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APPARATUS FOR PUNCHING INDEX CARDS

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FIG. 1.

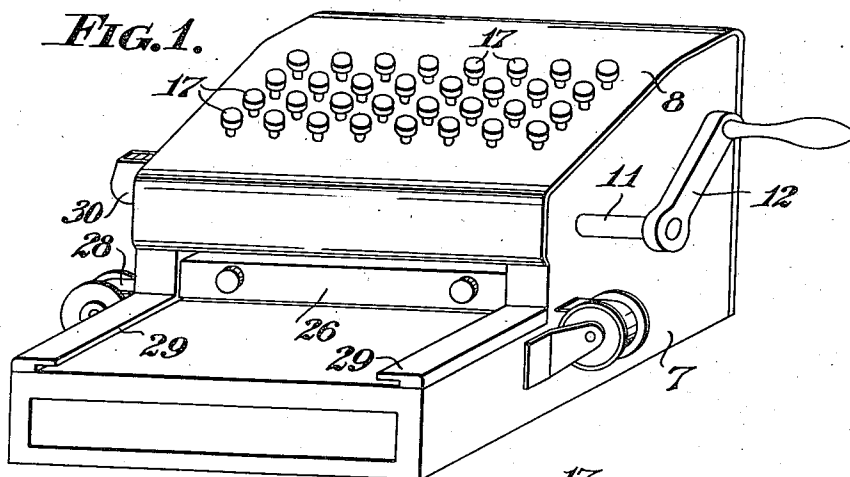


FIG. 2.

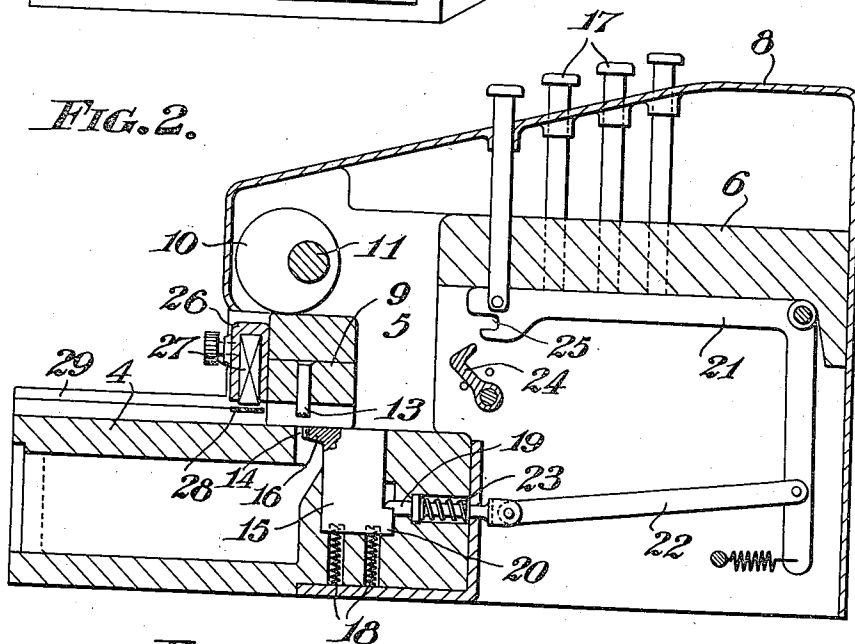


FIG. 4.

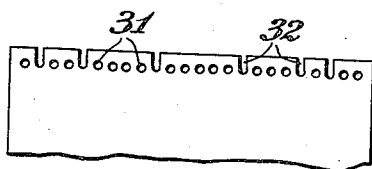
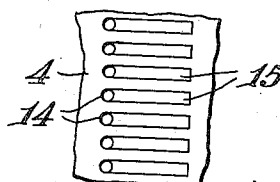


FIG. 3.



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APPARATUS FOR PUNCHING INDEX CARDS

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Cave, London, EnglandApplication September 5, 1935, Serial No. 39,339
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3 Claims. (Cl. 164-112)

This invention relates to an apparatus for punching index cards so that such cards can be used in known filing and like systems wherein combinations of perforations and slots or notches determine the selection of the cards for sorting and other purposes.

In these known systems each card is pre-formed with one or more rows of perforations, usually parallel to an edge of the card, and the operator forms slots and notches in the card, each slot or notch leading into one of the perforations and either connecting same with an adjacent perforation of another row or extending into the body of the card or opening out at the edge of the card. In these systems the cards are selected by the use of needles or equivalent instruments which are passed through the perforations of a stack of the cards. Such needles, when performing a selecting operation, are grouped according to the permutation of the slots or notches in the card or cards to be selected, and the cards are subsequently manipulated so that the selected cards having that same permutation are displaced in or fall from the stack, the remaining cards being maintained due to each of them having one or more plain perforations engaged by one or more of the needles.

The present invention consists in a method of treating ordinary non-perforated cards to render same applicable for use in filing and like systems of the kind above referred to, such method consisting in punching from the card at a single operation a plurality of perforations and one or more slots each forming an elongation of a perforation hole.

The invention also contemplates the provision of an apparatus for punching cards to render same applicable for use in filing and like systems of the kind referred to, such apparatus comprising a plurality of perforating pins, slotting cutters associated with some or all of the said pins, provision for setting said cutters for operation in varying permutations, and provision for actuating said pins and cutters with respect to a card to form holes and slots therein, the construction and arrangement being such that the pins other than those having their associated cutters pre-set produce simple perforation holes whilst the pre-set cutters produce slots in elongation of the remaining perforations.

It will be understood that by this invention ordinary cards taken from stock can be used instead of purchasing cards specially perforated, and the time and labour at present involved in punching out the slots or notches as individual

operations by the use of cutting pliers or the like will be obviated.

The accompanying drawing shows, by way of example, one form of apparatus in accordance with the invention. In the drawing—

Figure 1 is a perspective front view of the apparatus, and

Figure 2 is a cross-section.

Figure 3 is a fragmentary plan view of the slotting cutters and adjacent part of the bed, and

Figure 4 shows a portion of a card which has been punched by the apparatus for use in a filing or like system.

The apparatus shown in the drawing comprises a fixed structure including a bed 4, an upstanding section 5, an elevated part 6 supported by the latter, side walls 7 and a cover 8. The side walls are formed with suitable vertical guides in which is mounted for vertical movement an operating head 9 adapted, when in lowermost position, to come substantially into contact with the bed 4, said head being actuated by a cam 10 affixed to a shaft 11 which projects through a side wall of the apparatus and has affixed thereto an operating handle 12 or equivalent turning means for actuation by a power supply unit. Alternatively the head 9 may be reciprocated in any other way.

A series of perforating pins 13 arranged in a row project from the bottom of the operating head and are adapted to enter corresponding holes each constituted in part by a gap 14 in the bed of the apparatus (see Figure 3) and in part by a complementary gap formed in a slot-cutter 15, the number of slot-cutters corresponding to the number of pins 13.

The slotting cutters 15 are suitably mounted in the bed of the apparatus so as to have vertical movement, and when in their lowermost positions their uppermost faces are flush with the bed. The actual cutting portions of the cutters are shown by reference 16 and said cutters are so positioned that when in raised position the outer end of said cutting portion 16 (which is gapped as above explained) lies immediately adjacent to one of the perforating pins.

When the machine operates, that is to say, when the operating head 9 is pressed down by the cam 10, (the card already having been passed under said head and lying upon the bed 4) the pins 13 will be pressed through said card to perforate same, and if the cutter 15 associated with a particular pin has been allowed to remain in lowered position the pin will produce a simple perforation hole 31 (Figure 4). If, on the other

hand, the associated cutter 15 has been set in elevated position it will be pressed down by contact with the underside of the moving head 9 and in conjunction with the pin it will cut a slot 5 32 from the card (Figure 4). The cutters 15 are pre-set according to chosen permutations by means of control keys 17 and suitable intermediate mechanism.

In the construction illustrated each of the cutters 15 is independently urged upwardly by spring means 18 and is retained when re-set by the head 9 to lowermost position against the said spring action, by means of a self-locking catch 19 adapted to engage a shoulder 20. The associated operating key 17 is adapted, through the medium of a bell-crank lever 21 and link 22 to retract the catch 19 against the action of its spring 23 when it is desired to set the cutter 15 for use, the cutter becoming lifted by the spring means 18. For all keys there is provided a common catch 24 adapted to be engaged with a notch 25 to maintain the selected keys in depressed condition when it is desired to repeat the permutation.

If desired, the operating head 9 may have attached thereto a carrier 26 for a type bar 27 which is linked by a ribbon 28 and adapted to print desired information on the card. Also the forwardly projecting part of the bed 4 may be apertured to allow of a copy being made on a record strip provided within the bed, of information written on the card, and/or a record strip could be punched with the permutations in sequence, such record strip in either case being advanced step-by-step as the machine operates. Such arrangements are obvious and therefore are not illustrated.

The bed 4 is furnished with guides 29 for positioning the inserted card. A counter 30 suitably actuated by the mechanism may be provided for counting the number of operations.

We claim:

1. An apparatus for punching cards to render same applicable for use in filing and like systems of the kind herein referred to, comprising a bed in which are formed spaced-apart perforations, an operating head mounted for movement 10 towards said bed, a series of perforating pins carried by said head and adapted to enter the perforations in the bed, and a series of cutters adapted to be pre-set in varying permutations in positions to form notches or slots in the cards in the form of elongations of the associated perforation holes produced by the pins, said cutters being mounted in the bed of the machine so as not to project above the plane of the inserted card when said cutters are out of use, 20 and each cutter which is pre-set rises to a position in which the operating part thereof lies above the plane of the inserted card, said cutter being pressed down through the card and re-set by the downward pressure exerted by the 25 operating head.

2. In apparatus for punching cards as claimed in claim 1, the provision of self-locking devices for maintaining the slotting cutters in out-of-use positions, said devices being released by 30 manipulation of associated setting keys.

3. In apparatus for punching cards as claimed in claim 1, the provision of means for maintaining the control devices of the selected cutters in set condition for repeating the same permutation. 35

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