March 14, 1961 E. A. DAHL 2,975,014

ROTARY FILE

Original Filed June 6, 1951 2 Sheets-Sheet 1

Fig. 1.

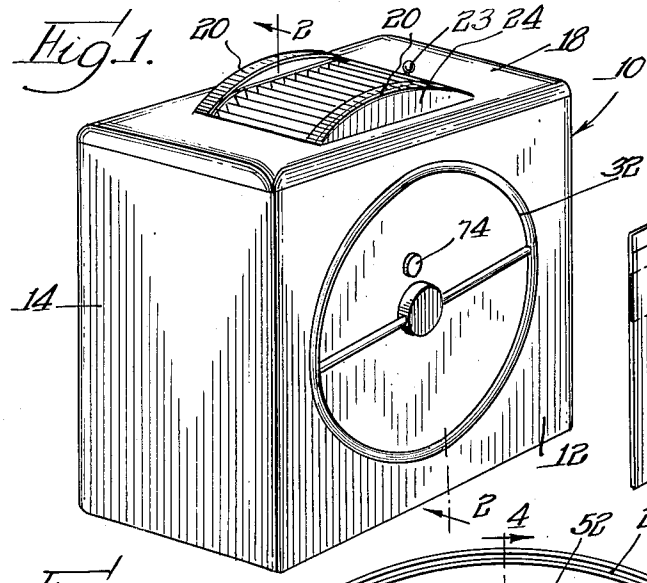


Fig. 3.

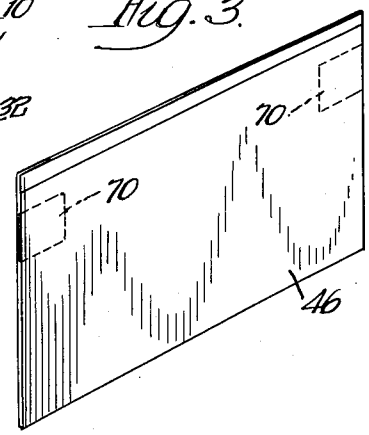
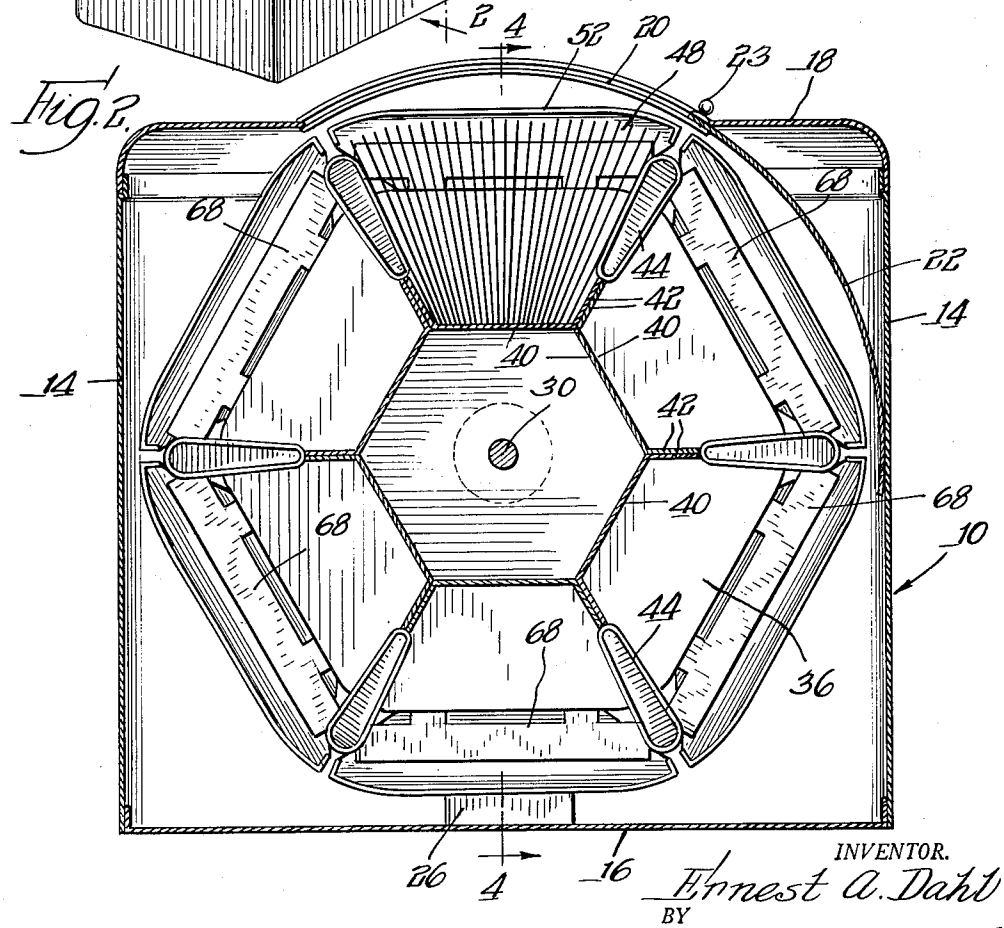


Fig. 2.



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Fig. 4.

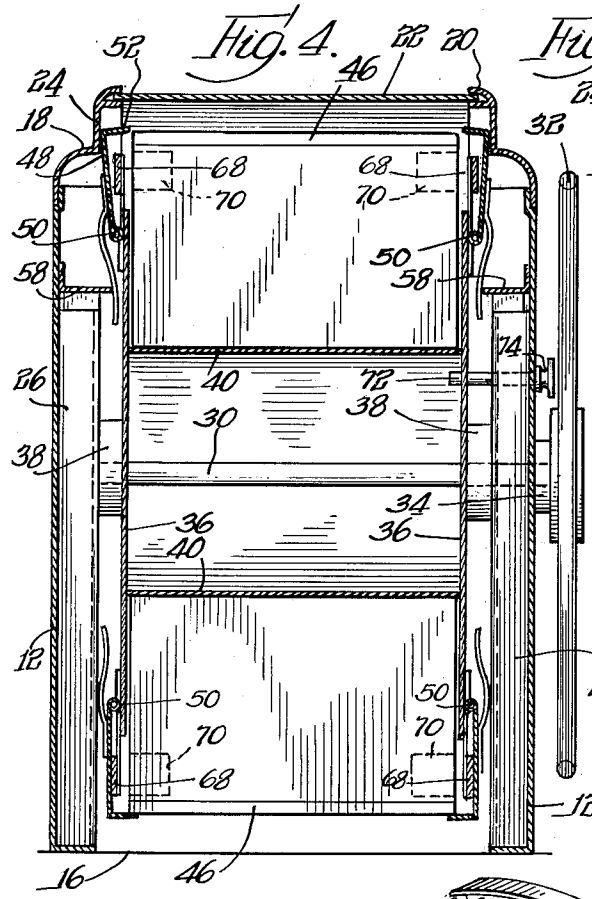


Fig. 6.

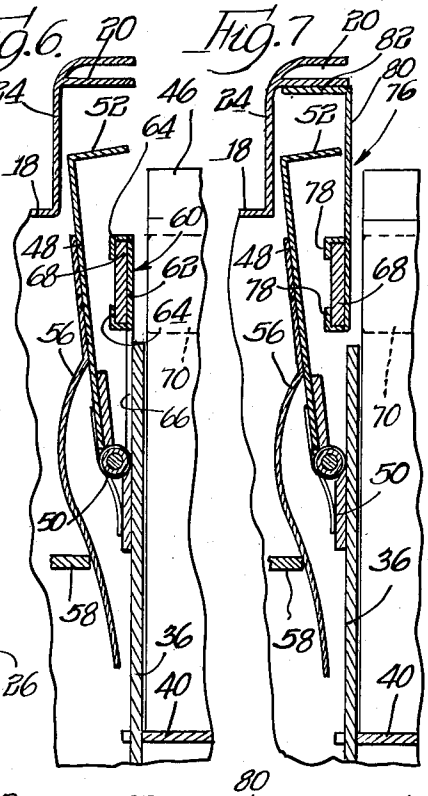


Fig. 7.

Fig. 8.

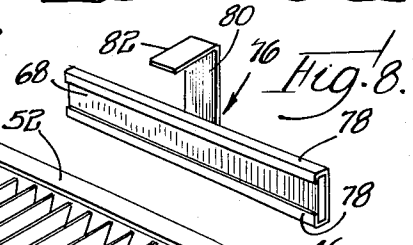


Fig. 5.

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2,975,014

ROTARY FILE

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Continuation of abandoned application Ser. No. 230,186, June 6, 1951. This application Dec. 24, 1954, Ser. No. 477,523

10 Claims. (Cl. 312—305)

This invention relates to rotary index files wherein a drum with file compartments spaced around its periphery is rotatable to bring any selected compartment into a position where access may be had to the contents of that compartment.

An object of this invention is to provide new or improved means for spreading out or separating cards in the exposed compartment of a rotary file to render said cards readily visible and available.

A further object of this invention is to provide improved means for retaining cards or the like in the various file compartments against displacement when the compartments are rotated away from the position wherein the cards or the like customarily are withdrawn or inserted.

A further object of this invention is to provide magnetic means for spreading out or separating cards or the like in a rotary file.

Other and further objects and advantages of the present invention, as well as the construction of a specific embodiment thereof, will be apparent from the following description when taken in connection with the accompanying drawings wherein:

Fig. 1 is a perspective view of a rotary file embodying the principles of my invention;

Fig. 2 is a longitudinal sectional view taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of one of the cards filed in the file;

Fig. 4 is a cross sectional view taken substantially along the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary perspective view of the upper portion of the file;

Fig. 6 is an enlarged fragmentary sectional view taken substantially along the line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 6 showing a modified form of the invention; and

Fig. 8 is a perspective view showing a mounting bracket used in the modification of Fig. 7.

This application is a continuation of the application of Ernest A. Dahl, Serial No. 230,186, filed June 6, 1951, and now abandoned entitled "Rotary File."

In the particular form of the invention selected for illustration, the rotary file is of relatively small size and is adapted to be placed on a table or the like, although it is to be understood that the file, or at least the cabinet or case thereof, could be of larger size and could rest upon the floor. The file comprises a cabinet or case **10** having side walls **12**, end walls **14**, a floor or bottom wall **16** and a top or upper wall **18**. All of the foregoing parts preferably are secured together by welding. The top **18** is centrally apertured to provide a file transfer station and spaced, arcuate guide tracks **20** extend through the aperture or opening and down into the casing or cabinet **10**. An arcuate cover or door **22** is slidably mounted in the guide track and is shiftable between closed and open portions by means of a knob **23**, which knob serves

also to determine the fully open and closed positions of the cover or door. Side plates or flanges **24** interconnect the upper portions of the guide tracks **20** and the top or upper wall **18**.

A pair of channel members **26** are secured against the side walls **12** and upstanding from the bottom wall or floor **16** by any suitable means, preferably welding, and an axle **30** is journaled in suitable bearings carried thereby and supports the rotatable compartments of the file. The axle **30** extends outwardly through one wall **12** and is provided at its end with a hand wheel **32** to rotate the file compartments. The wheel is spaced from each side wall by a hub or collar **34**.

Side plates **36** defining the sides of the compartments are secured to the axle **30** and are spaced from the channels **26** by means of spacers or collars **38**. Metal plates **40** are welded in place transversely of the side plates **36** and have upturned edges **42** welded together to form dividers demarcating the compartments. Spacers **44** are secured as by welding to the inner faces of the side plates **36** and serve to separate cards **46** or the like in the file. The dividers **44** may extend from wall to wall, although they preferably extend inwardly only a short distance as best may be seen in Fig. 5.

The cards **46** are retained within the compartments when inverted by retaining plates **48** hinged to the side plates **36** by hinges **50** and having retaining flanges **52** along the upper edges. The upper edges and the retaining flanges **52** are substantially straight or flat throughout the greater portions of their length and are arcuate at their ends. The hinges **50** are of the type having springs **54** coiled about their pintles to urge the retaining plates **48** toward one another with the retaining flanges **52** extending past the corners of the cards **46** to retain the cards in the compartment. Each of the hinged retaining plates **48** is provided with a lever **56** secured at its upper end to the plate and curving outwardly and downwardly therefrom in a reverse curve. A cam **58** is carried adjacent the top of the case or cabinet **10** extending inwardly from each side wall **12** thereof and preferably supported by one of the channels **26**. Each cam is adapted to engage a lever **56** as the compartment associated therewith approaches the top of the case to pivot the retaining plate **48** to the position shown in Figs. 4–6 to retract the retaining flanges **52** and thereby free the cards **46** for removal. The cams are positioned sufficiently below the top **18** of the case as to preclude any interference with the retaining members without necessitating an unusually wide case or cabinet.

In the form of the invention illustrated in Figs. 2 and 4–6, a bracket **60** is secured to each plate **36** adjacent each of the retaining plates **48** and closer to the cards than these retaining plates. The brackets are made of aluminum or other non-magnetic material as the parts heretofore enumerated preferably are with the exception of the bearings and camming surfaces. Each bracket is provided with a channel shaped portion **62** having inturned flanges **64** and with depending legs **66** near each end, the legs being secured to the plates **36** by screws, rivets, or other suitable fastening means. Each of the brackets **60** holds a bar magnet **68**. The magnets **68** are not of conventional construction with opposite poles at opposite ends, but are provided with opposite poles along opposite edges, for instance with the north pole along the top edge and the south pole along the bottom edge as indicated in Fig. 5.

Each of the cards **46** is constructed with very thin tabs or inserts **70** of magnetically susceptible material such as iron. The tabs **70** are sufficiently thin as to be quite flexible and are contained entirely between the

faces of the cards and therefore the tabs of adjacent cards cannot come in contact with one another.

The bar magnets induce like poles along the top edges of the tabs **70** confronting the magnets and like poles along the bottoms of all the tabs. With the polarity of the magnets **68** as indicated in Fig. 5, the magnetic poles induced along the tops of the edges of the tabs **70** (with the cards **46** in upright position) all will be south poles. Accordingly, the lower edges of the tabs would have north poles. Thus, adjacent portions of adjacent tabs are similarly polarized. As is well known, like poles repel one another, and this phenomenon causes the cards **46** to fan out or spread apart where they readily are viewed and quickly are removed.

The rotatable compartments are held in position with any given compartment in upright position by friction between the cams and the actuating levers **56** and further are held in position positively by a spring loaded plunger **72** extending inwardly from one of the side walls **12** and fitting in any of several apertures in one of the plates or walls **36**. The plunger **72** is provided with a handle **74** on the outside of the wall **12** to retract the plunger.

It is apparent that the cards in any of the compartments other than the uppermost one need not be maintained in fanned out or spread apart relation by the magnets **68**. In Figs. 7 and 8 I have shown a modification of my invention wherein only two magnets are utilized rather than the twelve shown in the previous form of the invention. The majority of the parts of the file are identical with those disclosed heretofore and are identified by similar numerals. The important distinguishing feature in the modification of Figs. 7 and 8 lies in the omission of the several brackets **60** mounted on the plates or walls **36**. Only two brackets **76** are utilized, each of the brackets **76** being secured to the under side of one of the tracks **20**. Each bracket **76** is provided with a channel shaped portion having inturned longitudinal flanges **78** supporting a bar magnet **68** as disclosed heretofore. Each bracket **76** further has a central upstanding leg **80** and an arm **82** arranged at right angles thereto. The arm **82** is secured to the under side of a track **20** by means of screws, rivets or the like. Each of the levers **56** is engaged by a cam **58** sufficiently soon to retract the retaining flanges **52** to clear the upstanding leg **80** of the bracket. It is apparent that the structure of this modification simplifies construction and reduces cost by reducing the number of parts necessary.

A large number of cards may be filed in a comparatively small space in the rotary file disclosed herein. The magnetic separation of the cards renders handling of each card unnecessary and cuts down finding and filing time a considerable extent. Due to the lack of handling, the longevity of the cards is increased considerably over conventional cards. The cam construction used, the bar magnets magnetized with poles along their edges, and the structure for mounting the magnets all contribute to the production of a case or cabinet which need not be of great width compared with the width of the filing cards or the like.

The particular embodiments of my invention shown and described herein will be understood to be illustrative embodiments only. The invention is to be limited only by the spirit and scope of the appended claims.

I claim:

1. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged about the periphery of said carrier and adapted to support a plurality of file elements such as file cards therein with said file elements each substantially in a plane substantially parallel to the axis of said carrier, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively positioned adjacent said file transfer station, means adapted to control said compartments for retaining file elements in said files as said carrier is rotated to move said compartments successively to and from said file transfer station, and magnetic means supported adjacent said compartments and adapted to induce magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion, said magnetic means being supported and positioned so as to be operative irrespective of and so as not to interfere with said control means, said magnetic means at said file transfer station being closer to said file elements than are said retaining means.

2. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged around a periphery of said carrier, and adapted to support a plurality of file elements therein, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively positioned adjacent said file transfer station, and magnetic means comprising a plurality of sets of magnets supported from said carrier in fixed relation thereto and arranged arcuately about the opposite ends thereof in alignment with said compartments for inducing magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

3. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged around the periphery of said carrier, and adapted to support a plurality of file elements therein, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively positioned adjacent said file transfer station, magnetic means comprising a single set of magnets, and means for supporting said single set of magnets from said stationary means in fixed position adjacent said file transfer station and adjacent said compartments at opposite ends thereof as they are moved into position adjacent said file transfer station, said magnetic means being adapted to induce magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

4. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged about the periphery of said carrier and adapted to support a plurality of file elements therein, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively positioned adjacent said file transfer station, means for retaining file elements in said files as said carrier is rotated to move said compartments in succession to and from said file transfer station, means adjacent said file transfer station for positively moving said retaining means away from the file elements, magnetic means comprising a plurality of sets of magnets, and means for supporting said sets of magnets from said carrier in fixed relation thereto and arranged arcuately about the opposite ends thereof, said magnetic means at said file transfer station being interposed between said retaining means and said file elements, said magnetic means being adapted to induce magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

5. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged about the periphery of said carrier and adapted to support a plurality of file elements, therein, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively po-

sitioned adjacent said file transfer station, means for retaining file elements in said files as said carrier is rotated to move said compartments in succession to and from said file transfer station, magnetic means comprising a single set of magnets, and means for supporting said set of magnets from said stationary means in fixed position adjacent said file transfer station, said compartments successively being aligned with said set of magnets as the compartments are moved into position adjacent said file transfer station whereby said magnetic means will induce magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

6. A rotary file comprising a rotatable drum having a series of filing compartments arranged around the periphery thereof, stationary means defining a file transfer station with respect to said drum, means rotatably supporting said drum from said stationary means with a portion of said drum adjacent said file transfer station, a plurality of retaining members, means for hingedly mounting a plurality of said retaining members on the ends of said drum for hinged movement substantially axially of said drum, there being one hinged member at each end of said drum for each compartment, a flange on each of said hinged members positioned radially outwardly of the periphery of said drum and extending substantially axially of said drum, said hinged members being resiliently biased to cause said flanges to overlie the compartments of said drum to retain file elements in said compartments, an arm on each of said hinged members extending radially inwardly of said drum from the hinged mounting, a pair of cams, means for fixedly supporting said cams from said stationary means adjacent said file transfer station and inwardly of said hinged mounting toward the free ends of said arms for cooperation with said arms to force the arms of the hinged members of a compartment aligned with said file transfer station toward one another thereby to retract the flanges from overlying position for withdrawal and insertion of file elements in the compartment aligned with said file transfer station, magnetic means, and means for supporting said magnetic means from said stationary means adjacent the periphery of said drum at opposite ends thereof and adapted to induce magnetic poles in magnetically susceptible members included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

7. A rotary file as set forth in claim 6 wherein the magnetic means comprises at least one pair of bar magnets polarized along their edges, and the means for supporting the magnetic means comprises at least one pair of holders of non-magnetic material having channel portions adapted slidingly to receive said bar magnets.

8. A rotary file as set forth in claim 6 wherein the means for supporting the magnetic means includes holding portions positioned inwardly of the retaining members for holding said magnetic means inwardly of said retaining members and adjacent file elements in said compartments.

9. A rotary file comprising a rotary carrier, means providing a plurality of compartments arranged about the periphery of said carrier and adapted to support a plurality of file elements such as file cards therein with said file elements each substantially in a plane substantially parallel to the axis of said carrier, stationary means defining a file transfer station with respect to said carrier, means rotatably supporting said carrier from said stationary means with said compartments successively positioned adjacent said file transfer station, retaining means mounted on the ends of said compartments and having flanges thereon adapted to overlie file elements in said files as said carrier is rotated to move said compartments successively to and from said file transfer station, said retaining means being movable axially of said carrier for freeing file elements in said compartments, means at said file transfer station for so moving said retaining means, and at least one pair of elongated bar magnets oppositely polarized along the longitudinal edges, said magnets being arranged chordally of said carrier disposed axially outside of said compartments and between such compartments and the adjacent retaining means, said magnets being adapted to induce magnetic poles in magnetically susceptible means included with file elements in said compartments to cause such file elements to fan out due to magnetic repulsion.

10. A rotary file as set forth in claim 9 wherein the retainer means comprises a pair of rigid plates associated with each compartment, hinge means mounting said plates respectively at the axially opposite ends of each compartment, and spring means biasing said plates toward said compartments to hold the flanges thereon in overlying relationship relative to said compartments.

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