A card index consisting of a plurality of flexible super-imposed index cards mounted in a drawer movable in a case. The cards have entrainment recesses and lateral recesses which are in register and selector recesses which form a stepped arrangement in a stack of index cards. Guide means mounted on the case and on the drawer lift the index cards at their front faces in the closed position of the drawer and aid in the selection of a card. Further guide means serve to guide the cards when closing the drawer.
CARD INDEX WITH SELECTING MEANS

This invention relates to a card index of the type described in a patent to W. Koller, U.S. Pat. No. 3,423,862, which comprises a case, a drawer biased by a push spring and held in a closed position by a latch, the drawer adapted to accommodate a plurality of index cards with reference numbers, letters and so on, means for unlatching the drawer and releasing an index card selected by means for a set key by urging the unlnatched drawer outwardly under the push spring, the rear side of the drawer being open and the base of the drawer having parallel longitudinal slots for accommodating snug-shaped cams mounted on the bottom of the box type case at a predetermined distance from a case aperture, the predetermined distance corresponding, in the pushed-in position of the drawer, to the length of a drawer base portion which slopes towards the drawer front wall and defines a recess, an entainment member on each longitudinal edge of the drawer adapted to engage matingly shaped entainment recesses in the index cards of a resiliently elastic material, each of the index cards having at its adjacent front face register type selector recesses, each of which is engaged by the selector keys operating the latch for locking the drawer in such a way that when a selector key is depressed a selected index card, with any stack of index cards lying below it, is bent down over the cams and pressed into the recess and onto the entainment members of the drawer whereby the latch is tilted from its locking position.

The object of the present invention is to improve the card index of the above-mentioned patent and to provide an improved card index in which any error in the selection of the index cards is excluded and the possibility of damaging the front faces of the index cards having the selector recesses is avoided. This object is attained in accordance with the present invention in that a card index of the above-described type a guide cam is mounted on the bottom of the case, centrally with respect to the longitudinal extension of the drawer and to the rear of the recess defined by the sloping drawer base portion, the guide cam height increasing in the direction of the rear of the drawer, the guide cam adapted to cooperate with a groove in the drawer base extending transversely to the longitudinal direction of the drawer, the groove adapted to receive an U-shaped swivel stirrup having free leg ends pivotally mounted at the longitudinal side walls of the drawer, and a central portion bent towards the base of the drawer and received in a central opening of the groove, the central stirrup portion adapted to cooperate with the guide cam so that in the pushed-in position of the drawer the stirrup is in a raised position and the index cards are lifted at their front faces and the entainment recesses of the index cards are moved out of the engagement range of the entainment members located in front of the recess defined by the sloping drawer base portion.

For additionally accommodating a supply of notice material the base of the drawer includes two adjacent cup shaped recesses separated by a channel shaped fillet for guiding the guide cam, a rear support surface and a front support surface for supporting the index cards and a groove for receiving the stirrup being provided in front of the recess into which will be depressed the selected index cards, with any stack of index cards lying below them when depressing a selector key. The two support surfaces of the drawer base are connected by longitudinal side walls of the drawer laterally defining the cup shaped recesses, and the upper edges of the side walls lie in the same plane as the two support surfaces.

The entainment members are spaced from each other and mounted on the base of the drawer between the groove and the recess in the base, and the index cards have entainment recesses, each of which is operably associated with a corresponding one of the entainment members of the drawer.

For protecting the front faces of the index cards when pushing the drawer into the case, the two longitudinal side walls of the drawer are provided, according to another feature of the present invention, with a reduced portion to the rear of the stirrup and between each of the higher and lower longitudinal side wall portions forming a step-like vertical entainment shoulder, the index cards having recesses in the region of the higher longitudinal side wall portions corresponding to the lengths and related to the thickness of the longitudinal side wall portions. Furthermore, the selector recesses of the various index cards of the stack which are provided at the front faces of the index cards are arranged in a step-like fashion from the left and from the right longitudinal side edges towards the entainment recesses and from the centers of the index cards towards the entainment recesses.

An example of an embodiment of the invention is illustrated in the drawing and described in more detail in the following. In the Figures:

FIG. 1 is a top view of a card index with the upper case wall being removed;

FIG. 2 is a vertical cross-section of the card index along the line II—II of FIG. 1;

FIG. 3 is a vertical cross-section of the card index along the line III—III of FIG. 1;

FIG. 4 is a vertical longitudinal section of the card index along the line IV—IV of FIG. 1;

FIG. 5 is a vertical longitudinal section of the card index along the line V—V of FIG. 1;

FIG. 6 shows a lateral elevational view of the drawer of the card index;

FIG. 7 is a top view of an index card;

FIGS. 8 and 8A are top views of several broken away front portions of index cards arranged one behind the other and showing the selector recesses at the front edges;

FIG. 9 is a top view of several superimposed index cards of the type shown in FIGS. 8 and 8A;

FIG. 10 shows the card index partly in perspective and partly in section;

FIG. 11 is a partial longitudinal sectional view of the card index; and

FIG. 12 is a perspective view, partly in section, of a portion of the card index.

In a preferred embodiment shown in FIG. 1 the card index constructed in accordance with the invention consists of a case 4 with a drawer 2, open at the rear end and guided on the bottom 4a of the case, for accommodating a plurality of index cards 1 of a resiliently elastic material. The index cards 1 are provided with entainment recesses 15 adjacent to their front faces. The front faces of the index cards 1 which are advanced when the drawer 2 travels outwardly have selector recesses 20 which extend stepwise from the left and from the right longitudinal side edges of the cards.
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towards the entrainment recesses 15 and from the centers of the index cards 1 towards the entrainment recesses 15. The stepped arrangement of the index cards 1 which are successively referenced from "a" to "i" is preferably such that, commencing from the top of the stack, the left hand steps are formed by the first card a, the third card c, the fifth card e and the eleventh card k, the right hand steps are formed by the second card b, the fourth card d and the sixth card f, the center left hand steps are formed by the first card a, the seventh card g, the center right step by the twelfth card l, and the center right hand steps are formed by the second card b, the eighth card h, the tenth card j and the twelfth card l respectively (FIGS. 8, 8A and 9).

A guide cam 50 is mounted centrally on the bottom 4a of the case 4 and to the rear of a recess 16 which slopes towards the drawer front wall. The guide cam 50 is sloping upwardly towards the rear of the drawer 2 and is adapted to guide an U-shaped swivel stirrup 52 received in a groove 51 in the base of the drawer 2. The groove 51 extends transversely to the longitudinal direction of the drawer 2. The free leg ends $52a$, $52b$ of the stirrup 52 are pivotally mounted at the longitudinal side walls 53, 54 respectively of the drawer 2. The groove 51 extends in the base of the drawer 2 up to points adjacent to the pivot mountings of the stirrup 52 (FIG. 1). The stirrup 52 has an approximately U-shaped central portion 55 which is bent towards the bottom 4a of the case 4 and is received by a central opening 56 in the groove 51 so that in the plugged-in position of the drawer 2 the U-shaped stirrup portion 55 rests on the highest portion of the guide cam 50, and the swivel stirrup 52 assumes a raised position in which the stirrup is raised upwardly by an amount corresponding to the amount of deflection of the central stirrup portion 55 from the plane of the stirrup towards the bottom (FIGS. 4 and 5). The index cards 1 which are arranged on the base of the drawer 2 will be likewise lifted in the raised position of the swivel stirrup 52 so that the entrainment recesses 15 of the cards are moved out of the engagement range of the entrainment members 6 which are located in front of the recess 16. These entrainment members 6 are spaced by about equal distances from the longitudinal side walls 53, 54 of the drawer 2, and from each other and engage the entrainment recesses 15 of the index cards 1 when actuating one of the selector keys (not shown) mounted on the case.

In the base of the drawer 2 are two adjacent cup-shaped recesses 61, 62 for receiving blank notice slips 60 (FIGS. 1 and 2). These recesses 61, 62 are separated from each other by a channel-shaped fillet 63 extending in the longitudinal direction of the drawer. The closed upper surface of the fillet 63 serves as a support surface for the index cards 1 whereas the interior of the fillet 63 forms a guide track for the guide cam 50. The two recesses 61, 62 define in the base of the drawer 2 a rear support surface 64 and a front support surface 65 for the index cards 1. The groove 51 for receiving the swivel stirrup 52 is provided in the front support surface 65. The recess 16 is in front of the front support surface 65. The cup-shaped recesses 61, 62 for accommodating blank notice slips or the like are bounded laterally by the longitudinal side walls 53, 54 of the drawer 2, and the upper edges of the side walls extend in the same plane as the support surfaces 64, 65. The index cards 1 are therefore supported by the two support surfaces 64, 65, the upper edges of the longitudinal side walls 53, 54 and the fillet 63.

The longitudinal side walls 53, 54 of the drawer 2 have a greater height in the front portion than in the remaining portion of the drawer. Each of the longitudinal side walls 53, 54 has a step-like portion defining an approximately vertical entrainment shoulder 53a, 54a approximately in the region of the swivel stirrup 52 (FIGS. 1 and 6). In the region of the higher portions of the side walls 53, 54 which extend upwardly from the shoulders the index cards 1 have recesses 70, 71 which correspond to the lengths of the higher front longitudinal side wall portions and are related to the thickness of the longitudinal side walls 53, 54 (FIGS. 7 and 9). These lateral reductions of the longitudinal side walls 53, 54 of the drawer 2 allow to readily withdraw an index card 1 such as for the purpose of writing thereon, by gripping the card at its lateral edges. The rearward facing shoulder 53a, 54a respectively of the step-like portions in the longitudinal side walls 53, 54 of the drawer 2 serve simultaneously as transport and support surfaces for the index cards 1 when pushing the drawer 2 into the case 4 whereby the front selector recesses 20 of the index cards 1 are protected and do not get compressed. As shown in FIGS. 10 to 12, selector keys 7 mounted on the case 4 engage in the selector recesses 20 of the index cards 1. Each selector key is under the pressure of a counter-spring 13 and has two laterally extending shoulders 19 which limit the upward thrust of the spring 13 on the key. Below the shoulders 19 each selector key is provided with a pin 8 which is adapted to the profile of the selector recesses of the index cards 1. When the drawer 2 is closed a fillel 10 engages in a recess 11 located in a longitudinal side wall of the drawer. To displace the file 10 out of the recess 11, a control rail 9 is provided in the path of travel of the selector keys 7 and it is cooperatively engaged with the filet. At their lower ends, the pins 8 have hook-shaped portions 25 arranged so that when the key 7 is pressed down the portion 25 engages under the card stack to be retained and holds it securely in position. The bottom surface of the portions 25 are arcuate so that in downward movement they do not damage the front edges of the cards. The outer upper horizontal surface of the hook-shaped portion is formed arcuately as a journal surface.

The card index formed in accordance with the invention is used as follows: When not in use the drawer 2 of the card index is held in the case 4 by means of the latch or filet 10 (not shown). Since the swivel stirrup 52 is resting on the guide cam 50 the index cards 1 are lifted slightly at their adjacent front faces bearing the selector recesses 20 so that these portions of the index cards come to engage the selector keys 7 from below. When actuating a selector key the pin 8 of this key is pressed on the projecting index card corresponding to the key in the cut-out zone of the selector recesses 20 of the index cards 1, and the index card 1 is bent over the raised swivel stirrup 52, together with any other index cards lying below it, so far into the recess 16 of the drawer 2 that the entrainment members 6 engage in the entrainment recesses 15 of the index cards 1. Simultaneously any other index cards that may be remaining in the case are held back by the pressed down pin 8 of the actuated selector key 7. During the last phase of the depressing operation, the drawer latch
means is released. The drawer 2 travels out of the case 4 to the front whereby the selected index cards 1 are entrained by the entrainment members 6. Simultaneously the stirrup 52 is tilted from its initial upper raised position into the groove 51 and comes to rest in a position below the base of the drawer 2. After the drawer 2 has traveled out, the drawer may be readily pushed back into the case 4.

The card index formed in accordance with the invention is of a simple design and may be easily and economically manufactured. In the extended position of the drawer the index cards which have remained in the case assume a flat configuration within the case. As a result of the smaller side wall portions of the drawer individual index cards may be readily removed. Due to the fact that when pushing in the drawer the index cards are gripped along their side edges, and as the cards are pushed back together with the drawer any damaging of the selector recesses 20 of the index cards 1 is avoided. In comparison to the index cards according to the above-mentioned patent the stepped arrangement of the selector recesses of the index cards according to the present invention results in the further advantage that even with a small number of index cards a positive engagement of the entrainment members 6 is assured despite a smaller travel of the selector keys.

What I claim is:

1. In a card index comprising a case, a longitudinally extending drawer releasably secure within said case and spring biased in its longitudinal direction for movement outwardly from said case when it is released from securement therein, said drawer having a front wall extending transversely of the longitudinal direction of said drawer, laterally spaced side walls extending from said front wall in the longitudinal direction and a base, a plurality of superimposed index cards located within and supported on the base of said drawer, index cards being formed of a resiliently elastic material and having selector recesses along the edge thereof adjacent said front wall of said drawer and laterally spaced entrainment recesses formed in said cards adjacent the edge containing said selector recesses, selector keys mounted on said case and each arranged to be moved downwardly into contact with a different one of said index cards along the edge thereof containing the selector recesses for depressing the edge of said index card and any said index cards disposed below it in the downward direction, entrainment members mounted on said base of said drawer adjacent to and spaced from said front wall and arranged to engage the entrainment recesses in said index cards when said index cards are depressed downwardly by one of said selector keys, wherein the improvement comprises that the front end of said base of said drawer slopes upwardly from the lower end of said front wall to the location of said entrainment members so that a recess is formed in said base at the front end of said drawer, a guide cam mounted on and extended upwardly from said case towards the base of said drawer, said guide cam extending in the longitudinal direction of said drawer and spaced laterally from the sides of said drawer, said guide cam located rearwardly of said recess in said drawer in the closed position of said drawer in said case and sloping upwardly in the rearward direction from said front wall, said base of said drawer having a downwardly extending groove therein extending transversely of its longitudinal direction and located rearwardly of said recess in said base, the bottom of said groove being open for a portion of its length intermediate the sides of said drawer, a U-shaped swivel stirrup having a pair of legs joined by a bight portion extending transversely at the longitudinal direction of said drawer, the free end of each of said legs is secured into an opposite one of said side walls of said drawer at a position spaced rearwardly of said groove, said bight portion including a U-shaped central portion intermediate the ends thereof and arranged in alignment with the open portion of said groove and to extend downwardly from the remainder of said bight portion, said U-shaped central portion in the closed position of said drawer extending into contacting relationship with the upper rearward end of said guide cam so that said index cards positioned at said base of said drawer are raised upwardly at their forward ends by said stirrup and the entrainment recesses in said index cards are moved upwardly out of the engagement range of said entrainment members located forwardly of said groove in said drawer.

2. A card index, as set forth in claim 1, wherein said base of said drawer includes two adjacent cup-shaped recesses, a channel-shaped fillet in the base of said drawer separating said cup-shaped recesses from each other, said fillet arranged for guiding said guide cam during movement of said drawer, said base of said drawer having a front support surface and a rear support surface spaced apart by said cup-shaped recesses and arranged for supporting said index cards, and said groove for receiving said stirrup is located in said front support surface.

3. A card index, as set forth in claim 2, wherein said front and rear support surfaces of said base of said drawer are connected by said side walls of said drawer which in combination with said fillet laterally define said cup-shaped recesses, and at least a portion of the upper edges of said side walls lie in a plane defined by said front and rear support surfaces of said base.

4. A card index, as set forth in claim 1, wherein said entrainment members are spaced from one another in the transverse direction of said drawer and are mounted on said base of said drawer between said groove and said recess in said base, and said entrainment recesses in said index cards each arranged to be operatively associated with a corresponding one of said entrainment members when said index cards are depressed downwardly.

5. A card index, as set forth in claim 1, wherein said side walls of said drawer have a stepped down portion located rearwardly of said stirrup and forming between the higher and lower side wall portions a step-like vertical entrainment shoulder, and each of the longitudinal edges of said index cards having a recess extending for the extent of said higher side wall portion and corresponding in length to and related to the thickness of said higher longitudinal side wall portions.

6. A card index, as set forth in claim 1, wherein the selector recesses of the superimposed index cards are provided at the front edges of said index cards adjacent the front wall of said drawer in a step-like fashion from the left side edge and from the right side edge toward the entrainment recesses and from the center of the front edge toward the entrainment recesses.

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