July 6, 1926. 1,591,327

S. J. KRAUT ET AL

CARD SELECTING AND RELEASING MECHANISM FOR FILING CABINETS

Filed July 12, 1921 .3 Sheets-Sheet 1

Fig. 1.

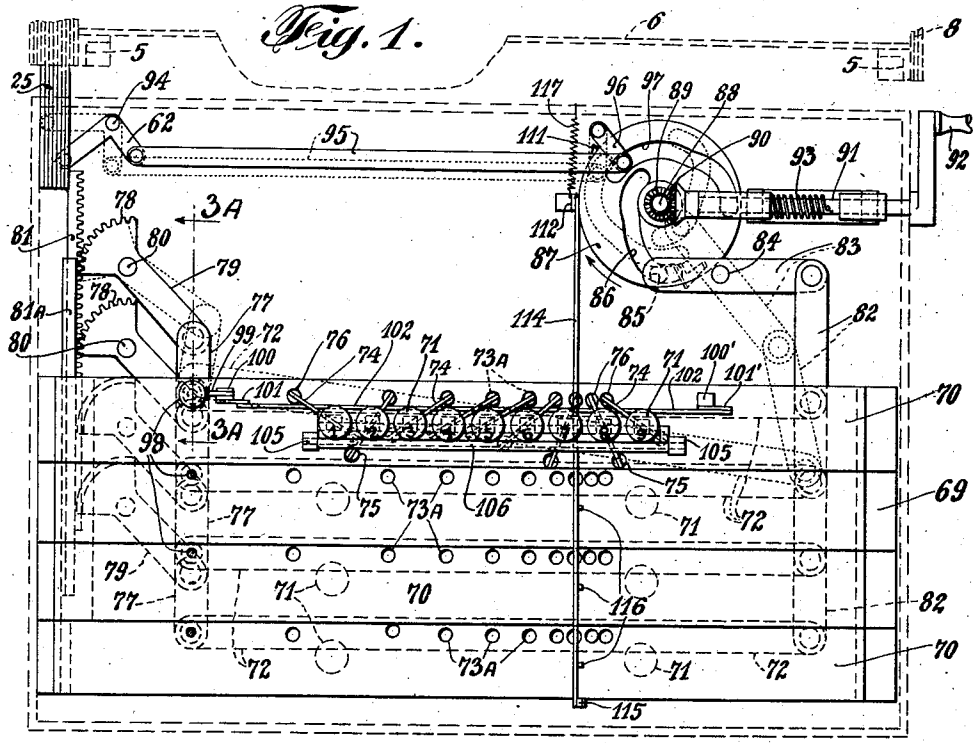


Fig. 2.

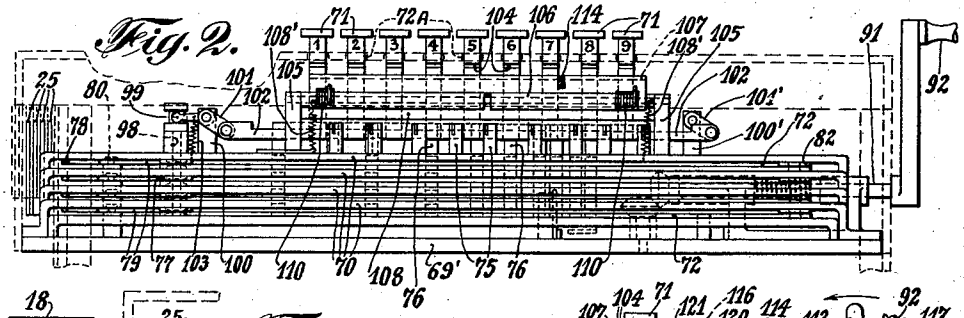


Fig. 4.

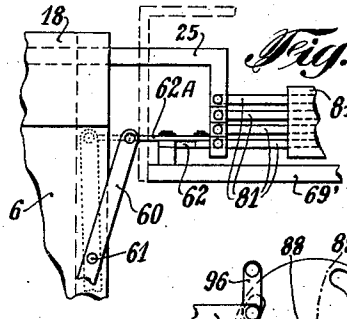


Fig. 3.

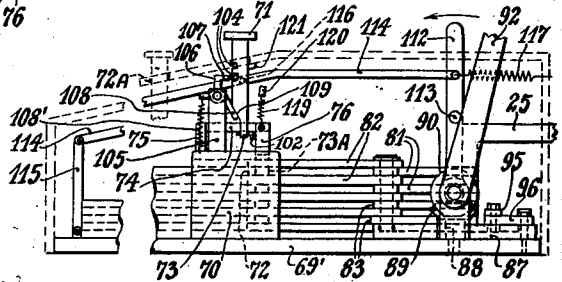
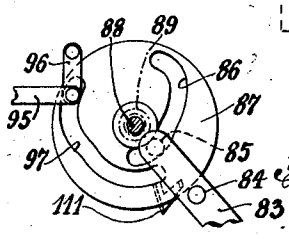


Fig. 5.



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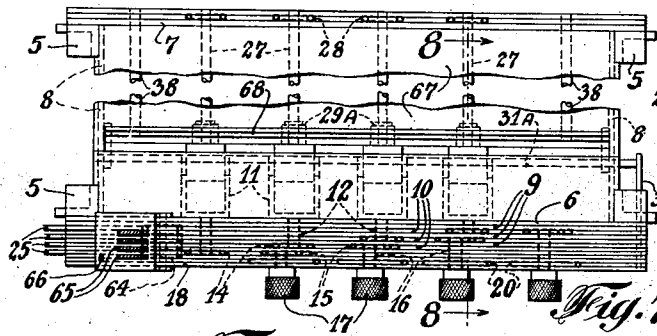


Fig. 7.

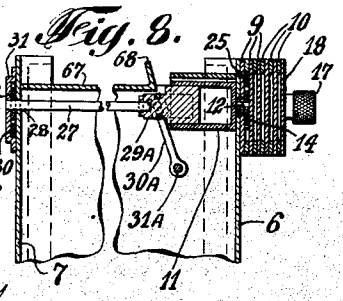


Fig. 8.

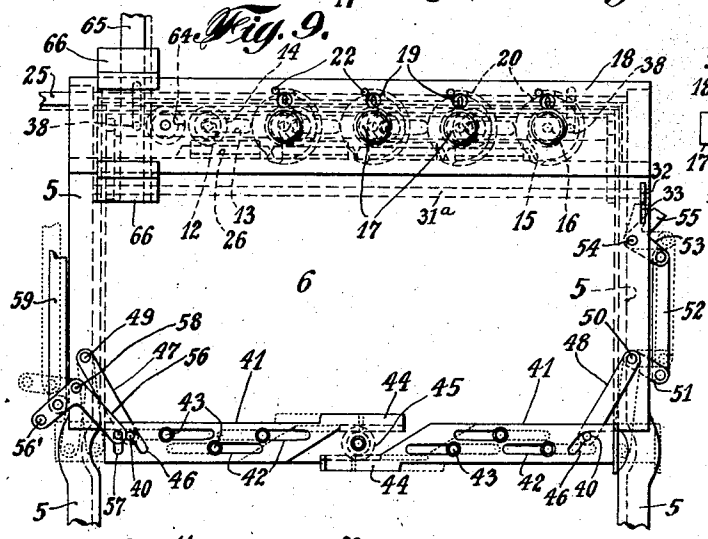


Fig. 9.

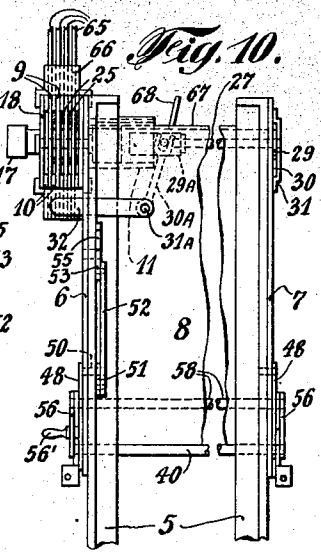


Fig. 10.

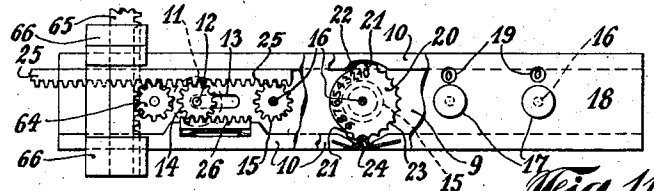


Fig. 11.

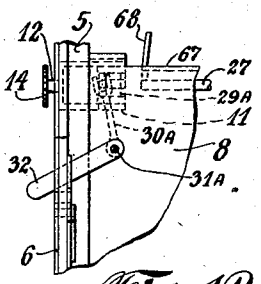


Fig. 12.

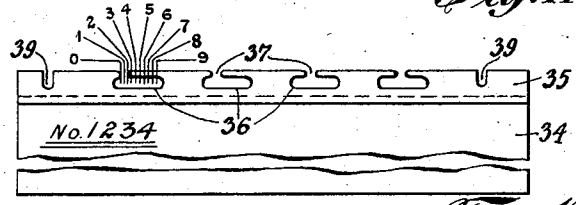


Fig. 13.

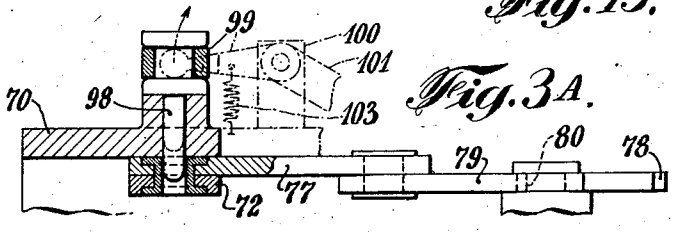


Fig. 3A.

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CARD SELECTING AND RELEASING MECHANISM FOR FILING CABINETS

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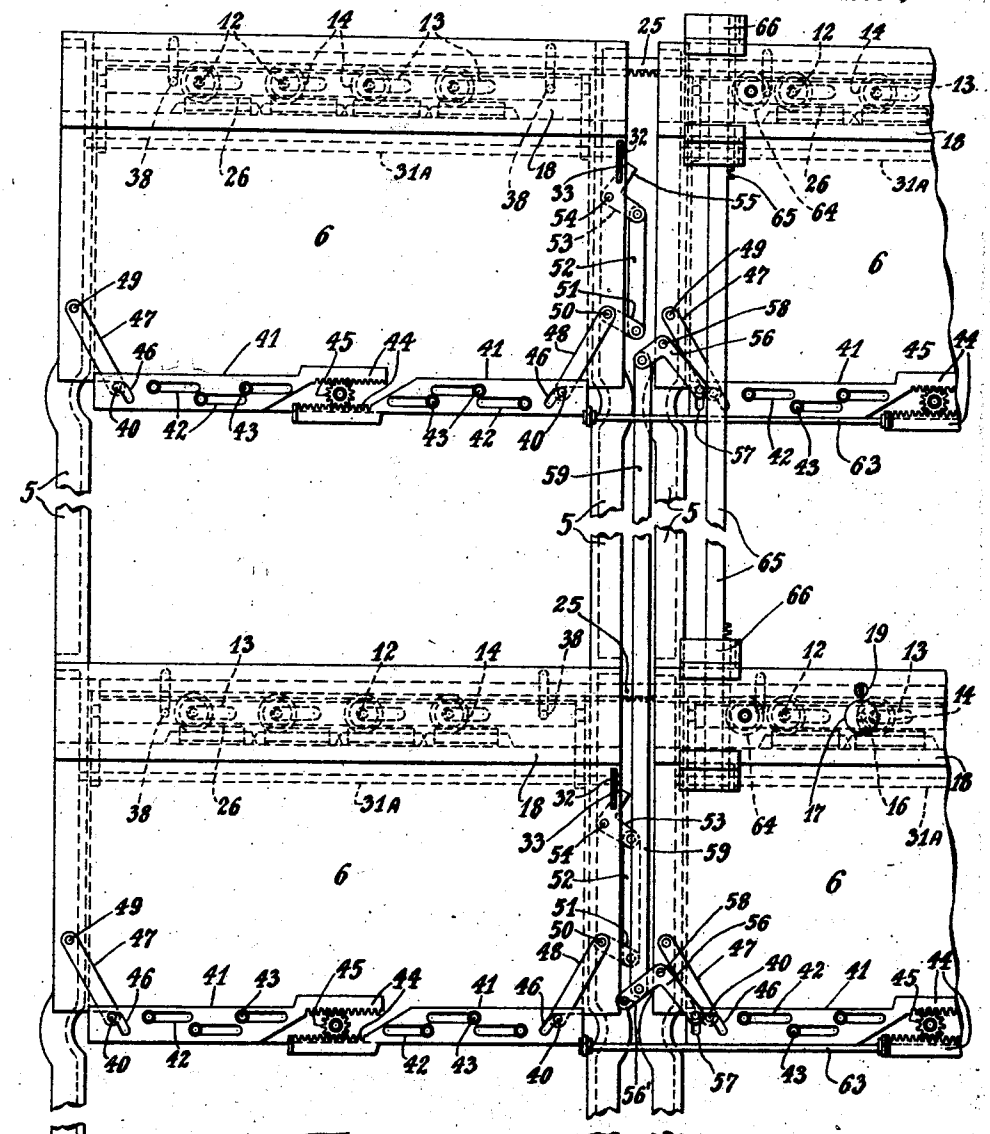


Fig. 6.

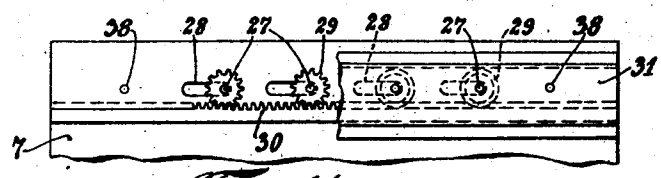


Fig. 11 A.

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UNITED STATES PATENT OFFICE.

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CARD SELECTING AND RELEASING MECHANISM FOR FILING CABINETS.

Application filed July 12, 1921. Serial No. 484,264.

This invention relates to filing devices and has for its primary object to provide means for supporting a plurality of data-bearing cards in a bottomless compartment and manually operable selecting mechanism whereby any individual desired card may be released and withdrawn from the compartment without removing or in any way disturbing the remaining cards.

More particularly, the present invention comprehends the provision of a series of shiftable rods from which the cards are releasably suspended at their upper edges together with lower supporting rods extending beneath the series of cards, and mechanism for simultaneously shifting the first series of rods and the latter supporting rods to thereby permit of the free and unretarded gravity movement of a selected card upon the operation of said mechanism.

It is also another object of our invention to provide means for simultaneously actuating the card-releasing means of a series of filing compartments by means of a single selecting mechanism to release a desired card from any one of the compartments.

In one embodiment of our invention we propose to provide a key-actuated selecting mechanism for controlling the operation of the card-supporting and releasing means within a filing compartment together with means normally locking the controlling means against operation and actuated upon the depression of the keys to release said controlling means.

In general, the present invention provides a card-selecting and releasing mechanism for filing cabinets through the medium of which any desired card may be easily and quickly obtained and which will be reliable and efficient in its operation, highly serviceable in practical use and capable of manufacture at comparatively small cost.

With the above and other objects in view, the invention consists in the improved card-selecting and releasing mechanism for filing cabinets and in the form construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings and subsequently incorporated in the subjoined claims.

In the drawings wherein we have disclosed several desirable embodiments of the invention and in which similar reference characters designate corresponding parts throughout the several views,

Figure 1 is a top plan view of the selecting mechanism and the key-board for controlling its operation, several rows of the keys being omitted in the interest of clarity;

Figure 2 is a side elevation of the key-board;

Figure 3 is an end elevation partly broken away;

Figure 3^A is a detail sectional view on an enlarged scale taken on the line 3^A—3^A of Figure 1.

Figure 4 is a detail fragmentary end view illustrating particularly the means for actuating the clutch-locking mechanism;

Figure 5 is a detail plan view of the actuating cam showing the relative positions of the cam slots and the parts co-operating therewith after the selecting mechanism has been actuated;

Figure 6 is a front elevation of two series of filing compartments illustrating the means for simultaneously operating the card-supporting and releasing means of all of the compartments and for locking the clutches in their effective positions;

Figure 7 is a plan view partly broken away showing a slightly different form of the manually operable means for controlling the operation of the selecting mechanism;

Figure 8 is a sectional view taken on the line 8—8 of Figure 7;

Figure 9 is a front elevation of the embodiment of the invention shown in Figure 7;

Figure 10 is a side elevation thereof;

Figure 11 is a detail elevation, certain parts being broken away showing the indicating dial and parts of the operating gearing for the manually operable actuating means for the selecting mechanism;

Figure 11^A is a detail elevation of certain of the parts;

Figure 12 is a detail fragmentary eleva-

tion showing one of the clutches in its released position; and

Figure 13 is a detail elevation of one of the cards having the reinforcing strip along one edge slotted to receive the movable locking rods.

In describing our invention, we shall first refer to the means whereby the individual data-bearing cards are supported in the respective compartments of the filing cabinet. The cabinet may, of course, consist of any desired multiple of similar units which may be either permanently assembled in the completed structure or can be separable from each other. As the card-supporting and releasing means is identical for all of the several compartments, the following description of one such means will suffice for all. We shall first describe that embodiment of our invention which is illustrated in Figures 6 to 12 inclusive of the drawings. To the spaced vertically disposed standards 5, the front wall 6, rear wall 7 and the side walls 8 are suitably secured. Upon the upper edge of the front wall 6, a series of longitudinally extending metal bars 9 are supported in spaced parallel relation to each other and between said bars the spacing strips 10 are disposed at their upper and lower edges. Within the compartment a series of spaced female clutch members 11 are arranged, each of said members having a stub shaft 12 at one end rotatably mounted in the front wall 6 of the compartment. The shafts 12 of these clutch members are of relatively different lengths as shown in Figure 7 and extend through the slots 13 provided in the bars 9. Upon each shaft a pinion 14 is fixed, said pinions being disposed respectively in one of the spaces between the series of bars 9.

An additional pinion 15 is also arranged in each of the spaces between the plates or bars 9 and in spaced relation to the slots 13, said latter pinions being fixed upon the shafts 16 which are rotatably mounted in said spaced plates 9 and are provided at their front ends with knurled heads or finger pieces 17 whereby said shafts may be rotated. A face plate 18 is provided with a series of spaced openings 19 therein, the shafts 16 also extending through said face plate. Between this plate 18 and the first of the plates or bars 9 dial plates 20 fixed upon the shafts 16 are disposed, each of said plates having the numerals 0 to 9 delineated thereon and successively visible through the openings 19 in the rotation of the dial plates. The spacing strips 10 are recessed to receive these dial plates and each dial is provided with circumferentially spaced shoulders 21 to engage a stop lug 22 on the upper spacing strip and thereby limit the rotation of the dial plate in each direction. Substantially one-half of the circumference of the dial plate is notched or corrugated, as at 23, to receive a yieldable latch element 24 on the lower spacing strip 10 which holds the dial plate and consequently the shaft 16 against a casual rotation.

With the upper sides of the pinions 14 and 15 in the several spaces, longitudinally shiftable racks 25 are engaged, said racks extending laterally beyond one side of the compartment and constituting common operating means connecting the selecting mechanism of the horizontally adjacent compartments. A rack segment 26 is also yieldably mounted upon each of the lower spacing members 10 and is forced upwardly into engagement with the pinion 14.

A series of spaced card-supporting rods 27 have their rear ends movably engaged in the longitudinal slots 28 in the rear wall 7 of the compartment and upon each of these rods a pinion 29 is fixed and meshes with a fixed rack 30 secured upon the rear face of the wall 7, said pinion and rack being enclosed by the housing plate 31. The forward end of each rod 27 is adapted to be connected to one of the female clutch members 11 by the shiftable male clutch member 29^A, said members preferably being of rectangular form. It will thus be understood that when these members are in the position shown in Figure 8 of the drawings, and the member 11 is rotated in the manner hereinafter explained, the member 29^A rotates therewith as a unit, relative rotation between these members being prevented by their rectangular form. These clutch members 29^A are simultaneously actuated by yoke arms 30^A fixed on a shaft 31^A to one end of which an arm 32 is secured, said arm projecting forwardly through a slot 33 in the front wall 6 of the compartment.

As shown in Figure 13 of the drawings, each of the cards 34 is provided along one of its longtudinal edges with a reinforcing strip 35 of metal or other suitable material. This strip is provided with spaced longitudinally elongated slots 36, each of the slots having an entrance 37 opening upon the edge of the reinforcing strip, the location of said entrances with respect to the ends of each slot 36 being relatively different in the illustrated example. Also the location of the slot entrances on the other cards to be contained in the compartment is different for the respective cards. These slots 36 receive the rods 27. In addition to these rods 27, guide rods 38 are fixed at their ends in the front and rear walls of the compartment and are adapted to be received in the notches or recesses 39 provided in the ends of the reinforcing strips 35 on the cards.

Normally, the weight of the series of cards in the filing compartment is sustained by

rods 40 extending beneath the lower edges of the cards adjacent the opposite ends thereof. These rods are simultaneously moved outwardly in opposite directions beyond the ends of the cards by means of a rack mechanism mounted upon the front and rear walls of the compartment at their lower edges. These rack mechanisms are similar to each other in construction and arrangement and each comprises a pair of longitudinal shiftable bars 41 slotted as at 42 to receive guide pins 43 fixed in the compartment wall. The inner opposed ends of these bars 41 has spaced overlapping rack portions 44 which engage the opposite sides of a pinion 45 journaled upon a stud shaft fixed in the wall 6. Each of the bars 41 is provided at its outer end with an angular slot 46 in which one end of one of the rods 40 is movably engaged. Links 47 and 48 respectively, are also connected to the ends of said rods and are pivoted at their other ends as at 49 and 50 upon the wall 6. To the pivot 50 of the link 48 at the rear side of the wall 6 an arm 51 is fixed and this arm is pivotally connected by means of a link 52 to a bell-crank lever 53 fulcrumed as at 54 upon the rear side of the wall 6. The upwardly projecting arm 55 of this lever is adapted to be engaged against the lower edge of the arm 32 which actuates the rockshaft 31^A as shown in dotted lines in Figure 9, whereby the series of shiftable clutch members 29^A are locked in operative connection with the rods 27. To the outer end of the other of the bars 41 a bell-crank lever 56 mounted upon the wall 6 is connected, one arm of said lever carrying a pin operating in the vertical slot 57 in the end of the bar. This lever is fixed upon the fulcrumed rod 58 and a similar lever is fixed to the other end of said rod at the rear side of the compartment whereby the rack mechanism mounted on the rear wall 7 will be actuated. When two or more of the compartments are arranged in superposed relation to each other, the outwardly extending arms of the bell-crank levers 56 are connected by means of the bar 59.

As shown in Figure 6 of the drawings, the corresponding bars 41 of horizontally adjacent filing compartments are connected to each other by means of a rod 63 so that by means also of the connections between the superposed compartments a single primary actuating mechanism serves to simultaneously operate the bars 41 of all filing compartments. When the bars 41 to which bell cranks 56 are connected are moved outwardly as shown in dotted lines in Figure 9, a corresponding outward movement is imparted to the associated bar 41 through the medium of the pinion 45 and racks 44. In this opposite shifting movement of said bars, the rods 40 are moved outwardly and downwardly so that they are laterally disposed beyond the ends of the cards. One of the bell cranks 56 is provided with a suitable operating handle 56′ through the medium of which the rack bars 41 of all of the cabinets may be simultaneously operated to shift the supporting rods 40.

It will be noted from reference to Figure 13 that each card is designated by a number. Assuming that it is desired to obtain card numbered 1234 from the compartment in which such card is contained together with a multiplicity of other cards distinguished by different numbers, the several knobs 17 are successively rotated from left to right. Starting at the left, the knob indicating thousands is rotated until the numeral 1 on the indicating disc appears in one of the openings 19. Similarly the next knob is rotated until the numeral 2 on the hundreds dial appears in the side opening, then the tens knob is rotated until the numeral 3 appears in the opening and finally the units knob is rotated until the numeral 4 is visible through the opening. In the rotation of each of these knobs the rack 25 meshing with the pinion 15 on the knob shaft is shifted longitudinally, and as the said rack also meshes with the pinion 14 on the end of the clutch shaft 12 which is connected to one of the rods 27. the said rod with its clutch is likewise shifted and the rod is moved in one of the slots 36 of the card and positioned in alignment with the entrance 37 to said slot. Of course, as the knobs 17 are rotated through different degrees, the rods 27 are moved for different distances in the slots 36. As the entrances 37 to one or more of the slots of all the other cards are differently located than those of the card numbered 1234, only the latter card will be released, the remaining cards being still supported by the rods 27. Thus when the rods 27 are aligned with the entrances to the slots of card 1234, only this card will drop by gravity from the compartment when the rods are moved from under the cards. The vertically superposed compartments are spaced a sufficient distance apart to enable the card to be readily withdrawn. It is of course understood that in those cases where the card number includes a cipher, one of the rods 27 will not be in supporting relation to the card, as the entrance 37 to one of the slots 36 in the edge of the card is disposed in the vertical line of said rod. It will, therefore, be apparent that in setting the selecting mechanism, one of the knobs 17 corresponding to the cipher would not be operated. Thus if the card number was 1034, only the first, third and fourth operating knobs 17 will be actuated.

Cards bearing different numbers may be disposed in filing compartments other than that which is equipped with the indicating

dials and operating knobs 17, and we have, therefore, provided means for transferring a corresponding shifting movement to the rods 27 of each of the other filing compartments. Thus as shown in Figure 11, an additional pinion 64 is engaged with each of the rack bars 25, said pinions respectively meshing with the teeth of a vertically disposed series of rack bars 65 which are movable through suitable guides 66. These vertical rack bars being engaged with the pinions 64 of each filing compartment in one vertical series, will simultaneously transmit movement to the horizontally movable rack bars 25 of the filing compartments which are not provided with the manually operable means. These horizontally movable rack bars in turn actuate the shiftable rods 27 of the horizontally adjacent filing compartment, as shown in Figure 6.

When it is desired to replace a card, the lever 32 is moved to the position seen in Figure 12 so as to disconnect the clutch members 29A from the ends of the rods 27. The top wall 67 of the compartment is provided with an angularly disposed upstanding guide flange 68 which serves to guide the card to a position in advance of the other cards in the box and with the slots 36 thereof in registering relation with the respective rods 27. Thus, when the clutch members 29A are again thrown rearwardly they will shift the card rearwardly on the rods 27.

Referring now to Figure 1 of the drawings, wherein we have shown a key-actuated selecting mechanism for operating the rack and pinion means whereby the rods 27 are shifted to the proper positions in the slots 36, a key-board frame generally indicated at 69, is suitably mounted upon a frame 69′ supported upon one side of the filing cabinet. As herein shown the keyboard frame includes a plurality of parallel horizontally extending bars 70 arranged vertically in stepped relation to each other and corresponding in number to the number of series of keys. For the sake of clarity, we have shown in Figure 1 only one row of keys 71 in full lines, the remaining rows of keys being indicated by the dotted circles at the opposite ends of each row. These keys extend through openings provided in the top wall of the casing or housing indicated by dotted lines at 72A, the keys in each row to be numbered consecutively left to right, 1 to 9 respectively. The vertically disposed shank of each key is pivotally connected at its lower end as at 73 to a lever 74 fulcrumed at one of its ends in the stud 75 which is fixed in one of the plates 70; the other end of this lever is pivotally connected to a pin 76 vertically movable through an opening in the bar 70. Beneath each of the bars 70 a longitudinally extending lever 72 is disposed and this lever is provided with a series of centrally located longitudinally spaced openings 73A corresponding in number to the number of keys in each row and accordingly to the number of pins 76 actuated by said keys. It will be observed that the pin 76 and accordingly the openings 73 in the lever through which the respective pins are adapted to engage are spaced at unequal distances from each other. In other words, these pins are arranged progressively in closer relation from the left to the right-hand side of the key-board.

Each of the levers 72 at one of its ends is connected by means of a tubular or eyelet pivot to one end of link 77 as seen in Figure 3A; the other end of which is connected to the arm 79 of a gear segment 78 which is pivoted as at 80, upon a convenient part of the frame structure. These gear segments are respectively engaged with the rack bars 81 mounted in guides 81A, and these rack bars in turn are connected to the outer ends of the series of horizontal shiftable rack bars 25 of one of the filing compartments (see Fig. 4).

The other or right hand end of each lever 72 is connected by means of a link 82 to a lever 83 fulcrumed intermediate of its ends as at 84. All of these levers at one end are connected with a single roller 85 operating in the cam track 86 of an actuating disc or wheel 87. This disc is rotatably mounted on the shaft 88 and has a central hub portion upon which a beveled gear 89 is fixed. A similar gear 90 on the end of an operating shaft 91 meshes with the gear 89. To the other end of said shaft a crank handle 92 is fixed. A spring 93 surrounding said shaft operates to rotate the shaft in one direction and return the cam disc 87 to a normal position.

In the use of the key-controlled selecting mechanism, the rack bars 41 for shifting the card supports 40 are actuated automatically. To this end we provide a lever 60 fulcrumed intermediate of its ends as at 61 upon the front side of one of the filing compartments. The lower end of this lever is directly connected through the medium of a pin operating in the slot 57 to one of the bars 41 (see Figs. 6 and 9), the bell-crank 56 above referred to and which was directly actuated by hand, being dispensed with. The upper end of the lever 60 is operatively connected by the rod 62A to one arm of a bell-crank lever 62 which is fulcrumed as at 94, and has its other arm connected by means of a rod 95 to a pivoted arm 96 which carries a roller operating in a second cam slot 97 provided in the upper surface of the disc or wheel 87.

From the above it will be understood that a series of the lever-handling connections 83 and 82 with the respective levers 72 corresponding in number to the number of rows

of keys is provided and they are all actuated as a unit by the single cam wheel 87.

Normally, the racks 81 and the gear segments 78 engaged therewith are locked against movement by means of the vertically disposed locking pins 98, each of which is engaged at its upper end by a pivot yoke member 99 fulcrumed in a post or standard 100, the pivoted end of said yoke having an arm 101 pivotally connected to a bar 102 which extends beneath the series of key-actuated levers 74. The other end of this bar is supported by the link 101′ pivoted upon a standard 100′. A contractile spring 103 is connected to the yoke 99 and normally urges the locking pin 98 downwardly and engages the lower end thereof in the tubular pivot connecting the end of the lever 72 to the link 77. It will be understood that while an actuation of the gear segment 78 through the medium of the lever 72 is thus prevented, the lever end may nevertheless rotate or turn about the eyelet pivot which connects said lever to the link 77.

The shank of each key 71 is provided in its forward edge with the vertically spaced notches 104. Between the spaced supports 105 a key-locking member 106 is pivotally mounted and on the upper edge thereof said member is provided with an angular flange 107 common to all of the keys in one row. A downwardly extending flange 108 is also mounted on the pivot rod of the member 106 for independent pivotal movement and is yieldingly held normally in contact with the pivoted cam portions 109 of the key shanks by means of the springs 108′. The keys are independently returned to their normal positions by means of the springs 119 connected at one of their ends to the lever 74 and having their other ends connected to the fixed bar 120. The upward movement of the levers to their normal positions is limited by a stop lug 121 on each lever which engages the top wall of the casing or housing, as seen in Figure 3 of the drawings.

The locking member 106 is yieldingly held in the normal position shown in Figure 3 by means of one or more springs indicated at 110, to which position the movement of said member is limited by contact with the upper edge of the flange 108. From this construction it will be manifest that when a single key in any row is depressed, the beveled face 109 on the key shank coacts with the flange 108 thereby moving said flange to permit the springs 110 to lock the locking member and engage its flange 107 in the upper notch 104 of the depressed key and in the lower notches of the remaining keys in the row, thus rendering it impossible to depress more than one key at a time in each row of keys. The keys which are not depressed are retained in their normal positions by the springs 119 so that the lower notches 104 in said keys will be in exact alignment with the upper notch of the depressed key to receive the flange of the locking member 106. The keys are automatically released in the return movement of the cam 87 under the action of the spring 93 by means of a pawl 111 carried by said cam which engages the lower end of a vertically disposed lever 112 fulcrumed intermediate of its ends as at 113. Above the fulcrum of the lever, a rod 114 is pivotally connected thereto, said rod extending forwardly through an opening in the locking member 106 associated with the respective rows of keys and being connected at its other end to a pivoted upright 115. The rod 114 carries a series of pins 116 which, in the movement of the upper end of the lever 112 in the direction indicated by the arrow in Figure 3, engage the respective locking members 106 and thereby release the flanges 107 from engagement in the notches 104 and permit of the return of the keys to their normal positions in the upward movement of the bar 102. It will be understood that these actions take place concurrently and by the positive actuation of the locking member in this manner, all possibility of a failure to release the keys is obviated. The rod 114 and the lever 112 are returned to their normal positions by means of the spring 117.

In the operation of this key-board type of selecting mechanism, when the card numbered 1234 is desired, the operator first depresses the key number 1 in the uppermost row which operates to force the first of the pins 76 downwardly into the opening in the lever 72 in alignment therewith and simultaneously depresses the bar 102, thereby actuating the yoke 99 and lifting the locking pin 98 to disengage the lever from the eyelet pivot connecting said lever to the link 77. Also the depressed key is locked and held in its depressed position while the remaining keys in this row are locked against actuation by the member 106. In a similar manner, the key numbered 2 in the hundreds row is depressed, and the pin 76 which is actuated by this key is engaged in an opening in the next lever 72 which is spaced a relatively greater distance from the point of connection of said lever to its link 77 than the spacing of the first pin 76 above referred to from the connection of the associated lever with the link 77. The tens and units keys numbered 3 and 4 respectively are also depressed and the pivotal connection effected between the pins 76 actuated by these keys and the respective levers 72 which are also at different distances from the link 77. Thus it will be apparent that when the several levers 72 are actuated and moved about the respective depressed fulcrum pins 76, the gear segments

78 will be oscillated through different degrees and there will consequently be variations in the extent of movement of the rack bars 81. The operation of these rack bars, the movement of which is transmitted to the horizontally movable racks 25 which in turn shift the series of rods 27 of each filing compartment is simultaneously effected through the medium of the cam wheel 87. Thus, when the crank handle 92 is turned to rotate said wheel in the direction indicated by the arrow in Figure 1, the wall of the cam slot 86 coacting with the roller 85 moves the levers 83 to the position seen in dotted lines, so that through the medium of the links 82, the series of levers 72 are simultaneously moved upon the fulcrum pins 76. At the same time, the walls of the cam slot 97 coacting with the roller on the pivot arm 96 move said arm to the dotted line position shown in Figure 1, which in turn through the medium of rod 95 oscillates the bell crank lever 62 and thus actuates the lever 60 to operate the rack bars 41 and move the supporting rods 40 in the manner above explained so that the released card may drop by gravity from the filing compartment. Upon the release of the crank 92, the spring 93 returns the cam wheel 87 to its normal position, whereupon the parts of the selecting mechanism likewise assume their normal positions and the depressed keys are released in the manner above described. In the event that a key of each row is not depressed, but for instance, a card numbered 35 is desired, the locking pins 99 corresponding to the thousands and hundreds rows of keys are not raised but remain in their normal positions. Thus only the fulcrum pins for the lever 72 of the tens and units rows of keys will be depressed and consequently only these two levers when actuated will operate to move the gear segment 78 and shift the rack bars 81 associated therewith, the other rack bars and gear segment remaining stationary. The levers 72 connected to these latter gear segments are, however, moved with the other levers in the rotation of the cam wheel 87 but they will merely turn about the eyelet pivots in which the locking pins are engaged and will impart no movement to the link 77.

From the foregoing description considered in connection with the accompanying drawings, the construction, manner of operation and several advantages of our invention will be readily understood. We have found both the manually operable means and the key-controlled means for selectably operating the card-releasing mechanism to be very satisfactory and reliable in practical operation. We deem the key-controlled selecting means preferable, however, since it enables the desired card to be more quickly obtained. By providing the cards with a metallic reinforcing strip, tearing of the slotted edges is prevented and frictional adherence of the cards to each other is also obviated so that upon the proper alignment of the entrances to the slots with the rods 27, the desired card will immediately drop by gravity from its assembled position with the other cards in the filing compartment. Of course, the number of units comprising the cabinet might be multiplied to any extent desired, the mechanism above referred to being merely duplicated to the extent necessary.

While we have herein shown and described several desirable embodiments of our invention, it is nevertheless to be understood that the improved selective card-releasing mechanism is susceptible of many minor modifications in the form, proportion and arrangement of its several parts, and we therefore reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

We claim:

1. In combination with a card-filing compartment having card-retaining means therein, manually controllable mechanism operable to selectively release a single card held by the retaining means without disturbing the position of the remaining cards.

2. In combination with a card-retaining means, mechanism for actuating the card-retaining means, and selectively operable means controlling the operation of said mechanism to effect the release of a desired card.

3. In combination with a card-filing compartment a plurality of movable card-retaining elements adapted to cooperate with means on one edge of cards, mechanism for actuating said card-retaining elements, and selectively operable means controlling the operation of said mechanism to position the card-retaining elements and effect the release of a desired card.

4. In combination with a card-filing compartment, a plurality of movable card-retaining elements adapted to cooperate with means on one edge of each card, mechanism for actuating said card-retaining elements and selectively operable means controlling the operation of said mechanism to position the card-retaining elements and effect the release of a desired card, movable supporting means extending beneath the cards and supporting the same independently of the retaining elements, and means for positioning said supporting means to permit of the gravity movement of the released card from the compartment.

5. In combination with a card-filing compartment, a plurality of spaced laterally shiftable retaining rods extending transversely across said compartment, cards each

having means to releasably engage one of the retaining rods, and means for laterally shifting the rods with respect to each other and positioning the same to release a desired card for withdrawal from the compartment.

6. In combination with a card-filing compartment, a plurality of transversely disposed retaining rods, rack and pinion means for shifting said rods relatively to each other, cards each having means engaging each of said rods, the engaging means of the respective cards being constructed to release the individual cards when the retaining rods are in relatively different positions, and manually operable means for actuating the rack and pinion means to shift the retaining rods and effect the release of a desired card.

7. In combination with a card-filing compartment, a plurality of transversely disposed retaining rods, rack and pinion means for shifting said rods relatively to each other, cards each having means engaging each of said rods, the engaging means of the respective cards being constructed to release the individual cards when the retaining rods are in relatively different positions, manually operable means for actuating the rack and pinion means to shift the retaining rods and effect the release of a desired card, additional rods extending beneath the series of cards adjacent to their opposite vertical edges, and means for simultaneously shifting the latter rods laterally beyond the vertical edges of the cards to permit of the gravity movement of the released card from the compartment.

8. In combination with a card-filing compartment, having means therein for releasably retaining a series of cards, mechanism for actuating the card-retaining means, and key control means governing the operation of said mechanism to position the retaining means and release a selected card.

9. In combination with a card-filing compartment, a plurality of relatively shiftable rods, cards each having means for releasably engaging all of said rods, mechanism for shifting the retaining rods, primary operating means for said mechanism, and a key-controlled selecting mechanism to establish an operative connection between said operating means and the shifting mechanism and governing the operation of the latter to position the retaining rods and effect the release of a desired card.

10. In combination with a card-filing compartment, relatively movable card-retaining members adapted to coact with means on the cards to releasably retain the same in the compartment, means for independently shifting said retaining members relative to the engaging means on the cards, movable card-supporting members extending beneath the series of cards, means for actuating said shifting means including a primary operating cam, and manually controllable means for determining the extent of movement of the retaining members to position said members for the release of a desired card, and additional means simultaneously actuated by the operating cam to displace the supporting members extending beneath the cards and permit of the gravity movement of the released card from the compartment.

11. In combination with a card-filing compartment, a plurality of card-retaining members, cards each having means engaged with all of said members and constructed to release the card when the members are disposed in certain relative positions, a key-board, and mechanism controlled in its effective operation from said key-board for positioning the card-retaining members and selectively releasing the cards from retaining engagement therewith.

12. In combination with a card-filing compartment, a plurality of relatively shiftable retaining members extending across said compartment, cards each having means releasably engaged with all of said members and operating to allow the card to be released in certain predetermined relative positions of the members, means for relatively shifting the said members, and key-controlled cam-actuated mechanism for operating said shifting means to position the retaining members and selectively release the cards from the compartment.

13. In combination with a filing cabinet having a plurality of vertical tiers of superposed filing compartments, a plurality of movable card-retaining members in each compartment, cards having means coacting with said retaining members to release the individual cards when said members are in different relative positions, and key-controlled mechanism common to all of the compartments for shifting the retaining members therein with respect to each other to selectively release the cards in any one of the filing compartments.

14. In combination with a card-filing cabinet having vertical tiers of superposed compartments, a plurality of relatively movable members in each compartment, cards adapted to be engaged and releasably held by said members, means extending beneath each of the compartments and movable with respect thereto for supporting the cards independently of said retaining members, and a manually controllable mechanism common to all the filing compartments for simultaneously shifting the retaining members in each compartment relatively to each other and for moving the card-supporting means beyond the vertical edges of the cards to thereby permit of the gravity movement of a released card from any one of the compartments.

15. In a mechanism of the character described, in combination with an operating part, means for actuating said operating part including a lever, a plurality of unequally spaced fulcrum pins for said lever, and means for operatively engaging any one of the fulcrum pins with the lever to thereby vary the extent of movement of the operating part.

16. In a mechanism of the character described, a plurality of independently operable members, actuating means therefor including a series of levers each operatively connected at one of its ends to one of said members, a key-board having a row of keys for each of said levers, and a plurality of fulcrum pins for each lever unequally spaced apart and respectively actuated by the keys in one row to operatively engage any one of the pins with the lever and vary the extent of movement of the operating part.

17. In a mechanism of the character described, a plurality of independently operable members, actuating means therefor including a series of levers each operatively connected at one of its ends to one of said members, a key-board having a row of keys for each of said levers, a plurality of fulcrum pins for each lever unequally spaced apart and respectively actuated by the keys in one row to operatively engage any one of the pins with the lever and vary the extent of movement of the operating part, and means for locking all of the keys in a row when any one key thereof is depressed.

18. In a mechanism of the character described, in combination with a plurality of operating members, actuating means therefor including a plurality of levers, means operatively connecting each lever to one of said operating members, means normally locking the operating connection to each lever against effective operation, a key-board having a row of keys for each of said levers, a series of fulcrum pins for each lever unequally spaced apart and actuated by the keys in the respective row, and means simultaneously actuated upon the depression of a key to engage one of the fulcrum pins with one of the levers and to release the operating connection between said lever and the operating member and thereby cause an effective movement of the latter upon the movement of said lever about the fulcrum pin.

19. In a mechanism of the character described, in combination with a plurality of independently operable members, an operating cam therefor, and means actuated by said cam for transmitting movement simultaneously to said members, said means including a plurality of levers and key-actuated means for differentially positioning the fulcrums of the respective levers and thereby varying the extent of movement of said operating members in relation to each other.

20. In a card filing system, in combination with a series of card-retaining members common to a plurality of cards, cards each having spaced means to engage said members and constructed to allow a selected card to be released from retention thereby without releasing the remaining cards when the spaced means of the selected card and said members are disposed in certain predetermined relative positions.

21. In a card filing system, in combination with a series of relatively shiftable card-retaining members common to a plurality of cards, cards each having spaced means to engage said members and constructed to allow a selected card to be released from retention thereby without releasing the remaining cards when said members are relatively shifted to certain predetermined positions with respect to the means on the selected card.

22. A card for filing systems having spaced longitudinally extending slots each having a lateral opening upon one edge of the card and adapted to receive retaining members, the openings of said slots adapted to be brought into alignment with the retaining members extending through the slots by relative shifting movements of the retaining members and the card whereby the card is released.

23. In combination with a card-filing compartment, card-retaining means, means for actuating the card-retaining means to release a selected card from the compartment, means supporting the cards independently of said retaining means, and means for actuating said supporting means to permit of the removal of the selected card.

24. In combination with a card-filing compartment, a plurality of movable card-retaining elements adapted to co-operate with means on one edge of each card, mechanism for actuating said card-retaining elements, movable supporting means supporting the cards within the cabinet independently of the card-retaining elements, selectively operable means controlling the operation of said mechanism, and additional means for actuating said card-supporting means to effect the release of a desired card.

25. In a filing system, in combination, a series of retaining members common to a plurality of information-bearing elements, and said elements each having spaced means to engage said members and constructed to allow a selected element to be released from retention thereby without releasing the remaining elements when the spaced means of the selected element and said members are disposed in certain predetermined relative positions.

26. In a filing system, in combination, a

series of relatively shiftable retaining members common to a plurality of information-bearing elements, and said elements each having spaced means to engage said members and constructed to allow a selected element to be released from retention thereby without releasing the remaining elements when said members are relatively shifted to certain predetermined positions with respect to the means on the selected element.

In testimony that we claim the foregoing as our invention, we have signed our names.

SAMUEL J. KRAUT.
JOSEPH HUCK.