(No Model.) 2 Sheets—Sheet 1.

C. L. REDFIELD.

IMPRESSION DEVICE FOR MATRIX MAKING MACHINES.

No. 421,972. Patented Feb. 25, 1890.

Fig. 1

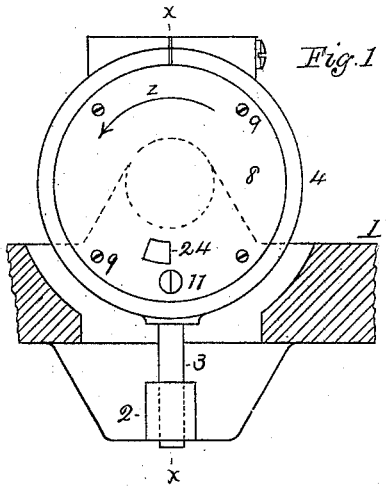


Fig. 2

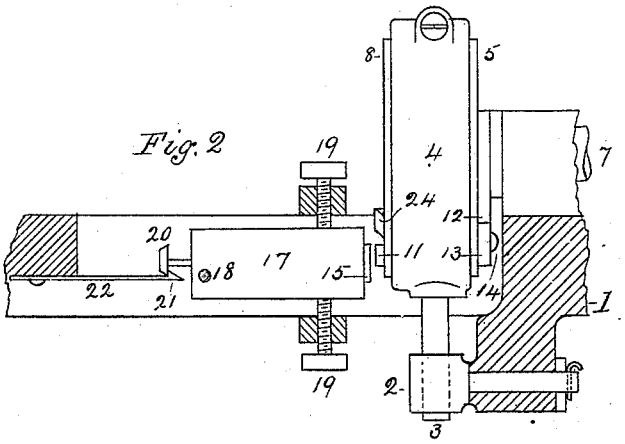


Fig. 3

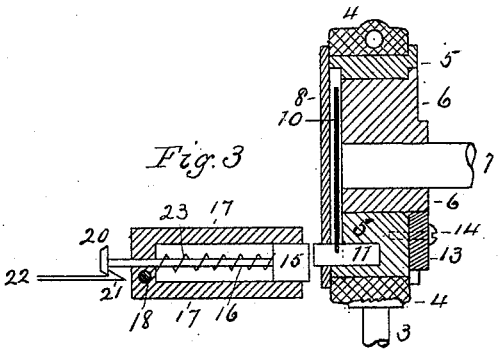


Fig. 5

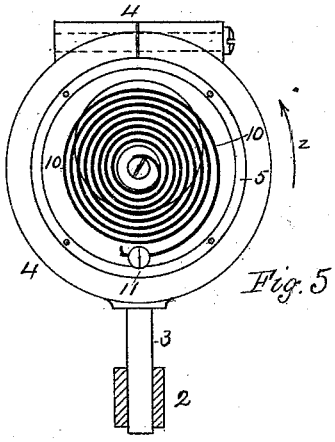


Fig. 4

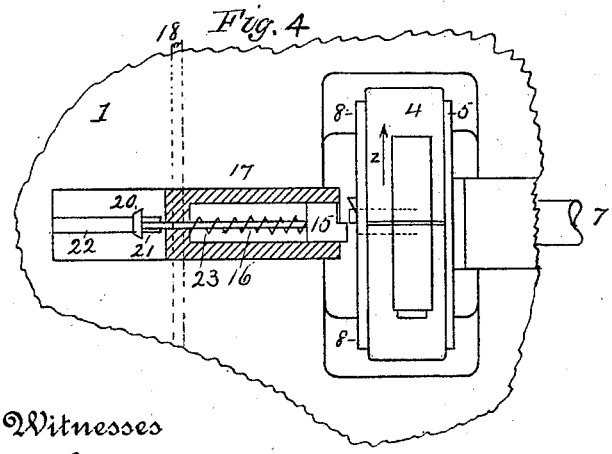
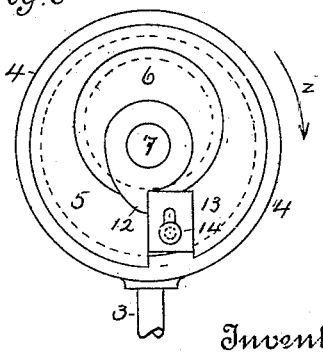


Fig. 6



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

C. L. REDFIELD.

IMPRESSION DEVICE FOR MATRIX MAKING MACHINES.

No. 421,972. Patented Feb. 25, 1890.

Fig. 8

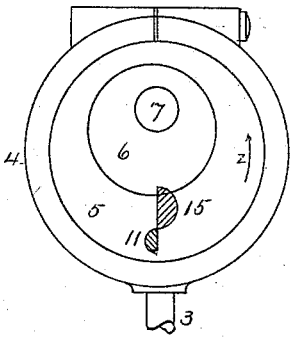


Fig. 7

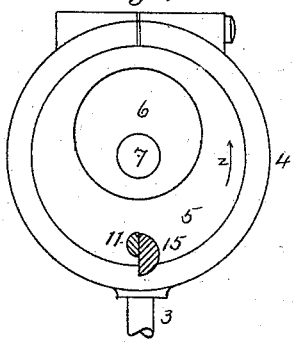


Fig. 11

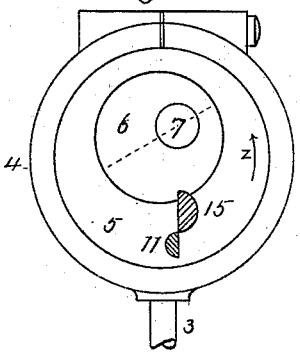


Fig. 9

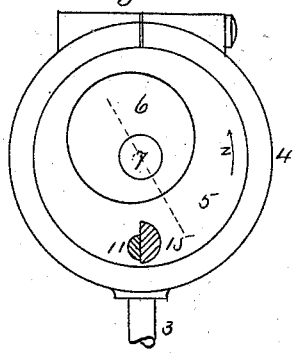
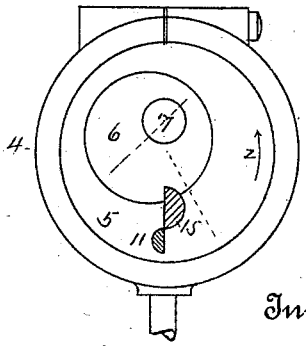


Fig. 10



Witnesses

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UNITED STATES PATENT OFFICE.

CASPER L. REDFIELD, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CHICAGO MATRIX MACHINE COMPANY.

IMPRESSION DEVICE FOR MATRIX-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 421,972, dated February 25, 1890.

Application filed March 25, 1889. Serial No. 304,675. (No model.)

To all whom it may concern:

Be it known that I, CASPER L. REDFIELD, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Impression Devices for Matrix-Making Machines, of which the following is a specification.

My invention relates to machines adapted to present type-dies in succession at a common point to be impressed by an impression device into a matrix-body; and the object of my invention is the improvement of the devices for operating a plunger to depress the dies as they are so presented.

My improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the impression devices. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section lengthwise of the machine on the line *x x* of Fig. 1. Fig. 4 is a plan view of the devices. Fig. 5 is a front view with the face-plate removed. Fig. 6 is a rear elevation, and Figs. 7 to 11 illustrate different positions of the eccentrics and the engaging-pin and catch in use.

In said drawings, 1 designates a portion of the frame of the machine, 2 a guide secured on the frame 1, and 3 a plunger in said guide for depressing a type-die to be presented thereunder by any desired mechanism.

4 is an eccentric-strap to which the plunger 3 is connected. Within the strap are two eccentrics 5 and 6, the former 5 being concentric with the shaft 7 and encompassing the smaller 6, which is eccentrically placed on the shaft. Obviously, when the two eccentrics 5 and 6 revolve in unison there is no eccentric throw, and only when the smaller turns within the larger is the strap caused to move.

Over the face of the two eccentrics is a plate 8, attached by screws 9 to the larger eccentric, and in a recess between the plate and eccentrics is a coil-spring 10, having one end attached to the shaft 7 and the other to a pin 11 in the eccentric 5, and tending to turn the larger eccentric on the smaller in the direction of their common rotation. (Shown by the arrows *z*.) The extent by which the spring may thus rotate the larger eccentric is limited by a shoulder 12 on the hub of the smaller eccentric, which is engaged by a radially-adjustable stop 13, secured by a set-screw 14 on the back of the larger eccentric, and the spring is thus made to return the larger eccentric to its initial position relative to the smaller after a throw of the strap has been made. The eccentrics 5 and 6 are rapidly rotated in unison by the shaft 7, while the strap 4 remains stationary, and to cause an eccentric throw and reciprocation of the plunger it is obviously necessary to stop the rotation of the outer eccentric 5. This may be done by means of a spring-actuated stop 15, carried by a stem 16 in a guide-frame 17. The guide-frame is supported at its outer end by a pivot-pin 18 and at its inner end by adjusting-screws 19, by which means the position of the stop can be varied.

On the outer end of the stem 16 is a head 20, that is engaged by a catch 21 on a spring-bar 22. This spring-bar may be operated by any suitable mechanical means to release the catch from the head 20, and upon such release being made the spring 23 on the stem 16 will thrust the stop 15 to position to engage the pin 11 and prevent further rotation of the larger eccentric. The pin 11, being set on the line of the centers of the eccentrics, may be arranged to be engaged by the upper portion of the stop 15, as shown in Fig. 7, and so that when the eccentric 6 has made a half-revolution, as shown in Fig. 8, the pin will have been moved down past the stop. The eccentric 5 being then free, the spring 10 will exert its force to carry that eccentric forward to overtake the smaller and resume its normal position, the shoulder 12 and stop 13 preventing rotation beyond the line of eccentric centers. The stop 15 is thrown back immediately upon its being freed from the pin 11 by means of an inclined lug 24 on the face of the plate 8, slightly above and in rear of the pin. Upon the release of the pin and stop the further rotation of the plate with the eccentric carrying it causes the incline to engage the face of the stop and slide it back until the head 20 is again caught by the spring-catch 21. If a shorter plunger-stroke than the full throw of the eccentrics is de-

sired, it may be obtained by placing the pin 11 at the left of the line of the eccentric centers, as shown in Fig. 9, so that it will engage the stop 15 at a lower point and be freed after a shorter movement of the eccentric 6, as shown in Fig. 10, and should always be so placed if strokes shorter than the full stroke are desired. This latter arrangement also aids the spring 10 in returning the larger eccentric to its normal position, because its center is in advance of the center of the smaller eccentric, and the throw of the latter assists the other in the direction of the spring-tension. If it is sought to shorten the plunger-thrusts by adjusting the stop 15 to a higher position without having the pin 11 at the left, as suggested, the results will be uncertain, as indicated in Fig. 11, where, as will appear, the further rotation of the smaller eccentric will cause a downward movement of the strap after the stop and pin have separated.

Having described my invention, what I claim is—

1. In combination, a shaft, an eccentric thereon, a second eccentric on the first, a strap, and means for causing a throw of the strap and the return of the outer eccentric to position to turn on its geometric center.

2. In an impression device for a matrix-making machine, an eccentric-strap for operating a plunger, eccentrics therein, one being rotated by a shaft within the other, a spring for holding the eccentric centers in line with the shaft center, and means for stopping the outer during the partial rotation of the inner eccentric, substantially as set forth.

3. In an impression device for a matrix-making machine, a plunger, an eccentric-strap, double eccentrics therein, one within the other, a spring for controlling their relative positions, a projection on the face of the larger, and a stop for engaging the same to cause a throw of the strap, substantially as set forth.

4. In combination, a plunger, a strap, eccentrics, one within another, therein, a projection on the face of the larger, a movable stop to engage the same during a partial rotation of the smaller, and a device carried by the larger eccentric for removing the stop when disengaged, substantially as set forth.

5. The combination, with the eccentrics and the pin and incline carried thereby, of the spring-stop, an adjustable guide therefor, and a spring-catch for holding the stop, substantially as set forth.

CASPER L. REDFIELD.

Witnesses:
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E. M. SCHUMANN.