

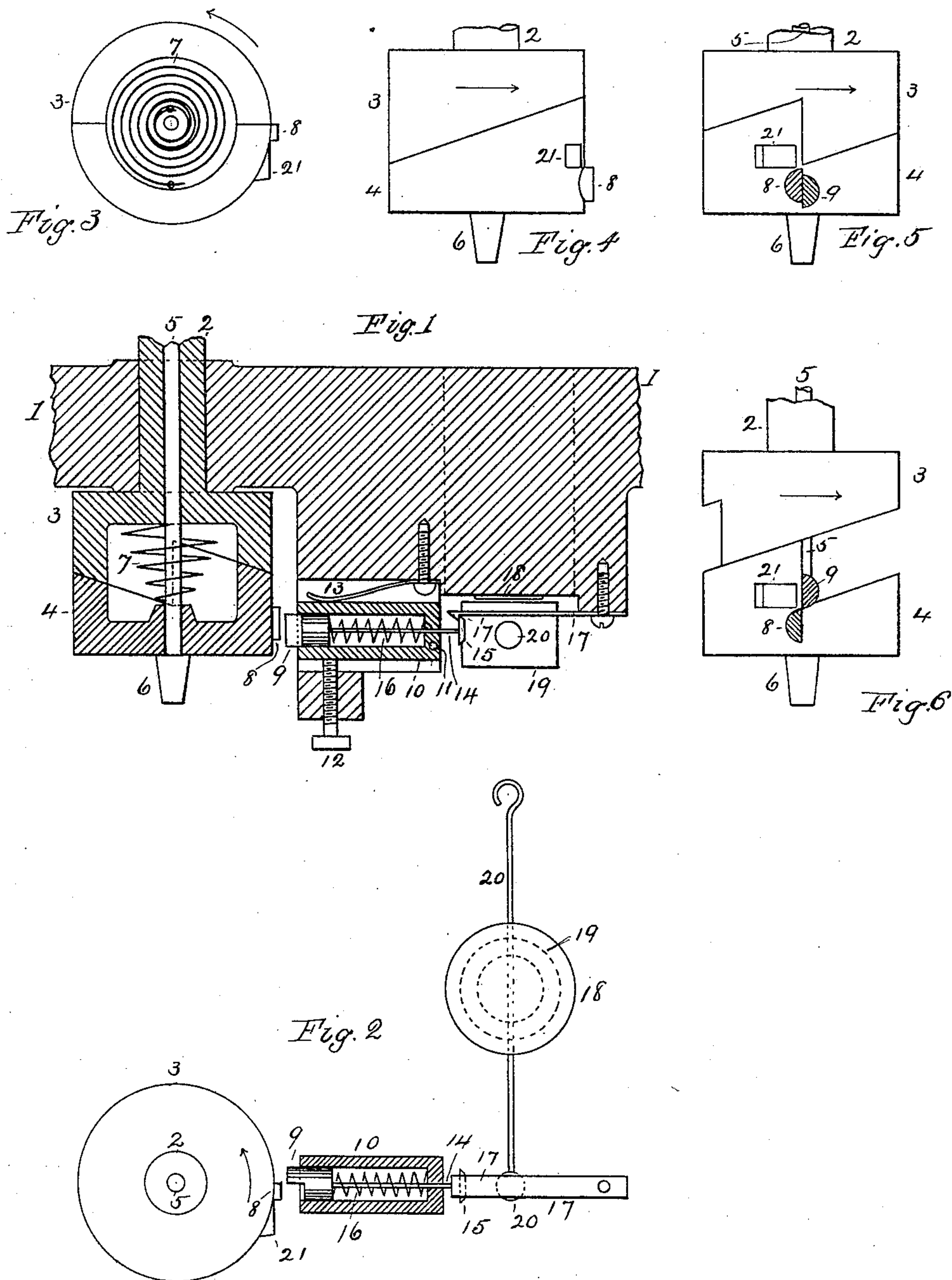
(No Model.)

C. L. REDFIELD.

IMPRESSION DEVICE FOR MATRIX MAKING MACHINES.

No. 429,737.

Patented June 10, 1890.



Witnesses

Ch. Churchill
G. E. Labeleis

Inventor

Casper L. Redfield
By his Attorney
P. H. Gunkel

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. 429,737, dated June 10, 1890.

Application filed April 3, 1889. Serial No. 305,882. (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 devices for operating a plunger to impress type-dies into a matrix-body.

The object of the invention is to improve the plunger-reciprocating devices, whereby an intermittent reciprocation is given the plunger, and but one plunger thrust can be made upon each die presented to the plunger.

These improvements will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, in which my improvements are illustrated, Figure 1 is a vertical section of the devices and of a portion of the machine-frame. Fig. 2 is a plan view of the plunger-operating clutch and the devices for engaging it; and Figs. 3, 4, 5, and 6 show plan and elevation views in detail of said clutch.

In said drawings, 1 designates a portion of the upper part of the machine-frame, and 2 a vertical shaft rotated by any suitable mechanism. On the lower end of this shaft is formed or secured a clutch-box, composed of an upper portion 3, fast on the shaft, and a lower sliding portion 4, and extending through the clutch and into the shaft 2 is a spindle 5, carrying the plunger-head 6, and secured to the sliding box 4. On the spindle within the clutch-box is a coil-spring 7, having its upper end attached to the fast portion 3 of the clutch and its lower end to the sliding portion 4, and serving both to hold the clutch-faces in engagement and to return the lower member to its original position after it has been caused to slide therefrom. On the periphery of the lower portion 4 of the clutch is a pin 8, which, when engaged to stop rotation of the lower portion of the clutch, causes the upper portion to ride on the inclined surfaces of the lower, and thus causes the descent of the latter to produce the plunger thrust. To

engage the pin 8 there is provided a stop 9, carried in a tubular guide-frame 10, that is hung on a pivot 11, and is provided with an adjusting-screw 12 at the lower side, and is held against the screw by a spring 13 at the opposite side. By this arrangement the stop 9 can be made to engage the pin 8 at a higher or lower point, as may be desired, to produce a shorter or longer thrust. The stop 9 is carried on a stem 14, that extends longitudinally through the guide-frame 10 and carries on its end a head 15. A spring 16 in the guide-frame exerts its force against the stop 9, tending to thrust it outward toward the clutch. The stop is held from engagement with the pin by a spring-catch 17, that engages the head 15 of the stem carrying the stop. To release the engagement of this catch 17, there are provided an electro-magnet 18 and an armature 19, that carries a spring-hammer 20. When the current is completed through the magnet and the armature is drawn to it, the spring-hammer 20 delivers a blow to the spring-catch, releasing it from engagement with the head 15, and immediately upon delivering its blow the hammer, by reason of its resiliency, rebounds from contact with the catch-spring, so that for one electrical contact there will be but one blow of the hammer for releasing the catch 17.

The clutch-box being rotated rapidly, and the spring-catch 17 being released from engagement, the stop 9 is thrown outward by the spring and engages the pin 8 and holds it and the box member 4 stationary while the upper portion 3 makes so much of a rotation as is necessary to cause the lower portion 4 to descend far enough to slide the pin 8 past the stop 9, and the stop being then free from the pin is engaged by the inclined projection on the lower clutch portion 4, which is then being carried forward by the spring 7, and the stop is thus moved backward sufficiently for the catch 17 to engage and hold it. The spring 7 serves also to draw the lower box portion back to its original position of engagement with the upper portion 3.

If desired, the clutch-box can be provided with two pins 8 and two inclined surfaces 21 for insuring quicker engagement. The ten-

sion of the spring 7 can be regulated by giving the lower box portion a half-turn in the proper direction to tighten or loosen the spring. Instead of an electro-magnet and armature for operating the spring-hammer 20, it or equivalent devices may be operated by other mechanical means.

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

1. In a matrix-making machine, an impression device consisting of a clutch-box having a constantly-rotating and an intermittently-rotating member, a connecting-spring therefor, a plunger, a projection, and an incline carried by the latter member, and a spring-stop for engaging in turn said projection and incline, for the purpose set forth.

2. A plunger-operating device for a matrix-making machine, consisting of a rotating clutch-box having upper and lower portions connected by a spring, a spring-stop for stopping the rotation of the latter, a catch for holding the stop from engagement, and a rebounding knocker for releasing the catch, for the purpose set forth.

3. The combination, with the clutch-box carrying the plunger and having a pin on its reciprocating member, of the stop for engaging the pin, and the adjustable guide-frame for the stop for regulating the extent of the plunger thrusts, substantially as set forth.

4. In a matrix-making machine, a rotating impression device, a spring-stop therefor, a catch for holding the stop, a rebounding-knocker for releasing said catch, and an armature and electro-magnet for actuating the knocker, substantially as set forth.

5. In combination, a rotary impression device, a stop therefor, a catch for the stop, an electro-magnet, and an armature carried on a spring-knocker arranged to strike a blow to release the catch and rebound from it, substantially as set forth.

6. In a matrix-machine, a rotary impression device consisting of a two-part clutch-box, one member of which carries a plunger and is adapted to reciprocate when intercepted, a spring-actuated stop for engaging such member to intercept its rotation, and devices provided on the part engaged for returning the stop to initial position when rotation is resumed, and a catch for holding the stop when so returned, substantially as set forth.

7. In a matrix-making machine, the combination, with an impression device adapted to reciprocate a plunger upon being engaged by a stop, of a reciprocating stop for engaging the same, a catch for holding the stop from engagement, and a rebounding knocker

for releasing the catch, substantially as set forth.

8. The combination, with a clutch-box having a continuously-rotating member and an alternately rotating and reciprocating member, the latter having on its surface a shouldered and an inclined surface, of an axially-guided reciprocating stop for engaging said shouldered surface to produce a thrust and in turn engaging said inclined surface to cause the retraction of the stop, substantially as set forth.

9. In a matrix-machine, a rotating impression device adapted to reciprocate upon being intercepted, a spring-operated intercepting device, a catch for holding it from engagement, means for releasing the catch, and means provided on the part engaged by the stop for returning it to its catch upon the completion of a thrust of the impression device, substantially as set forth.

10. In a matrix-machine, a rotative impression device composed of a two-part clutch-box, one member having a lug on its periphery, a stop-pin adapted to be projected in the path of the lug, and means whereby the engagement of the lug and stop-pin will cause the impression device to make an axial thrust of definite length and return instantly to its rotative position, substantially as set forth.

11. In a matrix-machine, a freely-rotating impression device, a reciprocating stop-pin for causing it to make single thrusts of definite length, and means whereby the adjustment of the stop-pin may be made to vary the length of the plunger thrusts, substantially as set forth.

12. In a matrix-machine, an impression device having uniform axial movement, a stopping device for controlling its reciprocations, and a rebounding knocker co-operating therewith, substantially as set forth.

13. In a rotative impression device having one member adapted to reciprocate when intercepted, a projection thereon, and a stopping device arranged to be interposed in the path of said projection and to remain stationary while the latter slides entirely across its surface, substantially as set forth.

14. The combination, with a rotative impressing device adapted to reciprocate when intercepted, of a stopping device therefor and a lug having engaging surfaces arranged to be in rubbing contact during a plunger thrust and to separate with the completion of the thrust, substantially as set forth.

CASPER L. REDFIELD.

Witnesses:

P. H. GUNCKEL,
E. M. SCHUMANN.