

J. B. O'CONNOR.
SHELVING.
APPLICATION FILED AUG. 11, 1915.

1,171,064.

Patented Feb. 8, 1916.

Fig. 1.

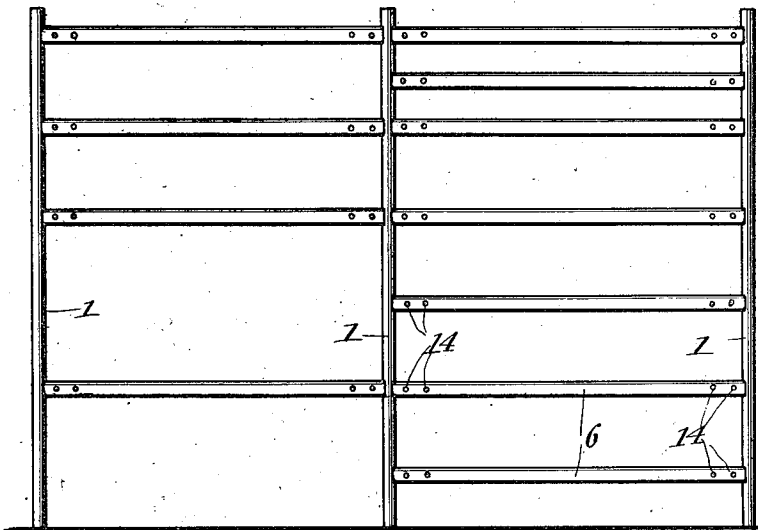


Fig. 2.

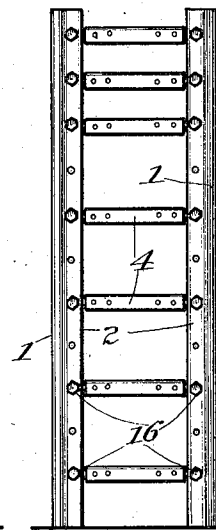


Fig. 3.

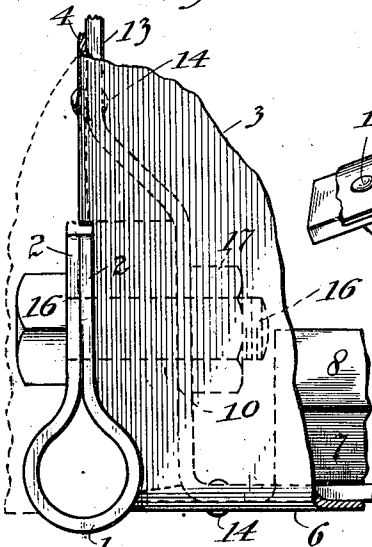


Fig. 4.

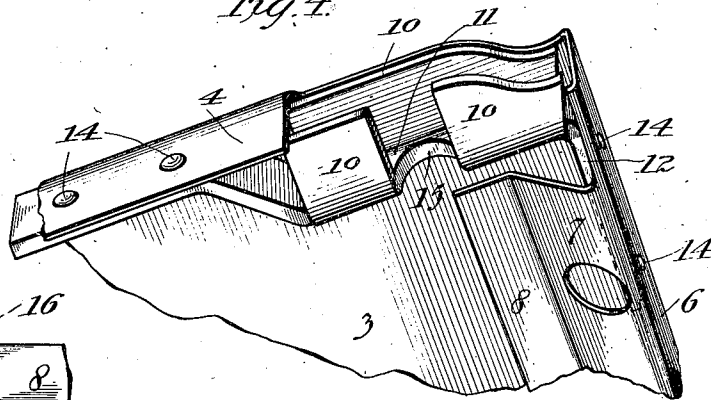


Fig. 5.

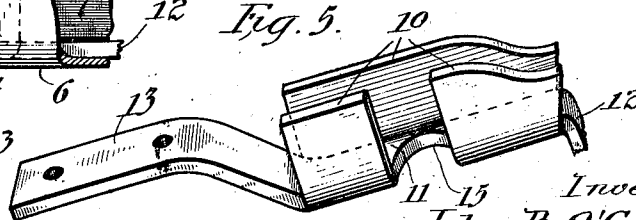
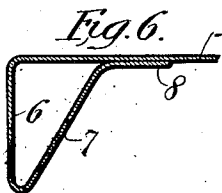


Fig. 6.



Inventor:
John B. O'Connor
by Cheever & Cox Attys.

UNITED STATES PATENT OFFICE.

JOHN B. O'CONNOR, OF AURORA, ILLINOIS, ASSIGNOR TO LYON METALLIC MANUFACTURING COMPANY, OF AURORA, ILLINOIS, A CORPORATION OF ILLINOIS.

SHELVING.

1,171,064.

Specification of Letters Patent.

Patented Feb. 8, 1916.

Application filed August 11, 1915. Serial No. 45,007.

To all whom it may concern:

Be it known that I, JOHN B. O'CONNOR, 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 and more particularly metallic shelving constructed in units or sections so that a group may be added to or subtracted from, as occasion may demand.

It will be understood by those familiar with the manufacture and use of shelving that among the great things to be desired is that the shelving shall be of minimum weight and at the same time of great rigidity and also of great flexibility in the sense that individual shelves may be easily removed, or adjusted to different positions or added, without disturbing other shelves in the sections and that sections may be added or removed without disturbing adjacent sections. It is also of great importance that the bracing means employed shall occupy as small compass as possible so as not to interfere with the capacity of the shelving and shall be as nearly as possible invisible when the shelving is viewed from the front.

The object of my invention is to produce shelving embodying special improvements in bracing means whereby these desirable characteristics may be developed to a maximum.

Contributory to this general object it is my purpose to provide a combined brace and binder, or, as it may well be termed, a "corner clip" which will serve the dual function of holding the shelf and the upright together and at the same time hold them with great rigidity in their proper relationship. My brace or corner clip is of special utility in connection with so-called skeleton shelving where the sections are separated not by complete partitions extending from the front to the back of the shelving but by posts or uprights located at the front and at the back of each section at the end thereof. It will be understood, however, that these uprights or, as they are frequently termed, "face strips," may be connected by sheets of metal forming a complete partition between adjacent sections. As a result of my invention, moreover, it is feasible to employ short bolts for holding the parts assembled in-

stead of tie rods extending from one upright to another.

I accomplish my objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of shelving embodying my improvements. Fig. 2 is an end elevation of the shelving shown in Fig. 1. Fig. 3 is a fragmentary plan view showing, upon increased scale, the improved corner clip and parts directly associated therewith. Fig. 4 is a perspective view looking at the clip obliquely from underneath, showing it attached to its shelf, the upright and bolt being omitted. Fig. 5 is a perspective view of the clip itself, a portion of one of the ends thereof being broken away. Fig. 6 is a fragmentary cross section showing the tubular integral flange running across the front and back of the shelf.

Similar numerals refer to similar parts throughout the several views.

The upright which I employ in the preferred combination of elements is clearly shown in Fig. 3. This upright has an approximately cylindrical portion 1 and two integral wings 2, 2 which come parallel and adjacent to each other and extend toward the interior of the shelving. The rounded portion comes at the face of the shelving and hence is frequently referred to as the "face strip." The shelves themselves, which are duplicates of each other, consist of comparatively thin sheet metal, the flat portion 3 forming the surface of the shelf. The ends of the shelves have depending integral flanges, best shown in Figs. 3 and 4 of the drawing. By preference these are cut off for a short distance near the front and near the back so as to clear the uprights or face strips. Along the front and rear edges of the shelves are tubular flanges which both stiffen the shelf and impart a finished appearance thereto. In the preferred design, here shown, these flanges are formed in a particular manner, as illustrated in Fig. 6, the face flange 6 being vertical and terminating in an upward bend 7 which extends obliquely toward the interior of the shelf and ends in a strip 8 which is horizontal and is spot welded or otherwise fastened to the under surface of the shelf. This makes a tubular or quasi box section and makes a most rigid shelf, which, at the same time, is

free from any separate bracing elements and offers practically no obstruction at the front and back of the shelf.

According to the preferred construction the end of the shelving closely fits the side of the upright and is brought so near to the front extremity thereof that it passes beyond the point of maximum width of the upright. In other words, the shelf follows the contour of the upright to a point considerably in front of the widest portion of the upright, and hence "grips" the upright, as it were, and produces a bracing action in two directions. To illustrate, if the two uprights at opposite ends of the shelf are held against moving away from the shelf, (as is the case when the shelves and uprights are assembled) the bulge or curvature of the upright prevents a rearward, as well as a frontward, movement of the shelf relatively to the upright. The forward flange 6 of the shelf contacts the upright throughout the entire height of the flange and hence prevents wracking; that is, it holds the shelf and the upright at right angles to each other so that the upright will remain vertical and the shelf horizontal.

The brace or "corner clip" is of special construction, having two legs 10, 10, which bear against the side of the upright at two points remote from each other. The uppermost point is adjacent to the under surface of the shelf while the lowermost point is an inch or so lower down, being usually about the level of the lower edge of the end flange 4 of the shelf. These legs 10 are connected by a cross portion 11, with the result that the central part of the clip is channel-shaped, the legs 10 forming the flanges of the channel. For convenience I will refer to the cross portion 11 as the "back" of the clip. This back is extended in both directions, one of the extensions 12 being bent at right angles and contacting the inside surface of the flange 6 of the shelf. The other extension 13 bends into the plane of the end flange 4 of the shelf and contacts the inner surface thereof. These extensions 12 and 13 are secured respectively to the flanges 6 and 4 of the shelf, preferably by means of rivets 14. The clip is notched out at the point 15 near the center of the channel portion to receive the bolt 16 by which the parts are held assembled. When the nut 17 which contacts the back of the clip is drawn tight, the legs of the clip are drawn firmly against the upright member at two points of elevation thereon, thereby offering the maximum resistance to lateral movement. In the preferred construction the legs of the clip also project in front of the point of maximum width of the upright, thus supplementing the bracing action produced by the shelf at this point.

As a result of this construction and rela-

tive position of parts a single shelf may be removed or replaced at any time without disturbing any of the rest of the shelving or an entire section may be replaced or removed. To remove a shelf the only thing necessary is to back off the nuts from the bolts 16, whereupon the shelf may be lifted out, as the notches 11 are open at the bottom. When the parts are assembled and the bolts tightened the construction will be most rigid in every direction and yet the gage of metal, particularly of the shelf, may be unusually light. The tubular construction of the marginal flanges of the shelves, the channeled construction of the corner clips, and the extension of the shelf and clip to a point in front of the maximum width of the upright, all contribute to the production of an extremely rigid construction and yet the parts in themselves are of simple construction and they are few in number, for, except for the bolts, the only parts entering into the combination are the shelves, the uprights and the clips. Under ordinary circumstances the clips are furnished riveted to the shelves, and therefore, are in a certain sense a part thereof. Where shelves extend in both directions from any given upright the only change required is to employ a longer bolt and in such case a single bolt will serve to hold both shelves to the upright.

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 corner clip fastened to said shelf, said clip having legs adapted to contact the inner surface of the upright at two different elevations, and means for holding said clip in close contact with the upright.

2. In shelving, the combination of an upright, a shelf having a depending flange at the end, and a depending flange along the front, the end flange being cut away to clear the upright, and a corner clip having extensions fastened to the flanges of the shelf, and having legs abutting the inner surface of the upright at two points vertically remote from each other, and means for holding said legs in close contact with said upright.

3. In shelving, the combination of an upright, a metallic shelf having an integral depending flange at the end, a channel-shaped corner clip arranged horizontally with the ends of its flanges in contact with the side of the upright, and an extension integral with said clip at the base of the channel thereof, said extension dropping to the plane of the end flange and fastened thereto, and means passing through the upright and through the channeled portion of the clip for removably holding the clip in position against the upright.

4. In shelving, the combination of an upright, a sheet metal shelf having an integral depending flange at the end and an integral depending flange along the front, a horizontal channel-shaped corner clip having its flanges in contact with the vertical surface of the upright at points vertically remote from each other, an extension integral with the back of the clip rigidly fastened to the end flange of the shelf, and another extension, integral with the back of the clip, rigidly fastened to the front flange of the shelf, and means passing through the upright and through the channeled portion of the clip for removably holding the clip in position against the upright.

5. In shelving, the combination of an upright, a sheet metal shelf having an integral depending flange at the end and an integral depending flange along the front, a horizontal channel-shaped corner clip having its flanges in contact with the vertical surface of the upright at points vertically remote from each other, an extension integral with the back of the clip rigidly fastened to the end flange of the shelf, and another extension, integral with the back of the clip, rigidly fastened to the front flange of the shelf, the channeled portion of the clip having a notch therein and a bolt passing through the upright and through the notched portion of the clip for removably holding the clip in place, said notch being open at the bottom whereby, when the bolt is loosened, the shelf may be lifted off.

6. In shelving, the combination of an upright consisting of an approximately cylindrical portion, and parallel integral wings extending backward from said cylindrical portion in close proximity to each other, a shelf, and a clip rigidly fastened to said shelf, said clip contacting the side surface

of the upright and contacting the same both behind and in front of the point of maximum width of the upright.

7. In shelving, the combination of an upright consisting of an approximately cylindrical portion and parallel integral wings extending backward from said cylindrical portion in close proximity to each other, a metallic shelf having an integral depending flange at the end cut away to clear the upright, and an integral depending flange extending along the front, a channel-shaped corner clip arranged horizontally with the ends of its flanges in contact with the side of the upright at points vertically remote from each other, an extension integral with said clip at the base of the channel thereof, said extension dropping to the plane of the end flange and being fastened thereto; a second extension arranged parallel to and in contact with the flange at the front of the shelf, and means for removably holding said clip in contact with the upright, the shelf and the clip abutting the upright both behind and in front of the point of maximum width of the upright.

8. In shelving, the combination of an upright and a sheet metal shelf removably attached to said upright, said upright consisting of an approximately cylindrical portion and parallel integral wings extending backward from said cylindrical portion in close proximity with each other, said shelf fitting the contour of said upright and having a vertical depending flange extending along the front, the end of the flange making contact throughout its height with the surface of the upright at a point in front of the maximum width of the upright.

In witness whereof, I have hereunto subscribed my name.

JOHN B. O'CONNOR.