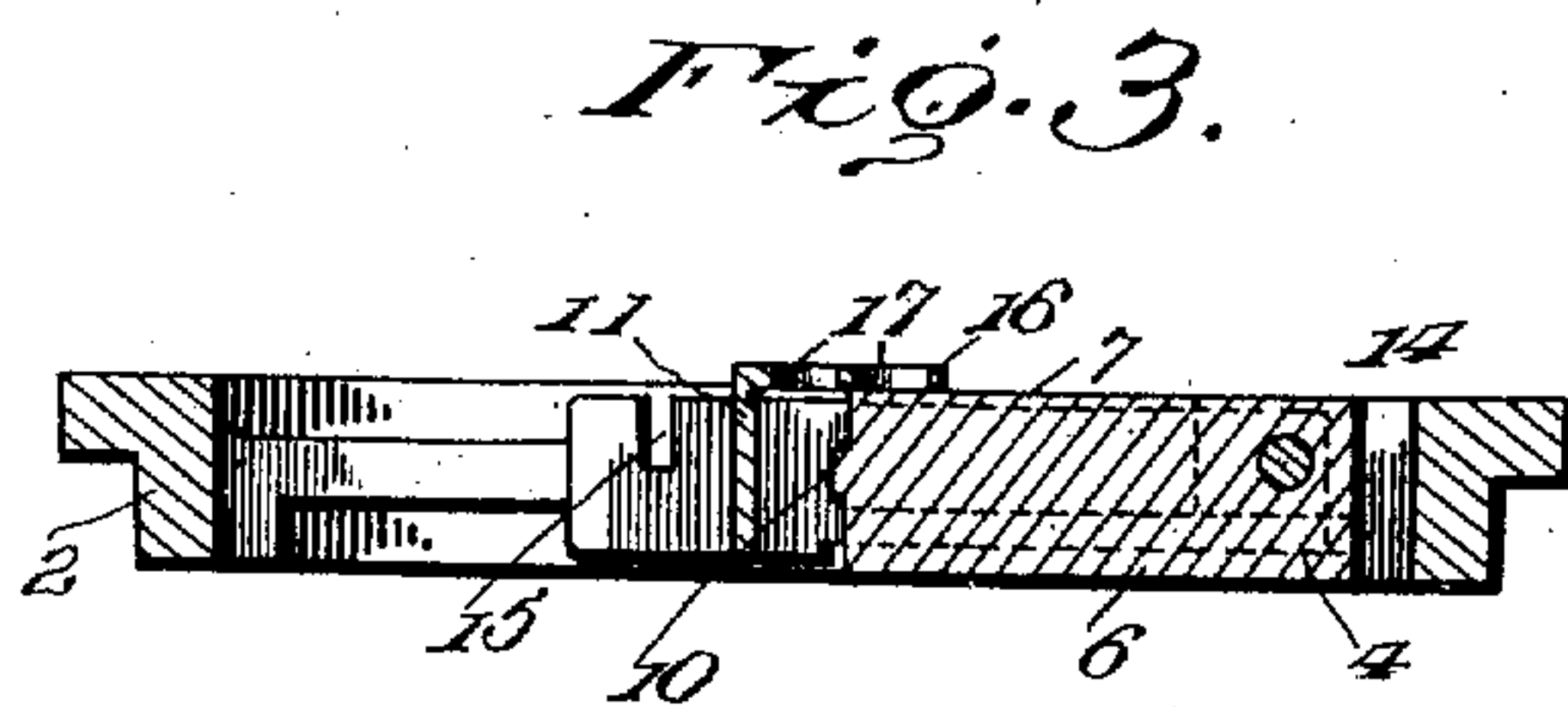
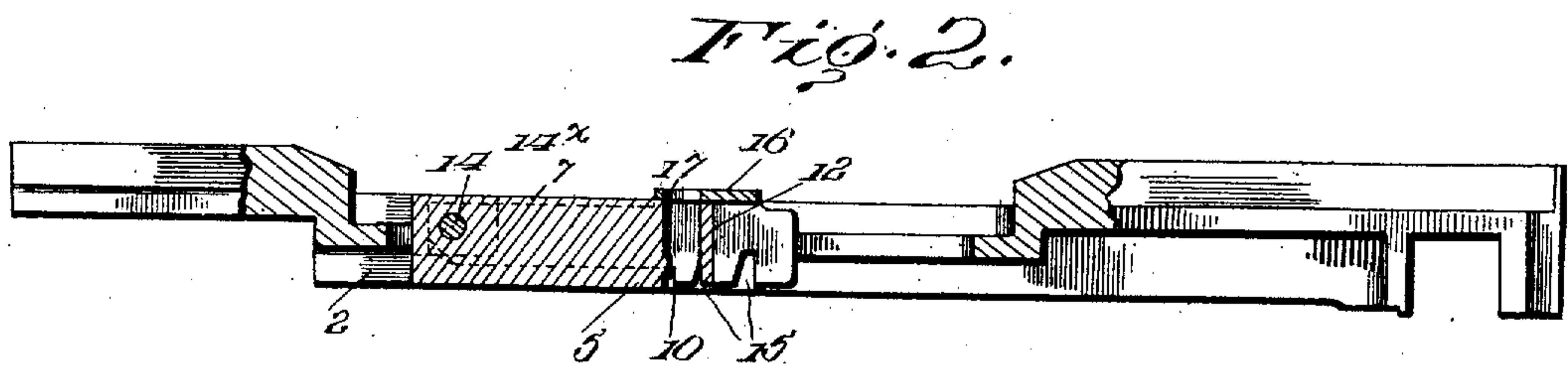
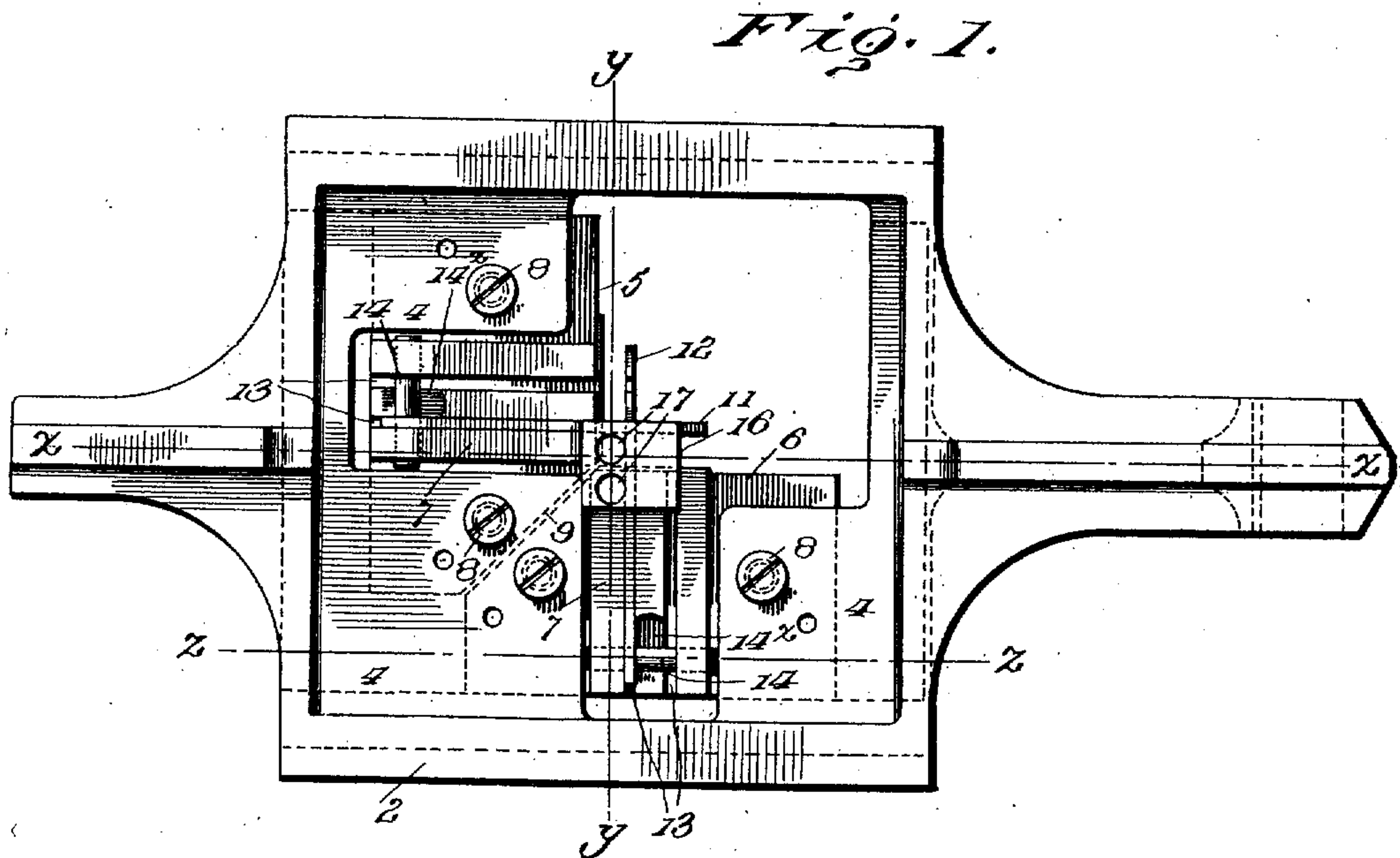


J. S. BANCROFT & M. C. INDAHL.  
MATRIX HOLDER FOR TYPE CASTING MACHINES.  
APPLICATION FILED OCT. 21, 1910.

989,554.

Patented Apr. 18, 1911.

2 SHEETS-SHEET 1.



Witnesses

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SHEET 2.

Fig. 4.

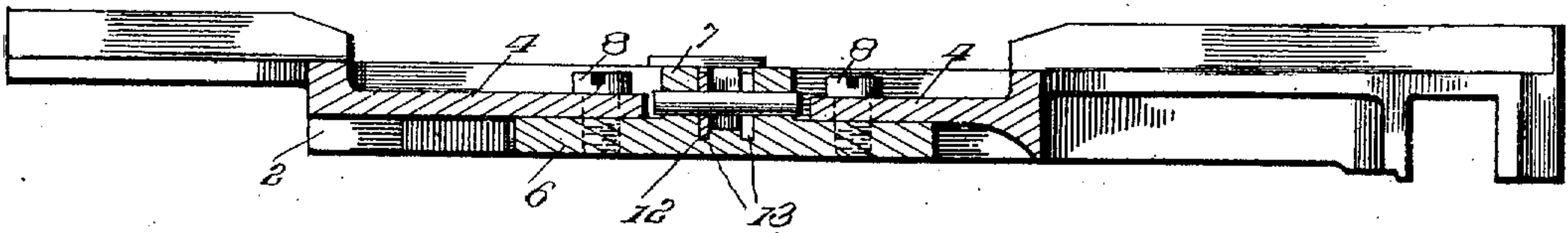


Fig. 5.

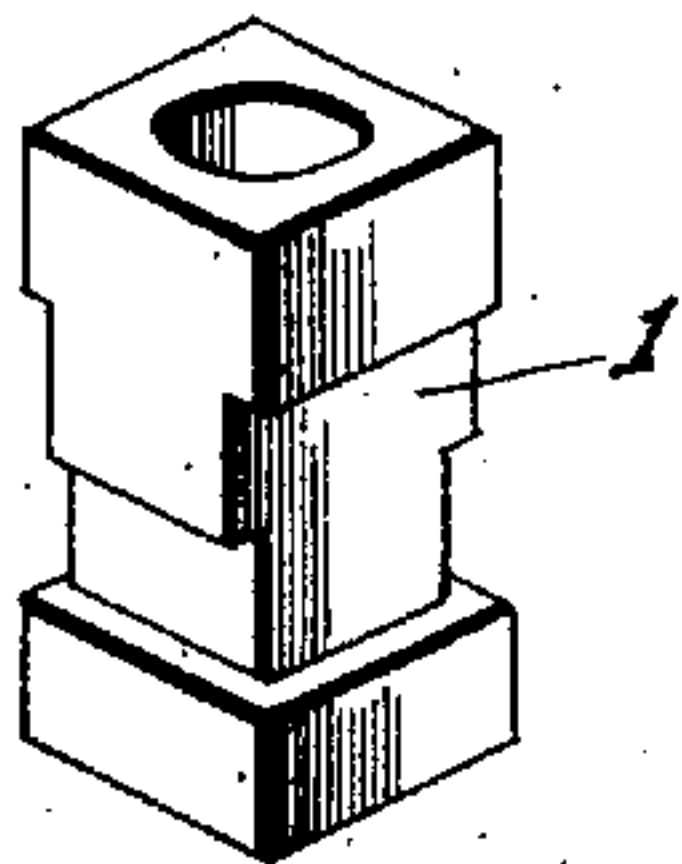


Fig. 6.

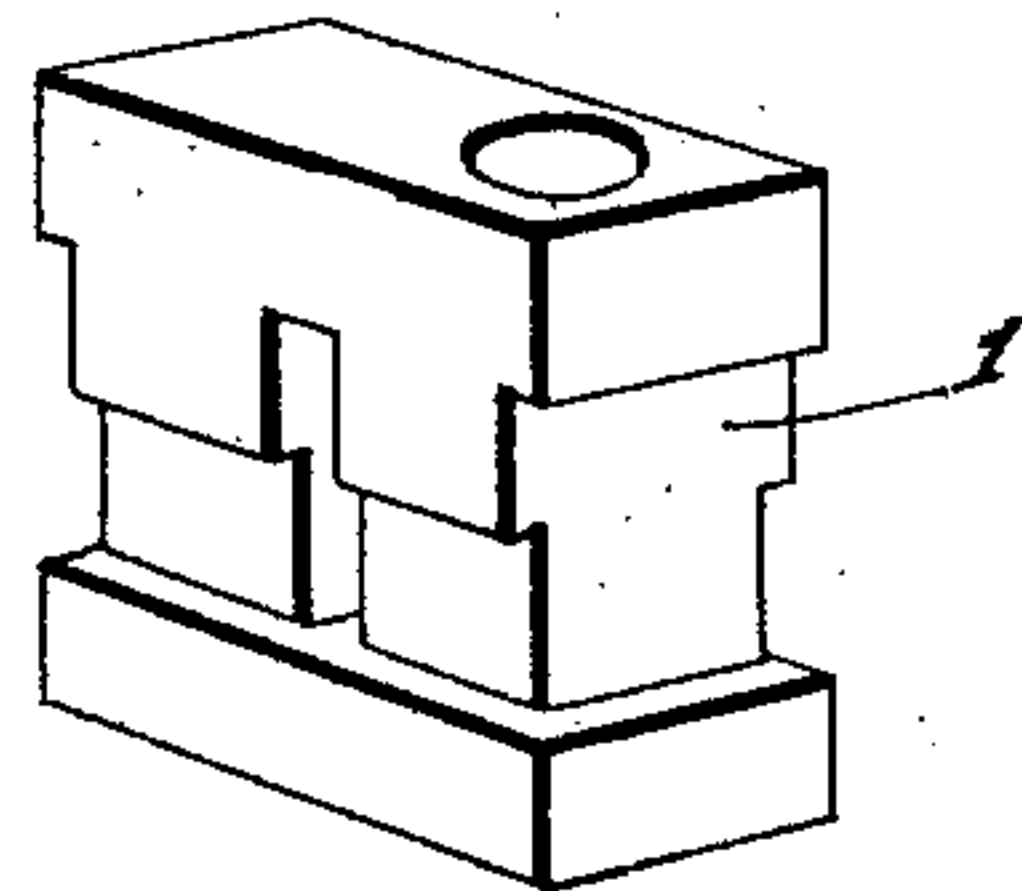


Fig. 9.

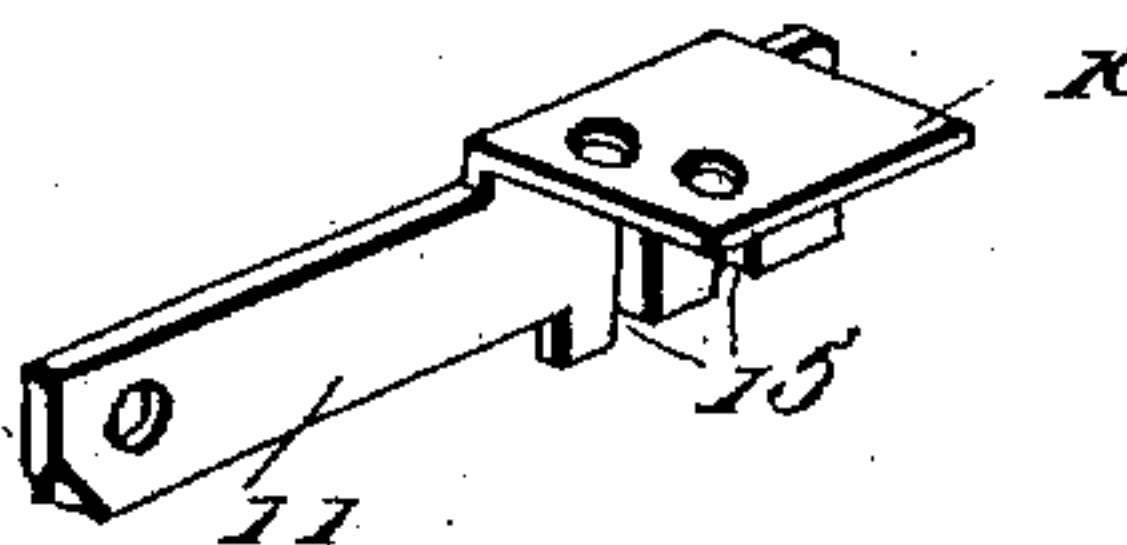


Fig. 10.

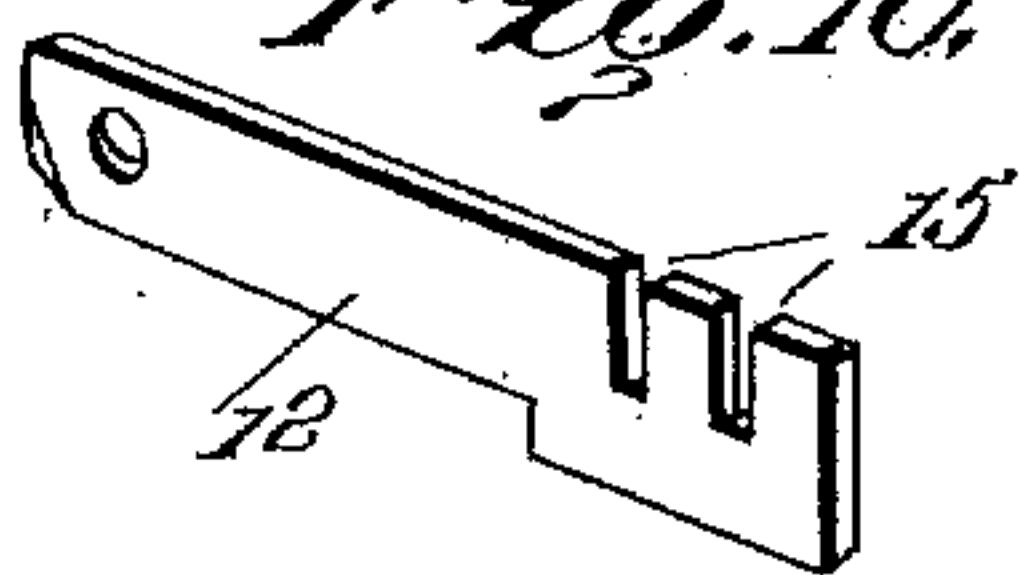


Fig. 7.

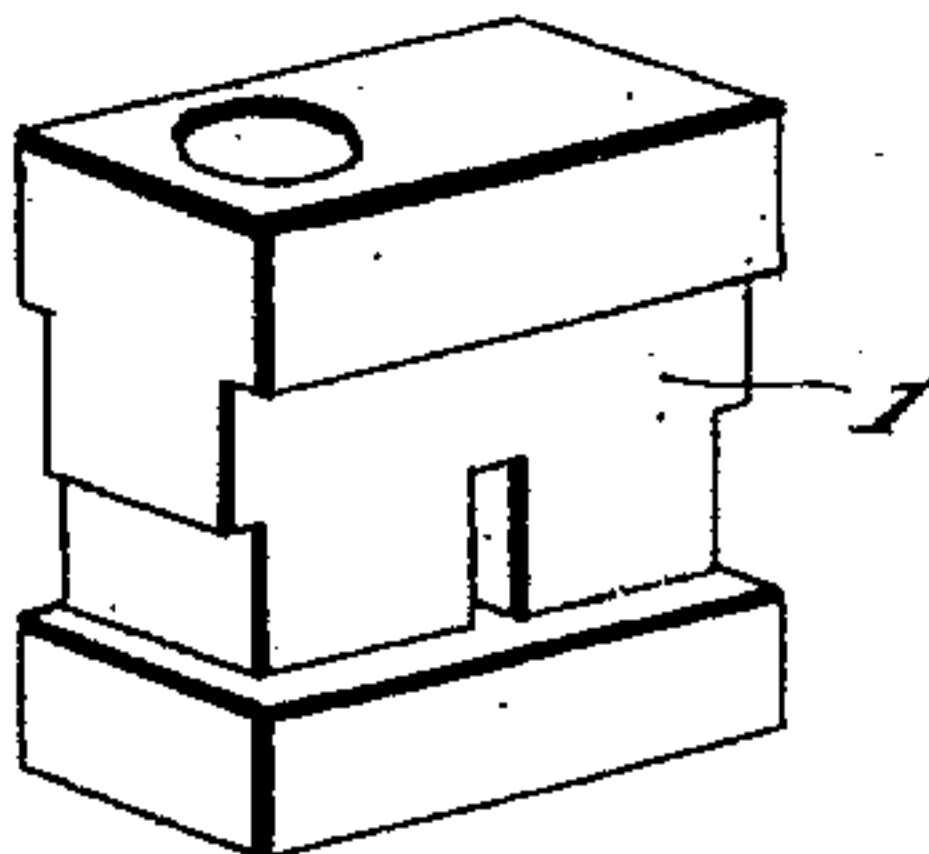
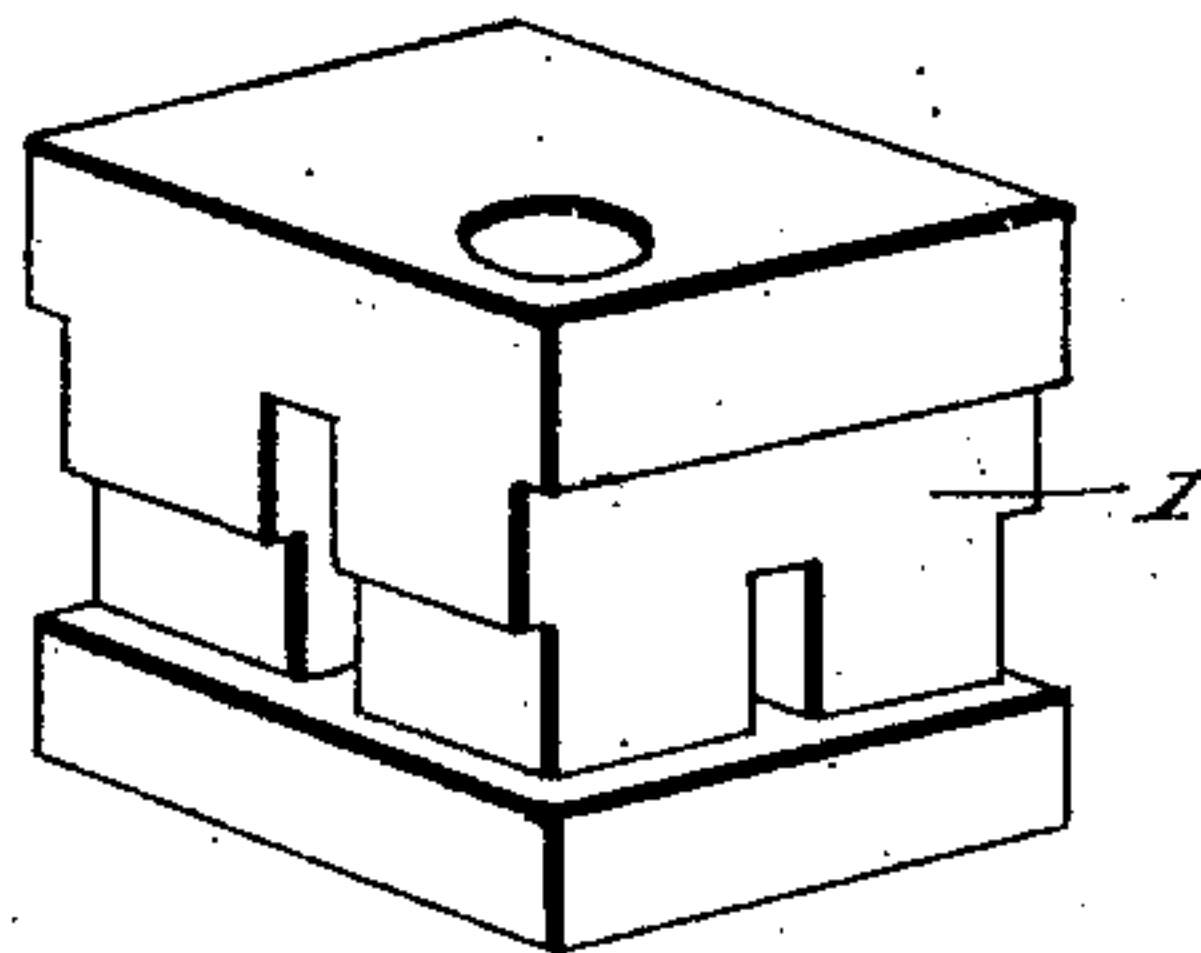


Fig. 8.



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# UNITED STATES PATENT OFFICE.

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## MATRIX-HOLDER FOR TYPE-CASTING MACHINES.

989,554.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed October 21, 1910. Serial No. 588,329.

*To all whom it may concern:*

Be it known that we, JOHN SELLERS BANCROFT and MAURITZ C. INDAHL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Matrix-Holders for Type-Casting Machines; and we 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 matrix holders for type casting machines, more especially sorts casting as distinguished from casting and composing machines, and has for its principal object to furnish a fixture by means of which the matrices commonly employed in connection with the composing caster may be utilized in the sorts caster, of which latter an example is to be found in Reissue Patent No. 12,819, of June 23, 1908.

The commercial matrices for the composing-caster are in the form of parallelopiped blocks of metal grooved peripherally to receive the partitions of the cellular die-case in which they are mounted and provided at one end with a matrix cavity and at the opposite end with a centering cavity for the reception of the centering pin by means of which a selected matrix is finally centered and then clamped upon the open end of the mold with the matrix cavity in register therewith. The matrix blocks while rectangular in cross-section vary in dimensions according to the number of cells they occupy in the die-case, as is illustrated in application Serial No. 500,557, filed June 7, 1909. The sorts caster matrices on the other hand are flat plates with the matrix cavity sunk in one face thereof, and to accommodate the same the machine is equipped with a special holder or die-case containing the centering cavity and matrix supporting and clamping devices, as illustrated in Patent Reissue 12,819 and Patent 904,510, of November 24, 1908.

The present holder is designed as a substitute for those heretofore supplied to the sorts caster and to accommodate any of the several forms of matrices pertaining to the composing caster, to the end that the last named variety of matrices may be rendered

available in the sorts caster, and the final centering be performed by the direct application of the centering pin to the matrix, as in the composing caster, rather than indirectly through the die case or holder as in the sorts caster. By this means the capacity of the sorts-caster is greatly enlarged in that its product is not restricted by the number and variety of flat sorts matrices available for the purpose but is extended to include the larger number and variety of faces pertaining especially to the composing caster.

With these ends in view the present invention consists in the novel construction, arrangement and combination of parts hereinafter fully described and pointed out in the annexed claims.

In the accompanying drawings illustrating a preferred form of embodiment of the invention—Figure 1 is a top plan view, Fig. 2 is a longitudinal section on line  $x-x$ , of Fig. 1. Fig. 3 is a transverse section on line  $y-y$ , of Fig. 1, and Fig. 4 is a longitudinal section on line  $z-z$ , Fig. 5 is a perspective view of a one unit composition matrix. Fig. 6 is a similar view of a two unit matrix for a vertical extended face. Fig. 7 is a similar view of two unit matrix for lateral extended face. Fig. 8 is a similar view of a form unit matrix. Fig. 9 is a perspective view of one retainer and Fig. 10 is a similar view of the other retainer.

Corresponding numerals designate like parts in the several views.

Commercial cellular matrices for the composing caster are of uniform length (height) and rectangular in cross section; but they vary in lateral dimensions in multiples of the unit which is arbitrarily established at two tenths of an inch. Thus the single unit matrix of Fig. 5 is square in cross-section; the two unit matrices of Figs. 6 and 7 twice the section of the single unit; and the four unit matrix, Fig. 8, is a square with sides twice the dimensions of the single unit. The two unit matrices represented in Figs. 6 and 7 differ in this that the one is extended column wise and the other set wise of the face, the direction of the extension being indicated by wider sections 1 of the peripheral grooves forming the suspension shoulders for the matrices.

The problem presented is to supply a fixture adapted for use upon the sorts caster



and competent to hold any one of these different forms of matrices in proper relation to the centering pin and mold so that they may be utilized therein for the production of sorts or display type, as distinguished from composed matter, the latter requiring a plurality of matrices together with selective centering and mold dimensioning mechanisms. This problem has been solved in the manner about to be described.

The substantially flat frame 2 of the holder or die-case corresponds both in form and dimensions, save as to the inner or central section, with those heretofore employed in both the composing and sorts casters, being thus adapted for application to the standard machines both for positioning and reciprocating the matrix relatively to the mold. Within the space bounded by the side bars and ends of frame 2 the latter is provided with inwardly projecting flanges or plates 4 of less thickness than said side bars and ends, and designed to afford supports for the detachable gaging members or blocks 5, 6, by means of which adjacent sides of the matrices are positioned laterally of the centering point, as determined by the centering pin and mold, and restrained from longitudinal displacement. Blocks 5 and 6 are each formed or provided with a longitudinal rib or offset portion 7, the latter projecting through a slot or opening between adjacent flanges 4, said slots preferably extending at right angles and intersecting at or near the center of the frame. Each block is detachably attached to webs 4 as by screw 8, the adjacent corners of the bases of said blocks being cut away, as at 9, to permit the proximate ends of the ribs 7 to be maintained in close juxtaposition. As thus arranged the inner face of the blocks are disposed in parallel planes intersecting at right angles and each block is furnished with a rib 10 adapted to enter the peripheral groove upon one side of the matrix. The ribs 10 of the two blocks 5, 6, although of the same width stand in different planes, the upper edge of that in block 6 being the higher to form the support for the shoulder of the wider groove 1 of the matrix, so that both ribs will be engaged when a matrix is inserted. The proximate gaging faces of blocks 5, 6, form a fixed angular seat for the reception of the two surfaces of the matrix by which its matrix cavity is justified, at the same time affording suspension shoulders for preventing longitudinal displacement while permitting limited independent movement of a matrix held in juxtaposition to said seat.

The holder is completed by the addition of two removable retainers 11, 12, each opposite and in parallel with one of said gaging surfaces and distant therefrom a predetermined degree corresponding with the

unit of the matrix or a multiple thereof, as will presently appear, said retainers serving to prevent lateral displacement of the matrix when engaged with its seat on blocks 5, 6. Each retainer 11, 12, is provided with a plurality of holders for locating and maintaining it in any one of several positions relatively to the opposed gaging surface, and in the present instance said holders are in the form of parallel grooves 13 in the upper face of each block 5, 6. The grooves 13 of each block are spaced to correspond with the matrix unit and the inner one is located one unit removed from the gaging surface of the other block. Retainers 11, 12, are preferably in the form of straight blades, and when occupying their respective holders or grooves 13 their inner ends intersect and are locked together against lateral displacement by means of notches 15, each of said blades being provided with a notch alining with each of the receiving grooves 13 of the associated block, said notches being formed in the under edge of one blade and the upper edge of the other blade, to the end that when interlocked the two blades shall lie in the same plane. Each retainer 11, 12 is pivotally attached to its block 5 or 6 by a pin 14 extending transversely of grooves 13 at the rear ends thereof and the block is cut away or recessed intermediate the grooves as at 14\* to permit the retainer to be shifted from one groove to the other without the necessity of withdrawing pin 14, thus preventing accidental displacement or loss of the retainer. The upper blade or retainer 11 is also provided with a lateral extension 16 containing two perforations 17 for the passage of the centering pin and forming a protecting cover for the centering end of the matrix, to prevent mutilation of the latter should the centering pin be advanced or lowered when the holder is out of position, that is, displaced to such an extent that the point of the pin would not fairly enter the centering cavity of the matrix at the time in the holder.

The adaptability of the holder to receive the various forms and dimensions of matrices illustrated will be readily perceived. When a one unit matrix, Fig. 5, is to be employed, retainers 11, 12, occupy the grooves 13 nearest the fixed gaging surfaces. By elevating the upper or both retainers the gaging surfaces are uncovered sufficiently to permit the matrix to be seated, after which the retainers are seated in grooves 13 and the matrix will be locked against displacement.

If the matrix desired is of the two unit variety, Figs. 6 and 7, that one of the retainers 11, 12, corresponding with the extension is withdrawn from the inner and deposited in the outer groove 13. Thus if the matrix of Fig. 6 is to be used, retainer 11 is elevated and shifted upon pin 14 until



it registers with the groove 13 most remote from block 6, and, if the matrix of Fig. 7 is called for, the position of retainer 12 is in like manner changed with respect to block

5. To accommodate the four unit matrix of Fig. 9, it is only required that both retainers should be translated from the inner to the outer groove 13, thereby increasing the capacity of the matrix recess or cell four fold.
6. In practice the centering cavity of the multiple unit matrices is eccentrically located so as to occupy the same position relatively to the two gaging sides of the matrix as does the centering cavity of the one unit matrix (see application Serial No. 500,557) and it is to accommodate this feature that the protecting plate of retainer 11 is provided with two centering pin perforations spaced one unit apart, so that when said retainer is confined in the near groove 13 representing a single unit in that direction, one of said perforations will be in register with the matrix cell and when said retainer is shifted to the next or distant groove 13 for a two or four unit matrix the companion perforation will be brought into register with the axis of said cell.

As is obvious, the fixed gaging surfaces or angular seat for the matrix might be contained in an integral block attached to the holder frame or be made integral therewith, but the construction illustrated is preferred as greatly facilitating manufacture and initial positioning.

7. The retainers 11, 12, are preferably pivotally supported to swing upward upon what is the upper surface of the holder when in the machine so that gravity will suffice to maintain them in operative position within the dimensioning grooves after the matrix has been inserted in the holder, but other means may, if desired, be employed for removably securing the retainers in the selected groove or holder.

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

1. A matrix holder comprising a reciprocatory supporting frame provided with a fixed angular gaging seat extending transversely of and through said frame, a movable retainer opposite each face of said seat, and a plurality of spaced holders for one of said retainers.

2. A matrix holder comprising a reciprocatory supporting frame provided with a fixed angular gaging seat extending transversely through said frame, a plurality of movable retainers, one opposite each face of said seat, and a plurality of spaced holders for each retainer, each set of holders being arranged in sequence with the face of the seat to which its retainer is opposed.

3. A matrix holder for type casting machines provided with an angular matrix

seat containing a suspension rib or projection, two removable retainers, and a plurality of holders for each retainer disposed in sequence with each gaging surface of the matrix seat.

4. A matrix holder for type casting machines, the same comprising a substantially flat supporting frame or die-case provided with a central opening and internal supporting flanges; two members or blocks secured to said flanges and each provided with a gaging face at right angles to the other and extending through the supporting frame, one or both of said gaging faces being provided with a suspension rib for the matrix; a plurality of uniformly spaced holders in series with each gaging face; and a plurality of matrix retainers one opposed to each gaging surface and adapted to be detachably connected to any one of the holders.

5. A matrix holder for type casting machines including the following elements, to wit; a supporting frame; two gaging blocks or members secured to said frame with their gaging surfaces in angular relation one to the other and extending transversely through the frame, each of said members being provided with a plurality of retainer receiving slots and a matrix suspension rib or projection; and two retainers or blades one for each gaging block or member and adapted to be received and held in either slot therein.

6. A matrix holder for type casting machines including in its construction the following elements, to wit; a supporting frame; two blocks or members fixedly attached to said frame with their gaging faces in parallel intersecting planes, one or more of said faces being provided with a matrix suspension rib or projection and parallel grooves the grooves in each block spaced in sequence with the gaging face of the associated block; and two removable retainers or blades one for each block adapted to enter and be positioned by either groove in the associated block.

7. A matrix holder for type casting machines including the following elements, to wit; a supporting frame; two blocks or members fixedly attached to said frame with their gaging faces in parallel intersecting planes and provided with a matrix suspending rib or projection, each block or member containing spaced parallel grooves; two retainers or blades each adapted to be seated in either groove in one of said blocks and when so seated to extend parallel with the gaging face of the other block, said retainers extending on intersecting lines and being notched on their meeting edges to interlock; and means for temporarily securing each retainer in the selected groove.

8. A matrix holder for type casting ma-



chines, including the following elements, to wit; a supporting frame; two gaging members or blocks fixedly secured to said frame and each provided with a matrix suspension rib or projection and two channels parallel with each other and the gaging face of the associated block; two retainers or blades one for each block, and adapted to fit either channel therein, said retainers being provided with interlocking notches; and detachable means for securing each retainer in either channel of its associated block and permitting said retainer to be withdrawn for the insertion of a matrix in the angular seat formed by the gaging surfaces of said blocks.

9. A matrix holder for type casting machines including the following elements, to wit; a substantially flat supporting frame with open center and internal flanges; two

blocks or members secured to said flanges and provided with matrix gaging surfaces extending in parallel intersecting planes through the frame and each provided with matrix suspending ribs or projections and a plurality of parallel grooves or channels transverse to its gaging surface; and two retainers each detachably pivoted in one block and extending beyond the gaging face of said block parallel with the gaging face of the other block, said retainers being notched on their proximate edges to interlock at the point of intersection with each other.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."