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CARD INDEX CABINET

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[Diagram of a card index cabinet with various labeled parts]
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CARD INDEX CABINET

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This invention relates to improvements in the construction of cabinets for visible card indexes.

The invention provides a slide member for a card index tray, mounting the tray in guideways in the cabinet; a slide member supporting the tray for withdrawal from the cabinet but retaining the tray in attached relation thereto; a slide member also providing a partition for covering the contents of each tray and dividing the cabinet into a plurality of compartments, the partition formed by the slide member extending between the side walls of the tray; a cabinet structure having guide frames providing the tray, guideways assembled therein through the open front end and retained in assembled position by spacer members at the top and bottom of the cabinet mounted inside of the top and bottom walls so as to engage between the ends of the uprights of the guide frames and hold them against the side walls of the cabinet; a slide member construction telecopically receiving a card index tray and having a cushioned stop device for normally arresting forward movement of the slide member outwardly of the cabinet to prevent detachment of the slide member from the cabinet, controlling the movement of the slide member at its forward limit, while the slide member is provided with parts having cooperation with parts of the tray to normally prevent complete detachment of the tray from the slide member and the cabinet in withdrawal position; and a cover structure having parts normally cooperating to occupy the uppermost tray compartment of the cabinet with parts of the structure cooperating with the guide frames for the trays at the top of the cabinet, said cover being housed in the compartment at the top of the cabinet in open position and being constructed for sliding movement and withdrawal therefrom whenupon the cover may be swung over the fronts of the trays into the closed position, a lock being provided to engage the bottom of the cabinet for locking the cover in closed position.

In the drawings:

Fig. 1 shows a cabinet constructed according to this invention in perspective, with one tray withdrawn and supported in inclined relation by the supporting leaf pulled out from the bottom of the cabinet, the cover being in the open position.

Fig. 2 shows the front portion of the cabinet in side elevation with the cover shown in open position and one of the slide members withdrawn to the second stop position of its outward movement from the cabinet, the card index tray being shown housed in the slide member.

Fig. 3 shows the cabinet in side elevation with portions broken away and shown in section to illustrate details of construction, two of the trays and their slide members being shown in progressive positions of withdrawal from the cabinet where the stop mechanism limits further outward movement.

Fig. 4 is a horizontal cross section through the cabinet from which the trays and slide members have been removed to illustrate the details of construction of the cabinet and the manner of assembly of the guide frames therein.

Fig. 5 is a cross section taken substantially on line 6—6 of Fig. 3, certain portions being left in elevation and other portions being broken away for convenience in illustrating details of construction.

Fig. 6 is an enlarged fragmentary vertical longitudinal section showing a portion of the rear end of one tray withdrawn from the cabinet and its slide member, the slide member being shown in the position at which its forward motion is arrested by engagement of the stop mechanism with the first stop in the guideway.

Figs. 7, 8 and 9 are enlarged fragmentary side elevations of a slide member and its card index tray with a portion of the guideway, portions of the slide member and tray being broken away and shown in section and the position of the slide member and the tray in each of the views with respect to each other and the guideway being changed to illustrate progressive positions of operation of the card index tray with reference to the slide member and the guideway, and the operation of the stop mechanism.

Fig. 10 is a horizontal cross section through a slide member and tray showing portions left in elevation and other portions broken away, the scale being enlarged for the purpose of illustrating details of construction of the slide member and tray.

Fig. 11 is a fragmentary cross section taken on line 11—11 of Fig. 3.

Fig. 12 is a vertical cross section taken on line 12—12 of Fig. 11, the cover being shown in closed position.

Fig. 13 shows the tray carried parts that cooperate with the latching mechanism in the slide member.

Fig. 14 is a vertical longitudinal cross section similar to Fig. 2, disclosing a modified form of cabinet structure having portions broken away.

Fig. 15 is a fragmentary horizontal cross sec-
tion taken at the front of the cabinet, showing a fragment of a card index tray in one withdrawn position from the cabinet with portions broken away to illustrate details of construction.

Fig. 16 is a cross section taken on line 16—16 of Fig. 15.

Fig. 17 is a view similar to Fig. 16 with the tray moved into a downwardly extending position on the slide member.

The improved cabinet forming this invention has a casing 1 formed of sheet metal to provide side walls 2, top wall 3, bottom wall 4 and rear wall 5. The top and side walls are formed from one piece of sheet material, as clearly shown in Fig. 5, in which the top 3 is formed in the central portion of the sheet, while the side walls 2 are formed at opposite ends. The sheet is also formed to provide flanges 8 along the lower edges of the side walls extending inwardly as shown in Fig. 5, for example, to provide an overlap with the side margins of bottom 4 so the bottom may be welded to the sheet material forming the sides in order to provide an integral structure.

At the front of the cabinet, the side and top walls are provided with inwardly extending flanges to form a narrow front wall portion indicated at 7 in Fig. 1, the sheet material being formed with an inwardly directed flange around the inner edge of front wall section 1, as clearly shown in Figs. 3 and 4 at 8, to provide an inwardly directed channel at the front of the cabinet. The flange 8 extending around the inner edge of front wall section 1 operates therewith to define the front opening in the cabinet and a rectangular frame member 9 is inserted in back of front wall 7 to reinforce the front of the cabinet.

At the rear end of the cabinet, the side and top walls are formed with inwardly directed flanges 10 to embrace the marginal edges of rear wall 5 and provide an overlap so that the rear wall may be rigidly welded, by spot welding or the like, to the side and top walls. The lower edge of rear wall 5 is provided with a flange 11 overlapping bottom wall 4 as shown in Fig. 3 so that the flange may be welded to the rear edge of the bottom wall. It will be seen from this construction of side, top, bottom and rear walls, that a rigid casing structure for the cabinet is provided.

The interior of the casing is fitted with a structure supporting a plurality of slide members and card index trays. These interior fittings will now be described. Guide frames 12 are fitted on the inside of the casing against side walls 2. These guide frames comprise in the present instance vertical end members 13 and a central vertical supporting member 14. These end members and the central member of each guide frame, there being two, one on each side of the cabinet formed complementary one to the other, are constructed of sheet metal formed into channel shape in transverse section. Vertical end members 13 have the channel-shaped portion provided with a flange on one edge of the free edges of the channel while the central vertical support 14 is provided with a pair of flanges as clearly shown in Fig. 4. At the upper and lower ends, each of these vertical supports 13 and 14 are provided with end flanges 15, shown in Figs. 4 and 5. An arcuate portion shown for those guide frames which includes an inner top wall member 16 formed of a piece of sheet metal having laterally extending flanges 17 formed at the side edges as shown in Fig. 5 terminating in offset marginal edge por-

10 tion 18. A pair of upper cross bars 19 are secured by spot welding or the like to the ends of inner top wall 16 as shown in Fig. 3 in a position to engage between the vertical supporting members 13 at the front and rear ends of the guide frames.

In constructing the cabinet and assembling these parts in the interior of the casing, the inner top wall member is inserted into the casing by twisting it at an angle to the walls of the casing and inserting it through the front opening. When this inner top member is inserted into the cabinet through the front opening, the rear end is moved to a position adjacent the bottom of the cabinet, while the front end is moved to a position adjacent top wall 3 of the cabinet. When the front end has engaged top wall 3 it is slid forwardly along the top wall while the rear end of the inner top wall member 16 is moved toward top wall 3. This allows the front end of cross bar 19 to engage under the interlaced flange 8 at the front end of the casing until the inner top member 16 and cross bars 19 take the position illustrated in Figs. 3 and 5.

In this state of the operation the casing is usually placed in an inverted position with top wall 3 at the bottom. Then the guide frames are inserted into the casing one at a time, through the open front end of the casing. Each guide frame is tilted at an angle when it is inserted in the casing so that the rear end engages rear wall 5, each frame then has its upper end inserted between the lateral flange 17 on inner top member 16 and the side wall of the casing. The top member has the marginal portions 18 seated against the inner edge of top wall 3 as clearly shown in Fig. 5, and as the guide frames are inserted into position in the casing, the upper ends of vertical supporting members 13 and 14 engage between flanges 17 and side wall 2 of the casing. As the lower ends of vertical supporting members 13 and 14 are moved toward the side walls, the upper ends will seat against marginal flanges 18 with the front and rear vertical supporting members 13 engaged beyond the ends of cross bars 19 and thereby firmly held in contact with side walls 2 of the casing.

After the frames have been inserted into position in the manner described above one at a time, adjacent opposite side walls to the position illustrated in Figs. 3, 4 and 5, then lower cross bars 20 are inserted into the cabinet between the lower ends of vertical supporting members 13 and 14. These bottom cross bars 20 have arcuate ends as indicated at 21. Cross bars 20 are channel shaped in cross section and are inserted in position by placing them on bottom wall 4 at an angle to the side walls. Then the cross bars are rotated into the transversely extending position so that the ends engage between upright supporting members 13 and 14 at opposite sides of the cabinet as shown in Fig. 4, the arcuate end portions providing for the engagement of the cross bars in turn providing movement into the transversely extending position shown in Fig. 4. Then, a jig or spreader device, not shown in the drawings, is inserted between the lower ends of the guide frames and holes are then drilled through end flanges 15 by inserting the drill through openings 22 in the bottom of the casing shown in Fig. 5, for those guide frames which have been inserted through openings 22 to rigidly secure cross bars 20 to the ends of uprights 13 and 14. In this way the guide frames are rigidly secured against the inner faces of side walls 2 of the casing, and
the casing is rigidly reinforced by this assembly to provide a substantially rigid cabinet structure. The upright supporting members 13 and 14 are connected together and held in spaced relation by a plurality of angle bars 24 arranged in spaced parallel relation with one flange of each bar extending laterally from the uprights to provide a plurality of guideways for the cabinet as shown in the drawings, looking from the front of the cabinet, is provided with a series of cut-out sections to form stops. Each angle bar 24 of the right-hand guide frame has the lower rear end provided with a cut-out portion indicated at 25 for the first stop for the slide members. A pair of studs 26 adjacent the cut-out portion 25 are mounted in the vertically extending part of angle bar 24 and slidably support stop slide 27 of angular form in cross section. This stop slide is formed of sheet metal having a horizontal flange 28 provided with a recess 29 while the vertical portion 30 is slotted at 31 to receive studs 26. The forward end of portion 30 is provided with a laterally extending flange 32 to which is attached one end of coil spring 33 having the opposite end secured to a recess stud 36, as clearly shown in Figs. 3 and 4. Spring 33 is of tension type and normally holds slide member 27 in its most rearmost position. This forms the first stop for the card index trays and their respective slide members operating as a cushion stop by reason of the spring-resisted sliding movement of stop member 27 on bar 24 in the forward portion of angle bar 24 on the right-hand guide frame serves to provide the second stop or front stop for a purpose that will be hereinafter described.

A plurality of slide members 35 are provided, one for each guideway formed by the guide members in the casing. These slide members are slidably in the guideways and formed of sheet material having a transversely extending imperforate partition forming section 36 having offset portions 37 at opposite side edges thereof formed to provide the proper clearance between angle bars 24 to slidably guide the slide members in their sliding movement into and out of the cabinet. Slide walls 38 are formed from the same piece of sheet material as the partition section 36 and extend downwardly from the edges of offset portion 37, as clearly shown in Fig. 6, having the lower edges of the side walls provided with inwardly directed flanges 39 engaged with the horizontal portion of angle bars 24 to efficiently guide the slide members in the guideways formed by bars 24. Each slide member has a back wall 40 formed at the upper edge with a laterally extending flange engaged under partition section 36 and suitably welded thereto so as to secure the back wall per manently to the partition section and side walls 38. At the front of the slide member inwardly extending flanges 39 are cut away for a portion of the length of the sides thereof forming a continuation 42 extending across the front of the slide member in spaced parallel relation to partition section 36 and having lateral extensions on the ends engaged with the inside faces of side walls 38 to which said extensions are welded to rigidly connect the free edges of the side walls at the front portion of each slide member. Tray guiding brackets 43 are secured on the inner faces of side walls 38 and have inwardly extending flanges at the upper edge thereof spaced below partition section 36 as clearly shown in Figs. 5 and 6. These brackets are secured by welding or any suitable methods to side walls 38 and have the front ends extending beyond the front edge of partition section 36 to the forward ends of side walls 38, which also extend beyond the edge of section 36. The front edge of partition 36 is provided with a return bent portion to form a rounded front edge on the partition as indicated at 44 in Fig. 6, so that cards and card holders in a card index tray carried by the slide member will be guided under the partition section 36 without mutilation.

A plurality of card index trays are provided one to slide in each slide member. These trays are generally designated by the numeral 45. Each tray is formed of sheet metal having a bottom section 46 and side section formed by extending the sheet metal laterally from bottom 46 at opposite side edges upwardly and inwardly to provide channels 47 for receiving card holders 48 in offset overlapping visible relation as illustrated in Fig. 1. The mounting of the card holders 48 with portions engaged in channels 47 is known in the art. The side walls then extend upwardly and terminate in rolled portions 49 at the upper edges. The side walls of the card index trays are of less height than the side walls 38 of slide members 36. They are adapted to slide under the laterally extending flanges on guide brackets 43 at the front sides of each slide member 35 so that the bottom of the tray will slide in the slide member in a position substantially in the plane of the bottom edges of the side walls 38. A suitable fixed structural member is provided on the front portion of each tray and comprises a handle portion and a label-holding portion. The front 50 of the tray is higher than the side walls so that when the tray is in closed position in the slide member, the front portion will close the front of the slide member and have the upper and lower edges lying adjacent to the opposed edges of the front structure of an adjacent tray. A suitable follower is provided in the tray indicated generally at 51 in Fig. 8. Followers of this character are well known in the art and adapted for use in a well known manner to retain card holders 48 in their visible indexed position. A top cover 52 is hingedly connected at the rear end of the tray to back stop member 53 secured in the tray by spot welding or the like to form a back wall in the tray for limiting rearward movement of card holders in the tray. The top cover serves the most rearmost card holder in the tray except the visible margin thereof so that only the index on the visible margin will show in the normal position of the card holder and cards carried thereby in the tray.

The rear end of the tray is formed with a transversely extending bracket 53' having the forward edge welded to the rear end of the bottom of the tray and the remaining portion extending in rearwardly and upwardly inclined relation from the rear end of the tray as shown in Figs. 7, 8 and 9. The opposite end of bracket 53 is formed of a cylindrical portion 54 embracing a rod 55, having curved end extensions 56 extending laterally from the portion of the rods received in cylindrical portion 54 of bracket 53. The end portions are engaged and rigidly secured in tubular portions 49 on the upper edges of the side walls of the tray at the rear end thereof. This structure is clearly shown in Figs. 7 to 9, from which it will be seen that an opening is provided between
the rear ends of the side walls of the card index tray and curved extensions 56 of wire member 55. At the side edges of the bracket 53' and to the rear of the side walls on the tray there is provided a latching part 56' having an opening 57.

On one side of each side wall 38 of slide members 35 at the rear end of the side wall there is provided a supporting bracket 58 secured to side walls 33. A stud 59 on bracket 58 pivotally mounts a bell crank lever member 60 having a projection 61 for engagement in opening 57 of latch part 56 so that in the position of the part shown in Figs. 7 and 9 the tray will be latched to the slide members 35, so that any movement of the tray will produce a corresponding movement of the slide member therewith. The bell crank lever has at the same end as projection 61 another projection on the opposite side of the arm designated 62 directed toward the bottom of slide members 35 and arranged in position to engage the stop slide on angle member 24 of the guide frame. Stop projection 62 of bell crank 60 is adapted to engage in the cut-out portion 29 of slide member 27 forming the first stop so as to limit the movement of slide member 35 when withdrawn outwardly at the position of stop slide 27 and cushion its stopping movement by means of spring 33 as heretofore described.

Bell crank 60 is normally urged to project stop projection 62 thereon downwardly by means of spring 53 mounted on stud 59 and having one end engaging the bell crank and the opposite end engaging rear wall 40 of slide member 35, as clearly shown in Figs. 7 to 9. The opposite end of bell crank lever 60 from that formed with projections 61 and 62 is formed to lie in the path of one of the curved extensions 56 on the card index tray received in slide member 35, so that when the card index tray is moved inwardly to its rearmost position in slide member 35 it will engage and rotate the bell crank lever against the tension of spring 63, raising projection 62 into an inoperative position and raising projection 61 into opening 51 of bracket 56 so as to positively latch the slide members and card index tray together.

As shown in the Fig. 7, 8 and 9, illustrating different progressive positions of the card index tray and slide member in guide members 24, it will be seen that Fig. 7 illustrates the position of the tray and slide member 35 when in the normally closed position of the tray in the cabinet. In this position extension 56 of rod member 55 has operated bell crank 60 to the position so that projection 61 will engage in openings 57 of brackets 56 and lock the tray to the slide member. Upon engaging the front of one of the card index trays manually for withdrawing it out of the cabinet, the forward pull upon the card index tray will draw its corresponding slide member with the tray so that the two will slide together by reason of the latch mechanism securing the tray to the slide member until latch projection 62 in riding along the upper face of the horizontal flange of angle bracket 24 rides into cut-out 29 of stop slide 27. The forward pull on the tray will then serve to move the tray relative to slide member 35 a sufficient amount to allow projection 62 to drop into opening 29 in slide member 27 and thereby arrest the movement of slide member 35 in the cabinet 24. With the forward movement and stopping of slide member 35 is cushioned by spring 53 while the card index tray may have continued movement outwardly from the cabinet and its slide member.

The tray is normally prevented from being completely detached from its slide member by suitable stop mechanism having cooperating parts on the tray engaging suitable parts on the slide members. For this purpose a stud 64, Fig. 5, is fixed on one side wall 38, the right-hand side as illustrated, in a position to normally fit in the groove in the side wall of the tray provided between cylindrical flange portion 48 and the flange portion formed to provide channels 47. As the tray reaches the front end of the slide member, the curved extension 56 of rod member 55 will engage stud 64 at one side of the slide member. At the other side of the slide member another stud 65 will be engaged by curved extension 56 at the other end of rod member 55. Stud 65 is carried by a spring strip member 66 secured by rivets or the like 67 at its rear end to sides 38 of slide member 35, as clearly shown in Fig. 10. The forward free end of spring strip 66 extends outwardly adjacent the free end of the side wall 38 so that it may be manually engaged to retract stud 65 from engagement with curved extension 56 at one side of the tray whereupon the tray may be readily detached from the side members.

It will be seen that when a tray is pulled out of its respective slide member and the slide member arrested in its forward movement by the first stop mechanism in the cabinet, that the forward end of the slide member will project outwardly in front of the cabinet in the manner illustrated in Fig. 1, while the tray will be completely withdrawn from the cabinet and the slide member into the position shown in Fig. 1 where it is hingedly supported by the slide members, with all of the card holders uncovered and open to inspection in the usual well known manner.

When it is desired to remove any slide member 35 to an additional extent, then the card index tray is moved inwardly until it reaches the rear end of slide member 35. By holding slide member 35 and pushing the tray inwardly to its rearmost position in the slide member, when the slide member is engaged with the first stop as shown in Fig. 6, the bell crank latch 60 will be operated to discharge projection 62 from latch 27 and to engage projection 61 in opening 51, as shown in Fig. 9. Then, the tray and slide member may be withdrawn past the first stop mechanism in the guideway. By grasping the tray and continuing the forward pulling of the tray outwardly from the cabinet will cause slide member 35 to move therewith due to latch 68 securing the tray and slide member together. Then, when the second stop position is reached projection 62 will drop into cut-out 34 in angle bar 24, releasing the card index tray from slide member 35, arresting forward motion of slide member 35 and allowing the withdrawal of the card index tray from the slide member until stud 64 and 65 engage curved portions 56 to prevent disengagement of the tray from the slide member. Fig. 2 shows the slide member withdrawn to the second stop position but the card index tray is not yet withdrawn from the slide member.

In Fig. 3, two trays are shown as being partially withdrawn with the slide members from the cabinet, the uppermost slide member being withdrawn to the position where it engages the second stop while the lower of the two withdrawn trays is engaged with the first stop. The card index tray in each of these withdrawn slide members is only partially illustrated, the tray in the uppermost slide member being in the housed position in the slide member while the tray in the slide member withdrawn to the
first stop position is shown in its withdrawn position from the slide member similar to the illustration in Fig. 1. It will be seen that when the slide member is withdrawn to the second stop position that partition section 50 will project a substantial distance in front of the cabinet, in which position it is useful as a shelf for the reception of cards and papers on which entries and records may be made. This second extension of the slide member is very useful where a battery of these cabinets are used, arranged side by side, since any one of these slide members may be withdrawn to the second stop position to be used for supporting posting medium and as a writing shelf. The slide members may also be withdrawn to the second stop position below a tray that it may be desired to inspect so that when a desired upper card index tray is withdrawn to the second position, it can be used to support the tray in the withdrawn position similar to the illustration in Fig. 1. The use of the second stop for the slide member is also adapted to allow the tray carried thereby to be withdrawn from the slide member and supported beyond a tray withdrawn above to the extent of the first stop member. This enables remote view the records of the records in both trays simultaneously.

When two trays are withdrawn one below another in the same cabinet they may be shifted laterally to one another so that the indexes at the left-hand margin of the cards in the lower tray will become visible beyond the side edge of the upper tray. This position of the trays is not illustrated in the drawings but is accomplished by reason of the particular construction of the retaining pin and curved sections 56 of rod 55 that permit the rear end of the tray being slidably moved relative to slide member 32 to a limited extent in a direction sidewise of the slide members and the cabinet.

In the cabinet structure as illustrated in the drawings the lower angle bars 24 of the guide frames support a sliding shelf 70 forming of sheet metal and suitably reinforced. Shelf 70 has depending side flanges 71 on the side edges thereof and on the under central face of shelf 70 in the rear portion, stop bracket 72 is provided with a central opening 73. A retaining button 74 is pivoted on a screw 75 on which extends the button on the top face of front cross bar 20 as clearly shown in Figs. 3 and 5. The shelf may be inserted by turning retaining button 74 so that it extends its longer dimension directed lengthwise of the cabinet whereby if the shelf is inserted in the cabinet and slot 78 will receive the button and pass thereover. After the shelf is in the cabinet the button is turned in a laterally extending position on the cross bar as shown in Fig. 5 which will retain the shelf member against complete detachment from the cabinet. It may be withdrawn to a forwardly projecting position as shown in Fig. 1 in order to support the card index trays when withdrawn from the cabinet in an inclined position as illustrated in Fig. 1.

The uppermost guide bars 24 in the cabinet while being adapted to support a slide member and tray are illustrated in the drawings as supporting a front cover 79 having a partition and retaining structure. The front cover 79 is formed of sheet metal of a size adapted to close the front opening in the casing in the manner shown in Fig. 12, and also to be adapted for swinging movement out of the closed position shown in Fig. 12 for sliding movement into the space provided at the top of the cabinet by the first guide bars 24 below the inner top member 16. In order to slidably mount the cover with the cabinet there is provided a suitable attaching device including a retaining member 17 formed of sheet metal having an imperforate top section and side and front flanges thereon. The bottom is left open. Spring members 18 are secured to the side flanges of retaining member 17 and have handles 19 that may be manually engaged to bend the spring members inwardly from the side flanges at the rear end. The rear ends of spring members 18 carry retaining studs 30 that engage through openings in the side flanges of member 77 and openings in the upper angle bars 24, as clearly shown in Fig. 11. These pins 30, arranged at opposite sides of member 77, serve to normally lock retaining member 77 in the guideway at the top of the cabinet. A pair of hinge members 81 are secured to the front portion of retaining member 77 and carry transversely extending pins 82 which have the outer ends engaged in channels formed by the inwardly bent flanges on the side edges of front closure 76. This provides for the sliding and swinging movement of the front cover around pins 82 so that the cover may be moved into a horizontal position and slidably moved into the cabinet as shown in Fig. 3 or withdrawn from the position shown in Fig. 3 and swung over the front ends of the trays into the closed position shown in Fig. 12.

A suitable lock mechanism indicated at 83 is mounted on the free edge of the front cover having a key 84 for actuating the lock so that when the cover is in closed position the lock may be operated to secure the cover by the front of the cabinet against opening movement by unauthorized persons.

Referring to Figs. 14 to 17 showing a few modifications from the form of the invention described above, the outer casing for the cabinet is indicated by numeral 85, and comprises side walls 86, top wall 87, bottom wall 88, rear wall 89 and from wall 90, all formed in the manner herein above described in connection with the construction of cabinet 1. One of the changes made in this modified cabinet structure is in the side frame units which are formed with a front vertical member 91, a rear vertical member 92 and a vertical stop members 93. These vertical members are connected together at the upper and lower ends by top frame member 94 and bottom channel frame 95. These side frames are mounted in the cabinet in the same manner as the side frames of the construction previously described, having top cross members 96 and bottom cross members 97 similar to the members 19 and 23 extending between the side frames at opposite sides of the cabinet for securing them in the outer casing. Front and rear vertical members 91 and 92 are each formed with two rows of struck out tongues 98 and 99 respectively.

Tongues 98 are arranged in spaced vertical relation, the tongues on the rear frame member being in horizontal alignment with the corresponding tongues on the front frame member. Tongues 99 are offset slightly from tongues 98 for a purpose that will be presently described.

Tongues 98 slidably support slide members 100. Slide members 100 are formed of sheet metal having a partition forming section 101 at the bottom extending transversely between the slide walls of the cabinet. At the side edges, section 101 is formed with offset margins 102 and slide walls 103 extending upwardly from the outer
edges of said margins and terminating in inwardly extending top flanges 104. The rear end of section 101 is formed with an upwardly extending rear wall 105 while at the front portion of the slide member, section 101 is formed with a return bend portion to provide hook 106.

Each slide member 100 is slidably supported by the side frames by having offset side margins 102 supported by tongues 99 on the front and rear vertical frame members 91 and 92 at each side of the cabinet. Tongues 99 operate to retain each slide member in sliding engagement with a pair of tongues 88 and to prevent vertical movement of the slide members in the cabinet.

Each slide member supports a card index tray 107 for sliding movement therein. These trays are the same as the card index trays described above with the exception of the construction hereinafter described. At the rear end of each tray 107, there is provided a transversely extending pin 109 mounted in cylindrical portions 109 secured adjacent the rear end of the tray. At opposite sides of the tray, this cylindrical portion 109 is cut out to receive cylindrical hinged knuckles 110 of hook member 111. Pin 109 extends through cylindrical knuckles 110 and pivotally mounts each hook member 111 thereto.

A coil spring 112 is mounted on pin 109 as shown in Fig. 16, having one end engaged with projection 113 on hook member 111 and opposite end engaged with the tray. This spring 112 normally operates to move hooks 111 against the bottom of the tray into the recesses formed by the offset portions 114 formed in the rear of the tray. It will be understood that two hooks 111 are mounted at the rear end of the tray, one adjacent each side in the manner clearly illustrated in Figs. 15, 16 and 17.

When a tray 107 is withdrawn from its slide member 100, hooks 111 will engage hook 106 on the front end of partition section 101. When the rear end of the tray reaches the front end of slide member 100, these hooks will engage in the manner illustrated in Figs. 16 and 17. When this position of the parts is reached, tray 107 may be swung from the horizontal position illustrated in Fig. 15 to the vertical position illustrated in Fig. 17 in the normal use and manipulation of the tray for reference to the indexes carried thereby. In this operation, it will be noted that the hinge mounting of hooks 111 on the rear end of the tray will efficiently provide for this movement of the tray without likelihood of the hooks becoming disconnected from hook 106 of the slide member.

It is desirable, in some instances, to merely refer to some records on the cards in the trays, and for such purposes, it is not necessary to fully remove the tray from the cabinet. This construction, therefore, provides for tray 107 being withdrawn from its slide member until hooks 111 engage with hook 106 at the front of the cabinet as illustrated in Fig. 15 without pulling slide member 100 outwardly from the cabinet. In order to obtain this operation a spring latch 115 is mounted on the side wall 103 of slide member 100 with a curved end portion 116 engaged with inclined face 117 of vertical stop member 93. By means of this spring latch 115, slide member 100 is retained in its rear-most position in the cabinet during the entire outward sliding movement of the tray to the position illustrated in Fig. 15 and as just described above. Tray 107 may then be moved downward on the hinges 111 and an inspection of the records in the tray may be made.

For a great many uses of visible card index cabinets, it is desirable to pull the tray to a position beyond the front of the cabinet and outwardly beyond the position just described above and shown in Fig. 15. The slidable mounting of the slide member provides for the further extension of the tray in front of the cabinet. To obtain this operation of the tray it is withdrawn as above described until the hooks 111 engage hook 106. Then, a further outward pull of tray 107 moves slide member 100 forwardly from its rear-most position whereby curved end 116 is cammed over inclined face 117 and slide member 100 moves forwardly in the cabinet with the front projecting outwardly, as indicated by the dot and dash lines in Fig. 15. When the slide member has moved forwardly to this dot and dash line position, spring latch 115 will to a forwardly to the position indicated by dot and dash lines in Fig. 15. In this position curved end 116 will engage between the inclined flange 118 formed on front member 91 and laterally extending portion 119 and effectively arrest the forward motion of slide member 100 and hold it in this position.

The index cards in tray 107 may then be referred to in the usual manner and top cover 120 pivotally mounted at the rear end of the tray can be swung rearwardly into the dotted line position indicated in Fig. 16 to be supported by the front ends of flanges 104 on the slide member which terminate rearwardly of the front ends of partition section 101 and side walls 103, as clearly shown in Figs. 15, 16 and 17. This structure of the slide member with the front end of flange 104 cut off facilitates the support and operation of top cover 120. For this purpose, top cover 120 is also provided adjacent its hinged mounting on the tray with extensions 121 on the slide edges in line with the end of flange 104, as shown in Fig. 15.

When tray 107 is moved into the cabinet, it is first moved upwardly into a position shown in Fig. 16, where it is aligned with its slide member 100. Then, the tray is pushed rearwardly into slide member 100. In the first part of this rearward motion of the tray, the inclined position illustrated in Fig. 15 will be used. Front extensions 121 on top cover 120 will ride on the front ends of flanges 104 and the top cover will be swung on its hinged mounting on the tray into the closed position or forwardly extending position, as shown by full lines in Fig. 16. Tray 107 will then slideably move into slide member 100 until it is entirely housed in the slide member and the front of the tray engages the front end of the slide member. Further movement of the tray into the cabinet will carry slide member 100 with it so that the tray and slide member will move together from the dot and dash line position shown in Fig. 15 into the cabinet until the full line position shown in Fig. 14 is reached when both the tray and slide member will be in the rearmost position in the cabinet. As the slide member is moved from its forward position into the cabinet, spring latch 115 will have its end 116 cammed over flange 104 as it moves rearwardly into the cabinet. End 116 will, subsequently, engage inclined face 112 of stop member 93 which will carry the latch member inwardly toward the slide member so that it will subsequently engage inclined face 117 in the manner shown in full lines in Fig. 15 for retaining the slide member in its rear-most position until forcibly withdrawn as hereinafore described.
The tray may be removed from its slide member by sufficient rearward movement from the position shown in Fig. 16 to disengage hooks 111 from hook 106. The rear of the tray is then lifted up until the upper edges of the side walls of the tray engage the under faces of flanges 182 when forward movement of the tray will allow hooks 111 to move over hook 106.

The slide members 108 may be removed from the cabinet by inserting a thin metal strip in the space allowed for clearance between slide member 100 and vertical frame members 91 and 92, until the end can be engaged on the outside of curved end 116, when forward movement of the strip and slide member will force latch 115 against its slide member and allow it to pass from front frame member 91.

The invention comprises:

1. A card index cabinet comprising a casing having guideways, slide members slidably in said guideways, a plurality of trays slidable in said slide members, means normally retaining each of said slide members against complete detachment from said casing and means retaining said trays against complete detachment from said slide member when withdrawn from said casing, both of said means cooperating in the operation of said trays for retaining said first-mentioned means in disengaged relation whereby said slide member may be removed from said casing with its tray.

2. A card index cabinet comprising a casing having guideways, slide members slidably in said guideways, a tray for each slide member slidably mounted therein, means normally retaining each slide member against detachment from said casing, means retaining each of said trays against complete detachment from its respective slide member when withdrawn from said casing, and means positively connecting each tray to its slide member for securing the forward sliding movement of the slide member with its tray from its rearmost position to its forward position, said first-mentioned means being inoperative during the operation of the last named means to connect the tray to the slide member.

3. A card index cabinet comprising a casing having guideways, a plurality of card index trays slidably in and out of said casing, a plurality of slide members slidably mounted in said guideways, each slide member receiving one of said trays in telescoping relation for sliding movement therein, a stop mechanism cooperating with each slide member, tray and said casing to operably connect each slide member to its respective tray during a portion of the movement of the tray in being withdrawn from said casing, said mechanism being further operable to release said tray for sliding movement relative to its slide member and simultaneously becoming operable for engaging portions carried by the casing for limiting sliding movement of the slide member outwardly from the casing to retain said slide member against complete detachment from the casing, and means for retaining said tray against complete detachment from its respective slide member.

4. A card index cabinet comprising a casing having guideways, slide members slidable in said guideways and having transversely extending portions providing partitions extending between opposite sides of said casing, each slide member forming a compartment slidably mounted therein for movement into and out of the casing and said compartment, means for normally retaining each tray against complete detachment from its slide member when withdrawn therefrom, and stop means carried by each slide member having parts cooperating with parts on the guideway of said casing for limiting movement of said slide member relative to the casing, said stop means also having parts for cooperating with the tray to connect the tray to the slide member for insuring movement of the slide member with the tray during the outward movement of the tray from the casing, said stop means also having parts operated by said tray for releasing said stop means from engagement with the parts on the casing whereby said slide member may be detached from the casing.

5. A card index cabinet comprising a casing having guideways, slide members slidable in said guideways, card index trays slidable one in each slide member, means for retaining each tray against complete detachment from its respective slide member when withdrawn therefrom and from said casing, a plurality of stops in each guideway, stop means on each slide member for engaging the stops in said guideways having parts controlled by said tray for holding said stop means in disengaged position whereby said stop means may be controlled to selectively engage and disengage with any one of said stops in said guideways.

6. A card index cabinet comprising a casing having guideways, slide members slidable in said guideways, card index trays slidable one in each slide member, a bell crank pivoted in each slide member having a pair of stops on one end for engagement with said guideway and the tray housed in said slide member respectively, said tray being adapted to engage the other end of said bell crank lever for operating said lever to engage one of said projections with said tray for locking said tray and slide member together for simultaneous movement in said guideways, the other projection on said bell crank being normally adapted to cooperate with parts on said guideways to normally retain said slide member against detachment from said casing when said tray is disengaged from the other end of said bell crank, and means for normally retaining said tray against detachment from said slide member when said tray is withdrawn from said slide member and casing.

7. A card index cabinet comprising a casing having guideways, slide members slidable in said guideways, card index trays slidable one in each slide member, a stop in each guideway for said slide member, stop means on each slide member for cooperation with the stop in said guideway to limit the movement thereof relative to said casing, said stop means having parts operated by said tray for moving said stop means to a position to disengage the stop in said guideway, said stop means having parts for engaging said tray and locking said tray to said slide member in said last mentioned position, and means for normally disengaging said stop means from position to lock said tray to said slide member and to project said stop means into engagement with the stop in said guideway and mean normally retaining said tray against complete detachment from its slide member when withdrawn therefrom and from said casing.

8. A card index cabinet comprising a casing having guideways, slide members slidable in said guideways formed to provide a plurality of partitions extending between opposite sides of said casing and providing a plurality of compart-
ments, a tray in each compartment slideable on one of said slide members, stop means in each slide member for normally engaging parts in the guideways for limiting movement of said slide members in said guideways, said stop means having parts engageable by said tray operable to move the stop means to inoperative position, said stop means operating automatically upon the withdrawing movement of the tray from the cabinet to limit the motion of said slide members, and means for retaining said tray against complete detachment from said slide member when withdrawn from said slide member and casing.

9. A card index cabinet comprising a casing having guideways, a plurality of card index trays, a slide member for each guideway slidably mounted therein, each slide member being formed of a piece of sheet material having a partition section extending between the side walls of said cabinet, laterally extending flanges on the sides and rear edge of said partition section, said side flanges terminating in inwardly extending flanges parallel to said partition section, said flanges on each slide member and said partition cooperating to form a compartment for slidably receiving one of said card index trays, stop means in each of said slide members normally operable to engage a stop provided on said guideways and limit movement of each slide member relative to said casing in said guideways for normally preventing detachment of said slide members from said casing, and means for retaining each tray against complete detachment from its respective slide member when withdrawn from said slide member and casing.

10. A card index cabinet, comprising a casing, a plurality of slide members each slidably mounted in said casing, a plurality of trays each slidably mounted in one slide member, cooperating means on said casing and each slide member for releasably retaining each slide member in either of two positions in said casing, and means for cooperation with said cooperating means operable by said trays to disengage said cooperating means from either of said two positions for further movement of said slide member relative to said casing.

11. A card index cabinet, comprising a casing, a plurality of slide members each slidably mounted in said casing, a plurality of trays each slidably mounted in one slide member, and cooperating means on said casing and said trays for releasably retaining a slide member in at least one position in said casing against sliding movement, each tray being adapted to operate said means in the slide member in which it is housed for holding said means in inoperative position whereby a slide member may be moved and removed from said casing.

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