Dec. 23, 1969 L. M. SELDEN ET AL 3,485,543

FILE CONSTRUCTION

Filed Oct. 5, 1967 3 Sheets-Sheet 1

FIG. 1

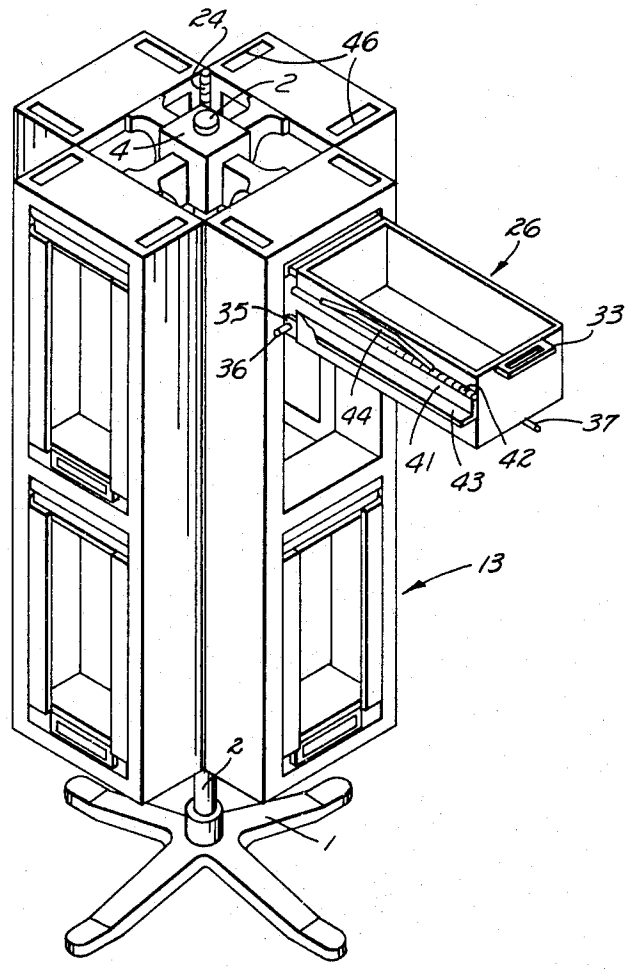
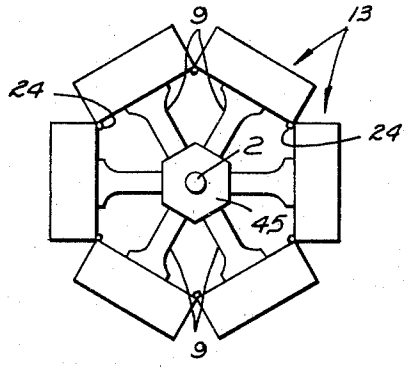


FIG. 7



INVENTORS

Leonard M. Selden

Harold J. Lee

BY

Kearman & McCulloch

ATTORNEYS

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FILE CONSTRUCTION

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FIG. 2

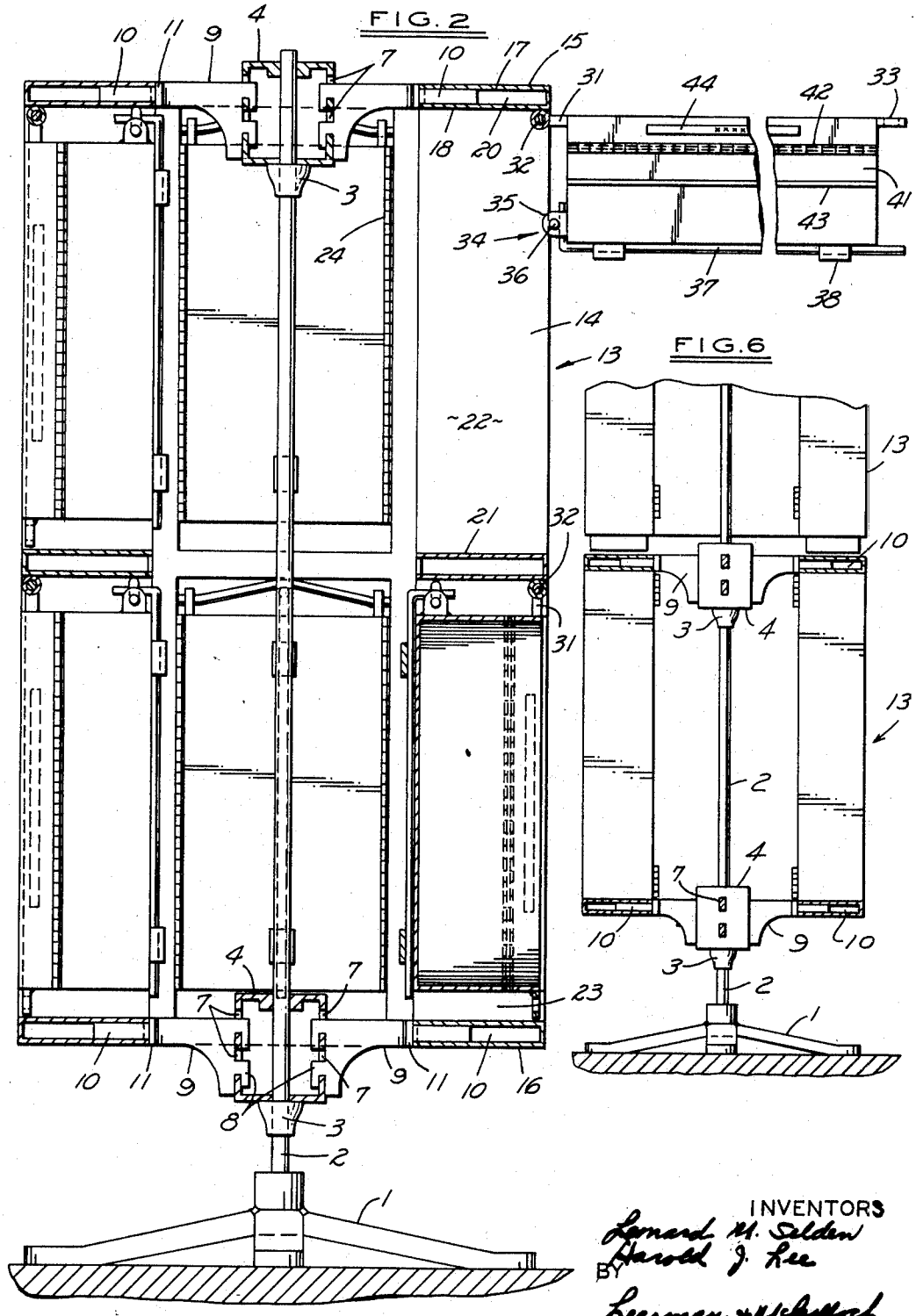

FIG. 6

INVENTORS
Leonard M. Selden
Harold J. Lee
BY Learman & McCulloch
ATTORNEYS

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FIG. 3

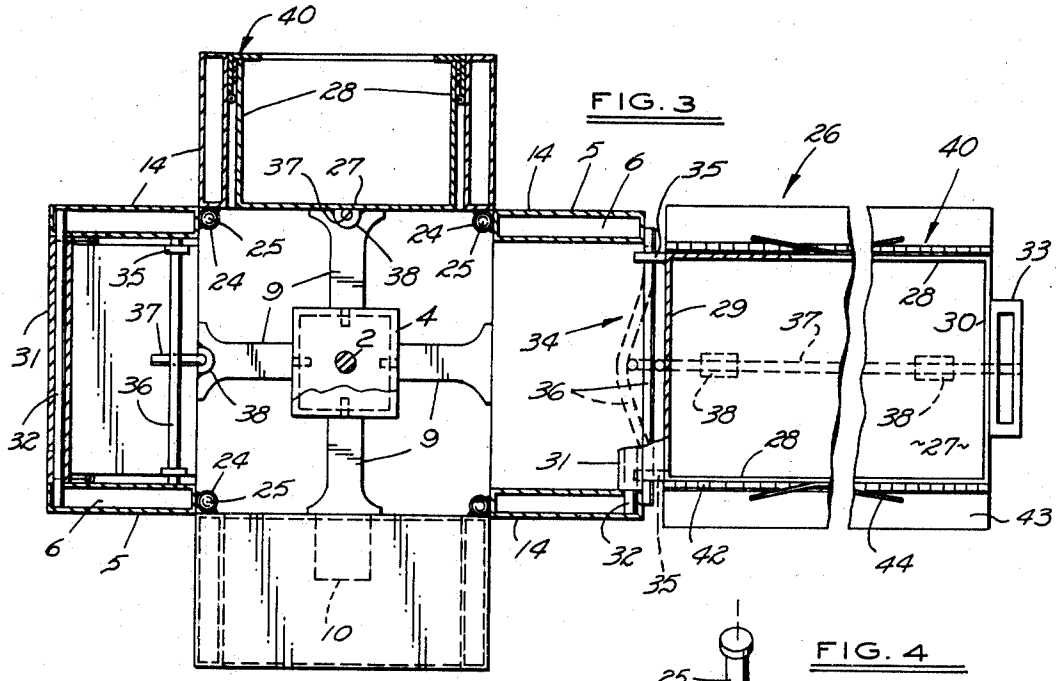


FIG. 4

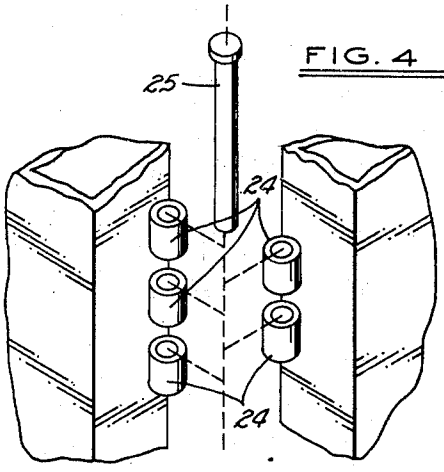
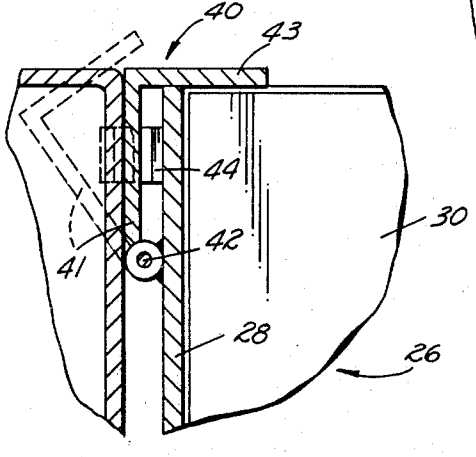


FIG. 5



INVENTORS
Leonard M. Selden
Harold J. Lee
BY
Learman & Schulsch
ATTORNEYS

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3,485,543

FILE CONSTRUCTION

Leonard M. Selden and Harold J. Lee, Indianapolis, Ind., assignors to Leonard M. Selden, Indianapolis, Ind.

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U.S. Cl. 312—202 20 Claims

ABSTRACT OF THE DISCLOSURE

A file construction having a vertical support on which is mounted a plurality of housing units arranged in edge-to-edge abutting relation about a center defined by the support and wherein the housing units present a multi-sided geometric configuration, the housing units mounting one or more file trays which may be swung from a vertical position to a horizontal position. Each file tray includes a latch operable to hold the tray in horizontal position and each tray includes a retaining member overlying the open side of the tray when the latter is in its vertical position to prevent spilling of the contents of the tray. The housing units are secured to one another in rotatable relation with respect to the central support and one or more tiers of housing units may be mounted on the same central support.

The invention herein disclosed comprises a vertical file construction in which a large number of storage units may be supported for rotation about an axis formed by the supporting means for the storage units and in which the number of units which may be mounted on any one support may be varied within extremely wide limits. The arrangement is such that an unusually large number of documents may be filed in very limited floor space and without making access to the filed contents difficult.

One of the major objectives of the appartaus is to provide filing apparatus having large storage space having its contents readily accessible but which requires a minimum of floor space.

Another object of the invention is to provide such storage apparatus and which is so constructed as to facilitate visual scanning of all stored data.

A further object of the invention is to provide storage apparatus which lends itself to assembly in any one of a variety of geometric configurations, thereby enabling the individual components of the apparatus to be manufactured in modular form.

Another object of the invention is to provide a storage apparatus of the character referred to and in which a single support may provide support for one, two or more tiers of storage units.

Other objects and advantages of the invention will be pointed out specifically or will become apparent from the following description when it is considered in conjunction with the appended claims and the accompanying drawings, in which:

FIGURE 1 is a perspective view of storage apparatus constructed in accordance with the invention and arranged to present a substantially square configuration;

FIGURE 2 is an enlarged, vertical sectional view of the apparatus shown in FIGURE 1;

FIGURE 3 is a view partly in top plan and partly in section of the apparatus;

FIGURE 4 is an enlarged, exploded detail of a part of the apparatus;

FIGURE 5 is an enlarged, partly sectional and partly plan view of a detail of the apparatus;

FIGURE 6 is a reduced scale, vertical sectional view illustrating one manner in which two tiers of units may be supported; and

FIGURE 7 is a diagrammatic, plan view illustrating the arrangement of the apparatus in hexagonal form.

Apparatus constructed in accordance with the embodiment of the invention disclosed in FIGURES 1–6 comprises a pedestal **1** in which is mounted an upstanding support shaft **2**. The shaft may be a single length of hollow or solid rod material or, if preferred, it may be composed of a plurality of telescopingly assembled lengths of hollow pipe members. Pinned or otherwise suitably fixed to the shaft **2** adjacent its upper and lower ends are blocks **3** atop each of which is mounted a hollow mounting block **4** that rotatably accommodates the shaft **2**. Each of the blocks **4** has four vertical sides, as is illustrated at FIGURES 1, 2 and 3, but the blocks may have a different number of sides as will be pointed out in more detail hereinafter.

Each mounting block **4** has in each side thereof a pair of vertically spaced slots **7** for the removable accommodation of generally L-shaped mounting feet **8** formed at corresponding ends of mounting arms **9**. The opposite end of each mounting arm **9** terminates in a tongue **10** which extends from a shoulder **11**.

Mounted on each vertically spaced pair of mounting arms **9** is a hollow parallelogrammatic housing member or unit **13** comprising a pair of upright, parallel side members **14** joined at their upper and lower ends by cross membesr **15** and **16**, respectively. Preferably each of the members **15** and **16** includes spaced apart panels **17** and **18** so as to provide a recess **20** having an opening at one end thereof to accommodate the tongue **10** of the adjacent mounting arm. In the embodiment shown in FIGURES 1 and 2, each housing unit has an intermediate cross member **21** interposed between the side members **14** and paralleling the cross members **15** and **16**. The cross member **21** thus divides the housing into two equal portions or compartments **22** and **23**. It is preferred that each side member **14** be formed of parallel, spaced apart panels **5** and **6**.

The lateral width of each housing unit **13** is uniform and is so related to the lengths of the mounting arms **9** that, when four housings are supported on the four sets of mounting arms, the side edges of the housings will abut one another so as to present a generally square geometric configuration about the central shaft **2**. Along each side of each housing unit is provided a plurality of interlocking hinge knuckles **24** through which a hinge pin **25** may be inserted so as separably to connect all of the housing units **13** one to another. When the pins **25** are assembled with the knuckles **24**, the housing units will be maintained in assembled relation with one another and with the mounting arms **9** so as to preclude inadvertent separation of any of the assembled parts.

In the disclosed embodiment, a tray unit **26** of identical construction is swingably mounted in each of the compartments in each of the housing units **13**. Each tray has a bottom **27** provided with upstanding side walls **28**, and rear and front walls **29** and **30**, respectively, one side of each tray being open. The rear wall **29** of each tray is provided with a pair of rearwardly projecting lugs **31** through which extends a hinge pin **32** by means of which the tray is pivoted at the upper, outer side of its associated housing compartment. The front wall **30** of each tray is provided with a handel **33** by means of which the tray may be swung about the axis of the pivot pin **32** from a vertical position within its associated compartment to a substantially horizontal position as is indicated in FIGURES 1, 2 and 3.

Latch means **34** is provided for latching each tray in its horizontal position and comprises a pair of ears **35** secured to and projecting rearwardly from the rear wall **29** and in which is mounted a flexible, resilient rod **36** which normally assumes the position shown in full lines in FIG-

URE 3, but which may be bowed as is indicated in dotted lines in FIGURE 3 so as to draw the terminal ends of the rod inwardly and permit the rod to be accommodated between the side walls of the associated housing compartment. The rod **36** may be flexed by means of a push rod **37** which is slideably mounted in guides **38** supported on the lower surface of the bottom wall **27** of the tray. The arrangement is such that, when a tray has been swung to its vertical position, the rod **36** assumes its unstressed condition so as to project its terminal ends beyond the edges of the associated housing compartment and bear against the side walls of the housing compartment and support the tray in its horizontal position. Rearward movement of the push rod **37** bows the rod **36** and moves the ends of the latter inwardly so as to enable the tray to be swung from its horizontal position to its vertical position.

An important characteristic of the invention is that all of the contents of each tray **26** should be visible when the tray is in its vertical position as well as in its horizontal position. Accordingly, it is necessary that the open side of the tray be unobscured, but it also is necessary that a safeguard be provided against inadvertent removal of a tray's contents when the tray is in its vertical position. Each tray, therefore, includes a pair of retaining members **40**, each of which comprises a hinge leaf **41** having at one end a hinge **42** secured to the associated side wall **28** and having at its other end a flange **43** which is adapted to overlie the open side of the tray. A leaf spring **44** also is secured to each side wall **28** in a position to exert a force on its associated retaining member tending to rock the latter about the hinge so as to remove the flange **43** from overlying relation with the tray. The hinge **42** is so constructed that the retaining member **40** can rock to a position corresponding substantially to the position indicated in dotted lines in FIGURE 5, but for clarity of illustration the retaining members are disclosed in several of the drawings as being swung through substantially 180°. The construction and arrangement of the retaining members **40** are such that, when a tray is swung out of its associated compartment, the springs **44** automatically swing the retaining members outwardly, and when the tray is swung into the compartment the side edges of the housing unit bears against the retaining members and automatically swing the latter to their retaining positions.

In the use of the apparatus, cards or other data may be stored in the tray members and the apparatus placed adjacent the desk or console of the person utilizing the stored data. The operator may rotate the apparatus until the desired tray is in a position to be swung out of its compartment. As soon as the tray emerges from its compartment, the retaining members **40** will be swung outwardly so as to enable the contents of the tray to be removed, whereupon the tray may be returned to its vertical position or, if desired, swung upwardly to its horizontal position.

Although the drawings do not disclose a cabinet or other finishing panels within which the file apparatus may be located, it will be understood that such cabinets or the like may be incorporated so as to provide an attractive appearance to the apparatus.

The majority of the drawing figures illustrate a storage file composed of four housing units arranged generally in the form of a square. It should be understood, however, that file units can utilize fewer or more housing units **13** so as to present different configurations. For example, FIGURE 7 illustrates a file having six housing units **13** arranged to present a hexagonal configuration. Each of the housing units is identical to those previously described and each of the supporting arms **9** also is identical to those earlier described. In this case, however, the square mounting blocks **4** are replaced with hexagonal mounting blocks **45**. In all other respects, the blocks **45** correspond to the blocks **4**.

It is possible to provide a file construction presenting a substantially triangular configuration, in which case the blocks **4** will be replaced by substantially triangular blocks. In the same manner, a pentagonal or other geometric configuration can be produced.

By extending the support shaft **2**, additional tiers of files can be supported on the same shaft. An upper tier can be supported by means of mounting collars similar to the collars **3** or, if desired, the lower ends of the upper housing units **13** may have downwardly extending feet which are accommodated in slots **46** formed in the top walls of the lower housing units. In this instance, all tiers of files would be rotatable as a unit, whereas if the upper tier is mounted on its own mounting collars, each tier would be rotatable independently.

It is not necessary that each compartment of each housing unit have a tray mounted therein. If desired, one or more trays may be eliminated so as to enable materials such as books or the like to be stored in a compartment of the housing unit. Thus, a file constructed in accordance with the invention has considerable flexibility in use.

The disclosed embodiment is representative of a presently preferred form of the invention, but it is intended to be illustrative rather than definitive thereof. The invention is defined in the claims.

What is claimed is:

1. A file construction comprising a plurality of parallelogrammatic housing units each having front and rear edges; means joining said units one to another with their rear edges in edge-to-edge abutting relation around a center to form a closed geometric configuration; support means at said center; and mounting means mounting each of said units on said support means.

2. The construction set forth in claim **1** including a file tray accommodated in at least one of said units.

3. The construction set forth in claim **2** including means mounting said tray on its associated unit for swinging movement from a generally vertical position to a substantially horizontal position.

4. The construction set forth in claim **3** including latch means operable to latch said tray in said substantially horizontal position.

5. The construction set forth in claim **3** wherein said tray has an open side and including means carried by said tray for overlying said open side when said tray is in said generally vertical position.

6. The construction set forth in claim **1** including locking means interconnecting adjacent units and locking them together.

7. The construction set forth in claim **1** wherein said mounting means mounts said units for rotation about said center.

8. The construction set forth in claim **1** wherein said support means comprises an upstanding shaft at said center and wherein said mounting means comprises a plurality of arms extending radially from said shaft toward said units.

9. The construction set forth in claim **8** wherein each of said arms is separable from said shaft and from its associated unit.

10. The construction set forth in claim **19** wherein there are at least three of said housing members.

11. The construction set forth in claim **19** wherein there are at least four of said housing members.

12. The construction set forth in claim **19** wherein there are at least six of said housing members.

13. The construction set forth in claim **19** wherein each of said tray members has an open side and including retaining means for overlying said opening side when said tray members are in said vertical position.

14. The construction set forth in claim **13** wherein said retaining means comprises a flange member pivotally mounted on one side of each of said tray members, and including spring means biasing said flange member to a nonoverlying position with respect to the open side of its associated tray member.

15. The construction set forth in claim 19 wherein said latching means are carried by said tray member.

16. The construction set forth in claim 19 including a plurality of tiers of said housing members.

17. The construction set forth in claim 19 wherein each of said housing members supports a pair of said tray members.

18. The construction set forth in claim 1 wherein the joining means includes releasable locking means.

19. A file construction comprising a plurality of parallelogrammatic housing members; means joining said units one to another in edge-to-edge abutting relation about a center to form a multiple-sided, closed geometric configuration; an upright support at said center; a plurality of arms extending radially from said support and interconnecting the latter and each of said units; at least one tray member in each of said housing members; means mounting each of said tray members for swinging movement from a substantially vertical position within its associated housing member to a substantially horizontal position extending outwardly from such housing member; and latch means carried by one member of each of said

members for releasably latching said tray members in said horizontal position.

20. The construction set forth in claim 19 wherein the joining means comprising locking means at the abutting edges of each of said housing members for locking adjacent housing members to one another.

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CASMIR A. NUNBERG, Primary Examiner

U.S. Cl. X.R.

312—197, 328