Oct. 21, 1930. A. A. PANNIER 1,778,982

SHELVING

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FIG. 1.

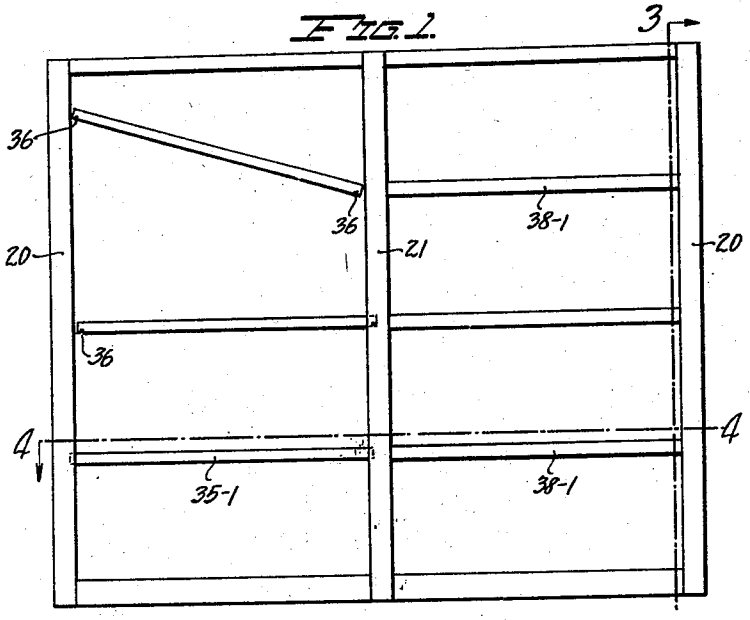
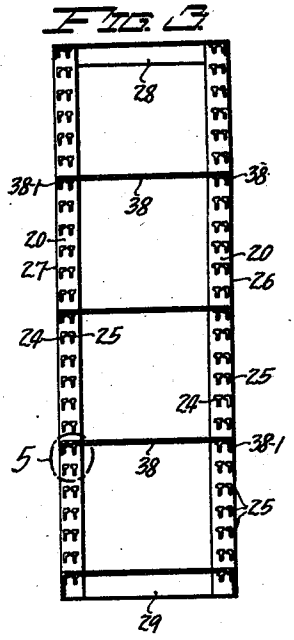


FIG. 3.



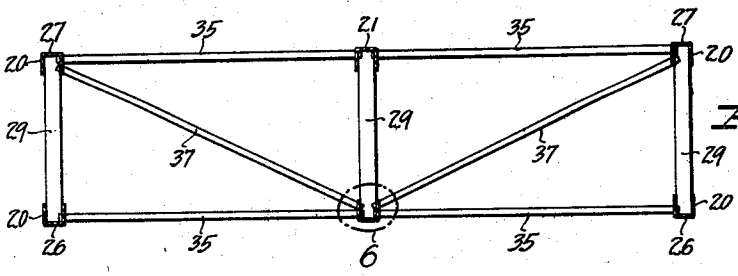
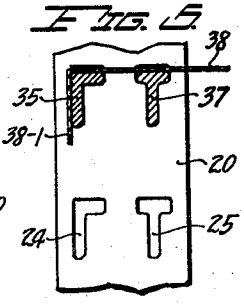


FIG. 4.

FIG. 5.



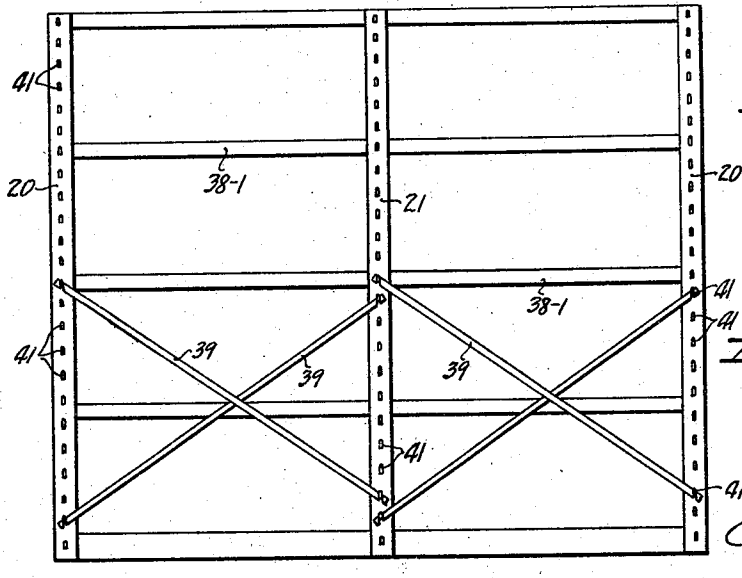


FIG. 2.

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SHELVING

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FIG. 6.

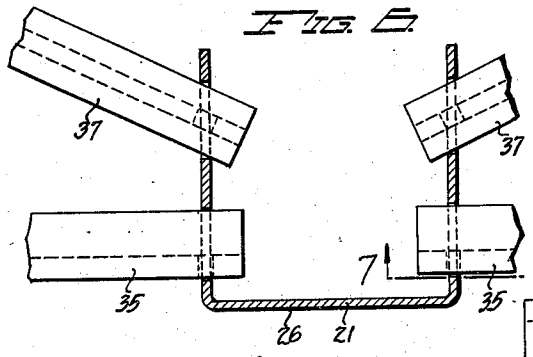


FIG. 14.

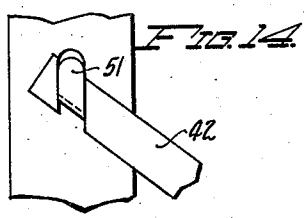


FIG. 7.

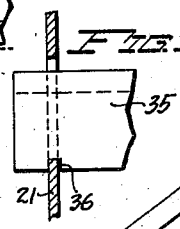


FIG. 13.

FIG. 9.

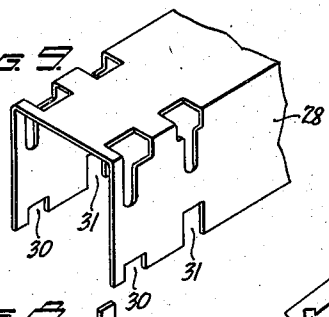


FIG. 8.

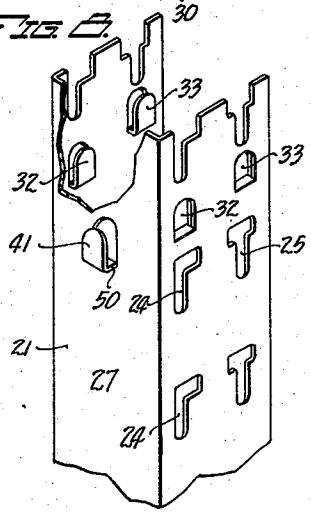


FIG. 12.

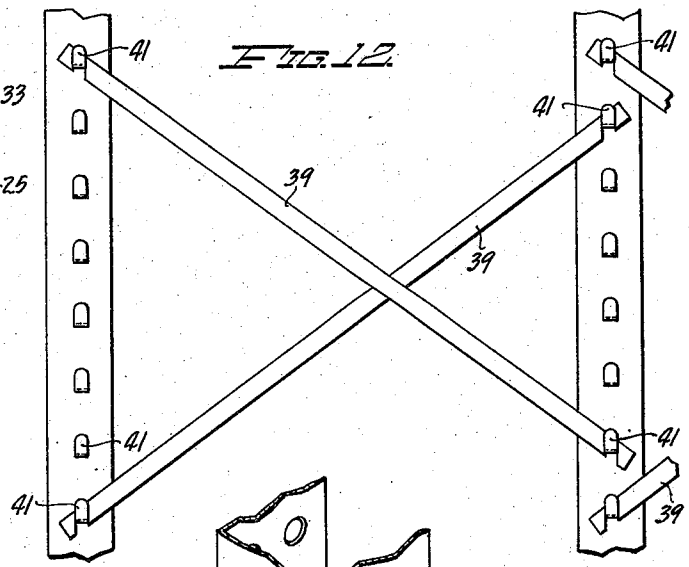
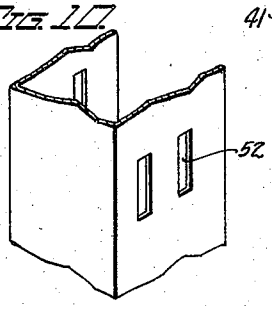


FIG. 10.



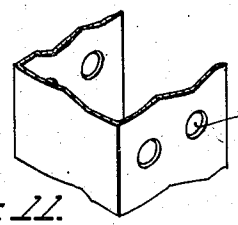


FIG. 11.

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Patented Oct. 21, 1930 1,778,982

UNITED STATES PATENT OFFICE

ARTHUR A. PANNIER, OF SALT LAKE CITY, UTAH

SHELVING

Application filed July 22, 1929. Serial No. 380,038.

This invention relates to shelving such as is generally used in stores, offices or warehouses, for supporting merchandise or articles of any kind.

The principal objects of the invention are to provide shelving, preferably made of metal, which shall:

First. Be easily and quickly erected or taken down as the case may require, therefore being essentially portable.

Second. Afford the convenience and economy of having only a few interchangeable unit parts, so that a great variety of shelving or cabinets may be constructed from shapes of comparatively few variations, these shapes being carried in stock in long lengths with connection facilities ready formed therein, and cut up as required for any particular job.

Third. Have the shelf supports adjustable with reference to the supporting standards.

Fourth. Be simple and comparatively low in cost.

In attaining these objects, I preferably carry the shelves on transverse supporting members, which in turn, are carried on posts or standards, one at each corner of a shelf. The posts may be of different shapes in cross-section, although I prefer to make the cross-section substantially a U-shape.

In constructing a long line of shelves, the same cross-section may be used for the intermediate posts as for the end posts. Each leg of the U may be perforated, the perforations having the general shape of the transverse shelf supports, preferably in the form of bars, which latter may extend from post to post, and be easily slipped into place or taken out for adjusting the positions of the shelves in the finished structure. The post perforations are preferably in pairs in each leg, so that the bars supporting the front and rear of the shelves, as well as inclined intermediate bracing and supporting bars, may be accommodated. The pairs of perforations are preferably formed comparatively close together along the vertical dimension of each post, so that in the finished structure, the shelves may be adjusted closely to varying requirements.

The posts may be formed of sheet metal and may have lugs formed integrally therewith, by stamping, one set of such lugs being provided for cross-member connections and another set for inclined bracing-member connections extending from one post to another.

By maintaining various regular dimensions between the posts from front to back and side to side, standard stock dimensions may be maintained, making it possible to supply long stock bars of material in which the desired connections are factory-formed, the stock bars needing only to be cut to the desired lengths.

The features of this invention, for which the protection of Letters Patent is desired, are collectively grouped in the claims concluding this specification.

In the drawings, which illustrate merely one embodiment of this invention,

Fig. 1 represents a front elevation of a simple cabinet;

Fig. 2, a rear elevation thereof;

Fig. 3, a vertical cross-section taken on line 3 in Fig. 1;

Fig. 4, a horizontal section taken on line 4—4, Fig. 1, shelves omitted;

Fig. 5, an enlargement of substantially the portion enclosed by line 5 in Fig. 3;

Fig. 6, an enlargement of substantially the portion enclosed by line 6, in Fig. 4;

Fig. 7, a section taken on line 7 in Fig. 6;

Fig. 8, the upper portion of a post viewed in perspective;

Fig. 9, the end portion of a cross bar ready to be connected to the post shown in Fig. 8;

Figs. 10 and 11, fragmentary portions of posts showing several modifications in perforations for transverse shelf supports;

Fig. 12, a fragmentary elevation drawn to an enlarged scale, showing the method of removably attaching panel inclined braces to the posts;

Fig. 13, an elevation of a panel inclined brace alone; and

Fig. 14, a fragmentary elevation, showing a modification of the connecting elements between a panel brace and a post.

Referring to the drawing, the numeral 20

indicates the corner posts of the cabinet, and 21, the intermediate posts. All the posts are preferably of comparatively thin metal, for instance steel, bent into a shape having substantially a U-cross-section. If desired, however, the cross-section could be of tubular or other form, so long as vertical walls of sufficient strength are provided, which can be perforated for the reception of various other members.

In the present instance, the perforations are arranged in two rows, disposed along the vertical dimensions of the posts, the perforations 24 in the row adjacent the bar of each U-section, being in the form of inverted L's, while the perforations 25 in the other row, that is, adjacent the extremities of the U-legs, are in the form of T's.

At the top and bottom extremities of the posts, are cross-pieces 28 and 29 respectively, these also being preferably of U-shaped cross-section, though smaller than the posts so as to fit between the post legs as shown. The cross-pieces are fastened to the posts by means of notched or slotted portions 30 and 31, interlocking with projecting lugs 32 and 33, respectively, which may be stamped in U-legs of the posts. The contacting faces of the lugs 32 and 33 are spaced apart from the inner faces of the post U-legs so as to snugly accommodate the thickness of the cross-piece U-legs.

It will be noticed that the cross-pieces 28 and 29 can easily be forced into place without the use of tools, by simply pushing in from top or bottom as the case may be.

The posts and cross-pieces attached thereto as just described, form unit frames or bents which are assembled to the finished shelf-supporting structure, by spacing them apart the proper distance from side to side.

The frames are tied together by inserting front and rear shelf-supporting transverse members 35, which may be made to fit loosely into the perforations 24. These shelf-supporting members have the notched portions 36 formed close to each extremity thereof, so as to engage and interlock with the adjacent wall portions of the posts, as indicated in Fig. 7. The shelf-supporting transverse members may be conveniently brought into the assembled position 35^1, Fig. 1.

In a similar manner diagonal members 37 as auxiliary supports for the shelves, may be inserted in the T-shaped notches 25, where they assume the final position indicated in Fig. 4.

After the shelf supports and braces are all in place between the posts, the shelves 38, which may have the depending flanges 38^1, are placed in the position indicated in Fig. 3.

The structure may be stiffened by means of the cross braces 39, which are notched as at 40, to engage the lugs 41 projecting from the exposed faces of the rear posts, as shown in Fig. 12.

It will be observed that the braces 39 are put in position by simply pushing them substantially vertically over the heels 50 and back of the lugs 40, thus obviating the need for tools in assembling. In Fig. 13, a cross brace 39 is shown independently, and its movement downwardly into the assembled position, shown in Fig. 12, can be readily visualized.

At 42 is shown a modified form of the inclined panel braces. In this form the heels of the post lugs 51 have a different angle with respect to the bodies of the braces, so that the notched portions have a slightly different form, which might in some instances be preferred to the construction just previously described.

At 52 and 53 in Figs. 10 and 11, respectively, are shown several other shapes, as examples of which may be given the perforations in the posts for shelf supports and braces. Naturally the supports and braces would be of cross-section corresponding to the respective post perforations.

The L-shaped cross-section of the front and rear shelf-supporting members 35, is probably the most desirable for most uses, but, as the L-shape is not of a symmetrical form, it becomes necessary to utilize a T-shaped cross-section for the diagonal auxiliary shelf supports 37 in order that the punching of perforations for the shelf supports in the posts may be uniform for both the front posts and the rear posts. Thus the same punching may be used for both, by simply reversing them relatively to one another in assembling. The L-perforations in the front posts are adjacent the front faces 26, while the L-perforations in the rear posts are adjacent the rear faces 27, the T-perforations in each case being adjacent the mutually opposed extremities of the post U-legs.

While a specific embodiment of my invention is herein shown and described, it is to be understood that various changes could be made therein without departing from the spirit and scope of the invention as defined in the claims.

What I claim is:

1. A shelving structure comprising front and rear posts, said posts having a general U-shaped cross-section, connecting cross-pieces extending from the front posts to the rear posts, the U-legs of said posts having lugs spaced inwardly of said U-legs, said cross-pieces having notched portions engaging said lugs, transverse shelf-supporting members extending between and connected to successive front posts, and other transverse members extending between and connected to successive rear posts.

2. In a shelving structure, supporting posts having a general U-shaped cross-section,

cross-piece-connection lugs extending and spaced apart, from the legs of said U and means defining transverse-member-receiving perforations in the legs of said U.

3. A shelving structure comprising front posts spaced apart from one another, said posts having a general U-shaped cross-section, rear posts spaced apart from one another and from said front posts, said rear posts having a general U-shaped cross-section, the legs of the said front posts and the legs of said rear posts extending mutually toward one another, cross-pieces extending between corresponding front posts and rear posts, means connecting said cross-pieces to the said front and to said rear posts, transverse shelf-supporting members having lower notched portions extending between said front posts, the U-legs of said front posts having perforations therein to receive said transverse shelf-supporting members, the said notched lower portions engaging the said U-legs; other transverse shelf-supporting members having lower notched portions, extending between said rear posts, the U-legs of said rear posts having perforations therein to receive the said other transverse shelf-supporting members, and shelves supported by said shelf-supporting members.

4. In a shelving structure, supporting posts having a general U-shaped cross-section, cross-piece connection lugs extending, and spaced apart, from the legs of said U, means defining transverse-member-receiving perforations in the legs of said U, and inclined-brace-receiving lugs extending, and spaced apart, from the bar faces of said U-cross-section of the post.

5. In a shelving structure, a plurality of hollow posts, means defining a plurality of openings in the walls of said posts, said openings being in pairs, said pairs extending in substantially vertical sequence, transverse shelf-supporting members having notched portions extending through one set of openings of said pairs, diagonal-shelf-supporting members having notched portions extending through the other set of openings of said pairs, all the said notched portions engaging the walls of said posts.

In testimony whereof I sign my name hereto.

ARTHUR A. PANNIER.