(No Model.) 4 Sheets—Sheet 1.

L. L. DRIGGS.

CHECK PUNCH.

No. 493,547. Patented Mar. 14, 1893.

Fig. 1

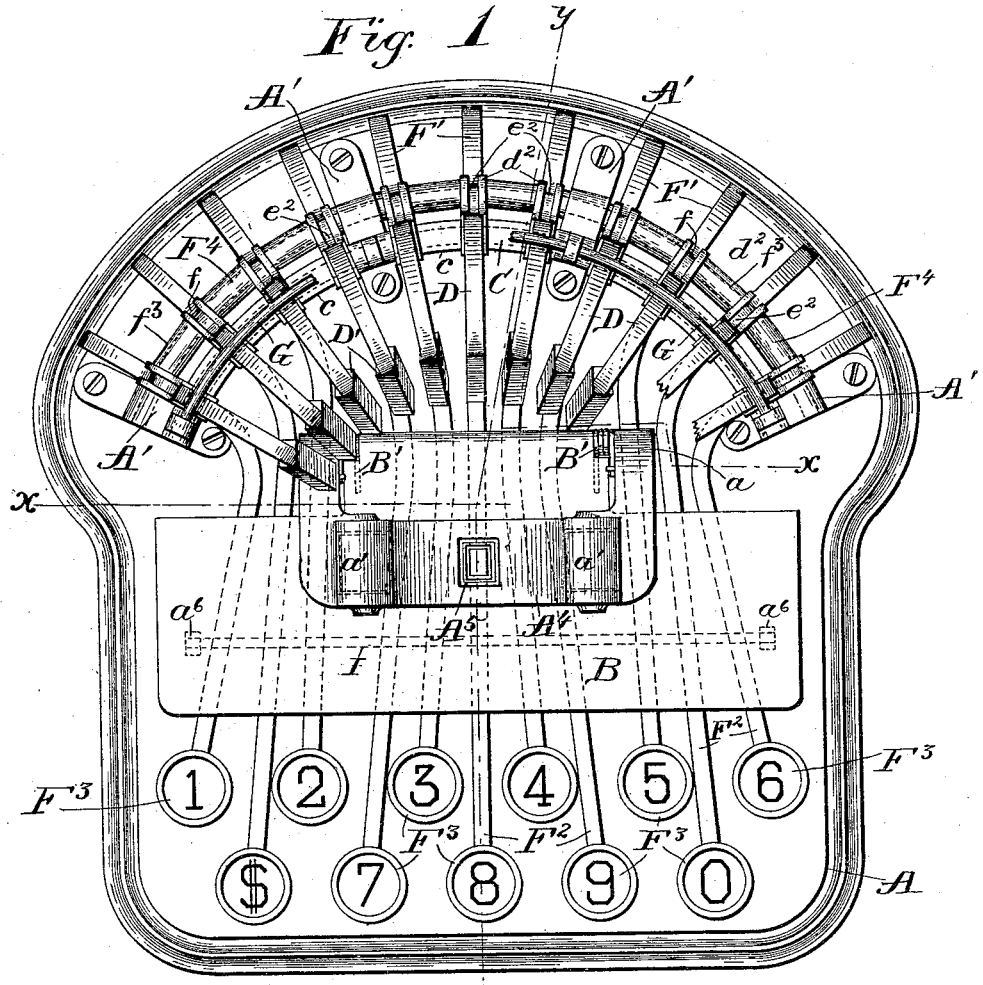


Fig. 4.

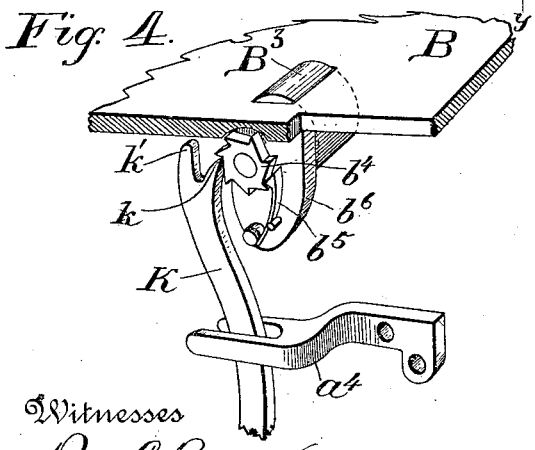
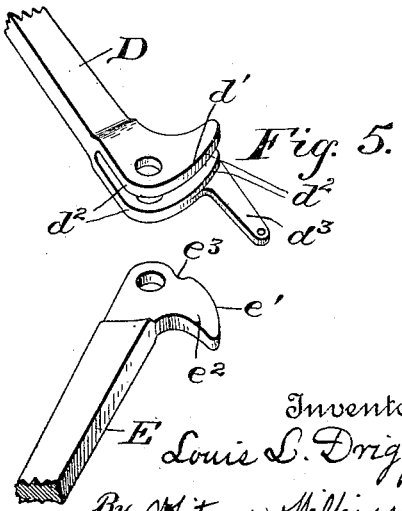


Fig. 5.



Witnesses
Percy C. Bowen
John C. Tolson.

Inventor
Louis L. Driggs.
By Whitman & Wilkinson,
Attorneys.

(No Model.) 4 Sheets—Sheet 2.

L. L. DRIGGS.

CHECK PUNCH.

No. 493,547. Patented Mar. 14, 1893.

Fig. 2.

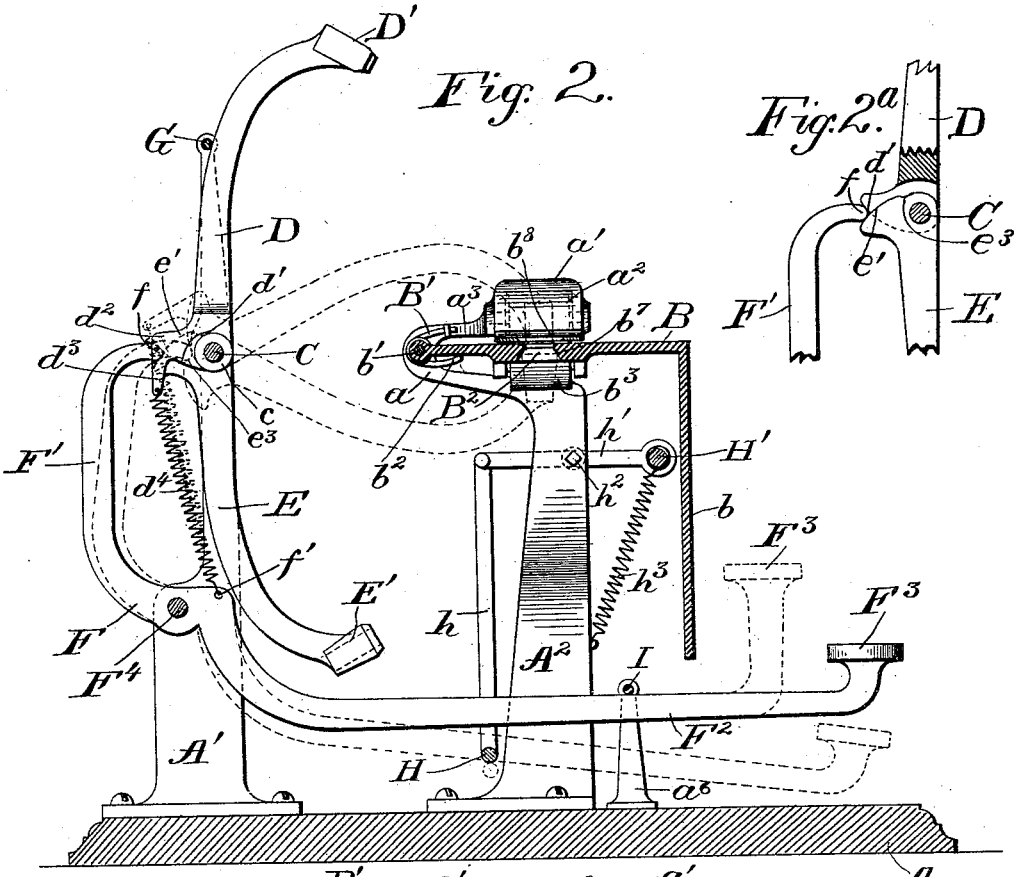
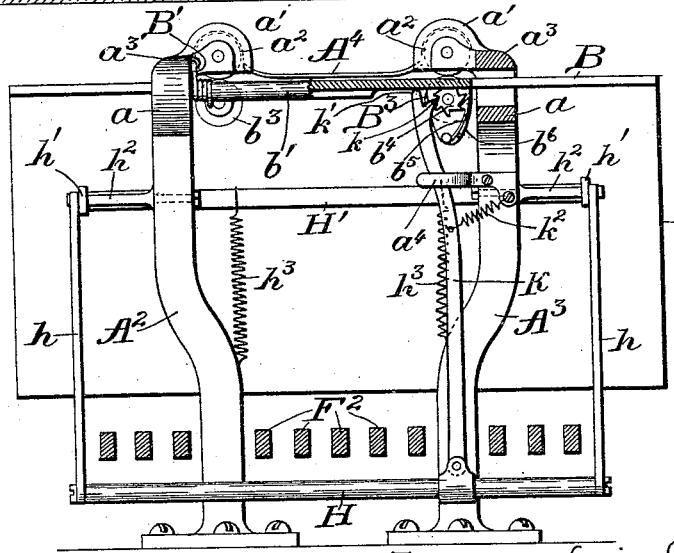


Fig. 2a.

Fig. 3.



Witnesses
Percy C. Bowen.
John C. Coleman.

Inventor
Louis L. Driggs,
By Whitman & Wilkinson
Attorneys.

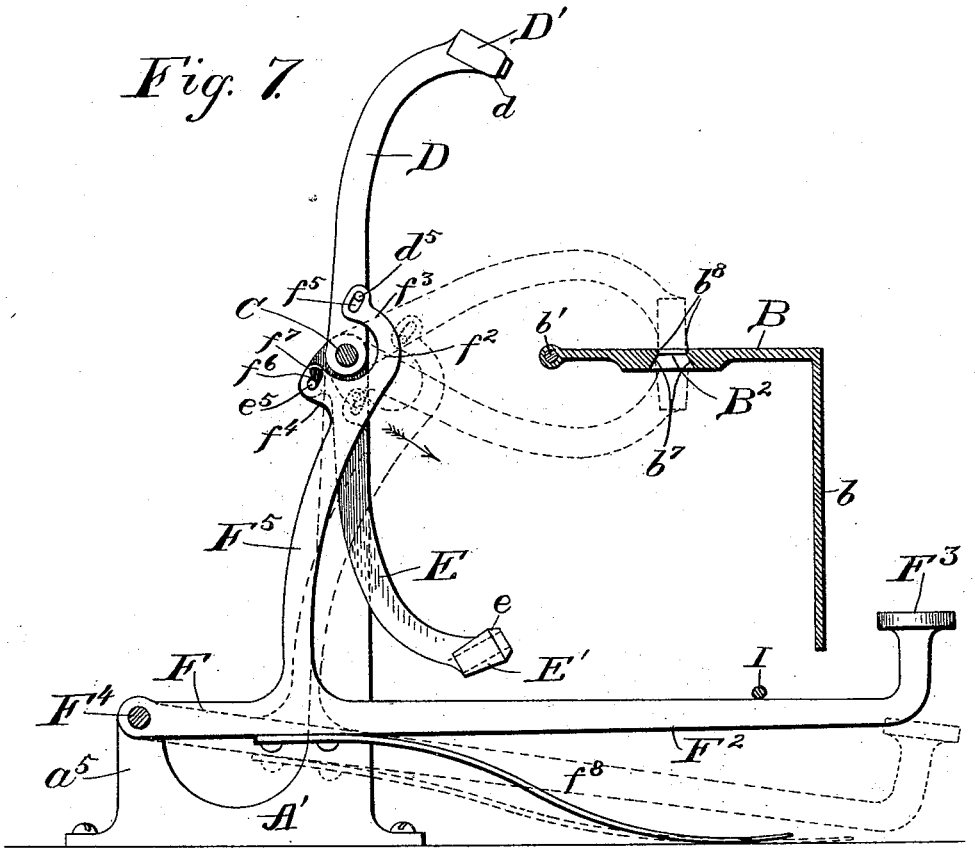
(No Model.) 4 Sheets—Sheet 3.

L. L. DRIGGS.

CHECK PUNCH.

No. 493,547. Patented Mar. 14, 1893.

Fig. 7.



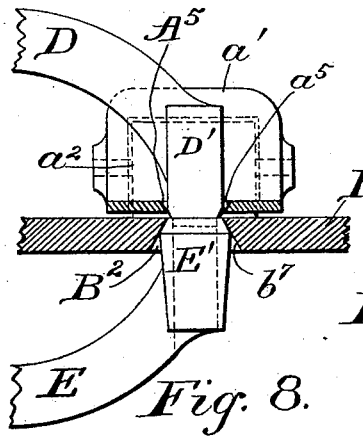


Fig. 8.

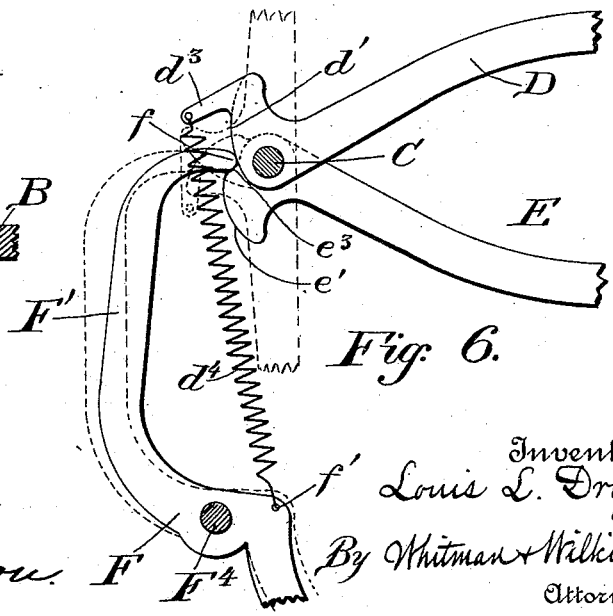


Fig. 6.

Witnesses
Percy C. Bowen.
John C. Wilson.

Inventor
Louis L. Driggs,
By Whitman & Wilkinson,
Attorneys.

(No Model.) 4 Sheets—Sheet 4.

L. L. DRIGGS.

CHECK PUNCH.

No. 493,547. Patented Mar. 14, 1893.

Fig. 9.

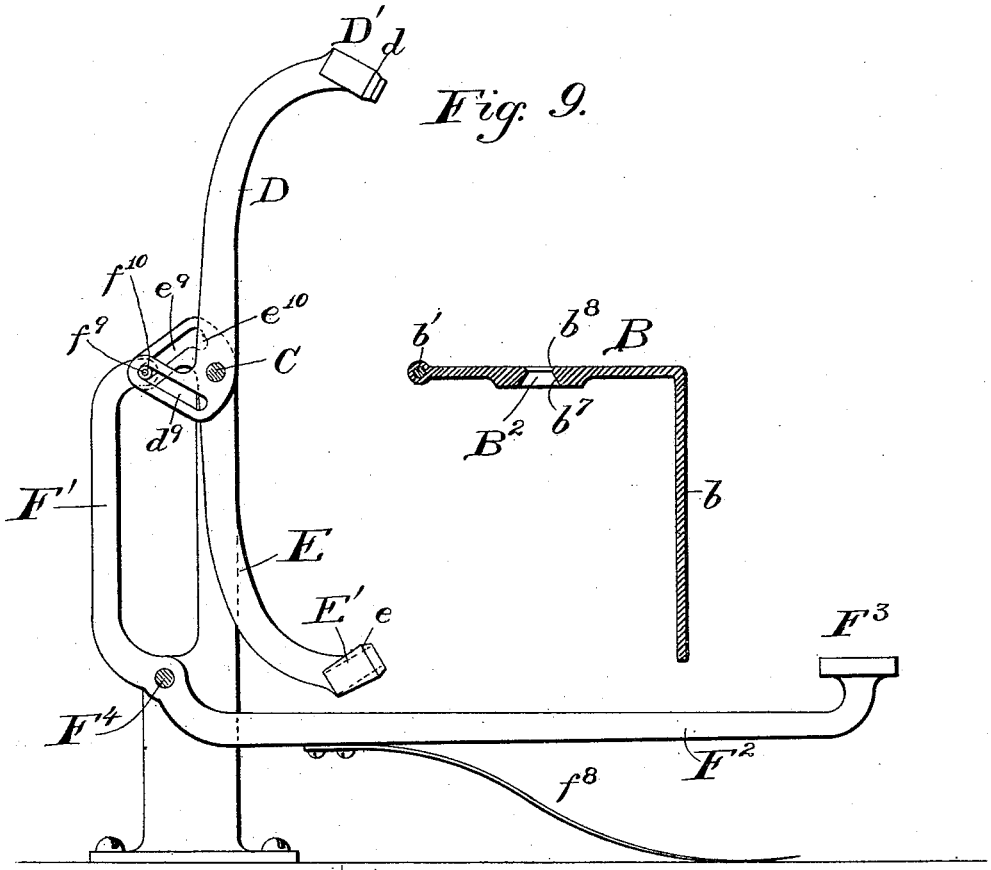
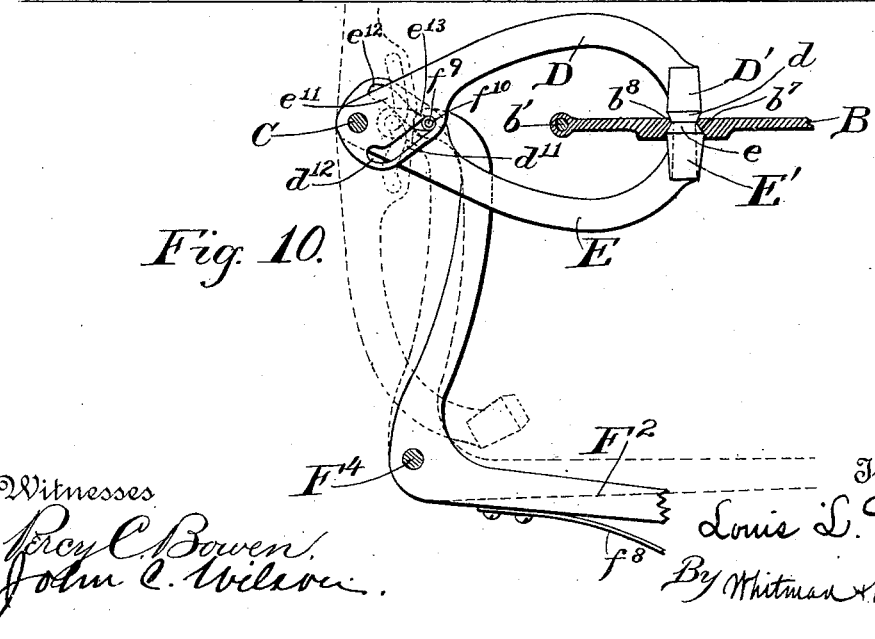


Fig. 10.



Witnesses
Percy C. Bowen.
John C. Wilson.

Inventor
Louis L. Driggs,
By Whitman & Wilkinson,
Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS L. DRIGGS, OF WASHINGTON, DISTRICT OF COLUMBIA.

CHECK-PUNCH.

SPECIFICATION forming part of Letters Patent No. 493,547, dated March 14, 1893.

Application filed October 19, 1892. Serial No. 449,350. (No model.)

To all whom it may concern:

Be it known that I, LOUIS L. DRIGGS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Check-Punches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in check-punches for cutting out of the paper on which the check is written, figures or other signs indicative of the amount included in the check.

I am aware that numerous devices have hitherto been patented for accomplishing the same result, but this invention is intended to provide a cheap and simplified device for accomplishing the desired end.

It consists of certain novel features hereinafter described and claimed, reference being had to the accompanying drawings in which corresponding parts are indicated by similar letters throughout the several views.

Figure 1 is a plan view of the machine. Fig. 2 represents a section along the line *y y* of Fig. 1, looking to the right. Fig. 2^a represents a detail view of the ends of the cams, the parts being broken away, so as to show the engagement of the upwardly projecting arm with the cam surfaces on the ends of the levers. Fig. 3 represents a section made along the broken line *x x* of Fig. 1. Fig. 4 represents a perspective view of the feed roller and its attachments. Fig. 5 represents a perspective view of the joint formed at the connection of the die-levers, and illustrates the wedge-faces by which the levers are operated. Fig. 6 represents an enlarged view of a portion of the die-levers, and of the key lever for operating the same, as shown on a reduced scale in Fig. 2. Fig. 7 represents a side elevation of a method of operating the levers, adapted for use in the device shown in Fig. 1. Fig. 8 represents a device for centering the die adapted for use in my invention. Figs. 9 and 10 represent other methods by which the die levers are operated.

A represents a base plate or pedestal upon which the machine is mounted. On this pedestal are secured the desired number of stanchions A′ preferably arranged in the shape of an arc, on which are pivoted the die levers D and E, and the key levers F. Two stanchions A^2 and A^3 as shown in Fig. 3, are also attached to the pedestal A, and carry the supporting table B for holding the check, and the mechanism for feeding the check to the die.

All the operative parts of the machine are mounted upon the group of stanchions A′, and the two stanchions A^2 and A^3.

Mounted on the top of the stanchions A^2 and A^3, is a plate A^4 bent upward at its end a' to partly cover the rollers a^2, which are journaled in the projecting arms a^3 of the stanchions A^2 and A^3. This plate A^4 may form part of the casting for the stanchions A^2 and A^3 or may be applied separately and fastened thereto. Beneath the said arms a^3 the upper portion of the stanchion is turned over as shown at a and between the jaws a and a^3 the plate B passes. This plate B is provided with a pendent side b which acts as a case for the mechanism, and protects the same, while at its opposite side it is pivoted at b' to the stanchions A^2 and A^3 at the junction of the jaws a^2 and a^3 as shown in Fig. 2. This plate is normally supported in position by the projecting end b^2 of a coil spring B′, but this spring allows the said plate to be pressed down from the plate A^4, so that the checks may readily be inserted.

The plate B is provided with a hole B^2 tapering as shown at b^7 in Fig. 8, or at b^7 and b^8 as shown in Fig. 7, and large enough to admit any of the female dies in use on the machine, and the plate A^4 is provided with a hole A^5 which may also be tapering as shown at a^5 in Fig. 8, and must be large enough to allow the passage through it of any of the male dies.

The plate B carries the rollers b^3 and B^3, the latter being fitted as a feed roller by carrying on its shaft a ratchet wheel b^4 which is normally held by the spring b^5 attached to the projection b^6 pendent from the said plate B. Motion is given to this ratchet wheel by the pallet K having the prong k engaging the teeth of the ratchet wheel, and provided with a prong k' which is normally held against the lower face of the plate B as will be hereinafter described. The lower end of this pallet K is attached to a bar H over which the parts F^2 of the key levers F pass, but which bar is held at some distance below the normal posi-

tion of the said key levers by means of the projecting arm k' of the pallet K as shown in Fig. 3. This bar H is supported in position by the springs h^3 connected to the rod H' mounted in levers h' pivoted to the projecting arms h^2, and connected at their opposite ends by the connecting rods h to the bar H. The pallet K moves in the guide a^4 attached to the stanchion A^3, and is drawn to the ratchet wheel by the spring k^2. It thus will be seen that the springs h^3 lift the bar H, and pallet K, while the arm k' of the said pallet prevents the bar H from being lifted too high, it being desired that the said bar H should be struck by the key lever just before the said lever is pressed down into the operative position, as shown in dotted lines in Fig. 2.

The hole is punched in the check by means of a male die D', and a female die E' attached to swinging levers, and adapted to be brought together at the plate B, on which the check is placed.

In the device shown in Figs. 2 and 6, the levers D and E carrying the dies D' and E' respectively, are provided with cam faces d' and e', against which the point f of the inner arm F' of the key lever F is adapted to strike, wedging the two apart as shown in Figs. 2 and 6, and causing the dies to swing together as shown in dotted lines in Fig. 2. The cam face e' terminates in a groove e^3 for purposes hereinafter to be described. The die levers are preferably connected together as shown in Fig. 5, the tongue e^2 passing between the jaws d^2, and both being pivoted on the fixed axle C mounted on the stanchions A'. The lower lever E preferably carrying the female die, is adapted to drop down after each stroke, by its own weight, while the upper lever D is lifted by a spring d^4 attached to a projecting arm d^3 on the rear end of the lever D. This spring d^4 is connected at its lower end to the key lever F at f', and is adapted to raise up the key F^3, at the same time that its lifts the die D'.

G represents a stop bar attached to projections from the upper portion of the stanchions A' to prevent the upper die lever from being brought back too far, and l is a stop bar attached to the stanchions a^6 to limit the upward motion of the keys F^3.

In the construction shown in Fig. 7, the key lever F is pivoted at its inner end on the bar F^4 attached to the projection a^5 on the stanchion A'. The arm F^5 projects upward from the lever F, and terminates in two slotted arms f^3 and f^4 provided with slots f^5 and f^6, respectively. The slot f^6 is widened as at f^7 for purposes to be hereinafter described. Into these slots f^5 and f^6, the studs d^5 and e^5 connected to the die levers D and E, respectively, engage. A spring f^8 is secured beneath the key lever F. It will be evident that if the key be pressed down as shown in dotted lines, the dies will be brought together, and that upon the release of the key F^3 the key lever will be lifted by the spring f^8 and the dies will be swung apart.

In the device shown in Figs. 9 and 10, a pin f^9 and roller f^{10} fit in a slot in each of the die lever arms, and the dies are brought together or forced apart by pressure on the key F^3, as before.

In the device shown in Fig. 9, the slot e^9 is somewhat steeper than the slot d^9, so that the female die may be brought into position first, and the slot e^9 is curved outward as at e^{10} to relieve the strain on the die lever E when it is centered in position in the hole B^2.

In the device shown in Fig. 10, the slots d^{11} and e^{11} are inclined somewhat at d^{12} and e^{12} to facilitate the starting of the die levers from the open position, indicated in dotted lines, and the slot e^{11} is made steeper than the slot d^{11} and is curved as at e^{13} in order that the female die may be brought into operative position before the male die and held in that position while the male die is nearing the end of its stroke.

It will be observed that in the devices shown in Figs. 2, 6, 7 and 9 the force exerted on the die levers acts as a lever arm decreasing from the beginning to the end of the downward motion of the key F^3, and consequently a loss of power is obtained toward the end of the stroke, which is to a degree compensated for by the increased momentum of the die levers and dies. In the device shown in Fig. 10 on the other hand there is a gain of power toward the end of the stroke.

In order that in no case should the male die reach the check before the female die and so tear a hole therethrough, and at the same time to prevent the female die from tearing the check when it arrives in the position to receive the male die, I provide a conical face e on the female die which is centered in and arrested by the tapering sides b^7 of the hole B^2 in the plate B, and to insure the arrival of the female die at the plate first, I preferably make the cam face e' as shown in Figs. 2 and 5, steeper than the cam face d' and provide a groove e^3 into which the tongue f passes freely when the female die is in the desired position for punching the check.

In the device shown in Fig. 7 the stud e^5 and slot f^6 are so arranged that the die E' will be thrown into the position shown in dotted lines before the die D' will come to its proper position for punching, and then the stud e^5 will pass into the enlargement f^7 of the slot f^6, holding the lever E in position without any further tendency to raise the die. In either case it will be seen that the female die is first raised into position and centered, and the male die following quickly is also centered by the inclined faces b^8 or a^5, as the case may be, and then cuts the desired mark out of the check.

While I have shown eleven keys marked with the ten figures, and the dollar sign, the number, groupings, and characters of the keys

are immaterial, and may be varied at will. Sleeves c and f^3 are provided to prevent lateral motion of the die and key levers, respectively.

The operation of the device is as follows:—Suppose it be desired to punch a check for forty-seven dollars. Press down the plate B enough to admit the check, and slip the check into position beneath the rollers a^3; then press down first the key marked with the dollar sign, then that marked 4, then that marked 7, and then that marked with the dollar sign, the latter to prevent the addition of other figures.

The operations caused by pressing each key down are as follows: As the key goes down the dies come together, the female die first arriving in position and being centered by the sloping face e, and then sliding up into the tapering cavity e^7, the male die coming down and being centered by the sloping face d entering the tapering cavity b^7 or a^5 as the case may be, strikes the check and cuts a piece out, which piece falls through the female die on the pedestal A. As the part F^2 of the key lever goes down, it strikes, near its lowest position, the bar H carrying the pallet K; as this pallet goes down the prong k passes over one tooth of the ratchet wheel b^4 and is drawn by the spring k^2 behind that tooth. Now when the key F^3 is released the spring d^4 or f^8, as the case may be, lifts the key back into its normal position at the same time removing the pressure of the part F^2 of the key lever from the bar H, this bar is then lifted by the springs h^3 carrying with it the pallet K, which turns the ratchet wheel b^4 until the arm k' strikes against the plate B, when the ratchet wheel b^4 and feed roller B^3 stop turning. The teeth on the ratchet wheel b^4 should preferably be so arranged that the slipping of one tooth will give to the feed roller the motion necessary to move the check one space.

It will be evident that many modifications would readily suggest themselves to any one skilled in the art, which could be used without departing from the spirit of my invention. It will be evident that the table B being pressed down as the check is inserted, and then springing up into position, enables the operator to readily insert the checks with one hand and simultaneously use the other hand on the key board, thus greatly increasing the rapidity of the operation. It will also be evident that the herein-described device is applicable for use in punching tickets, coupons, cards, checks, and various other similar articles used in commerce.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a check punch, the combination with a pair of levers pivotally secured together, the one lever being provided with a male die and the other with a female die, of a key lever pivoted below said pair of die levers and having an upwardly projecting arm adapted to operate both of said die levers and a table perforated in the path of said die levers, and adapted to support the article to be punched, substantially as described.

2. In a check punch, the combination with a pair of die levers arranged one above the other and pivotally secured together, the one lever being provided with a male die and the other with a female die, of a key lever pivoted below said pair of die levers and having an upwardly projecting arm adapted to operate said die levers, a table perforated in the path of said die levers, means for holding the check on said table, a feed roller mounted on said table and adapted to engage said check, and mechanism operated by said key lever to impart an interrupted motion to said feed roller, substantially as described.

3. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, and a spring secured to said frame and adapted to press said table upward against said rollers, and means for moving the check on said table, substantially as and for the purposes described.

4. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same, of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, a spring secured to said frame and adapted to press said table upward against said rollers, a feed roller mounted beneath said table and adapted to move said check, and means for moving said feed roller, substantially as described.

5. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same, of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, a spring secured to said frame and adapted to press said table upward against said rollers, a feed roller mounted beneath said table and adapted to move said check, a ratchet wheel mounted on the same shaft with said feed roller, and a pallet adapted to engage said ratchet wheel, and means for moving said pallet, substantially as and for the purposes described.

6. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a movable part actuated by the motive power, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of said table, and a projection extending from said pallet below said movable part and adapted to be struck by said part as

the latter is pressed down, substantially as described.

7. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a pivoted lever passing beneath said table, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of said table, and a projection extending from said pallet below said pivoted lever, and adapted to be struck by said lever as the latter is pressed down, substantially as described.

8. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a movable part actuated by the motive power, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of the table, a spring pawl independent of said pallet and adapted to hold said ratchet wheel against turning backward as said pallet is dragged over said ratchet teeth, and a projection extending from said pallet below said movable part and adapted to be struck by said part as the latter is pressed down, substantially as described.

9. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a pivoted lever passing beneath said table, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of the table, a spring pawl independent of said pallet and adapted to hold said ratchet wheel against turning backward as said pallet is dragged over said ratchet teeth, and a projection extending from said pallet below said pivoted lever, and adapted to be struck by said lever as the latter is pressed down, substantially as described.

10. In a feed mechanism for machines of the character described, the combination with the devices for punching and holding the check including the table B and the key levers F, of the feed roller B^3 and ratchet wheel b^4 and spring pawl b^5 adapted to engage in said ratchet wheel; the pallet K having the prong k adapted to engage said ratchet wheel, and the arm k' adapted to strike beneath said table, and the spring k^2 adapted to normally press said prong k against said ratchet wheel and said arm k' against said table; the cross bar H suspended beneath said key levers and supporting said pallet, and springs adjusted to support said cross bar H so that it may be struck by any one of said key levers and pressed down temporarily carrying with it the pallet K, substantially as and for the purposes described.

11. In a feed mechanism for machines of the character described, the combination with the devices for punching and holding the check including the table B and the key levers F, of the feed roller B^3 and ratchet wheel b^4 and spring pawl b^5 adapted to engage in said ratchet wheel; the pallet K having the prong k adapted to engage said ratchet wheel, and the arm k' adapted to strike beneath said table, and the spring k^2 adapted to normally press said prong k against said ratchet wheel and said arm k' against said table; the cross bar H suspended beneath said key levers and supporting said pallet, the connecting rods h supporting the ends of said cross bar, the levers h', the cross bar H', and the springs h^3, substantially as and for the purposes described.

12. In a check punch, the combination with a pair of levers arranged one above the other, the one lever being provided with a male die and the other with a female die, of a table having an aperture therein with tapering sides adapted to center and arrest the motion of the female die, and mechanism for so moving the two die levers that the female die first reaches the plate where it is centered and arrested, and then followed by the male die, substantially as and for the purposes described.

13. In a check punch, the combination with a suitable perforated table for holding the check, of the two die levers D and E pivoted at C and carrying the dies, the said die levers being provided with studs d^5 and e^5, respectively, and the key lever F pivoted at F^4 and having the upwardly-projecting arm F^5 with projections f^3 and f^4 and slots f^5 and f^6, substantially as and for the purposes described.

14. In a check punch, the combination with a suitable perforated table for holding the check, of the two die levers D and E pivoted at C and carrying the male die D' and the female die E' respectively, the die levers being provided with studs d^5 and e^5 and the key lever F pivoted at F' and having the upwardly projecting arm F^5 with the projections f^3 and f^4, and the slot f^5 adapted to engage the stud d^5, and the slots f^6 curved at f^7 and adapted to engage the stud e^5, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS L. DRIGGS.

Witnesses:
JOHN C. WILSON,
PERCY C. BOWEN.