horizontally movable member between said stationary members cooperating therewith to form the other side of the mold, in combination with a matrix positioned between said movable members and in contact with said stationary members, and means for moving both the movable members toward the matrix to dimension the mold.

18. In a type casting machine, the mold, the vertically movable member, the horizontally movable member, both of said movable members being provided with shoulders projecting beyond the faces of said stationary members, in combination with means for inserting a matrix between said members, and then pressing said members toward each other and into contact with opposite sides of said matrix to dimension said mold.

19. A matrix carrier comprising a block and a vertically adjustable support, one or more matrices, a stationary side wall and a movable side wall between which the matrices are positioned, an alining plate for engaging projecting ears on said matrices, and means for interlocking the parts.

20. A type mold comprising a horizontal body piece and a vertical member, cooperating with two stationary members to form a mold, in combination with means for inserting a matrix between the movable parts, and means for adjusting the body piece to dimension the mold to the "set" width of the matrix.

21. A type mold, comprising two stationary members and two movable members having projecting shoulders beyond the faces of said stationary members, in combination with means for inserting one or more matrices between said projecting shoulders and adjusting said movable members into contact with said matrices to form a mold.

22. A type mold comprising two stationary members, a body piece horizontally movable between said parts, a vertically movable member adapted to form one side of the mold, both of said movable members projecting beyond the faces of the stationary members, and means for first retracting said

body piece and then advancing it towards said vertical member to dimension the mold.

23. A type mold comprising two stationary members, a body piece, horizontally movable between said parts, a vertically movable member adapted to form one side of the mold, in combination with a screw and block, and connecting parts for automatically forcing said vertical member into contact with said stationary members.

24. In a machine of the kind described, a type mold provided with a movable body piece, and means for dimensioning said mold by moving said body piece into contact with the side of a matrix whose thickness determines the set width of the mold.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN S. THOMPSON.

Witnesses:

BURTON U. HILLS,  
CHARLES I. COBB.