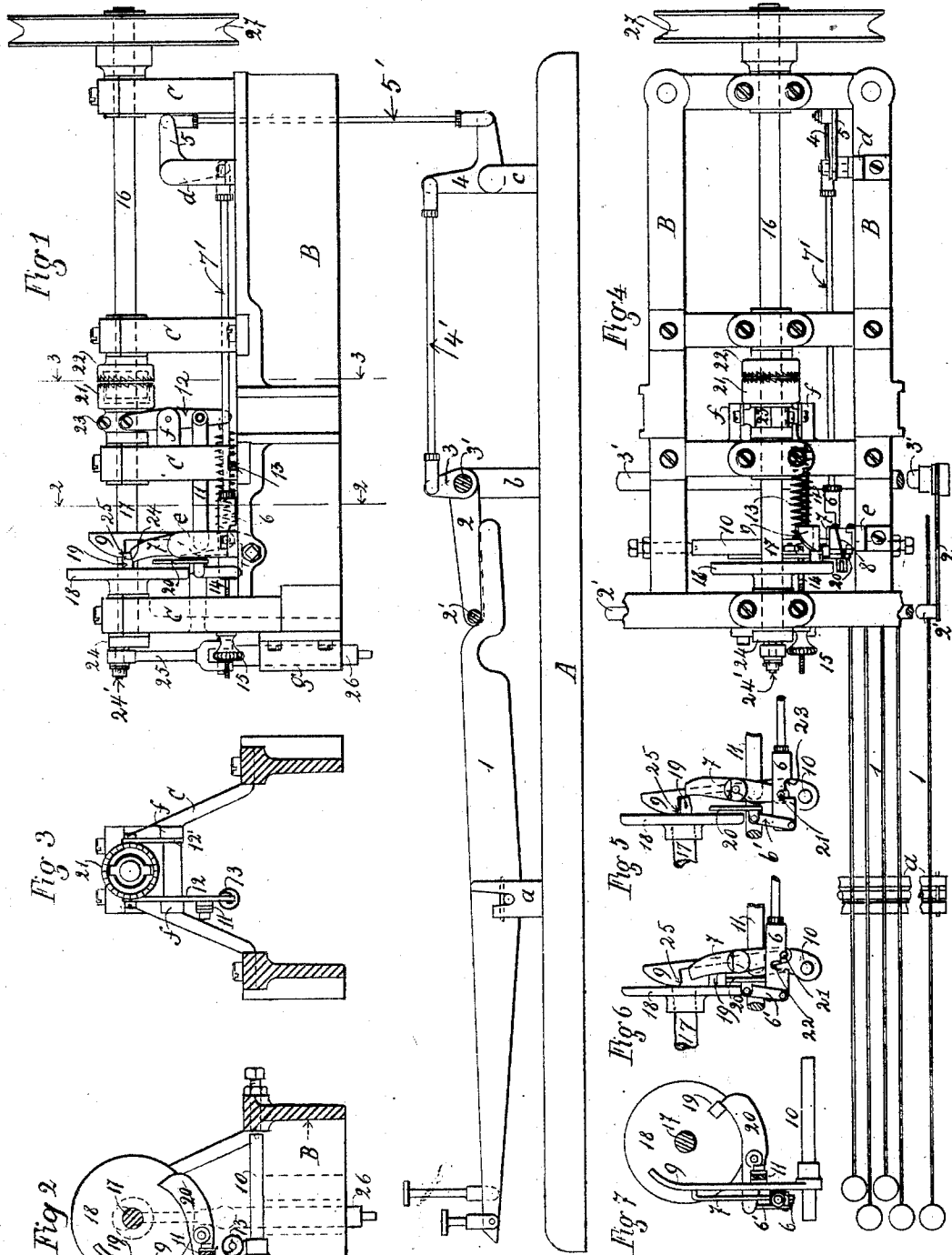


(No Model.)

A. J. KLETZKER & J. G. GOESEL.
MATRIX MAKING MACHINE.

No. 503,324.

Patented Aug. 15, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT J. KLETZKER AND JOHN G. GOESEL, OF ST. LOUIS, MISSOURI.

MATRIX-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 503,324, dated August 15, 1893.

Application filed July 19, 1892. Serial No. 440,471. (No model.)

To all whom it may concern:

Be it known that we, ALBERT J. KLETZKER, a citizen of the United States, and JOHN G. GOESEL, a citizen of France, residing in the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Clutches for Matrix-Making Machines, of which the following is a full, clear, and exact description.

Our invention relates to means for revolvably connecting two shafts together. More particularly, it relates to means for connecting the shaft by which the plunger of the matrix-making machine,—the subject of our patent dated November 8, 1892, No. 485,702, for forcing the dies into the matrix-board,—with the shaft which is being constantly power-driven.

It has for its object a simpler device and one that is more positive in its operation than the one in the patent above referred to, and consists in the details of improvement in the hereinafter-described device, in which the essential feature of difference between it and the similar device in the afore-mentioned patent lies in effecting the connection and disengagement of the driving and driven shafts by means wholly independent of the driving shaft.

In the accompanying drawings, in which like symbols of reference denote like parts in the several figures, we have illustrated our invention as adapted to a type-writer, a matrix machine, or similar apparatus, in which a number of different characters are operated on, and for which there are a number of key-levers by which the desired characters are brought into operative position and by which the connecting mechanism is similarly operated on.

Figure 1 is a side elevation, showing the adaptation of our invention to the stamping-punch of a matrix-making machine or a like apparatus. Figs. 2 and 3 are sectional views taken, respectively, on the lines 2—2 and 3—3 in Fig. 1. Fig. 4 is a plan view of what is shown in Fig. 1. Figs. 5 and 6 are side elevational views taken as on the line 5—5 in Fig. 2; and Fig. 7 is a view taken similar to Fig. 2, showing a change of position of the correlative parts.

b, Fig. 1, is one of several standards in

which is pivotally supported the rock-shaft 3'. To the ends of the rock-shaft 3', are rigidly secured lever-arms 2 (one of which is shown in Figs. 1 and 4). In the projecting ends of the lever-arms 2, connecting the same and lying parallel to the rock-shaft 3', is secured the rod 2', which extends over the back ends of the several key-levers 1, which are pivoted in the fulcrum-bearing blocks *a*, adapting the lever-bars 2, and, with them, the rock-shaft 3', to be operated by the depression of the forward end of the key-levers 1. To the rock-shaft 3' is rigidly secured the short lever-arm 3 which, by means of the connecting-rod 4', is connected to the vertical member of a bell-crank lever 4 fulcrumed in a standard *c* secured to the base-part A of the framing of the machine. The other member of the bell-crank lever 4 is connected, by the connecting-rod 5', to one member of the right-angle-lever 5, which is fulcrumed on a pivotal stud projecting laterally from the standard *d* secured to the upper framing part B of the machine. The train of levers, connecting-rods, and bell-crank levers, just described, illustrated in Figs. 1 and 4, relate exclusively to one means by which our invention might be operated. Other means, with which our invention might be combined in practice, could be used to effect the same operative results.

16 and 17 are two shafts revolvably supported, in line with each other, in journal bearings in the standards C. To one end of the shaft 16, is rigidly secured the pulley 27, by which the same is power driven. To the other end of the shaft 16, the end contiguous to the end of the shaft 17, is rigidly secured one member 22 of a ratchet-clutch. To one end of the shaft 17 is secured the disk 24" and crank-pin 24'. The pitman 25 connects the crank-pin 24' with the plunger-piece 26, for which is provided a guide-way in the block *g*. To the other end of the shaft 17, the one that abuts against the end of the shaft 16, is mounted the sleeve 21, in the projecting end of which is formed a crown ratchet-wheel which forms, with the similar piece 22 on the end of the shaft 16, the ratchet-clutch by which the two shafts 16 and 17 are revolvably connected, as hereinafter described. The sleeve 21 is secured on the end of the shaft 17 in such manner as to allow a longitudinal movement.

of the same relative to the shaft, but compelling it to rotate with the shaft. In the sleeve 21, is formed a circumferential groove, in which is revolubly fitted the collar 23. As the direct means for moving the sleeve 21 longitudinally, to bring the two members of the clutch into operative connection, there is pivotally secured, to either side, respectively, of the collar 23, the projecting end of the lever-arm 12' and the upwardly-extending member of the lever 12 [see Figs. 1 and 3], which are rigidly secured to the common rock-shaft fulcrumed in the horizontal standards *f*. The lower depending member of the lever 12 is connected, by the link 11, to the lever-arm 9, which is rigidly secured on the fulcrum-shaft 10 [see Figs. 2, 4, 6, and 7]. The shaft 10 has fulcrum bearings in the side pieces B of the framing of the machine. To the extreme end of the depending member of the lever 12, is secured one end of the coil tension spring 13, the other end of which is attached to one end of the adjusting screw-rod 14. The adjustment of the rod 14, to determine the tension given to the spring 13, is effected by the adjusting-nut 15. To the shaft 17, is rigidly secured a disk wheel 18, from the side face of which projects the stop-pin 19. See Fig. 1. The upper corner of the outer end of this pin, when the shaft 17 is in its normal position of rest, is beveled off, as at 24, Fig. 1, to present an engagement surface for the hooked end of the lever 9 hereinafter described.

7 is a lever which is pivotally mounted on a stud extending from the face of the bracket *e* [see Figs. 1 and 2]. This lever 7 is provided with a laterally-extending sleeve, which fits on the stud on which the lever is fulcrumed. To this sleeve, is secured one end of the torsion-spring 8 [see Figs. 2 and 4], the other end of the spring 8 being secured to the stud on which the lever is fulcrumed, or to the standard *e*. The upper end of the lever 7 is formed with a shoulder which is adapted to engage with the stop-pin 19 on the disk wheel 18. The movement of the lever 7 about its fulcrum-bearing is such as to adapt it to engage, at its upper end, with the stop-pin 19, and prevent the rotation of the shaft 17, and to be moved away from the same laterally, relative to the disk 18, to release the pin 19, the torsion-spring 8 always tending to force the lever to a position of engagement with the stop-pin 19 in the revolution of the same. The lower depending member of the lever 7 is provided with a laterally-projecting pin 21, which is adapted to engage in a recess 22 formed therefor in the head 6 of the connecting-rod 7', which connects the mechanism just described with the depending member of the right-angle lever 5, and the parts connected therewith, hereinbefore described, by which the coupling is operated. See Figs. 5 and 6. The extreme end of the connecting-rod 7', or, rather, the head end 6, is connected by the link 6' with one end of the lever 20, which is fulcrumed on a stable bearing, so as to lie and operate

in a plane parallel to the face of the disk wheel 18, the free end of the lever lying in the path of the stop-pin 19, adapting the lever to be engaged by the pin in its revolution. The engagement face of the lever 20 is formed eccentric to the path of revolution of the pin 19, so that the lever is oscillated in a vertical plane by the passage of the pin in its revolution, to the end that the head end 6 of the connecting-rod 7' is lifted thereby. The upper end of the lever 9 is bent laterally, to correspond concentrically with the path of revolution of the stop-pin 19. See Figs. 2 and 7. This curved part, as shown in Figs. 1, 5, and 6, is formed with a hook-shaped projection, the nose end of which is beveled off on the under side, as at 25, and the upper surface of which is inclined, as a whole, to the plane of the disk wheel 18. The projection, as a whole, lies in the path of revolution of the pin 19, and, when the lever is oscillated, is adapted to engage with the pin 19,—the pin 19, in engaging with the lever 9 on its inclined surface, in the rotation of the shaft 17, throwing the lever 9 to a position to disengage the coupling, and, when the shaft 17 is in a normal position of rest, by engaging the lever 9, on its beveled edge 24, holding the lever in its normal position away from the disk 18.

The principles of operation are as follows: The pin 21 being in engagement, in its recess 22, with the head end 6 of the connecting-rod 7', as shown in Figs. 1 and 5, it will be thrown forward [to the left in the drawings] by the depression of any of the key-levers 1. This will throw the upper end of the lever 7 against the tension of the torsion-spring 8, out of engagement with the pin 19 on the disk 18, leaving it free to revolve. Immediately this is done, the bevel 25 on the lower side of the nose end of the projection on the lever-arm 9, engaging with the corresponding bevel 24 on the end of the pin 19, will push the pin 19 far enough around to allow the upper end of the lever 9 to approach the disk wheel 18, the tension of the spring 13, through the connecting parts, tending, at all times, to force the lever 9 in this direction. This movement of the lever 9 is illustrated by the change of position of the same from that shown in Fig. 1 to that shown in Figs. 5 and 6. In making this movement, the lever 9 will permit the tension-spring 13 to pull the lower member of the lever 12 forward, bringing the two members of the ratchet-coupling into operative connection, whereby the shaft 17 is rotated by power being applied to the drive-wheel 27, and the plunger 26 reciprocated. The pin 19, before it has completed its revolution, has engaged with the inclined surface of the projection on the end of the lever 9, throwing it back to its original position—that shown in Fig. 1—by which the clutch is disengaged. The operation just described would be repeated if the stop-lever 7 were retained in the position of non-interference with the pin 19 to which it was pushed in the first instance,

when the key-lever 1 was depressed. It is evident that if the key-lever, immediately after it is depressed, is allowed to return to its normal position, the lever 7 will also return to its normal position in the path of the pin 19, and stop it in its revolution at a point just behind that which permits the lever 9 to move forward to again couple the two shafts together. When, however, the key-lever is not released before the pin 19 has made one revolution, other means must be provided to automatically allow the lever 7 to assume its normal position of interference in the path of the pin 19, irrespective of the position of the mechanism by which the lever 7 was thrown out of engagement with the stop-pin. This means exists in the lever 20. As described, the operative face of the lever 20 is formed eccentric to the path of revolution of the pin 19, so that when the pin 19 is released, in the manner described, it will depress the free end of the lever 20—move it from the position shown in Fig 2 to that shown in Fig. 7—thereby raising the other end thereof, and, with it, by means of the connecting link 6', the head end 6 of the connecting rod 7'. This lifting of the head end 6 will unseat the pin 21 from its recess 22, allowing the torsion-spring 8 to act, throwing the lever 7 back to its normal interference position [see Figs. 6 and 7], ready to engage with, and stop the pin 19 when it has made one revolution, thereby rendering it impossible for the shaft 17 to make more than one revolution until the key-lever 1 has been released, the pin 21 again resealed in its recess 22, and the key-lever again actuated.

The object of the secondary recess 23 in the head end 6, as seen in Figs. 5 and 6, is to furnish a seating-shoulder to limit the forward movement of the lever 7 when the pin 21 has been disengaged from the recess 22.

We claim—

1. In combination with a driving-shaft and a driven shaft, of a disk mounted on the driven shaft and provided with a stop-pin, a lever adapted to engage with said stop-pin to control the rotation of the driven shaft, another lever, adapted to operate a clutch between said shafts and to be controlled by the stop-pin on the disk: substantially as and for the purposes described.

2. In combination with a power-driven and rotatable shaft, a clutch adapted to operatively connect said shafts, a disk mounted on the rotatable shaft, a stop-pin on the disk, a lever adapted to engage and stop said pin, another lever adapted to rest against the stop-pin when in its normal position, and means for operatively engaging the clutch, releasing the stop-pin, and forcing the lever

which rested thereagainst toward the disk: substantially as and for the purposes specified.

3. In combination with a driving shaft, a driven shaft and a clutch therebetween, of a disk mounted on driven shaft provided with a stop pin, a lever adapted to engage with said pin and determine the revolution of the same, a second lever by which the clutch is operated, adapted (first) to be held in a position of non-engagement of the clutch by the stop pin when the stop pin is in its normal position of rest, (second) to engage the clutch when the stop pin is released by the first lever, and (third) to be returned to its normal position of non-engagement of the clutch by the revolution of the stop pin, and means for actuating the first lever, substantially as described.

4. In combination with a driving shaft and a driven shaft and a clutch therebetween, of a disk mounted on the driven shaft provided with a stop pin, a lever adapted to engage with the stop pin and determine the revolution of the same, a second lever by which the clutch is operated, adapted to engage with the stop pin and be held, in the normal stationary position of the stop pin, in a position of non-engagement of the clutch, and so formed on its engagement surface with the stop pin, as to start the same in revolution when it is released by the stop lever, and formed with an inclined surface adapted to be engaged by the stop pin, in its revolution, throwing and retaining the said lever back to its normal position of non-engagement of the clutch, and means for actuating the stop lever, substantially as described.

5. The combination with a driving shaft and a driven shaft and a clutch therebetween, of a disk mounted on the driven shaft provided with a stop pin, a stop lever for determining the revolution of the stop pin, a second lever adapted to engage with and be actuated by the stop pin to connect and disconnect the clutch, a notched rod, and means for operating the rod, connected with the stop lever and adapted to disengage the same from the stop pin, and means, actuated by the stop pin in its revolution, for disengaging the said actuating rod from the stop lever, whereby the lever is allowed to automatically assume its normal position of engagement with the stop pin, substantially as described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

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Witnesses:

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