

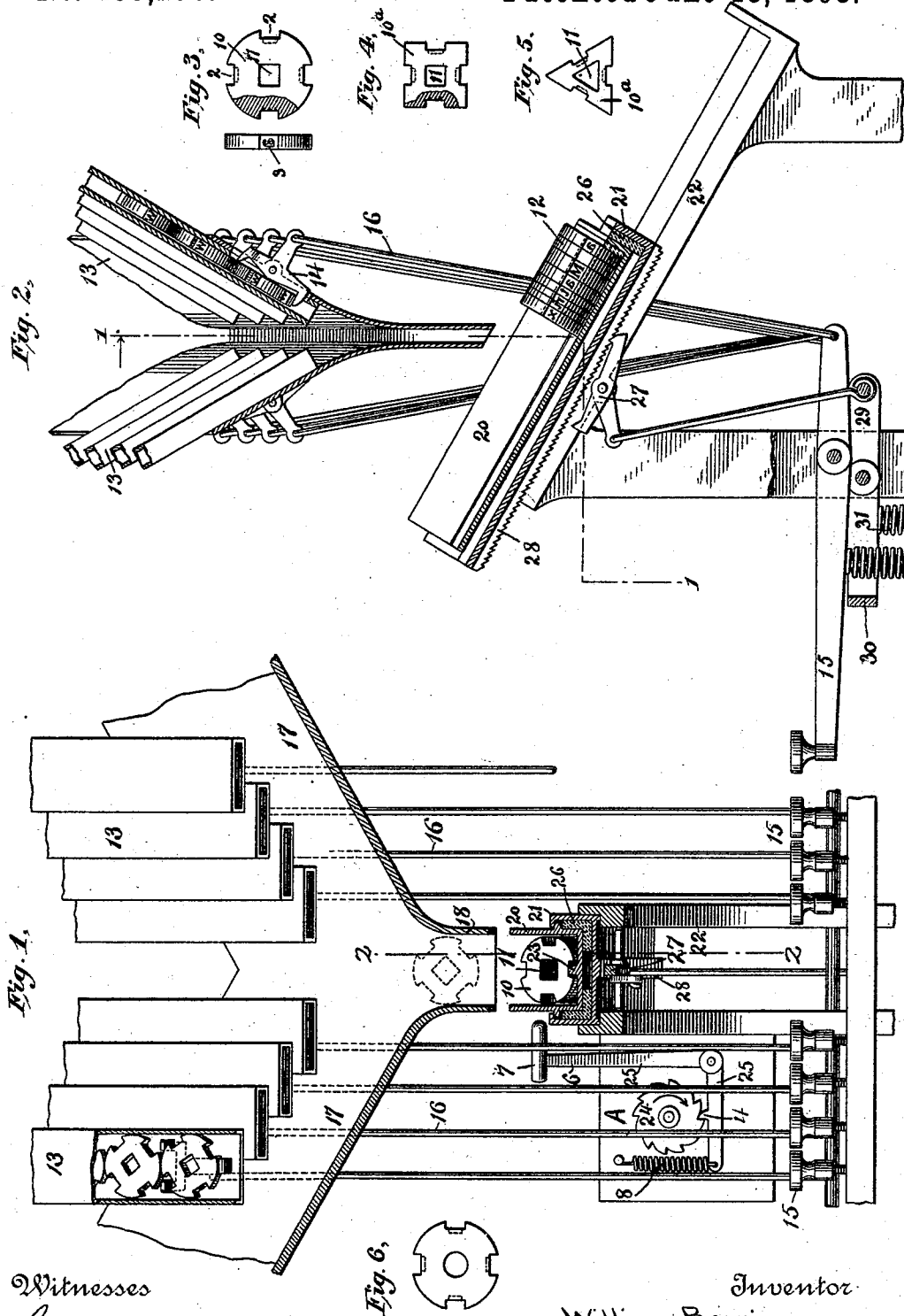
(No Model.)

W. BERRI.

MATRIX AND MATRIX ASSEMBLING MECHANISM.

No. 499,278.

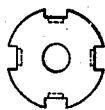
Patented June 13, 1893.



Witnesses

Geo. W. Brock
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Fig. 6.



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UNITED STATES PATENT OFFICE.

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MATRIX AND MATRIX-ASSEMBLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 499,278, dated June 13, 1893.

Application filed March 2, 1891. Serial No. 383,335. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BERRI, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Matrices and Matrix-Assembling Mechanisms, of which the following is a specification.

My invention relates to matrices of the class employed in connection with machines for casting type-bars, in which a proper key mechanism serves to deliver independent matrices or type from the magazine tubes to a system of assembling troughs or ways, and the invention consists in an independent matrix having a series of working faces, each face being provided with the same character; and only one being used at the same time, novel means for assembling such matrices in groups to form a single line being also provided.

While I have represented and will particularly describe my invention in connection with matrices having intaglio or female characters for producing direct castings, it is to be distinctly understood that blanks formed with cameo or male characters, adapted to make an impression in a yielding material and thus form a matrix to be used in casting, are to be considered mechanical equivalents of my preferred and illustrated form of blank.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference figures indicate corresponding parts in all the views.

Figure 1 is a longitudinal sectional view of a machine organized to operate upon my improved matrix blank, the view being taken on line 1—1 of Fig. 2. Fig. 2 is a cross-sectional view on line 2—2 of Fig. 1. Fig. 3 is a detail view of my preferred form of blank, parts being broken away. Fig. 4 is a view of a modified form of blank. Fig. 5 is a view of another form of blank. Fig. 6 is a view of a blank similar to the one shown in Fig. 3, except that the central aperture is round.

In the drawings 10 represents a matrix blank, that is preferably circular, as shown in Figs. 1, 2, 3 and 6. In the peripheral face of this blank there are formed two or more indentations, 2, and in the inner defining walls of said indentations or recesses there appear characters, 3, that are preferably female or in-

taglio characters. The blanks 10 are formed with central apertures 11, which by preference are square, as represented in Figs. 1 and 3, and vary in thickness, the thickness of each blank being in a certain predetermined ratio with the width of the character that is to appear thereon.

A set of blanks such as those above described having been provided, it becomes necessary to associate them so that the characters necessary to form a line of print will be properly associated and spaced, and to this end I provide spacing blanks, 12, and a mechanism preferably such as I have illustrated in Figs. 1 and 2. This mechanism consists of a number of magazine tubes 13, in which the blanks are placed edge to edge, being held therein by escapement levers 14 until such time as it is desired that a particular blank be released, and this releasing of a particular blank I bring about by depressing the proper one of a series of keys 15, said keys are connected to the escapements 14 by rods 16, as shown, it being understood that there are as many finger-keys as there are separate character-bearing blanks, in addition to a proper number of keys to operate the escapements controlling the spacing-blanks 12. The magazine tubes 13 deliver to troughs 17, which lead downward to a spout 18, which serves as a guide to direct the matrices to a receiving frame 20, which said frame is mounted upon a carriage 21, that rides on inclined ways 22. The frame 20 is formed with a longitudinal rib or flange 23, adapted to enter one of the recesses 2 of each blank that is delivered to the frame, and in order that after the blanks have been delivered to the frame they may be moved therein until one of their recesses is brought into register with the rib, I provide an agitating mechanism, such, for instance, as that shown at A in Fig. 1, although any proper means for agitating the frame might employed. In the particular construction shown there is arranged a cam-wheel 24, which bears upon a projection 4, formed upon the arm 5 of a bell-crank lever 25, the vertical arm 6 of said lever being provided with a hammer 7, and the projection 4 being held to the peripheral face of the cam-wheel by a spring 8.

Any proper mechanism for turning the cam disk in the direction of the arrow shown in

connection therewith may be employed. Then as the disk is revolved the hammer will strike against the frame 20 and cause a certain amount of vibration, which vibration will act to seat the matrices upon the rib or flange 23. 5 To increase the vibration, I prefer to mount the frame 20 upon blocks 26, that are made of rubber or other proper yielding material.

As the matrices are fed in from the magazine tubes, it is desirable that the frame 20 be advanced step by step, and to this end I provide an escapement 27, that engages a rack 28, formed upon or connected to the carriage 21, and this escapement I operate through the 15 medium of levers, 29, that are connected by a cross-bar 30, that extends in a horizontal line just beneath the keys 15, the levers normally being upheld by springs 31, as shown. From the construction described it will be seen that 20 when any one of the keys 15 is depressed the bar 30 will also be depressed and the escapement 27 thrown so as to permit a downward movement of the carriage.

After the proper matrices to produce a line 25 of print have been assembled they may be removed in any proper manner from the frame 20, but preferably by means of a handled rod, the cross-section of said rod corresponding to the central apertures of the several matrices; and the matrices having been removed from the frame may be operated upon by any of the well-known casting mechanism; or in case the characters are cameo or male characters, a proper matrix may be formed from the several associated blanks. 35

In Fig. 4 I show a square blank, 10^a, while in Fig. 5 the blank is represented as it would appear if triangular; and I desire it to be distinctly understood that any proper form of 40 blank might be employed without departing from the spirit of my invention.

Such matrices as those last referred to, would ordinarily without agitation come to rest in proper position within the receiving trough, 45 but to insure a proper position, I greatly prefer to employ a trough that can be agitated, such as is the one shown in the drawings.

In the claims which are hereinafter presented I have referred to the matrices as in-

dependent matrix blanks, the word "independent" being employed to distinguish blanks of the character hereinbefore described that is, blanks that are separate and disconnected from the machine from blanks that are mechanically connected to the machine. 55

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

1. An independent matrix blank having a series of working faces, each provided with the same character, only one of which can be used at the same time. 60

2. An independent circular matrix blank having a series of working faces, each provided with the same character only one of which can be used at the same time. 65

3. The combination with a series of matrices and a matrix-delivery mechanism, of a receiving frame and a means for agitating said frame, to turn said matrices on their axes. 70

4. The combination with a series of matrices and a matrix-delivery mechanism, of a receiving frame, a frame-advancing mechanism, and a means for agitating said frame, to turn said matrices on their axes. 75

5. The combination with a series of matrices and a matrix-delivery mechanism, of an inclined receiving-frame and a means for agitating said frame to turn said matrices on their axes. 80

6. The combination with a series of matrices and a matrix-delivery mechanism, of an inclined matrix-receiving frame and a mechanism substantially as described for advancing the frame step by step. 85

7. The combination with a series of matrices and a matrix-delivery mechanism, of a carriage, inclined ways upon which said carriage is mounted, a matrix-receiving frame, mounted upon a yielding support that is carried by the carriage, an agitating mechanism, and a carriage-advancing mechanism, substantially as described. 90

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Witnesses:

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