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R. R. CAMPBELL

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BOOK RACK

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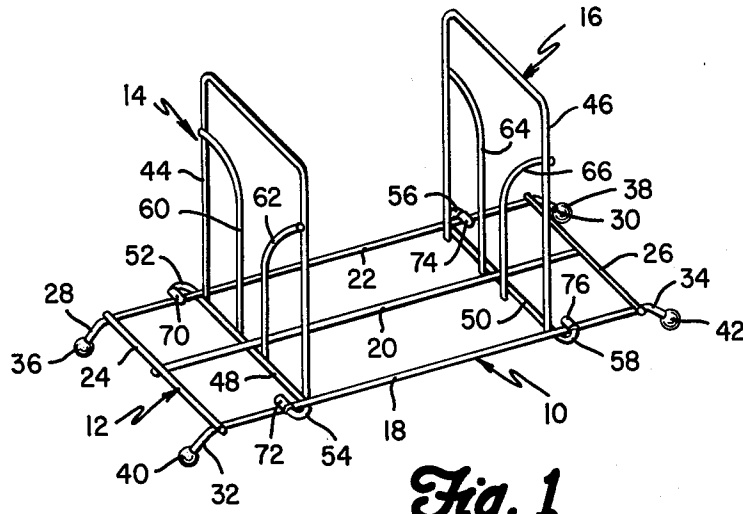


Fig. 1

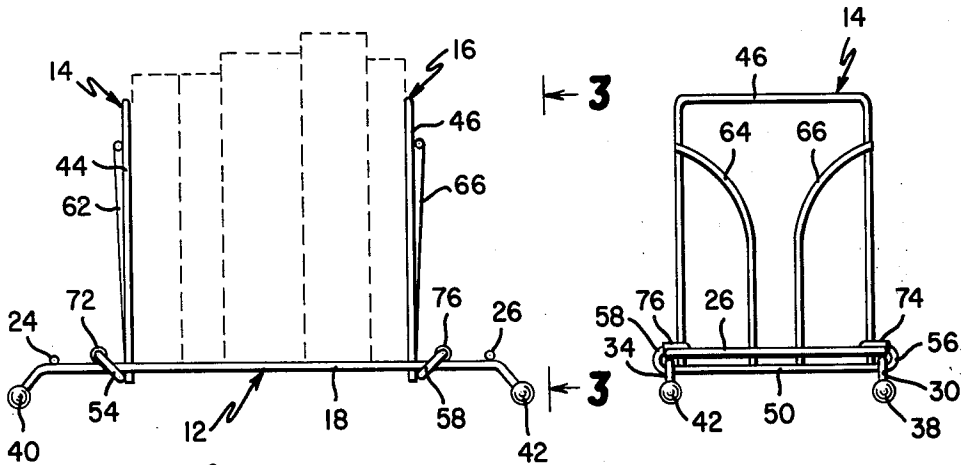


Fig. 2

Fig. 3

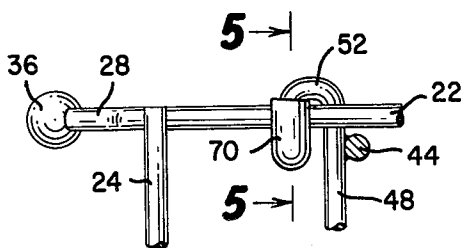
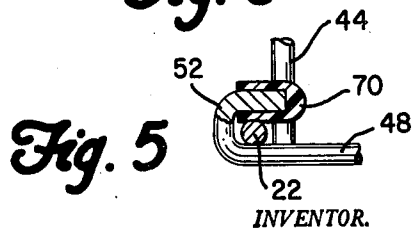


Fig. 4



INVENTOR.

BY *George H. Soutter*
Attorney

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BOOK RACK

Robert R. Campbell, 4810 Haddington Road,
Toledo, Ohio

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This invention relates to an expansible, collapsible rack, designed to be used on a desk or table, to hold thereon books, or the like.

An object of the invention is to support one or a plurality of books, or the like, having varying widths and thicknesses, in substantially the entire length of the rack.

Another object is to provide a rack for books, or the like, which applies sufficient pressure to the books placed in the rack so that several items can be removed without readjustment of the holding means.

A further object is to provide a rack for books, or the like, that is collapsible for storage and shipping, and can be economically manufactured from uniform size metal wire, plastic rod, or the like, which is preferably suitable for receiving an ornamental finish, such as, in the case of metal, by electroplating.

Other objects and advantages of this invention relating to the arrangements, operation, and function of the related elements of the structure, to various details of construction, to combinations of parts, and to economies of manufacture will be apparent to those skilled in the art upon consideration of the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

FIG. 1 is a perspective view of the device showing the compression members in vertical positions.

FIG. 2 is a side elevation of the device showing, in phantom, a plurality of books, or the like, being held in position by the vertical compression members.

FIG. 3 is a view showing an end elevation of the device taken on line 3-3 of FIG. 2.

FIG. 4 is an enlarged partial plan view showing one of the hinged locking means of the compression members with relation to the base member, and

FIG. 5 is a view, partly in section, taken on line 5-5 of FIG. 4.

Referring to the drawings, particularly to FIG. 1, a rack 10 is shown having a base member 12, and two vertical compression members 14 and 16, between which books, or the like, are adapted to be supported. The base member 12 may be constructed of three longitudinally-extending steel bars 18, 20, and 22 positioned in spaced relation, and held at their opposite ends by at least two transverse bars 24 and 26. The transverse bars are electrically welded to the top surfaces of the three longitudinal bars.

As illustrated in the drawing, the two outer longitudinal bars 18 and 22 are longer than the center bar 20, providing leg portions 28, 30, 32, and 34, which are bent downward in an angular position, as shown in FIGS. 1 and 2, and are provided with balls 36, 38, 40, and 42 of polished steel or other available material secured thereto to form supporting feet. All of the bars are preferably formed from a uniform size steel wire which is suitable for electroplating.

The vertical compression frames 14 and 16 comprise inverted U shaped members 44 and 46, preferably fabricated from the same steel wire as the bars, which are electrically welded at their ends to cross rods 48 and 50, respectively. Two vertically-extending bars, having curved configurations, are permanently secured on each

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compression frame, preferably by welding, to provide additional support for rigidity and ornamentality. Curved bars 60 and 62 are provided on compression frame 14, and curved bars 64 and 66 are provided on compression frame 16. The lower ends of bars, as viewed in FIG. 1, are secured, preferably by electrically welding to cross rods 48 and 50 in spaced relation near the center of frames, while the outwardly curved upper ends of bars are similarly fastened to the upper portion of the vertical members of the frames.

Cross rod 48 is provided on its ends with integral C shaped locking and hinging means 52 and 54, and cross rod 50 is also provided with two similar ends 56 and 58. The integral C shaped ends 52, 54, 56, and 58 of cross rods 48 and 50 embrace the longitudinal bars 18 and 22 within the bight of the C, as is most clearly shown in FIG. 5. The upper arms of the C portion are provided with friction members 70, 72, 74, and 76, preferably made of a molded plastic material such as vinyl. By referring to FIG. 2, it will be noted that the C shaped elements on the ends of the transverse bars 48 and 50 are positioned at an angle of approximately 45 degrees with the vertical position of the compression members 44 and 46. The fact that the longitudinal bars 18 and 22 are positioned within the bight of these C shaped elements, combined with the angular relation of the parts, provides a hinging action when the friction elements are in loose contact with the longitudinal bars so that the vertical members may be collapsed into a substantially parallel relation with the base. An adjustment is also provided with a locking means, as will be more fully described hereinafter.

When the rack 10 is assembled, the cross rods 48 and 50, of the compression members 14 and 16, are placed under the three longitudinal bars 18, 20, and 22, with the integral C shaped portions 52, 54, 56, and 58 thereof so positioned that the molded friction members 70, 72, 74, and 76 will contact the top surface of the two outer longitudinal bars 18 and 22 of the base member. As shown in FIG. 2, the cross rods 48 and 50 are positioned on the U shaped frames 44 and 46 so that the C shaped ends are in an angular relation to the vertical plane of the compression members 14 and 16.

The C shaped portions partially embrace the two outer longitudinal members of the base so that they are positioned in the bights of the C members. The main portions of the U shaped members are welded to the central portion of the bars 48 and 50 between the C shaped ends and also between the spaced longitudinal bars 18 and 22 so that the bars are permanently trapped within the C portion to provide a combination hinging means, allowing limited rotation of the compression members for collapsing and a locking means which fixes the position of the compression member on the base member at a selected juxtaposition. The vertical compression members are permanently assembled in adjustable relation to the base member 12.

When the device is to be used to hold books, or the like, adjustment of one, or both, of the compression members 14 and 16 is accomplished by moving the members about the hinging means so that the cross bars 48 and 50 rotate about their own axis in the bight of the C portions. By rotating the compression members toward each other, the plastic covered ends of the C portions will release their friction grip on the longitudinal members 18 and 22, allowing the compression members to be moved to any desired cooperative position on the base member. By rotating the compression members away from each other about the hinging means until they are substantially disposed in a vertical plane, and inserting books, or the like, in the space therebetween,

the plastic members will bind on the top surface of the longitudinal members 13 and 22, preventing lateral movement of the compression members with relation to the base member, and at the same time will apply a resilient pressure on books, or the like, which are positioned between them.

The angle between the vertical plane of the compression members and the angular plane of the C shaped ends is such that the binding action of the C shaped ends on the outer longitudinal members is applied shortly before the compression members reach a vertical position. This angular arrangement and the ratio of the respective lever arms provides a locking means to prevent lateral movement of the compression members. The wire used to fabricate the members is resilient, so that the compressive force is resiliently applied to the books over a considerable space so that even if a book is removed, the remaining books will still be maintained in substantial vertical position.

The hinged relation of the compression members at the C shaped ends also provides collapsibility of the rack. When the rack is not in use or for shipping, the compression members are rotated toward each other until they are in substantially a horizontal nested position, resting on the top surface of the base member.

It is to be understood that the above detailed description of the present invention is intended to disclose an embodiment thereof to those skilled in the art, but that the invention is not to be construed as limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of being practiced and carried out in various ways without departing from the spirit of the invention. For example, the base and compression members may be made of material other than metal wire, such as plastic rod, or the like. The members may be secured together by other than a welding process. The language used in the specification relating to the operation and function of the elements of the invention is employed for purposes of description and not of limitation, and it is not intended to limit the scope of the following claims beyond the requirements of the prior art.

What is claimed:

1. In a device of the class described, a pair of horizontally disposed bars held in parallel relation by transversely extending bars adjacent their ends to form a base member, a pair of flat compression members substantially vertically-disposed between the bars of the base member being adapted to be mutually adjustable with relation to each other along the bars of the base member to hold books or the like between them, transverse lower bars positioned below the parallel bars of the base member integral with each of the compression members having their free ends reversely-bent in C-shaped conformations, being dimensioned to loosely fit over the parallel spaced bars of the base member to be slideable therealong, said parallel bars of the base member being trapped in the bights of the reversely-bent portions to prevent disengagement, the reversely-bent portions being

disposed on opposite sides of their respective compression members at an angular relation of approximately 45 degrees thereto, whereby the compression members are freely hinged to the base member to be pivotally movable toward each other to form a nesting relation parallel to the base member, but are resiliently locked in spaced parallel relation in a vertical longitudinally-adjusted position about a held object when a reverse pivoted movement about the reversely-bent portions occurs.

2. In a device of the class described, a base member comprising at least a pair of parallel bars held in spaced relation, a pair of transverse bars positioned below the parallel bars having reversely-bent ends extending generally upwardly to form C-shaped bights which loosely embrace the parallel bars of the base member, vertically-extending compression members positioned between the parallel bars and affixed to the transverse bars below the parallel bars of the base member in a position whereby the bights on the transverse bars extend at an angle of approximately 45 degrees to the vertical toward the ends of the parallel bars, so that the compression members are loosely hinged to the parallel bars of the base member to allow pivotal movement toward each other into a nesting relation parallel to the base member, but on pivotal movement in the opposite direction will lock the compression members in vertical, adjusted positions.

3. In a device of the class described, a base member comprising at least a pair of horizontal parallel bars held in spaced relation, vertically-extending compression members positioned transversely between the parallel bars and extending below the bars, functionally integral extensions on the bottom ends of said compression members formed as C-shaped bights loosely embracing the parallel bars of the base member connected to the compression members below the bars and extending outwardly and upwardly at an angle of approximately 45 degrees to the vertical to the rear of the compression members, the free end portions of the C-shaped bights overlying in part the upper sides of the parallel bars of the base member, whereby the compression members are held in engagement with the base member but adapted to slide along the base member and pivot from a locked vertical position about the hinged relation formed by the C-shaped bights to a nesting condition in superposed relation parallel to the bars of the base member.

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