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Robinson

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[54] **ROTARY FILING CABINET**

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[22] Filed: **Feb. 12, 1973**

[21] Appl. No.: **331,909**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 186,124, Oct. 4, 1971, abandoned.

[52] **U.S. Cl.** **312/305,** 312/125, 312/252, 312/286

[51] **Int. Cl.** **A47b 46/00**

[58] **Field of Search** 312/252, 305, 125, 135, 312/197, 202, 123, 11, 59, 286, 97.1, 267; 297/240, 349; 108/139, 142; 248/418; 211/131

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[57] **ABSTRACT**

A filing cabinet operable from either of two sides and having in it a rotor carrying a shelf or platform structure rotatable about a vertical axis. The rotor is movable to present or expose platform or shelf space to either of two open sides. The rotor structure has two opposing flat sides and it can be rotated into a position that closes the open sides of the cabinet.

12 Claims, 13 Drawing Figures

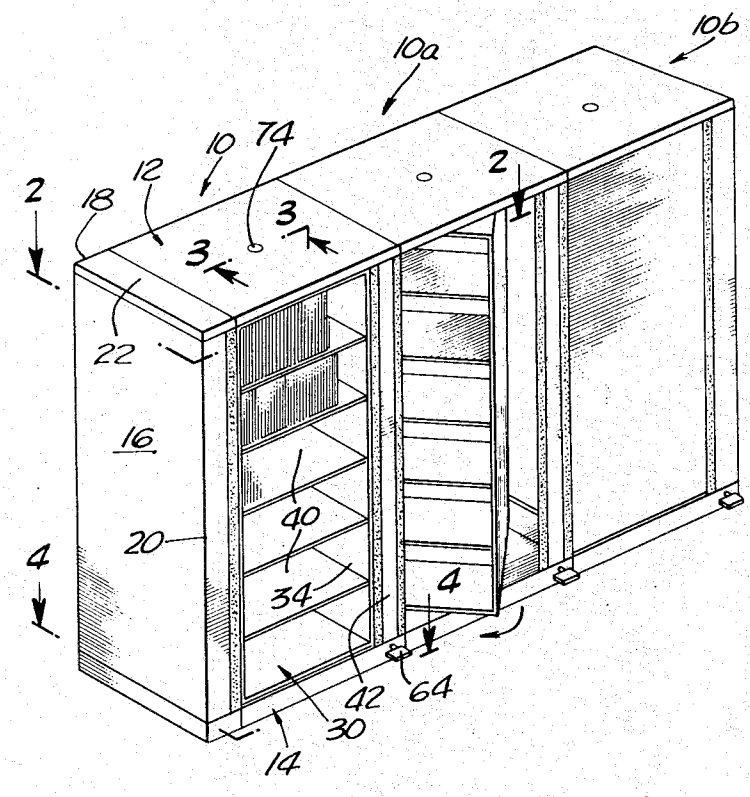
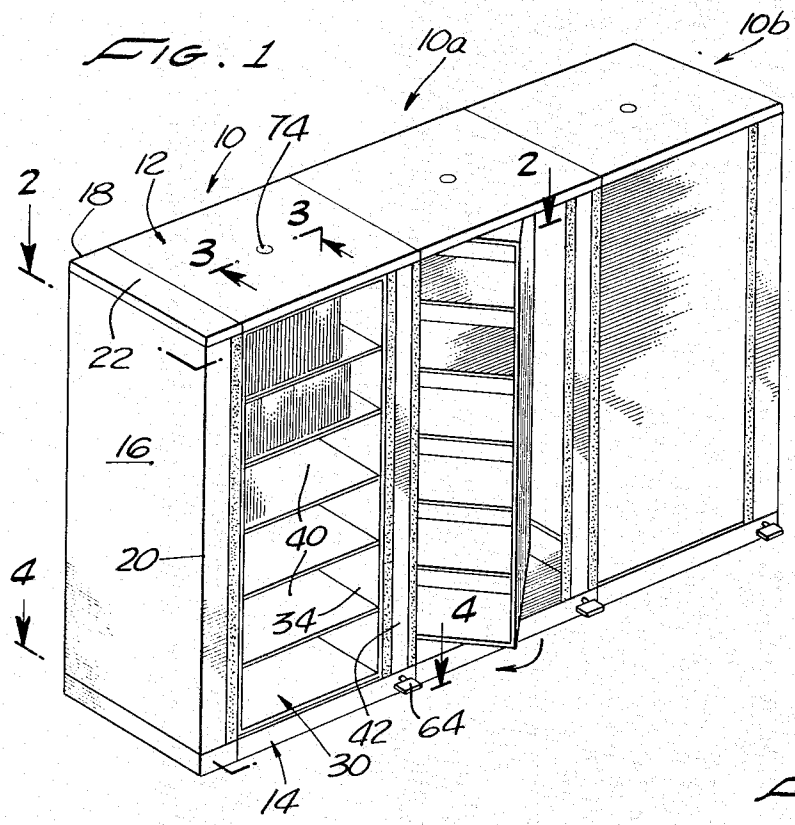


FIG. 1



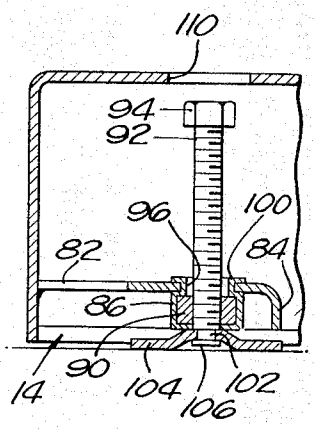
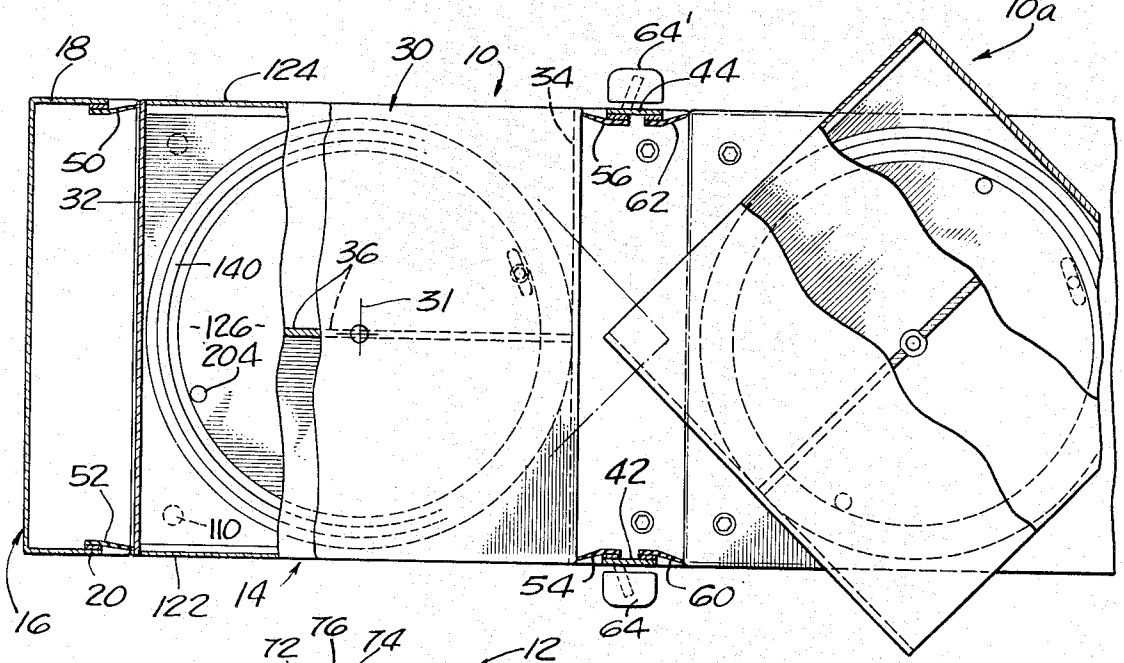


FIG. 7.

FIG. 2.



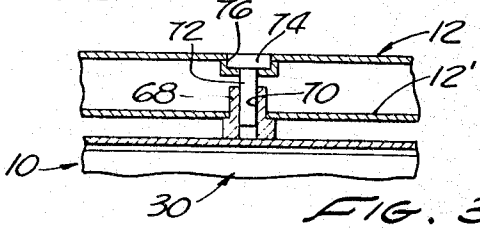


FIG. 3.

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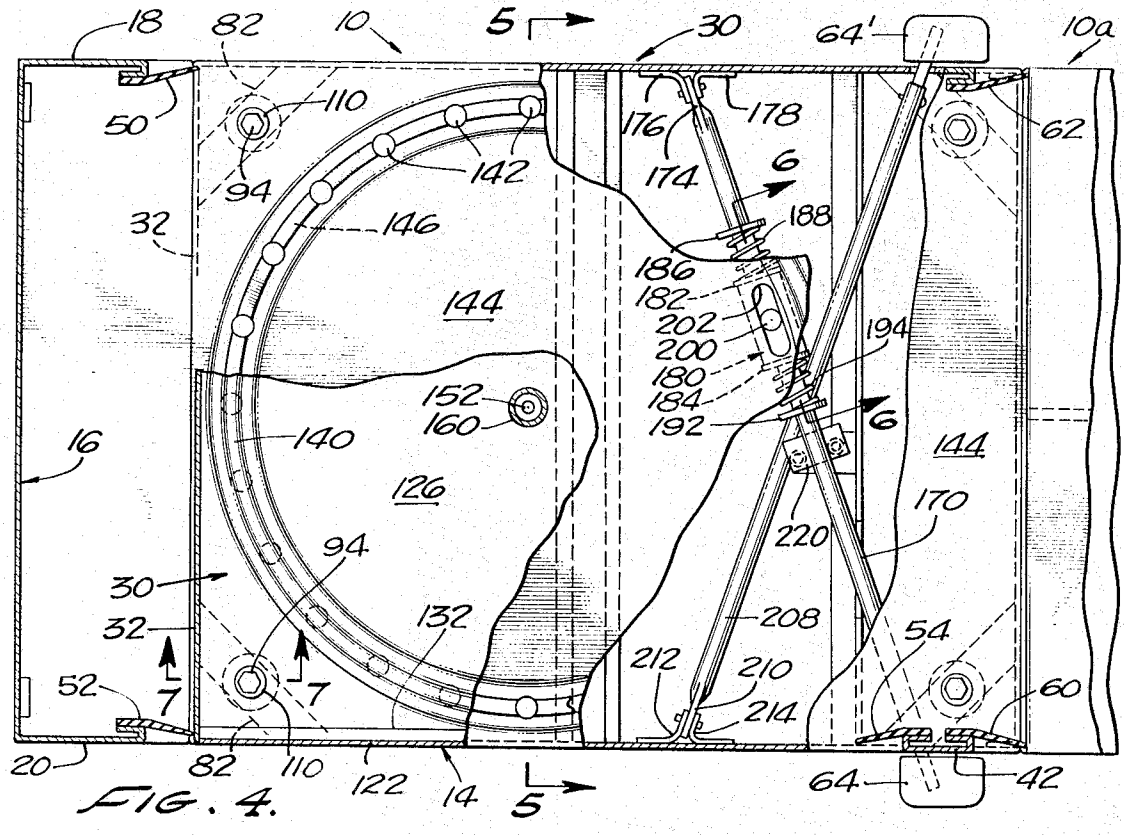


FIG. 4.

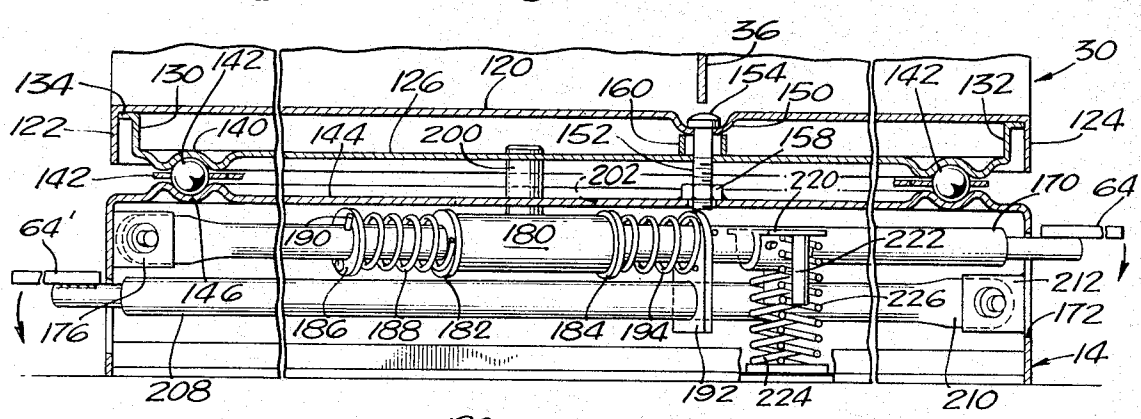


FIG. 5.

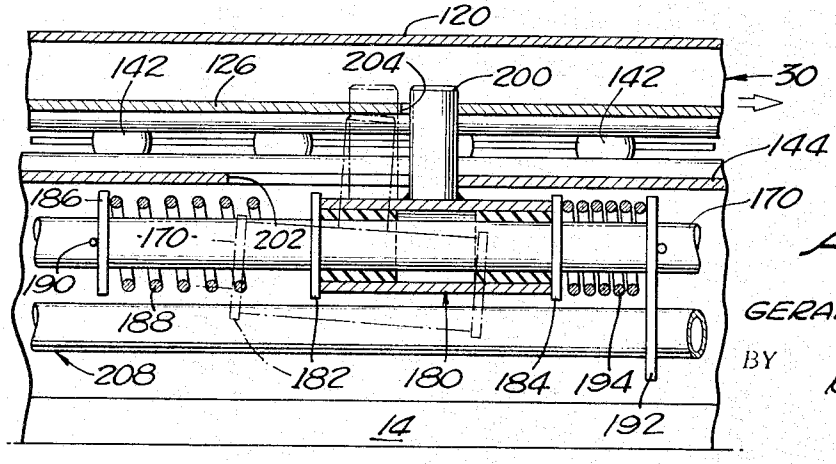


FIG. 6.

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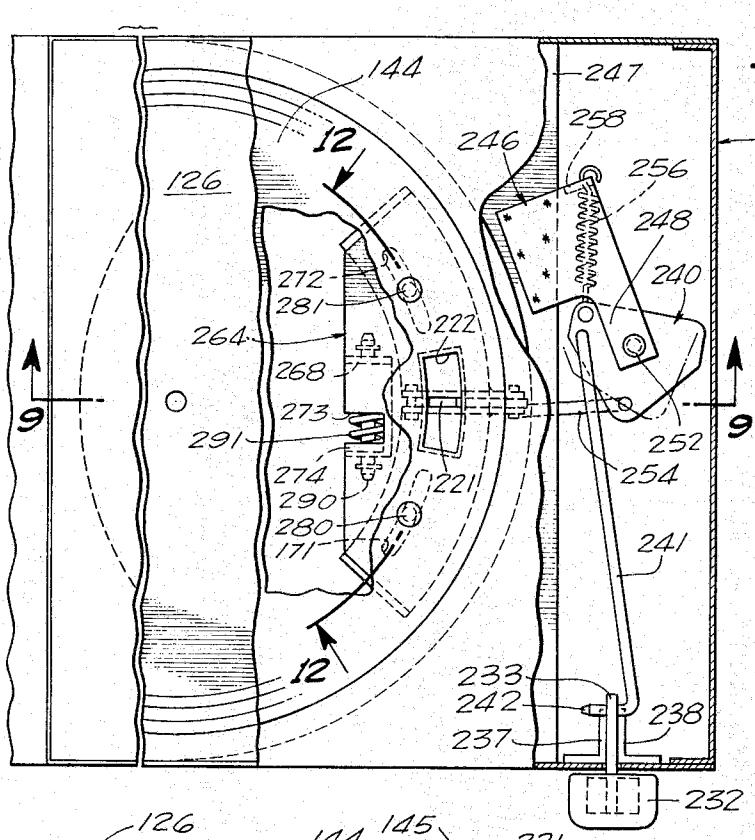


FIG. 8.

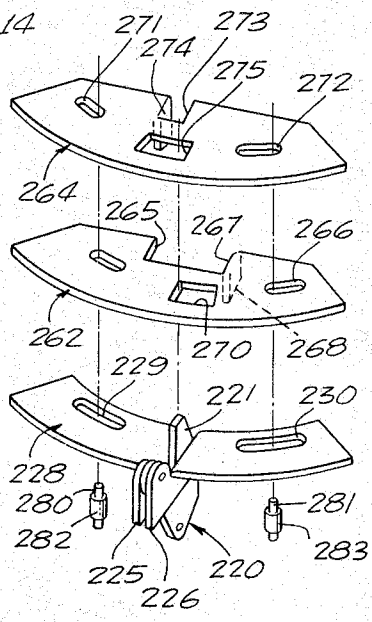


FIG. 13.

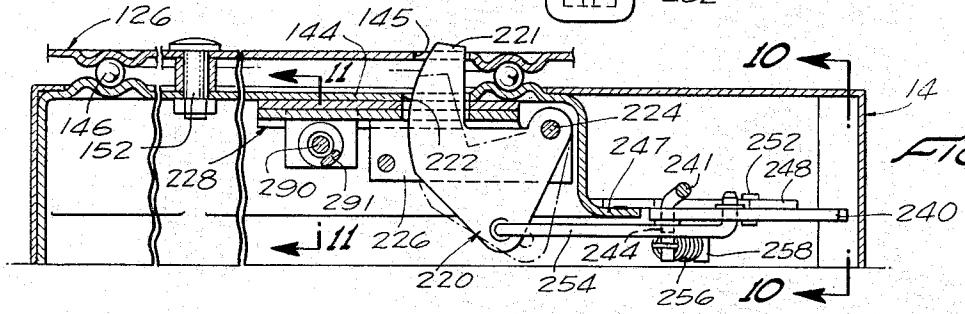


FIG. 9.

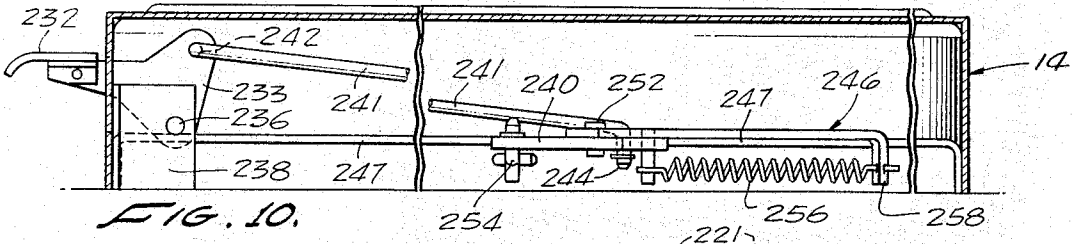


FIG. 10.

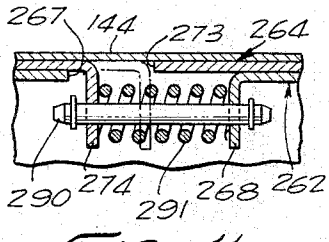


FIG. 11.

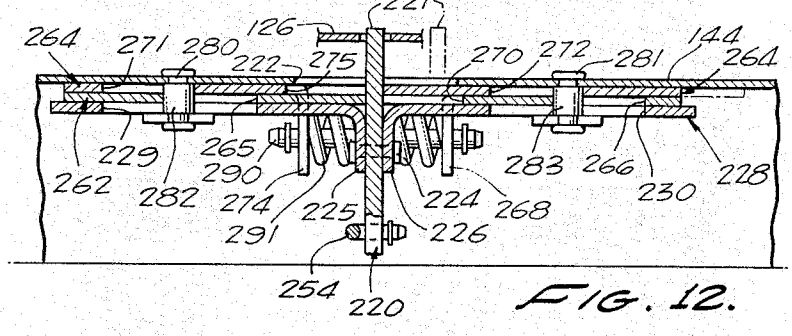


FIG. 12.

ROTARY FILING CABINET

This application is a continuation-in-part of application Ser. No. 186,124 filed on Oct. 4, 1971, now abandoned.

SUMMARY OF THE INVENTION

The invention is a rotary filing cabinet. In a preferred form, it is constructed in modules which can be joined together. Each module comprises a cabinet having within it a platform or shelf structure in the form of a rotor rotatable about a vertical axis in the cabinet. The cabinet is preferably rectilinear having two opposite open sides. Preferably, the rotor structure has a plurality of supporting shelves or platforms for files and two such arrays are provided in the rotor structure so that by turning the rotor, either array can quickly be exposed to either open side of the cabinet. In other words, there is a double bank or array of filing space, either bank of which is readily exposable to either of the open sides of the cabinet.

In the preferred exemplary form of the invention, the shelf or platform support structure, that is the rotor, is square, and it has two smooth flat sides so that the rotor can be turned to a position in which these two flat sides form closures for the open sides of the cabinet. The result is a smooth, neat, compact appearance when the cabinet is closed.

In the light of the foregoing, the objects of the invention will be apparent. The primary object is to make available a double-bank file structure in the form of a cabinet as described, comprising a rectilinear module having a shelf or platform structure in it in the form of a rotor having back-to-back shelf spaces, either of which can be quickly turned to be exposed to either open side of the cabinet.

A further object is to provide a cabinet of this type having the purpose of saving space, particularly aisle space.

A further object is to provide a cabinet providing for quick and easy access to double banks or arrays of shelf filing space.

A further object resides in achieving a constructional arrangement or design such that either of the double arrays can be directly exposed by way of a 90° rotation of the rotor and further that by the same type of rotation, side panels on the rotor structure can be positioned as closures for open sides of the cabinet structure.

A further object resides in the provision of means for latching or restraining the rotor structure in position; for rotating it; and then snubbing or restraining the rotation and stopping and holding the rotor in predetermined positions.

A further object is to provide an improved, simplified latching means comprising a floating assembly of latching member, arcuate sliding plates, and a single restraining spring that retards the arcuate motion of the rotor in either direction.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and additional advantages of the invention will become apparent from the following detailed description and annexed drawings, wherein:

FIG. **1** is a perspective view of a preferred from of the invention shown as a cabinet formed of three modules;

FIG. **2** is a sectional view taken along the line **2—2** of FIG. **1**;

FIG. **3** is a detailed view of one of the mounting arbors or trunions of the rotor structure;

FIG. **4** is a sectional view taken along the line **4—4** of FIG. **1**;

FIG. **5** is a sectional view taken along the line **5—5** of FIG. **4**;

FIG. **6** is a sectional view taken along the line **6—6** of FIG. **4**;

FIG. **7** is a detail sectional view showing one of the adjustable leveling feet for the cabinet structure;

FIG. **8** is a plan view partly broken away of the base section of a cabinet illustrating a preferred and modified form of latching mechanism;

FIG. **9** is a sectional view taken along the line **9—9** of FIG. **8**;

FIG. **10** is a view taken along the line **10—10** of FIG. **9**;

FIG. **11** is a detail view taken along the line **11—11** of FIG. **9**;

FIG. **12** is an arcuate sectional view taken along the line **12—12** of FIG. **8**;

FIG. **13** is an exploded perspective view of plate members constituting part of the latching mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, particularly FIGS. **1** and **2**, FIG. **1** shows a cabinet structure comprising three cabinet modules **10**, **10***a*, and **10***b* which are aligned and joined together. They may be held together in a unitary structure by any suitable or convenient means. Cabinet **10** as shown is rectilinear in configuration; and in the preferred form of the invention, it is square in cross section. It may be formed of sheet metal, for example or any suitable material. It has a flat top **12**. The module **10** has a rectangular base structure **14** as may be seen in FIG. **1** and as will be referred to more in detail presently.

Numeral **6** designates an end panel or structure having side flange parts **18** and **20** which are flush with the front and back faces of the module. The panel **16** rests on the base structure **14**. On its top is top end panel **22** which is flush against the top panel **12**.

Mounted within the module is the rotor which is the shelf or platform support structure. The rotor is designated generally at **30**. In the form of the invention shown, it is square and rotates about a vertical axis, as designated at **31**. It has two, flat side closures **32** and **34**. Extending between these closures is a center or intermediate partition **36**, as may be seen in FIG. **2**. On both sides of the partition and extending between the side walls **32** and **34** are a plurality of supporting shelves or platforms such as designated at **40** in FIG. **1**.

Between the modules **10** and **10a** upstanding from the base structure are upright panels, as designated at **42** and **44**. As may be observed, when the rotors within the cabinets are rotated, their corners can move into the space in the cabinet between modules and into the end space provided by the end panel **16**. Mounted on the flanges **18** and **20** of the end panel **16** are flexible sealing or closure members which may be made of fabric as indicated at **50** and **52**. Similar closure or sealing members **54** and **56** are provided mounted on the end members **42** and **44**. Additionally mounted on these members are similar flexible elements or members **60** and **62** associated with the next mofule **10***a*.

Numeral 64 designates a foot pedal, the purpose of which will be described presently. It operates a latch to release the rotor 30 for rotation and for snubbing it, and stopping and latching it in the predetermined quadrant position to which it is rotated.

Referring to FIG. 3, it will be noted that the top of the cabinet, that is, module 10 is double walled, the inner of the double walls being designated at 12'. Numeral 68 designates a bushing, in the form of a bearing which is supported at the center of the top of the rotor 30. It has a bore 70 which receives an axle or arbor 72 having a head 74 received in a recess 76 of the top wall 12. The axle or arbor is received in the bore 70 in the bushing 68 and forms a top trunion about which the rotor 30 can rotoate. There is a central pivot axle at the bottom of rotor 30 which will be referred to again presently.

FIG. 7 is a sectional view taken along the line 7—7 of FIG. 4 showing one of the adjustable supporting feet which are provided at corners of each module. At the corner of the base 14, there is a partition or support member 82 spaced from the bottom having an edge support flange 84 as shown. Numeral 86 designates a metal fitting shaped to receive a nut 90 through which extends a threaded stem 92 having a head 94. The housing 86 has a neck part 96 which extends through an aperture or hole in the partition 82, at the enc of which there is a flange 100 flush against the platform 82. The stem 92 has an end part 102 of smaller diameter. Fitting on this part, is metal foot member or support 104 which is held on by flange 106 on the part 102 of smaller diameter. As may readily be seen, access may be had to the head 94 of the threaded stem, through opening 110 in the top wall of the base section. The stem may be rotated so to adjust the vertical supporting position of the foot member 104.

FIGs. 4, 5, and 6 are enlarged views which show the structure at the bottom part of the module 10 and of the rotor 30. The bottom of the rotor 30 is designated at 120 of FIG. 5. It has side flanges as shown at 122 and 124. Numeral 126 designates a plate having side flanges as shown at 130 and 132 and further edge flanges as shown at 134 and 126. Plate 126 is spaced as shown from plate 122, flanges 134 and 136 seating against the plate 120 and the inside of flanges 122 and 124. Plate 126 has a circular ring-shaped depression 140 formed in it as shown which forms a part of a ball race for balls 142. The top of the bottom frame or base section 14 is designated at 144. It has a similar circular ring-shaped depression 146 in it which is opposite to and complementary to the depression 140 so that the two together form a ball race which is circular in cross section for a plurality of balls 142.

The bottom plate 120 of the rotor 130 has a central depression 150 in it. Numeral 152 designates a pivot bolt having a head 154 which extends through an aperture in depression 150 and through a similar aperture in plate 126. It is threaded through a nut 158 which is welded to the plate 144 as shown. Between the depression 150 and the plate 126 is a bushing 160. As may be seen, bolt 152 serves to center the rotor 130 and hold it in position with respect to base section 140. The entire rotor rests on the balls 142 in their race as described and is rotatable about the center formed by the bolt 152 which is aligned with trunnion member 72.

A latch mechanism is provided within the base section 14 of module 10 for latching the rotor in predetermined positions, for snubbing it, that is, restraining or retarding it after it has been rotated so as to control its momentum and stop it at a predetermined position. The retarding and latching mechanism is operable by the foot pedals 64 and 64', one of which is on each side of the cabinet as shown. Numeral 170 designates a tubular latching lever on the end of which is the foot pedal 64 which moves in a slot 172 in the front of the base section 14 as shown. This lever has a flat end part 174 which is pivotally secured between brackets 176 and 178 as may be seen in FIG. 4. The lever 170 is movable angularly about its pivot point. Telescopingly fitted on the lever arm 170 is sleeve 180 having end discs 182 and 184. Between the disc 182 and another disc or washer 186 on the lever 170 is coil spring 188. Washer 186 is held by cotter pin 190. Between the end disc 184 and bracket member 192 through which the lever arm 170 extends is another coil spring 194, the two coil springs serving to position the sleeve 180. Extending normally to the sleeve and carried by it is a pin or stem 200 which extends through a slot opening 202 in the plate 144 and the slot opening 204 in the bottom plate 120 of the rotor 130. Numeral 208 designated a second, similar lever arm, at the end of which is foot pedal 64'. This lever arm is below the lever arm 170 as shown. It has a similar, flat end part 210 pivotally mounted between brackets 212 and 214. It is angularly movable about its pivot point. Lever arm 208 passes through an aperture in the bracket 192. This bracket serves to link or couple the two lever arms together for purposes as will be explained.

Numeral 220 designates a saddle fitting against the underside of lever arm 170. Extending downwardly from edge parts of the saddle are guide stems, one of which is shown at 222 which serve as retainers for a pair of coil springs 224 and 226, the lower ends of which are based against the bottom of the base section 14. These springs serve to bias the levers 170 and 208 into position as shown in FIG. 5 wherein the pin or stem 200 is engaged in the slot 204 in the bottom plate 126 of the rotor 30. Pin or stem 200 serves as a latch pin which holds the rotor 30 in any one of its four quadrant positions, there being four equally angularly spaced openings like opening 204 establishing the four quadrant positions. In order to release the rotor for rotation, either one of the foot pedals 64 or 64' can be actuated with the foot. Thus, either the lever 170 or the lever 208 can be actuated around its pivot. If the lever 208 is actuated, it actuates the lever 170 through the coupling member 192. This draws the pin or stem 200 downwardly out of the opening in the plate 126 which permits the rotor to be rotated angularly on the ball race as described to one of its other positions. When the actuating lever is released, pin 200 will again move upwardly, engaging in the next opening in plate 126 to latch and hold the rotor as illustrated in FIG. 6. Since the rotor may have considerable momentum when pin engages in the opening, the pin and sleeve 180 will be moved axially along the tubular lever 170 as may be seen in FIG. 6 compressing one or the other of the coil springs 188 and 194. One of these springs serves to snub, that is, to restrain, or retard the movement of the rotor to hold it, and when it is stopped, to position it in its correct latched position. The rotor can be rotated in either direction.

The rotor of each of the modules can be similarly actuated by being rotated about its vertical axis for control of its respective foot pedals.

From the foregoing, those skilled in the art will understand the construction of the invention and its utilization. As may be seen in FIG. 1, module 10 is open, exposing filing shelves on two sides of the cabinet. Module 10b is shown rotated through ninety degrees so that two, flat smooth sides of its rotor form closures for that module. The rotor of module 10*a* is shown in an intermediate rotated position. The structure provides double banked files which when open expose an array of support shelving on two sides. In each rotated position when shelving is exposed, the entire array is exposed in that position for open shelf visibility. Access is provided from both sides. Modules can be constructed to snap together or to be joined otherwise.

As described, the rotation, that is, the movement of the rotors is pedal controlled from either side of the cabinet. There are pedals for each module.

Referring to FIGS. 8 through 13, base section 14 of the cabinet is like that of the previous embodiment. It has a top surface 144 and the ball race formed between this plate and a plate 126 for balls 146 so that the rotor is supported as in the previous embodiment. Pivot bolt 152 is at the center of plates 126 and 144 as in the previous embodiment.

The latching or snubbing or retaining means in the present embodiment comprises latching member or latching dog 220 in the form of a bell crank lever having an extending nose 221 that can be extended through the arcuate slot 222 in plate 144 and slot 145 in plate 126 for restraining the rotor. The latch member 220 is pivotally carried by a pivot member 224 extending between support members 225 and 226, that on an arcuate plate 228 having two arcuate slots in it 229 and 230. Plate 228 will be referred to again presently.

The latch member 220 is operable by a foot pedal 232 attached to an operating lever to 233 that is pivoted on a pivot member 236 extending between angle brackets 237 and 238, on the inside of the front wall, of the base 14. The lever 233 is linked to a lever plate 240 by a rod link 241 and the end of which as shown at 242 extends through a hole in lever 233. Its other end, 244, extends through a hole in lever plate 240. Numeral 246 designates a bracket which is welded to a shelf surface 247 in the base 14 and which has an extending part 248 to which the lever plate 240 is pivoted by pivot member 252. The lever plate 240 is linked to the latch member 220 by way of a connecting link rod 254. Numeral 256 designates a coil spring attached to a corner of the lever plate 240 and secured at the other end to a lug 258 on the bracket 246. As may be readily seen, by stepping on the foot pedal 232 the links and levers are actuated so as to rotate the latch member 220 about its pivot 224 as will be referred to again presently.

The latching mechanism, in addition to the plate 228, comprises additional plates 262 and 264 which are in a position sandwiched together as may be seen in FIGS. 9 and 12. These plates are of similar arcuate shape. Plate 262 has arcuate slots 265 and 266 and it has the rectangular cut-out 267 with downwardly extending lug 268. Plate 262 also has the arcuate opening 270 in it.

Plate 264 has arcuate slots 271 and 272 and cut-out 273 from one edge of which is the downwardly extending lug member 274. It has arcuate opening 275.

The plates 228, 262, and 264 are held in superimposed or sandwiched relationship underneath the plate 144 as may be seen in FIGS. 8, 9 and 12. The numerals 280 and 281 designate a pair of pins headed at both ends and with a neck smaller in diameter adjacent to the head at each end. These pins having an intermediate body part of slightly larger diameter as designated at 282 and at 283. These pins extend through the plate 144 as may be seen in FIG. 12, pin 280 extending rhough the slots 271, 265 and 229 in the plates 264 and 262 and 228. The lug 274 on the plate 264 and the lug 268 come into position oppositely to each other as may be seen in FIGS. 11 and 12 and extending between these two plates through openings therein is a rod or stem 290 and surrounding the stem between the lugs 274 and 268 is coil spring 291. The spring is compressed when the lugs 274 and 268 are moved toward one another.

The relationship of the latch member 220 to the plates shown in the FIG. 13 to the surface 144 of the base 14 and plate 126 is shown in FIGS. 9 and 12. This assembly of plates shown in FIG. 13 is a floating assembly. The plate 228 carrying the latch member 220 can move arcuately, the slots 229 and 230 guiding movement by engagement with pins 280 and 281. In the position of the parts as shown in FIG. 12, the latch member 220 is at the right hand extremity of the arcuate slot 275 in plate 264 and is at the left hand extremity of the slot 270 in the plate 262. In other words, the slots 275 and 270 overlap enought to provide a slot passageway through both of them to receive the latch member 220 as shown in FIG. 12. In the position of FIG. 12, latch member 220 is at the center of the slot opening 222 in plate 144. From this position, it can move to either end of the arcuate slot 222. As previously described, if foot pedal 232 is pressed down, latch member 220 is operated into the position of FIG. 9 so that the nose 221 goes through the slot 145 in the plate 126, to restrain the rotor. Then the operation is as follows. The momentum may cause the plate 126 which is now engaged with the nose 221 of the latch member 220 to force it to the right as shown in FIG. 12 to the dotted line position. The latch member 220 now forces the plate 264 to the right until the pins 282 and 283 engage the left extremity of the slots 271 and 272. This movement of plate 264 of course moves lug 274 to the right against the force of and compressing spring 291 which provides the necessary retarding and snubbing action to resist the momentum of the rotor. At this time, the lug 268 on plate 262 stays in position being unable to move to the right from the position of FIG. 12 because pins 280 and 281 are at the left extremity of slots 265 and 266. As previously explained, latch member 220 is carried by plate 228 which is able to slide arcuately, the arcuate slots 229 and 230 sliding on the pins 280 and 281.

From the foregoing, it can be observed that the mechanism for latching the rotor and resiliently retarding it to overcome its momentum and holding it in a latched position is simplified and will stop the rotor in a predetermined position, with the latch member in the position of FIG. 12. The parts are relative small occupying only a minor part of the circumference of the rotor with the operating mechanism being very sturdy and positive. Of couse, if desired, the latch member 220 can be arranged to be operable from either one side or both sides.

The foregoing disclosure is representative of a preferred form of the invention and is to be interpreted in an illustrative rather than a limiting sense, the invention

to be accorded the full scope of the claims appended hereto.

What is claimed is:

1. A file apparatus comprising: a cabinet, said cabinet being rectilinear; rectangular support platform shelf means mounted in said cabinet whereby to be rotatable about a vertical axis, said cabinet having two sides opposite each other which are open and said rotary support shelf means being rotatable to positions whereby to provide access thereto through either of said open sides of the cabinet, said shelf means having flat sides and being of such size relative to the cabinet that the flat sides are positionable to be flush with and to close said open sides, and said shelf means having two opposite open sides providing access thereto, which are positionable to be flush with the open sides of the cabinet.

2. Apparatus as in claim 1, wherein said platform shelf support means is in the form of a single, rotatable unit having a height which is substantially the height of the cabinet, said platform shelf support means providing a plurality of spaced shelves.

3. Apparatus as in claim 2, said cabinet being elongated and having a plurality of support plaform shelf means in it, there being a space provided between adjacent support platform shelf means, the corners of a support platform shelf means moving into said space when a platform shelf means is rotated.

4. Apparatus as in claim 1, including manually actuatable latch means operable to engage with said platform shelf support means to restrain movement thereof to predetermined positions.

5. Apparatus as in claim 4, including a latch member engageable with the platform shelf support means, said latch member embodying resiliency whereby to resiliently apply stopping resistance to the platform shelf support means whereby to stop movement of said means and restrain it to a predetermined stopping position.

6. A file apparatus comprising: a cabinet, said cabinet being rectilinear, support platform shelf means mounted in said cabinet whereby to be rotatable about a vertical axis, said cabinet having two sides opposite each other which are open, and said rotary support shelf means being rotatable to positions whereby to provide access thereto through either of said open sides of the cabinet, support means for rotatably supporting the support platform shelf means, the support means forming circular support track means to rotatably support the platform shelf means on the track, the track means having such diameter that the platform shelf means has parts positioned relatively close to sides, of the cabinet, said cabinet having a top and means providing rotatable engagement between the top and the platform shelf means whereby the cabinet is stabilized by way of the platform shelf means supported on the circular support track.

7. Apparatus as in claim 6 wherein the support track comprises means forming a circular ball race with balls therein.

8. A file apparatus comprising a cabinet having a rotor including support platform shelf means, latch means for the rotor comprising a foot operated member and a latch member, said latch member being resiliently mounted mechanism comprising spring means positioned to be actuatable by movement of the latch member in one direction to compress the spring means and by movement of the latch member in the opposite direction, to compress the spring means.

9. Apparatus as in claim 8, including a first member engageable by the latch member on movement in one direction and said member being attached to one end of the spring means, a second member engageable by the latch member when movable in the opposite direction and engageable with the opposite end of the spring means and means providing for limited movement of said first and second members whereby when either end of the spring is being compressed, the other end is restrained.

10. Apparatus as in claim 9 wherein said members attached to the spring means comprise overlying plates holding means for the plates allowing limited movements of the plates, and means for allowing limited movement of the latch member.

11. Apparatus as in claim 8, wherein the spring means is carried on the foot operated member.

12. A file apparatus comprising: a cabinet having a rotor including support platform shelf means, latch means for the rotor comprising a foot operated member and a latch member, said latch member being engageable with the rotor, resiliently mounted mechanism comprising spring means positioned to be actuatable by movement of the latch member in one direction to compress the spring means and by movement of the latch member in the opposite direction, to compress the spring means, a first member engageable by the latch member on movement in one direction, and said member being attached to one end of the spring means, a second member engageable by the latch member when moveable in the opposite direction and engageable with the opposite end of the spring means, and means providing for limited movement of said first and second members whereby when either end of the spring is being compressed, the other end is restrained, said members attached to the spring means comprising overlying plates, holding means for the plates allowing limited movements of the plates, means for allowing limited movement of the latch member, and a third overlying plate carrying the latch member, all of said plates being arcuate whereby the latch member can move angularly to engage either of the first and second members whereby to compress the spring at one end while the other end is restrained.

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