

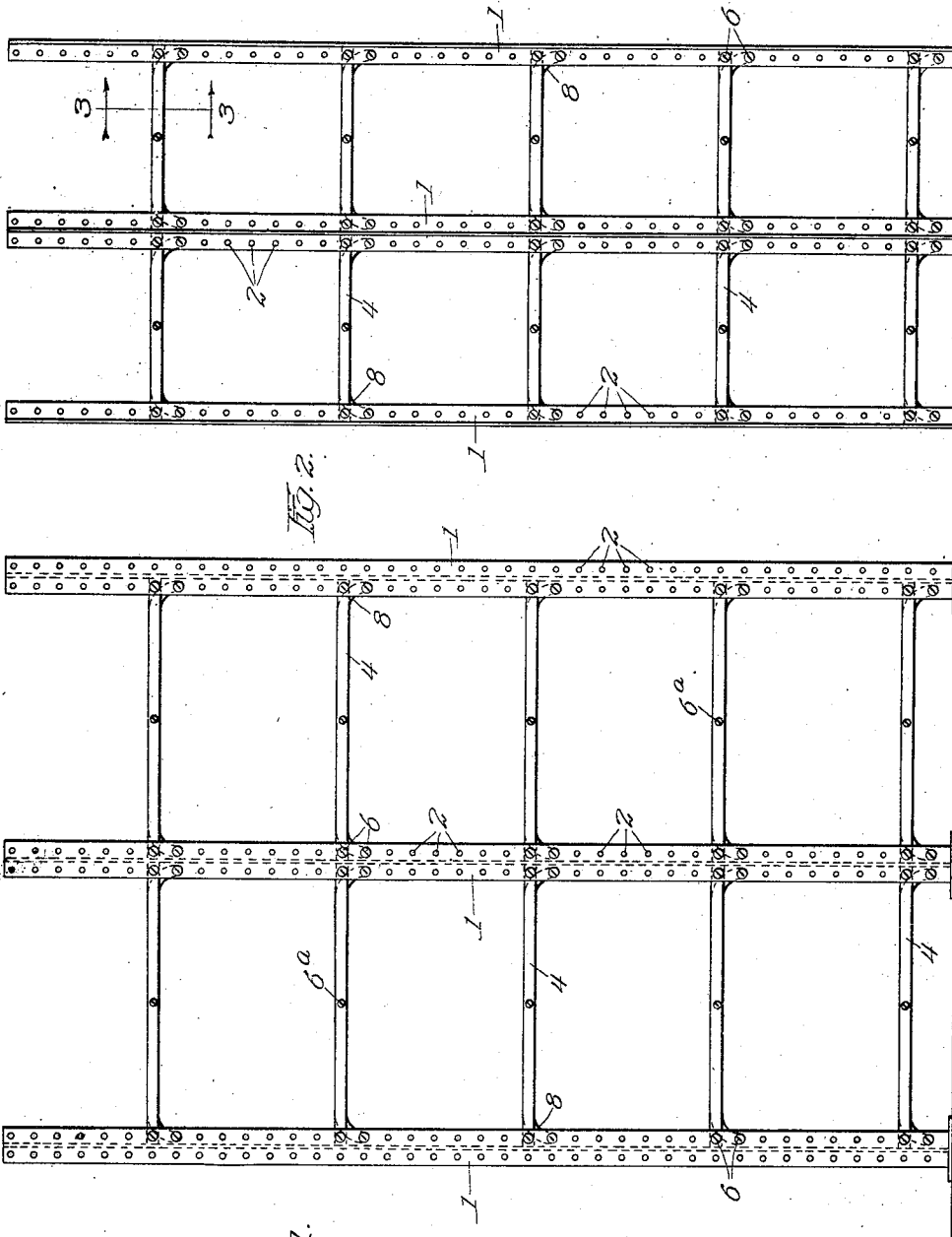
H. P. BEECHER.
SHELVING.

APPLICATION FILED DEC. 20, 1912.

1,062,759.

Patented May 27, 1913.

2 SHEETS—SHEET 1.



Witnesses:

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2 SHEETS-SHEET 2.

Fig. 3.

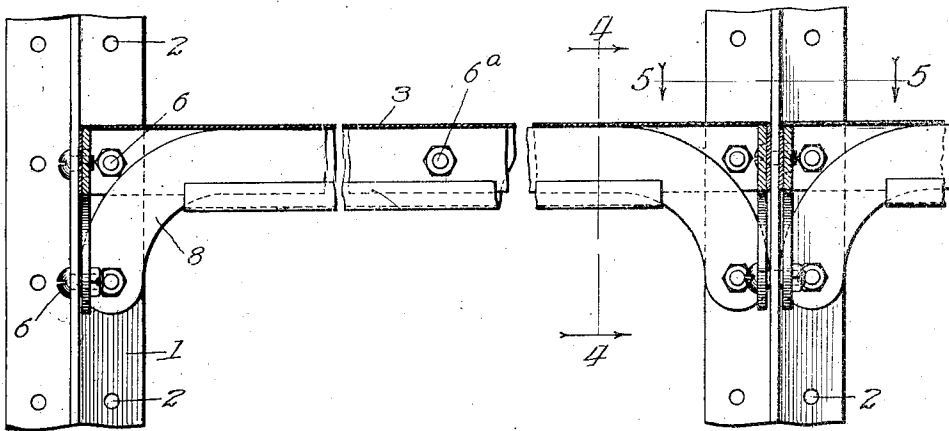


Fig. 4.

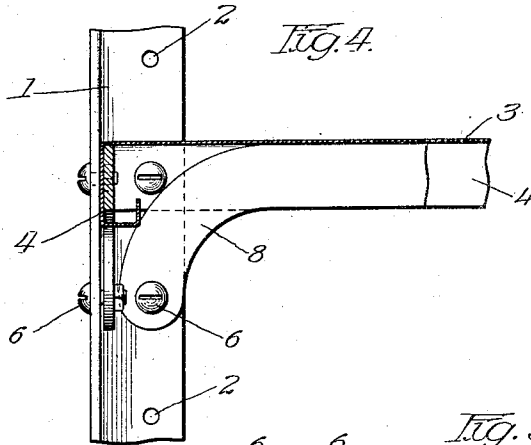
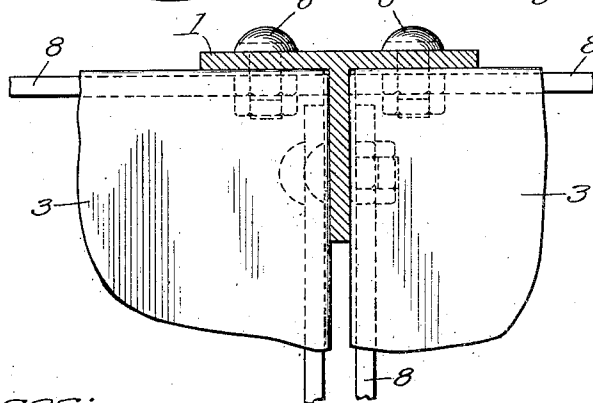


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SHELVING.

1,062,759.

Specification of Letters Patent.

Patented May 27, 1913.

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To all whom it may concern:

Be it known that I, HERBERT P. BEECHER, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented a certain new and useful Improvement in Shelving, of which the following is a specification.

My invention relates to shelving, more particularly metallic sectional shelving; and the object of the invention is to provide means whereby the shelving may acquire great stiffness and rigidity, be light in weight, interchangeable in all its parts, adjustable as to spacing and number of shelves, and at the same time be free from obstructing braces, tie rods, or the like.

I accomplish my object by the construction shown in the accompanying drawings in which:

Figure 1 is a front elevation of two sections of shelving embodying the invention. Fig. 2 is an end elevation of two banks of shelves arranged back to back. Fig. 3 is a sectional elevation taken on the line 3—3 Fig. 2. Fig. 4 is a sectional elevation taken on the line 4—4 Fig. 3, and Fig. 5 is a plan section taken on the line 5—5 Fig. 5.

Similar numerals refer to similar parts throughout the several views.

The uprights 1 consist of flanged bars having usually a T shaped cross section as best shown in Fig. 5, although at the end of the shelving L shaped angle bars may be employed. Each flange of the uprights has a vertical row of apertures 2 spaced equidistantly.

In the preferred form the shelves 3 have depending flanges 4 on all four edges, said flanges serving several functions; for example they stiffen the shelves themselves and impart a finished appearance thereto and also afford an appreciable surface against which the flanges of the uprights may abut with the result of stiffening the structure as a whole. Another function of the shelf flanges is to afford means of attachment to the upright. For this purpose the flanges of the shelves are provided with apertures located in position to register with the apertures in the uprights when the parts are assembled. The parts in question are fastened together by stove bolts 6, or equivalent devices, as indicated.

Extending across from one upright to another are braces 8, made preferably from

band iron of suitable dimensions, for example, band iron one inch wide and one-eighth of an inch thick will be heavy enough for ordinary purposes. These may be described as forming flat arches, the greater portion of the brace being rectilinear and contacting the under surface of the shelf for the major portion of the length of the brace. At the ends, however, the braces curve downward far enough to enable the apertures in their ends to register with apertures in the uprights located below the point of attachment of the shelf to the uprights. The braces are fastened to the flanges of the uprights by stove bolts 6, or equivalent fastening devices. Each shelf is also fastened to the braces beneath it. In the preferred construction a stove bolt 6, or equivalent fastening means, passes horizontally through the brace and through the adjacent depending flange of the shelf, thus bringing the two parts in close and firm contact with each other.

As a result of my construction the shelving when assembled is peculiarly stiff and rigid in all directions. It is known that a triangle will not "wack" and it will be noted in my shelving there is the equivalent of a triangle at each end of each brace. One point of the triangle is where the brace is fastened to the flange of the shelf, the second point of the triangle is where the shelf attaches to the upright, and the third point is where the brace attaches to the upright. Each of these triangles contributes to the rigidity of the structure, and it is obvious that in the form of shelving here shown there will be eight of these triangles for each shelf. It will be noted, however, that with the form of brace which I employ there will be little, if any, obstruction either at the front or end of a section of shelving; for the brace hugs the underside of the shelf for the greater portion of the brace and therefore is not only out of the way but is invisible when the shelves are provided with depending marginal flanges as the preferred construction calls for. The curve at the end of the brace is practically without any weakening effect on the brace for the reason that the bend lies in the plane of the greatest dimension of the brace, that is, the curvature is not apparent in looking at the edge of the brace but only when looking at the side thereof. Another character-

istic which adds rigidity to the structure lies in the fact that the flanges at the end of the shelf bear tightly against the flanges of the upright, thus affording a substantial abutment for the upright. Again, the end of the brace is drawn tightly against the flange of the upright which also contributes to the rigidity. On the whole my construction is such that when the parts are assembled the resulting structure is perfectly firm and rigid and yet upon casual glance it appears to be without braces of any kind.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In shelving, the combination of an upright, a shelf, and a brace, the shelf being attached to the upright, the brace being attached to the upright at a point remote from the point of attachment of the shelf, and the brace being also attached to the shelf and being formed to contact the underside of the shelf for the major portion of the length of the brace.

2. In shelving, the combination of an upright having a vertical row of apertures, a shelf, and a brace, the shelf being attached to the upright at one of the apertures thereof, the brace being attached to the upright at a lower aperture thereof, and the brace being also attached to the shelf and being formed to lie tangent to the underside of the shelf for the major portion of the length of the brace.

3. Shelving comprising two uprights apertured at regular intervals, a shelf extending from one upright to the other and fastened to the uprights at one of the apertures therein, a brace fastened to the uprights at apertures below the point of attachment of the shelf to the uprights, and a depending flange on said shelf, said brace contacting said flange throughout the major portion of the length of the brace.

4. Shelving comprising two uprights aper-

tured at regular intervals, a shelf extending from one upright to the other and fastened to the uprights at one of the apertures therein, a brace fastened to the uprights at apertures below the point of attachment of the shelf to the uprights, and a depending flange on said shelf, said brace having the form of a long flat arch and contacting both the flange and the under surface of the shelf for the major portion of the length of the brace.

5. Sectional shelving comprising uprights having apertures spaced equidistantly, a shelf fastened to the uprights at one of the apertures therein, a depending flange on said shelf, and a brace having the form of a flat arch contacting the said flange and lying tangent to the shelf throughout the major portion of the length of the brace, the brace being curved downward at the ends and being fastened at the ends to the uprights at apertures therein below the point of attachment of the shelf to the upright.

6. Sectional shelving comprising a shelf having a depending flange along each edge, four uprights provided with equally spaced apertures arranged in a vertical row, said uprights consisting of flanged bars each abutting two different flanges of the shelf, fastening means passing through each flange of the uprights and the abutting flange of the shelf, and flat-arch braces contacting the underside of the shelf for the major portion of the length of the braces, said braces bending downward at the ends and lying flat against the inside of the flange of the uprights, and being fastened thereto at apertures below the point of attachment of the shelf to the upright.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

HERBERT P. BEECHER.

Witnesses:

ROY J. SOLFESBURG,

HELEN I. SOLFESBURG.