May 1, 1956 J. STINGL 2,743,982

FILING CABINET

Filed June 10, 1953 2 Sheets-Sheet 1

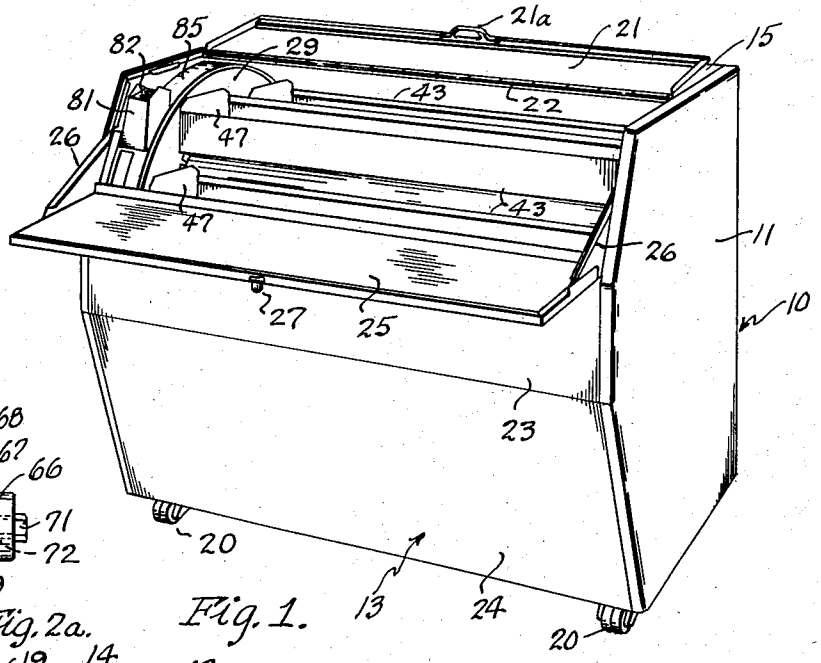


Fig. 1.

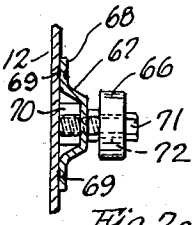


Fig. 2a.

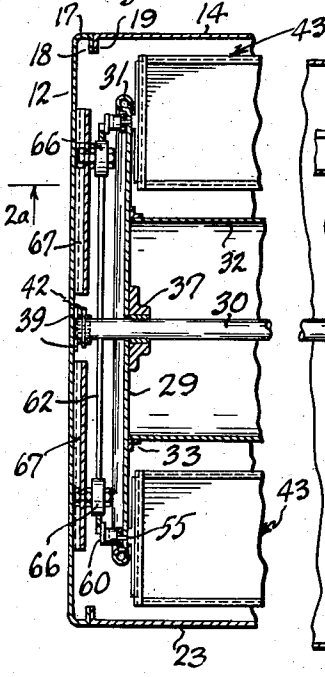


Fig. 2.

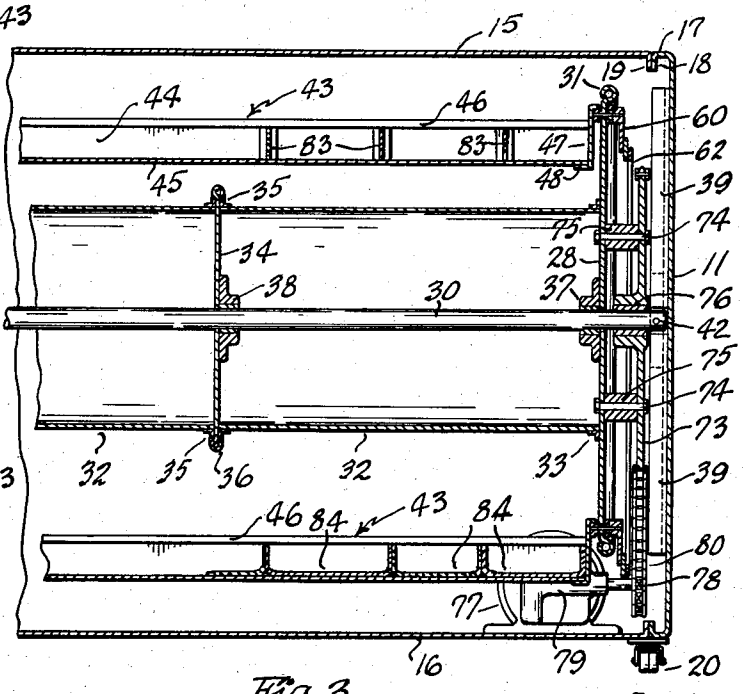


Fig. 3.

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May 1, 1956 J. STINGL 2,743,982

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Filed June 10, 1953 2 Sheets-Sheet 2

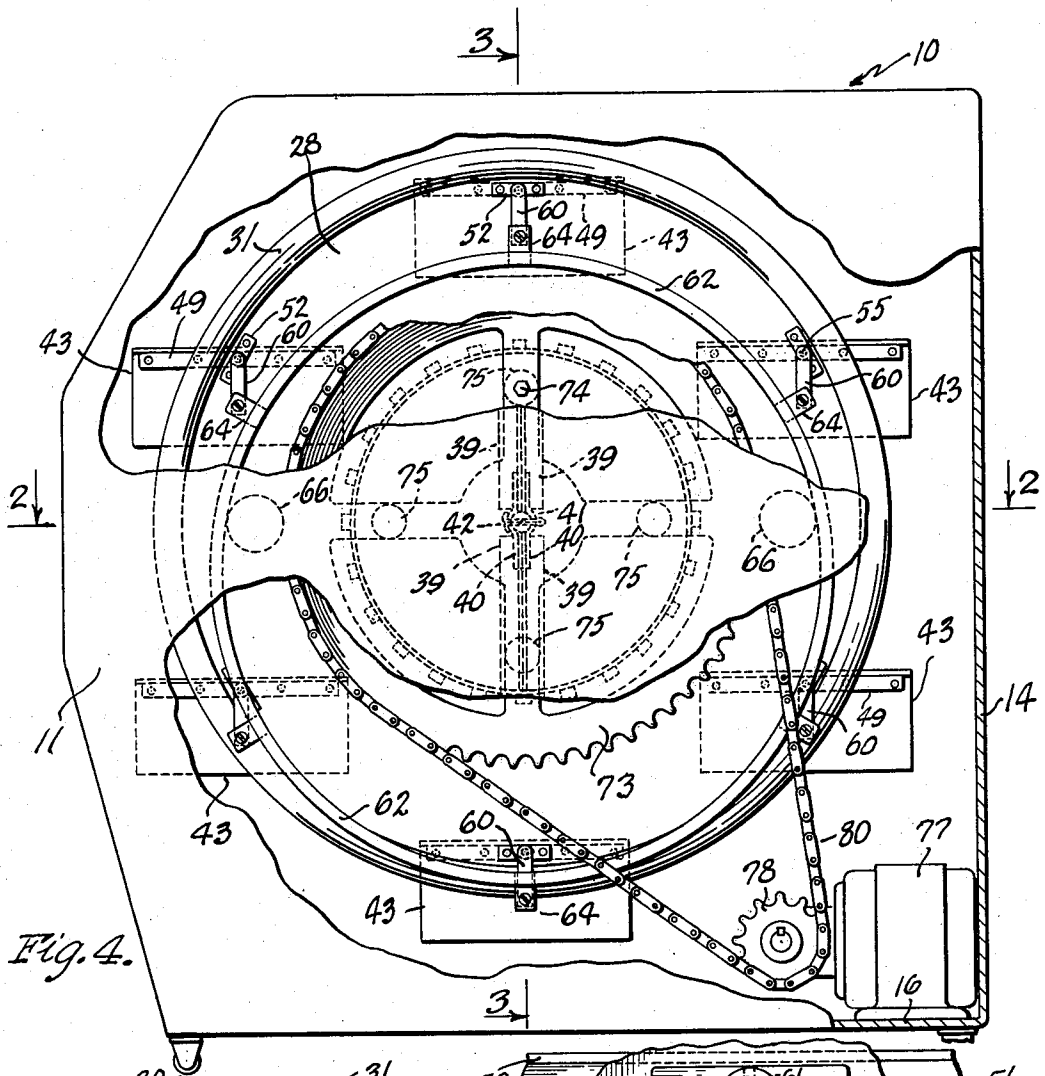


Fig. 4.

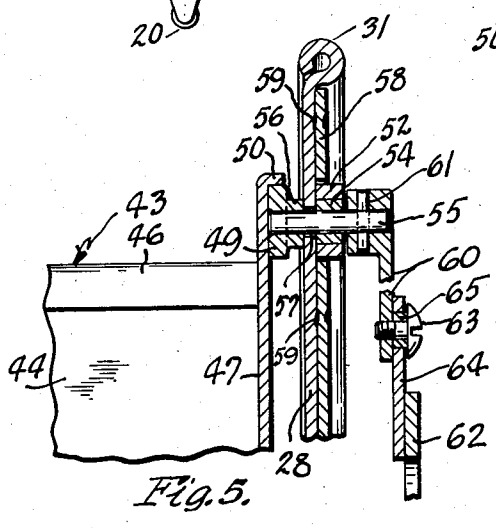


Fig. 5.

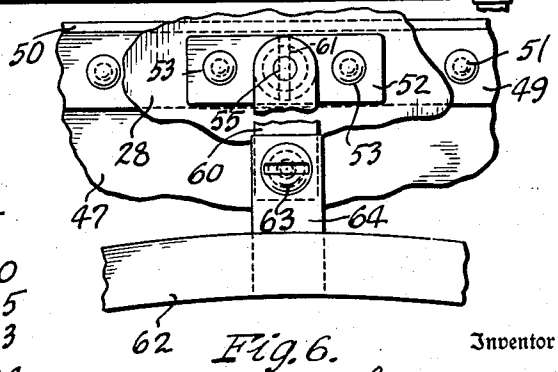


Fig. 6.

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United States Patent Office 2,743,982 Patented May 1, 1956

2,743,982

FILING CABINET

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Application June 10, 1953, Serial No. 360,709

3 Claims. (Cl. 312—267)

This invention relates to a filing cabinet, particularly a cabinet for filing record cards, and has for an object to provide a cabinet for this purpose which has an improved arrangement of a rotary support for a series of trays carrying the cards, which trays are elongated trays adapted to carry a series of groups of cards extending longitudinally of the tray, and which groups may be placed end to end with the cards facing forwardly, or toward a side of the tray instead of toward one end as is common in present cabinets of this type.

It is also an object to provide an improved casing or housing forming a part of the cabinet and enclosing the rotatable supports and the trays, and which housing includes retractable closures forming the front portion of the top wall and the upper portion of the front wall, which when retracted provide a relatively large opening for ready access to the cards in the trays.

It is a further object to so mount the trays in the rotatable supports that any tray may be easily and quickly brought to a position closely adjacent this opening for easy access to any of the cards in a tray.

A further object is to so construct and mount the closure forming the upper part of the front wall that when retracted or opened it is swung forwardly and downwardly to substantially a horizontal position to form a work-supporting shelf for one consulting the cards.

Another object is to provide an improved means for rotating the supports carrying the trays whereby the operator may quickly and easily bring any tray desired to a readily accessible position in the opening and closely adjacent said work-supporting shelf, and which mechanism will also automatically retain the supports and the trays in this position for any desired length of time.

It is a still further object to provide means whereby the trays carrying the cards are always maintained in an upright position so there will be no danger of the cards dropping out of the trays during rotation of the rotary support, and no separate means is required for retaining the cards in the trays, such as puncturing the cards for a retaining rod or a flexible band passing over the cards to retain them in the trays.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawings forming a part of this specification. It is, however, to be understood the invention is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In these drawings:

Fig. 1 is a perspective view looking toward the front and one end of the cabinet and showing the closures in their open position to permit access to the cards, and use of the closure forming the upper portion of the front wall as a work-supporting shelf;

Fig. 2 is a detail longitudinal horizontal section at the left hand end of the cabinet;

Fig. 2*a* is a detail section on a larger scale of a mounting for a roller of the tray controlling means taken substantially in the plane of the line 2*a* in Fig. 2;

Fig. 3 is a vertical longitudinal central section of the central portion and right hand end of the cabinet;

Fig. 4 is a partial end elevation and partial section looking from the right of Figs. 1 and 3;

Fig. 5 is a detail vertical section on an enlarged scale of the mounting and control means at one end of the trays, and

Fig. 6 is a view looking from the right of Fig. 5.

This improved filing cabinet comprises an enclosing casing or housing **10** including longitudinally spaced upright end walls **11** and **12**, connecting front and rear walls **13** and **14** respectively, and top and bottom walls **15** and **16** respectively. The housing may be made of any suitable material but is preferably of sheet metal, and of course may be coated or finished with any suitable material in any color desired. In the form shown, the edges of the end walls are turned laterally, as indicated at **17**, and then inwardly to form a flange **18**, and the top edges of the top, front and rear side walls, and bottom wall, are turned inwardly to form similar flanges **19** abutting the flanges **18**, and which may be secured thereto by any suitable means such, for example, as bolting, riveting or spot welding, thus forming a strong, rigid, unitary structure for the housing of relatively light weight. The whole structure may be supported on suitable rollers or casters **20** to permit ready shifting of the cabinet to any desired location.

The front portion of the top wall **15** comprises a retractable closure **21** extending substantially the full length of the cabinet, and it is preferably mounted by a piano type hinge **22** at its rear edge to permit this closure to be lifted and swung rearwardly out of the way onto the top of the rear portion of the top wall, as shown in Fig. 1, thus exposing the contents of the housing through this top wall. The front side wall **13** of the housing comprises a substantially vertical intermediate section or portion **23**, a lower section **24** inclined downwardly and rearwardly from the intermediate section **23**, and a top section comprising a retractable closure **25** inclined upwardly and rearwardly from the top edge of the intermediate section **23**. This closure is preferably mounted by hinging it at its lower edge to the top edge of the intermediate section **23** so that it may be swung forwardly and downwardly from the closed to an open position projecting forwardly from the front wall of the housing and with means such, for example, as pivoted links or brackets **26** at its opposite ends for holding it in a substantially horizontal position to form a work-supporting shelf for a person using the cabinet and consulting the cards therein. The two retractable closures provide a large opening substantially into which the trays carrying the cards are shifted by rotating their support, so that they are easily and readily accessible to a person sitting at the front of this shelf. The downwardly and rearwardly inclined lower portion **24** gives clearance for the limbs of the user sitting in front of the cabinet for great comfort. When the closure **25** is swung upwardly and backwardly and the closure **21** forwardly to the closed position, the cabinet is entirely closed and the closures may be secured in this position by any suitable catch or lock **27** on the front closure and a cooperating keeper also forming a hand grip **21***a* on the top closure, giving full protection to the contents of the cabinet.

The improved means within the housing for carrying the trays comprises a rotatable support, whereby any desired tray may be brought to a readily accessible position in or just back of the opening covered by the closures **21** and **25** and where any card in the tray may be easily and quickly located and examined. This support in the construction shown comprises a pair of longitudinally

spaced upright rotary supports 28 and 29 located adjacent the opposite end walls of the housing. These supports may be of different constructions, but they are preferably sheet metal discs mounted to rotate on a suitable longitudinal supporting shaft 30, and the outer peripheral edges are preferably rolled over to form strengthening ribs 31 and also to provide a finished edge to the discs which will prevent injury to a hand coming in contact therewith, and provide a better appearance. These end supports or discs are connected by a central strengthening member 32 in the form of a tubular element secured at its opposite ends to the discs by any suitable means, such, for example, as angle bars 33 welded to the discs and this tubular element. As in the design shown the length of the cabine and therefore the distance between the supports 20 and 29 is considerable, the connecting member 32 may be strengthened at one or more points between the supports, one of these supporting means being shown at substantially the center of the cabinet and comprising a sheet metal disc 34. The member 32 may be made in sections, the one shown comprising two sections extending in opposite directions from the disc 34 to the supports 28 and 29, and the inner ends are secured to the disc 34 in the same manner as the outer ends are connected to the supports 28 and 29, that is, by angle members 35 welded to the discs and the tubular members. The peripheral edge of this disc may also be rolled over to form a strengthening and stiffening bead 36. The end supports 28 and 29 are mounted to rotate on the shaft 30 by any suitable bearing means 37, and the disc 34 is also supported by and rotatable on the shaft by a similar bearing 38. The opposite ends of the shaft 30 are supported on the inner side of the end walls 11 and 12 of the housing. The preferred means of mounting this shaft is by means of a pair of upright angle members 39 mounted on the end walls preferably by spot welding one flange to these walls with the other flanges abutting. There are two sets of these angle bars, one above and one below the shaft, as shown in Figs. 3 and 4, and then a pair of straps 40 are welded at their opposite ends to the inwardly extending flanges of these bars, and they have outwardly curved central portions 41 forming a socket to receive the end of the shaft. It may be secured therein by any suitable means such, for example, as a cotter pin 42.

Pivotally mounted at their opposite ends in the two rotary supports 28 and 29 are a series of longitudinally extending elongated open-top trays 43 for supporting a series of record cards (not shown). These trays are preferably sheet metal of substantially U-shape in cross section, thus forming upright laterally spaced side walls 44 and a connecting bottom wall 45, and the side walls may be stiffened and strengthened by folding over the top edge portions thereof, either inwardly or outwardly, as shown at 46. The ends of each tray are formed by upright sheet metal plates 47 which may be bent inwardly at their lower and side edges forming flanges 48 for connection with the bottom and side walls of the tray, and these end walls form supports by which the trays may be mounted on the rotatable end supports 28 and 29. The preferred mounting means for the opposite ends of the trays is shown in detail on a larger scale in Figs. 5 and 6. It comprises a transverse bar 49 secured to the outer side of the end wall 47 of the tray, and the top edge of this wall may be turned outwardly, as indicated at 50, to form a flange resting on this bar. The bar may be secured to the end wall 47 by any suitable means, as for example by rivets or spot welding 51. A second and shorter bar 52 is secured by similar means 53 to the supporting disc 28 and carries a bearing sleeve 54 for a supporting pivot pin 55 secured at its inner end in the bar 49, and this bar may be provided with a boss 56 to increase the supporting area between the pin and the bar. As the supporting bar 52 is secured to the disc 28 on the outer side and the tray is on the inner side, the pivot pin 55 extends through an opening 57 in the disc.

If desired, the disc 28 may be stiffened and strengthened by an additional sheet metal disc 58 spot welded to the disc 28 as indicated at 59. Secured to the outer end of the pin 55 is a crank arm 60 preferably depending vertically from this pin, and it is secured to the pin 55 by any suitable means, such, for example, as a cross pin 61.

Means is provided for retaining this crank arm in an upright position in all positions of the connected tray as the support for the tray is rotated. This comprises a control ring 62 mounted to rotate in a fixed position offset downwardly from the pivotal mounting 55 of the tray and having a pivotal connection 63 to the crank arm 60 for each tray, spaced downwardly from the axis of the pin 55, the offset for the ring 62 being equal to the distance between the axis of the pivot pin 55 and the pivotal connection 63. In other words, the ring 62 rotates about a center offset downwardly from the center of the shaft 30 a distance equal to the distance between the axis of the pin 55 and the pivotal connection. As the card carrying trays are of considerable length, it is preferred to mount both ends in their rotatable supporting discs 28 and 29 in the same manner. That is, each end is supported by a pivot pin 55 and each carries a crank arm 60 connected to a control ring 62. As the mounting and control are the same at each end of a tray only one will be described in detail. The pivotal connection for the crank arm 60 to the control ring 62 preferably comprises a lug 64 secured to the ring 62 by any suitable means such, for example, as welding, and projects outwardly from the ring a sufficient distance to accommodate the pivotal connection 63 which may be a screw extending through the bearing sleeve 65 in an opening in the lug 64 and the inner end of the screw threaded into the arm 60. The ring 62 is preferably a flat strip of metal located in a vertical plane and supported at its inner edge to rotate or turn on a pair of supporting rollers 66. These rollers may be of any suitable material but are preferably rubber rollers, and they are located on diametrically opposite sides of the shaft 30 and spaced therefrom, as shown in Figs. 2 and 4. They are mounted on the inner sides of the end walls 11 and 12 of the housing, and a simple and effective means for mounting these rollers is shown in Figs. 2 and 2a, comprising a channel-shaped sheet metal member 67 having laterally extending side flanges 68 secured to the adjacent end wall by any suitable means, such as spot welding, and this channel member encloses the block 70 into which is threaded a supporting stud or screw 71 on which the roller 66 rotates with a suitable bearing sleeve 72. These channel members are preferably of considerable length so as to extend laterally from opposite sides of the shaft 30 to substantially the rear and front walls of the housing, as shown in Fig. 2. As these members extend substantially horizontally and the supporting angle members 39 for the shaft 30 extend vertically, they together form a cross construction providing a very effective strengthening and stiffening means for the sheet metal end walls 11 and 12 of the housing.

It will be seen that with this means of mounting the trays with the pivotal supporting pins 55 located well above the bottom wall 45 of the tray, this pivotal mounting at each end of the tray is located well above the center of gravity of the tray so that it tends to remain in an upright position at all times throughout the turning movements of the rotatable supports for these trays. However, to positively hold the trays in this upright position and prevent their being swung or tipped laterally, either during the rotatable movement of their support or inadvertently by the user consulting or examining the cards or inserting or removing them, so that the cards might fall from the tray, the offset rings 62 and their crank arm connection to the trays, as above described, are provided to positively retain each tray in its upright position as the support is rotated to bring the individual trays to the accessible position in the opening in the upper front part of the housing. In other words, as each ring 62 is offset

as shown in Fig. 4 and is pivotally connected to the free end of each of crank arms **60** for the series of trays, the ring **62** rotates with the adjacent end supports **28** and **29**, and due to the offset always maintains the crank arms **60** in the upright vertical position, and therefore retains each card tray always in the upright position, and this is true of all positions of the tray throughout its peripheral movement as its support rotates.

Power means is provided for rotating the rotatable support for the tray and also holding the support in any desired position when the support is stationary, so that any desired tray may be brought to the opening in the upper part of the front wall of the housing or to an accessible position immediately back of the work-supporting shelf of the file. This operating means comprises any suitable enlarged sprocket **73** connected to one of the rotatable end supports **28** or **29**. In the present case it is mounted on the outside of the right hand disc **28** between this disc and the end wall **11** of the housing. It is connected to the disc by any suitable means such, for example, as bolts **74** passing through the sprocket and the member **28**, with suitable spacing blocks or sleeves **75**. The sprocket **73** may also have a suitable bearing **76** to support and permit it to rotate on the shaft **30**.

An electric motor **77** is mounted within the housing in any suitable location, as on the lower wall **16** adjacent the rear wall **14**, and drives a small sprocket **78** through a standard type of reducing drive **79**, this sprocket having connection with the large sprocket **73** through a suitable chain **80**. A suitable control **81** for the motor, including push buttons **82** operating suitable control switches (not shown) located in a plug-in supply connection to the motor (which connections are not shown as they may be any well known suitable connection) is provided. This control **81** is located in an easily accessible position, preferably as shown in Fig. 1, just inside one end wall of the housing and easily accessible through the opening in the front of this housing. This means of rotating the support for the trays permits operation of the support in either direction to bring any desired tray into accessible position at the opening in the front of the housing, and the reducing drive **69** effectively retains the support stationary in any given position when the power to the motor is cut off.

It will be seen that with this construction and arrangement the card supporting trays **43** may be made of practically any length desired, to hold a large number of cards and make them readily accessible to anyone seated at the front side of the cabinet. It is intended that the cards be located in the trays in upright positions extending longitudinally of the trays, and the cards may be located in different groups with the cards of adjacent groups arranged end to end and cards of a given length in corresponding groups. The cards may be arranged so that no dividing means between the different groups are necessary, but, if desired, sheet metal or thin dividing walls may be provided as inserts, extending transversely between the side walls **44** of the trays, as indicated at **83** in the upper part of Fig. 3, or the individual substantially U-shaped pans or containers of sheet metal or the like could be used as inserts, as shown at **84** at the bottom part of Fig. 3, and of a width to carry groups of any desired width of cards, these containers being merely seatable in the trays **43** to keep each group of cards separate, and such containers could be provided with suitable handles whereby, if desired, any container and its group of cards could be removed from the carrying tray **43** and placed with the container on the shelf **25** or any other support while working on the cards in this container.

The controlling means comprising the offset ring **62** and its connection to the trays **43** at each end of the rotary support, as well as the sprocket and chain drive at the right hand end, may be covered and protected by a guard **85** where they are exposed in the opening at the upper portion of the front wall. This would also prevent articles being dropped into these movable parts, and also would prevent injury to the operator in preventing insertion of the hand inadvertently into the space between the rotatable discs **28** and **29** and the end walls of the housing.

It will be clear from the above that this novel construction and arrangement provides a simple and efficient cabinet for filing a large number of cards, and in such a way that any card or series of cards may be easily and quickly brought to an easily accessible position at the front side wall of the cabinet, where an operator sitting at this front wall can readily examine any card or remove it if desired, and can perform work in connection with it on the supporting shelf **25**; that the rotatable support for the card trays can be easily operated and controlled with no danger of the cards being dropped or spilled from the trays, and any tray brought to an accessible position in the opening at the front of the cabinet is automatically held and retained in this position by merely arresting the rotation of the tray support.

In a common arrangement of a card filing cabinet having pivotally mounted trays for the cards, the cards are arranged transversely of the trays and they are accessible through an opening in the top wall of an enclosing housing. With such a construction the trays are limited to a relatively short length so that the trays are capable of carrying only a relatively small number of cards, the cards facing the pivotally mounted end walls of the trays. This not only limits the number of cards but greatly reduces their accessibility and interferes with proper examination of the cards. In the present construction, as the cards are arranged to extend longitudinally of the trays, these trays may be practically any length desired, thus greatly increasing the capacity of the cabinet and the number of cards that may be mounted therein. Also, as the cards extend longitudinally of the trays, they face a lateral side wall of the tray so that the end walls with their necessary supporting mounting in no way interfere with the examination of the cards, and the data on the cards may be readily examined from the front side of the cabinet and without removing the cards from the trays.

Having thus set forth the nature of my invention, I claim:

1. A filing cabinet for cards comprising a housing including spaced upright end walls, connecting front and rear side walls between them and a top wall, a retractable closure at the upper portion of the front wall hinged adjacent its lower edge to swing forwardly and downwardly to an open position to permit access to the cabinet, means to hold the opened closure in a substantially horizontal position to form a work supporting shelf, a pair of upright longitudinally spaced rotary supports in the housing adjacent the end walls, a series of elongated open topped trays extending between and pivotally mounted at their opposite ends in the supports, said pivotal mounting means for each tray comprising a pivot pin secured to each end of the tray and extending through the adjacent rotary support, a bearing for each pin on the support comprising a cross bar secured to one side of the support, an elongated bearing for the pin mounted in the bar, a crank arm secured to each pin between the rotary support and the adjacent end wall of the housing, a rotatable control ring pivotally connected to each crank arm on the pivot pins in the adjacent support at a distance spaced from the axes of these pins, means mounting each ring to rotate about an axis offset laterally from the axis of rotation of the supports a distance equal to the distance said pivotal connections to the crank arms are spaced from the axes of the pins, and means whereby the supports and the rings may be rotated to bring any tray into an accessible position immediately to the rear of the work supporting shelf.

2. A filing cabinet for cards comprising a housing including spaced upright end walls, connecting front and rear side walls between them and a top wall, a retractable

closure at the upper part of the front wall shiftable to permit access to the cabinet, a pair of upright longitudinally spaced rotatable supports in the housing adjacent the end walls, a series of elongated open topped trays for the cards extending longitudinally between the supports, means pivotally mounting the ends of the trays in the adjacent supports each comprising a pivot pin secured to the end of the tray and passing through the support, a bearing for the pin on the support, a crank arm secured to and extending laterally from each pin, a control ring pivotally connected to each crank arm at a distance from the axis of the pin, supporting rollers for the ring mounted at the inner side of the ring to permit rotation of the ring on its inner periphery about an axis offset a similar distance from the axis of rotation in the supports, means mounting the rollers comprising elongated supporting bars secured to and mounted on the inner side of the adjacent end wall of the housing to strengthen it, means supporting the upright supports comprising a longitudinal shaft, means supporting the shaft comprising elongated bars secured to the inner sides of the end walls and carrying sockets to receive the ends of the shaft, and means whereby the supports may be rotated to bring any tray into an accessible position adjacent the opened closure.

3. A filing cabinet for cards comprising a housing including spaced upright end walls, connecting front and rear side walls between them and a top wall, a retractable closure at the upper part of the front wall shiftable to permit access to the cabinet, a pair of upright longitudinally spaced rotatable supports in the housing adjacent the end walls comprising circular discs, a longitudinal shaft on which the discs are mounted, connecting and strengthening means between the discs comprising a tubular element of considerably larger diameter than the shaft and connected at its ends to the discs spaced from the shaft and between the shaft and the peripheries of the discs, said tubular element comprising a plurality of tubular sections and means connecting them together at their adjacent ends, said connecting means comprising an upright disc mounted on the shaft and means connecting the adjacent ends of the tubular sections to this disc, a series of elongated open topped card supporting shelves between and pivoted at their opposite ends to the discs outwardly of the tubular element, and means whereby the discs may be rotated to bring the respective trays to an accessible position immediately behind the closure.

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