

(No Model.)

J. DANNER.
BOOK SHELF.

No. 353,443.

Patented Nov. 30, 1886.

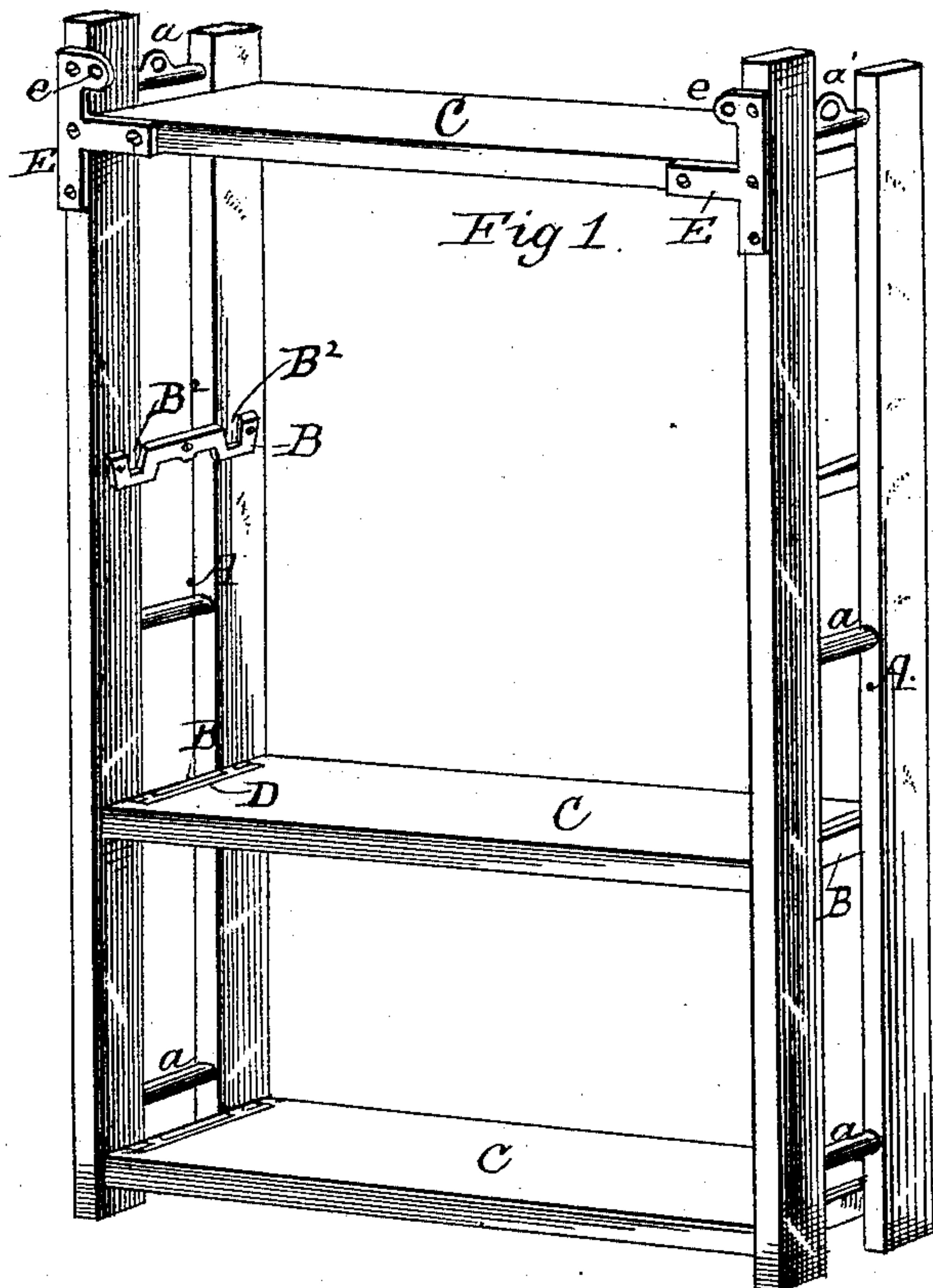


Fig. 2.

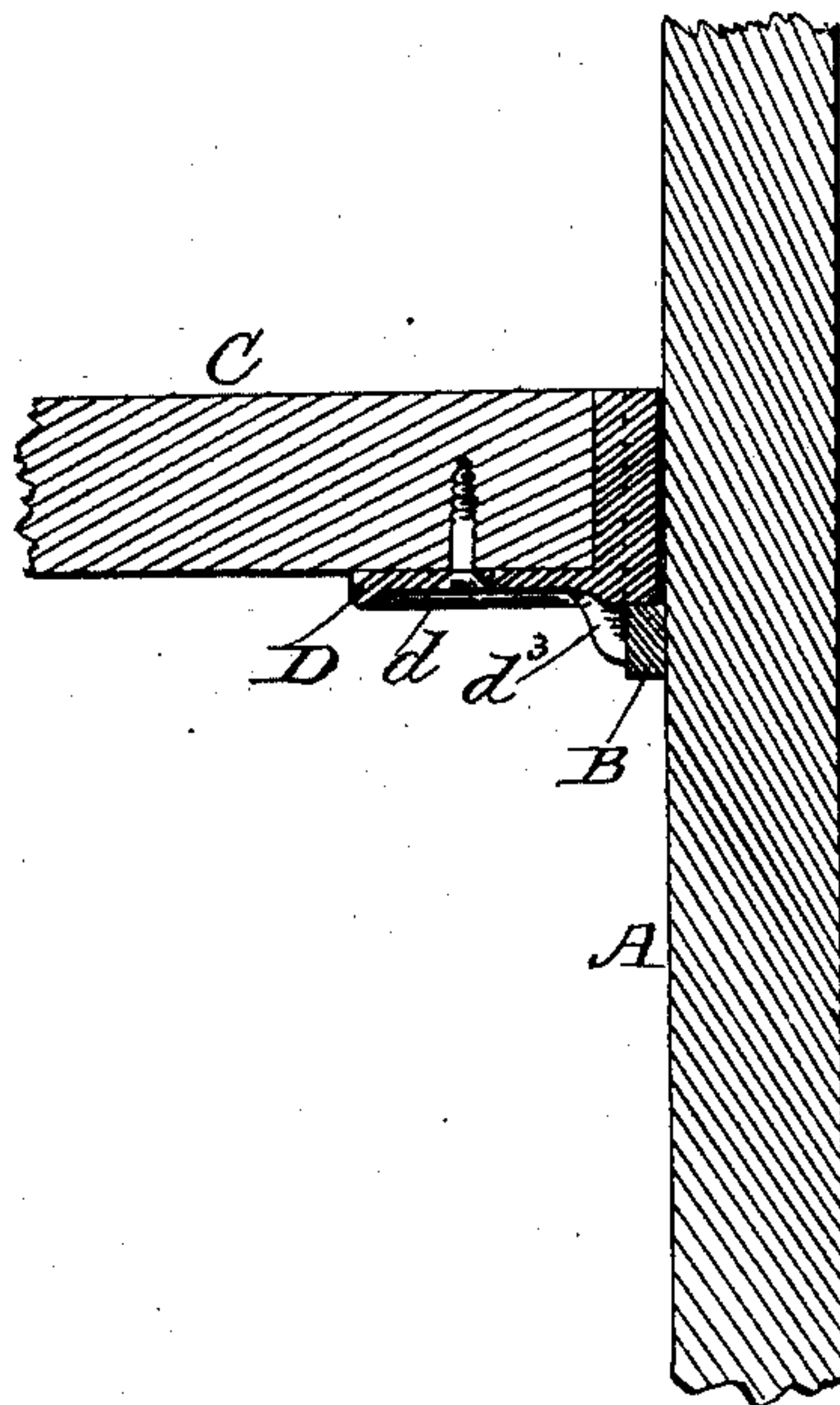


Fig. 3.

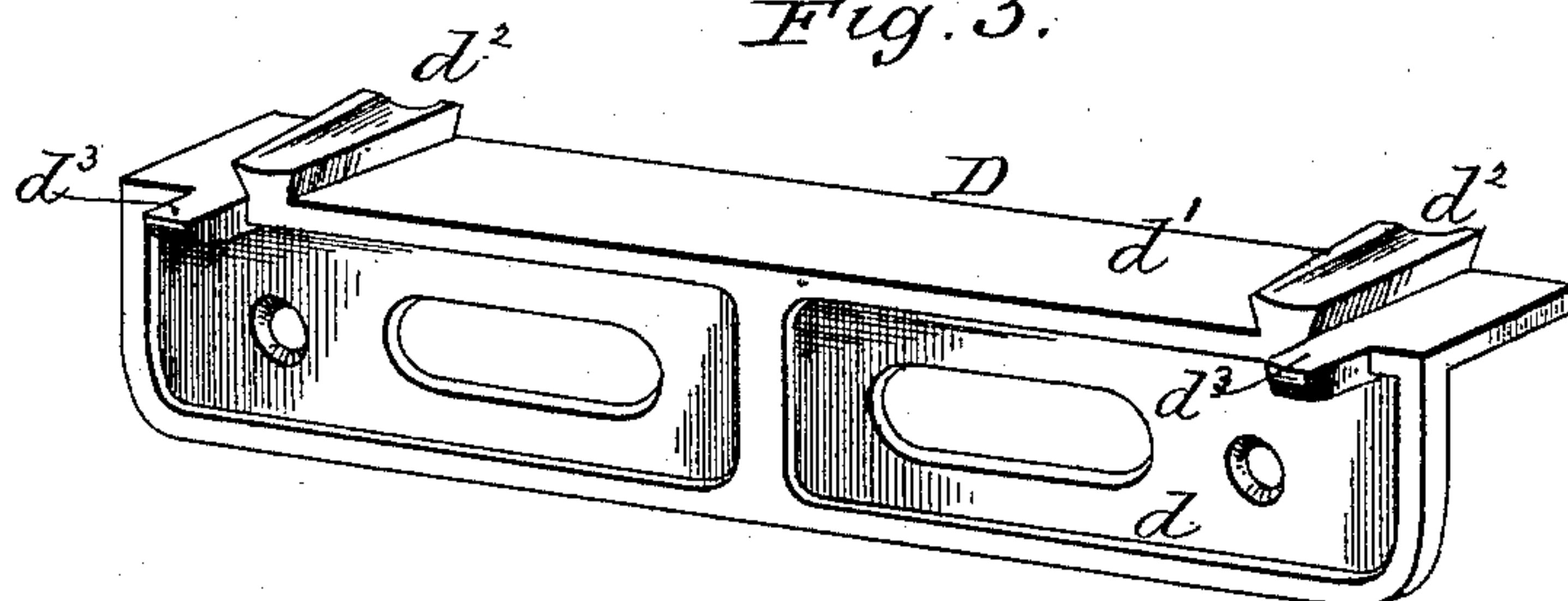
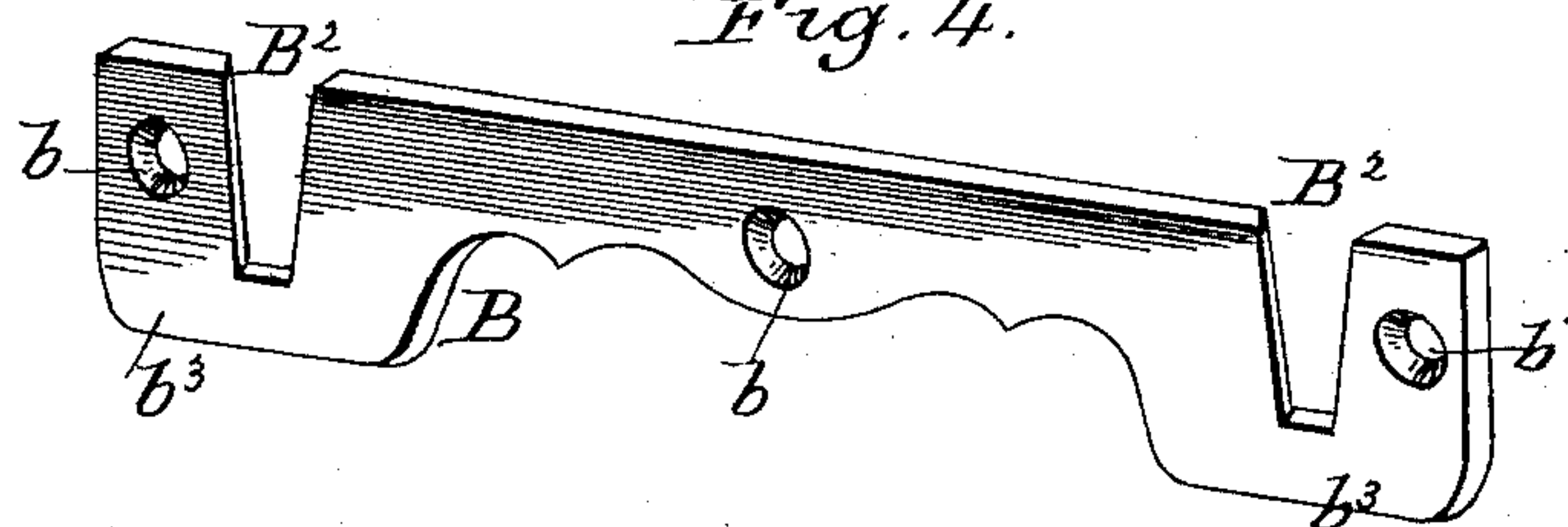


Fig. 4.



Witnesses
L. C. Still
W. Masson

Inventor:
John Danner
by E. E. Masson
att'y.

UNITED STATES PATENT OFFICE.

JOHN DANNER, OF CANTON, OHIO.

BOOK-SHELF.

SPECIFICATION forming part of Letters Patent No. 353,443, dated November 30, 1886.

Application filed May 1, 1884. Serial No. 129,953. (No model.)

To all whom it may concern:

Be it known that I, JOHN DANNER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Book-Shelves, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a rear perspective view of a stand of shelves with one of the shelves removed to clearly show one of the brackets or shelves fastener-receivers secured to the standards or end supports. Fig. 2 is a vertical section through a portion of one of the shelves, standard and fastenings uniting them together. Fig. 3 is a perspective view showing the under side of one of the metal fasteners to be attached to the ends of the shelves. Fig. 4 is a perspective view of one of the brackets shown secured to the standards in Fig. 1.

My invention relates to stands for books and other objects in which the shelves can be easily taken apart and put up again, or shipped in the "knockdown" style.

Heretofore in book-stands of this nature the difficulty has been to give them sufficient stability and prevent them from rocking in the joints when subjected to the least side pressure. Long dovetailed fastenings placed one above the other have been used to unite the sides to the ends of bedsteads and stability obtained, as the fastenings could be placed at a distance of four to eight inches, one above the other; but as it is desirable that shelves should be from three-eighths to three-quarters of an inch only in thickness, so as not to appear clumsy, fastenings of peculiar constructions are required, the nature of which will be hereinafter described, and the novel features specifically set forth in the claim.

In the drawings, A represents the standards or end supports for the shelves. To the inner side of these standards are secured as brackets the metal plates B by means of screws passing through the perforations *b* therein. Adjoining the ends of these plates V-shaped grooves *B*² are formed in their upper edge, and made to extend down a distance at least equal to the thickness of the shelves intended to be united to the standards. The sides of the V-shaped grooves are also beveled or dovetailed in such

a manner that said grooves are wider on the side intended to rest against the standards than on the opposite side. To strengthen the ends of the shelves C, prevent them from splitting lengthwise under non-uniformly distributed loads, and securely unite them to the side brackets, each end of the shelves is provided with an angular plate, D, one side, *d*, of which is secured by screws to the under side of the shelf, while the side *d'* rests against the end of the shelf, preferably in a recess made for its reception. This side *d'* has two angular projecting tongues, *d*², corresponding in size and location thereon with the grooves *B*² of the brackets B. These projections *d*² are of dovetail form lengthwise and crosswise, and slightly dovetailed also in regard to their thickness, so as to produce a firm and rigid connection with the brackets B when inserted therein.

To guard against any rocking or looseness of the parts, the length of the bearing-surfaces should be as great as possible without interfering with the capacity of the shelves. To accomplish this there is projecting from the under side of the plate D, and in the same vertical plane with the side *d'*, lugs *d*³, to bear against the lowermost portion, *b*³, of the plate or bracket B, and thus a rigid connection of the parts is obtained, although they can be disunited in an instant by lifting or applying a light blow to the under side of the shelves. If the stand of shelves is of large size, casters may be secured to the lower end of the standards, to facilitate the moving of the whole when loaded.

The standards are preferably made of strips, united by metal connecting-pieces *a*. The latter have their ends barbed, so that after once being driven into the holes made for their reception in the sides of the strips, the latter are rigidly and permanently united.

The uppermost connecting-pieces, *a'*, are provided with an eye to receive a cord or wire, by which the shelves may be suspended. To add to the stability of the shelves and prevent their lateral swaying, one (or more) of the shelves, but preferably the upper one, is rigidly united to the side strips, A, by means of T-shaped braces or castings E, having one member fastened to the standard A and the other to the shelf. One of the members of the brace E is provided with an eye, *e*, into which

a screw may be inserted and driven into a wall to either suspend the shelves or retain them against said wall.

5 The brackets B have been shown and described as provided with angular grooves B², and the angular plates D with dovetailed projecting tongues d²; but this order may be reversed, and the grooves be made in the plate D, while the projecting tongue may be formed on
10 the brackets B, and the same results will be attained.

I am aware that shelves have been secured to their end supports by means of angular plates secured thereto, and provided with a
15 dovetailed tongue entering a vertical dovetailed groove in said supports, and clamped thereto in any desired position by thumb-screws projecting therefrom, and that what-nots have been provided with shelves hinged
20 to the frame at one end, and retained by dove-

tailed fastenings at the other, and do not claim these constructions.

Having now fully described my invention, I claim—

Book-shelf supports consisting of rectangular standards A and plates B, having dovetailed grooves B² adjacent to the ends thereof, in combination with angular plates D, provided with two tongues dovetailed lengthwise and crosswise, and shelves secured thereto, whereby said shelves are supported at four
25 points, and the tilting thereof is prevented, substantially as described. 30

In testimony whereof I affix my signature in presence of two witnesses.

JOHN DANNER.

Witnesses:

E. E. MASSON,
L. C. HILLS.