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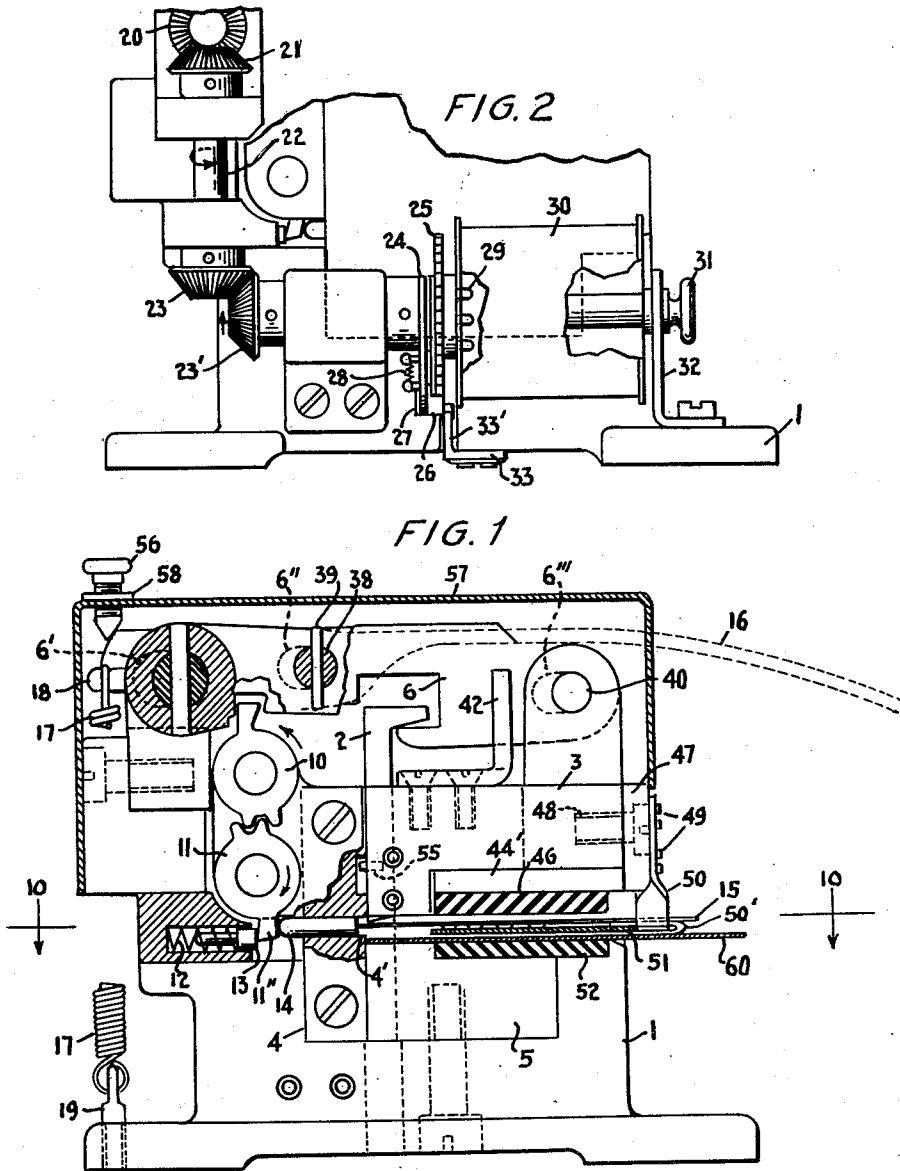
R. CONNOR

2,233,158

CARD SLOTTED AND PRINTER

Filed Jan. 23, 1940

4 Sheets--Sheet 1



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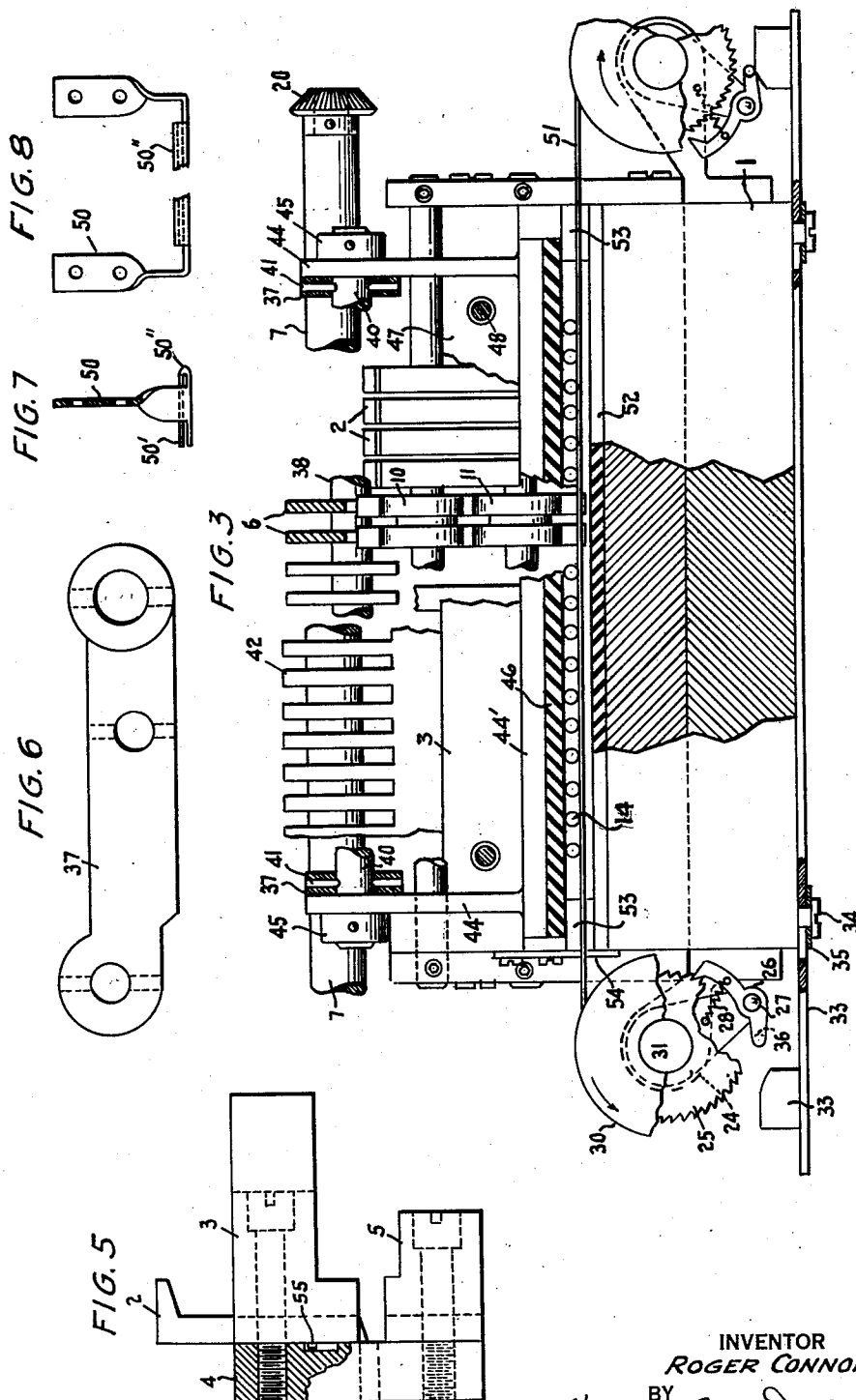
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4 Sheets-Sheet 2



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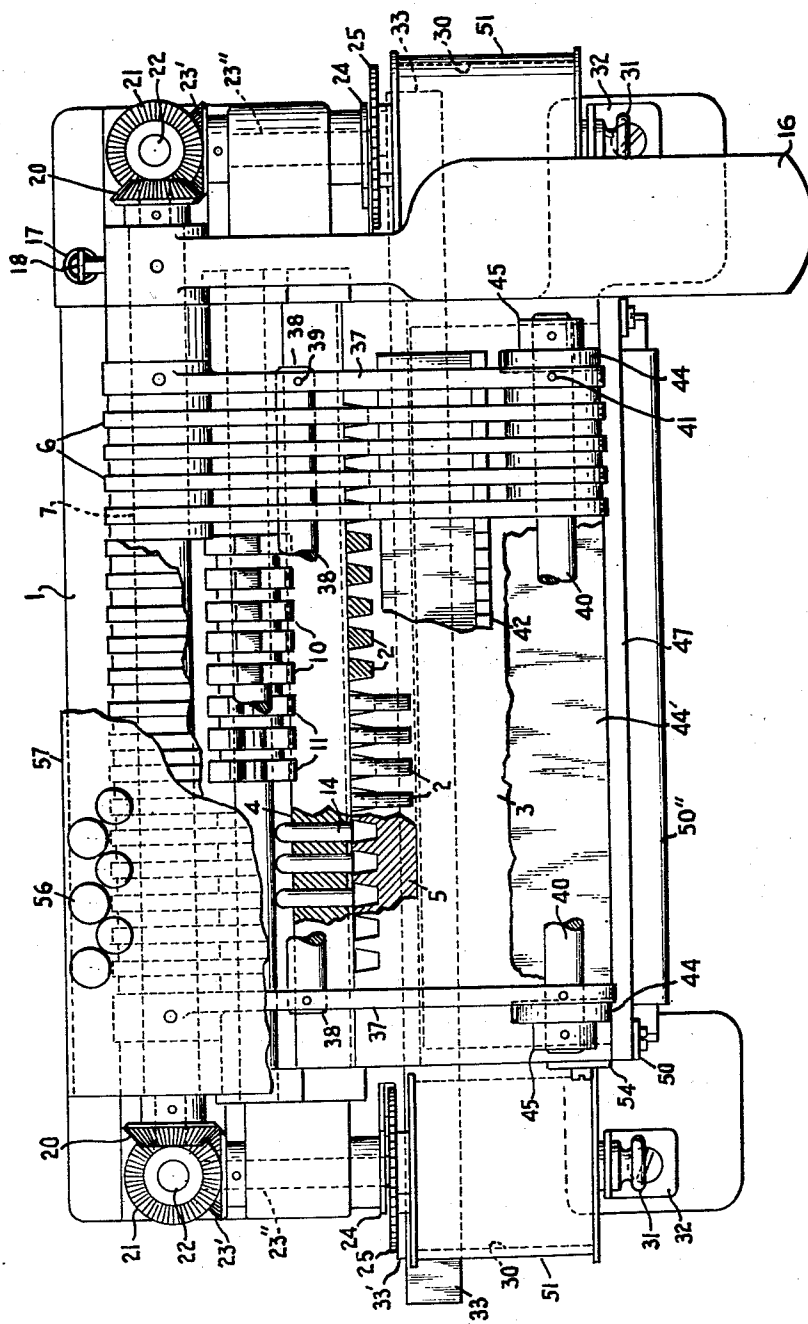
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FIG. 4



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FIG. 9

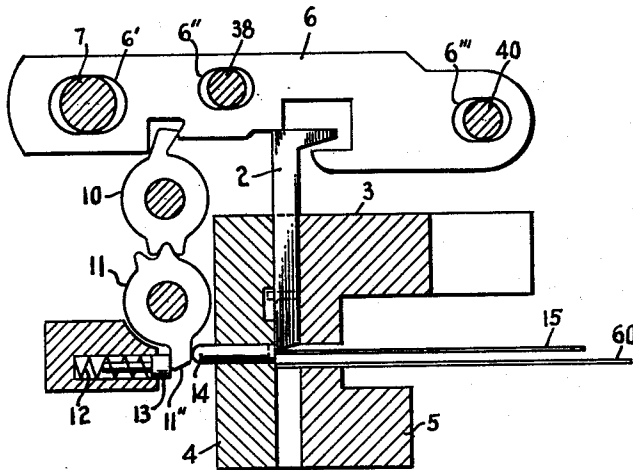
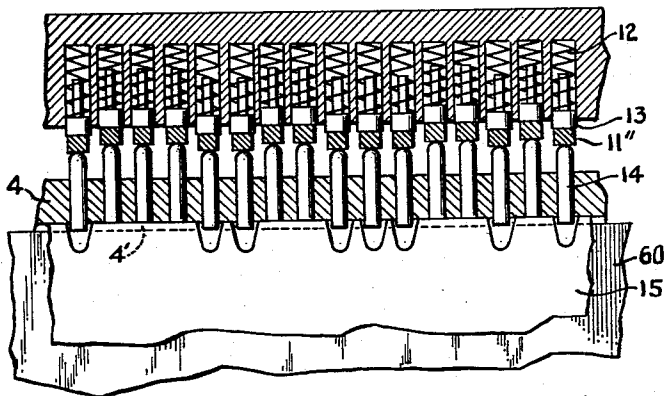


FIG. 10



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UNITED STATES PATENT OFFICE

2,233,158

CARD SLOTTER AND PRINTER

Roger Connor, Athens, Ohio, assignor to The
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of Ohio

Application January 23, 1940, Serial No. 315,152

12 Claims. (Cl. 101—287)

My invention relates to that type of devices which are intended to prepare cards for mechanical sorting. A card of this type is fully described in United States Letters Patent No. 1,544,172, issued to A. Perkins, to which reference may be had for more complete details. Briefly that patent discloses a stack of cards which are provided with a plurality of perforations adjacent one or more of the edges of the cards. These perforations being so located that they may be notched or slotted to the edge of the cards to form a pattern to designate a certain classification, these patterns being different for each card and correspond to a name or number previously entered on the card.

In sorting the cards, they are stacked with the holes in alignment and a sorting device which is commonly called a sorting needle is inserted in the holes and on raising the needle vertically it will leave all of the cards which have not been slotted out of the tray. By repeating this operation, the cards may be sorted into the desired sequence.

The cards of the Perkins patent have gone into very wide commercial use with the result that it has been necessary to manufacture mechanical means to notch or slot the cards, two of such patents are No. 2,035,777 to Welk and No. 2,062,153 to Welk et al. These patents describe card slotting or notching devices for use as taught in the Perkins patent and both of these patents show keyboards which are similar to those used on adding machines and typewriters. The depression of a key controls a corresponding punch in order to slot the card in a predetermined location.

United States Letters Patent No. 2,144,412 to Lucien L. McCart, is a device for slotting or notching cards by means of punches as described in the Perkins patent, but in this case, instead of a keyboard, the inventor employs a master card which has been previously notched or slotted for the desired classification, and by inserting the master card or key plate, certain of the individual punches are rendered inoperative and by the operation of a suitable lever, the remaining punches notch or slot the card with the desired pattern.

A similar metal plate is now used for identifying the customer who presents it. This plate is usually stamped with the name, address and identification number of the customer. In using the machine the master card, when presented by the customer as a credit card, is inserted to set the desired punches, a thin card is then inserted in the device and punched to duplicate the master

card. The thin paper or cardboard card may be used as a sales slip or other memorandum having been previously prepared with perforations as described in the Perkins patent for mechanical sorting and by the operation of the punch it is notched according to the customer's number and the department number.

Thus a credit customer may visit various departments of a store, or may stop at various filling stations of a chain, during the month. By means of the above method, all of his sales slips can be quickly brought together and all for a certain department may be quickly and easily segregated.

The principal object of this invention is to provide a key punch which though controlled by master key plate instead of a keyboard, is equipped with an inking mechanism and means to shift the same.

It is now common practice to use a metal credit card with desired information embossed thereon similar to an addressograph plate, and my invention has for its further object to adapt such plates for printing through the inking mechanism or ribbon onto a card, and at the same time select a predetermined number of punches to notch the card to form a pattern referring to a single classification.

My means of accomplishing the foregoing objects may be more readily understood by having reference to the accompanying drawings which are hereunto annexed and are a part of this specification, in which:

Fig. 1 is a vertical view of a key punch with the punch lever shown clear of the punch, equipped with my improved inking mechanism, some of the parts being broken away, and shown in section for clarity;

Fig. 2 is a detail view of the inking mechanism showing the means of driving it by the actuation of the punches;

Fig. 3 is a fragmentary front view showing some of the parts in section and some of the parts broken away for the sake of clarity;

Fig. 4 is a top plan view of the device broken away, some of the parts being omitted and some shown in section for clarity;

Fig. 5 is a detail view of the punch, guide and die;

Fig. 6 is a detail view of one of the supporting arms;

Figs. 7 and 8 are detail views of the ribbon protecting mechanism;

Fig. 9 is a fragmentary view similar to Fig. 1 but showing the punch lever in position for operating the punches; and

Fig. 10 is a fragmentary view taken on line 10—10 of Fig. 1 looking in the direction of the arrows.

Similar reference numerals refer to similar parts throughout the entire specification.

Before starting with the description of the device, reference may be made to the above named Welk and McCart patents for details of the construction with which my invention is not concerned.

As shown in the drawings, the device consists of a base or frame 1 which supports the punch and die assembly. A plurality of punches 2 are guided by punch guides 3 and also by flat bearing plate 4, a suitable die 5 is provided and this and the punch guide 3 is attached to the bearing plate 4 (Fig. 5) by screws, or in any other suitable or convenient manner.

A plurality of arms 6, one for each punch, are guided in a slotted or comb member 42 which may be attached to the frame in any suitable or convenient manner. The operating shaft 7 is supported in suitable bearings located at opposite ends. Each of the arms 6 are provided with three slots, 6', 6'' and 6''' respectively, where shafts hereinafter referred to pass through them.

These arms 6 are adapted to slide on the shafts so as to disengage the punches 2. This movement is preferably brought about by the provision of special gears 10 and 11 which are actuated by a plunger 13 which engages a lug 11' on the gear 11. The plunger 13 is held normally in a projected position as shown in Fig. 1 by means of a coil spring 12. A plurality of holes are provided in register with each of the punches. In these holes I mount a plunger 14 which is caused to engage the lug 11' when the plunger 14 is pressed rearwardly by the insertion of the master plate 15.

Means for actuating the punches comprise a handle 16 which is rigidly attached to the shaft 7. The handle 16 is held normally in an elevated position by means of a coil spring 17, the upper end of which is attached to a pin 18 and the lower end of which is secured to an eyelet 19, suitably fastened in the base 1.

At the extreme ends of shaft 7 I provide miter gears 20 which are rigidly attached thereto. These gears mesh with and drive gears 21 fixedly secured to vertical shafts 22 which may be suitably housed in the frame 1.

It will be clear to persons skilled in the art that the vertical shafts 22 at the opposite ends of the shaft 7 will rotate in opposite directions. The shafts 22 are provided at their lower ends with gears 23 which in turn meshes with gears 23' which are mounted upon a suitable shaft 23''. These shafts have fixedly secured to them an arm 24 which carries the pawl for actuating the ribbon spool through the medium of a ratchet wheel 25. The ratchet wheel 25 is disconnected as far as arm 24 is concerned except by means of a pawl 26 which is pivotally secured to the end of the arm 24 by means of a pivot pin 27. A coil spring 28 serves to hold the pawl in engagement with the ratchet teeth on the wheel 25. The ratchet wheel 25 is provided with suitable clutch pins 29 for rotating the ribbon spool 30 which is detachably mounted upon a spindle 31 mounted in supporting bracket 32 so as to facilitate the change of the ribbon when it is worn.

Means to reverse the movement of the ribbon is provided by a slide 33 suitably mounted in

the base 1 and attached thereto by screws 34. Spring washers 35 being provided to furnish sufficient friction to prevent the accidental movement of the reversing mechanism.

At each end of the slide 33 I provide a cam 33' which is arranged to engage a pin 36 mounted in the tail of the pawl 26 to disengage it from the ratchet wheel 25 when the slide is reciprocated.

The printing mechanism comprises two arms 37 which are located at the right and left of the device which are rigidly attached to the operating shaft 7 by dowel pins or by any other suitable or desired manner. A tie rod 38 extends through both of these arms approximately near the center and this shaft or tie rod 38 is non-rotatably secured to the arms by means of dowel pins 39. A similar rod 40 is fixedly attached to the front end of the arms 37 by means of dowel pins 41. The rods 38 and 40 support all of the punch operating arms 6. The comb 42 is provided for guiding the arms at the front of the device. Suitable spacing washers 43 are provided adjacent the front ends of the arms 37.

I secure a swing 44 to the ends of the rod 40 by means of collars 45 which are fixedly attached thereto. This swing 44 carries a plate 44' which may be secured to the right and left arms in any suitable or convenient manner.

A rubber pad 46 is cemented to the under surface of the plate 44'. The right and left arms of the swing 44 are loosely guided by slots in the guide 3 and are retained in position by means of a strip 47 which is attached at both ends to the guide 3 by means of screws 48.

Suitably attached to the strip 47 is my improved ribbon guide and protector holder 50 which is secured thereto by means of screws 49. The ribbon guide and protector 50' is preferably made of very thin metal doubled upon itself forming a closed end 50''. This is rigidly attached to the strip holder 47 by any suitable or convenient means such as welding or soldering.

When the ribbon 51 is adjusted the front edge is inserted in the guide 50. This effectually prevents the edge from interfering with or being cut by the edge of the master plate 15, when it is inserted above the guide 50. It also prevents the edge of the ribbon from interfering with or being cut by the edge of the thin paper card 60 when it is inserted below the guide 50.

An additional rubber pad 52 is cemented upon the bed of the device forming a common surface or platen on the base 1 and the die 5.

The master plate 15 is preferably provided with notches somewhat deeper than those to be notched in the paper card. This provides clearance for the punches when passing through the master card to notch or slot the paper card. When the master card is inserted it is stopped by contact with the front surface of the guide plate 4, which is provided with a slot 4' which is in alignment with a spring plunger 12. This slot should be approximately $\frac{1}{4}$ of an inch deep in order to provide for the entry of the master plate. At a point near both ends however it is made flush by the insertion of blocks 53 which are either driven in with light drive fit or they may be secured by solder or any other suitable or desired means for holding them in place. Inasmuch as the master plate is never as wide as the card it passes into the slot 4' without touching the stop blocks 53 at the right and left respectively.

The paper card is located at the left against the

stop plate 54 and the master card is located against the interior of the ribbon guide 50.

As in the patents referred to, a small pin 55 is inserted in each punch 2 to limit their withdrawal from the die plate 5 and the punch guide 3.

Thumb screws 56 are provided to control predetermined punches. They are screwed down as far as possible to hold the arms 6 in a forward position above the punches for a repeat operation.

The card 60 which is provided with a series of perforations along one or more edges as hereinbefore set forth is inserted under the ribbon. The master plate, which has been received from the customer who carries it as a credit card, is inserted above the ribbon. It is then held in place in order to compress certain of the springs 12 thus moving the arms 6 above the punches 2 corresponding to the slots in the master card 15.

Obviously by depressing the operating handle 16 it will cause the punches thus selected to pass through the slots in the master card and slot the thin card 60 to correspond. This actuating mechanism also serves to press the rubber pad 46 down upon the master plate 15 causing the embossed letters and figures on its under side to impress or print through the inking ribbon those letters and figures upon the upper surface of the card 60. Also the rubber pad 52 forms a platen for this printing. When the operating handle 16 is returned to its normal position by the coil spring 17, this return movement also returns the plate 44' which contacts the lower surface of the punch guide 3. In this manner the action of the screw 56 will not affect the free movement of the arms 6 which are provided with slots slightly larger than the rods 7, 38 and 40.

It will also be clear from the foregoing description that depressing the operating handle 16 will partially rotate the shaft 7 and this through the medium of the miter gears will cause the partial rotation of the shaft 23' which through the medium of the spring pressed pawl will rotate the ratchet wheel and move the inking ribbon on the spool which carries it.

A suitable cover 57 may be provided to enclose the operating mechanism, and a boss 58 may be provided on this cover 57 which is threaded to support the thumb screws 56.

Having described my invention what I regard as new and desire to secure by Letters Patent is:

1. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, and means for supporting said card and said master plate in punch-disabling, printing position.

2. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having type characters embossed thereon and having notches at one edge, to disable certain of said punches, and means for supporting said card and said master plate in punch-disabling, printing position.

3. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, spring means to hold said punches normally in position to notch the edge of a card, a movable platen, common actuating means for said punches and said platen, an insertable master plate having type characters embossed thereon and having

notches at one edge, to disable certain of said punches, and means for supporting said card and said master plate in punch-disabling, printing position.

4. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, spring means to hold said punches normally in position to notch the edge of a card, a movable platen, common actuating means for said punches and said platen, an insertable master plate having type characters embossed thereon and having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, and means actuated by said master plate interposed between the edge of said plate and said spring means to actuate said spring means.

5. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen formed of elastic and compressible material, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, and means for supporting said card on said master plate in punch-disabling, printing position.

6. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, spring means to hold said punches normally in position to notch the edge of a card, a movable platen, common actuating means for said punches and said platen, an insertable master plate having type characters embossed thereon and having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, means actuated by said master plate interposed between the edge of said plate and said spring means to actuate said spring means, said means comprising a longitudinally shiftable pivoted lever to actuate said punches, a pair of gears one of which engages said lever, the other gear meshing with the first gear, and means on the second gear adapted to be engaged by the insertion of the master plate whereby said springs are compressed.

7. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, and an inking ribbon interposed between the said type surface and the card.

8. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, an inking ribbon interposed between the said type surface and the card, and means to shift said inking ribbon.

9. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, a swing which carries said platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, means for supporting said card and

said master plate in punch-disabling, printing position, an inking ribbon interposed between the said type surface and the card, and means to shift said inking ribbon.

- 5 10. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and
- 10 having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, an inking ribbon interposed between the said type surface and the card, and
- 15 means to shield the edge of said inking ribbon.
11. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, a movable platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and
- 20 having notches at one edge, to disable certain of said punches, means for supporting said card and said master plate in punch-disabling, printing position, an inking ribbon interposed between the said type surface and the card, and
- 25 means to shield the edge of said inking ribbon, said means comprising a strip of metal folded upon itself providing a recess into which the edge of the ribbon can be inserted.

12. In a machine to notch the edge of a card and print thereon; a plurality of selective punches, spring means to hold said punches normally in position to notch the edge of a card, a movable platen formed of elastic and compressible material, a swing which carries said platen, common actuating means for said punches and said platen, an insertable master plate having a type surface and having notches at one edge, to disable certain of said punches, and means for supporting said card and said master plate in punch-disabling, printing position, means actuated by said master plate interposed between the edge of said plate and said spring means to actuate said spring means, said means comprising a longitudinally shiftable pivoted lever to actuate said punches, a pair of gears one of which engages said lever, the other gear meshing with the first gear, means on the second gear adapted to be engaged by the insertion of the master plate whereby said springs are compressed, an inking ribbon interposed between the said type surface and the card, means to shift said inking ribbon, and means to shield the edge of said inking ribbon, said means comprising a strip of metal folded upon itself providing a recess into which the edge of the ribbon can be inserted.

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