Feb. 22, 1944. D. A. NEVIN 2,342,517

CARD AND THE LIKE FOR SEQUENCE SORTING

Filed Jan. 28, 1943

Fig. 1

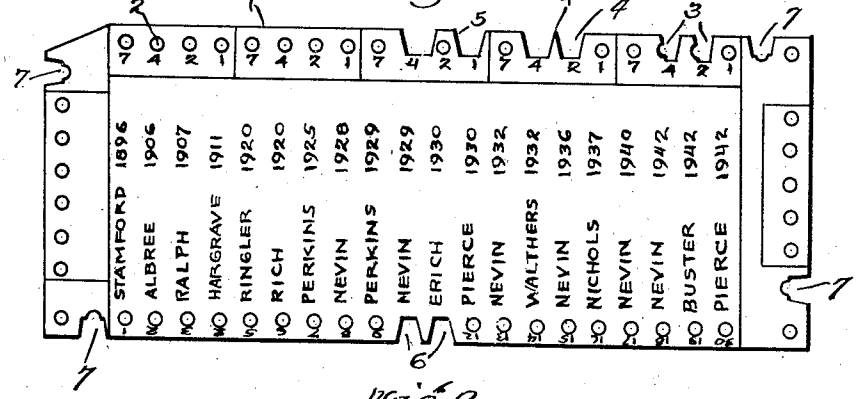


Fig. 2

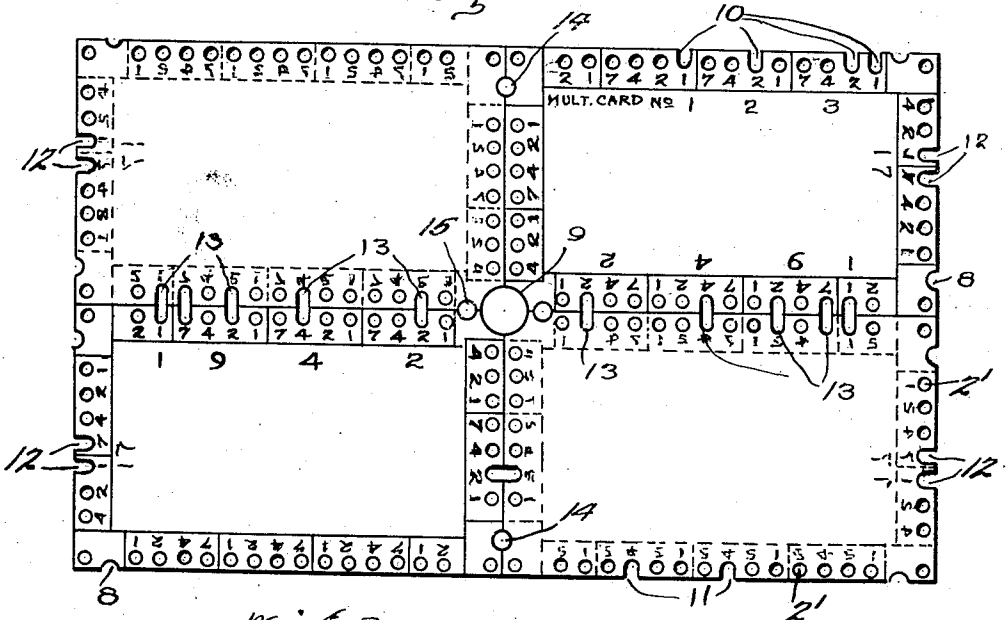
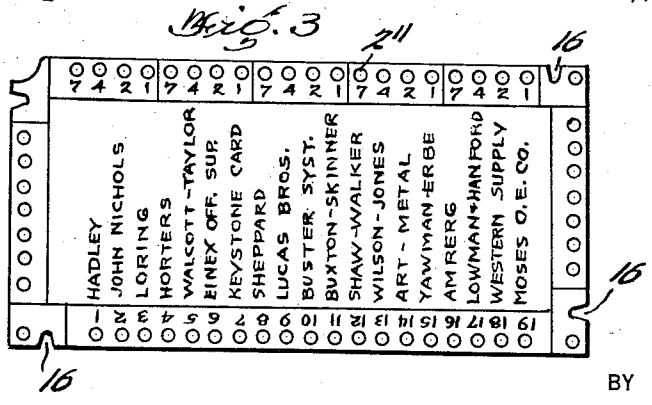


Fig. 3



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CARD AND THE LIKE FOR SEQUENCE SORTING

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5 Claims. (Cl. 129—16.1)

My invention relates to a new and useful improvement in perforated record cards, sheets and the like such as are used for sorting, classifying and separating for accounting and statistical records, into desired sequence, or into predetermined groups.

In a sorting system of this type each card is provided adjacent to one or more edges with perforations so spaced that they may be opened out to the edge of the card, the several perforations on all cards being located so as to coincide with one another when the cards are stacked, so that by inserting a rod or a so-called "sorting needle" through alined perforations of a set of cards, those cards in which the perforations have been opened out may be segregated from the remainder of the stack in which coinciding perforations have not been opened out, the separating of the groups being effected by lifting the inserted "needle" permitting the cut out cards to drop by gravity, those not cut out remaining on the needle.

As fully set forth in my co-pending application, Ser. No. 473,849, filed of even date herewith, there is considerable variation in the position of the holes as a group in relation to the edges of the card, this being due to the methods of manufacture.

Frequently the variation in length is as much as 1/8 inch, especially when cutting the sheets which have been perforated according to card multiples, because when a card is cut from such a sheet with a smaller margin from the holes to the card edge than is desired, it follows that the adjoining card when separated will have a wider margin from the holes to the card edge than is desired.

It is very important that when the card is located in the notching device or key punch e. g., that shown in Pat. No. 2,062,155 to Welk and Nevin, the perforations should coincide with the notching punches otherwise the notches will be offset or cut to one side, resulting in a hook-shaped formation which obviously will cause the card to remain on the needle during the sorting operation.

It is an object of this invention to provide a card with a cut out portion in each of one or more of its margins, said portion being cut through an edge in the form of a notch or half hole, simultaneously with the perforating of the sorting holes, this cut out portion serving as a master locating notch for locating said card in a key punch or notching device equipped with a card locator as fully set forth in my said co-pending application, thereby to bring the perforations to be notched accurately into alignment with the faces of the notching punches.

It is a further object to provide a card with said cut out portion located outside the fields of holes required for sorting as close as practicable to a corner of the card, and of a minimum width to avoid weakening the card corners or taking up excessive card margin.

A further object is to provide a locating notch in the card, punched simultaneously with the rows of holes, said notch shaped preferably as a half circle so that the cost and upkeep of the punches for cutting the notch can be kept to a minimum.

One method of sorting the cards consists of grasping a stack of them in one hand while inserting the sorting needle into a predetermined hole with the other hand but this is not readily accomplished in practice until the selected holes in all of the cards which are being operated upon, have been brought into alignment.

In present practice an approximate alignment is effected by sliding the cards endwise on a desk or table top until such motion is limited by the ends of the cards contacting an upright plate such as a bookend, metal block or similar article. Frequently a right angled metal plate is furnished to the user, the cards to be placed upon the base section and jogged to right or left against the upright wall section, and although this results in alignment of the card ends which contact the plate it does not bring the holes into registration because of the variation in the relation of the holes as a group to the card edges as previously explained.

A still further object of this invention is to provide means for quickly aligning all of the holes in a group of cards to be needle sorted, and my locating notch in the form of a wedge shaped slot or half a hole in a corner of each card may be readily used for this purpose as well as those previously disclosed, by simply placing the group of cards edge downward upon a rod or pencil attached to the top of a desk or table and then jogging right and left lightly until all cards have settled with their aligning notches resting upon the pencil or other implement. In this position all holes will be in alignment and the sorting needle may be readily inserted, even though many of the card edges extend beyond similar edges in the group.

A variation of this method is to place a group of cards edge downward upon a flat surface and insert an aligning device such as a desk rule into

the aligning notch in the top edge of the cards, jogging with a slight twisting motion until all of said notches as well as all perforations are in alignment.

My means of accomplishing the foregoing objects may be more readily understood by reference to the accompanying drawing which is hereunto annexed and forms a part of this specification and in which:

Fig. 1 is an illustration of a card which has been notched for sequence sorting, showing a form of my invention.

Fig. 2 is an illustration of a somewhat different card printed and perforated in multiples and embodying a preferred form of my invention.

Fig 3 is an illustration of a similar card showing a variation from the preferred form of my invention.

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

As shown in Fig. 1 of the drawing, a card, sheet or the like has perforations 2 arranged in rows adjacent and parallel to each edge of the card and certain of these perforations are notched out to the edge as indicated at 3, 4 and 6 to prepare the card for sorting. The notches at the top in Fig. 1 represent the number 566 as fully described in the hereinbefore mentioned patents.

The two notches shown at 3 illustrate imperfect cuts to one side of the hole, due to locating from the end of the card in the notching punch and as previously explained, to the variation of the position of the holes as a group in relation to the variable outside dimensions. The notches at 4 illustrate an attempt to overcome this deficiency by providing a wide notch which is undesirable because when punched through adjoining holes the pointed tab 4' results and causes trouble when sorting because the tab more readily enters holes in adjoining cards in the stack and it also bends over easily when typing and handling or running through a counting machine. Wide notches such as shown at 4, if punched at alternate holes as at opposite sides of tab 5 weaken the tab 5 as illustrated, causing it to break or tear when used to elevate cards from the stack by lifting the sorting needle. The two notches 6 are shown as being cut in line with perforations that are shown as being entirely removed. At 7 I have illustrated one form of the locating notches or alignment notches of my invention, the said notches having been cut simultaneously with the perforating of the sorting holes.

A preferred form of my invention is shown in Fig. 2, which shows a section of a sheet that is to be divided into four cards. Each card is provided, as before, with rows of perforations 2', some of which are opened out to the margin of the card as at 10, 11, 12 and 13. It will be noted that the indicia on the lower left and upper right cards are on the front face of the figure, while those of the other two cards are on the rear face, as previously mentioned.

The notches at 10 are or may be intended to code the multiple number 123, and the notches at 11 are or may be further classification notches for the multiple card; those at 12 are classification notches common to four card units, while those at 13 include groups of five slots that will code each of the four small cards for the year 1942, after the multiple unit card has been divided into four cards. The multiple unit may be guillotine cut on printed lines or cut on a "photo trimmer" by the user, or separated in any other desirable manner into single or duo forms, etc.

It will be understood that the cards may be printed and perforated in groups of two, four or more, and that like or different forms may be printed on the same or opposite faces of the paper if desired. Each card may have a corner removed by means of a single punch acting on four cards, as at 9, and/or separate punches may be provided to remove other individual corners.

In the preferred form of my invention, as shown in Fig. 2, round holes 14, 15 are cut at the meeting line of sides or ends of pairs of each by means of round punches, said holes preferably being larger than the sorting holes 2'. Other symmetrical forms may be used but round holes, as at 14, 15 and semicircular notches, as at 8 can be made inexpensively by means of round punches or pins like those used for the sorting holes, while the coacting die openings may be merely holes drilled in the coacting die base. Half circular cuts in the cards are effective for locating a card in a key punch, and permit the use of a single inexpensive round or half round locating pin for this purpose; but it will be understood that locating slots and locating devices of other shapes may be used.

In the modified form of the invention shown in Fig. 3, the card is provided with sorting holes 2'' along its margins and may be generally as above described, but has locating notches 16 at its sides or ends or both, these notches being shown as more deeply indented and narrower than the notches 8, while being less deeply indented and narrower than notches 7, but more regular in outline.

It will be obvious to those skilled in the art that many changes may be made in the invention, all without departing from the spirit thereof; therefore I do not limit myself to what is shown in the drawing and described in the specification, but only as set forth in the appended claims.

Having thus fully described my invention, what I claim is:

1. A stack of cards each provided along an edge with a row of equally spaced perforations of equal size so arranged as to be adapted to register with perforations in the other cards of the stack and adapted to be slotted out to the adjacent edge of the card, and a notch in an edge of each card, the notches in all the cards of the stack being similarly located and being identically distant in each card from corresponding perforations in said row.

2. In a card classifying system of the character described, a plurality of cards, each card being provided adjacent one or more of its edges with a row of evenly spaced perforations, certain perforations of one or more of said cards relating to a particular classification desired being opened out to the adjacent edge, an alignment notch formed in a perforated edge of each of the cards in the same location in each card relative to similarly located perforations of said rows, whereby all of the cards may be positioned with their perforations in registration when they are arranged in a stack, regardless of misalignment of their similar edges, by bringing said notches into operative relation with aligning means having a straight edge.

3. A stack of cards for classification purposes, each card provided with one or more rows of coded perforations adjacent one or more edges of the card, certain predetermined perforations

slotted to an edge referring to a single classification, one or more locating notches in the form of a half circle cut into one or more edges of each card and in a location common to all of the cards in the stack, each homologous notch being in identical relation in each card of the stack to homologous perforations of said rows regardless of the distance of said locating notches from certain of the card edges, said locating notches providing means for accurately locating the cards upon an alignment device, whereby cards with similarly slotted openings may be separated from the stack of aligned cards by inserting a sorting needle through the aligned perforations that include the similarly slotted perforations.

4. In a card classifying system, a stack of cards which may vary in outside dimensions, each card provided with a series of coded perforations adjacent one or more edges, certain predetermined perforations in said series being slotted to an adjacent edge and referring to a single classification, certain other predetermined perforations being slotted to represent additional single classifications, a locating notch cut into a corner of each card said notches being identically positioned in each card with relation to homologous perforations in the respective cards, said notches providing means for accurately locating the cards in a device for slotting perforations for said single classifications, also for subsequently cutting additional slots according to future requirements for other classifications, and also for locating the cards upon an alignment device to facilitate the insertion of a separating needle whereby cards with similarly slotted openings may be separated from the stack of aligned cards by elevating said needle while permitting cards having similarly slotted openings to fall from the stack.

5. A stack of cards or the like in which each individual member has one or more holes adjacent an edge, said holes being adapted to register with similarly positioned holes of the other members of the stack, some of said holes being slotted out to the adjacent edge, and each member also having in a corresponding edge thereof a similarly located and similarly shaped indentation, whereby said cards may be positioned with their holes in registry by bringing the said notches into operative relation with alining means having a straight edge.

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