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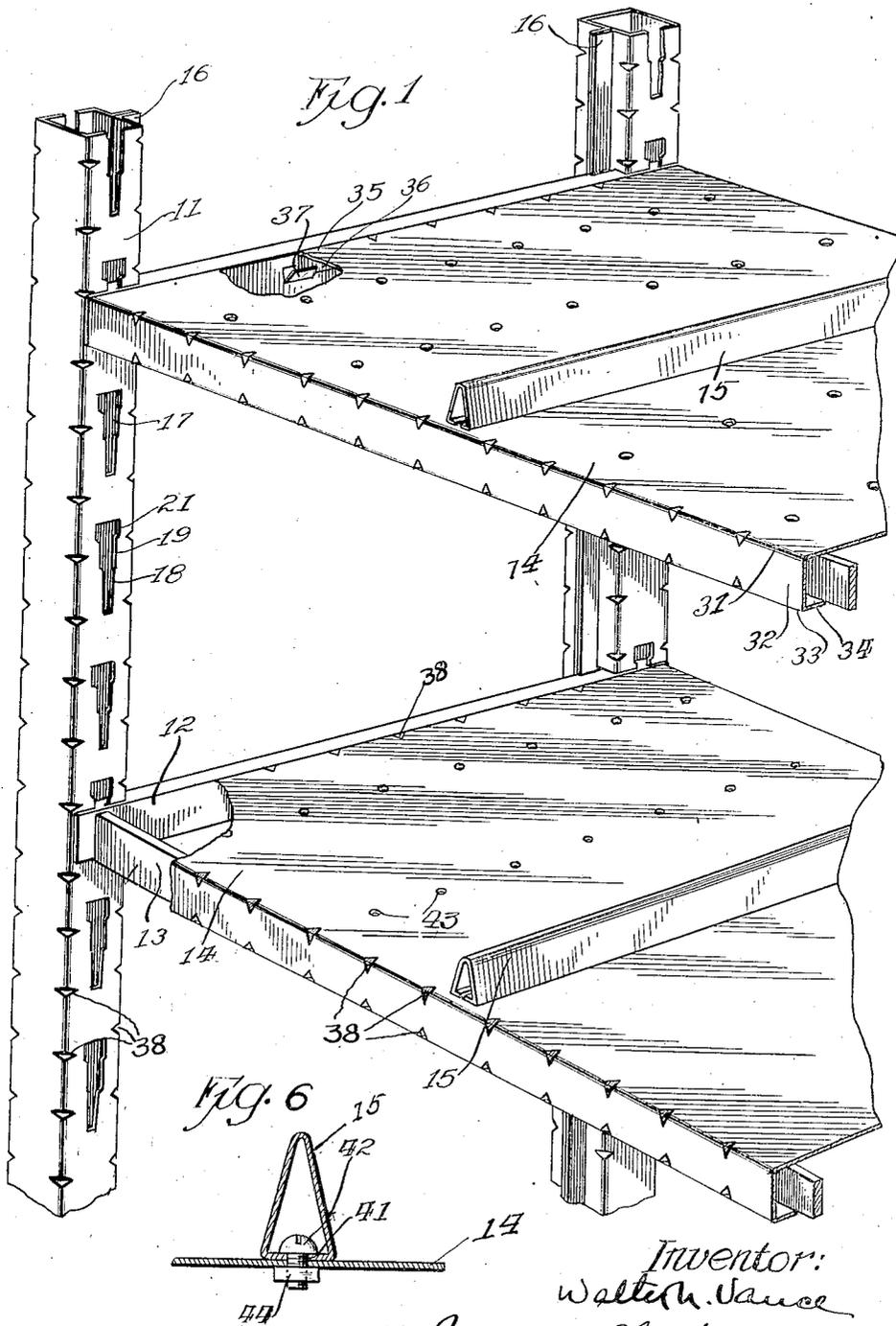
1,473,064

W. N. VANCE

METAL SHELVING

Filed Aug. 15, 1919

2 Sheets-Sheet 1



Inventor:
Walter Vance
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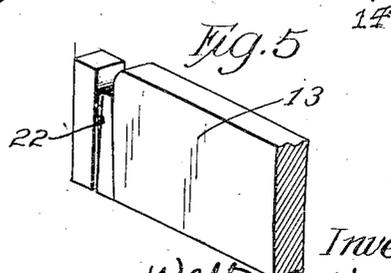
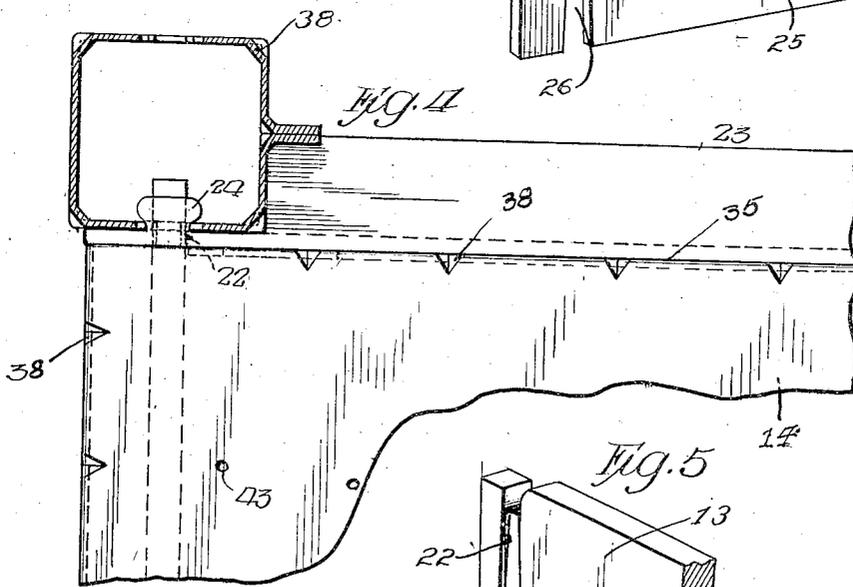
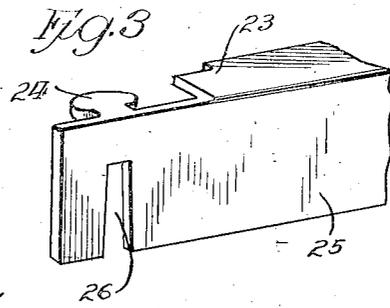
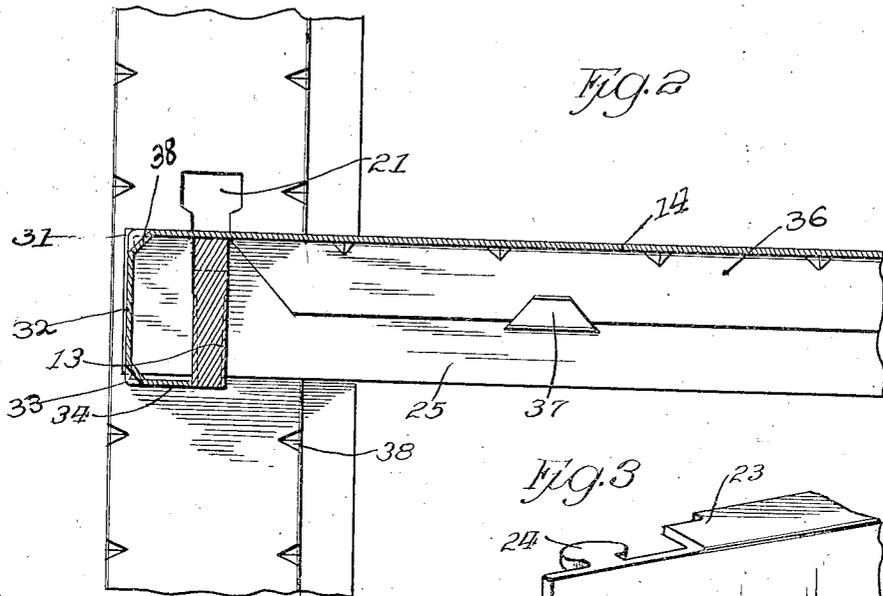
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METAL SHELVING

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

WALTER N. VANCE, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR TO DURAND STEEL LOCKER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

METAL SHELVING.

Application filed August 15, 1919. Serial No. 317,648.

To all whom it may concern:

Be it known that I, WALTER N. VANCE, a citizen of the United States, residing in Chicago Heights, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Metal Shelving, of which the following is a specification.

This invention relates in general to metal shelving and has more particular reference to certain improvements adapted to stiffen and reinforce the material of the shelving to the end that relatively light material may be used to provide a shelf of unusually high weight carrying capacity and this without appreciable deflection in the structure.

A principal object of the invention is the attainment of this end and this without requiring the addition of any metal parts or the performance of expensive mechanical operations.

Another important object of the invention is the provision of a new and improved shelf divider particularly adapted to partition off parts of the space provided by the shelves, which will require to be secured to only a single shelf and yet be strong and rigid in use.

Numerous other important objects and advantages of the invention will be apparent as it is better understood from the following description when considered in connection with the accompanying drawing illustrating a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a perspective view of a part of a system of shelves embodying my present invention;

Fig. 2 is a partial transverse sectional view thereof on an enlarged scale;

Fig. 3 is a partial detail of one of the front to back bearers;

Fig. 4 is a partial horizontal section taken through a post or upright;

Fig. 5 is a further detail perspective showing an end of one of the front to back bearers; and

Fig. 6 is a transverse section through a shelf divider.

For the purpose of illustrating my invention I have shown on the drawing a portion of a system or assemblage of shelves, which consists of uprights 11, front-to-back cross-supports or bearers 12, front and back bearers 13, shelf member or parts 14 and shelf dividers 15. The frame of the shelf

consists of the uprights and the bearers 12 and 13 which may be constructed and assembled as will now be described. The uprights 11, preferably consists of a single sheet bent to tubular form and preferably to tubular form of rectangular or square cross-section. In the present instance the uprights are stiffened to a degree by having the longitudinal edges 16 of the sheet forming the uprights disposed at the center of one of the sides of the tube and extending out therefrom as may be seen by viewing Figs. 1 or 4. It is intended that these outwardly extending edges or flanges 16 extend in toward each other when the parts are assembled and to this end the slots or openings 17 are provided in the faces of the tube adjacent the face from which the flanges or edges 16 extend.

Each of the slots 17 in the present instance is of key-hole formation having two tapering parts 18 and 19 and a larger top part 21. The front and back bearers, an end of which is shown in Fig. 5, are of relatively heavier metal and of rectangular cross-section. Adjacent each end the bearer 13 is provided with vertical or transverse slots 22 adapted to enter through the parts 19 of the slots 17 and be wedged tightly in the parts 18 of said slot.

The front-to-back bearers are preferably of rolled angle iron construction, one flange 23 being cut away at an end to provide a tongue 24 and the other flange 25 therebeneath being slotted at 26. When assembled the flange 25 constitutes a vertical flange and the flange 23 a horizontal flange.

The structure is assembled by inserting the ends of the front and back bearers in the slots 17, moving these ends down until they are wedged in the bottom parts 18 of the slots and then inserting the heads or tongues 24 of the cross-supports through the upper parts 21 of the same slots and moving the cross-supports down so that the openings 26 are entered by the reduced parts of the front and back bearers, the necks back of the heads 24 engaging in the upper tapered slotted parts 19 and all being wedged tightly together.

The shelves proper are of sheet metal bent at the longitudinal edges, i. e., the front and back edges, along lines of bend 31 to provide therebeyond downwardly extending flange parts 32, which parts are

bent again on the lines 33 to provide inwardly extending flange parts or extremities 34. The shelves are bent at the ends, i. e., the edges extending from front-to-back on lines of bend 35 to provide downwardly extending flange parts 36 and these flange parts engage struck out lips 37 provided for the purpose in the vertical part 25 of the front-to-back bearers. The shelf is supported thus at its ends upon these lips and along its sides on the front and back bearers 13, the flange parts 34 returning to adjacent or even in contact with said front-to-back bearers.

In order that the structure may be stiffened and reinforced, I distort the material of the sheet metal parts at their lines of bend and do this by pressing inwardly the material at intervals to form small integral gussets. These depressions are V-shape and may be readily seen by comparing Figs. 2 and 4, said depressions or gussets being indicated by reference character 38. These depressions are thus provided at the four bends in the tubes and on the lines of bend 31, 33 and 35 already mentioned. I have found that by so depressing or distorting the material I greatly increase the stiffness, rigidity and resistance to deflecting forces.

In addition I have provided shelf dividers of new and improved form. Each of these shelf dividers, indicated at 15, consists of a single sheet of metal of suitable gauge bent to triangular form and having the edges 41 disposed at the center of the base side. Between these edges I insert short fastening bolts or other devices 42, the threaded stems of which may be inserted through perforations 43 arranged at intervals in the shelf and thereto secured by nuts 44. This construction provides a shelf divider of tapering form which need only be fastened at its base.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a sheet metal shelving a member having a relatively long edge subjected to bending strains transverse its length, a flanged part extending in the line of the edge and resisting the bending strain, the material at the line of bend being distorted at intervals to stiffen said edge and present sagging thereof.

2. A shelf member supported adjacent its edges and having a relatively long down-

turned stiffening edge flange and spaced indentations at the line of bend to reinforce the structure.

3. In a metal shelving a combination of cross bearers, a shelf resting thereupon and extending therebeyond at the lateral edges, and having a down-turned flange stiffened by spaced indentations in the line of bend against change of angularity under the load carried by said shelf.

4. A metal shelving comprising, frame parts formed of a sheet bent to tubular rectangular form, the material of said tube being distorted at intervals on the line of bend to reinforce and stiffen the construction.

5. A metal shelving comprising, frame parts formed of a sheet bent to tubular form, of angular cross-section, the material at the angles being distorted at intervals to stiffen the construction.

6. A metal shelving comprising, frame parts formed of a sheet bent to tubular form of angular cross-section, the material of the tubes at the angles being pressed inwardly at intervals.

7. Sheet metal shelving, comprising a shelf part having an edge flange bent down from the plane of the shelf and therebeneath bent again into parallelism with the body of the shelf, the last mentioned line of bend being distorted to stiffen the shelf.

8. Sheet metal shelving, comprising a shelf part having an edge flange bent down from the plane of the shelf and therebeneath bent again into parallelism with the body of the shelf, the last mentioned line of bend being pressed inwardly at intervals to stiffen the shelf.

9. Sheet metal shelving, comprising a shelf part having an edge flange bent down from the plane of the shelf and therebeneath bent again into parallelism with the body of the shelf, both the mentioned lines of bend being distorted to stiffen the shelf.

10. Sheet metal shelving, comprising a shelf part having an edge flange bent down from the plane of the shelf and therebeneath bent again into parallelism with the body of the shelf, both the mentioned lines of bend being pressed inwardly at intervals to stiffen the shelf.

11. Sheet metal shelving, comprising shelf parts having surrounding marginal flanges bent from the plane of the shelf and pressed inwardly at intervals at the line of bend to stiffen the shelf.

12. Sheet metal shelving, comprising shelf parts having surrounding marginal flanges bent from the plane of the shelf and pressed inwardly at intervals to stiffen the shelf, and supports for said shelves engaging said flanges.

13. Sheet metal shelving, comprising perforated shelf members and shelf dividers

therefor, a shelf divider comprising a metal sheet bent to triangular form and having a base formed of separated flanges of said sheet, and devices adapted to extend between said flanges in said base and perforations of said shelf to secure said divider in place.

14. Sheet metal shelving, comprising perforated shelf members and shelf dividers, said shelf dividers each comprising a metal sheet bent to triangular form and with its

edges disposed intermediate the base side thereof, and fastening devices removably engaging said edges and adapted to extend through the perforations of the shelf members.

15. A sheet metal shelf divider of substantially equilateral triangular form, the base of said divider being formed of spaced flanges resting upon a shelf and providing a space for fastening devices therebetween.

WALTER N. VANCE.