J. B. O'CONNOR.

SHELVING.

APPLICATION FILED NOV. 11, 1918.

1,327,628.

Patented Jan. 13, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

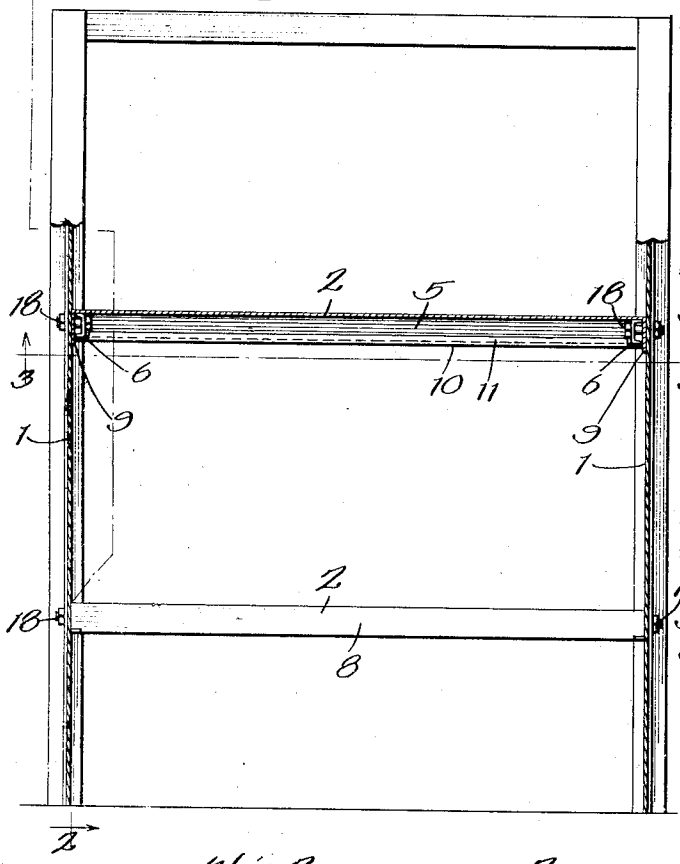


Fig. 2.

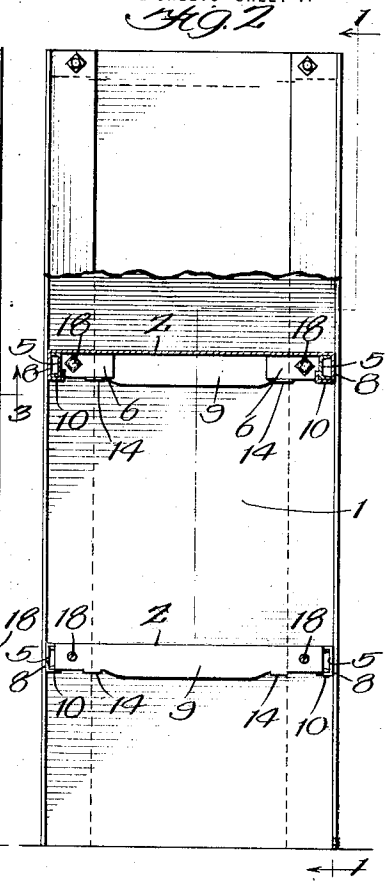
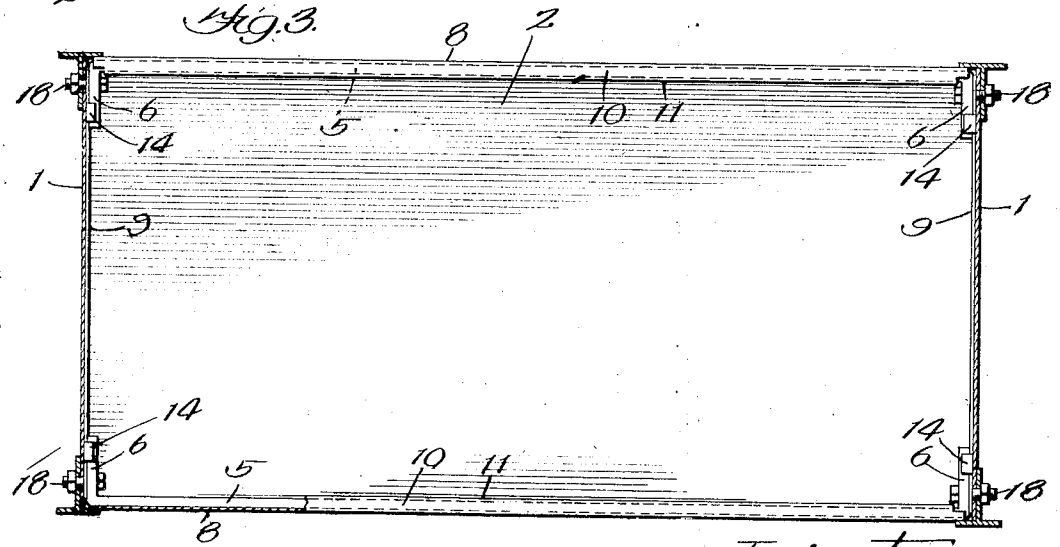


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

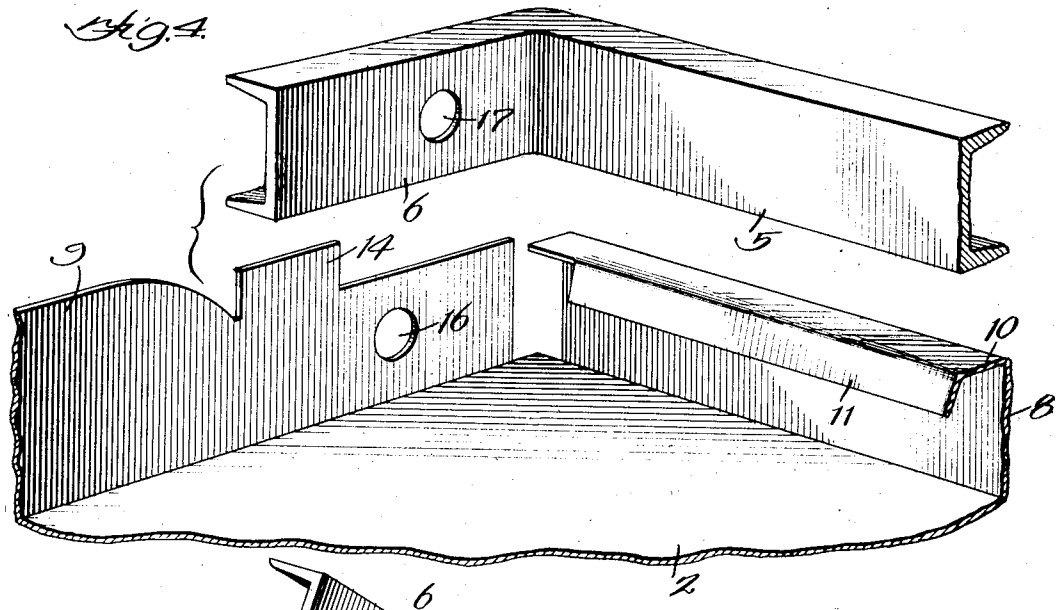


Fig. 5.

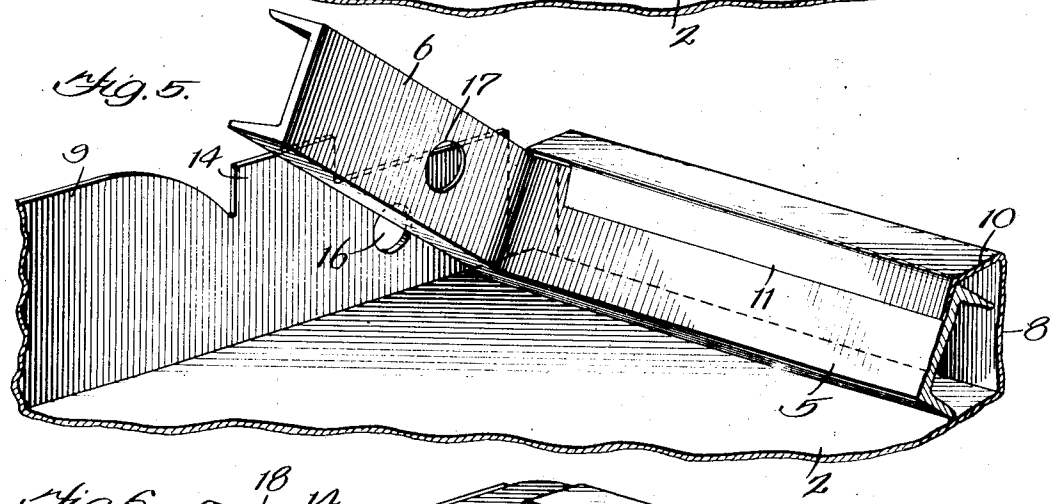
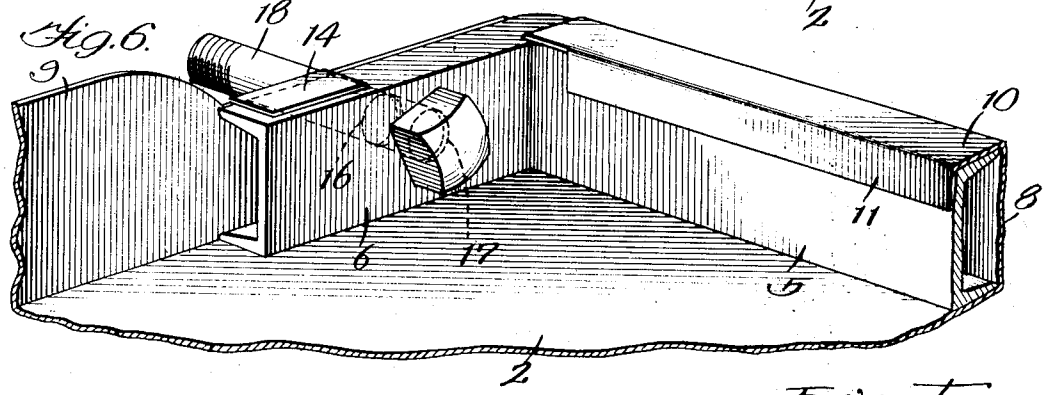


Fig. 6.



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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.

1,327,628. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed November 11, 1918. Serial No. 262,048.

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 sectional shelving, especially metallic shelving and the object is to provide a construction in which the number and complexity of parts is reduced to a minimum and the strength of the assembled structure brought to a maximum considering the weight of material employed. In carrying out my invention I have reinforced the shelf by means of a bar which extends not only along the edge of the shelf but part way along the ends of it without being cut or mutilated in any way to reduce its strength. I have also flanged the shelf in such manner that the reinforcing bar may be applied to it by merely slipping the central limb into engagement with the edge flange of the shelf, then rotating the bar about its central limb as an axis until the plane of the bar comes parallel with the plane of the shelf, and then securing the bar by "bumping" a preformed lip of the shelf into engagement with one or both of the end limbs of the bar which prevents rotation and disengagement of the bar, from the shelf. I have still further increased the rigidity of the finished structure by finally passing a locking device through the partition through an end flange of the shelf, and through the adjacent end limb of the reinforcing bar. This produces a very rigid construction when the shelving is complete.

Referring to the accompanying drawings which illustrate the principle of the invention,

Figure 1 is a front elevation, partly in section, of the erected shelving. The plane of section is indicated by the irregular line 1—1, Fig. 2.

Fig. 2 is an end elevation partly in section on the irregular line 2—2, Fig. 1.

Fig. 3 is a bottom plan section on the line 3—3, Fig. 1.

Figs. 4, 5 and 6 are perspective views of the under side of the shelf progressively illustrating the manner in which the parts are brought together and finally fastened.

Similar numerals refer to similar parts throughout the several views.

The upright partitions 1, 1 located at the ends of the shelf are preferably of sheet metal, and may be of any appropriate design. The shelves 2 are also of sheet metal and have flanged edges and ends which will be presently described. The shelves are reinforced by bars consisting preferably of channel irons bent at the corners to form a central limb 5 and end limbs 6 at right angles thereto. The central limb extends from one end of the shelf to the other and the end limbs extend part way along the ends of the shelf, the distance being nonessential. The flanges of the reinforcing bar instead of being at the inside of the bend, which would involve the necessity of cutting away a portion of them, are on the outside of the bend and are continuous. This results not only in avoiding weakening of the bar, but in coöperating with the depending flanges 8 and 9 at the edge and ends of the shelf, respectively, results in the formation of a box section reinforcement. Along the edge of the shelf the depending flanges 8 have portions 10 extending horizontally inward along the lower edge of the bar. These terminate in supplemental flanges 11 which pass to the back of the bar and engage the corner of it in such manner that the bar may be rotatably inserted as indicated in Fig. 5.

The end flange 9 has a lip 14 which just prior to assembly lies in the plane of the end flange. This permits the bar to be slipped under the supplemental flange 11 and then rotated about the central limb of the bar as an axis until the end limbs 6 contact the bottom of the shelf. The bar is then secured in place by bending down the lip 14 to engage the bottom of the bar, this process being known as "bumping" and producing a temporary holding device of considerable strength. The end flange has an aperture 16 corresponding to an aperture 17 in the end limb of the reinforcing bar, and when the parts are assembled these apertures register so as to receive the bolts 18. These bolts, in the preferred construction, penetrate the partitions as well as the shelf flange and reinforcing bars. The insertion of the bolts is usually the last step in the erection of the shelving and it will be evi-

dent that after the bolts have been secured in place the structure will be most rigid. Not only do the bolts supplement the action of flange 14 for preventing the rotation of the reinforcing bar about its central limb, but they also produce close contact between the partition end flange 9 of the shelf and the end limb 6 of the reinforcing bar. As the bar is of maximum rigidity considering its weight it forms a backing or brace for the end flange of the shelf and the adjacent partition. The consequence is that it prevents racking of the structure.

From the foregoing it will be seen that the entire structure consists practically of but four kinds of pieces, to wit: the partition, the shelves, the reinforcing bars and the bolts. The flanges of the shelf not only form stiffeners for the shelf, but they form an important part of the means for securing the bars to the shelf. It will be noted that these fastening means are integral with the shelf instead of being separate therefrom—with obvious attendant advantages. If for any reason the shelf becomes damaged it may be removed by removing the bolts which hold the shelf in place, and the parts of the shelf itself may thereafter be disassembled by merely raising the lip 14 to a position to release the end of the reinforcing bar. Thus the parts are few in number, simple in form and interchangeable and the structure when completed is of great rigidity.

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

1. In sectional shelving, the combination with the upright partitions, of a sheet metal shelf having a metallic reinforcing member extending entirely along one edge of the shelf and bent at the corners of the shelf to extend part way along the ends of the shelf, the edge of the shelf being bent to engage the reinforcing member to hold the parts together.

2. Sectional shelving having upright partitions and a shelf supported thereby, the shelf being of sheet metal, and a reinforcing member consisting of a channel bar extending in a single piece along one edge of the shelf, and bent at the corners of the shelf to extend partway along the ends of it, the flanges of the channel being at the outside of the bends and continuous there.

3. Sectional shelving having upright partitions and a shelf supported thereby, the shelf being of sheet metal and having a reinforcing member extending along one edge and partway along the two ends, the reinforcing member consisting of a single piece of channel iron bent with the flanges outward, the shelf sheet being bent around the channel iron along the edge of the shelf and engaging the lower inner corner of the channel iron whereby the reinforcing member is secured to the edge of the shelf and a box-like cross section is formed there.

4. Sectional shelving having upright partitions, and a shelf supported thereby, the body of the shelf being of sheet metal and having a U-shaped, one piece, reinforcing member extending along one edge and partway along the two ends, the edge of the shelf being bent to rotatably engage the central limb of the reinforcing member, and means for securing the end limbs of the reinforcing member to the ends of the shelf for preventing rotation of the reinforcing member about its central limb, thereby securing the reinforcing member in place.

5. Sectional shelving having upright partitions, and a shelf supported thereby, the body of the shelf being of sheet metal and having a U-shaped, one piece, reinforcing member extending along one edge and partway along the two ends, the edge of the shelf being bent to rotatably engage the central limb of the reinforcing member, and means for securing the end limbs of the reinforcing member to the ends of the shelf for preventing rotation of the reinforcing member about its central limb, the reinforcing member consisting of a channel bar having its flanges continuous and extending outward.

6. In sectional shelving, the combination of upright partitions, shelves, and bolts passing beneath the shelves, a reinforcing bar extending along one edge of the shelf and bent at the ends to extend partway along the two ends of the shelf, the edge of the shelf being wrapped around the central limb of the bar and permitting the bar to rotate when the end limbs are unsecured, and an integral lip formed at the end of the shelf adapted to be bent into engagement with the end limb of the bar to lock it against rotation.

7. Sectional shelving having upright partitions, a sheet metal shelf supported thereby, a reinforcing bar extending along one edge of the shelf and bent at the ends to extend partway along the two ends of the shelf, means integral with the shelf for rotatably engaging the central limb of the bar, means at the end of the shelf for engaging the end limb of the bar to temporarily prevent rotation, and a member passing through the partitions and through the end limbs of the bar to securely lock the bar against rotation when the structure is assembled.

8. Sectional shelving having upright partitions, a sheet metal shelf supported thereby, a reinforcing bar extending along one edge of the shelf and bent at the ends to extend partway along the two ends of the shelf, the shelf having depending flanges at the front and at the end, the end flanges

extending to the bottom of the reinforcing bar, the flange at the front of the shelf being bent inward and upward to rotatably engage the central limb of the bar, and bolts passing through the partitions and through the end flanges of the shelf and through the end limbs of the reinforcing bar to securely lock the parts in place in the assembled structure.

9. Sectional shelving having upright partitions, a sheet metal shelf supported thereby, a reinforcing bar extending along one edge of the shelf and bent at the ends to extend partway along the two ends of the shelf, the shelf having depending flanges at the front and at the end, the end flanges extending to the bottom of the reinforcing bar, the flange at the front of the shelf being bent inward and upward to rotatably engage the central limb of the bar, and bolts passing through the partitions and through the end flanges of the shelf and through the end limbs of the reinforcing bar to securely lock the parts in place in the assembled structure, and supplemental means integral with the shelf for temporarily holding the end limb of the bar against rotation prior to the final assemblage of the structure.

In witness whereof, I have hereunto subscribed my name.

JOHN B. O'CONNOR.