Sept. 30, 1952 H. R. FAULKNER ET AL 2,612,427

BOOK SUPPORT ATTACHMENT

Filed Oct. 14, 1948 2 SHEETS--SHEET 1

Fig. 1.

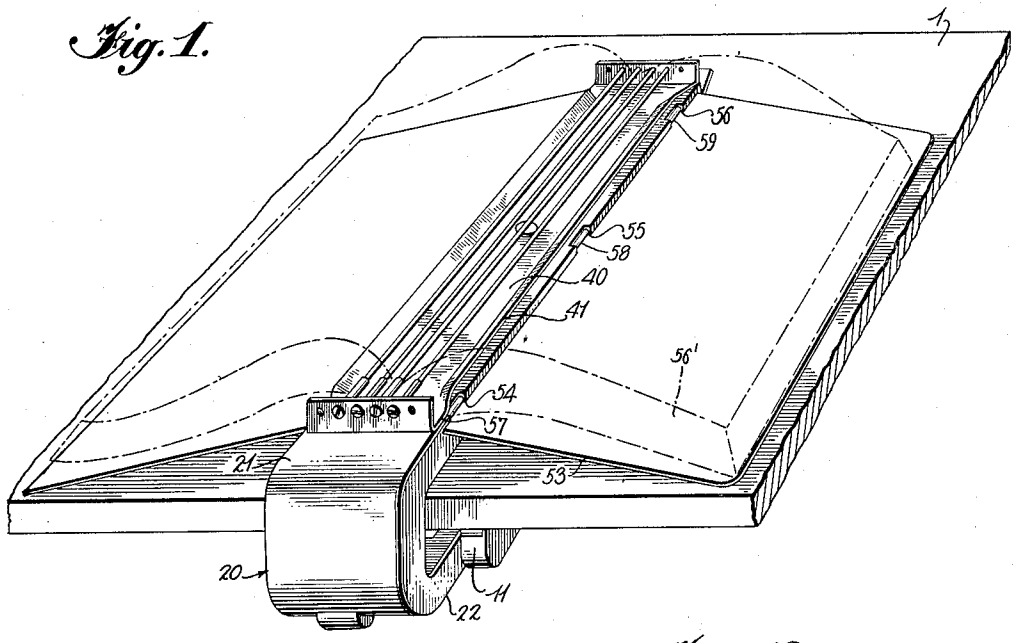


Fig. 2.

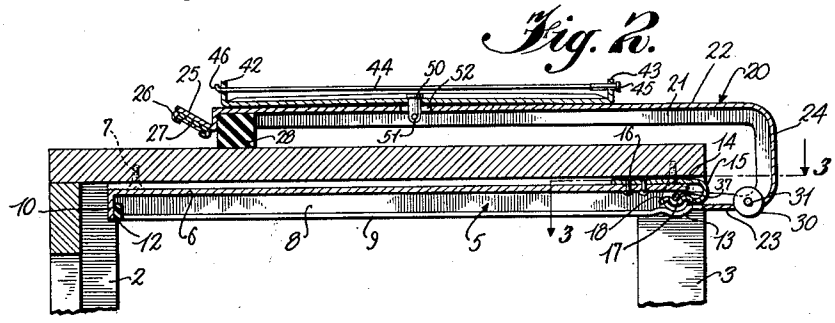


Fig. 4.

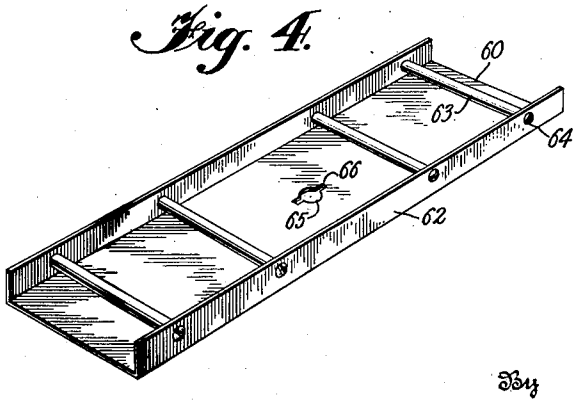
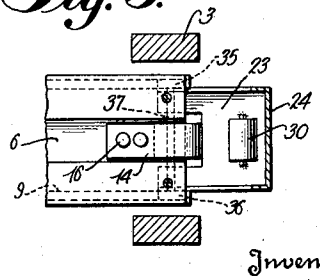


Fig. 3.



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Filed Oct. 14, 1948 2 SHEETS—SHEET 2

Fig. 5.

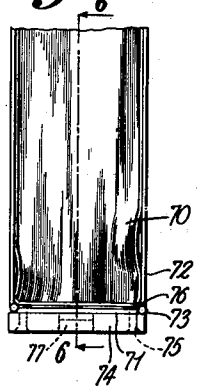


Fig. 6.

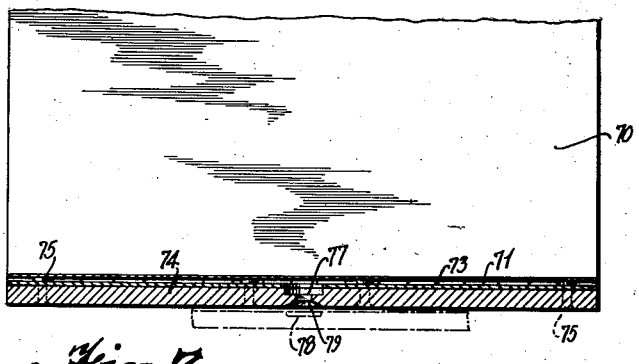


Fig. 7.

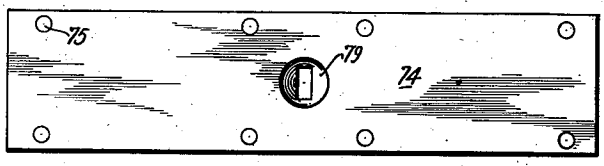


Fig. 8.

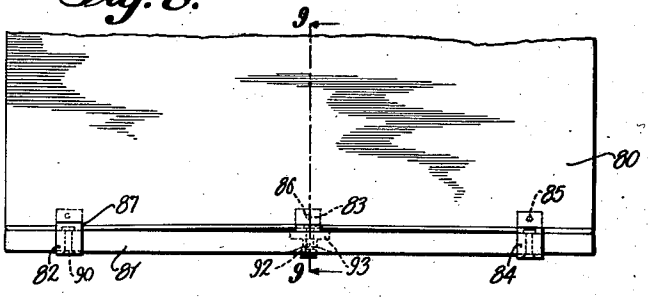


Fig. 9.

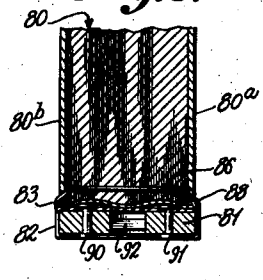


Fig. 11.

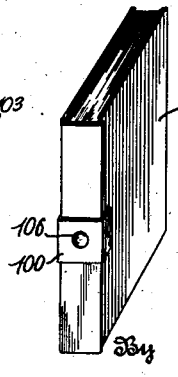


Fig. 12.

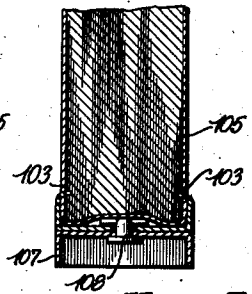
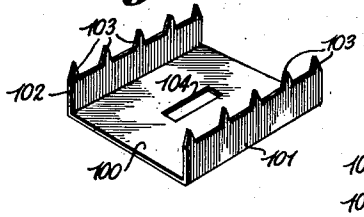


Fig. 10.



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UNITED STATES PATENT OFFICE

2,612,427

BOOK SUPPORT ATTACHMENT

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Application October 14, 1948, Serial No. 54,502

14 Claims. (Cl. 312—233)

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This invention relates generally to an attachment for a table, cabinet or other suitable housing which would adapt the same to a support for heavy volumes such as catalogs, telephone directories, or the like. The attachment comprising our invention enables such volumes to be readily accessible for use by enabling them to be swiveled to the top of the cabinet structure; and when not in use the volumes can be reversely swiveled with the utmost ease to a supported and inverted position beneath the table top and within the cabinet where they are out of the way of the user.

Our invention is of particular utility in various types of large offices where it is necessary to have at hand for immediate access and reference a large bulk of printed information. As an example, libraries and offices of recording, telephone and sales personnel could be mentioned as finding this unit particularly useful. In such offices bulky volumes containing information needed at a moment's notice must be available and this unit fills this particular need. The invention is particularly suitable for mounting, in looseleaf fashion, various bulky papers, such as maps, drawings and related large size printed sheets.

In the past, efforts have been made to manufacture prefabricated tables or retaining structures adapted to house material of the sort referred to. However, the devices of the prior art necessitate a specialized form of cabinet structure and, in general, prohibit the use of a flat, unbroken table top. Such devices do not enable swiveling of a volume from an out of the way place to a horizontal position flat upon the top where it may be readily rotated for perusal. The inherent disadvantages of such structures are obviated by our invention which enables any ordinary desk, table or cabinet of suitable size and space to be readily adaptable to the use which we have described: the housing of these large volumes in an inverted position within the structure where they are accessible, at the desire of the user, for swiveling to a horizontal position upon the top of the structure. The unit comprising our invention eliminates the necessity of altering, mutilating, or disassembling the top of such a support in any way and is designed to be readily attached to almost any conceivable type of cabinet structure.

Accordingly, it is an object of this invention to provide a unit which, by simple attachment to a cabinet structure, enables transformation of that structure into a suitable housing for large unwieldy volumes.

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It is a further object of the invention to provide a simple means whereby volumes so housed within a cabinet structure may be withdrawn therefrom and swiveled to a position upon the top of the structure where they are readily available for use.

It is a further object of our invention to devise means whereby the volume when so placed upon the top of the cabinet as referred to, may be rotated in the plane of the cabinet or table top so that the volume can be perused from any desired angle.

Another unique feature of our invention is the provision of alternate and simple means which facilitate the detachment of any single volume from the swivel support and the ready insertion of any alternative or additional volume to an empty binder.

By reason of the fact that the unit comprising the invention need not be fabricated to fit any particular design of cabinet support, but is assembled so as to be suitable for placement on various sizes and shapes of cabinet structures, the invention affords not only great economies to the user but represents the extreme in simplicity and economy of manufacture.

It will be apparent from a reading of the following description that this invention has many other advantages, uses and alternates not recited in the foregoing but all of which come within the scope of the present disclosure and claims.

The instant application is a continuation-in-part of our copending application, Serial No. 1323, now Patent No. 2,494,382.

For a better understanding of the elements of our invention and their interrelation to produce the results desired, reference is made to the accompanying drawings in which:

Figure 1 is a perspective view of a modification of the assembled unit comprising the invention.

Figure 2 is a cross-section of the unit shown in Figure 1.

Figure 3 is a cross-section taken upon the line 3—3 of Figure 2.

Figure 4 is a perspective of a modification of the retaining means shown in Figure 1.

Figure 5 is a cross-section of a modification of the retaining means.

Figure 6 is a longitudinal cross-section taken upon the line 6—6 of Figure 5.

Figure 7 is a bottom plan view of the modification shown in Figure 6.

Figure 8 is a further modification of the book retaining means.

Figure 9 is a cross-section taken upon line 9—9 of Figure 8.

Figure 10 is a detail view in perspective of a modified form of book retaining means.

Figure 11 is a perspective view of the detail of Figure 10 shown in position upon a volume

Figure 12 is a cross-section of the retaining means of Figure 10 shown attached to a volume.

Referring more particularly to the drawings, a cabinet structure, table top, or other analogous support is indicated at 1. As shown, it has a flat unbroken top and will be provided as is usual with a rear support 2 and a front support 3. There may be provided any number of front supports 3, with several units embodying the invention mounted therebetween, so that any desired number of volumes may be supported in the manner to be described. The swivel or carrier arm to which we will later refer is adapted to rotate and reciprocate upon a suitable trackway generally indicated at 5 in Figure 2. This trackway is fabricated of plate metal or angle iron or any other appropriate rigid material. Its top 6 is affixed in any appropriate manner such as by screws 7 to the underside of the table top 1. The top 6 of the trackway has dependent from each side thereof, flanges 8 formed at right angles thereto, and these flanges are in turn provided with additional flanges 9, at right angles to flanges 8. Flanges 9 thereby provide separate parallel and horizontal rails for supporting the rollers of the carrier arm. The inner or back portion of the trackway may be also flanged downwardly as at 10 to provide a stop, preventing further movement of the carrier arm when it is swiveled down from the top and moved rearwardly to its stowed position within the cabinet structure. Preferably, the stop 10 has affixed thereto a rubber cushion 12 or similar resilient mounting to prevent shock or undue noise should the swivel arm inadvertently be rolled rearwardly with unnecessary force.

It will be noted that the opposite end of each rail 9 terminates in a stop 11 arranged perpendicularly to the said rail. Adjacent each stop 11 the rail is dished or rounded so as to provide a cup 13 suitable for the reception of the swivel arm rollers. Approximately opposite the stop 11 we have provided a unique locking means for maintaining the swivel arm in the position shown when it is rotated from within the cabinet structure to the position illustrated in Figure 2, or vice versa. This locking means consists of a spring metal element 14 bent upon itself at one end at 15 to assume a hook shape. The longer piece of the member is secured in position between plate 6 and the top 1 by any suitable media such as rivets 16. The hook portion 15 of the locking element is fabricated with a transverse groove as at 17 adapted to engage the axle provided for the carrier arm rollers. This hook portion of the lock also terminates in a downwardly bent tip 18 which facilitates reception of the axle when it is forced into the position shown in Figure 2. The manner of operation of the lock just described should be obvious from the foregoing. When it is desired to swivel the arm into the position shown it is first withdrawn by the operator towards the front of the cabinet so that the axle of the rollers thereof depresses tip 18, flexes member 15 and engages the groove 17. At the same time, the carrier arm rollers will further prevent reciprocal movement by engaging the respective cups 13. By locking the carrier arm in this manner, rotation thereof 180° from one position to another is accomplished without reciprocal movement of the arm. The resilient nature of the metal of which the lock is fabricated will be sufficient to retain the arm in the position shown until it is reversely rotated and a sufficient force is exerted to slip the roller axle out of engagement with groove 17 and the rollers out of engagement with cups 13.

The carrier arm designed to be reciprocated and rotated upon the rails 9, as described in the foregoing, is generally indicated at 20. It may be fabricated in one piece of any suitable material, preferably metal strip or angle iron. On each side it has dependent flanges 21 which extend throughout its length. It is comprised of a long arm 22 and a shorter arm 23 parallel to the former. These are spaced a suitable distance from each other, sufficient to conveniently encompass various widths of table tops, by a right angular interconnecting segment 24. One end of the base 22 of the carrier is angularly bent as shown in Figure 2 to provide a backing 25 for a suitable mount 26 designed to receive a title card 27. To prevent marring the surface of top 1, and to support the carrier arm in a position parallel to said top as illustrated in Figure 2, a resilient mount or cushion 28 is affixed thereto adjacent said backing 25.

The shorter length 23 of the carrier arm is also provided with a rotating roller 30 mounted upon a suitable axle 31. The latter can be affixed to the carrier through appropriate apertures in flanges 21. The roller 30 is designed to bear upon the inner surface of plate 6 of the trackway when the arm 20 is in a position reverse of that shown in Figure 2 or, in other words, when the arm has been rotated clockwise 180°, and to a position underneath the table top with the supported volume hanging perpendicularly therefrom.

Means are provided to enable the carrier to reciprocably and rotatably engage the trackway in the form of two rollers 35 and 36 supported upon a bearing member 37. The latter may be mounted through suitable apertures in each one of the flange members 21. These rollers are spaced sufficiently so that each one of them will ride upon its complementary rail 9. Thus these rollers, in conjunction with roller 30, permit reciprocal movement with a minimum of effort and when locked as shown in Figure 2, and as hereinbefore described, provide the axis about which the carrier arm may be rotated.

In Figure 1 we have illustrated one embodiment of a suitable volume retaining means. This comprises a plate 40 having inturned edges or flanges 41 designed to additionally support the back of the volume. Each end of the plate is provided with a perpendicular flange 42 and 43, designed as a support for longitudinally extending retaining rods 44. In Figures 1 and 2 these rods are illustrated as bicycle spokes, which extend through appropriate apertures in flanges 42 and 43, and may be held in position by bending over one end 46 thereof and affixing the usual type of threaded nut 45 at the opposite end. In this modification we find it desirable to employ metal binders 53 hingedly connected to each side of the swivel arm 20. To this end notches 54, 55 and 56 may be cut in the corners of each side of the carrier arm of sufficient size to accommodate complementary hinge pin supports 57, 58 and 59 which in turn are merely bent over abutments extending from the adjacent edge of the said binder 53. Each of these abutments are bent

upon themselves so as to form a lug having an aperture suitable for the reception of a hinge pin, not shown, which could be removably secured in each upper corner of the swivel arm 21. The position of a volume after it is secured by means of the longitudinal rods 44 within the binder 53 is indicated in dotted line at 56.

The retaining plate 40 is mounted for rotation upon the carrier 20 in order that when the latter is positioned as shown in Figure 2, the volume may be turned in any desired direction at the option of the user. Swiveling of this plate is accomplished by affixing thereto at its mid-point a pin 50, headed at one end, and secured by welding or other appropriate media, to the said plate. At the opposite end of pin 50 is affixed a cross-pin 51 of little less than the length of slot 52 in order that it could be inserted in the latter. When so inserted and given a 90° turn the pin 50 would assume the locking position shown in Figure 2 which is the position desired for retention of the volume when it is swiveled upon the arm to its stowage beneath the table top.

Alternate forms of swivel or carrier plates may be utilized as, for instance, that shown at 60 which comprises a trough-shaped plate metal member provided with bent-up side portions 62. The latter are utilized as supports for cross-bars 63, a desirable form of retaining rod for looseleaf pages. Each of the cross-rods 63 is preferably retained in place by such means as a threaded bolt 64 in order that they can be readily removed for replacement or interchange of the volume. As will be seen in Figure 4, the keyway is formed in the plate itself and is represented by a circular opening 65, transversely cut by a longitudinal slot 66. If this type of plate be used, then it is obvious that the locking pin such as that illustrated at 50, would necessarily be reversed with the head portion secured in the swivel arm and cross-pin extending upwardly to engage the keyway 65.

For thick looseleaf volumes having covers and bindings of paper or any material not sufficiently rigid of itself to offer suitable support for the volume, we have found that an alternate such as that pictured in Figures 5 and 6 may be desirable. Here the volume comprising a number of looseleaf pages is indicated at 70. The back 71 of the binder has the usual side covers 72 which may be attached by appropriate hinges 73 to the back, although it is obvious that other types of looseleaf binders, such as those with back and sides of one piece, are also adaptable for attachment to the carrier arm in the manner to be described. Posts or rings for the retention of pages of the binder are not shown, but would be of the usual type and secured to back 71 in the customary manner. The latter member 71 of the looseleaf binder is reinforced by an additional support 74 fabricated of wood, plastic or other obvious material, the latter also serving the purpose of providing a suitable keyway 77. Support 74 is affixed to member 71 by a plurality of bolts, one of which is represented at 75 and which is secured in place by a complementary threaded nut 76. It is obvious that not only should the member 74 be of such thickness as to lend strength and rigidity to the looseleaf volume when attached as described, but should be of sufficient depth to provide space for the keyway already referred to. As indicated in Figure 6, the keyway 77 provides for reception and locking engagement with a pin 78 upon the latter's insertion and rotation to locking position.

It is preferable to dish the area immediately adjacent the keyway opening as at 79 in Figure 7 to facilitate insertion of the locking pin into its appropriate keyway.

An alternate of the foregoing is to mount the said pin 78 in the base plate 74 and provide the usual keyway in the swivel arm. Either method may be used dependent upon the particular requisites of manufacturer and user of the device.

It is sometimes desirable to insert in a carrier arm of the foregoing description, a heavy bound volume or book and in this event some means is desirable which could accomplish the foregoing results without substantial mutilation of the book binding. It has been found that the combination of elements illustrated in Figures 8 and 9 accomplish this purpose and further, that by this particular arrangement of parts, a bound volume 80, having the usual stiff covers 80*a* and 80*b*, can be secured in the carrier arm and removed without undue inconvenience. Here the heavy backing support, preferably of wood, is shown at 81. It is designed to maintain a book in position upon the swivel arm in the following manner: Backing member 81 is fitted with three metal flaps or ears, 82, 83 and 84. Two of these ears, 82 and 84, mounted at opposite ends of the backing element, entirely surround member 81 and are inserted through appropriate openings 87 in the binding of the volume to terminate inside thereof. The ears must of necessity be inwardly inclined at an angle as at 88. They are apertured as at 85 to receive transverse binding posts 89 which can be removably mounted upon the said ears in any well known manner. Each of the ears is secured to member 81 by appropriate rivets 90 and 91 or other obvious media. As stated, the two end metal ears completely surround element 81. However, this is not true of the intermediate ear 83 since, because of its positioning, it would then interfere with the locking pin keyway. Accordingly, it is placed adjacent the inner side of 81 and riveted in place in the manner heretofore described and as shown in Figure 9. Although the locking pin in this modification is not illustrated, it is apparent here also that two alternatives of construction are available: Either the pin may be tightly secured in member 81 so as to adapt it for insertion in a keyway upon the swivel arm, or the keyway itself may be formed in element 81 so that it could engage a locking pin mounted upon the swivel arm. As shown in Figures 8 and 9, the latter method is utilized, by providing a suitable aperture 92 in element 81, which aperture is interconnected with the usual keyway slot 93.

Since slots 87 will permit movement of the covers to open position independently of the intervening pages, retaining rods 86 can be inserted and removed from appropriate holes in the pages with comparative ease.

For a rapid and extremely simple means of binding volumes in rotatable fashion to the carrier arm, we have found the modification illustrated in Figure 10 to be particularly suitable. Here the locking pin engaging member consists of a simple channel-shaped metal plate 100 having right angular sides 101 and 102. The latter are preferably each formed with prongs 103. It is obvious that in the event the volume is relatively light, even these may be eliminated, the squeezing action of the two sides 101 and 102 being sufficient for retention of the volume when they are firmly forced together. The plate 100 is shown as being provided with the usual keyway

104. Preferably the area immediately surrounding the keyway is dished as at 106 to facilitate insertion of the locking pin.

With the prongs crimped inwardly as shown in Figure 12, the volume is easily and permanently secured in place upon the swivel arm 100. When a suitable locking pin 108 is integrally mounted upon the carrier arm 107, and engaged as described with plate 100, the relationship of the latter and the aforesaid swivel plate become clear by reference to Figure 12.

It will be seen from the foregoing that we have provided unique and alternate media for efficiently affixing many varied types of volumes to the described form of swivel plate. The combination of the one piece carrier arm, the method of locking it in place for swiveling as shown in Figure 2, and the various methods of mounting a rotatable plate upon a bound or unbound volume are felt to be advances clearly not contemplated by the prior art. By fabricating the trackway and accompanying swivel or carrier arm as a demountable unit, it is apparent that it can be made adaptable to almost any type of table support or related structure without serious modification of the latter. In practical usage this simplicity of design has resulted in a unit which can be economically manufactured and, therefore, is greatly advantageous over devices of the prior art necessitating specialized types of table or cabinet structures before they can be put into use.

Although it is obvious that this invention may be varied in many ways and other expedients or alternates employed to accomplish the purposes hereof, it is to be understood that our invention is only limited by the scope of the following claims.

We claim:

1. An attachment for mounting a book in a cabinet structure comprising a trackway, a book carrier arm having rollers mounted upon a bearing for engagement with said trackway whereby said arm can be reciprocated, book retention means on said arm, cup means at one end of said trackway for retention of said rollers during rotation of said arm on said bearing and locking means for said arm comprising a resilient member adapted to engage said bearing in detachable relationship.

2. An attachment for mounting books in a cabinet structure comprising a trackway, a book carrier arm having rollers mounted upon a bearing for engagement with said trackway, whereby said arm can be reciprocated, book retention means on said arm, cup means at one end of said trackway for retention of said rollers during rotation of said arm on said bearing and locking means for said arm comprising a resilient member adapted to engage said bearing in detachable relationship, said cups being constructed and arranged to receive said rollers when said resilient member engages said bearing.

3. In a book holder structure having a flat horizontal top, means for mounting said book holder in reciprocable and rotational relationship with respect to said structure comprising a trackway having rails dependent therefrom, said rails being provided with roller receiving cups at one end thereof and stops adjacent said cups, a stop at the opposite end of said trackway, a carrier arm provided with book retention means, said carrier arm having rollers mounted upon a shaft and adapted to engage said rails for reciprocable and rotational movement thereupon between said stops, and means for locking said carrier arm in position for rotation thereof comprising a spring member on said trackway, one end of said spring member having a groove for reception of said shaft, said roller receiving cups being constructed and arranged to receive said rollers upon engagement of said shaft with said groove.

4. The combination of claim 1 further characterized in that the book retention means on said arm comprises a swiveled channel-shaped member provided with transverse rod elements for reception of said book, said arm being provided with means to rotatably engage said channel-shaped member.

5. The combination of claim 1 further characterized in that said carrier arm is provided with a projecting key member, said book retention means comprising a rigid and relatively thick base member secured to said book and having a keyway for reception of said key.

6. The combination of claim 1 further characterized in that said book retention means is adapted to support a book having rigid covers, said book retention means comprising a base member having tongues extending therefrom to a position within said covers, said tongues being provided with page securing elements.

7. The combination of claim 1 further characterized in that said book retention means is adapted to support a volume and comprises a plate member having side flanges for reception of said volume, said side flanges being adaptable to tightly engage said volume when pressed inwardly toward each other.

8. The combination of claim 1 further characterized in that said book retention means comprises a plate member having side flanges, projections on said flanges, said flanges being adapted to engage said book when said projections are pressed towards each other on each side of said book.

9. The combination of claim 1 further characterized in that said book retention means comprises a volume retaining plate adapted for attachment to said carrier arm, said plate comprising a channel-shaped member provided with a keyway slot, flanges on said member, transverse rod elements supported by said flanges and adapted to receive pages of said volume, and means to rotatably and detachably connect said plate to said arm comprising a key element on said arm, said element having side projections, said side projections being adapted to engage said channel-shaped member by insertion and rotation in said slot.

10. The combination of claim 1 further characterized in that said book retention means comprises a retaining plate having a rigid and relatively thick backing member mounted upon said book, said backing member having a keyway recess and means to rotatably and detachably connect said plate to said arm comprising a key element having side projections mounted on said arm, said side projections being adapted to engage said backing member by insertion and rotation in said recess.

11. The combination of claim 1 further characterized in that said book retention means comprises a book retaining plate having a rigid and relatively thick backing member attached to said book and having a keyway recess, upwardly and inwardly projecting ears on said member for insertion through the cover of said book, transverse rod members on said ears adapted to receive the pages of said book and means to rotatably and

detachably connect said member to said arm comprising a key element having side projections on said arm, said side projections being adapted to engage said member by insertion and rotation thereof in said keyway.

12. The combination of claim 1 further characterized in that said book retention means comprises a retaining plate having a channel-shaped member of appreciably less length than the length of the back of said book, said channel-shaped member having a keyway slot and being provided with angularly disposed side flanges provided with projections, said projections being adapted to clamp said book when said flanges are pressed together, and means to rotatably and detachably connect said plate to said arm comprising a key element having side projections on said arm, said side projections being adapted to engage said member by insertion and rotation thereof in said slot.

13. The combination of claim 1 further characterized in that said book retention means comprises an elongated plate member having longitudinal rod elements for securing a book thereto, and rigid book cover members rotatably mounted on each side of said arm between which said book may be received.

14. The combination of claim 1 further characterized in that said carrier arm is rectangular in cross-sectional area, and said book retention means comprises an elongated plate member having longitudinal rod elements for securing a book thereto, and pin and lug elements in opposite corners of said rectangular arm, said pin and lug elements swivelly engaging complementary lugs on rigid side elements, said side elements being adapted to encase said book when mounted on said carrier arm.

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