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J. A. RICHARDS
BOOKCASE CONSTRUCTION

Filed April 7, 1924

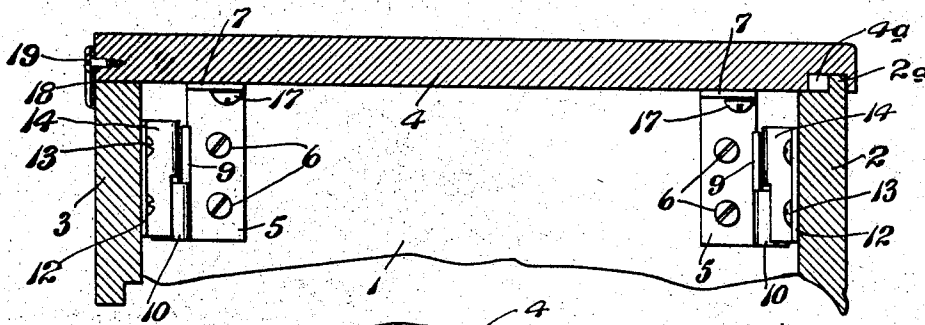


Fig. 1.

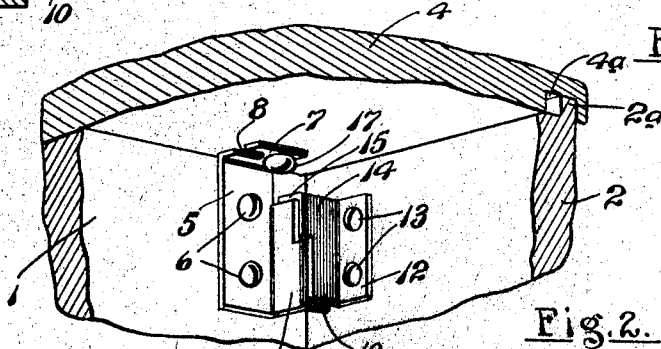


Fig. 2.

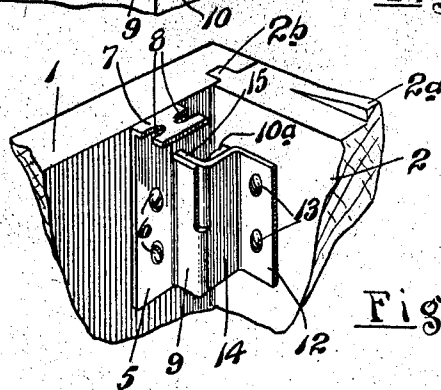


Fig. 3.

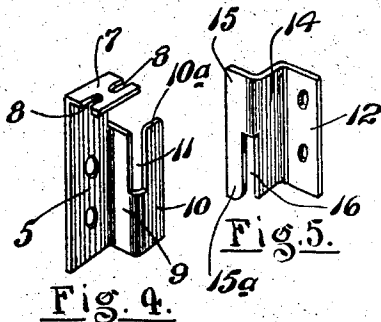


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES A. RICHARDS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO THE GUNN FURNITURE COMPANY, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

BOOKCASE CONSTRUCTION.

Application filed April 7, 1924. Serial No. 704,734.

To all whom it may concern:

Be it known that I, JAMES A. RICHARDS, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Bookcase Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to book cases and has particular reference to the connecting means used for attaching the top of a book case made substantially as outlined in my prior application for Patent Ser. No. 701,331, filed March 24, 1924, to the ends and the upper front and rear rails thereof. The present invention is in part a division of said application and in part an improvement thereover, means being used for the attachment of the top whereby said top may be readily attached and when in place serves to lock the parts together against separation. In addition the construction is such that no skilled labor is required for assembling the parts nor are any tools used, the construction being all made complete in the factory.

For an understanding of the invention, reference may be had to the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a fragmentary vertical section taken through the upper part of the book case and from front to rear therethrough.

Fig. 2 is a fragmentary perspective view of an inner upper corner of the book case showing the connection of an end, the top, and the upper front rail.

Fig. 3 is a like view, the top being removed.

Fig. 4 is a perspective view of the connecting device attached to and carried by the ends of the book case, and

Fig. 5 is a like view of the coacting connecting device attached to and carried by the front and rear upper rails of the book case.

Like reference characters refer to like parts in the different figures of the drawing.

The book case includes ends 1 spaced apart, with which are associated front and rear upper rails 2 and 3 and a top 4 for

covering the upper open end of the case. The front rail 2 at its upper edge is formed with an upwardly projecting rib 2^a which is adapted to enter a groove 4^a in the lower side and adjacent the front edge of the top 4, said groove being considerably wider than the thickness of the rib for a purpose which will later appear.

On the inner side of each end member 1 and adjacent both its front and rear edges, a member made from a single piece of sheet metal is secured. Said member comprises a plate 5 which lies against the inner side of the end member 1 and is secured thereto by screws 6. At its upper end it is bent inwardly at right angles, making a section 7, the upper side of which lies flush with the upper edge of the end member 1, and which is provided in its front and rear edges with slots 8, as shown. From a vertical edge of the plate 5 a section 9 is turned inwardly at right angles for a short distance and then again turned at right angles making a section 10 which is spaced from the end member 1 but parallels the same. The sections 9 and 10 are of less height than the section 5 and at the corner at the junction of said sections, a slot 11 is cut downwardly from their upper edges substantially half of the vertical height thereof.

On the inner sides of both the front and back rails 2 and 3, a similar member made from a single piece of sheet metal is attached adjacent each end of each rail. Each of said members includes a plate 12 which lies against the inner side of each rail 2 or 3 and is secured thereto by screws 13. A section 14 is bent at right angles inwardly for a short distance from the edge of the plate 12 and is then again bent at right angles to make a section 15, the corner between sections 14 and 15 being slotted upwardly, as at 16, for substantially half of the vertical height of the said sections. By making the slots 11 and 16 in said members, fingers 10^a and 15^a are provided, the former extending upwardly from section 10 and the latter downwardly from section 15.

In assembling the end members 1 and the front and rear upper rails 2 and 3, said rails at their ends are guided into suitable slots at the inner sides of the end members, there being suitable tongues, as shown at 2^b in Fig. 3, on the ends of the rails to fit

said slots or grooves in the end members of the book case. With the assembly of these end members and front and rear rails, the sheet metal members interlock, fingers 10^a passing alongside of the upper portions of the sections 14 and fingers 15^a alongside the lower portions of the sections 9, the slots 11 and 16 permitting the ready interconnection of the said members, as is evident.

After the ends 1 and the upper rails 2 and 3 have been thus secured together, the top 4 is attached. The top is equipped on its under side with headed screws 17, four in number positioned one adjacent each corner of the top and is also provided at its rear edge with a number of turn buttons 18 which are secured in place by screws 19, permitting the buttons to be turned about the screws. In one position of the buttons, the same extend below the lower side of the top while if turned through a half circle from such position, no part of the buttons extends below such lower side of the top. With the buttons turned to the latter position, the top may be placed so that its groove 4^a receives the tongue 2^a, the top being located as far forward as possible and as permitted by the wide groove 4^a and the narrower tongue 2^a so that the heads of the screws come in front of the parts 7 with the shanks of the screws in alinement with the front slots 8 in said parts 7. Then by moving the top to the rear, the shanks of the screws 17 enter said slots 8 with the heads below the sections 7, which prevents upward movement of the top. When moved to the rear until the tongue 2^a engages against the front side of the groove 4^a, the rear edge of the top comes flush with the rear side of the back rail 3, whereupon the turn buttons 18 are turned downwardly to the position shown in Fig. 1, thereby locking the top from movement in a forward direction and holding the screws 17 secured to the top in engagement with the parts 7 so that the top is securely locked against disengagement from the remainder of the book case. For removal of the top, it is only necessary to turn the buttons upwardly so that the top may be freed for forward movement to disengage the screws 17 from the parts 7. No tools of any character are required in either the assembly or the disassembly of the structure.

The construction described is simple, relatively inexpensive and practical in all respects. The top is not liable to become accidentally disengaged as the buttons 18 are located at the back of the book case which, in practice, is nearly always against a wall or partition in a building where it cannot be readily reached for operation without designedly moving the book case outward. So that to all practical intents and purposes, in use, the book case is a permanent struc-

ture. The appended claims define the invention which is to be considered as comprehensive of all forms of structure coming within their scope.

I claim:

1. In a book case construction, end members, front and rear upper rails located horizontally between the end members, interengaging connecting devices attached to the said rails and end members, said devices connected to the end members having horizontally located upper sections having upper sides in the same plane with the upper edges of the said end members, said upper sections being slotted, a top over the said end members and rails, and headed members attached to and depending from the under side of the top, the shanks thereof being received in said slots in said upper sections of said devices, substantially as and for the purposes described.

2. In a book case construction, vertical end members, front and rear upper cross rails between the end members, one of the rails having an upwardly projecting tongue, interengaging devices permanently secured to the end members and to the said cross rails for connecting the said end members and cross rails together, said devices attached to the end members being formed with horizontally located upper sections slotted in one side, a top located over the end members and cross rails formed on its under side with a groove wider than said tongue adapted to receive said tongue, headed screws connected with and depending from the top and located in position to engage with said upper horizontal sections on bodily movement of the top in one direction whereby the shanks of said screws will enter the slots in said upper horizontal sections, the groove in the top being wide enough to permit said movement, and means on the top to engage with the other of said rails to hold the top from movement in the opposite direction to thereby disengage said screws from said sections of said devices.

3. In a book case construction, a vertical end member, a metal device attached to the inner side of and adjacent each vertical edge of said end member, each of said devices having a section at its upper end turned to lie in a substantially horizontal plane, said sections being slotted from one edge inwardly for a distance, upper front and rear rails having ends bearing against the end member, metal devices connected to said rails adjacent the ends thereof, means formed on said devices on the end member and on the rails for detachably connecting the same together, and a top lying over the end member and rails provided with means engaging in said slots in said upper horizontal sections to hold the top against upward movement with respect to said sections.

4. In a book case construction, vertical end members, upper front and rear cross rails between the end members and connected thereto, a top provided with a plurality of
5 headed screws depending therefrom at its under side, metal members attached to said end members having horizontal slotted sections at their upper ends, said top being secured thereto by moving the same bodily
10 in a horizontal plane in one direction to enter the shanks of the screws in said slots of said horizontal sections, and means to hold the top from bodily movement in a horizontal plane in the opposite direction, said means
15 being releasable to permit such movement.

5. In a book case construction, vertical end members, front and rear upper horizontal rails between the end members, means for connecting the rails detachably to said end
20 members, one of said rails having an upwardly projecting tongue, a top located over the rails and end members and having a groove to receive the tongue, said groove being wider than the thickness of the tongue
25 whereby said top may have a limited movement back and forth in a horizontal plane, and interengaging means on the top and end members, said means engaging and connecting the top and end members when the
30 top is moved in one direction in a horizontal

plane, and disengaging and freeing the top when moved in the opposite direction.

6. In a book case construction, vertical ends, upper front and rear horizontal rails between the ends and connected thereto, a
35 flat top, one of said rails having an upstanding tongue and the top having a groove in its under side wider than the thickness of the tongue to receive said tongue and permitting
40 a limited forward and back movement of the top in a horizontal plane, a metal member attached to each end on its inner side and adjacent both its vertical edges, said member having a horizontally turned section at its
45 upper end slotted in one edge, headed members connected with and depending from the under side of the top, the shanks of said members being located to enter said slots on
horizontal movement of the top in one direction, and turn buttons mounted at the edge
50 of the top opposite that adjacent which the groove is located adapted to be turned to engage with the other of said rails to hold the top from said horizontal movement after
said headed members have engaged with the
55 horizontally turned sections of said metal members.

In testimony whereof I affix my signature.

JAMES A. RICHARDS.