

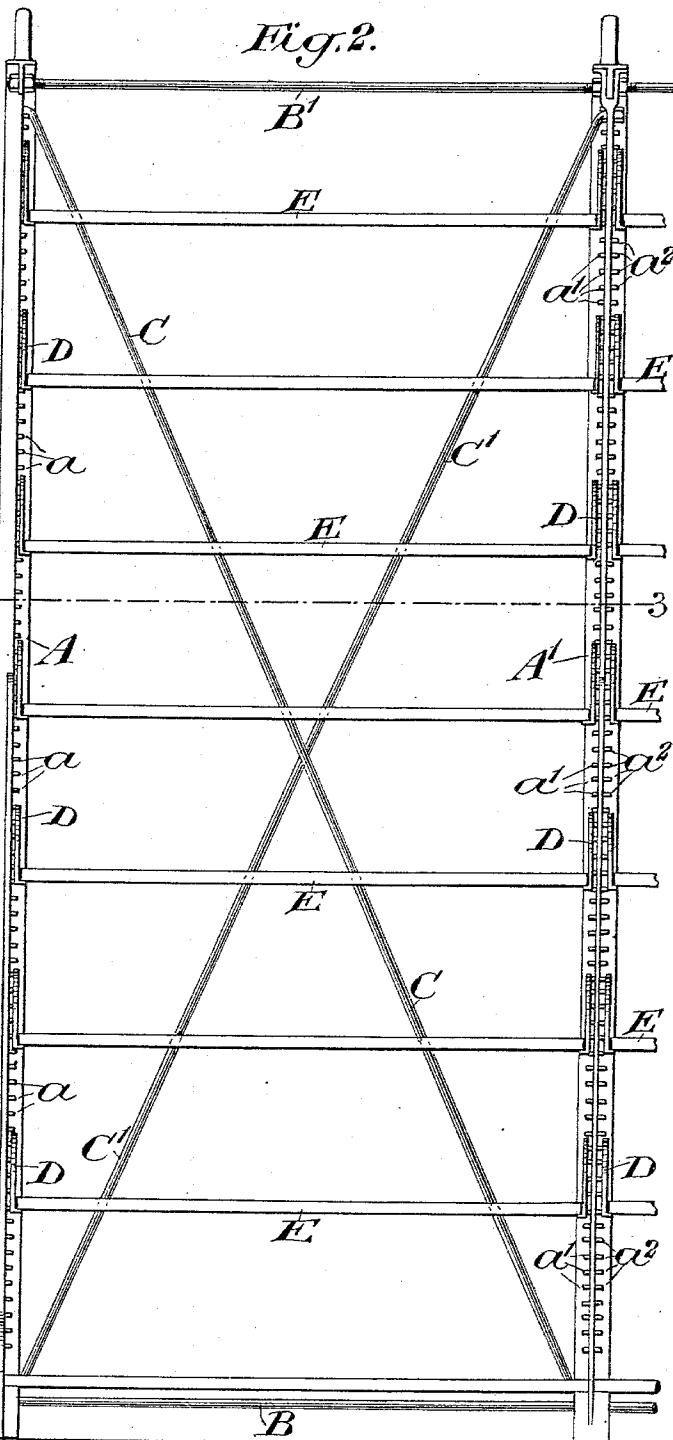
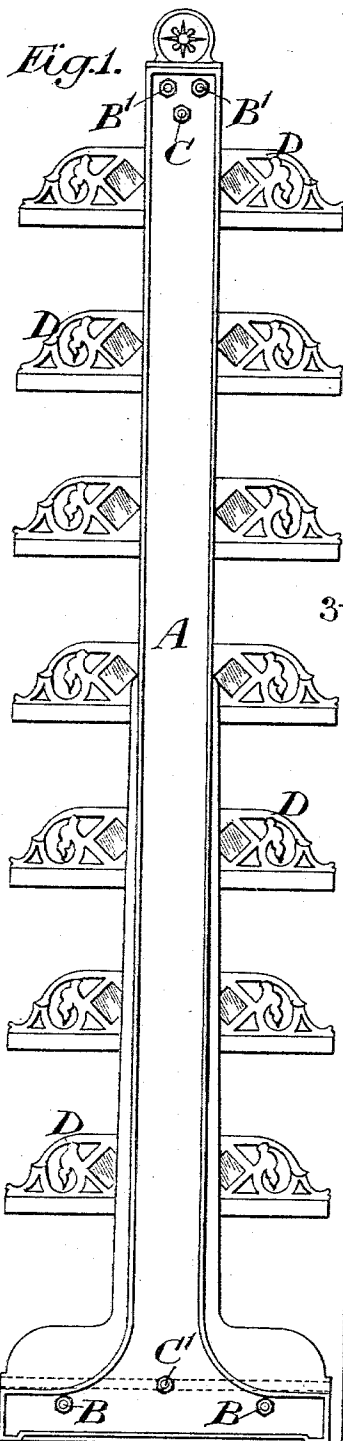
(No Model.)

2 Sheets—Sheet 1.

C. W. TROWBRIDGE.
BOOK STACK.

No. 565,189.

Patented Aug. 4, 1896.



Witnesses:-
George Barry Jr.,
W. S. Sward

Inventor:-
Charles W. Trowbridge
by attorneys
Brown & Herald

(No Model.)

2 Sheets—Sheet 2.

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Fig.3. *E*

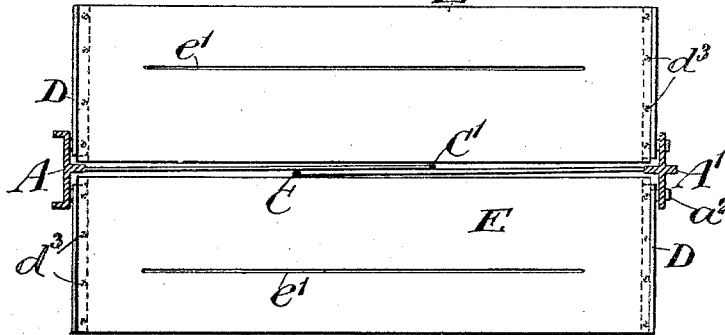


Fig.4.

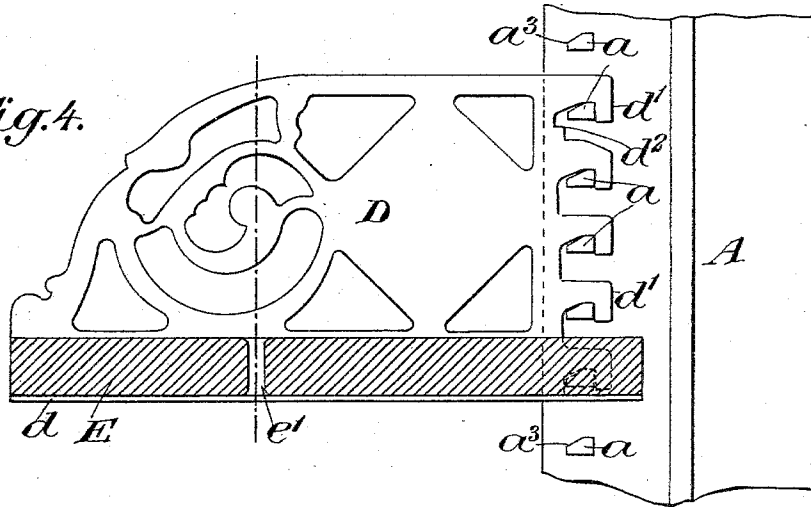
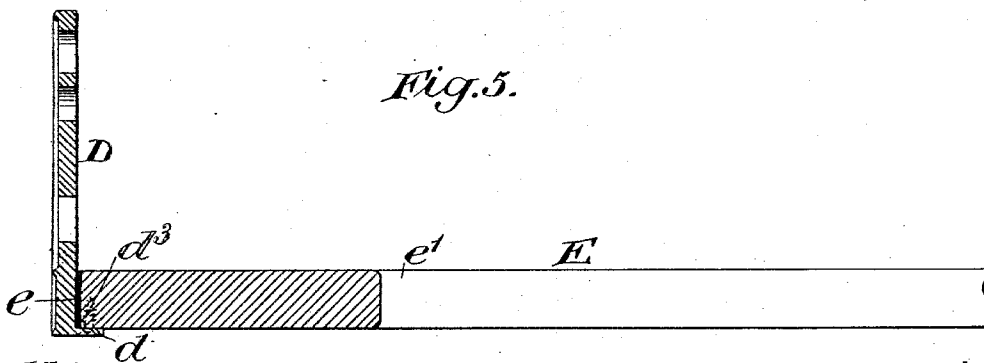


Fig.5.



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UNITED STATES PATENT OFFICE.

CHARLES W. TROWBRIDGE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE
SNEAD & CO. IRON WORKS, OF LOUISVILLE, KENTUCKY.

BOOK-STACK.

SPECIFICATION forming part of Letters Patent No. 565,189, dated August 4, 1896.

Application filed January 25, 1896. Serial No. 576,806. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. TROWBRIDGE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Book-Stacks, of which the following is a specification.

My invention relates to an improvement in book-stacks in which provision is made for supporting one or more banks of shelves in such a manner that the individual members of the bank may be adjusted vertically with great facility.

In the accompanying drawings, Figure 1 represents an end view of a double bank of shelves. Fig. 2 represents a front view of the same, showing the structure adopted when it is desired to continue the banks in a series. Fig. 3 is a horizontal section along the line 3 3 of Fig. 2. Fig. 4 is an enlarged view in detail, showing the shelf in section and the bracket and post in elevation at the inner side; and Fig. 5 is an enlarged view in detail in vertical section, taken along the line 5 5 of Fig. 4.

The posts which form the supports for the shelf-sustaining brackets are denoted by A A', the post A being represented as at the end of a series of banks, while the post A' is represented as an intermediate post in a series of banks of shelves. In case a single or double bank of shelves is required, a post similar to the post A would be placed in the position of the post A', and it is to be understood that where a series of banks of shelves are employed the opposite end post of the series shall correspond to the post A.

The post A is provided along its inner side with a series of lugs a , placed at such a distance apart as to correspond to the smallest distance which it is desired to adjust the shelves vertically.

In the form which I have herein presented, where the double bank of shelves is provided for, the post A is provided with the two series of lugs a upon opposite sides of its vertical axis for receiving shelf-supporting brackets, extending in opposite directions from the post.

The post intermediate of two consecutive banks which together make up a series, such, for example, as a post A', is provided with

lugs a' , arranged in vertical series upon the side of the post toward the post A and corresponding to the series of lugs a on the post A, and it is further provided on its opposite side with corresponding series of lugs a^2 for the reception of brackets for sustaining the ends of the shelves which compose the next adjacent bank of the series. The posts are connected at their base and at certain desired intervals above their base, in the present instance at their upper ends, by tie-rods, (represented by B and B',) and they are further connected by cross-rods C and C', which extend respectively from the top of one post diagonally to the foot of the next adjacent post and in a vertical plane through the vertical axis of the post and intermediate of the banks of shelves which compose the double bank provided for between each two consecutive posts.

The brackets which sustain the shelves are quite similar in their structure and are preferably made skeleton for the sake of lightness, and at their rear ends are provided with hooks for engaging the lugs a a' , &c., to hold the bracket in proper position to receive the shelf.

A particular description of one of the brackets will serve for all. The body of the bracket is denoted by D. At its lower edge it is provided with an inwardly-projecting flange d , on which the end of the shelf E may rest. At its rear end the bracket is provided with a series of hooks d' , two or more, in the present instance five, spaced apart a distance corresponding to the distance between the lugs a a' , &c., on the inner faces of the post. The lugs a a' , &c., are preferably beveled at their front upper edges, as shown at a^3 , (see Fig. 4,) and the rearwardly-projecting hooks d' on the brackets have their inner faces fitted to receive the lugs within their bights when the bracket is adjusted. An upper hook d' is further provided with a stop d^2 , which chokes to some extent the bight of the hook, so that while the bracket may be removed from the lugs a by a direct upward lift at its rear edge or at or to the rear of the line of its center of gravity, it is not subject to displacement by a tilting movement which, the moment the front edge of the bracket

is elevated, would tend to bring the stop d^2 into engagement with the under front edge of the lug a and thereby prevent the displacement of the bracket. This provision
5 avoids unintentional disturbance of the shelves by lifting action upon the front edges, while permitting their ready removal by intentional lift at the proper point.

The bevel a^3 at the front upper edges of
10 the lugs a serves a double function in that it permits the ready adjustment of the bracket onto the lugs by permitting the lower ends of its hooks d' to slide upwardly and rearwardly over the lugs into position to drop down onto
15 them, and also prevents the bracket from tilting downwardly when adjusted, even though there be more or less play between the lug and the rear end of the bracket.

The shelf E , which I have represented as
20 suitable for use in connection with the sustaining-brackets, may be of any light material adapted for the purpose, wood being preferred. The ends of the shelf may be provided with metallic strips e to form a finish
25 and prevent wear, if so desired, although such provision is not necessary. The shelf is preferably provided with a slit e' for the reception of an adjustable stop of any well-known or approved form—such, for example, as that
30 shown and described in Letters Patent No. 436,704, granted to Bernard R. Green September 16, 1890. The ends of the shelf are secured to the brackets by screws d^3 or other
35 suitable fastenings extending through into the ends of the shelf from the supporting-flanges d .

As thus constructed the shelf and its end brackets become a firmly-assembled struc-

ture, capable of being handled bodily and adjusted at any desired height along the supporting-posts $A A'$. The structure as a whole, because of the tie-rods, brace-rods, and the distribution of the weight of the banks of shelves upon opposite sides of the vertical axis of the post, when double banks of shelves
45 are employed, is a very stable and economical structure, and very convenient, as well as light and attractive.

What I claim is—

1. A book-stack, comprising supporting-
50 posts provided with series of lugs on their inner adjacent faces, brackets provided with rearwardly-projecting hooks adapted to engage said lugs, an upper hook upon the bracket being provided with a stop to prevent the upward tilting of the bracket when
55 the latter has been adjusted upon the lugs and the shelf fitted to the brackets, substantially as set forth.

2. A book-stack, comprising supporting-
60 posts, cross-rods connecting the upper portion of each post with the lower portion of an adjacent post and centrally located with respect to the posts, the said posts being provided on their inner faces with series of lugs
65 upon opposite sides of the plane of the cross-rods, brackets provided with rearwardly-extending hooks adapted to engage said lugs to lock the brackets in removable adjustment and shelves having their ends secured to the
70 brackets, substantially as set forth.

CHAS. W. TROWBRIDGE.

Witnesses:

CHAS. J. HUXLEY,
W. W. CRAWFORD.