Dec. 6, 1932. T. E. HURNS ET AL 1,889,920

CARD INTERPRETER

Filed Nov. 22, 1930

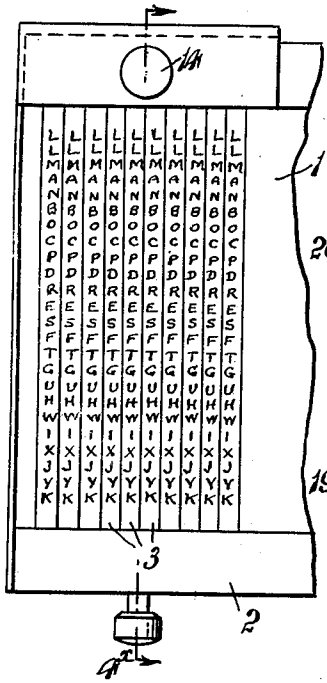


Fig. 1.

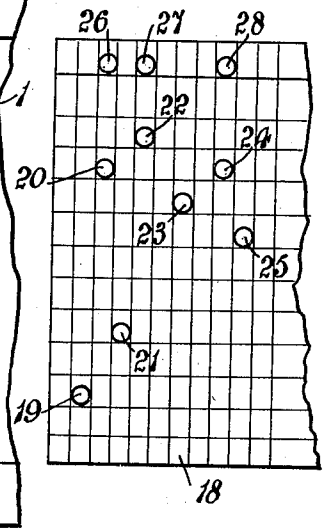


Fig. 2.

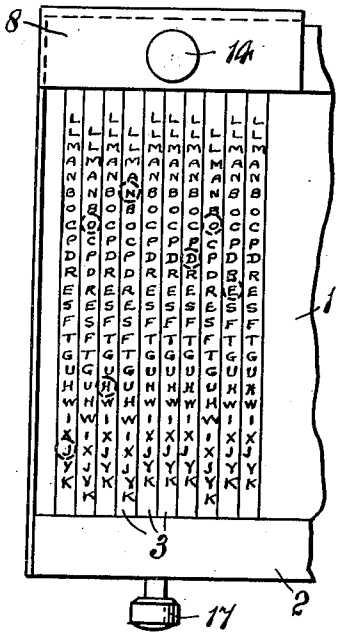


Fig. 3.

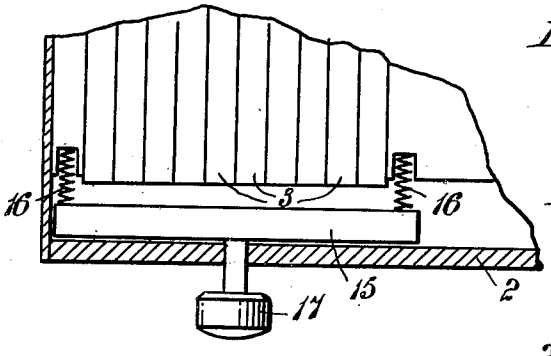


Fig. 6.

Fig. 4.

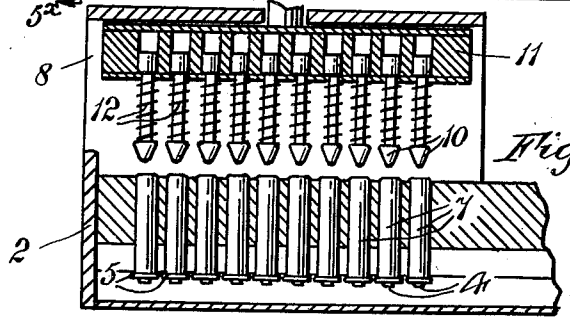


Fig. 5.

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UNITED STATES PATENT OFFICE

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CARD INTERPRETER

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This invention relates to means for facilitating the ready identification of perforated cards such as are used in connection with automatic accounting, classifying, and similar machines wherein the machine operation is controlled by the relative positions of perforations in cards utilized therewith. The perforations on the cards may, for instance, designate the name of a customer.

In such cards, a common practice is to provide a series of perforations, the vertical position of which determines the letter which it represents, and, as it is not usually feasible to provide approximately twenty-six different positions as to height of the perforations, it has been found convenient to have each position represent more than one letter and to combine the perforations relatively with other perforations (termed herein "key" perforations) indicating the specific character which any perforation represents. For example, a perforation normally indicative of the letter "C" may when associated with a key perforation, indicate the letter "O" instead, as will hereinafter become clearly apparent. Obviously, cards so perforated if not provided with any written description of their significance are extremely difficult to identify by sight, and if they are misplaced, cannot be readily read to determine the name of the customer and where they belong in the files. Accordingly, it is an object of this invention to provide a reading device or interpreter to which such a card may be applied and which will readily show through the perforations the information required.

A further object is to provide such a device which will make use of the key perforations of the card in operating an arrangement of characters to bring them into the correct register with the perforations of the said card, so that the proper characters which the said perforations are intended to represent may be read therethrough, even though the position of the perforation may be that of more than one character.

Still further objects and advantages subsidiary or incidental to the aforesaid objects, or resulting from the construction or operation of the invention as it may be carried into effect, will become apparent as the said invention is hereinafter further disclosed.

In carrying the said invention into effect, I may provide a board having a series of character bars arranged in parallel slidable juxtaposition, and each provided with all of the characters which may be represented by the perforations of the card with which the device is to be used. These bars are movable in the direction of their length to upper and lower positions in the board and a latch is provided for each bar to lock it in its uppermost position, this series of latches having opposed thereto a corresponding series of releases capable of combined latch-releasing movement but independently yieldable in their support, so that one or more of them may be interrupted to provide selection in their releasing operation. This selection is determined by the arrangement of the key perforations in the card which is to be read, and, in operation, that part of the card containing the key perforations is interposed between the releases and the latches so that only those releases which can pass through the key perforations may operate the latches. Consequently, only such character bars as are aligned with the key perforations will be released when the series of releases are operated for that purpose.

The character bars are provided with means to effect their downward movement in the board when so released, whereby the operation of the releases through the key perforations will result in the shifting of certain of the character bars in relation to the other character bars, thus selecting a different series of letters or characters on such shifted character bars for the registry with the reading perforations of the card.

If the card be then laid over the character bars in the proper relation thereto, which is determined by the limiting edges of the board or similar registration means, the correct characters which the perforations represent may be read therethrough quite easily and the information desired, therefore, readily obtained.

All of which is more particularly described

and ascertained hereinafter, by way of example, having reference to the accompanying drawing wherein:

Figure 1 is a fragmentary plan of the interpreter with the character bars in their normal raised position;

Figure 2 represents part of a perforated card, the significance of the perforations of which are to be read, the said perforations indicating the name of "John Doe";

Figure 3 is a similar view to Figure 1, indicating the position of the bars after the portion of the said card containing the key perforations has been inserted beneath the releases and certain of the bars shifted as a result of the operation of the said releases; the position of the reading perforations of the card being indicated by dotted circles on said bars so that the reading of the name "John Doe" from left to right is quite apparent;

Figure 4 is a section taken on the line 4^x—4^x of Figure 1;

Figure 5 is a section taken on the line 5^x—5^x of Figure 4; and

Figure 6 is a section taken on the line 6^x—6^x of Figure 5.

Similar characters of reference indicate similar parts in the several figures of the drawing, and Figures 4, 5, and 6 are drawn to a somewhat larger scale than are the other figures of the drawing.

1 indicates a board mounted in a frame 2 and supporting a parallel series of character bar 3 independently slidable in the direction of their length upwardly and downwardly of the said board, each character bar being provided underneath its upper end with a pin or projection 4 adapted to engage a spring latch 5 when the bar is in its normal or upper position, thus maintaining it in such position against the reaction of the spring 6 tending to move the bar to its lower position. Each of the bars is provided with a series of characters, as shown, and the extent of the shifting of the bars between their upper and lower positions is that of the spacing of said character. Thus, by shifting any bar upwardly or downwardly, one character is made to assume the position previously occupied by the adjacent character on the said bar.

Each latch 5 is provided near its free extremity with a member 7 extending upwardly through a corresponding perforation in the frame 1, so that the upper ends of these members are presented as a series of depressible buttons in the upper marginal portion of the said frame; and above these buttons extends a housing 8 presenting a forwardly opening slot 9 and enclosing a latch-releasing device which comprises a series of plungers or releases 10 corresponding in number and position to the said members 7 of the latches, and poised thereabove in a holder 11 in which the said plungers are vertically movable against the yielding actions of springs 12 with which the said plungers are provided. The said holder 11 is maintained in a raised position within the housing 8 by a spring 13 against the resistance of which the said holder may be depressed by a manual operation of a knob 14 provided for that purpose.

As seen in Figures 5 and 6, a bar 15, (hereinafter deferred to as the "reset" bar) is opposed to the lower ends of the character bars 3 and normally held against the inner face of the frame 1 by a spring 16, so that, when the said characters are in their raised positions, the reset bar is spaced therefrom to an extent corresponding to the spacing of the letters on each character bar. The said reset bar is provided with a knob or abutment 17 by means of which it may be pushed inwardly of the frame against the resistance of the said springs 16. Thus, by means of the reset bar, the character bars may be moved to their upper latched position, and, by means of the releasing plungers 10 upon the depression of the knob 14, the latches may be released permitting the movement of the said character bars under the influence of the springs 6 to their lower position abutting the said reset bar.

It will be obvious that, after resetting the said bars in their latched position, any of the said bars may be released and permitted to move downwardly by simply interrupting certain of the plungers 10 in their downward movement when the knob 14 is depressed and, in that case, only those plungers which are not interrupted will release their corresponding latches and only those bars so released will move to their downward position.

Attention is now directed to the typical illustration of a card 18, in Figure 2, the perforations 19, 20, 21, 22, 23, 24 and 25 of which represent the name of "John Doe." It will be seen that if such card is superposed on the character bars in their normal position indicated in Figure 1 only the perforations 19, 21, 23 and 25 will show the correct characters, namely, J, H, D, and E. The perforations 20, 22 and 24 instead of showing O, N, and O, respectively, will show C, B, and C, so that it is evident that to obtain a correct reading, the character bars beneath these three perforations must be moved downwardly to the extent of one character spacing to indicate this difference in the significance of the perforations.

Key perforations 26, 27 and 28 are provided in the upper margin of the card above the perforations 20, 22 and 24 respectively, and these perforations perform a selective function in the machines in which the cards are used, which is, however, incidental and does not involve this invention, so that explanation of such further function is not entered into herein. However, such key perforations are utilized in connection with the card in-

terpreter described by inserting the upper edge of the card through the slot 9 of the housing 8 so that its edges are in register with the inner vertical walls of said housing, whereupon the said perforations 26, 27 and 28 will register with the upper ends of the members 7 of the latches controlling the character bars corresponding to the said perforations. It will now be readily apparent that, upon depression of the knob 14, all of the plungers 10 will be interrupted in their complete downward movement by the presence of the card except those three plungers which are above the said perforations 26, 27 and 28, so that these three plungers alone will continue their downward movement through the perforations of the card and operate the latches of the second, fourth and eighth character bars (reading from the left) thereby permitting these character bars to be moved by the springs 6 to their lower positions. Thus, the correct letters O, N, and O will then register with the perforations 20, 22 and 24 when the card is properly superposed on the board. The proper registering of the card for reading after the bars have been selectively set in the manner described may be determined by positioning the left and lower edges of the card against the inner edges of the left and lower margins of the frame.

Obviously the latching, releasing and resetting mechanisms admit of various mechanical forms to produce the same movements of the character bars, and the invention may be developed within the scope of the following claims without departing from the essential features of the said invention, that it is desired that the specification and drawing be read as being merely illustrative, and not in a limited sense, except as necessitated by the prior art.

What we claim is:

1. In a device of the class described for use with a card having reading perforations and key perforations, a series of longitudinally movable character bars adapted to show characters through the reading perforations of such card and by their position to select the characters so exposed, and means operable through the key perforations of said card for determining the selective movement of said bars.

2. In a device of the class described, a series of character bars arranged in parallel and longitudinally slidable juxta-position, latch means for said bars to secure them in one position of their endwise movement, a series of releases for operating said latch means, and selective means for determining the unlatching operation of said releases for the selective control of the movement of said bars.

3. In a device of the class described, a series of character bars arranged in parallel longitudinally slidable juxta-position, latch means for said bars to secure them in one position of their endwise movement, a series of releases capable of combined latch-releasing movement, and an operating support for said releases, said releases being independently yieldable in said support whereby one or more of them may be interrupted to provide selection in their releasing operation.

4. In combination with a card having a series of reading perforations and a series of key perforations as described, an interpreter for such reading perforations including character bars arranged in parallel and longitudinally slidable juxta-position, means for moving said bars endwise from one reading position relative to the reading perforations of the card to an alternative reading position, and means operable through the key perforations of said card for determining the selective movement of said bars.

5. In combination with a card having reading perforations and key perforations therein, a card interpreter including a series of character bars arranged in parallel and longitudinally slidable juxta-position, latch means for said bars to secure them in one position of their endwise movement, a series of releases operating through the key perforations of said card for effecting the selective unlatching of said bars, and means for effecting the endwise movement of said unlatched bars.

In testimony whereof we affix our signatures.

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ARTHUR Y. LESLIE.