A. C. TERRELL.

METAL SHELVING.

APPLICATION FILED NOV. 23, 1910.

1,141,991.

Patented June 8, 1915.

FIG. 1.

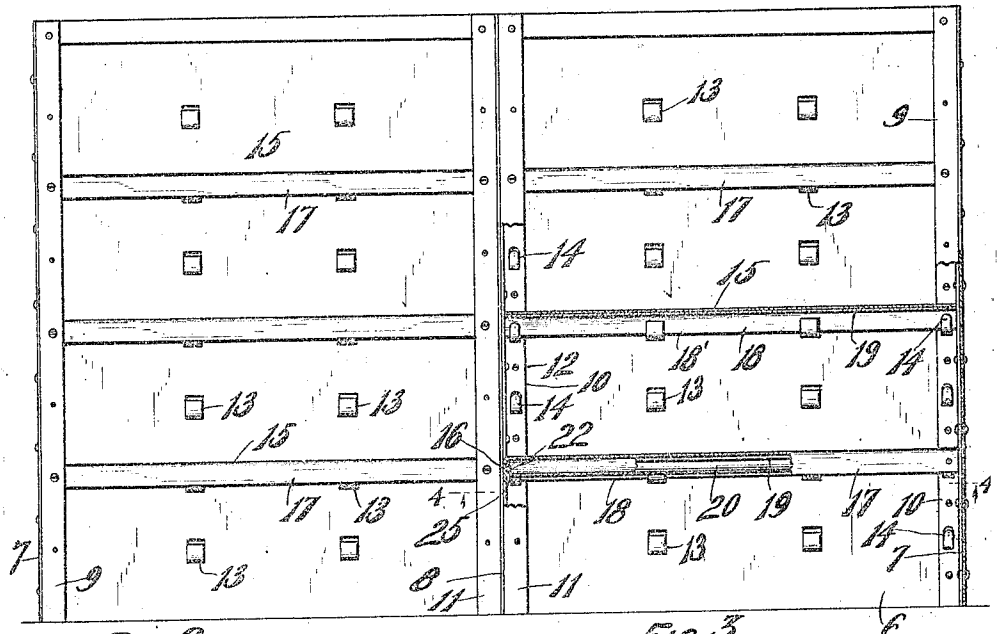


FIG. 2.

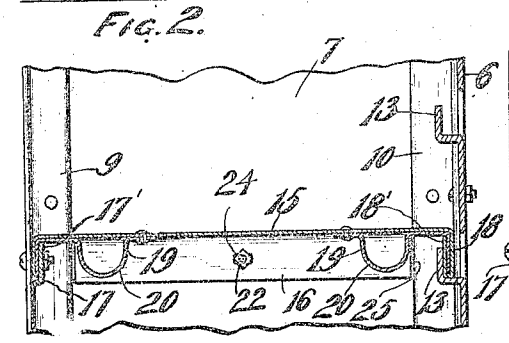


FIG. 3.

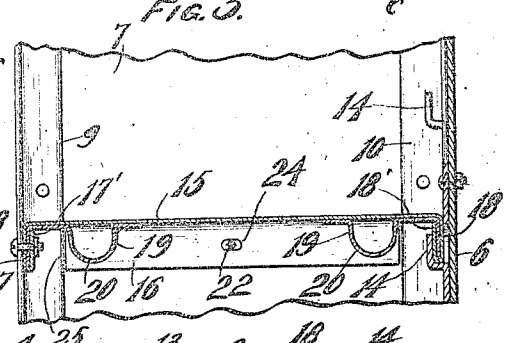
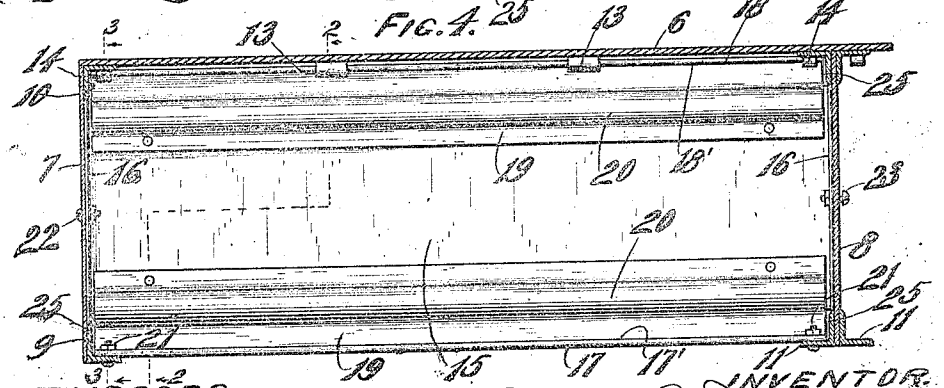


FIG. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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METAL SHELVING.

1,141,991. Specification of Letters Patent. Patented June 8, 1915.

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To all whom it may concern:

Be it known that I, ALBERT C. TERRELL, a citizen of the United States, resident of Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Metal Shelving, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in metal shelving and more particularly to adjustable shelves and their support.

One of the objects of this invention is to form shelves and their support of commercial angle and sheet steel in which the shelves are adjustably connected to their support and may be easily erected or changed to suit different requirements.

A further object of the invention is to provide a unit system of shelving comprising an installation which can be quickly extended with additional parts, and when necessary to introduce changes, the parts can be quickly taken apart and reassembled to meet different requirements without damage to the equipment.

A further object of the invention is to provide a system of shelving in which the shelves are interchangeable and the support is provided with means whereby the shelves may be easily connected to or disconnected from the back portion of the support.

A further object of the invention is to provide a system of shelving constructed of metal in which the shelves are reinforced so they will stand the strain of heavy loads without bending.

A further object of the invention is to provide a system of shelving in which the parts are strong and durable and may be manufactured at a minimum expense.

With the above, and other objects in view, the invention consists of the shelving and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views: Figure 1 is a front view of two sections of the improved shelving, parts broken away and other parts being shown in section; Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 4; Fig. 3 is a similar view taken on line 3—3 of Fig. 4; and Fig. 4 is an inverted horizontal sectional view taken on line 4—4 of Fig. 1.

Referring to the drawing the numeral 6 indicates the sheet steel back of the shelving support to which are connected, preferably by bolts, the outer end uprights 7 and the center or intermediate upright 8. The end uprights are formed of sheet metal plates reinforced along their front and rear inner vertical edges by angle bars 9 and 10 respectively. The front and rear vertical edges of the intermediate upright 8 are also reinforced by angle bars 11 and 12 which are riveted to both sides of the sheet metal plate. The end and the intermediate uprights are rigidly connected to the sheet metal back by bolts, as before described, which extend through said back and through the legs of the rear angled reinforcing bars extending parallel thereto.

The back plate and the legs of the angled reinforcing bars extending parallel thereto are provided with a plurality of forwardly and upwardly extending tongues or catches 13 and 14 which are cut and punched out of the respective parts to form shelf supports. The tongues or catches of the reinforcing bars are positioned in horizontal alinement with the tongues or catches of the back plate and the upwardly extending portions of the latter tongues are positioned in vertical alinement with the upwardly extending portions of the tongues of the reinforcing bars to engage the rear depending flanges of the removable and interchangeable shelves 15. These shelves are formed of thick plates of sheet steel having downwardly depending side, front and rear flanges 16, 17 and 18 respectively to reinforce the same and to provide means for attaching said shelves to the supports. The shelves are further reinforced at the front and rear by means of angular reinforcing strips 19 which are riveted to the lower surface of the shelves and extend downwardly along the inner sides of the front and rear shelf flanges and are overlapped by the upturned portions 17′ and 18′ respectively, of said shelf flanges. These reinforcing strips are also channeled longitudinally, as indicated by the numeral 20 to still further strengthen the shelf and to prevent warping thereof.

The shelves are of sufficient width to en-

gage and extend between the front and rear legs of the front and rear uprights and when so positioned the rear reinforced flanges of the shelves hook over the catches of both the rear legs and the back and bind said shelves to said parts. The shelves are securely fastened to the end and intermediate uprights by means of bolts 21, 22 and 23 which extend through registering apertures provided in the depending flanges and the uprights. The apertures are in relative alinement with the horizontal lines of catches in order to provide for placing the shelves in horizontal position. The apertures 24 of the side flanges are in the form of elongated slots to insure correct registration and to compensate for slight differences due to manufacture. The bolts 23 are of sufficient length to extend through the side flanges of the shelves positioned on opposite sides of the intermediate upright. The front and rear end portions of the side flanges of the shelves are cut away to form offsets or recesses 25 in the shelves to accommodate the side flanges of the angle bars forming part of the end and intermediate uprights.

In erecting the shelves the uprights are bolted to the back portion and the shelves are hooked over the projecting catches. The end and front flanges of the shelves are now bolted to the uprights by passing bolts through the registering apertures of the flanges and the uprights and threading nuts to the ends thereof until the parts are clamped firmly together to form a rigid structure. The provision of the catches on the rear portions of the support and the bolts on the sides and front thereof provides for easy accessibility in removing the bolts to change the shelves.

The reinforcing strips connected to the shelves serve to strengthen the shelves and prevent warping or bending while under strain.

From the foregoing description it will be seen that the shelving is strong and durable and is very simple in construction and may be easily erected.

What I claim as my invention is:

1. A shelf, comprising a plate of sheet metal having one of its edges bent at an angle to the plate and overlapped upon the bent portion to form a flange of double thickness, and a reinforcing strip of angled metal fastened to the plate with one of the angled portions of the strip extending between the overlapped portion of the plate edge.

2. A shelf, comprising a plate of sheet metal having one of its edges bent at an angle to the plate and overlapped upon the bent portion to form a flange of double thickness, and a reinforcing strip of angled and channeled metal fastened to the plate with the angled portion of the strip extending between the overlapped portion of the plate edge.

3. A shelf, comprising a plate of sheet metal having its front and rear side edges bent downwardly at an angle to the plate and overlapped upon the bent portions to form flanges of double thickness and also having its end edges bent at an angle to form end flanges, and reinforcing strips of angled and channeled metal fastened to and extending along the front and rear edge portions of the plate with the angled portions of the strips extending between the overlapped portions of the plate edges.

4. Shelving, comprising a back portion provided with forwardly and upwardly projecting catches, end and intermediate uprights forming angled reinforcing bars extending along their front and rear edges, said rear edge bars being rigidly connected to the back and provided with projecting catches, shelves formed of sheet metal plates and having their front and rear side edges bent downwardly at an angle and overlapping upon the bent portions to form flanges of double thickness and also having their end edges bent at an angle to form end flanges, reinforcing strips of angled and channeled metal fastened to and extending along the front and rear edge portions of the plate with the angled portions of the strips extending between the overlapped portions of the plate edges, said rear edge flanges of the shelves engaging the projecting catches of the back and the reinforcing bars, bolts extending through the intermediate upright and the end flanges of the shelves adjacent thereto and positioned on each side thereof, and other bolts binding the flanges adjacent to the end uprights thereto.

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

ALBERT C. TERRELL.

Witnesses:

GEORGE PALMITEER,

VICTOR KLASSON.