

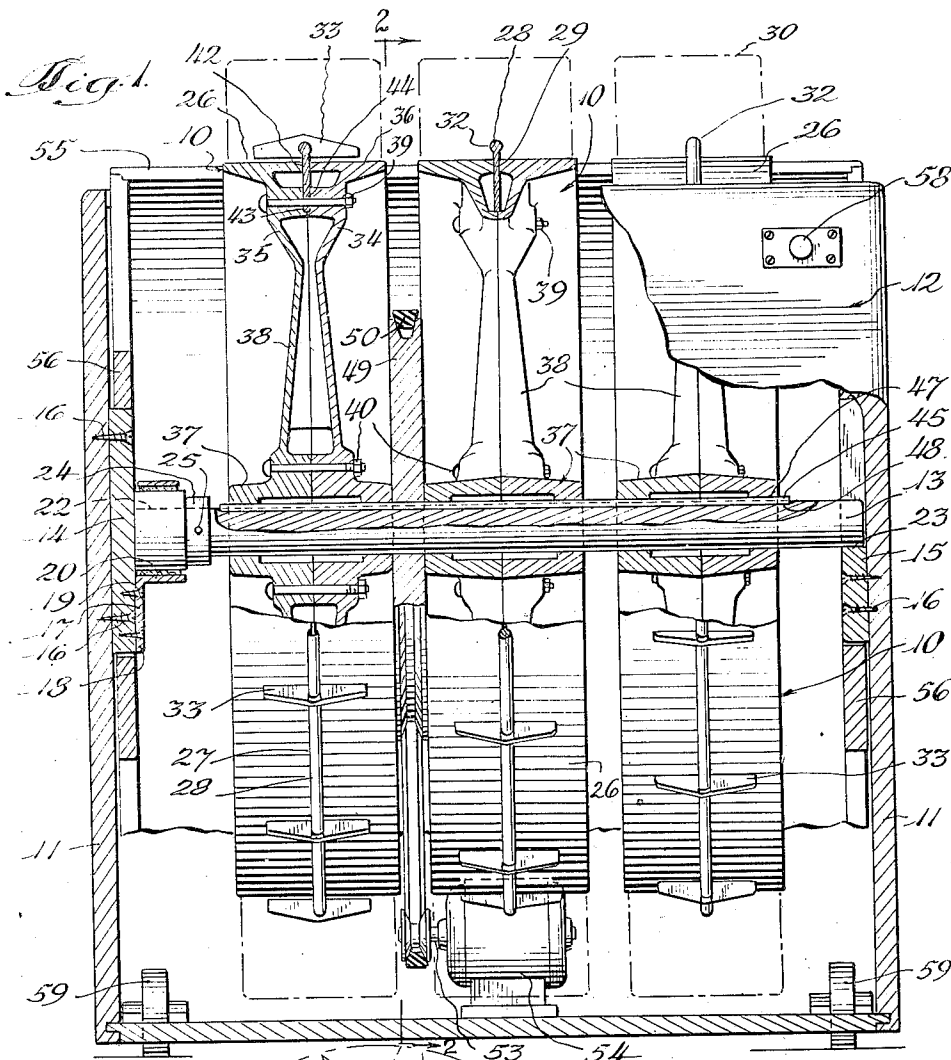
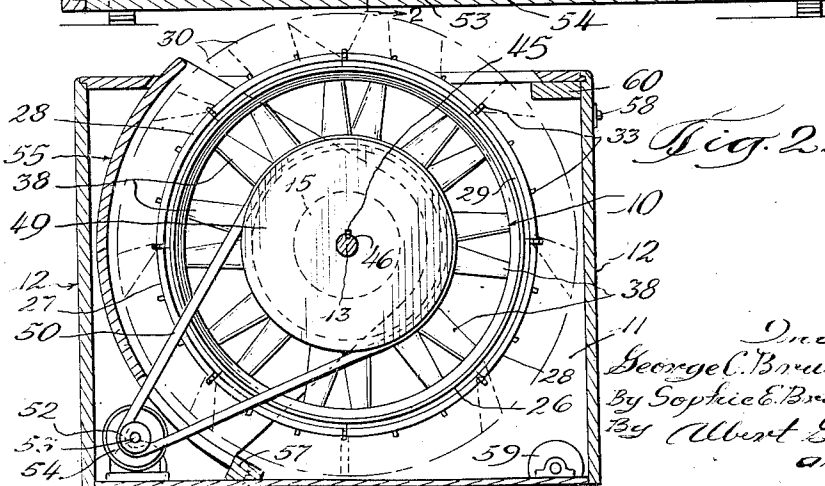
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CARD FILING EQUIPMENT

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## UNITED STATES PATENT OFFICE

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## CARD FILING EQUIPMENT

George C. Bruen, deceased, late of Chicago, Ill., by Sophie E. Bruen, executrix, Chicago, Ill., assignor of seventy and five-tenths per cent to said Sophie E. Bruen, five per cent to Edna V. Dickinson, Highland Park, Ill., nine per cent to Sarah M. Bullock, Wilmette, Ill., ten and five-tenths per cent to G. A. Stuart, Denver, Colo., two per cent to Jay Fisher, Chicago, Ill., one per cent to Marie Thoenen, Elmwood Park, Ill., one per cent to George H. Fredericksen, Chicago, Ill., and one per cent to E. M. Thorsen, St. Joseph, Mo.

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2 Claims. (Cl. 45—3)

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This invention relates to card filing equipment and more particularly to the structure and arrangement of a multi-unit rotary card file.

It is one of the objects of the present invention to provide a multi-unit rotary card file wherein the parts are constructed and arranged for ease and smoothness of operation.

As another object the invention comprehends the provision of a rotary card file having a plurality of adjacent rotary card-carrying drums movable together as a unit and wherein cards are carried in divided section on the periphery of each drum and the sections of the drums are staggered to promote smooth rotary operation.

For a further object, this invention has within its purview the provision of a rotary card file wherein cards are carried in a plurality of circumferentially disposed and axially spaced rows with the cards grouped in the rows and the planes of the cards in each row extending axially of the file, and wherein said cards are separable circumferentially of the file and angularly movable relative to one another to facilitate their use; the grouping of the cards in the rows being such that during rotation of the file the cards of the groups of the different rows pass the critical angle at which they fall in the direction of rotation of the file at successively varying times.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings in which similar characters of reference indicate similar parts throughout the several views.

Referring to the drawings, of which there is one sheet,

Fig. 1 is a front view, partially in vertical section and partially in elevation, of a rotary card file embodying one form of the invention; and

Fig. 2 is a transverse vertical section of the card file taken substantially on the line 2—2 of Fig. 1.

In the exemplary embodiment of the invention shown in the accompanying drawings, a plurality of card-carrying drums 10 are coaxially mounted in side by side relationship in a cabinet 12. The drums are supported for rotation together as a unit by a common shaft 13 to which they are each secured and which shaft extends between the opposed mid-portions of side walls 11 of the cabinet 12. The shaft is supported at its ends by circular blocks 14 and 15, which blocks are attached, in opposed relationship by appropriate means such as screws 16, to the inner faces of the side walls 11 of the cabinet. By preference, an inverted L-shaped bracket 17 has a leg 18

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secured to the inner surface of the block 14 by appropriate fastening means such as screws 19. Another leg 20 of the bracket carries a bearing housing 22 in which one end of the shaft is rotatably supported. In the other block 15 is a bearing bore 23 wherein the other end of the shaft is rotatably mounted. For axially retaining the end of the shaft 13 within the bore 23, a collar 24 is located on the shaft in abutment with the end of the bearing housing 22 and is secured in place by means such as a cotter pin 25.

Desirably, the drums 10 are all substantially identical in construction, and a description of one drum will suffice for the others. Each drum 10 presents a cylindrical outer face 26 and carries a peripheral card-carrying rail 27 which preferably extends around a medial line thereof. In the disclosed embodiment of the invention, the rail 27 comprises a head portion 28 of substantially cylindrical section and a radial web portion 29 which extends inwardly of the drum into a slot in the face 26.

For use with the disclosed type of card-holding rail, cards 30 have keyhole type slots 32 at their inner edges. The portion of the rail which protrudes beyond the drum face 26, including the head 28, is received within the slots 32 of the cards, releasably to hold the cards in peripherally slidable relationship relative to the drum.

Each rail 27 carries a plurality of partitions or stops 33 secured thereto in equally spaced relationship around the periphery of the drum, so as to divide the rail into sections for limiting movements of groups of cards on each drum. Thus, while the cards are free to slide on the rail relative to the drum face, they are limited in their migration by the stops 33.

When the wheels are rotated about the axis of the shaft 13, the cards tend, by the action of gravity, to form V-shaped openings therebetween a short distance forwardly of the vertical plane through the axis.

The partitions 33 are preferably very low—scarcely higher than the rail head, and need not be as wide as the cards. When thus placed and proportioned, their presence does not materially interfere with the articulation of the cards upon the rails as they successively fall forwardly in the direction of movement of the drum from a substantially vertical position at the rear side of the V-shaped opening to a substantially horizontal position at the front side of the V-shaped opening, as the wheel is rotated. The stops, however, limit the shifting of the cards to a relatively small space on each drum.

In order to show how the rails are secured to the drums, it is necessary to understand the structure of the drum. Each drum is preferably die cast in two like parts: a right half 34 and a left half 35 which are secured together in reversed positions. The identity of the parts contributes to lower production costs.

When thus cast, each drum comprises a rim 36, a hub 37 and a set of hollow spokes 38, all of which are integral. At the outer end of each spoke and just within the rim, the two halves are held together by rim assembly bolts 39. Similarly, at the inner ends of the spokes, the two halves are held together by hub assembly bolts 40. The adjacent inner edges of the rim portions of the drum halves are spaced apart to form a slot 42 for receiving the web portion 29 of the rail. To reduce the weight of the metal, the spokes 38 of the drums may be hollowed out. The slot 42 is deepened at the region of each rim assembly bolt 39 to provide clearance for lugs 43 extending inwardly from the web portion 29 of the rail. Each such lug 43 has a through bore 44 which receives the rim assembly bolt 39, whereby the bolt holds the rail against outward movement from the slot 42.

The drums are fixedly mounted on a shaft 13 so that they all turn together. In the present instance, this is done by key 45 inserted in a keyway 46 which has a portion 47 in the shaft and a portion 48 in the hub of each drum.

While it is desirable for the drums to turn as a unit, it is not desirable that the sections of cards on each drum should be aligned. It is, however, desirable that the partitions on the drums should be staggered relative to one another. The staggering of the sections varies the times at which the groups of cards contained therein, or substantial numbers thereof, pass the critical angle at which they fall in the direction of rotation of the drum during rotation. Since the drums are substantially identical, the accomplishment of this staggering of the partitions is effected by the cutting of the keyways in the drum hubs in staggered relationship to each other. Thus, when the keyways in the drums are aligned for insertion of the key, the partitions between the sections of the drums are staggered relative to one another.

Due to a difference in air pressure against the exposed surfaces of, and between, adjacent cards, they normally tend to fall forwardly in groups, in each of the divided sections, during the rotation of the drums. However, the above mentioned staggered arrangement of the sections, the cards on each drum do not reach their critical angle for falling forwardly at the same time. Hence, the forward inertia of the falling cards is divided and minimized so as to smooth the operation of the group of drums, although their close grouping and unitary operation makes them easily serviceable by a single operator seated in front of the cabinet.

To rotate the unitary assembly in the disclosed embodiment of the invention, there is provided a pulley 49 located between two of the adjacent drums. The pulley is drivingly connected to the shaft 13 by the key 45, so that upon rotation of the pulley wheel, the shaft and drum will turn. The pulley 49 is driven by a belt 50 which, in turn, is driven by a pulley 52, which pulley is drivingly connected to a shaft 53 and motor 54. The motor

is attached by appropriate means to the base of and within the cabinet 12. In a position convenient to the operator, a push button switch 58 is mounted on the cabinet and connected to the motor for starting and stopping the multiple drum unit.

For enclosure of the drums within the cabinet 12, an arcuate shaped top 55 is mounted by segmental side panels 56, at each end thereof, on the circular blocks 14 and 15. The circumferential surface of each block serves as a bearing surface for the segmental side panels 56. When the top of the cabinet is closed, it rests against a stop strip 60 at the upper rim of the cabinet. When it is in the open position, as shown in Fig. 2, it is swung down backwardly and rests against stops 57 secured to the base on the inner side of the cabinet. Attached to the base of the cabinet are casters 59 upon which the cabinet may be moved to any desired location.

While a preferred embodiment of the invention has been illustrated, many modifications may be made without departing from the spirit of the invention, and it is not the intent to be limited to the precise details of construction set forth, but the desire to include all changes within the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent of the United States, is:

1. In card filing equipment, the combination comprising a housing including side walls and having an opening at the top, an arcuate cover for closing the opening, stationary blocks having circular outer surfaces, said blocks being secured in opposed positions to the mid-portions of the inner surfaces of the housing side walls with their circular outer surfaces in coaxial relationship, a rotary card file supporting shaft extending between said blocks in concentric relationship to the circular outer surfaces thereof, a bearing bracket secured to one of said blocks and having secured thereto a journal bearing in which one end of the shaft is rotatably supported, the other of said blocks having a bearing opening therein for rotatably supporting the other end of the shaft, and said arcuate cover having side portions including bearings in concentric relationship to the arcuate curvature of the cover and carried for rotational movement to open and closed positions on the circular outer surfaces of the blocks.

2. In card filing equipment as defined in claim 1, the combination being further characterized by a collar secured to the shaft adjacent the end of said journal bearing for locating the shaft axially relative to the blocks.

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*George C. Bruen, Deceased.*

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