March 31, 1959 L. E. GREEN 2,879,896

TOOL HOLDER

Filed June 2, 1955

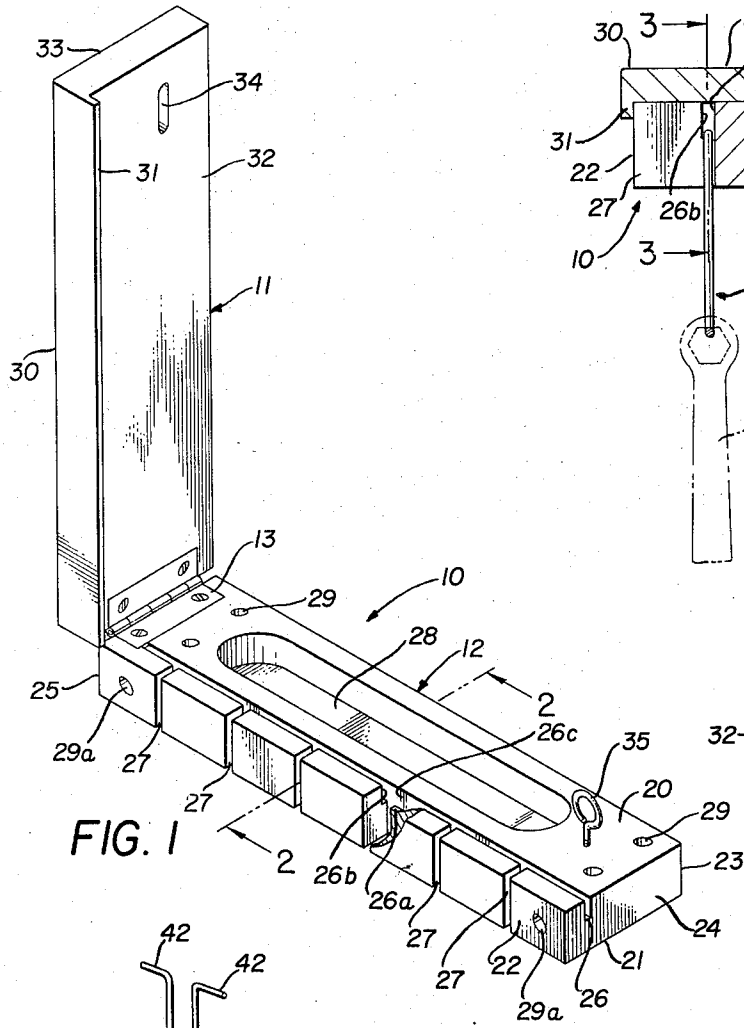


FIG. 1

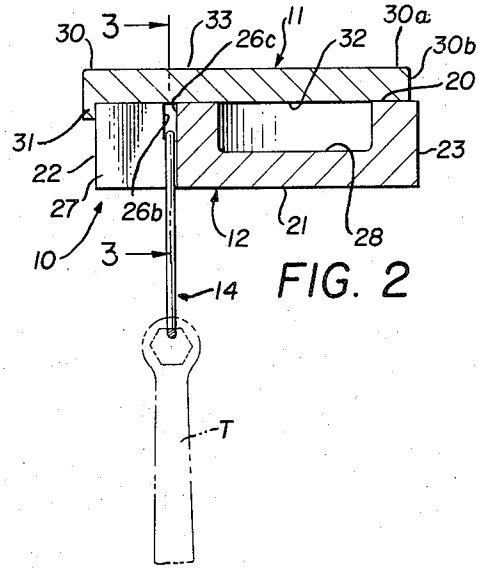


FIG. 2

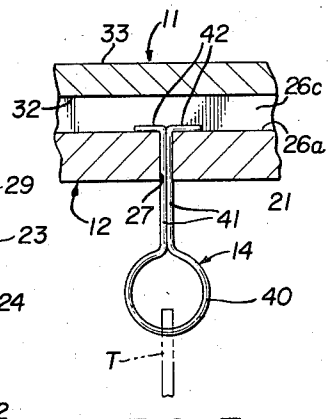


FIG. 3

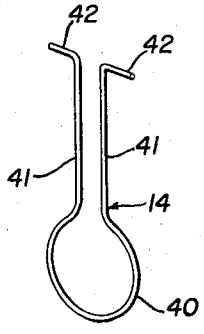


FIG. 4

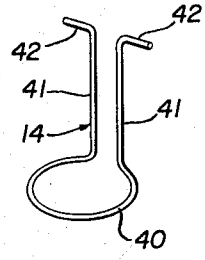


FIG. 5

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Fig. 4.

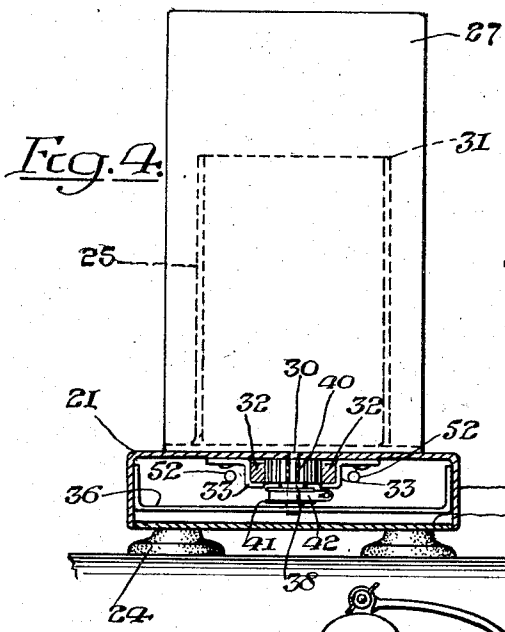


Fig. 5.

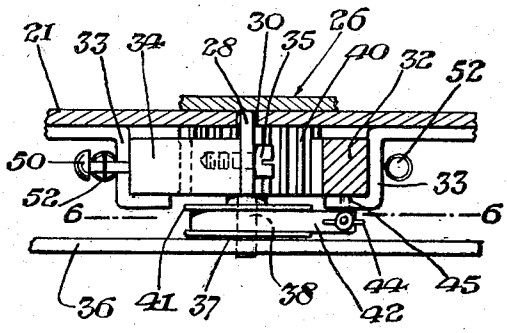


Fig. 6.

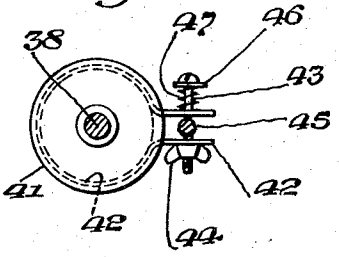


Fig. 8.

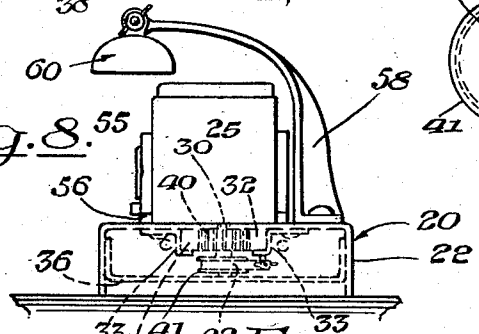
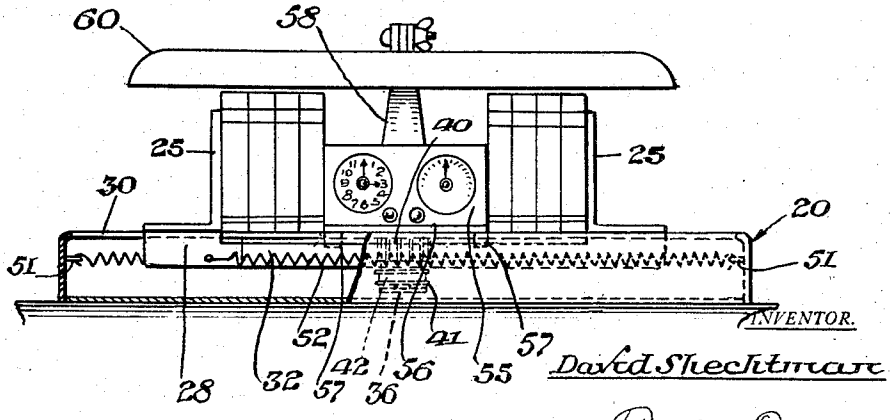


Fig. 7.



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Fig. 9.

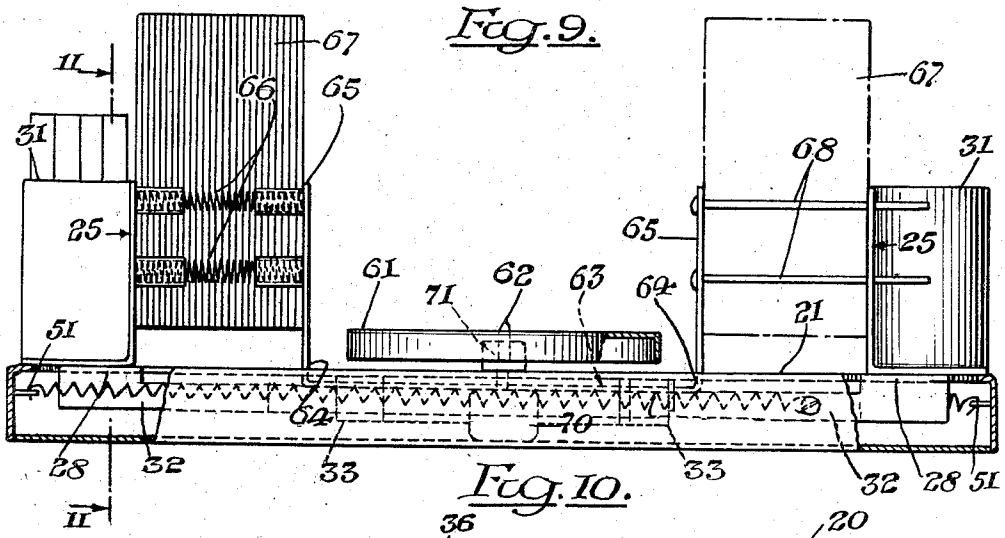


Fig. 10.

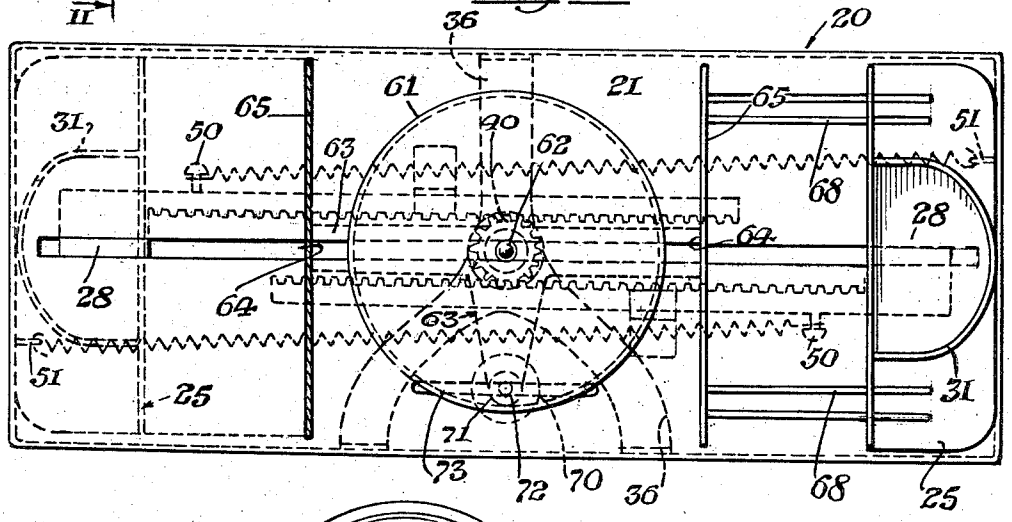
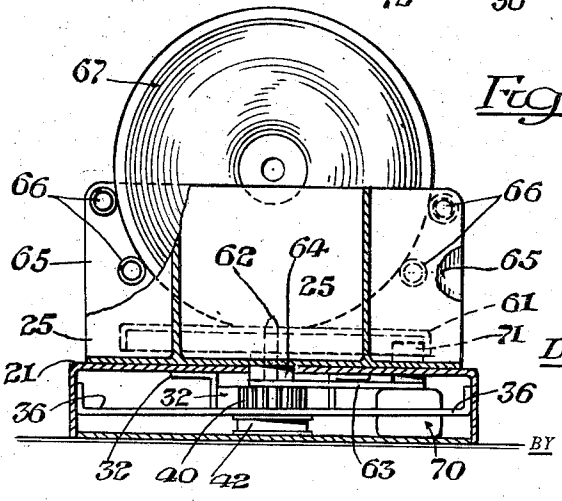


Fig. 11.



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SELF-ADJUSTING HOLDER FOR FLAT ARTICLES

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Application March 29, 1954, Serial No. 419,313

6 Claims. (Cl. 211—43)

The present invention relates to holders for flat articles, such as books, phonograph records, tape recorder reels or the like, and particularly to a holder comprising a base having end walls which are movable toward and away from each other to firmly hold any number of flat objects within the capacity of the holder, the end walls being arranged for joint self-adjusting movement so that the books, records or other items supported on the base are always located longitudinally centrally of the base irrespective of the number, height or width of such articles.

More particularly still the holder of my invention is ararnged so that the end walls are spring urged toward each other, and means are provided to assure that the movement under urge of the spring or springs will be an even one so that the ends will not move rapidly into position against one another or against articles between them, thus minimizing noise of operation and preventing damage to the articles between the ends, and providing time for convenient insertion or removal of such articles.

Additionally, the end elements which have heretofore been termed end walls are provided with pockets therein in which pencils, bookmarks, paper clips, cigarettes, paper scraps, etc., may be deposited. The device additionally may be arranged to provide a record turntable at the center of the base with a phonograph record holder at either side of this turntable, or to provide a tape recorder unit at the center of the base with a tape reel holder at either side. It may also contain a lamp attachment for illuminating the articles held thereby, and an alarm clock to stir the user from over-absorption in selected readings or listening.

It is an object of the invention to provide a holder for flat articles having end walls slidable toward and away from each other on a base.

It is another object of the invention to provide such a holder in which the ends are connected for joint self-adjusting movement and are spring-urged toward each other so that articles placed therebetween will always be located centrally of the base.

It is another object of the invention to provide a holder of the type described in which means are provided to resist the urge of the springs and assure that the movement of the ends toward each other be at a relatively constant slow rate in order that noise of inserting or removing articles and damage to books, records or other articles between the ends be minimized.

It is a further object of the invention to provide a holder of the type described arranged to permit the placement of an alarm clock, radio, or similar unit between books or other articles, the clock or other unit being placed on a movable platform so that it is always centrally located as respects the base.

It is a further object of the invention to provide a device of the class described having a centrally located record turntable or tape recorder unit with racks at each side of the turntable or unit, the racks being arranged

to hold a plurality of rounded articles such as records or tape or film reels.

It is a still further object to provide such a device having a lamp arranged to illuminate books and other articles in the holder.

Other objects and features of the invention will be apparent when the following description is considered in connection with the annexed drawings, in which:

Figure 1 is a front elevation of one form of the holder of my invention, shown as applied to a book holder, a portion of the base being broken away to show the internal construction;

Figure 2 is a top plan view of the device of Figure 1;

Figure 3 is a horizontal cross-sectional view of the device of Figure 1, the view being taken on the plane of the line 3—3 of Figure 1;

Figure 4 is a transverse vertical section of the device of Figure 1, the view being taken on the plane of the line 4—4 of Figure 3, the books shown in Figure 1 being omitted;

Figure 5 is an enlarged fragmentary vertical cross-sectional view on the plane of the line 5—5 of Figure 3 showing particularly the arrangement of certain racks and gears;

Figure 6 is a top plan view of a friction brake arrangement, the view being taken on the plane of the line 6—6 of Figure 5;

Figure 7 is a front elevation of a holder in accordance with my invention, the holder being utilized to hold an alarm clock-radio together with a plurality of books. This view also shows the use of a tubular lamp in a fixture fastened to the base, which lamp illuminates the clock, radio dial and books;

Figure 8 is a side elevation of the device of Figure 7;

Figure 9 is a front elevation with portions in section showing another holder of the invention for round articles, shown as embodying a record turntable and drive therefore together with a holder on either side of the turntable for holding phonograph records or other round articles;

Figure 10 is a top plan view, partially in section, of the device of Figure 9; and

Figure 11 is a vertical cross-sectional view taken on the plane of the line 11—11 of Figure 9.

Referring now to the drawings and particularly to Figures 1 through 6, my invention is shown applied to a book holder and comprises a hollow base generally designated **20**, which has a top **21**, depending sides and ends **22**, and a bottom cover **23**. Fixed to the cover **23** are feet **24** which are adapted to rest upon a surface such as a table and to support the hollow base **20** thereupon. Feet **24** may be rubber, such as suction cups, to provide adherence to the supporting surface.

Mounted on the flat upper surface of the member **21** are two book ends **25**, each of which comprises a horizontal portion **26** and a vertical portion **27** and each of which is provided with a downwardly extending projection **28** which extends through a slot **30** in the member **21**, the slot extending substantially for the full width of the base **20** and lying centrally of the member **21**. Each of the book ends **25** is preferably provided with a handle and pocket formed by a wall **31**, these pockets being adapted to contain pencils, cigarettes, paper clips, scrap paper, bookmarks and the like, and serving as handles for moving ends **25**.

Fixed to the depending portions **28** of the book ends **25** are toothed racks **32**, these racks extending from the book end **25** at one end of the base toward the opposite end of the base and being guided by means of the guide members **33** (Figures 3, 4 and 5), which are suitably supported from the lower surface of the top member **21**. Block-like ends **34** formed on the racks **32** are fixed to the

portions 28 of the book ends 25 by any suitable means such for example as the screws 35.

A strip 36 extends transversely across the base 20 beneath the top member 21, the strip being bent up at its ends and fixed in any suitable manner, as for example by welding, to the downwardly depending front and rear flanges 22 of the base 20. Strip 36 is provided with a central bore 37 in which is rotatably supported a shaft 38, the opposite end of which extends into an aperture 39 formed as part of the slot 30 in the member 21.

Fixedly mounted on shaft 38 beneath the lower surface of member 21 is a pinion 40 which meshes with the racks 32. Also fixedly mounted on shaft 38 beneath the pinion 40 is a drum 41. Extending about the drum 41 is a brake band 42 the bent ends of which extend to the right (as seen in Figures 4, 5 and 6) and are clamped in position to exert an adjustable frictional drag on the drum by means of the screw 43 and wing nut 44.

The screw 43 is retained in position by means of a fixed stud 45 which extends downwardly from one of the guides 33 and is provided with a horizontal hole in which the screw 43 is positioned. Extending between a collar 46 on the screw 43 and one portion of the brake band 42 is a coil spring 47. By means of the wing nut 44 the pressure exerted upon the brake band 42 may thus be adjusted and the amount of frictional drag exerted upon the drum 41, and thereby upon pinion 40 and ends 25, may likewise be adjusted.

Although a friction brake has been shown it may be desirable at times to provide a different arrangement such for example as an air or other fluid dashpot. Such a dashpot might be utilized with the piston thereof connected to one of the racks and the cylinder fixed to the base, or if desirable a pair of such dashpots might be utilized with one connnected to each rack.

Each of the block extensions 34 of the racks 32 has a projection 50 thereon which projections may be in the form of screws tapped into the block 34. Extending between these projections 50 and lugs 51 formed on the interior surfaces of the depending side walls 21 of the base 20 are symmetrically located springs 52 which springs thus urge the racks and the book ends fastened thereto toward the center.

Due to the fact that, as stated, racks 32 mesh with pinion 40 at all times, the book ends 25 move toward each other and are in all positions equally spaced from the transverse center line of the base 20. Consequently, whether one or a number of books be placed on the base 20 between the book ends 25, those books will always be centered. Additionally, due to the arrangement of the racks and pinion the book ends may be moved apart by merely grasping one of the book ends since the mutual adjustment of the pinion rack tensions will make the other one necessarily move with the one operated and to the same extent.

Due to the use of the brake drum 41 and its cooperating brake band 42, the book ends will not slam together when they are released at any position, but will instead come gently and slowly together because of the frictional drag exerted by the brake which drag may be regulated by the adjustment of the wing nut 44 on its screw 43. This gives time to insert or remove books conveniently.

As has been indicated hereinabove and as is shown particularly by the dotted line positions of the book ends 25 in Figure 1, the book ends will move together and may serve to support, for example, two books such as indicated at 48 or a larger number of books as is desired. Moreover, the center point of the entire width of the book stack will always be at the center of the holder.

Referring now to Figures 7 and 8, there is shown therein a holder of the same type which has heretofore been described, adapted to the placing of an article such as an alarm clock-radio combination 55 between books in the holder. The construction of the holder in this instance is identical with that of the preceding figures with the single exception that a platform 56 is provided, this platform being arranged to slide along the top portion 21 of the base 20. The platform 56 is provided with the downwardly extending ribs 57 which project through the slot 30 and are located at the ends of platform 56 to assure longitudinal movement of the platform. Thus as books are added to or removed from the holder the ends 25 are accordingly positioned and always in such a manner that the total width of the books plus the width of the clock-radio is evenly divided on either side of the transverse center line of the holder base.

With an arrangement of this type the presence of the friction brake or dashpot heretofore described is especially advantageous since it prevents damage to articles supported on the platform 56 which articles may be fragile.

Also shown in Figures 7 and 8, is a lamp fixture comprising a pedestal 58 carrying a reflector 60 pivotally fixed thereto in which a tubular lamp such as a fluorescent lamp may be placed. This lamp is arranged so that light emanating therefrom falls upon the radio dials, clock dials and the title-bearing portions of the books. Lamp 60 could be part of the centerpiece 55 where desired.

The radio-clock centerpiece may be replaced by a tape recording unit or a recording and/or reproducing phonograph. In such cases the utility of the holder can be extended by adapting the end members 25 to accept and to safely store rounded articles such as disk records or tape or film reels. Figures 9, 10 and 11 show such an arrangement, providing a record-playing turntable (supplied with the usual tone arm, not shown) together with a pair of holders adapted to support disk phonograph records or other round flat objects on either side of the record player.

Referring now to these figures, a record turntable, designated 61, is rotatably mounted on a spindle 62. The spindle 62 is rigidly affixed to a strap 63 which extends beneath the top member 21 of the base 20 and is connected to the downwardly extending projections 64 of secondary end wall members 65. The slot 30 in the base member 21 is made considerably wider than in the previously described holder in order to accommodate the spindle 62. The strap 63 rigidly interconnects the secondary end walls 65 and supports the turntable 61, so that these elements as a unit can slide back and forth along slot 30.

The secondary end walls 65 are connected to the main end walls 25 in any suitable manner to "cage-in" round flat articles. In Figure 9 the end walls at the left are shown interconnected by means of springs 66 which springs are arranged in an arcuate form as is clearly indicated in Figure 11 and form supports for disk phonograph records or tape reels such as are indicated at 67. At the right hand side of Figure 9 is shown a different mode of forming supports for the phonograph records or tape reels 67 which comprises the use of rods 68 fastened in the secondary end wall member 65 and extending through holes in the end wall of member 25 whose handle-pockets can now be used to hold reels or blank reserve disks.

The turntable 61 is driven in any suitable manner such for example as by means of the motor 70, the shaft 72 of which extends upwardly through the member 21 and above the member 21 carries a drive wheel 71 which frictionally engages the downwardly extending rim of the turntable 61. The motor 70 in this case is supported upon a forward extension of the strap 63 which connects the secondary end wall members 65. The shaft of motor 70 extends through a slot 73 in the base member 21 thus permitting the longitudinal movement of the turntable 61 together with its drive motor 70. The remaining elements are as in the preceding figures, with pinion 40 mounted on fixed strip 36, here shown bifurcated to allow for motor 70.

It will be seen that with the above arrangement the

ends 25 may be moved by grasping a pocket member 31, thus causing both ends to move outwardly. When the same number of records is placed between the ends 25 and 65 at the left and the ends 25 and 65 at the right, the appearance of the device will be as in Figure 9 with the record turntable centered on the base 20. If a greater number of records is placed in one side than in the other then the turntable and end walls 65 will as a unit take up an off-center position and will readjust themselves relative to end walls 25 so that the center point of the distance represented by the total thickness of all the records plus the distance between the two secondary end walls 65 will be centered longitudinally of the base 20 and of the end walls 25.

In all forms of the invention the holder end walls are coupled for joint movement in reverse directions and the ends are urged inwardly by self-adjusting springs. In all modifications the parts are made sufficiently heavy to provide considerable inertia and braking means are supplied thus assuring that the inward movement of the holder end walls be smooth, even and without a slamming action.

Thus in all forms the holder automatically adjusts to the number of books, phonograph records or other articles between the ends and always arranges the articles symmetrically as respects the transverse center line of the device. Books or records can easily be inserted without forcing and when such articles are removed the holder ends move inwardly at a relatively slow and constant rate thus preventing damage to the articles and minimizing noise due to banging on the base or the parts impacting heavily upon one another.

The various devices are usuable on substantially any horizontal surface such as desks, tables, or the like; are stable and convenient to operate; and are durable while at the same time being inexpensively manufactured.

In place of the brake band or dashpot, other friction devices, preferably adjustable, may be used to slow up the movement of the book ends toward each other. Reliance may be placed for this purpose upon the friction between the plate 25 and the upper surface 20 of the base, which friction may be made adjustable in any desired manner, or may be left unadjustable where desired.

While I have described preferred forms of my invention it will be understood that various modifications may be made without departing from the spirit thereof. I wish therefore to be limited not by the foregoing description, but on the contrary solely by the claims granted to me.

What is claimed is:

1. In a book holder or the like, in combination, a base, a pair of book ends slidably supported on said base for movement longitudinally of said base, a rack fixed to each of said book ends and extending toward the other of said book ends, a freely pivoted pinion meshing with both said racks to assure movement thereof to equal extents in opposite directions, spring means continuously urging said book ends toward each other, a drum fixed to said pinion and means frictionally engaging said drum to control the movement of said racks and said book ends under urge of said spring means and minimize the impact of said book ends upon each other and upon articles therebetween.

2. In a book holder or the like, in combination, a base, said base comprising a plane top surface having depending flanges and a bottom cover forming a hollow enclosure, a pair of book ends slidably supported on the plane surface of said base for movement longitudinally of said base, a slot in said plane top surface of said base, a downwardly extending projection on each of said book ends, said projections extending through said slot, a rack fixed to each of said projections, said racks lying within said base enclosure and extending horizontally toward the other book end, guiding members fixed to the undersurface of said base and guiding said racks for horizontal movement, a freely pivoted pinion mounted within said base enclosure on a vertical axis, said pinion being located between said racks and in mesh with said racks, spring means attached to said racks continuously urging said book ends toward the transverse center of said base, a drum fixed to said pinion and an adjustable band engaging the surface of said drum to control the movement of said racks and the book ends under urge of said springs and prevent impact of said book ends upon each other or articles located therebetween.

3. In a book holder, in combination, a base, said base comprising a plane top surface having depending flanges and a bottom cover forming a hollow enclosure, a pair of book ends slidably supported on the plane surface of said base for movement longitudinally of said base, a slot in said plane top surface of said base, a downwardly extending projection on each of said book ends, said projections extending through said slot, a rack fixed to each of said projections, said racks lying within said base enclosure and each extending horizontally toward the other book end, a pinion mounted within said base enclosure on a vertical axis, said pinion being located between and in mesh with both said racks, spring means urging said book ends toward the transverse center of said base, a platform slidably mounted on said base between said book ends, and projections extending downwardly from said platform into said slot in the plane top surface of said base to thereby guide said platform for movement longitudinally of said base while retaining it between said book ends.

4. A holder for flat round articles comprising, in combination, a base, a pair of main end members slidably mounted on said base for movement toward and away from each other, a pair of secondary end members between said main end members, each of said secondary end members cooperating with a respective one of said main end members to hold objects between them, means connecting said secondary end members to each other for conjoint movement in the same direction, a unit supported upon said connecting means, said unit being located between said secondary end members, means adjustably connecting each said main end member respectively to its cooperating secondary end member forming a cradle-like round article support, means coupling said main end members for conjoint movement in opposite directions, and means urging said main end members toward each other whereby the center of the total dimension comprising the distance between said secondary end walls and the total thickness of articles supported on said cradle-like support lies in the plane of the transverse center line of said holder.

5. A holder for phonograph records comprising, in combination, a base, a pair of main end members slidably mounted on said base for movement toward and away from each other, a pair of secondary end members, means connecting said secondary members to each other for conjoint movement in the same direction, a record turntable supported upon said connecting means, said turntable being located between said secondary end members, means adjustably connecting each main end member to a respective secondary end member, said means forming record supports, a slot in said base, projections on said main end members extending through said slot, racks fixed to said projections, each said rack extending parallel to said base in a direction toward the opposite main end member, a pinion rotatably fixed to said base, said pinion lying between and meshing with said racks, and spring means urging said main end walls toward each other whereby said main end walls are always located at equal distances from the transverse center line of said base, and said turntable, together with said secondary ends, shifts its position in accordance with the difference between the number of records supported between one main end member and its respective secondary

end member and the number of records supported between the other main end member and its respective secondary end member.

6. A holder for phonograph records comprising, in combination, a base, a pair of main end members slidably mounted on said base for movement toward and away from each other, a pair of secondary end members, means connecting said secondary members to each other for conjoint movement in the same direction, a record turntable supported upon said connecting means, said turntable being located between said secondary end members, means adjustably connecting each main end member to a respective secondary end member, said means forming record supports, a slot in said base, projections on said main end members extending through said slot, racks fixed to said projections, each said rack extending parallel to said base in a direction toward the opposite main end member, a pinion rotatably fixed to said base, said pinion lying between and meshing with said racks, spring means urging said main end members

toward each other whereby said main end members are always located at equal distances from the transverse center line of said base and said turntable together with said secondary end members shifts its position in accordance with the difference between the number of records supported between one main end member and its respective secondary end member and the number of records supported between the other main end member and its respective secondary end member, and means for braking the movement of said main end members.

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