

Sept. 14, 1965

A. L. CURTIS ETAL

3,206,269

CARD SELECTOR

Filed Sept. 4, 1962

2 Sheets-Sheet 1

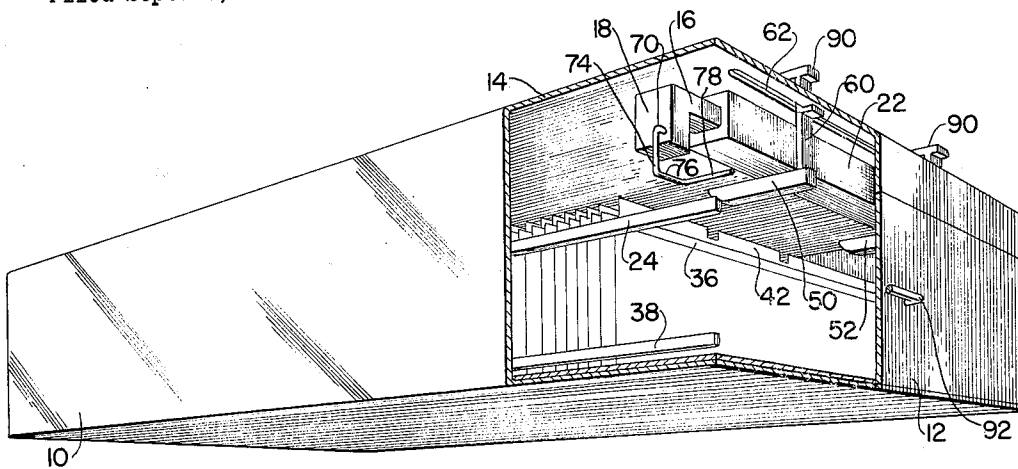


FIG. 1

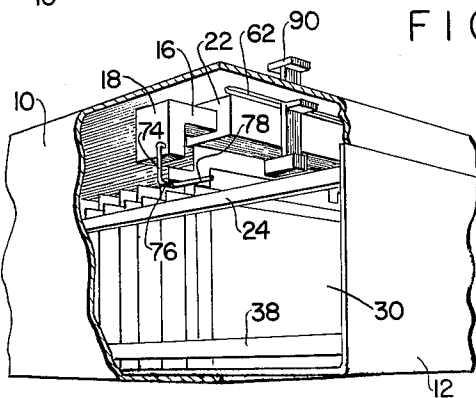


FIG. 2

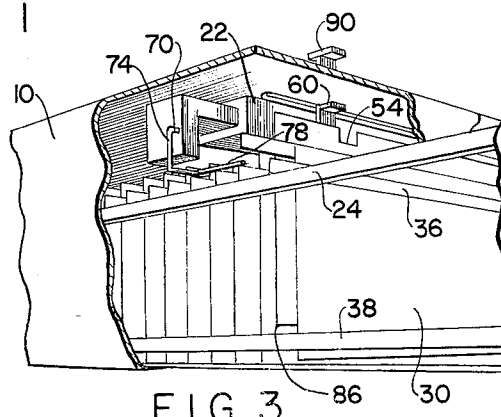


FIG. 3

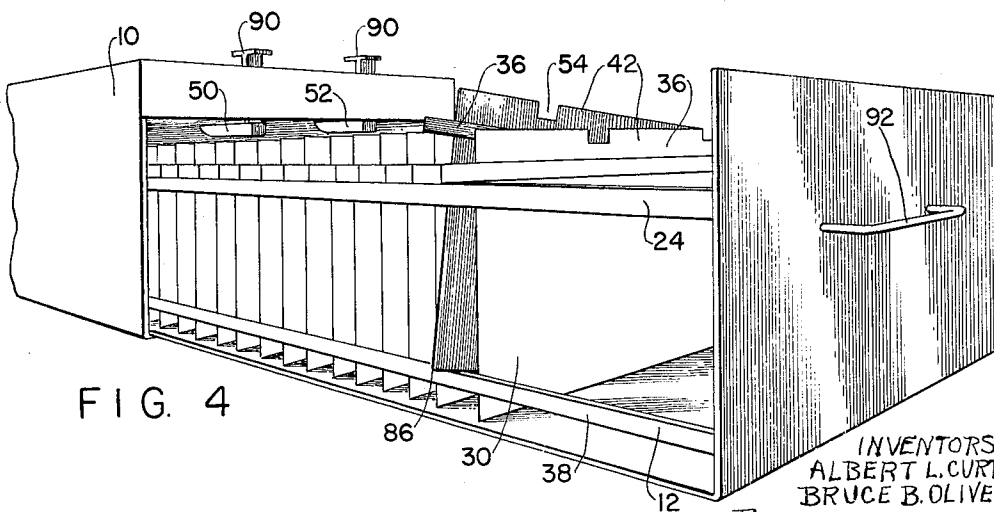


FIG. 4

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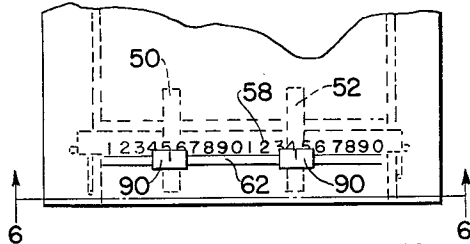


FIG. 5

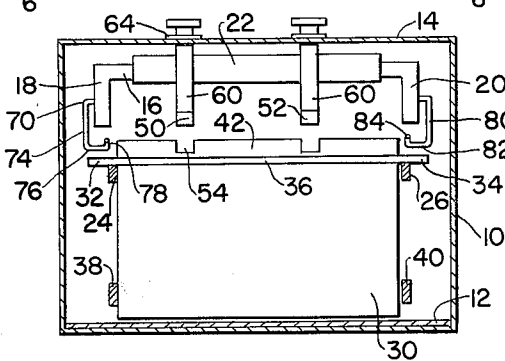


FIG. 6

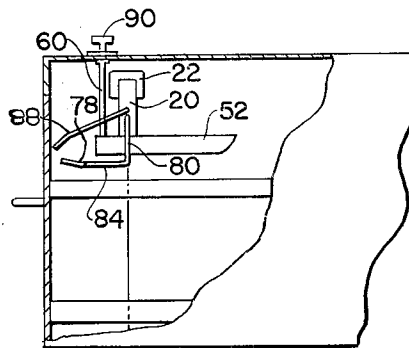


FIG. 7

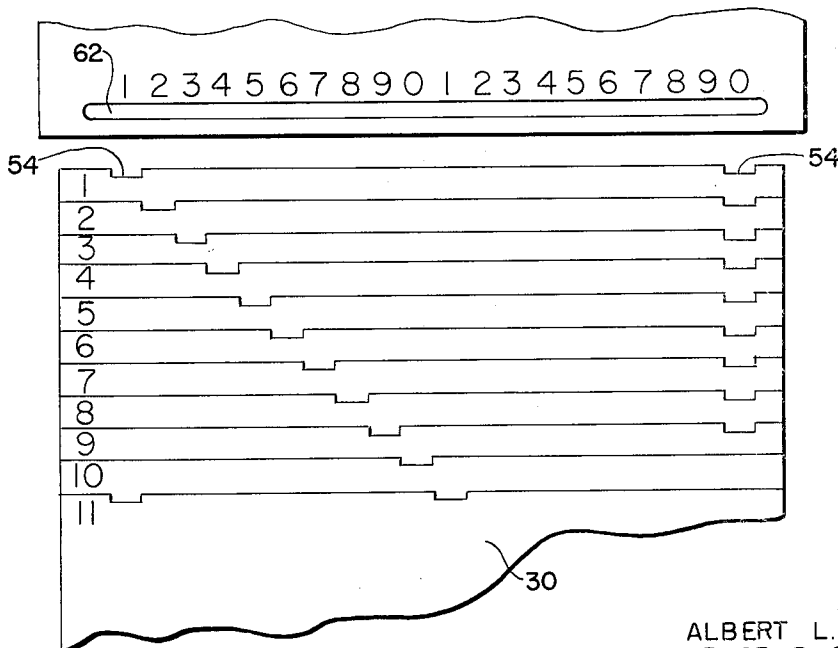


FIG. 8

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3,206,269

CARD SELECTOR

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Filed Sept. 4, 1962, Ser. No. 221,224

6 Claims. (Cl. 312—319)

This invention relates to mechanism for quickly and accurately selecting from a large number of cards in a file the card or cards corresponding to a code number in an index. The cards in the file may be in any random order and after being taken out for inspection or other purpose may be replaced anywhere in the file. As usual, the cards in the file extend transversely with respect to the file and are in face-to-face contact with one another.

Each card is supplied at its top edge with a strip of ferro-magnetic metal which is notched according to an adopted code, the number and arrangement of the notches corresponding to the coded subject matter on the card. A strong magnet is above the cards, the poles of the magnet being near the ends of the card immediately below. The magnet is mounted for forward and rearward movements over the cards or may be stationary for forward and rearward movements of the file drawer which holds the cards. In the course of such relative forward and rearward movement between the magnet and the file of cards, all of the cards at one time or another come directly under the poles of the magnet and are attracted upward thereby. Mounted near the magnet are one or more probes or feelers which are adapted to enter a notch on a card if the notch is directly thereunder when the card is pulled upward by the magnetic attraction of the magnet. Each card has a lug projecting from each side edge at or near the top of the card. At each end of the magnet a lifter bracket is mounted in position to engage one of the two lugs on a card which has been raised by the magnet. As the magnet moves beyond the raised card or the raised card moves beyond the magnet, the lifters elevate the cards still further and tilt it so that it stays out of alignment with the other cards after the brackets have released it. The card or cards thus selected by the mechanism stand out from the rest and are easily picked up.

For a more complete understanding of the invention reference may be had to the following description thereof and to the drawings, of which

FIGURE 1 is a perspective view of a file cabinet embodying the invention, a portion being broken away to show interior parts;

FIGURES 2, 3 and 4 are fragmentary perspective views of the apparatus shown in FIGURE 1, in successive stages of operation;

FIGURE 5 is a partial plan view, on a smaller scale, of the cabinet shown in FIGURE 1;

FIGURE 6 is a section on the line 6—6 of FIGURE 5;

FIGURE 7 is a partial side elevation of the cabinet shown in FIGURE 5, a portion being broken away; and

FIGURE 8 is a diagrammatic showing of the relation between the code members on the top of the cabinet and the notches in the tops of the cards.

The essential features of the invention are means for supporting a group or collection of cards vertically in face-to-face array, a magnet mounted over the cards, the magnet and cards being capable of relative horizontal movement in a direction perpendicular to the planes of the cards, and ferro-magnetic elements at or near the top of each card arranged to be directly under the poles of the magnet when the magnet and card pass each other. The invention also includes means for keeping the cards which have been lifted from their places by the magnet

2

from falling back into place when the card is no longer in the zone of influence of the magnet.

In the embodiment of the invention illustrated on the drawings, a cabinet is provided for the cards consisting of a casing 10 in which an open-sided drawer 12 is slidable. Mounted on the under side of the top 14 of the casing 10 is a selector including a magnet 16 having pole pieces 18, 20 which are preferably spaced apart to be near the sides of the casing. The magnet 16 may be a permanent magnet or, as indicated, an electro-magnet having a coil 22 thereon to create the magnetic flux.

Within the drawer 12 two parallel rods 24, 26 extend horizontally from front to rear and are spaced apart to receive a group or collection of cards 30 loosely between them. Each card has two lugs 32, 34 projecting from opposite ends of the card near the top thereof and preferably at the same height. As shown, these lugs are the end portions of a thin strip 36 of plastic, wood or metal attached to the card. The lugs rest on the rods 24, 26 and support the card preferably with a small clearance between the bottom edge of the card and the floor of the drawer 12. Two lower parallel rods 38, 40 extend from front to rear of the drawer 12 below the upper rods and near the bottom edges of the cards.

The magnet 16 preferably extends most of the way across the casing so that the pole pieces are over the respective end portions of the cards which are beneath the magnet. Ferro-magnetic elements are mounted on the cards directly below the respective pole pieces 18, 20. In the embodiment shown on the drawing, these elements are the end portions of a strip 42 of thin iron or steel which may be permanently or detachably fastened to the top of each card 30. As the lifting forces come at the ends of each card, cocking is prevented and the card thus does not bind between the rods 24, 26. The magnet 16 is near the front of the housing 14 so that when the drawer 12 is pulled out, the cards 30 will successively come under the poles 18, 20 which will tend to lift them while they are in the zone of influence of the magnet. The selector, however, also includes one or more hold-down feelers or probes, two such feelers 50, 52 being shown. To permit certain cards to rise when they pass under the magnet, notches 54 are cut in the top of the card, there being as many such notches as there are hold-down feelers. If the metal strip 42 extends along the top of the card, the notches are cut in the strip. Each notch is of a size and shape to receive one of the feelers. The cards are coded by the location of the notches 54, that is, the distances of the notches from the end edges of the card. The locations of the feelers 50, 52 corresponding to the several notch locations at the top of each card may be conveniently indicated by numerals 58 as shown in FIGURE 5. A code book (not shown) may be kept in which is entered the code numbers corresponding to the notch locations indicated on the top of the housing, and the corresponding subject matter on the card so notched.

The feelers 50, 52 are preferably elongated so as to bear on the tops of all the cards within the operative zone of influence of the magnet 16. The cross-sectional shape of the feelers is preferably similar to the shape of one of the notches 54, a rectangular shape being shown.

Each feeler is supported by a stem 60 which passes up through a slot 62 in the top 14 of the casing 10, a collar 64 on each stem 60 serving to hold the feeler up. When the cards having certain desired subject matter thereon are wanted, the corresponding code numbers are found in the code book and the feelers are adjusted along the slot 62 to be over the notch locations of the code numbers selected. The drawer 12 is then drawn out and the cards will successively come into the operative

zone of the magnet, at which time they are pulled upward by the magnet but cannot rise unless the notches in the card are directly below the feelers 50, 52. Thus as the drawer 12 is pulled out, all the cards corresponding to the selected code numbers rise from the supporting rods 24, 26.

To prevent the elevated cards from falling back on the rods 24, 26 after they have passed from the zone of operating influence of the magnet, brackets 70, 72 are mounted on the pole pieces 18, 20, respectively to engage under the lugs 32, 34, of the lifted cards. The bracket 70 consists of a piece of stiff wire with a portion 74 extending down outside of the ends of the lugs 32 (FIGURE 6). Then a horizontal portion 76 extends inward at a level above that of the lug 32 on cards in the normal position, but below the level of the lug 32 on elevated cards. The next portion 78 of the wire extends forward. The bracket 72 at the other side has corresponding portions 80, 82, 84, but the portion 84 is shorter than the corresponding portion 78 of the bracket 70.

As the drawer 12 is being pulled out, the lugs 32, 34 of the cards which are held down pass under the brackets 70, 72, but the lugs of the elevated cards engage on the portions 78, 84 of the brackets, thus holding these cards up as they pass from under the pole pieces, the bottom edge of the lifted card being higher than the level of the rods 38, 40. Since the portion 84 of the bracket 72 is shorter than the portion 78 of the bracket 70, the lug 34 of a lifted card rides off the end of the bracket 72 while the lug 32 is still on the bracket 70. A wire 88 may be provided above the bracket 72 to make sure that that side of the card drops when it rides off the end of the bracket 72. One end of the card drops, cocking the card to a tilted position in which the lower corner 86 projects out over the rod 38 (FIGURE 4). The lifted cards are thus conspicuous and can be readily removed from the drawer. When the removed cards have been inspected or written on, they may be inserted in the drawer anywhere, since, when they are again wanted, the magnet will raise them wherever they are in the drawer after the feelers 50, 52 have been adjusted to the code positions. For this purpose a finger piece 90 may be provided at the top of each stem 60. A handle 92 on the front wall of the drawer 12 facilitates movement of the drawer.

We claim:

1. Mechanism for lifting particular cards from a group of cards, comprising means for supporting cards suspended vertically face to face and freely movable individually, each card having at least one notch in its upper edge, ferro-magnetic elements on each card adjacent to the upper corners thereof, a selector above said cards, said selector and cards being capable of relative horizontal movement in a direction perpendicular to the planes of the cards, said selector comprising a magnet with poles close above the magnetic elements of the cards which are directly beneath the selector, and at least one feeler carrier by said selector close above the plane defined by the top edges of the cards, each said feeler having a cross-sectional shape adapted to enter one of said notches if directly over it when the card having the notch is pulled upward, each said feeler being movable adjustably from

one side edge of the card to the other to register with a selected notch location.

2. Mechanism as described in claim 1, and positive means for preventing cards lifted as the selector passes over them from falling back into registry with the other cards of the group after the magnet have moved beyond the zone of lifting influence.

3. Card selecting mechanism comprising a cabinet having a pair of parallel rods mounted in said cabinet, a group of cards having lugs projecting from their side edges to rest on said rods, said cards having ferro-magnetic elements near the upper corners thereof and coded notches in the upper edges thereof, a selector mounted above said rods and cards, said selector and cards being relatively movable in the direction perpendicular to the planes of the cards, said selector having a magnet with poles above the respective magnetic elements of the cards beneath the selector, and two hold-down feeler carried immediately above the level of the top edges of the cards, said feelers being adjustable from one side edge of the cards to the other to register with notches spaced predetermined distances from the side edges of the cards whereby cards having notches registering with said feelers can rise when the selector magnet passes over them.

4. Card selecting mechanism as described in claim 3, said selector also having at each end a bracket adapted to ride under the lugs of lifted cards and uphold them briefly after the magnet poles have passed whereby the selected cards can be removed from the cabinet.

5. Card selecting mechanism as described in claim 3, said cabinet having two lower parallel rods extending along the sides of said cards near the bottom corners thereof, and means for tilting the top and bottom edges of each raised card to cause the bottom edge of each raised card to project over one of said lower rods whereby such cards are supported in tilted positions after the selector has passed beyond them.

6. A method of selecting particular cards from a group of cards, which comprises coding the cards by notching the upper edge of each card with two notches spaced predetermined distances from the side edges of the card, mounting ferro-magnetic elements on each card near the upper corners thereof, suspending a group of said cards in face-to-face array, passing a magnet across the top edges of the cards so that the poles of the magnet come into lifting proximity with the magnetic elements of successive cards in the group, providing two hold-down members over the cards spaced predetermined distances from the side edges of the cards, each hold-down member being adapted to enter a notch immediately below it, whereby the cards over which the magnet passes rise if their notches register with said hold-down members, tilting each card that is elevated by the magnet, and supporting the elevated cards in tilted position for ready removal.

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FRANK B. SHERRY, *Primary Examiner.*