

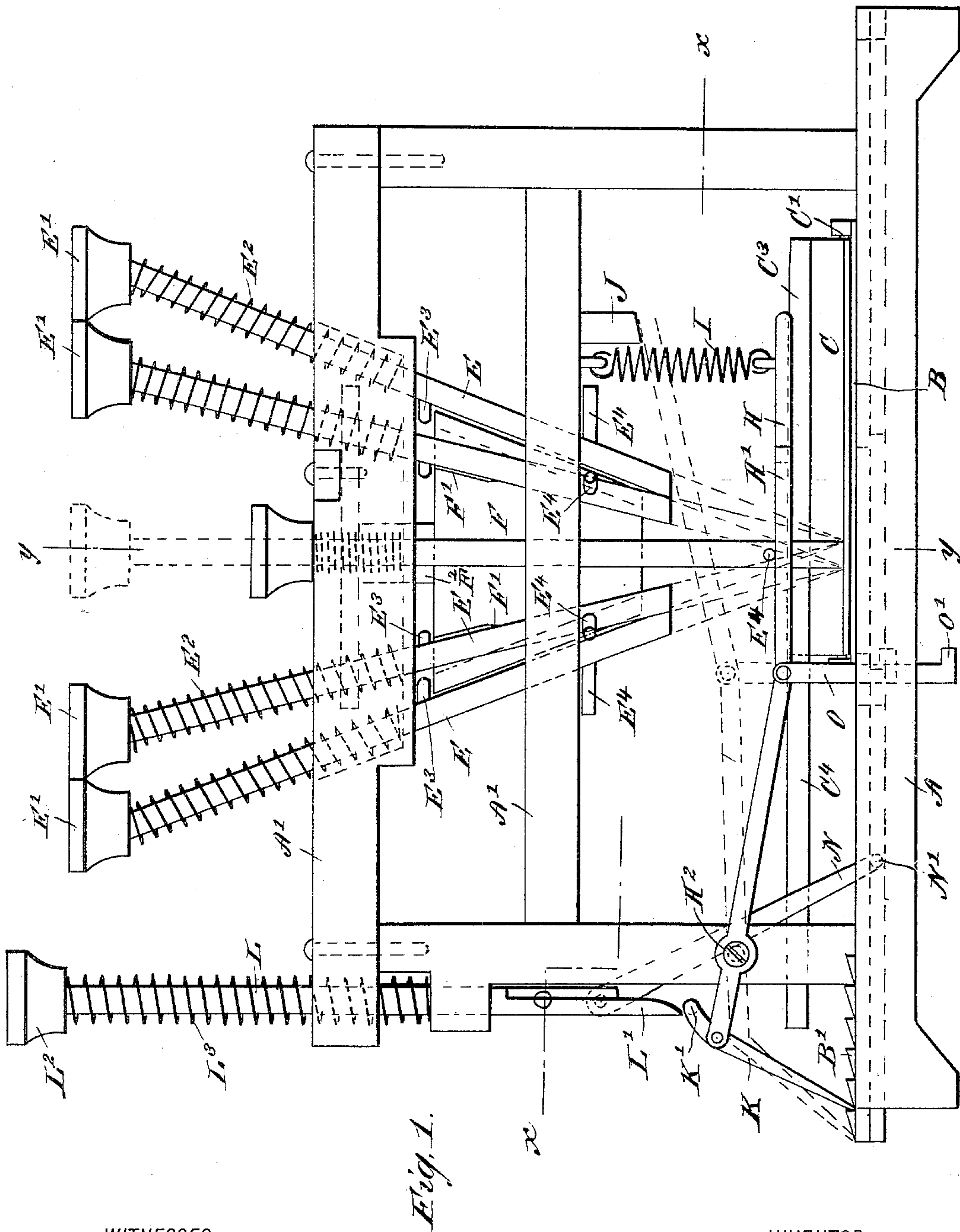
(No Model.)

3 Sheets—Sheet 1.

L. M. MILLS.
CHECK PUNCH.

No. 450,913.

Patented Apr. 21, 1891.



WITNESSES:
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W. Sedgwick

INVENTOR:
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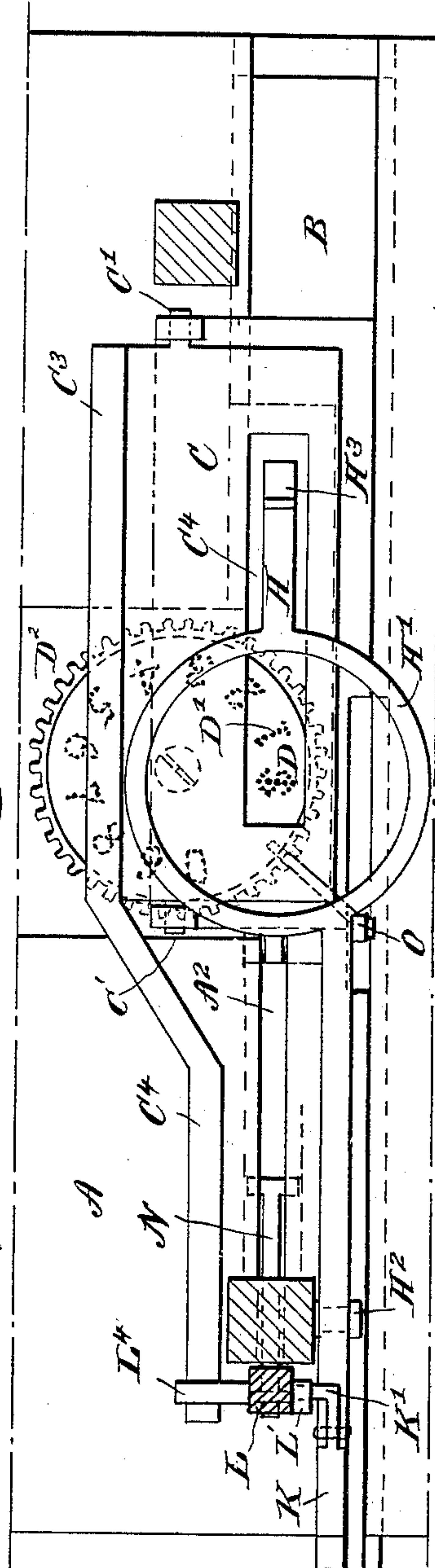
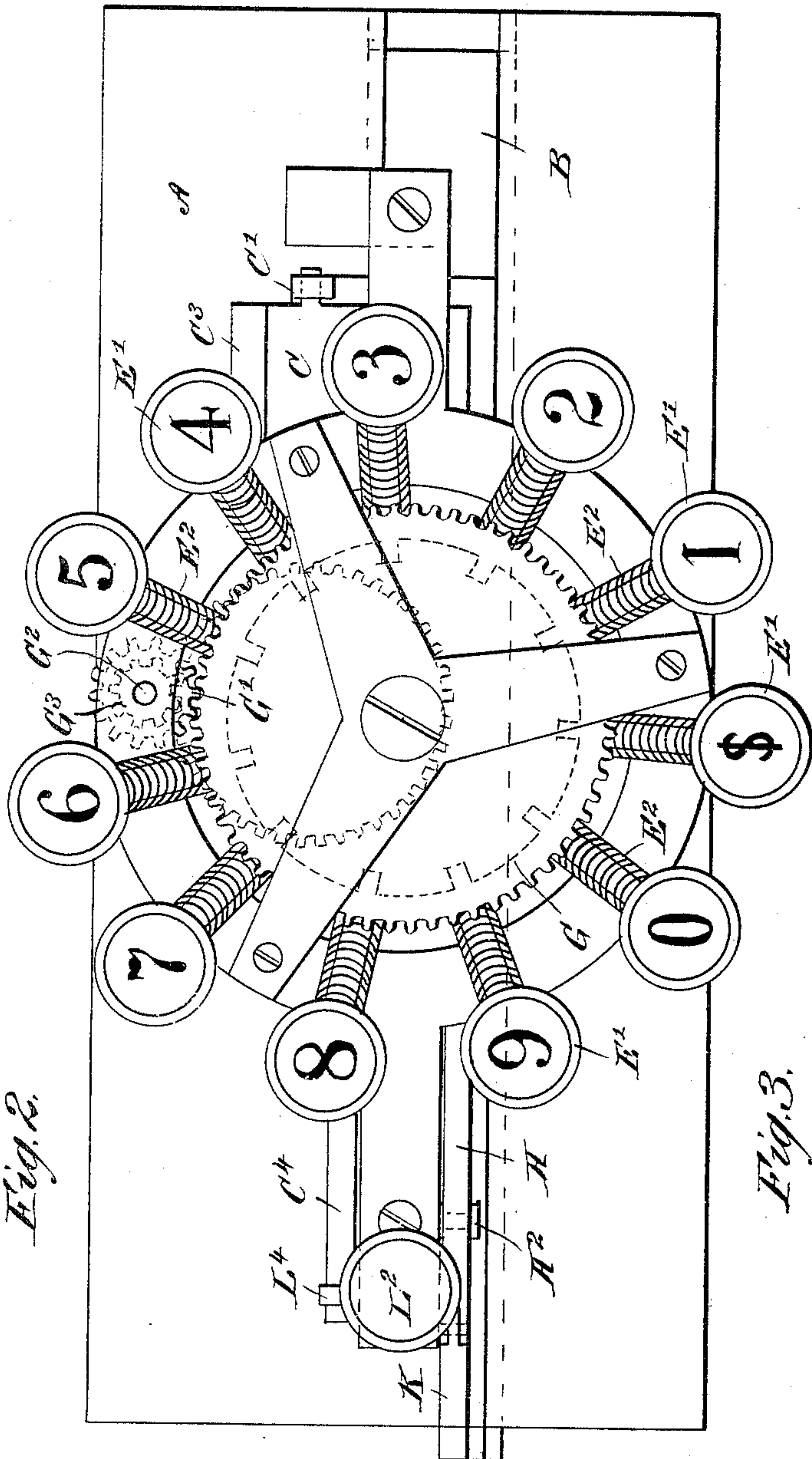
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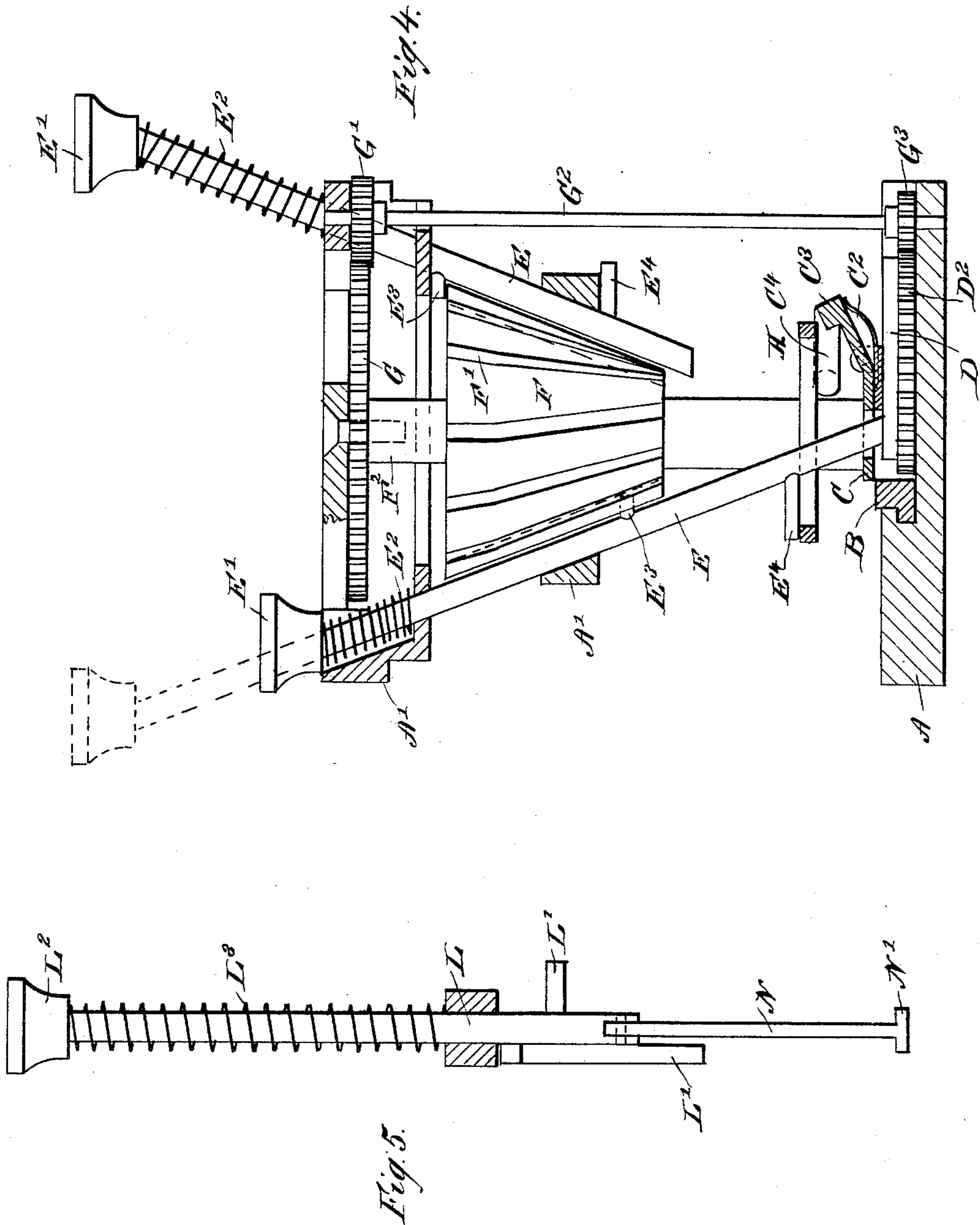
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UNITED STATES PATENT OFFICE.

LLOYD M. MILLS, OF GRAND RAPIDS, MICHIGAN.

CHECK-PUNCH.

SPECIFICATION forming part of Letters Patent No. 450,913, dated April 21, 1891.

Application filed April 8, 1890. Serial No. 347,035. (No model.)

To all whom it may concern:

Be it known that I, LLOYD M. MILLS, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and Improved Check-Punch, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved check-punch which is simple and durable in construction, very effective in operation, and easily manipulated to quickly punch or cut the desired numeral or figure out of the check, draft, &c., so that the several numerals or figures stand in perfect alignment.

The invention consists of spring-pressed rods carrying a male die and adapted to slide toward a common center, and a check-holder adapted to slide under the said rods and actuated by the same.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

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

Figure 1 is a front view of the improvement with one of the die-rods pressed. Fig. 2 is a plan view of the same. Fig. 3 is a sectional plan view of the same on the line $x x$ of Fig. 1. Fig. 4 is a transverse section of the same on the line $y y$ of Fig. 1, and Fig. 5 is an end elevation of the shifting-rod.

The improved check-punch is provided with a suitably-constructed base A, in which is fitted to slide laterally a frame B, on the top of which is hinged a clamping-plate C, between which and the top of the said frame is placed the check or draft to be punched. The clamping-plate C is pressed down onto the paper by a spring C², the free end of which presses on an upwardly-extending projection C³, formed to project rearward from the pivots C' of the said clamping-plate C.

Below the clamping-plate C is arranged a female die-wheel D, provided with female dies D', formed to indicate numerals, preferably from 0 to 9, inclusive, and figures representing dollars, cents, &c., as is plainly shown in Fig. 3. The several dies on the die-wheel D are prefer-

ably formed by a series of apertures, as indicated in the said Fig. 3; but each numeral or figure may be made of one single opening extending vertically through the die-wheel. The latter is mounted to turn on a suitable stud arranged in the top of the base A.

In the clamping-plate C is arranged a slot C⁴, through which one of the dies D' of the die-wheels D can appear at a time, and through this slot is adapted to pass one of a series of die-rods E, fitted to slide in suitable bearings in a frame-work A', arranged on top of the base A. Each of the die-rods E is provided on its lower end with a male die, representing a numeral or figure corresponding to one of the numerals and figures formed in the die-wheel D, so that when one of the rods E is pressed down onto the top of the die-wheel D the corresponding numeral or figure is under the die-rod, as hereinafter more fully described. The several die-rods E are arranged in such a manner that when pressed downward they pass onto a common center.

On the upper end of each die-rod is arranged a button or key E', containing a numeral or figure corresponding to the male die on the lower end of the rod. The rods E are held in an uppermost or outermost position by means of coil-springs E², coiled around the upper ends of the rods E, and each pressing with one end against the under side of its button, while the other end rests on the frame A'. (See Fig. 4.)

Each of the rods E is provided with a pin E³, adapted to engage a groove F', formed in a cone-shaped wheel F, provided at its upper end with a hub F², arranged vertically and mounted to turn in suitable bearings in a bridge secured to the top of the frame-work A'. Each of the grooves F' is straight at its upper end and then extends to one side, as is plainly shown in Fig. 4, so that when the corresponding rod E is pressed and its pin E³ engages the said groove F' the said wheel F remains stationary during the time the pin passes through the upper part of the groove F', while the wheel F turns when the pin E³ passes through the lower or laterally-extending part of the slot F'.

The grooves F' in the cone-shaped wheel F

vary in inclination to permit the respective key when pressed to revolve the said cone-shaped wheel a greater or lesser distance, thereby revolving the die-wheel D a greater or lesser distance, so that the pressed die-rod meets the corresponding die on the die-wheel. One of the die-rods when pressed, however, does not move the wheels. This die-rod has the \$ mark formed on the die, as shown in Fig. 2, and is directly under the \$ mark on the die-wheel D, and the groove F' for this die-rod is perfectly straight, so that on depressing the key the wheels do not revolve. The groove F, acted on by the next die-rod having the numeral 1, is only a trifle slanting, sufficiently, however, to move wheels F and D until the numeral 1 is in the common center of the die-rods and in the place occupied by the \$ mark when the machine is in the normal position. The slant of the following grooves F' increases correspondingly. When the pressure on the pressed rod E is released, the spring E² forces the rod upward, so that the wheel F is again turned to its former position, and when the rods are in their uppermost position the several pins E³ are disengaged from their corresponding grooves.

On the upper end of the hub F² of the wheel F is secured a gear-wheel G, meshing into a smaller gear-wheel G', secured on a vertically-arranged shaft G², mounted to turn in suitable bearings in the base A and the frame-work A'. Near the lower end of the shaft G² is secured a gear-wheel G³, which meshes into a large gear-wheel D², formed in the periphery of the die-wheel D, so that when one of the rods E is pressed down, as above described, and the wheel F is turned a suitable distance, then a rotary motion is transmitted from the said wheel by the gear-wheel G to the gear-wheel G', which, on account of being secured to the shaft G², causes the gear-wheel G³ to rotate, and the latter, by meshing with the gear-wheel D², turns the die-wheel D so as to bring the corresponding numeral or figure on the die-wheel into line with the lower end of the respective rod E which has been depressed and carries the same numeral or figure.

On each of the rods E and near their lower ends is secured a pin E⁴, which extends outward and is adapted to engage the ring H', formed on a lever H, pivoted at H² to one side of the frame-work A'. The inner end of the lever H is connected with a spring I, held on the frame-work A', and which serves to draw the inner end of the lever upward against the stop J, formed on the frame-work A'.

On the outer end of the lever H is fulcrumed a pawl K, adapted to engage one of a series of teeth B', formed on the top of the frame B, as is plainly shown in Fig. 1. On the pawl K is formed a transversely-extending pin K', adapted to be engaged by an arm L', formed on a rod L, mounted to slide vertically in suitable bearings in the frame-work

A'. On the upper end of this rod L is held a button or key L² for conveniently depressing the said rod. A spring L³ is coiled on the rod and serves to hold it in an uppermost position, as is plainly illustrated in Figs. 1 and 5.

On one side of the rod L and near its lower end is arranged a pin L⁴, adapted to engage an arm C⁴, projecting from one end of the clamping-plate C, so as to open the latter whenever it is desired to place a check between the clamping-plate and the frame B or when the frame B is shifted laterally, as hereinafter more fully described. On the lower end of the rod L is also pivoted an arm M, the lower end of which passes through a slot A², formed in the top of the base A, and on the extreme lower end of the said arm is formed a transversely-extending pin N', engaging a slot in the frame B. This arm N serves to return the said frame B to its original position after a check has been punched.

On the lever H previously referred to is pivoted a downwardly-extending arm O, provided on its lower end with a lug O', adapted to engage a notch or recess formed in the under side of the die-wheel D, so as to lock the latter in place during the time the rods are disengaged from the wheel F, which, by being connected with the said die-wheel D, as previously described, is also locked in place, so that the several slots F' in the said wheel are always in line with the pin E³ of the corresponding rods E. When the lug O' engages the notch in the under side of the die-wheel D, the latter stands in its first position, as shown in Fig. 3.

The operation is as follows: In order to place the check or draft to be punched between the clamping-plate C and the frame B, the operator first presses the key L² so as to move the rod L downward to compress the spring L³, at the same time causing the pin L⁴ to press on the arm C⁴ of the clamping-plate C to swing the latter upward against the tension of the spring C². The check or draft can now be placed between the clamping-plate and the top of the frame B, so that it is in the proper position to be operated on by the dies, the place on which the numeral or figure is to be punched into the check being at one end of the slot C⁴ in line with the center from which the several rods E radiate. As soon as the operator releases the pressure on the button L² the rod L moves upward to its normal position and the clamping-plate C swings downward, so as to clamp the check or draft securely to the frame B. At the same time the pawl K engages the outermost tooth of the number of teeth B' on the frame B. The operator now presses the rod E, having the die the numeral or figure of which is to be punched into the check. When the desired rod E slides downward, its pin E³, in passing through its corresponding slot F' in the wheel F, turns the latter, which, by the connection previously described, turns the die-wheel D so as to bring the corresponding

female die D' in line with the movement of the rod E, the said female die being in position before the male die on the lower end of the pressed rod E strikes the draft or check.

5 When two dies act on the paper, the desired numeral or figure is cut out of the same, and then the operator releases the pressure on the pressed rod E, so that its compressed spring E² forces the rod back to its former position.
 10 When the rod E moves downward to punch the check, its pin E⁴, pressing on the ring H' of the lever H, swings the inner end of the latter downward against the tension of the spring I, at the same time raising the outer
 15 end of the said lever, so that its pawl K passes onto the next tooth B', and when the said rod E moves upward to its normal position after the check has been punched the spring I causes the inner end of the lever H
 20 to swing upward and the outer end to swing downward, so that the pawl K moves the frame B to the left the distance of one tooth, whereby the check is carried to the left with the said frame. The operator then presses
 25 the next rod E provided with a die having the numeral or figure to be punched into the check next to the numeral or figure previously punched. The above-described operation is then repeated—that is, the second rod,
 30 by being pressed downward, turns the wheel F and the die-wheel D to bring the corresponding numeral or figure of the die-wheel in line with the second rod to be depressed. When the several figures and numerals have
 35 been punched in the check, the operator presses the button L², so that the rod L slides downward, and by its pin L⁴ causes an opening of the clamping-plate C to enable the operator to remove the check. At the same
 40 time the downward movement of the rod L causes the arm N to abut, with its pin N', against the end of the slot in the frame B to shove the latter to the right until it assumes its former normal position. The check-punch
 45 is then again ready to punch another check or draft.

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

50 1. In a check-punch, the combination of a series of die-rods adapted to slide toward and from a common center on a die-wheel mounted to turn below the said rods and actuated from the latter so as to bring the corresponding die of the die-wheel in line with
 55 the actuating-rod having a corresponding die, substantially as shown and described.

2. In a check-punch, the combination, with spring-pressed die-rods, each provided on its
 60 lower end with a male die, of a die-wheel provided in its face with female dies corresponding to the male dies on the said die-rods, and intermediate mechanism actuated

from the said die-rods and serving to turn the said die-wheel when one of the die-rods is depressed so as to bring the corresponding female die in line with the male die of the pressed die-rod, substantially as shown and described. 65

3. In a check-punch, the combination, with a frame fitted to slide laterally, of a spring-pressed clamping-plate pivoted on the said frame and adapted to clamp the check or draft to the said frame, and a spring-pressed rod for opening the said spring-pressed clamping-plate, substantially as shown and described. 75

4. In a check-punch, the combination, with a frame fitted to slide and provided with a clamping-plate to hold the check in place on the said frame, of a spring-pressed rod for opening the clamping-plate and intermediate mechanism connecting the said spring-pressed rod with the said frame to slide the latter laterally, substantially as shown and described. 85

5. In a check-punch, the combination, with a frame and clamping-plate held on the said frame and serving to hold the check in place, of a series of male die-rods fitted to slide and each provided with a pin, a spring-lever adapted to be engaged by the pin of the said die-rods when depressed, and a pawl held on the said lever and adapted to engage ratchet-teeth on the said frame to shift the latter laterally, substantially as shown and described. 95

6. In a check-punch, the combination, with a die-wheel mounted to turn and provided on its under side with a notch, of a spring-pressed lever provided with an arm having a lug adapted to engage the said notch, and a series of die-rods fitted to slide and each provided with a pin adapted to engage the said lever, so as to unlock the said lug from the notch in the die-wheel, substantially as shown and described. 105

7. In a check-punch, the combination, with die-rods radiating from a common center, of a conical wheel provided with grooves adapted to be engaged by pins on the said die-rods, substantially as shown and described. 110

8. In a check-punch, the combination, with a series of die-rods radiating from a common center and a die-wheel mounted to turn, the said common center of the die-rods being at or near the face of the said die-wheel, of a conical wheel provided with cam-grooves adapted to be engaged by pins on the said die-rods, and intermediate mechanism for connecting the said conical wheel with the said die-wheel to turn both simultaneously, substantially as shown and described. 115

LLOYD M. MILLS.

Witnesses:

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 JOHN L. BENJAMIN.