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J. S. BANCROFT.

MATRIX CENTERING MECHANISM FOR TYPE MACHINES.

APPLICATION FILED JUNE 28, 1902. RENEWED FEB. 10, 1903.

NO MODEL.

Fig. 1.

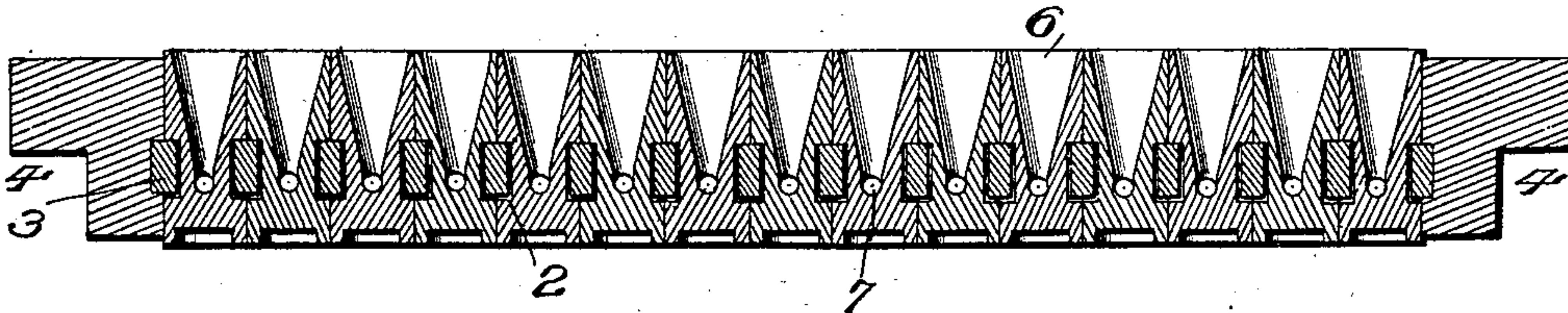


Fig. 2.

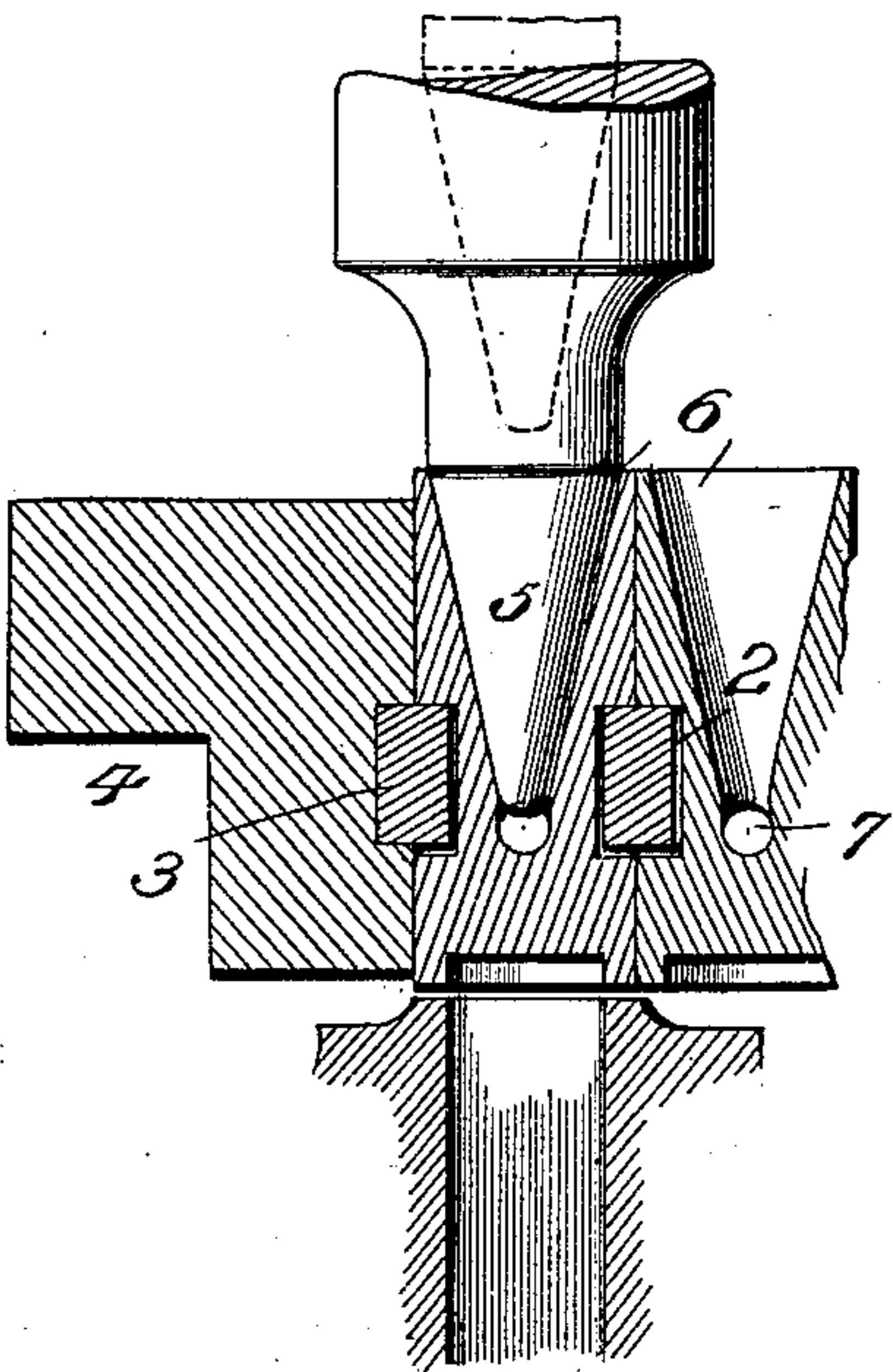


Fig. 3.

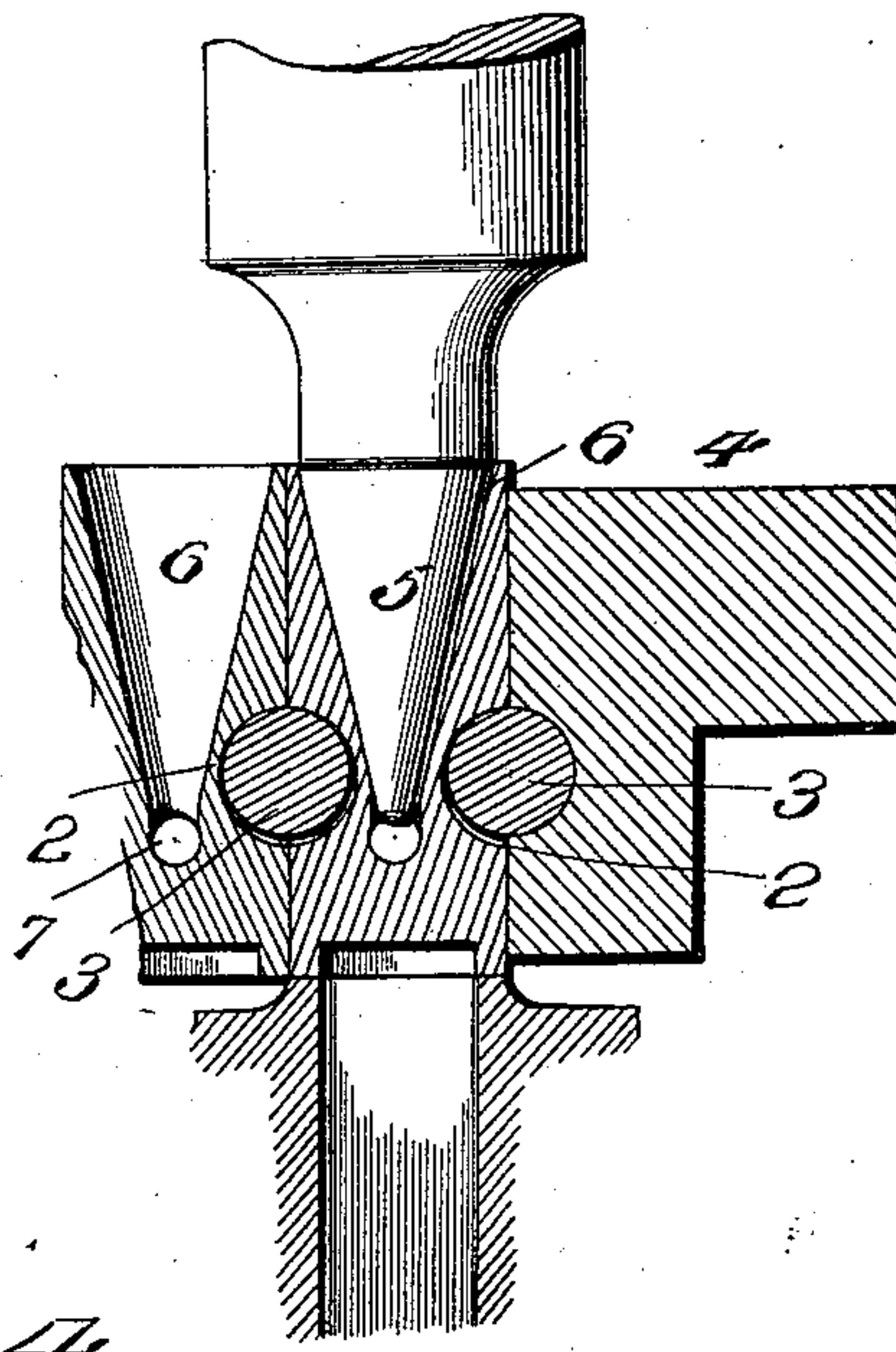
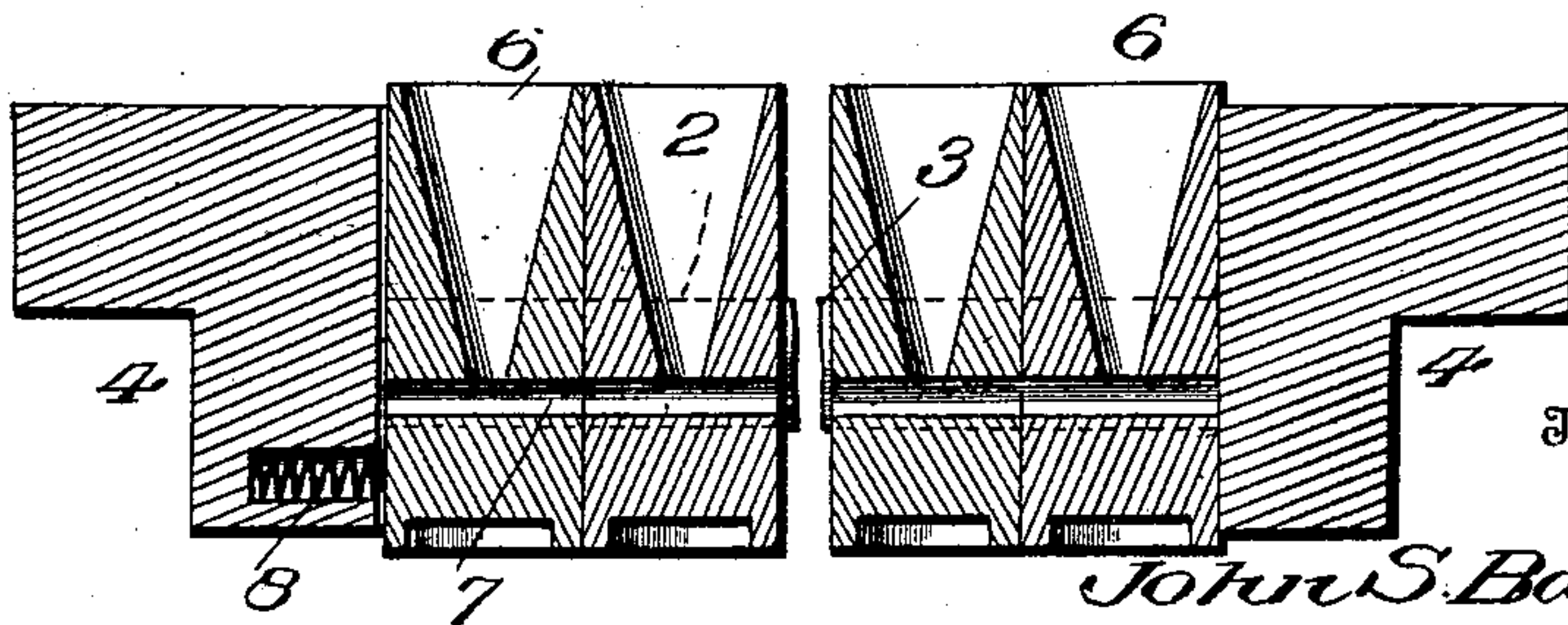


Fig. 4.



Witnesses

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MATRIX-CENTERING MECHANISM FOR TYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 725,653, dated April 21, 1903.

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To all whom it may concern:

Be it known that I, JOHN SELLERS BANCROFT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Matrix-Centering 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 of reference marked thereon.

This invention relates, primarily, to that class of type-casting and similar machines in which a die or matrix case containing a series of independent and separately-movable matrices or dies is arranged to traverse in front of a mold to present the individual matrices thereto, while a reciprocating plunger engaging a conical seat in the matrix serves to effect the final positioning and seating of the selected matrix upon the mold. A machine of this type is illustrated in Patents Nos. 625,998 and 633,088; and the present invention, constituting an improvement upon the die-case thereof, has for its object to increase the efficiency of the apparatus by prolonging the life of the matrices and insuring the proper presentation and seating of the latter upon the mold, to which end the invention consists in so supporting and mounting the matrices that the centering-plunger may engage and seat near the end or face containing the matrix-cavity or die and below the point or points of suspension of the matrices in the die-case, whereby the tilting of the matrices during the final centering and seating operations and the wear and distortion incident thereto are materially diminished or completely obviated, and in addition thereto a firmer and more effective seating of the matrix upon the mold is secured and maintained during the casting operation.

The invention also includes means for preventing axial rotation of the matrices in the die-case to compensate for wear and prevent displacement of the faces or characters.

In the accompanying drawings, illustrating the preferred form of embodiment, Figure 1 is a sectional view of the die-case. Fig. 2 is

a sectional view, on an enlarged scale, showing a matrix in its relation to the mold and centering-plunger. Fig. 3 is a similar view illustrating a modification in the form of the supporting-rods. Fig. 4 is a sectional view taken in a plane at right angles to that in Fig. 1.

Similar numerals in the several figures indicate the same parts.

Heretofore it has been customary in machines of this kind to arrange the matrices on intersecting lines in an open rectangular frame and to support them in rows upon a series of parallel wires or rods, the latter resting in bearings formed in opposite side bars of the frame. For this purpose each matrix was provided with a transverse perforation slightly larger than the supporting-rod to receive the latter and located at a point intermediate the conical centering-cavity in one end and the die-cavity at the opposite end. As thus arranged whenever the selected matrix brought to rest opposite the centering-plunger and mold was slightly out of alinement therewith the centering-plunger would engage the side of the centering-cavity above the point of suspension of the matrix, tending to tilt the latter in the die-case, so that during the centering and seating of the matrix not only was the pressure and consequent wear localized on one side of the centering-cavity in the effort to straighten the matrix and shift the die-case as a whole to position, but one edge of the engaging face of the matrix was subjected to an excessive amount of pressure and consequent deterioration, owing to its premature engagement with the seating face of the mold.

According to the present invention the central transverse rod-receiving aperture is omitted and the matrices 1 are provided with external transverse grooves 2, curved or angular, for the reception of the sustaining-rods 3, the latter supported at opposite ends in the frame 4 of the die-case, as before. Three important advantages are thus secured. First, the matrix may be shortened; second, the tapered centering end of the plunger 5 may be lengthened, and, third, the plunger may be

caused to penetrate and engage below the point of suspension of the matrices on their supporting-rods 3. By forming a deeper centering-cavity 6 a larger surface is provided for the plunger to act upon. Hence the spreading and consequent distortion of the matrix is rendered less liable to occur, and by carrying the centering-cavity below the point of suspension the tendency of the matrices to tilt in the die-case is in a very large degree suppressed, the lateral movement for final centering being performed by the centering-plunger while engaging the matrix on both sides its point of suspension, which latter is an item of some considerable importance in that the engagement wholly above the point of suspension and consequent tilting of the matrix gives rise to a hammer action tending to batter and distort the matrices and cause their displacement in the die-case and improper register with the mold.

To facilitate the formation of the tapered centering-cavity 6 and to clear it from dust, &c., a small transverse opening 7 may be formed at or near the apex of the conical seat and communicating therewith. This opening is comparatively small and does not materially weaken the matrix.

In order to preserve the proper relation between the face and body of the type, it is essential that the degree of independent motion permitted each matrix in the die-case, more especially lateral motion, should be extremely slight, just sufficient to allow free longitudinal play and at the same time prevent axial rotation. Hence the matrices are made angular in section and fitted between the parallel walls of the die-case. The wear upon the sides of the matrices incident to use, although inconsequential in the individual when multiplied by the total number in a row, becomes so great as to permit excessive axial motion to the individual, so that eventually the characters become displaced or tilted out of correct position and the entire font of matrices has to be discarded and abandoned or readjusted. To remedy this evil and at the same time render the initial adjustment less exacting, the die-case is equipped with an elastic tension device or devices coöperating with the rows of matrices and tending at all times to hold them snugly in contact with each other and with a fixed abutment, and thus prevent axial rotation, especially during the periods of translation of the die-case to bring successive matrices into alinement with the centering-plunger and mold. One way of effecting this result is by mounting a spring 8 in the side bar of the die-case and bearing upon the first member of each row of matrices so as to press the entire row together and against the opposite side bar, which latter thus constitutes a permanent datum for the positioning

of the series, both for initial adjustment and during operation, the spring taking up and thus compensating for any excessive looseness due to wear, &c.

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

1. A die-case for type-casting and similar machines composed of a series of separate matrices loosely suspended in a frame and having their centering-cavities extending below their points of suspension in the frame; substantially as described.

2. A die-case for type-casting and similar machines comprising a supporting-frame and a series of matrices suspended in said frame each matrix provided with a conical centering-cavity in one end and extending axially beyond the point of suspension in the frame; substantially as described.

3. A die-case for type-casting and other machines composed of a frame, a series of parallel suspension-rods, and a series of matrices provided with transverse external grooves to receive said rods; substantially as described.

4. A die-case for type-casting and other machines the same comprising an open frame, parallel rods mounted in the side bars of said frame, and a series of externally-grooved matrices suspended between and upon adjacent rods and provided with centering-cavities in their bases, said cavities extending transversely of the rods and on both sides thereof; substantially as described.

5. As a new article of manufacture, the hereinbefore-described improved matrix for type-casting machines the same comprising a block formed with a matrix-cavity in one end, a conical centering-cavity in the opposite end, and grooved exteriorly at a point intermediate the ends for the reception of a suspension-rod, substantially as described.

6. In combination with the centering-plunger and mold of a type-casting machine, a movable die-case provided with a series of suspended and separately-movable matrices each of the latter furnished with a centering-cavity in the end next the centering-plunger and extending axially of the matrix beyond the point of suspension of the latter; substantially as described.

7. In a die-case for type-casting machines the combination with the frame and the series of matrices loosely supported therein in rows, of an elastic tension device operating upon the members of a row to prevent axial rotation and compensate for wear; substantially as described.

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