A. F. ERICKSON.

METAL SHELVING.

APPLICATION FILED JUNE 19, 1919.

1,386,168.

Patented Aug. 2, 1921.

3 SHEETS—SHEET 1.

Fig. 2.

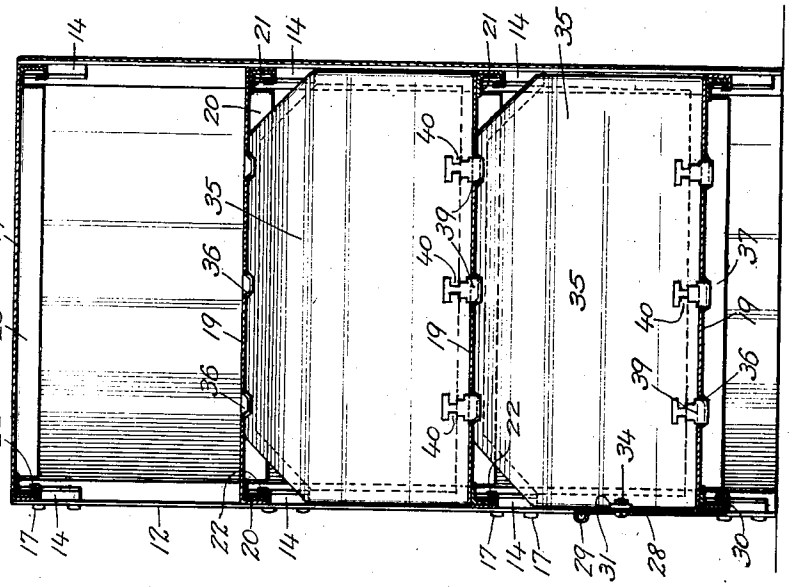
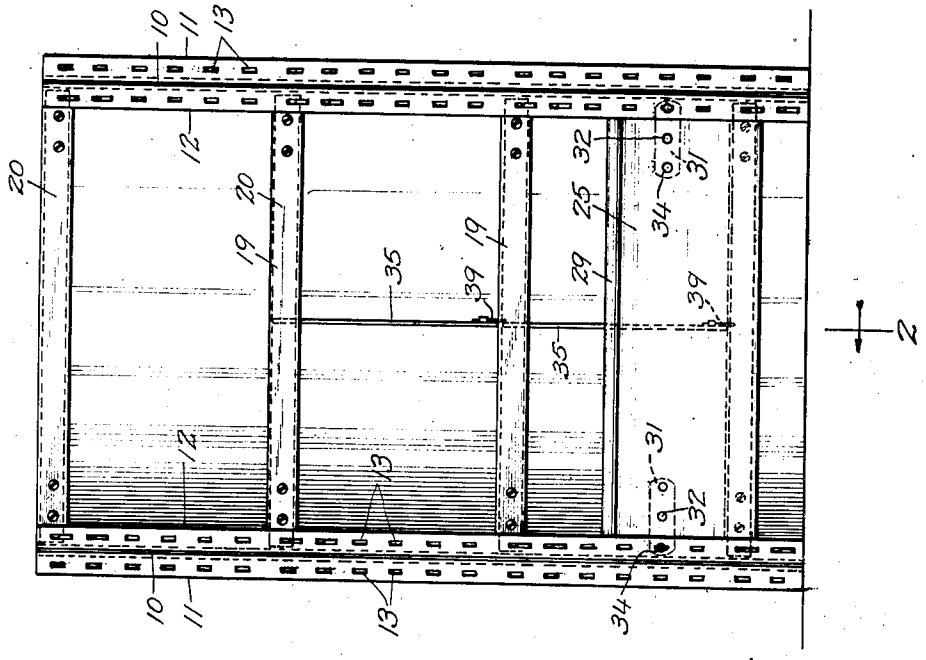


Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 3.

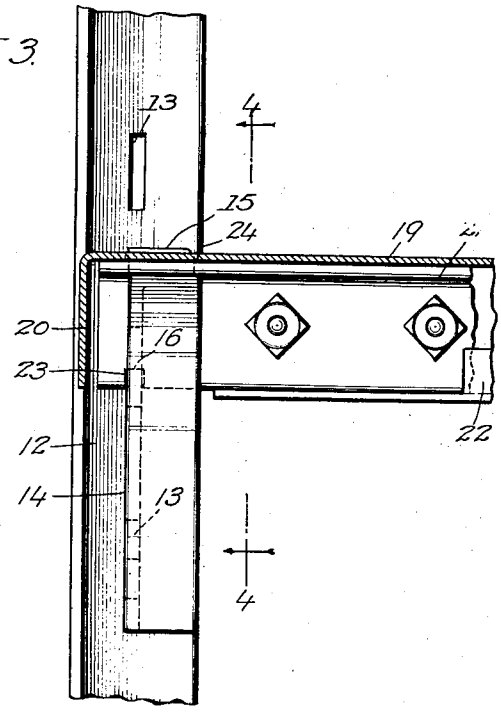



Fig. 4.

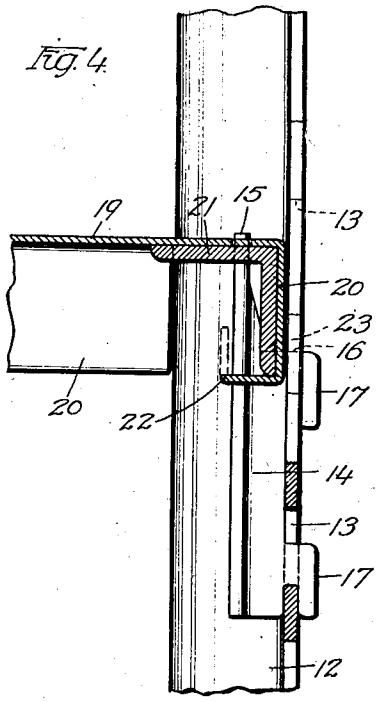



Fig. 5.

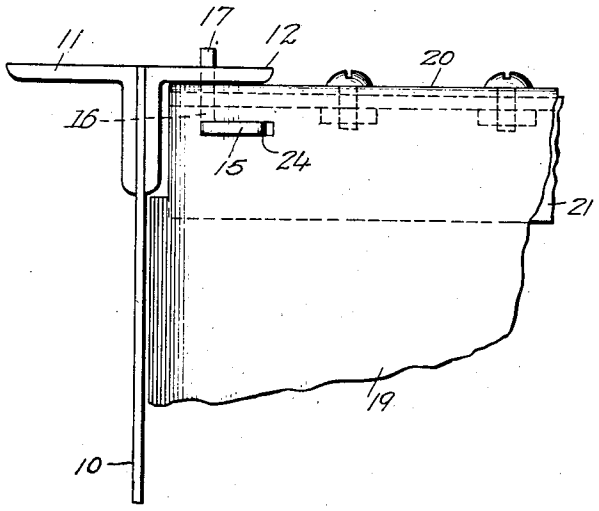
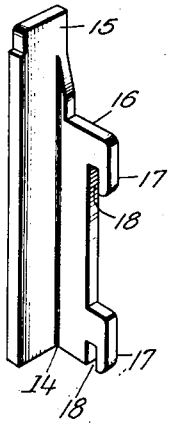



Fig. 6.




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3 SHEETS—SHEET 3.

Fig. 8.

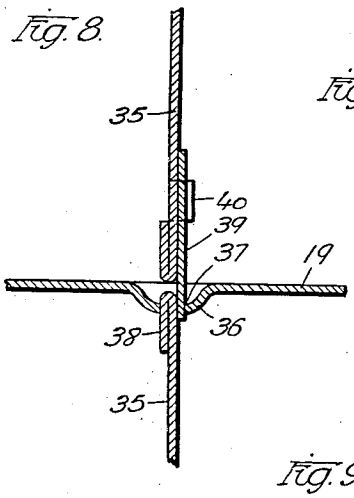



Fig. 7.

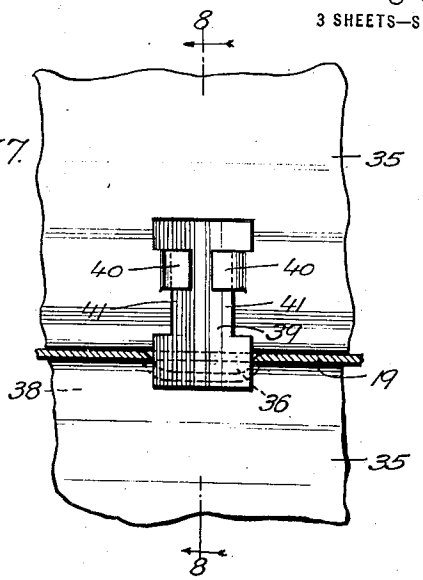



Fig. 9.

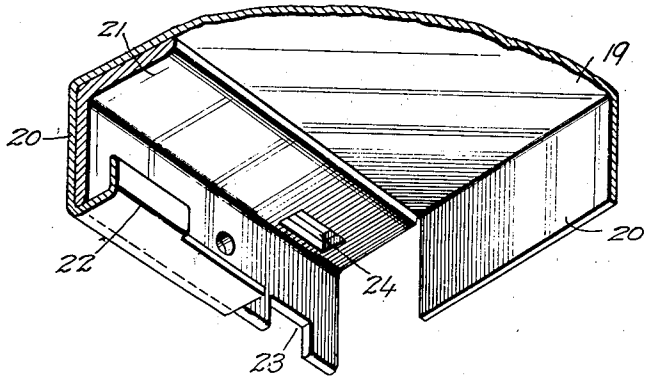
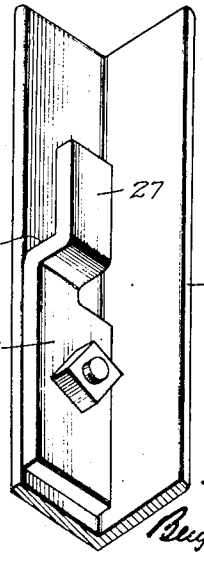



Fig. 10.




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# UNITED STATES PATENT OFFICE.

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## METAL SHELVING.

1,386,168. Specification of Letters Patent. Patented Aug. 2, 1921.

Application filed June 19, 1919. Serial No. 305,364.

*To all whom it may concern:*

Be it known that I, AXEL F. ERICKSON, a citzen of the United States, and resident of Aurora, in the county of Kane and State of Illinois, have invented new and useful Improvements in Metal Shelving, of which the following is a full, clear, and exact description.

My present invention appertains to shelving structures that are fabricated entirely of metal. Among the divers objects of this invention is the provision of a shelving structure that is made up in units or sections that may be assembled side by side or built up to fit into spaces of divers dimensions, and when thus assembled are capable of being secured or locked together to form a complete structure. Another object of my invention is to provide suitable means for adjustably and removably mounting the shelving in the frame or housing of their respective units, and in this connection, I have designated a novel self-mounting bracket that is removably secured to the standard members and with which the edges or corners of the shelves are adapted to interlock. I have also provided a novel way of mounting and locking vertical dividing walls or partitions between the shelves whereby any one or more of said partitions may be removed, their location changed, or additional partitions installed without the necessity of disturbing the shelves or other partitions. I have also provided a removable bin-wall that is adapted to assemble with the shelf structure and its supports And, finally, it is an object of my invention to provide a structure of this description that is easy to assemble or change, that is strong enough to sustain a considerable weight, so that the liability of the shelves to shift or jar loose is avoided, and which can be manufactured economically through the employment of a minimum number of operations both in the fabrication of the requisite parts and the assembly of the parts after fabrication, so that it is salable at a moderate price and can be erected or disassembled without special tools. All of these objects I accomplish substantially in the manner herein described, and as more particularly pointed out in the claims, reference being had to the accompanying drawings that form a part of this specification, in which—

Figure 1 is a front elevation of a unit of shelving made in accordance with my invention.

Fig. 2 is a vertical section thereof on line 2—2, of Fig. 1.

Fig. 3 is a view, enlarged, of a fragmentary portion of a corner of the shelving showing the manner of supporting the shelf plates.

Fig. 4 is a fragmentary view at right angles to Fig. 3.

Fig. 5 is a top plan of the structure illustrated in Figs. 3 and 4.

Fig. 6 is a perspective of the shelf mounting bracket removed from the supporting standard.

Fig. 7 is a fragmentary detail showing the manner of locking the vertical partition, and

Fig. 8 is a transverse section thereof on line 8—8, Fig. 7.

Figs. 9 and 10 are perspectives of modified constructions of shelves and mounting brackets, the parts being in position for assembly.

In the drawings, I have employed the same reference characters to designate similar elements throughout the divers views. By reference to Fig. 1 it will be seen that a unit of my shelving comprises a housing or walls of sheet metal mounted upon angle metal standards and the shelving are removably interlocked with and supported upon brackets that are adjustably mounted in the standards of the frame.

The upright members comprise the side walls 10, 10 that are rectangular sheets of metal, to the vertical front and rear edges whereof angle metal strips 11 and 12 are, respectively secured. These angle metal strips are, preferably, of L-section and are disposed flange to flange so as to provide a T both at the front and rear of these side walls. The laterally disposed flanges of the angle strips 11 and 12 are provided with a longitudinal row of substantially rectangular slots 13 for adjustably positioning the shelf supporting brackets. It is obvious that the shelf supporting brackets may be of any desired shape and any suitable means may be employed for interlocking or providing coaction between the said brackets and the shelves, or angle strips. In Fig. 6 of the drawings, I have shown a preferred form of a shelf bracket which consists of a piece of angle metal 14 of L-shape, one of

the flanges whereof is longer than the other to provide an upstanding member or tongue 15, while the upper edge of the shorter flange provides a horizontal shoulder 16. The remaining portion of this shorter flange of the bracket is constructed to provide substantially L-shaped hooks 17, 17, as shown in detail in Fig. 6 of the drawings. These hooks 17 are of such length on their outer edges that they readily fit into the slots 13 in the angle strips, and the notches 18 formed by these hooks are of such width as to permit the bracket to be lowered after the hooks are inserted in the slots, thus securely locking the brackets in place.

The shelves 19, preferably, consist of a sheet of metal of rectangular contour, the edges whereof are bent downwardly to provide reinforcing or stiffening flanges 20, and suitable angle metal side-rails 21 of L-section are fitted into the corners formed by these flanges along the front and rear edges of the shelves. These forward and rear edges of the shelf-plate after forming flanges 20 are bent rearwardly under the lower edges of the side rail angle strips into substantially L-shaped flanges 22, the shorter arm of which is, preferably, upstanding, as shown in dotted lines in the section (Fig. 4). In order to fit and interlock the shelf structure with the brackets, suitable notches 23 are made adjacent the opposite ends of the front and rear flanges 20 and the angle side rails 21, and elongated slots 24 are cut through the body portion of the plate and the horizontal flange of the side rails above these notches 23. This assembly prevents lateral movement of the shelves, as well as securely locks the side-walls and the upright members to prevent them working askew, and thereby forming a rigid construction. By adjusting the relative portions of the brackets in the slots 13 of the uprights, the shelves may be positioned different distances apart, depending upon the material to be stored upon the shelves.

In Fig. 10, I have shown a modified shelf mounting bracket which consists of a short piece of bar metal 25 the upper portion whereof is bent L-shaped and cut away slightly to provide a shoulder 26 to receive the notch in the shelf member and the upper standing member 27 will fit into slot 24.

When it is desired to employ the shelf structure for bins, suitable bin-walls 28 are provided that will fit the front and rear spaces between the shelves. The upper edges of these bin-walls 28 are rolled over upon themselves, as shown at 29, and the lower portions extend to approximately the horizontal plane of the lower edge of flanges 20 of the shelves where they are bent inwardly and then upwardly to provide L-shaped flanges 30 that fit around the correspondingly bent lower portion of the flanges 20. These bin-walls are secured in position by means of pivoted lock plates 31 mounted upon a pin 32 adjacent opposite ends of the bin-walls, which lock plates have slots 33 in their outer portions in order that they may be assembled by means of a bolt 34, or other suitable means with the apertures or slots 13 in the upright members.

To divide the shelf space into two or more compartments, I have provided the dividing or partition wall 35 that is, preferably, assembled with the shelves in the following manner:—Suitable downwardly extended embossments 36 are made in the plates comprising the shelves, and said embossments are provided with slots 37 that extend forwardly and rearwardly of the shelves. These slots are wide enough to receive the folded over upper edge 38 of the dividing wall or partition, and also to receive the locking bolts 39 positioned on the lower edges of the partition walls. As shown in the drawings, these locking bolts 39 are of substantially T-shape and are fitted into slots formed by stamping out short oppositely disposed tongues 40 from the metal of which the partitions are made. The locking bolts are provided with reduced or neck portions 41 around which these tongues are fitted so as to prevent the removal of the bolts, but allow them to be raised or lowered when they are being used to secure the partition walls in position.

While I have illustrated and described herein certain preferred instrumentalities for carrying out my invention, it will be obvious, after an understanding of my invention is had, that divers refinements or modifications thereof may be made. For example, the particular bracket for supporting the shelves and the particular manner of mounting the bracket upon the standards may be accomplished in numerous ways, and I have shown in Figs. 9 and 10 a modification thereof, which embody the principle of my invention. I desire it understood that all such changes are contemplated within the scope of the appended claims.

What I claim as new is:—

1. A structure of the kind described comprising vertical standards of angle metal, brackets each having a lateral shoulder and an upstanding portion above said shoulder, said standards and brackets constructed to coact with each other whereby the latter are supported on the former, and a shelf the corner portions whereof have downwardly extending flanges that are constructed to coact and interfit with the shoulder on said brackets and the body of said corners provided with slots into which the upstanding portions of said brackets extend.

2. A structure of the kind described comprising vertical standards of angle metal one of the flanges of each standard provided

with apertures, brackets mounted on said standards by elements that engage said apertures, said brackets constructed with a lateral shoulder and an upstanding portion above the same, and a shelf supported by said brackets the corner portions whereof have downwardly extended flanges that are notched to coact with the shoulder on said brackets and the body of said corner portions provided with openings into which the upstanding portions of said brackets extend.

3. A structure of the kind described comprising upright members each consisting of a pair of substantially L-section angle metal strips disposed flange to flange to provide a T, a side-wall plate interposed between the facing flanges and secured thereto, the lateral oppositely disposed flanges of said strips provided with apertures, brackets mounted on said angle metal strips by elements that engage said apertures, said brackets constructed with lateral shoulders on their upper portions and an upstanding portion above the same, and a shelf supported by said brackets having downwardly extended flanges along two edges, said flanges adjacent their ends being notched on their lower edges to coact with the shoulder on said brackets and said shelves provided adjacent their corner portions with apertures into which the upstanding portions of said brackets extend.

4. A structure of the kind described comprising upright members, brackets each having a lateral shoulder and an upstanding portion above said shoulder, said upright members and brackets constructed to coact with each other whereby the latter are supported on the former, and a shelf consisting of a rectangular sheet of metal having opposite edges downwardly flanged, angle metal strips fitted into the flanged edges of said shelf, said flanges and angle strips having notches in their lower edges to coact with the shoulder on said brackets and the horizontal portions of said shelf plate and angle strips having slots into which the upstanding portions of said brackets extend.

5. A structure of the kind described comprising standards, side-walls secured to said standards, brackets adjustably and removably mounted on said standards, shelves removably supported on said brackets and having vertically disposed front and rear portions and removable front and rear walls coacting with certain of said shelves; said walls provided with lateral flanges along their lower edges coacting with the vertical portions of the shelves, and substantially flat elongated plates pivotally mounted on said walls for removably securing said front and rear walls to said standards.

6. A structure of the kind described comprising standards provided with apertures, side-walls secured thereto, shelves removably supported upon elements that coact with the apertures in said standards, the front and rear edges of said shelves having downwardly extended flanges, and removable walls coacting with certain of said shelves, the lower portions of said walls being provided with L-shaped inwardly extending flanges that coact with the flanges on said shelves, and said walls provided with means for securing them to the standards consisting of substantially flat elongated plates pivoted intermediate their ends on said walls and provided with apertures adapted to connect with the apertures in said standards.

7. A structure of the kind described, comprising upright members, shelves adjustably and removably carried thereby, a plurality of hollow lugs struck out from said shelves, each lug provided with a slot, partition walls positioned upon said shelves with their upper portions entering the slots of the lugs, and reciprocable bolts carried by the lower portions of each wall and projected into the slots receiving alining walls.

8. A structure of the kind described, comprising a standard, a bracket mounted on said standard, said bracket constructed with a lateral shoulder and an upright extension arranged at an angle to said shoulder, a sill of angular section, one flange whereof engages the shoulder of said bracket and the other flange provided with an aperture arranged to receive the upright extension of said bracket.

9. Means for mounting shelves comprising a bracket of angle metal, one of the longitudinal flanges whereof is longer than the other whereby a transverse shoulder and an upstanding portion are provided, and hooks on one of the flanges of said bracket adapted to coact with apertures in a suitable support.

10. A structure of the character described, comprising a series of vertical standards, a series of angular brackets adapted to engage said standards, each bracket provided with a laterally extending shoulder, and an upright extension arranged at right angles to said shoulder, and a shelf provided with a downwardly extending flange adapted to engage the shoulder of said upper bracket and an aperture arranged to receive the end of the upright extension thereof.

Signed at Aurora, county of Kane and State of Illinois, this 18th day of April, 1919.

AXEL F. ERICKSON.

Witnesses:
HAROLD L. HENRY,
JOHN E. CARR.