

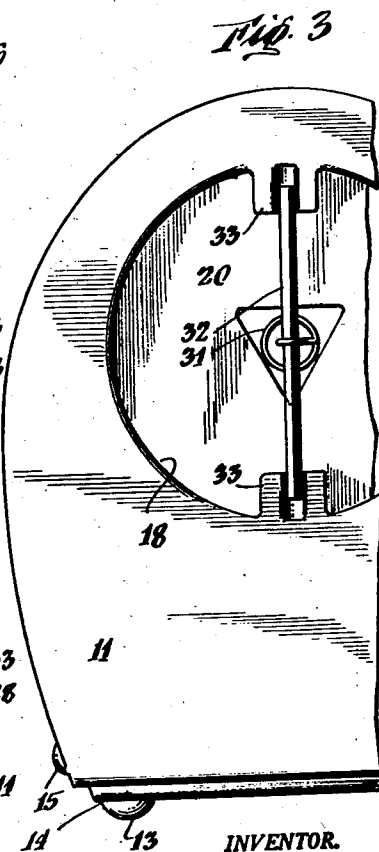
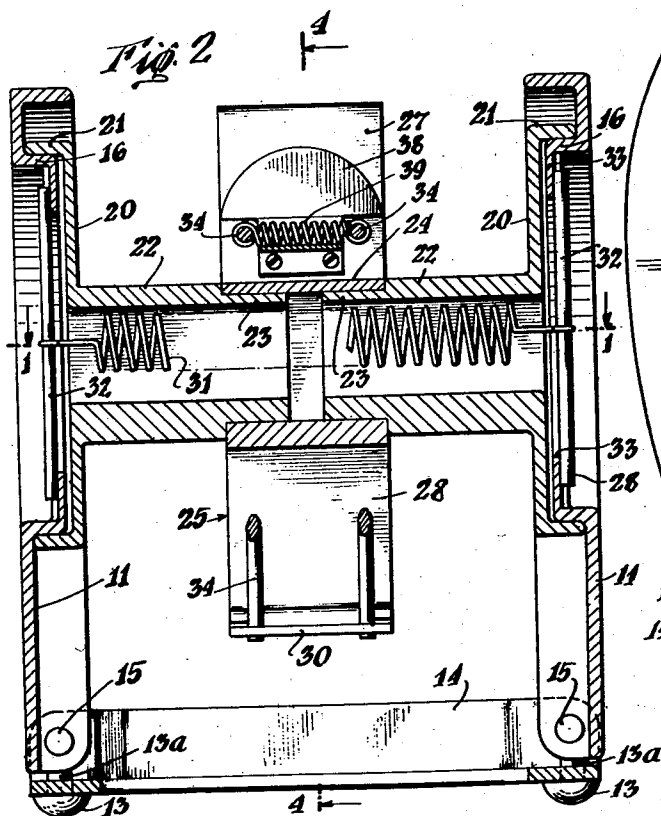
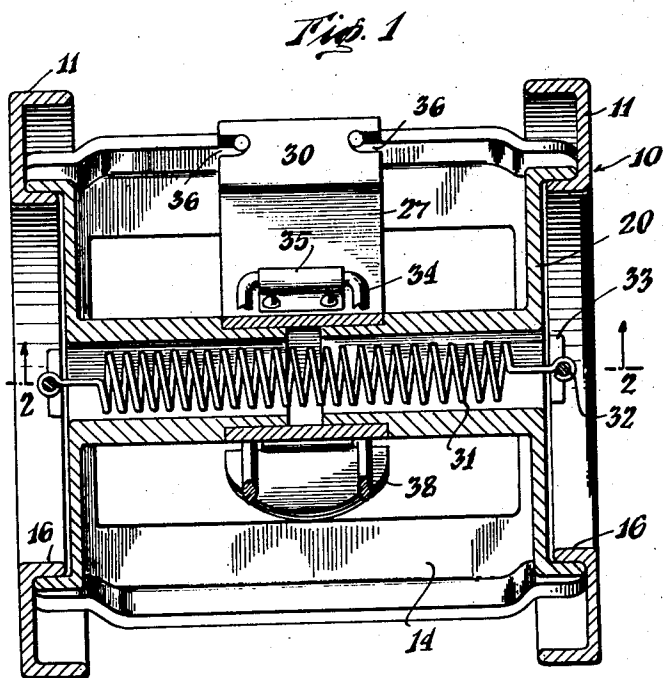
Aug. 16, 1949.

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FILING DEVICE

2,479,167

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4 Sheets-Sheet 1



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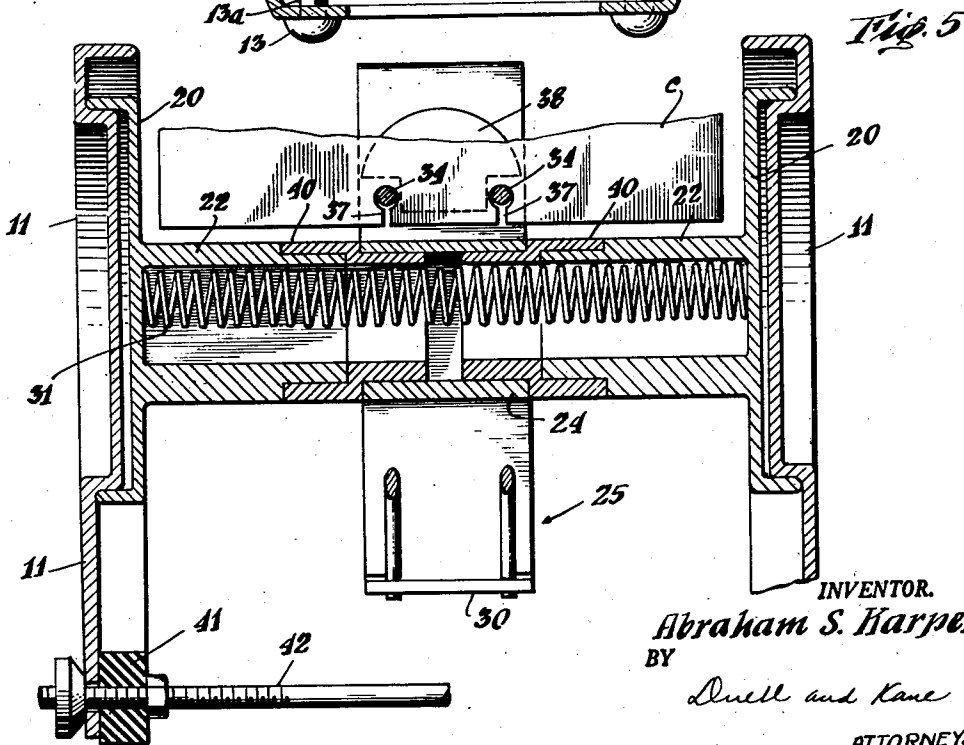
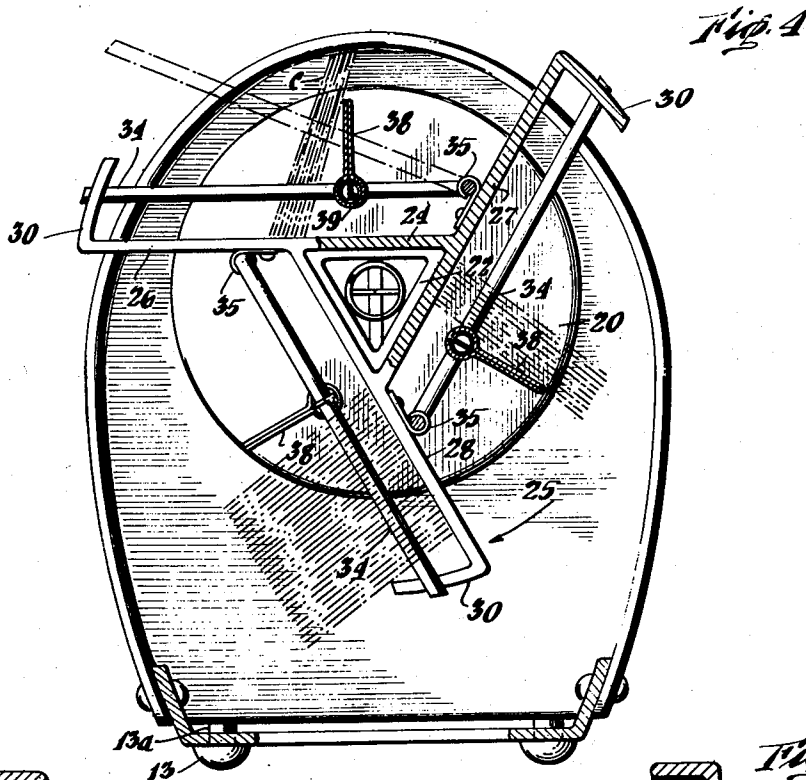
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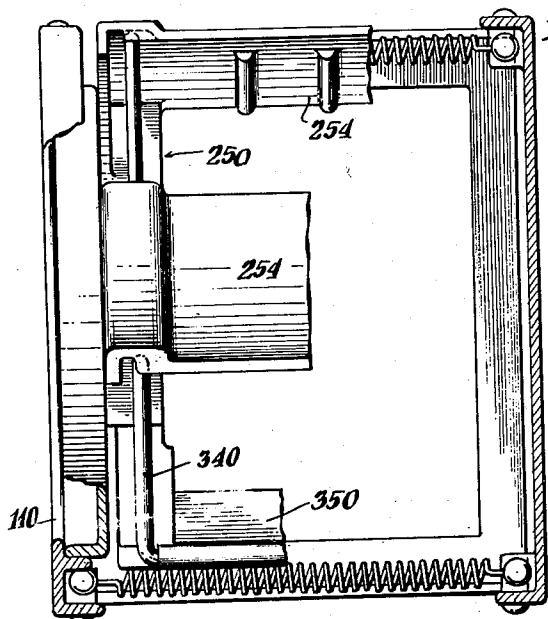


Fig. 6

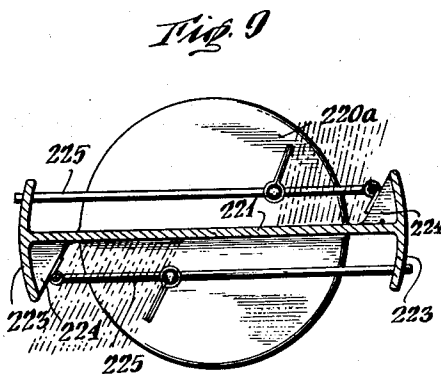


Fig. 9

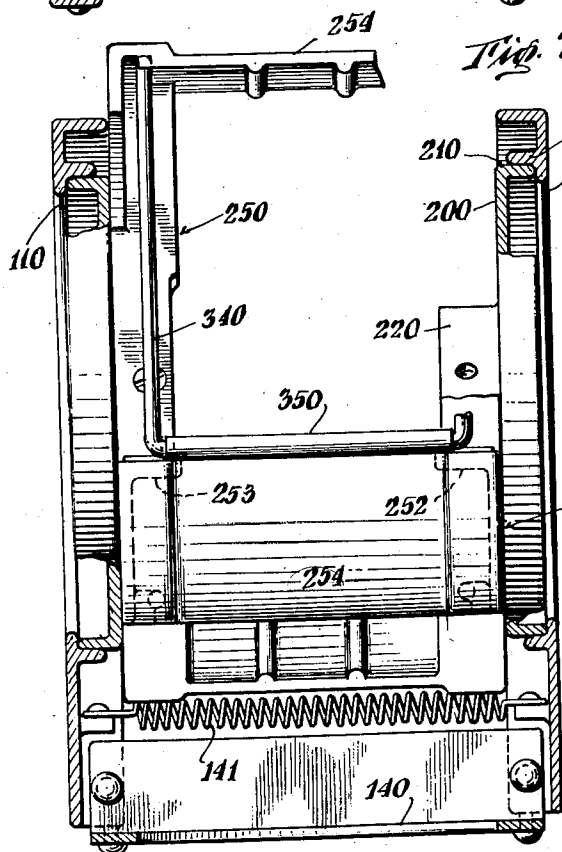


Fig. 7

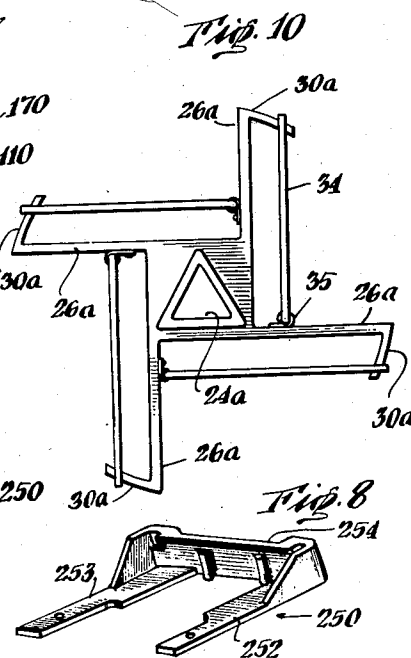


Fig. 10

Fig. 8

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4 Sheets-Sheet 4

Fig. 12

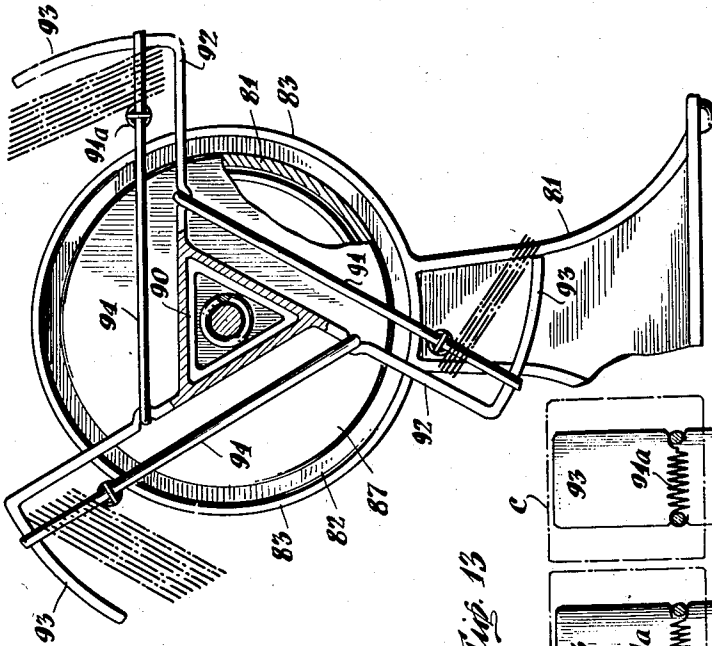


Fig. 13

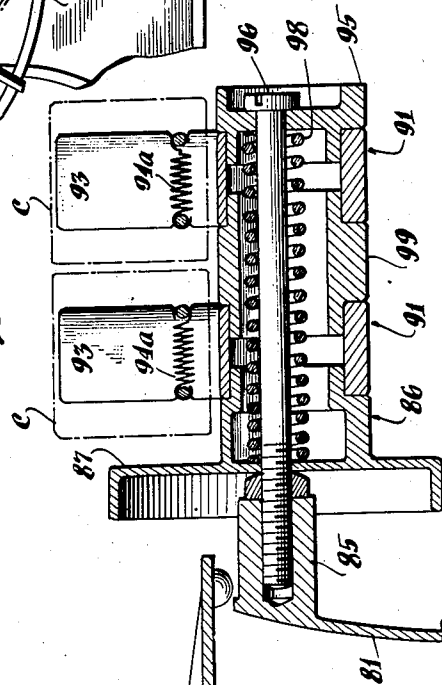
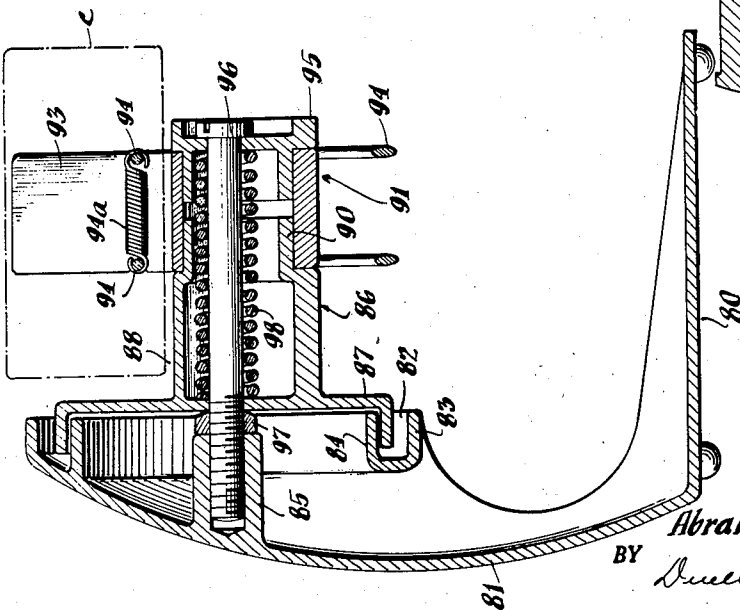


Fig. 11



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UNITED STATES PATENT OFFICE

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6 Claims. (Cl. 45-3)

1

This invention relates to improvements in filing and card indexing devices, and has for a primary object the provision of means wherein a large number of cards or the like may be filed within a compact filing unit while maintaining complete accessibility and ease of reference to the filed cards.

It is an object of the invention to provide a filing device in which the cards or the like occupy a plurality of plane surfaces disposed tangentially about a common shaft mounted for rotation, whereby although the space saving advantages of a rotary type of filing equipment are achieved, the filed material is arranged in straight lines for ready reference and accessibility.

It is an object of the invention to provide a filing device incorporating the increased capacity of the conventional rotating filing apparatus with the ease of access and reference provided by a "straight line" arrangement of the filed material.

It is an object of the invention to provide a rotary file in which an angular shaft is used as the basis for building three or more filing compartments in which the material to be filed is arranged in straight-line formations.

It is another object of the invention to provide a filing device which may be converted from a two compartment unit to a multi-compartment unit by the substitution only of a different rotor, all other elements of the filing unit being unchanged.

It is an object of the invention to provide a rotary type of file equipment having resilient means which provide a constant, self-adjusting brake action.

It is an object of the invention to provide a straight-line compartmented rotary file in which a simplified braking system eliminates the necessity of balancing the unit when the file compartments are not uniformly loaded.

It is an object of the invention to provide a rotatable filing device in which the cards to be filed are supported on straight parallel rails.

It is an object of the invention to provide a filing device in which the width can be increased to accommodate wider files or additional material-receiving units supported on a common rotor system, the conversion requiring the substitution of a minimum number of new elements.

It is an object of the invention to provide a filing device having a basic structure with which may be interchangeably used a rotor unit having two, three or more compartments for filing, thus greatly simplifying manufacturing procedures

2

and reducing the manufacturer's inventory of parts.

The advantages of utilizing the full circumference of a circle in order to increase the capacity of office files or the like has long been recognized. There are on the market rotating file devices wherein the cards, envelopes, or the like are suspended from spaced, rotatably mounted circular rims, the suspended material being substantially radial when the file is completed. Because of such radial suspension, the writing or annotations on a card or file is obscured by the card immediately ahead, and the cards or files cannot be "flipped" or spread for ready reference, as may those which are arranged in conventional "straight line" filing or index boxes.

The present invention provides a plurality of straight-line compartments which are arranged tangentially with respect to a central shaft mounted for rotation. The compartments may be brought into reference position by rotation of the compartment unit. The cards or other files are removably secured to guide rails, which permit the cards to be easily handled or "flipped" while holding them against dropping out of position in such compartments as are not in use at any time.

The rotors have a light frictional engagement with their supporting standards, sufficient to hold the compartments in the reference position, but without making rotation difficult.

Other features and advantages will hereinafter be described.

In the accompanying drawings:

Fig. 1 is a plan view, in section through the central axis, of a three compartment filing device embodying the present invention;

Fig. 2 is a vertical elevation taken in section on lines 2-2 of Fig. 1;

Fig. 3 is a fragmentary end elevation of the device;

Fig. 4 is a vertical elevation looking in the direction of 4-4 of Fig. 2;

Fig. 5 illustrates means for increasing the width of the device of Fig. 1 by the insertion of extension elements on the central shafts;

Fig. 6 is a top plan view partly in section showing another form of a three compartment device;

Fig. 7 is a vertical elevation, also partly in section, on the apparatus of Fig. 6;

Fig. 8 is a reduced scale perspective of a frame which forms one of the filing compartments of the structure of Fig. 7;

Fig. 9 is a side elevation, in section, of a rotor unit for a two compartment filing device;

Fig. 10 is a side elevation of a rotor unit for a four compartment filing device;

Fig. 11 is a vertical sectional elevation of another embodiment of the invention;

Fig. 12 is an end elevation of the embodiment of Fig. 11; and

Fig. 13 is a fragmentary vertical elevation, in section, of the Fig. 11 embodiment, showing how the width of the unit may be increased to accommodate additional material-receiving sections.

Referring initially to Fig. 1 wherein is shown one embodiment of the invention, the filing device 10 comprises a frame including side wall members 11, 11, suitably supported upon a base 14, as by rivets 15 or equivalent. The side walls may be rotated outwardly with respect to the base. The rubber feet 13 may be so located relative to the side walls 16 that the upwardly extending stud portions 13a resiliently bear against the lower edges of said walls to urge the side walls into rotation toward each other. Each side wall is provided with an inwardly extending circular rim 16, said rims being in mutual alignment and of identical radius. The side walls may have openings concentric with the circular rims.

For cooperation with the respective rims 16 there are provided a pair of rotors 20 having an outwardly extending peripheral flange 21 which relatively snugly fits over said rims, whereby said rims form bearing surfaces upon which the rotors are carried. The fit of the flanges 21 upon the respective rims 16 is such as to provide a relatively light frictional contact so that the rotors will not freely turn. Each rotor 20 is characterized by a polygonal inwardly extending hollow shaft 22. Illustratively said shafts are triangular, although other shapes may be used.

The side walls and hub members may be cast or otherwise formed of light metals, or may comprise metal stampings, according to the preference of the manufacturer.

It will be noted from Fig. 2 that the ends 23 of the shafts 22 are shouldered and provide an inwardly offset structure for the receipt of the similarly configured hub portion 24 of the card receiving unit 25. The unit 25 is thus non-rotatable on the shafts 22, but is rotatably supported within the frame. Flat, preferably narrow, platforms 26, 27, 28, project from the triangular hub 24, to provide three filing compartments in which two adjacent platforms cooperate to form the base and rear wall of each compartment.

Means are provided for resiliently urging the side walls 11 toward the respective rotors. In the embodiment of Fig. 1, said means comprise a coil spring 31 extending through the aligned shafts 22 and hub 24 and anchored to rods 32. A convenient means of supporting the spring 31, while providing for the ready disassembly of the unit in the event that a new card unit is to be substituted for one previously in use, is to provide diametrically opposite lugs 33 on the respective side walls 11, the inner ends of said lugs having sockets or grooves to receive the ends of the rods 32. By grasping one of the rods and drawing it outwardly, it may be rotated away from, and disengaged from, the lugs 33. Either or both of the side walls 11 may be swung outwardly to permit the rotors 20 and therewith associated unit 25 to be removed.

As shown in Fig. 4, the cards or other material C are carried upon rails 34 which are U-shaped and are pivotally secured by a strap 35 provided on the underside of each of the platforms. The free forward ends of the rails snap into notches

36 extending inwardly from the sides of the forward walls 30. The cards have keyhole slots 37 in their lower edge, whereby the cards may be snapped over the rails, as shown in Fig. 5. The slider blocks 38 may be formed from a suitably configured metallic sheet bent on itself about a coil spring 39, the ends of which engage the rails 34.

The rails 34 are parallel to the respective platform forms, and hence each group of files, when in reference position such as the left hand group of Fig. 4, is in a straight line arrangement and easily accessible.

The embodiment of Fig. 5 incorporates means for extending the width of the unit for use with wider cards or other material to be filed by extending the shafts 22 with supplemental means 40 on which the hub 24 of a filing unit is supported. The card rack 25 is the same as that shown in Fig. 4. Fig. 5 shows in cross section a base member 41 which extends the full length of each side wall 11, to form cushion feet therefor. The rods 42 interconnect the side walls, or, of course, a base member may be used in lieu of the tie rods.

The compressibility of the respective rubber base members 41 permits the side walls 11 to be sprung outwardly sufficiently to remove or replace the rotors 20 and the file compartment means carried thereby.

An internal spring 31 with or without the end securement rods 32 as previously described may be utilized to increase the frictional resistance to rotation by the outward pressure exerted thereby.

In the embodiment illustrated in Figs. 6 and 7, the side walls 110 may be pivotally mounted upon a base 140, the said side walls being urged toward each other by a spring 141 affixed to lugs in the side wall as shown in Fig. 7. It will be noted that in the instant embodiment, the rims 210 of the rotors 200 telescope within the flanges 170 provided in the side walls. As appears particularly in Fig. 7, the shaft members 220 are considerably shorter than those illustrated in Fig. 2, and there is no central hub similar to the hub 24.

The card receiving structure 250 is in the present embodiment formed from three frames, see Fig. 8, having legs 252 and 253 interconnected by an upstanding arcuate end wall 254. The ends of said legs rest upon and are fastened to the flat surfaces of the polygonal shaft members 220. The resulting platform structure is similar in its purpose and basic form to the embodiment illustrated in Fig. 4. To provide means for mounting the guide rods 340, a strap 350, which encircles the rear connecting portion of the rods, extends across and is secured to the underside of the legs of the immediately adjacent frame 250, thus positioning the guide rods as desired above the plane of the legs 252, 253. The ends of the rods snap into grooves provided in the transverse end walls 254 as appears in Figs. 6 and 7. Because of the spacing of the guide rods, it is preferable to provide the card slots (not shown) in the side edges of the cards rather than in the bottom edge as shown in Fig. 5.

The construction shown in Figs. 6 and 7 lends itself particularly well to a pentagonal, hexagonal, or other configuration of hub 220, to provide a multiple compartment file unit.

Figs. 9 and 10 illustrate other optional structures in which a two compartment or a four compartment filing system may be provided. In Fig. 9, which represents an elevation in section of a two compartment structure, in which the rotors

220a are bridged by a platform 221 extending therebetween and secured thereto. There is in the Fig. 9 embodiment no central hub corresponding to the hub 24 of the Fig. 4 embodiment. The arcuate end walls 223 have on opposite sides of the platform 221 webs 224 which provide means by which the guide rails 225 may be rotatably secured.

Inasmuch as the rails 225 may be relatively closely adjacent the rotors 220a, it is contemplated that the cards to be filed in the Fig. 9 unit shall have the side marginal slots for cooperation with the guide rails.

The Fig. 9 structure is essentially useful with the base and side wall structure shown in Fig. 7, inasmuch as no provision is made for a spring equivalent to the spring 31 of Fig. 2. The springs similar to the springs 141 of Fig. 7 will serve to provide the yieldable braking action which restrains the free rotation of the filing unit.

In Fig. 10 there is illustrated a four compartment unit which is arranged about a polygonal, i. e., triangular hub 24a which is intended to cooperate with the triangular shafts 22 of the Fig. 2 form. Formed integral with the hub 24a, are the platforms 26a which terminate in the end walls 30a. As appears in Fig. 10 the immediately adjacent platforms provide base and rear walls for an individual card receiving compartment. The guide rails 34 are strapped to the rear wall of each compartment, as by the straps 35, similar to the description relative to Fig. 4.

Although it is preferable to form a compartment structure having more than four filing compartments by utilizing the teachings of the Fig. 7 embodiment, it is apparent that the hub of the Fig. 10 form may be readily modified to afford 5, 6 or more individual card compartments.

In the embodiment of Fig. 11, the base 80 and side wall 81 are integral, and there is but a single side wall. Said wall is formed with a circular pocket 82, defined by the spaced walls 83, 84. A concentric socket 85 is female threaded.

The rotor unit 86 has the wheel or rotor 87, which is formed with the polygonal shaft 88, the inwardly offset end 90 of which receives the hub of the card-receiving unit 91. Said latter unit is preferably substantially similar to the unit 25, see Fig. 4, and has platforms 92 and upward end walls 93. Rods 94 are pivoted to the platforms 92, and hook into slots provided in the end walls, as will be understood. Coil springs 94a serve as follow blocks for the cards C, and resiliently secure the rods within the end-wall slots.

Cooperating with the end 90 of the rotor unit to support the card unit 91, is an end cap 95, which telescopes within the central hub of said card unit and engages the end wall thereof as clearly appears in Fig. 11. A bolt 96, which is received by the socket 85, serves as a shaft for rotation of the rotor unit 86. A locknut 97 serves as a friction bearing, engaging with the wall of wheel 87, which is pressed against said nut by the expansion spring 98.

It is a simple matter, as shown in Fig. 13, to increase the capacity of the unit to include more than one card-unit 91. Accordingly, an auxiliary hub 99 cooperates with rotor member 86 and end cap 95 to provide for mounting two units 91. Obviously additional extension hubs 99 may be

added, within the capacity of base 80 to support the unit.

Although the invention has been described by making a fully detailed reference to the certain presently preferred embodiments, such detail of description is to be understood in an instructive rather than a limiting sense, many changes being possible within the scope of the claims here-to appended.

I claim:

1. A filing device comprising a frame having outwardly springable side walls, each said wall having a circular flange extending inwardly thereof; a rotor supported on each said flange for rotation thereon, said rotors having inwardly-extending polygonal shafts at their centers; and a file member having a matching polygonal hub telescoping over said shafts, platforms extending substantially tangentially with respect to an imaginary circle circumscribed by said polygonal hub, adjacent platforms defining compartments; and members supported in spaced relationship with respect to said platforms for securing material to be filed within said compartments.

2. A filing device as set forth in claim 1, wherein said side walls may be sprung outwardly sufficiently to disengage with said rotors.

3. A filing device as set forth in claim 1, wherein said side walls are resiliently urged in the direction of said rotors for light frictional engagement therewith.

4. A filing device as set forth in claim 1, wherein said rotors are in frictional engagement with said side walls sufficiently to restrain the free rotation thereof.

5. A filing device as set forth in claim 1, wherein coil spring means extend through the respective shafts and side walls and releasably engage said side walls.

6. A filing device, comprising a frame having side walls, resilient rubber feet means disposed at the lower edges of said side walls, and tie rods extending from one wall to the other and passing through said rubber feet, means to permit said side walls to be sprung outwardly with respect to each other; rotors in releasable engagement with said side walls, and a compartmented file member supported by said rotors, each of the compartments of said file member having a plane platform extending substantially tangential to the axis of rotation of said rotors.

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