

C. R. JAMISON.
METAL SHELVING CONSTRUCTION.
APPLICATION FILED AUG. 30, 1911.

1,064,737.

Patented June 17, 1913.

2 SHEETS—SHEET 1.

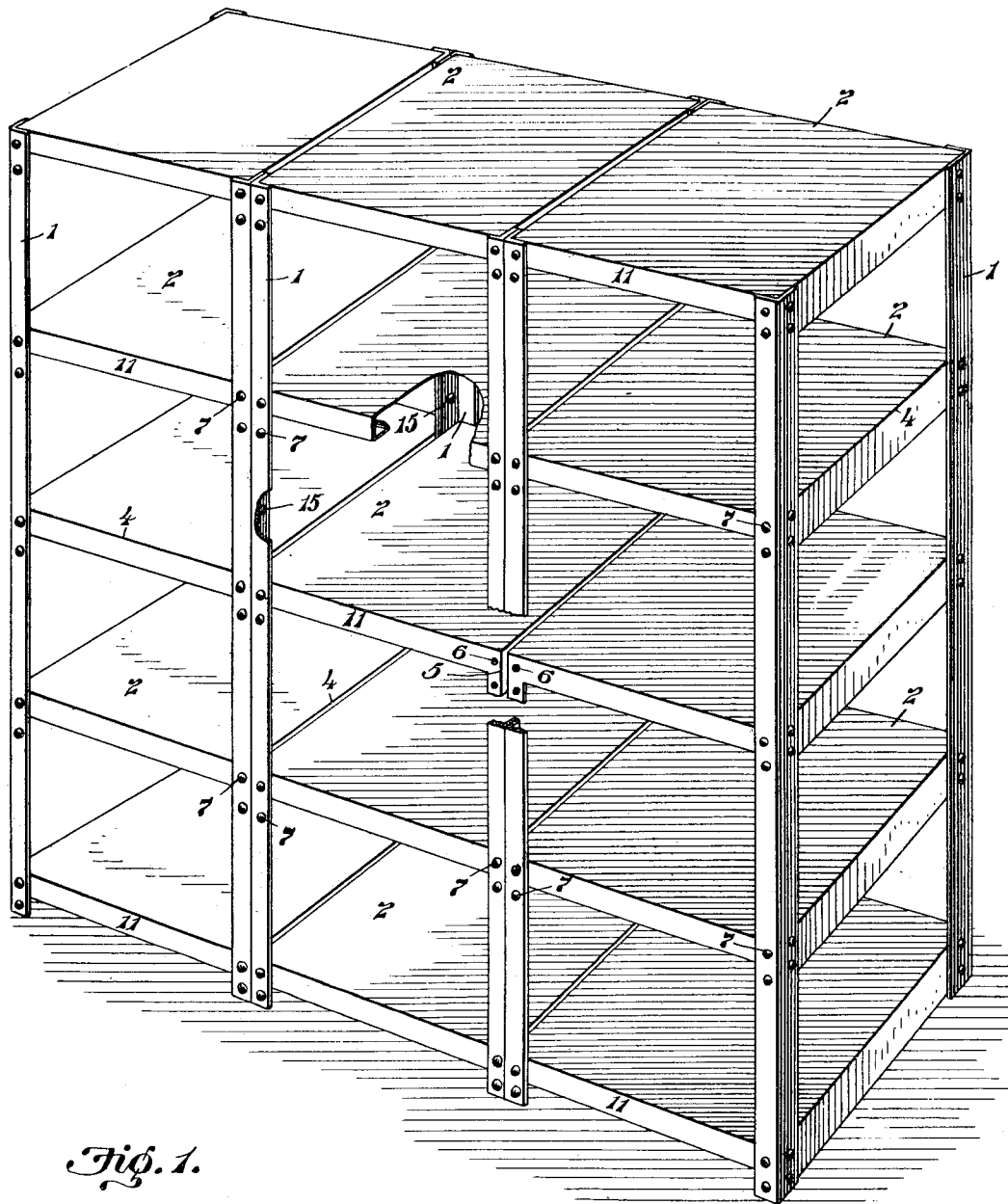


Fig. 1.

Inventor

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2 SHEETS—SHEET 2.

Fig. 2.

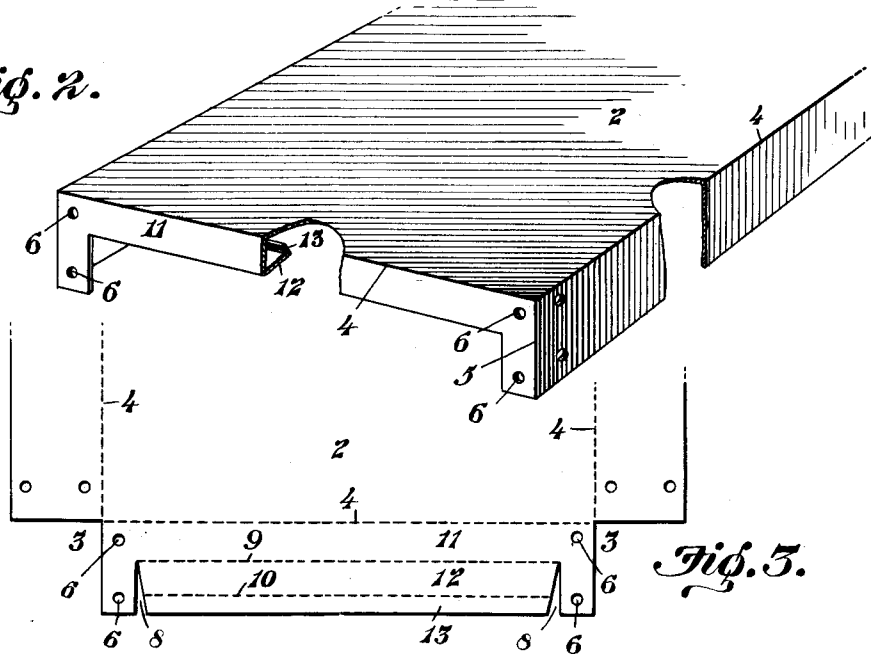


Fig. 3.

Fig. 4.

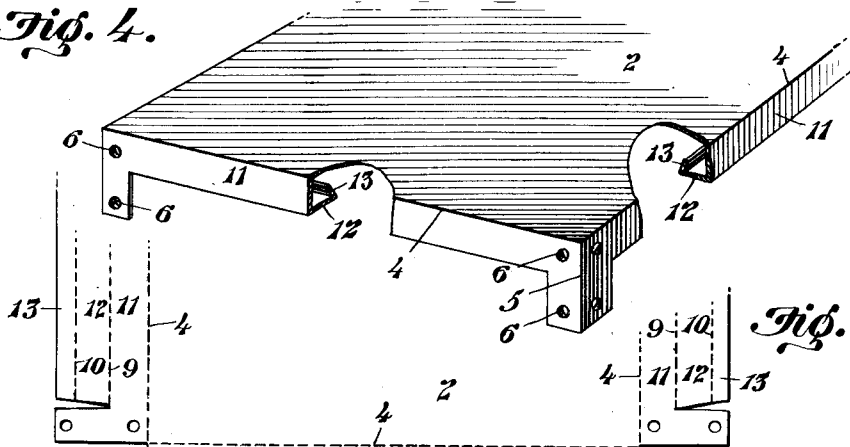


Fig. 5.

Fig. 6.

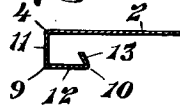


Fig. 7.

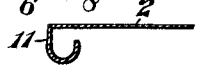


Fig. 8.

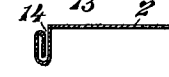


Fig. 9.

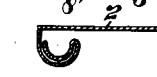
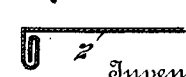


Fig. 10.



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UNITED STATES PATENT OFFICE.

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METAL SHELVING CONSTRUCTION.

1,064,737.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed August 30, 1911. Serial No. 646,891.

To all whom it may concern:

Be it known that I, CHARLES R. JAMISON, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Metal Shelving Construction, of which the following is a specification.

This invention relates to the construction of metal shelving, especially adapted for use in shops, factories, stores, warehouses, stock-rooms, and other places where it is desired to keep material or objects in an accessible manner.

The objects of the invention are to generally improve metal shelving construction, to simplify such construction and the operations involved in its making, to provide such construction as may be shipped in knock-down condition and readily assembled when desired, and to provide a construction of great strength adapted to readily withstand hard usage and to firmly maintain its shape and position even under excessive strains and stresses.

One of the objects to be especially noted is to provide a strong, well braced construction peculiarly adapted for open shelving, and being adapted to resist any tendency of such shelving to collapse by relative movement of the parts where connected.

These objects, together with other objects apparent to those skilled in the art, may be attained by the construction illustrated in the accompanying drawings, although the invention may be embodied in other forms, the construction illustrated being chosen by way of example.

In the drawings, Figure 1 is a perspective view of a metal shelving construction embodying the invention. Fig. 2 is a fragmentary perspective view of one of the metal shelves such as used in the construction shown in Fig. 1, parts being broken away. Fig. 3 is a plan view of a portion of the shelf as it is stamped from the sheet of metal and before being formed. Fig. 4 is a fragmentary perspective view of a modified form of shelf, parts being broken away. Fig. 5 is a plan view of a portion of the shelf shown in Fig. 4 as stamped and before being formed. Fig. 6 is a vertical section through a portion of the shelf showing the edge of a finished shelf in cross-section. Figs. 7, 8, 9 and 10 are similar views of modified forms of edges of such shelves.

Throughout the several views similar reference numerals indicate similar parts.

Metal shelving involving this invention is preferably constructed in vertical units adapted to be arranged side by side and connected together in horizontal series. Each unit is provided with vertical supports 1 preferably of heavy sheet metal formed L-shape in cross-section and preferably arranged at the four corners, the corners of the shelves 2 fitting into the inner angles of said supports. In so far as the present invention is concerned, the same is fully embodied in a single vertical unit, although some of the more useful and desirable features of the invention are more clearly apparent when a number of such units are connected together.

Each shelf 2 is composed of sheet metal the upper or top surface of the same being preferably plain. Around the four edges of the shelf it is desirable to form integral vertical strengthening flanges to support the shelf and the weight placed thereon without undue deflection. To this end a rectangular sheet of metal is provided with the cut away portions at the corners as shown at 3 in Figs. 3 and 5 and the edge flanges are bent on the lines 4 downwardly at right angles to the general plane of the shelf. At each corner of the shelf the two side flanges will thus be brought into engagement, forming a vertically disposed corner, as shown at 5, which corner is adapted to fit into the vertically disposed inner angle of one of the supports 1.

When the back and sides of the unit are inclosed by large sheets of metal securely connected to the vertical supports or to said supports and shelves, as in some well known constructions the problem of preventing collapse of the unit by a folding together of the shelves and supports is not present, as such sides or sides and back act to brace the structure to maintain the various parts in their appropriate relative positions and thus prevent collapse even under heavy loads. When the sides are omitted or the back is omitted or when both sides and back are omitted so as to form open shelves such as illustrated in Fig. 1 the problem of preventing collapse such as described is of great importance and frequently in previous constructions it has been necessary to brace or support such shelving either by diagonal

braces forming a part of the structure itself or by firm attachment to some fixed object, such as the wall of the building in which the shelving is used. The diagonal braces just mentioned are very undesirable, preventing free access to the shelves, and being an objectionable expedient at best. Attaching the shelving to a fixed object, as the wall of the building, is even more undesirable, as it prevents the ready rearrangement of the units when desired and requires additional trouble in setting up and arranging the shelving besides being frequently inconvenient as an unnecessary obstruction.

In order to accomplish a thoroughly effective bracing and strengthening of each unit without the above or other undesirable features I form the vertical flanges around the edges of the shelves of sufficient vertical dimension so that in each end of each flange two vertically spaced connections may be made to the supports 1. In the drawings I have illustrated each vertical flange as provided with the vertically spaced apertures 6 adapted to accommodate suitable fastening means as the bolts 7 which pass through corresponding apertures in the flanges of the supports 1. As will be noted in the drawings the apertures 6 are vertically spaced from each other a sufficient distance so as to give a firm and substantial bracing effect, and the spaced connections thus made, in addition to the fitting of the corner at 5 into the inner angle of the support prevents any pivotal movement as between the shelf and the support, thus bracing the entire structure, by the coöperation of the numerous connections thus made on the different shelves in such a way as to effectually prevent any folding or collapse of the structure.

It will be noted that if the vertical flanges were permitted to extend across from support to support the vertical width of such flanges would be undesirable, as limiting, to an extent, the accessibility of the shelf thereunder. In addition it is desirable to so form the most exposed edges of the shelves as to present folded edges rather than raw or cut edges, not only to give a neater appearance but to withstand the wear and tear to which metal shelving is commonly subjected. In some instances the front edges of the shelves only need be so formed and such construction is illustrated in Fig. 1. There it will be noted that the side flanges of the shelves are merely folded down into vertical position on the lines 4 and extend, uninterrupted and unfolded from front to rear of the shelf. The front edges of the shelves, however, are differently formed, as will now be described.

On each shelf support-attaching portions are formed in the way hereinbefore described and provided with the vertically

spaced apertures 6. At the points 8, however, at the edges of the flanges of the supports 1, where the front edge of the shelf becomes frontwardly exposed, said flange of the shelf is vertically slit as clearly shown in Fig. 3, it being preferable not only to slit said flange but to cut out a narrow V-shaped portion, as shown in said figure. Along the line 9, from the end of one slit to the end of the other slit the flange is bent backwardly into a horizontal plane and along the line 10 the extreme edge of the flange is bent upwardly and slightly forwardly. By this construction the vertical portion 11 is frontwardly exposed, the integral backwardly turned horizontal portion 12, and the integral upwardly and forwardly turned edge portion 13 being adapted to strengthen and support the shelf, and especially the front edge thereof. A neat, strong and substantial finish is thus given the front edge of the shelf without losing the bracing effect accomplished by the vertically spaced attaching means at the ends of the flange. In some instances it may be desired to also form the side or all of the edges of the shelf in the manner just described. Such construction is, of course, preferable in many ways and in Fig. 4 is illustrated a portion of a shelf with the edges so formed. In such instance the other edges are slit and bent in the manner hereinbefore described as will be readily apparent to those skilled in the art by an inspection of Figs. 4 and 5.

In Figs. 6 to 10 inclusive are shown various suggestions for the flange of the edges of shelves embodying this invention, Fig. 6 being a cross-section of the preferred construction hereinabove described, Fig. 7 being a desirable construction wherein the portions 12 and 13 are not bent at right angles on the lines 9 and 10 but are curved to produce a rounded under surface. In Fig. 8 is shown a cross-section of a flange bent outwardly and folded over itself, giving great strength against vertical loads and at the same time providing a vertically disposed open slot 14 adapted to receive a card, tag or index if desired. Fig. 9 illustrates a form where a double front flange is employed, the form being similar to that illustrated in Fig. 7 except that the rounded portion is doubled to increase strength. In Fig. 10 an edge similar to that in Fig. 8 is shown except that the various portions are folded backwardly and inwardly rather than forwardly and outwardly, there being no conveniently accessible tag or index slot in the construction shown in Fig. 10, but a very neat and strong edge being provided. It will be readily apparent to those skilled in the art that various other forms may be given the flanges between the slits at 8, such forms varying in accordance with the requirements.

In erecting metal shelving construction such as herein described the various vertical units may be arranged side by side and fastened together, if desired, by bolts 15 or their equivalents passing through the flanges of the abutting supports 1. Whether the units are arranged singly or in horizontal series, however, it will be found that the herein described construction combines 10 great strength and utility with convenience in manufacture and pleasing appearance. The vertically spaced fastening means at the ends of the shelf flanges and the corners at 5 fitting into the inner angles of the supports 1 effectually prevent collapse, while the formation of the edges of the shelves strengthen and support said shelves, give the structure a finished, neat appearance, and make the various shelves unusually accessible. •

I claim:

1. Metal shelving construction comprising vertically disposed supports and horizontally disposed shelves, each shelf provided 25 with an integral, vertically disposed flange connected to said supports by pairs of vertically spaced connecting means, and the portion of said flange intermediate said vertical supports formed to present a vertical exposure at the edge of the shelf less in vertical dimension than the vertical dimension of said flange.

2. Metal shelving construction comprising

vertically disposed supports and horizontally disposed shelves, each shelf provided 35 with vertically disposed support-attaching portions engaging said vertically disposed supports and connected thereto by pairs of vertically spaced connecting means, and the edge of the shelf intermediate said attaching portions formed to present an exposed 40 edge of less vertical dimension than the vertical dimension of said attaching portions.

3. Metal shelving construction comprising vertical supports having inner, vertically 45 disposed angular corners and sheet metal shelves provided with corners and support-attaching portions bent at right angles to the plane of the shelf and forming vertically disposed corners adapted to fit into the 50 vertically disposed angles of said supports, the edge of said shelf intermediate said vertical supports bent to form a vertically disposed flange, an integral, horizontally disposed flange, and an edge flange arranged 55 at an angle to said horizontally disposed flange, the said vertical flange being of less vertical dimension than the vertical dimension of said support-attaching portions.

In testimony that I claim the above, I 60 have hereunto subscribed my name in the presence of two witnesses.

CHARLES R. JAMISON.

Witnesses:

WM. H. MILLER,
IRENE LUTZ.