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(54) INDEX CARD REGISTER WITH SELECTOR DEVICE

(71) I, HEIKO IPPEN trading as ARLAC-WERK HEIKO IPPEN, of Kaiser-Friedrich-Ring 47, 4000 Dusseldorf-Oberkassel, Federal Republic of Germany. A Citizen of the Federal Republic of Germany, do hereby declare the invention, for which I pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

The present invention relates to an index card register with selector means, including a housing consisting of a cover member and a bottom member, a plurality of selector keys, a drawer biased by a compression spring and adapted to be locked by a locking mechanism, a plurality of index cards defining a replaceable stack of index cards accommodated within the drawer, the index cards including marginal cut-outs, means for unlocking the drawer and exposing to sight of the user an index card selected by actuation of a corresponding selector key, by unlocking the drawer and moving the same into a position projecting from the housing under the bias of the compression spring, the drawer including entrainment cams of a resilient material adapted to engage entrainment apertures of the index cards, the index cards including selector apertures adapted to be engaged by the counterspring-biased selector keys.

There are already known various widely differing types of index card registers with selector devices. These heretofore known registers include generally a housing for receiving a stack of loosely inserted index cards, and a keyboard wherein the keys are provided with suitable indicia. By actuation of the keys desired cards may be selected. The index cards may bear in an alphabetical sequence any type of desired data or notes that are to be kept readily accessible for reference purposes. One heretofore known index card register is of a relatively flat configuration when closed and may be opened by means of a number of manually actuated keys by which the index card register may be opened in a desired position to expose to sight the data that have previously been recorded on the index cards. This index card register also includes a locking key by means of which the cover member adapted to cover the index cards may be moved into the closed position. When the cover member is closed, simultaneously all of the raised index cards are automatically returned into their initial lying position.

In another heretofore known type of index card register the housing includes a drawer that is biased by a compression spring and is adapted to be closed by a keybolt. The drawer serves to receive the index cards. This heretofore known index card register furthermore comprises means for unlocking the drawer and exposing to sight an index card that has been selected by actuation of a corresponding selector key, by unlocking the drawer and moving the same into a position in which the drawer projects from the housing. This outward movement is effected under the bias of the compression spring.

These prior art index card registers are table type devices and are employed in a position in which they lie flat on a supporting surface. The housings of the index card registers may also have the form of a base member for supporting a telephone apparatus when the housing of the card register includes a drawer for moving the selected index cards outwardly from the housing.

A common feature of the above heretofore known index card registers is that the multi-key keyboard is arranged in a forward portion of the index card register, and the keys are arranged in a row, i.e.

side by side. The heretofore known index card registers, moreover, are of relatively large dimensions.

It is an object of the present invention to provide a novel and improved card index register of small dimensions, and which may be assembled from a small number of parts and at a low cost.

The invention accordingly provides an index card register including a housing consisting of a cover member and a bottom member, a plurality of selector keys disposed in an array of rows and columns, a drawer biased from the housing by a spring, and a plurality of stacked index cards accommodated within the drawer, the index cards at their rearwardly disposed marginal portions being provided with selector tongues with apertures therein, the selector tongues increasing in size in stepwise fashion from the lowermost index card to the uppermost index card and being provided with said apertures in such fashion that each index card has an extra aperture with respect to the underlying index card, said extra aperture being in an exposed portion of the tongue; each selector key being mounted at one end of an associated pivot lever which is resiliently urged into a substantially horizontal position by resilient means and which mounted at its other end a depending index card retainer pin, the index card retainer pins of alternate levers being aligned with each other whereby two parallel rows of said pins are formed, the index card retainer pins being adapted to cooperate with the apertures in index card selector tongues so that when a selector key is depressed all index cards overlying the index card associated with the depressed key will be retained when the drawer moves outwardly of the housing; the register further including a resiliently mounted drawer detent bar operatively coupled to a drawer locking mechanism and adapted to be engaged by the index card retainer pin of a depressed selector key to release outward movement of the drawer; and the drawer including, in its forward region, a triangularly shaped entrainment cam for cooperation with punched-out entrainment apertures in the front region of the index cards.

An index card register as defined above due to the arrangement of selector keys in rows and columns may be made so that the overall size is only slightly larger than the space occupied by the keys. By employing one-armed pivot levers which are rigidly connected to the associated selector keys the assembly operation is reduced to assembling a few parts only.

Since the selector tongues of the index cards are arranged in their rearward marginal portions, when cards are removed for writing thereon the risk of damage to the selector tongues is minimised.

Preferably, the free ends of the card retainer pins are supported in a position above the apertures of the index cards by means of a plurality of resilient tongues mounted at the rear wall of the housing bottom member, the pivot levers being supported at their free ends by these tongues. This helps to prevent incorrect operation, since the drawer cannot be released until a selector key has been depressed and the associated retainer pin has engaged the underlying cards.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a top view of an index card register in accordance with the invention;

Figure 2 is a side elevation of the register;

Figure 3 is a top view of a cover member forming part of the register;

Figure 4 is a top view of the register with the cover member removed;

Figure 5 is a top view of the register with the cover member removed and with a drawer therein in a position in which it partly projects from the housing;

FIGURE 6 is a vertical sectional view along the line VI-VI of FIG. 1;

FIGURE 7 is a top view of the index card register whereby the cover member is removed, and showing a stack of cards disposed within the drawer;

FIGURE 8 is a lateral elevational view of four selector keys disposed in a column;

FIGURE 9 is a top view of the four selector keys of FIG. 8 disposed in laterally spaced positions;

FIGURE 10 is a bottom view of the selector keys of FIG. 9;

FIGURE 11 is a bottom view of the pivot levers of the selector keys;

FIGURE 12 is a top view of an index card;

FIGURES 13, 13A and 13B are top views of the front portions of index cards disposed one behind the other and showing the aperture containing selector tongues in the rearward portions of the cards;

FIGURE 14 is a fragmentary bottom view of a stack of index cards and showing the aperture-containing selector tongues at the rearward portions of the index cards;

FIGURE 15 is a fragmentary top view of the lowermost index card and showing the selector tongue with one aperture;

FIGURE 16 is a fragmentary top view of the index card overlying the lowermost index card and showing the selector tongue with two apertures;

FIGURE 17 is a fragmentary top view of the two index cards of FIGS. 15 and

16 in an overlying position; and

FIGURE 18 is an exploded fragmentary perspective view of the two index cards of FIGS 15 and 16.

Referring to FIGS. 1, 2 and 5 the index card register of the present invention is shown approximately in original size. The index card register includes a housing 10 with a box-shaped cover member 11 and a likewise box-shaped bottom member 21. The cover member 11 and the bottom member 21 are mutually interconnected by means such as screws or adhesive attachments (not shown), and are preferably made of a suitable synthetic plastic material. The cover member 11 includes the side walls 13, 15, a front wall 12 and a rear wall 14, as well as a top cover plate 16 in which is cut out a square or generally rectangular aperture 17. The portion of the top cover plate 16 facing the front wall 12 of the cover member 11 is inclined and may be provided with a tray-shaped recess (not shown) for receiving writing utensils or the like.

The bottom member 21 includes the side walls 23, 24, a front wall 22, a rear wall 25 and a bottom wall 26. A slot-shaped aperture 27 in the front wall 22 serves to receive a drawer 30. The bottom member 21 furthermore includes spaced guide bars 29, 29a that extend in a direction parallel to the side walls 23, 24. Angle-shaped retaining ledges 19, 19a are disposed in a rearward region of the bottom member 21 and in the vicinity of the guide bars 29, 29a. These retaining ledges 19, 19a are arranged in the path of movement of the drawer 30 and overlie partly a stack of index cards 200 accommodated within the drawer 30 to hold the stack in the desired height and secure the index cards against lift-off (see FIGS. 5 and 6).

The bottom member 21 of the housing 10 receives the drawer 30 which consists of a bottom wall 31, the side walls 32, 33 and a front wall 34 interconnecting the front ends of the two side walls so that the drawer 30 is open at its rear end.

Alternatively, the drawer may be guided differently within the bottom member 21. Thus the bottom wall 31 of the drawer may be provided with a web engaging a groove in the bottom wall of the bottom member 21. A dove-tail shaped cross-sectional profile may be used to prevent any undesired lift-off of the drawer from the bottom member. The bottom wall 31 of the drawer 30 includes at its front bottom end a cam 35. This cam 35 is adapted to engage a groove-shaped recess 28 in the bottom wall 26 of the bottom member 21 when pushing the drawer into the housing 10. This groove-shaped recess 28 extends from the front edge of the bottom wall 26 of the bottom member 21 and is arranged centrally in the bottom wall 26. A steel spring rod 36 is arranged in the region of this groove-shaped recess 28 so that its free end 36a is within the area of the groove-shaped recess 28 whereas the opposite end 36b of the steel spring rod 36 is rigidly connected to the bottom wall 26 of the bottom member 21. The action of the steel spring rod 36 corresponds to the action of a thrust spring which is biased by moving the drawer 30 into the bottom member 21 of the housing 10 so that when unlocking the drawer 30 the drawer may be driven outwardly by means of the steel spring rod 36 which resiliently returns into its initial position (FIG. 5).

The bottom wall 31 of the drawer 30 furthermore includes in its rearward portion a central lug 37 constituting one member of a drawer locking mechanism 170 described further below. Along rear portions of the side walls 32, 33 of the drawer are arranged guiding detents 38, 38a that project from the upper edges of the side walls 32, 33 and are cantilevered in lateral directions in overlying the guide bars 29, 29a that are molded integrally with the bottom wall 26 of the bottom member 21. These guiding detents 38, 38a simultaneously serve to delimit the path of outward movement of the drawer 30 (FIGS. 4 and 5). Resilient buffer elements 39, 39a made of felt or the like at the inner surfaces of the two parts of the side wall 22 and on both sides of the aperture 27 in the bottom member 21 and in the path of movement of the guiding detents 38, 38a serve simultaneously to delimit the path of movement of drawer movement. Alternatively, the path of outward movement of the drawer 30 may likewise be delimited by means of suitable devices of a different design.

A plurality of selector keys of a square or rectangular configuration are arranged within the aperture 17 of the top cover plate 16 of the cover member 11. The selector keys are arranged in an array substantially covering the entire area of the aperture 17 in the cover member 11.

In the embodiment shown in FIG. 1 there are provided twenty four selector keys 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62 and 63. These selector keys may bear suitable indicia such as letters of the alphabet.

The selector keys 40 to 63 are connected to a corresponding number of one-armed pivot levers 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92 and 93 the ends 70a, 71a, 72a, 73a, 74a, 75a, 76a, 77a, 78a, 79a, 80a, 81a, 82a, 83a, 84a, 85a, 86a, 87a, 88a, 89a, 90a, 91a, 92a, and 93a of which are provided with openings 100 (FIG. 8) for re-

ceiving a mounting rod 101 serving as a pivot axis. The mounting rod 101 is supported at its two ends 101a, 101b in respective bearing rods 102, 103 in a position above the drawer 30 and in a forward region of the housing 10. The bearing rods 102, 103 are arranged on either side of the drawer 30, are integral with the bottom wall 26 of the bottom member 21 and extend vertically of the bottom wall 26. The pivot levers 70 to 93 are individually pivotably mounted about this mounting rod 101. The mounting rod 101 may readily be removed together with the pivot levers 70 to 93. The guide bars 29, 29a along the bottom member 21 extend in longitudinal direction of the drawer and serve concurrently as guide means for the outward movement of the drawer 30 or for proper inward movement of the drawer into the housing 10.

The free ends 70b, 71b, 72b, 73b, 74b, 75b, 76b, 77b, 78b, 79b, 80b, 81b, 82b, 83b, 84b, 85b, 86b, 87b, 88b, 89b, 90b, 91b, 92b, and 93b of the pivot levers 70 to 93 are provided at their lower surfaces with card retainer pins 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, and 133. The arrangement of these card retainer pins 110 to 133 will be described further below.

The selector keys 50 to 63 define an array of six selector keys in each of four transverse rows A, B, C and D in corresponding columns *a*, *b*, *c*, *d*, *e* and *f*, as may best be seen from FIG. 1. Due to this arrangement of the selector keys 40 to 63 in rows and columns the keys may be accomodated in a smaller housing than would be the case if the keys were arranged in a row. The aperture 17 in the top cover plate 16 of the cover member 11 closely corresponds to the surface area covered or filled in by the array of selector keys 40 to 63.

In order to allow a laterally closely packed arrangement of the pivot levers 70 to 93 in the housing 10, the selector keys are of a particular configuration and are arranged in a particular manner, as may be seen from FIGS. 8 to 10. This arrangement will be explained with reference to the four selector keys 40, 41, 42 and 43 that are disposed in the vertical column *a*. These four selector keys 40 to 43 consist, as likewise the remaining selector keys 44 to 63, of pad-shaped members 40a, 41a, 42a, 43a that are connected by a web 40b, 41b, 42b, 43b respectively to an associated pivot lever 70, 71, 72, 73. In the arrangement of the selector keys 40, 41, 42, 43 the pad-shaped member 40a of the selector key 40 at the pivot lever 73 is cantilevered toward the left hand side, and the pad-shaped member 43a of the selector key 43 at the pivot lever 70 is cantilevered toward the right hand side (as shown in the drawing) whereby the pad-shaped member 40a is connected at the rear end of the pivot lever 73, and the pad-shaped member 43a of the selector key 43 is connected to the end of the pivot lever 70 facing the bearing rod 102 (see also FIGS. 9 and 10). The pad-shaped members 41a, 42a of the selector keys 41, 42 that are disposed between the two outer selector keys 40 and 43 are connected with the pivot levers 72, 71 respectively in a manner so that the pad-shaped members 41a, 42a are cantilevered along both sides but along different lengths. The cantilevered portion of the pad-shaped member 40a of the selector key 40 is of a width corresponding substantially to the width of three pivot levers 73, 72, 71. Analogously the cantilevered portion of the pad-shaped member 43a of the selector key 43 is of a width substantially corresponding to the width of the three pivot levers 71, 72 and 73. The pad-shaped member 41a is connected to the pivot lever 72 in a manner so that the pad-shaped member 41a is cantilevered toward the selector key 40 by the width of the pivot lever 73, whereas the portion of the pad-shaped member 41a of the selector key 41 facing the selector key 42 is of a width substantially corresponding to the width of the pivot levers 71, 70. The selector key 42 is, similarly to the selector key 41, connected to the pivot lever 72. The portion of the pad-shaped member 42a of the selector key 42 facing the selector key 41 is of a width substantially corresponding to the width of the two pivot levers 72, 73, and the cantilevered portion of the pad-shaped member 42a facing the selector key 43 is of a width substantially corresponding to the width of the pivot lever 70. Due to this arrangement, four selector keys 40, 41, 42 and 43 may be arranged one behind the other in a column since every pad-shaped member 40a, 41a, 42a and 43a of the selector keys 40, 41, 42, 43 is of a width corresponding to the width of four pivot levers 73, 72, 71 and 70 respectively. The selector keys of the columns *b*, *c*, *d*, *e* and *f* are analogously designed and are connected to their associated pivot levers, with the result that a plurality of selector keys may be accommodated within a minimum of space.

As may be seen from FIG. 8, the card retainer pins 110 to 133 arranged at the free ends 70b to 93b of the pivot levers 70 to 93 are arranged in two rows whereby the card retainer pins of every other pivot lever define a row so that the card retainer pins 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133 define a first row and the card retainer pins 110, 112, 114, 116,

118, 120, 122, 124, 126, 128, 130 and 132 define a second row. Every row of card retainer pins thus comprises twelve pins. The card retainer pins 110 to 133 are arranged at the lower surfaces of the pivot levers 70 to 93 and may be made of metal or a suitable plastics material. Alternatively, the pivot levers may be made integrally with the card retainer pins.

The pivot levers 70 to 93 are supported at their free ends 70b to 93b on resilient tongues 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162 and 163. These resilient tongues 140 to 163 are integrally moulded at the rear wall 25 or the bottom member 21 so that the pivot levers 70 to 93 assume a position in which the free ends of the card retainer pins 110 to 133 are above the stack of index cards 200 (FIG. 6).

A drawer locking mechanism 170 for locking the drawer 30 in an inward position within the housing 10 consists of the lug 37 at the bottom wall 31 of the drawer 30 and a drawer detent bar 171 that is rotatably mounted about a horizontal axis 172 in the region of the bottom wall 26 of the bottom member 21. The drawer detent bar 171 is mounted so that the forward portion 171a of the drawer detent bar 171 is rotatably movable in the direction of the arrow X toward a resilient element 173, and is adapted to be returned into its initial position (FIG. 6) by this resilient element 173. The resilient element 173 may consist of a spring, a foam rubber pad or the like. Preferably, the drawer detent bar 171 exhibits resilient properties. As may be seen in FIG. 6, the drawer detent bar 171 is arranged in the region of an opening 26a in the bottom wall 26 of the bottom member 21 and is of a length corresponding to the width of the drawer or respectively to the width of the pivot levers 70 to 93 carrying the card retainer pins 110 to 133. When actuating any of the selector keys 40 to 63, the associated card retainer pin is moved downwardly by its association pivot lever and will engage the drawer detent bar 171. The drawer detent bar 171 is therefore urged at its forward end 171a into the opening 26a in the bottom wall 26 of the bottom member 21.

The drawer detent bar 171 includes a central trough-shaped depression 174 that extends into the path of movement of the lug 37 of the drawer 30. An upright retaining cam 175 is moulded along the drawer detent bar 171 in the region of the trough-shaped depression 174. The drawer detent bar 171 may be made of a plastic material of the same or of a different type as the housing 10. The overall design characteristics of the index card register are as follows: When moving the drawer 30 inwardly into the bottom member 21 of the housing 10, the lug 37 at the drawer 30 embraces the cam 175 whereby the drawer detent bar 171 assumes an approximately horizontal position or a position in which the forward portion 171a of the drawer detent bar 171 is in an upper position. This upper position of the rearwardly mounted drawer detent bar 171 will be assumed when the forward portion 171a of the drawer detent bar 171 comes to rest above the opening 26a in the bottom wall 26 of the bottom member 21. The drawer detent bar 171 is arranged in the region of the path of movement of the card retainer pins 110 to 133. When actuating a selector key, the associated pivot lever connected to the actuated selector key will be rotated, with the result that the card retainer pin bearing free end of the pivot lever will be moved downwardly in the direction of the arrow x_1 (FIG. 8) so that the corresponding card retainer pin engages the forward portion 171a of the drawer detent bar 171 and urges the drawer detent bar at its forward portion into the opening 26a of the bottom wall 26 of the bottom member 21. Thereby the resilient element 173 will be compressed and biased. At the moment in which the card retainer pin has urged the forward portion 171a of the drawer detent bar 171 into the opening 26a of the bottom wall 26 of the bottom member 21 the drawer 30 will be unlocked insofar as the cam 175 is rotated outwardly from the lug 37 connected to the drawer 30. Since the drawer 30 is spring-biased, the drawer 30 will be moved outwardly in this moment (FIGS. 5 and 6). Alternatively, the drawer detent bar 171 may be replaced by a device of a different design, and such a device must in any case permit to unlock the drawer 30 from the bottom member 21. When the bottom wall 26 of the bottom member 21 is of a sufficient thickness the opening 26a in the bottom wall 26 may be replaced by a recess. It is important, however, that for unlocking the drawer the drawer detent bar 171 may be urged, with its forward portion 171a, into an opening or a recess so that the unlocking operation may be initiated.

The stack of index cards 200 consists of a number of index cards made of heavy grade paper, cardboard or the like, the number of index cards corresponding to the number of selector keys 40 to 63. In the embodiment of the index card register shown in the drawings there are provided twenty four index cards, designated by the reference numerals 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, and 224. At the rear edge of the index cards 202 to 224 is provided a selector tongue 202a,

203a, 204a, 205a, 206a, 207a, 208a, 209a, 210a, 211a, 212a, 213a, 214a, 215a, 216a, 217a, 218a, 219a, 220a, 221a, 222a, 223a and 224a respectively, and in these selector tongues (except that of the lowermost card 201) are provided apertures 250. These apertures 250 in the selector tongues of the index cards are arranged in two parallel rows which correspond to the arrangement of the card retainer pins 110 to 133 so that each aperture is operatively associated with a card retainer pin. The apertures 250 in the index cards 202 to 224 are of a substantially circular configuration. The lowermost index card 201 is devoid of apertures 250.

The configuration and the arrangement of the selector tongues 202a to 224a are as follows: Commencing with the index card 202 at the bottom the number of apertures 250 in each overlying index card increases by one aperture. Thus the index card 203 overlying the index card 202 with one aperture 250 includes two apertures 250 (FIGS. 15-18). Furthermore, the selector tongues are arranged so that the incremental aperture by which the number of apertures in any of the index cards is augmented with respect to the number of apertures in the adjacent underlying card is neither covered by a selector tongue nor by an aperture in any other index card. FIG. 15 illustrates a portion of the index card 202 with its selector tongue 202a that bears a single aperture 250a. The selector tongue 202a includes an oblique left hand side edge 202b whereby the configuration of the selecter tongue 202a is such that the selector tongue may just accommodate the aperture 250a. The index card 203 overlying the index card 202 includes a selector tongue 203a of approximately square or rectangular configuration in which are arranged two apertures 250a and 250b whereby the aperture 250a of the index card 203 coincides with the aperture 250a of the index card 202 when the two index cards overlie each other (FIG. 16). When the two index cards 202 and 203 overlie each other, the selector tongue 203a of the index card 203 covers the selector tongue 202a of the index card 202 to such an extent that only the selector tongue 202a is covered whereas the remaining portion 203b of the selector tongue 203a is exposed (FIG. 17 and 18). When actuating the corresponding selector key the card retainer pin associated therewith is inserted through the aligned aperture of the selector tongue 203a of the index card 203 and engages the drawer detent bar 171. The card retainer pin retains the index card 203 and any further index cards that overlie the index card 203. Since no card retainer pin is inserted through the aperture 250a of the selector tongue 202a, the index card 202 will not be retained but will move forward together with the outwardly moved drawer 30.

The entrainment of the selected index card or respectively of the selected index card and any index cards underlying the selected index card is ensured by means of a cam 180. This cam 180 is centrally moulded at the bottom wall 31 of the drawer 30 adjacent the drawer front wall 34. The index cards 201 to 224 include at their forward ends an aperture 230 each into which the cam 180 engages. When the drawer 30 moves outwardly from the housing 10, the selected index card, together with any underlying index cards, will be drawn from the stack of cards by this entrainment cam. This entrainment cam 180 is of an approximately triangular configuration which ensures that all of those index cards that are not being retained by a card retainer pin inserted through the apertures 250 may thus be released from the cam 180 so that only the liberated index card together with the underlying index cards will move outwardly together with the drawer.

The selector tongues 202a to 224a of the index cards 202 to 224 are arranged in a pattern that resembles a flight of stairs, as may be seen from FIG. 14.

The operation of the inventive index card register is briefly as follows: During periods of non-usage the drawer 30 is inserted into the housing 10. The drawer 30 accommodates a number of index cards that are overlying each other in a stack of index cards 200. The index cards include, at their rear edge, selector tongues. Each index card is provided with one selector tongue. In these selector tongues are provided apertures 250. When actuating a selector key, the pivot lever connected to this actuated selector key will be moved, at its free end, toward the bottom wall 26 of the bottom member 21 whereby the card retainer pin depending from this pivot lever is inserted through the operatively associated apertures 250 of the index cards arranged in its path of movement so that the pin engages the drawer detent bar 171. The forward portion 171a of the drawer detent bar 171 will thereby be urged into the opening or recess 26a in the bottom wall 26 of the bottom member 21. At this moment is released the lug 37 of the drawer 30 which had previously be retained by the cam 135 of the drawer detent bar 171. Upon rotation of the drawer detent bar 171 the cam 175 is withdrawn from the lug 37 by a rotary movement. In this instance the drawer 30 is accelerated forwardly by the compression spring (not shown) and concurrently entrains the selected index card and all index cards underlying the selected

index card whereas all index cards overlying the selected index card are being retained by the depressed card retainer pin. When the projecting drawer with the corresponding index card exposed to sight is no longer required, the drawer 30 may be moved back into the housing 10 and will be retained therein by the fact that the lug 37 at the drawer bottom wall 31 engages the cam 175 and is being retained in the locking position by the drawer detent bar 171. When releasing the actuating pressure of the card retainer pin on the drawer detent bar 171, the latter is moved backwardly by the resilient element 173 into the slightly raised position, i.e. into a position ensuring engagement of the lug 37 on the drawer 30 with the cam 175 of the drawer detent bar 171, for interlocking these members. In the inserted position of the drawer 30, the index cards in the stack of index cards 200 are retained by the angled retaining ledges 19, 19a disposed internally of the housing 10 and partly overlapping laterally the index cards of the stack of index cards 200 so that the index cards and their selector tongues assume a flat planar shape in the region of the card retainer pins.

The index card register of the present invention may be designed and manufactured at low cost, and this is partly due to the fact that the selector keys 40 to 63 define together with their associated pivot levers 70 to 93 an assembly that may readily be removed since the pivot levers 70 to 93 are merely slided, at their one ends, onto the mounting rod 101. Any malfunction or wrong selection is excluded since only those index cards will be released for which the associated selector key has been actuated. Since the selector tongues having the apertures are arranged at the rear ends of the index cards, a relatively large portion of the index cards surface is available for receiving indicia, data or the like. The entrainment cam 180 on the bottom wall 31 of the drawer 30 may also be replaced by laterally arranged entrainment cams. The index cards would then have to include correspondingly shaped recesses for engagement with these lateral entrainment cams whereby it must be ensured that the selected index card together with any underlying index cards are properly entrained when the drawer 30 moves outwardly from the housing, and that the index cards that are retained by the card retainer pin are released from the entrainment cams. For inscribing the index cards the latter may readily be removed individually from the card register housing.

The present invention is not intended to be restricted to the above described and illustrated embodiment. Modifications in the arrangement of the guide means for the drawer, in the arrangement of the resilient tongues biased by the card retainer pins and in the arrangement of the drawer locking and unlocking mechanism are likewise considered to be within the scope of the present invention. Thus the drawer detent bar may consist of a resilient tongue made of a plastic material moulded integrally with the bottom member of the housing. Due to its inherent restoring capacity such a resilient tongue will again return into its initial spatial position when releasing a pressure force applied to this tongue by a card retainer pin so that the drawer may be locked. There may likewise be provided a drawer locking mechanism of a different design. Thus the front edge of the drawer detent bar may be provided with a vertical engaging bar, and the drawer may be provided, at its rear bottom wall portion, with a wedge-shaped landing surface having a rearward vertical portion behind which engages the engaging bar of the drawer detent bar to retain the drawer in the inward position. The drawer detent bar may also be in the form of a key-bolt provided with suitable means for locking the drawer.

The index card register may be employed not only for presenting phone numbers, addresses and the like but likewise for tabulating or classifying goods of any type and the like.

Attention is drawn to our co-pending application No. 39479/78 (Serial No. 1 568 979) which claims an index card register.

WHAT WE CLAIM IS:—

1. An index card register including a housing consisting of a cover member and a bottom member, a plurality of selector keys disposed in an array of rows and columns, a drawer biased from the housing by a spring, and a plurality of stacked index cards accommodated within the drawer, the index cards at their rearwardly disposed marginal portions being provided with selector tongues with apertures therein, the selector tongues increasing in size in stepwise fashion from the lowermost index card to the uppermost index card and being provided with said apertures in such fashion that each index card has an extra aperture with respect to the underlying index card, said extra aperture being in an exposed portion of the tongue; each selector key being mounted at one end of an associated pivot lever which is resiliently urged into a substantially horizontal position by resilient means and which mounts at its other end a depending index card retainer pin, the index card retainer pins of alternate levers being aligned with each other whereby two parallel rows of said pins are formed, the index card retainer pins being adapted to cooperate with the apertures

index card whereas all index cards overlying the selected index card are being retained by the depressed card retainer pin. When the projecting drawer with the corresponding index card exposed to sight is no longer required, the drawer 30 may be moved back into the housing 10 and will be retained therein by the fact that the lug 37 at the drawer bottom wall 31 engages the cam 175 and is being retained in the locking position by the drawer detent bar 171. When releasing the actuating pressure of the card retainer pin on the drawer detent bar 171, the latter is moved backwardly by the resilient element 173 into the slightly raised position, i.e. into a position ensuring engagement of the lug 37 on the drawer 30 with the cam 175 of the drawer detent bar 171, for interlocking these members. In the inserted position of the drawer 30, the index cards in the stack of index cards 200 are retained by the angled retaining ledges 19, 19a disposed internally of the housing 10 and partly overlapping laterally the index cards of the stack of index cards 200 so that the index cards and their selector tongues assume a flat planar shape in the region of the card retainer pins.

The index card register of the present invention may be designed and manufactured at low cost, and this is partly due to the fact that the selector keys 40 to 63 define together with their associated pivot levers 70 to 93 an assembly that may readily be removed since the pivot levers 70 to 93 are merely slided, at their one ends, onto the mounting rod 101. Any malfunction or wrong selection is excluded since only those index cards will be released for which the associated selector key has been actuated. Since the selector tongues having the apertures are arranged at the rear ends of the index cards, a relatively large portion of the index cards surface is available for receiving indicia, data or the like. The entrainment cam 180 on the bottom wall 31 of the drawer 30 may also be replaced by laterally arranged entrainment cams. The index cards would then have to include correspondingly shaped recesses for engagement with these lateral entrainment cams whereby it must be ensured that the selected index card together with any underlying index cards are properly entrained when the drawer 30 moves outwardly from the housing, and that the index cards that are retained by the card retainer pin are released from the entrainment cams. For inscribing the index cards the latter may readily be removed individually from the card register housing.

The present invention is not intended to be restricted to the above described and illustrated embodiment. Modifications in the arrangement of the guide means for the drawer, in the arrangement of the resilient tongues biased by the card retainer pins and in the arrangement of the drawer locking and unlocking mechanism are likewise considered to be within the scope of the present invention. Thus the drawer detent bar may consist of a resilient tongue made of a plastic material moulded integrally with the bottom member of the housing. Due to its inherent restoring capacity such a resilient tongue will again return into its initial spatial position when releasing a pressure force applied to this tongue by a card retainer pin so that the drawer may be locked. There may likewise be provided a drawer locking mechanism of a different design. Thus the front edge of the drawer detent bar may be provided with a vertical engaging bar, and the drawer may be provided, at its rear bottom wall portion, with a wedge-shaped landing surface having a rearward vertical portion behind which engages the engaging bar of the drawer detent bar to retain the drawer in the inward position. The drawer detent bar may also be in the form of a key-bolt provided with suitable means for locking the drawer.

The index card register may be employed not only for presenting phone numbers, addresses and the like but likewise for tabulating or classifying goods of any type and the like.

Attention is drawn to our co-pending application No. 39479/78 (Serial No. 1 568 979) which claims an index card register.

WHAT WE CLAIM IS:—

1. An index card register including a housing consisting of a cover member and a bottom member, a plurality of selector keys disposed in an array of rows and columns, a drawer biased from the housing by a spring, and a plurality of stacked index cards accommodated within the drawer, the index cards at their rearwardly disposed marginal portions being provided with selector tongues with apertures therein, the selector tongues increasing in size in stepwise fashion from the lowermost index card to the uppermost index card and being provided with said apertures in such fashion that each index card has an extra aperture with respect to the underlying index card, said extra aperture being in an exposed portion of the tongue; each selector key being mounted at one end of an associated pivot lever which is resiliently urged into a substantially horizontal position by resilient means and which mounts at its other end a depending index card retainer pin, the index card retainer pins of alternate levers being aligned with each other whereby two parallel rows of said pins are formed, the index card retainer pins being adapted to cooperate with the apertures

* C L M S *

in index card selector tongues so that when a selector key is depressed all index cards overlying the index card associated with the depressed key will be retained when the drawer moves outwardly of the housing; the register further including a resiliently mounted drawer detent bar operatively coupled to a drawer locking mechanism and adapted to be engaged by the index card retainer pin of a depressed selector key to release outward movement of the drawer; and the drawer including, in its forward region, a triangularly shaped entrainment cam for cooperation with punched-out entrainment apertures in the front region of the index cards.

2. A register according to claim 1, in which the free ends of the index card retainer pins are normally supported in a position above the uppermost index card by means of resilient tongues secured to the rear wall of the bottom member and engaging the free ends of the pivot levers.

3. A register according to claim 1 or claim 2, in which the drawer locking mechanism includes the drawer detent bar which is arranged in the path of movement of the drawer, the drawer detent bar being pivotable about a horizontal pivot axis in the vicinity of the rear wall of the housing bottom member, a forward portion of the drawer detent bar being movable in a recess in the bottom wall of the drawer, and the drawer detent bar including a retaining cam in a central engagement region of the drawer; the drawer being provided in a rear bottom portion with a lug adapted to engage the retaining cam.

4. A register according to claim 3, in which the drawer is guided in the housing bottom member by means of lateral guide members.

5. A register according to claim 4, in which retaining ledges are arranged in the rear of the housing bottom member on both sides of the drawer detent bar, the ledges partly overlying the drawer and the stack of index cards therein.

6. A register according to any preceding claim, in which the selector keys consist or plate-shaped, square or rectangular pads, and each pad is connected to its associated pivot lever by a respective vertical web.

7. A register according to claim 6, in which each of the selector keys in a column is of a width which substantially corresponds to the width of the four pivot levers supporting the selector keys in that column.

8. A register according to any preceding claim, in which the top of the housing cover member is formed with an aperture which substantially corresponds to the area defined by the selector keys.

9. A register according to any preceding claim, in which the apertures in the selector tongues of the index cards are arranged in mutually superposed positions, and in which the selector tongue of every alternate index card includes an inclined portion for exposing an aperture of the underlying index card.

10. An index card register substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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