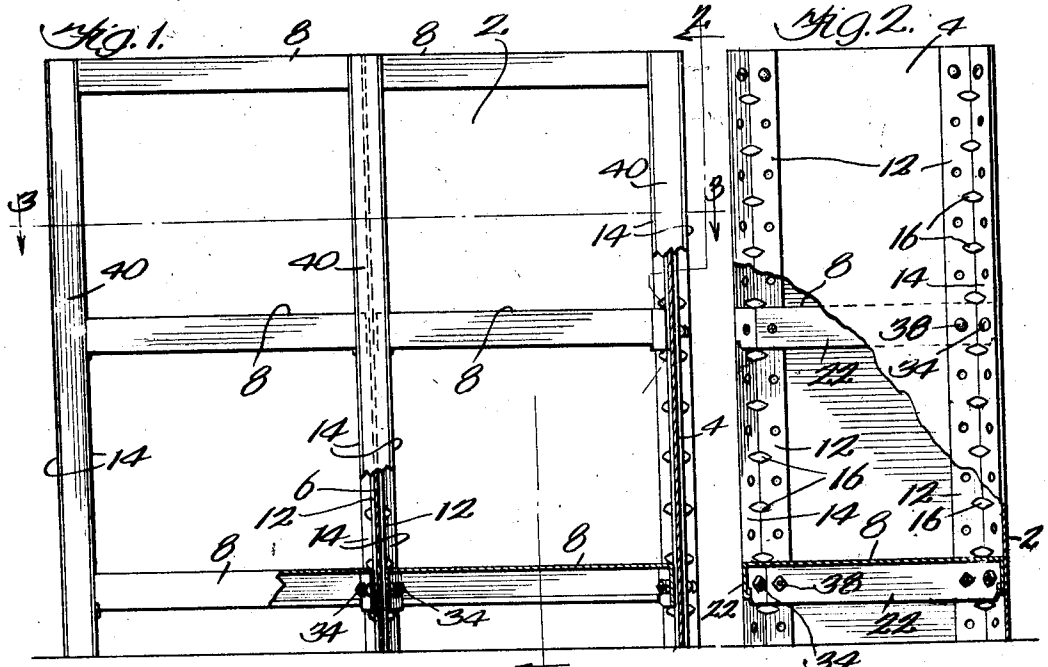
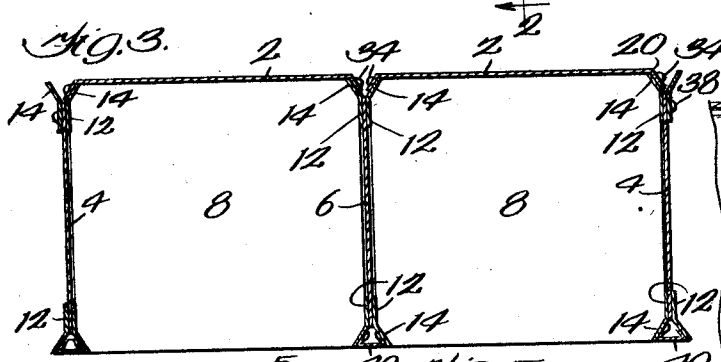
Oct. 30, 1928. 1,689,481

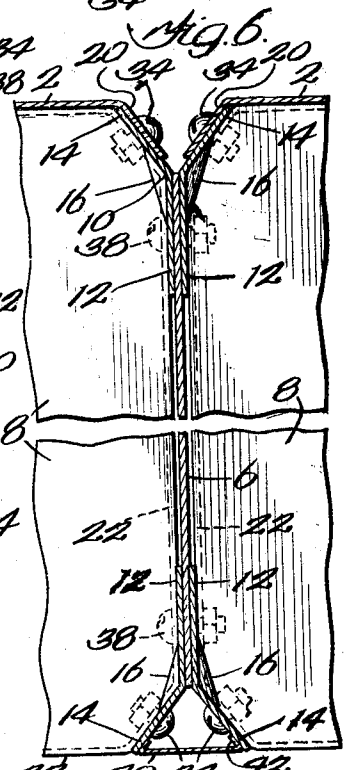
C. E. GERBERICH

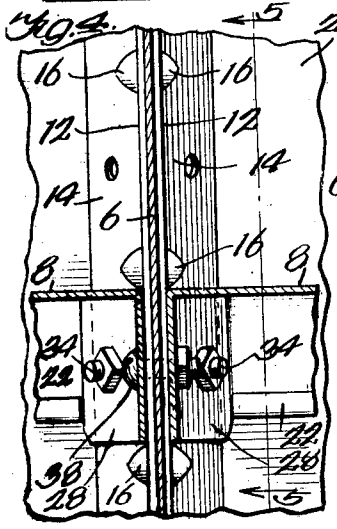
SHELVING

Filed Jan. 15, 1927 2 Sheets-Sheet 1









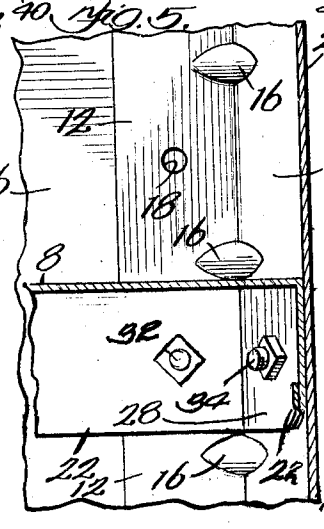


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Fig. 7.

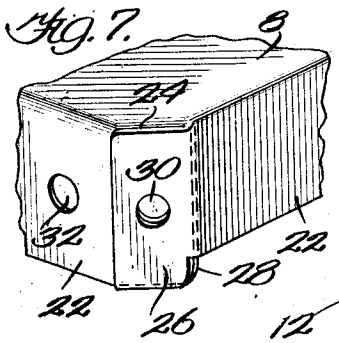
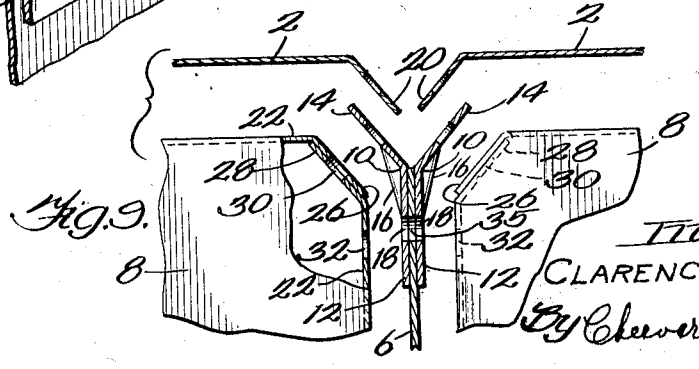


Fig. 8

Fig. 9.



Inventor.
CLARENCE E. GERBERICH
By Cleaver & Hart Attys.

Patented Oct. 30, 1928. 1,689,481

UNITED STATES PATENT OFFICE.

CLARENCE E. GERBERICH, OF AURORA, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LYON METAL PRODUCTS, INCORPORATED, OF AURORA, ILLINOIS, A CORPORATION OF ILLINOIS.

SHELVING.

Application filed January 15, 1927. Serial No. 161,393.

My invention relates to improvements in sheet metal racks, stacks, and shelving of the so-called unit or built-up type.

One of the objects of my invention resides in the provision of a rack, stack or shelving which is rugged in construction, economical to manufacture and easy to assemble and disassemble.

Another object resides in providing a stack with beveled corners which not only eliminate the usual sharp-angled corners of prior constructions that tend to mar and gouge into adjacent objects but which also provide a rugged construction especially adapted to permit unit stacks to be interconnected at their sides and corners by shelves in a manner to brace the stack against lateral swaying in a plurality of directions.

Still another object is to provide an assemblable stack of the above character wherein the bolts or other fastening devices which hold together the parts and adjacent units lie wholly within the planes of the sides or backs of the structure whereby the exterior stack walls do not present salient or projecting fastening bolts.

A further object resides in the provision of obtuse-angled strips for the corners of the stacks, which strips not only lend themselves to the promotion of inherent strength in the stack, but also facilitate the assembly of a plurality of units.

Still another object resides in the construction of the shelves with beveled corners, and in the arrangement of these shelves with respect to the obtuse-angled corner strips which form the beveled corners for the stacks, and especially in the manner of interconnecting the side and back plates, the strips and shelves of two adjacent units to provide a rugged and quickly assembled structure.

These and other objects of invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings wherein

Figure 1 is a front view of my improved construction with certain parts broken away.

Figure 2 is a view on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is an enlarged view of the junction of the units as shown in the central part of Figure 1.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is an enlarged and collapsed view of the joint shown in section in Figure 3 of the drawings.

Figure 7 is a perspective view of the corner construction of the shelf.

Figure 8 is a perspective view of the corner junction; and

Figure 9 is an exploded view of the junction of the various shelf members and the back and side pieces.

In the drawings which illustrate a preferred embodiment of my invention, each stack is substantially rectangular in shape and is provided with beveled corners and the stacks are constructed so that the units may be fastened together to provide a very strong, interconnected structure. In particular each stack comprises a back plate 2, two side plates 4 and 6, any desired number of shelves 8 and a plurality of obtusely angled strips, all of which parts are of sheet metal. Each stack is provided with four of these strips located at the corners so as to form the supporting feet of the stack. These strips extend the entire height of the stack and also serve to unite the side and back plates and shelves into one rugged structure. Each strip is bent longitudinally as at 10 to provide two flanges 12 and 14 disposed at an obtuse angle the one to the other. The flange 12 is preferably wider than flange 14. Each strip is provided along its length with a series of spaced-apart struck-out webs 16 lying preferably transversely across the line of bend 10 as shown clearly in Figure 8 of the drawings, and intermediate these webs 16 I provide the strips with a series of spaced perforations 18 for receiving the fastening bolts or other means for uniting the parts together. The flange 12 of the strip serves as the attaching means for the side plates 4 and 6 while the flange 14 of each strip forms the beveled corners for the stack. In addition these two flanges 12 and 14 secure the shelves to the plates, thereby rigidly connecting all parts of the stack together in all directions and thereby eliminating lateral swaying.

The back plate 2 of each stack is formed on its opposite ends with an inwardly turned flange 20 bent at an obtuse angle to the main portion of the plate. These angularly dis-

posed strips which are of the same angularity as the flanges 12 and 14 of the strips overlap the flange 14 so that the flanges 20 and the flanges 14 form diagonally disposed or beveled corner faces for the stacks.

The shelves are of special construction and are designed to fit the beveled corners of the stack and so that common fastening means may pass through the plates, strips and shelves. Each shelf is substantially rectangular in outline to fit between the four corner strips and is provided with depending side flanges 22 on all four sides. At each corner the shelves are formed with beveled vertically disposed walls formed preferably by cutting or slitting the metal of each flange at its junction with the horizontal wall of the shelf, and for a short distance from the corner as at 24 which thus produces two free ends 26 and 28 of these adjacent flanges. These flanges are then disposed in overlapping relation, the metal of the horizontal portion of the shelf at the corner being cut away or turned down to meet the overlapped flanges as shown in Figure 7 of the drawings. The flanges may be suitably spot welded together and are formed with perforations—one, 30, through the angular or beveled face formed by the overlapped flanges and the other, 32, through one of the adjacent side flanges of the shelf. The diagonal face formed by the overlapped flanges 26 and 28 is disposed at an obtuse angle to correspond with the angularity of the flanged portions 12 and 14 of the strips so that when the shelves are in position the chamfered wall of the shelf snugly fits the beveled wall of the stack formed by the flanges 14 and 20 of the strip and back wall respectively. When the parts are ready for assembly a fastening bolt or other fastening device 34 is passed through the registering bolt holes in the flanges 20, 14 and through the bolt hole 30 of the shelf 8. In addition another bolt is passed through the registering bolt holes 35 of the side plate 4, the hole 18 of strip flange 12 and through hole 32 of the shelf flange. This occurs at all four corners of the stack so that a strong and rigid structure is formed. If desired one or more flanges of each shelf may have its lower edge curled back to lend strength and rigidity. It will be also noticed that the shelves are secured in place just between the transversely disposed webs 16 of the vertical angle strips so that these strips are reinforced not only at the webs but also by the shelves themselves.

When two of such stacks are united together or when an additional unit is built onto a stack a very sturdy construction is assured by arranging the obtusely angled strips back-to-back as shown in Figure 9 of the drawings. In this arrangement the plate 6 will form a common side plate for the two connected stacks and will be disposed between the back-to-back angled strips so that the corresponding flanges 12 of these strips form approximately the long leg of a letter Y with the divergent flanges 14 forming the free arms of the Y. The flange 20 of the back plate 2 of the stack to be added and the shelf 8 are then attached to flange 14 of the added strip to form the beveled face of the next adjacent stack. The fastening bolt 34 holds all of these parts securely as heretofore described. Another single bolt 38 now serves to fasten together the two shelves, the registering flanges 12 and side plate 6. By reference to Figure 6 of the drawings it will be noticed that the bolts 34 which pass through the beveled face of the stack and shelf members lie wholly within rear wall plane of the stack and also inside of planes of projections of the back and side plates 2 and 4 so that no exposed bolts project beyond the rear face or side face of the stack. It will be further observed that by reason of the beveled corners the usual right angled sharp corners are eliminated so that when the stack is moved about or if other articles contact with the corners of the stack they are less liable to become marred or injured. It is also evident that by reason of the diagonal corners the supporting feet for the stacks are more extensive and hence stronger than the usual right angled strips and that the shelves are fastened in position at the corners by two bolts both being disposed within the limits of the rear wall of the stack.

In some instances I prefer to assemble a stack with the exterior side wall having both angular strips attached in position back-to-back, such, for instance, as hown in Figure 5 of the drawings wherein the added strip is shown with its divergent flange 14 projecting outwardly at the rear. This member when thus positioned is instantly ready for having another unit attached to it. So also in some instances I prefer to close the opening at the junction of two beveled corners of adjacent stacks by means of a vertical strip 40 which has inturned flanges 42 by which it may be soldered or otherwise fastened to the outer walls of the flanges 14 of the strips. A stack as hereinbefore described is very advantageous in that it is composed of few parts, all made of sheet metal, and arranged to be assembled by accessibly disposed bolts. It will be also appreciated that by reason of the disposition of parts each bolt serves to secure all of the parts in position the one to the other, the adjacent shelves being secured together in a horizontal plane and being solidly united to the side and rear walls 2, 4 and 6 by means of the angularly disposed strips which because of their obtuse-angled arrangement and the beveled faces of the shelves provide a rigid bracing for securing the stacks from lateral swaying in either direction, front to back, or laterally.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A plurality of connected unit stacks of rectangular shape, the adjacent corners of the connected stacks each having a vertical corner strip providing flanges disposed at an obtuse angle, corresponding flanges being arranged back to back with a common stack plate therebetween, said flanges, plate and shelf members of each stack being fastened together by means passing therethrough, the other flanges extending flaringly outwardly to form beveled corners and an exterior plate having a flange overlapping the flaring flange of each strip and fastening means passing through said overlapping flange, the flange of the strip, and through a shelf member of such beveled corner, said fastening member last mentioned lying within the planes of projection of the exterior plates of adjacent stacks.

2. A corner strip for forming beveled corners of rectangular steel stacks comprising a relatively long and thin strip of sheet metal bent longitudinally to provide flanges disposed at an obtuse angle, said strip being provided with struck-out webs extending across the bend and extending in spaced relation longitudinally of the strip.

3. A corner strip for forming beveled corners of rectangular steel stacks comprising a relatively long and substantially thin strip of sheet metal bent longitudinally to provide flanges disposed at an obtuse angle, said strip being provided with struck-out webs lying across the bend and extending in spaced relation longitudinally of the strip and said flanges having a series of perforations spaced longitudinally of the strip for receiving fastening members.

4. A rectangular shelf made from a single sheet of metal, said shelf having a horizontal supporting surface and integral vertical flanges, said flanges being disposed at right angles at the corners being cut away from the horizontal surface along the face of each flange for a short distance the free ends of the cut away portions being overlapped and united to form a beveled corner for the shelf.

5. A rectangular shelf made from an integral piece of sheet metal, said shelf having depending flanges cut away at the corners to provide free tongues overlapped to produce a beveled corner, one of the flanges having its lower edge folded upon itself to stiffen the flange.

6. A stack construction wherein the rear and side plates are disposed at right angles, vertical strips disposed at the corner junctions of said rear and side plates and having flanges disposed at an obtuse angle and means for fastening one of said plates to one flange of the strip, the other plate having a flange bent to lie parallel and overlap the other flange of the strip and fastened thereto whereby said plates and last mentioned flange all lie in different planes.

7. A rectangular stack having vertical corner strips provided with flanges disposed at an obtuse angle and exterior plates and interior shelves fastened to the flanges, said vertical strips, plates and shelves forming beveled corners for said stack.

8. A rectangular stack comprising two side plates, four vertically extending strips forming front and rear corner feet and corner members for the stack, each strip being bent longitudinally to form obtusely angled flanges, means fastening the front and rear vertical edges of each side plate to one of the flanges of each strip whereby said other flange forms a beveled corner for the feet and stack, and a rear plate having its ends at the same obtuse angle and overlapping and fastened to the other flanges of the two rear strips.

9. A rectangular stack having a beveled corner at the junction of the exterior plates, comprising a vertical strip the base of which forms a corner foot for the stack, said strip being bent longitudinally to form obtusely angled flanges one of which is fastened to one of the plates and the other is fastened to an angularly flanged portion of the other plate, said other flange and the flanged portion of the other plate forming the beveled corner of the stack.

10. A rectangular stack construction for inter-connected unit stacks each having beveled corners and including a plurality of plates, comprising in combination with the adjacent plates of the two stacks, a common plate, two vertical strips each bent longitudinally into obtusely disposed flanges, the corresponding flanges of each strip being arranged back to back with an edge of the common plate fastened therebetween and thereto, the opposite flanges of said strips diverging outwardly and forming opposed beveled corners for the united stacks, the adjacent ends of the adjacent plates being bent at similar obtuse angles and each overlapping one of said divergent flanges and fastened thereto.

11. A corner construction for a sheet metal stack comprising in combination, with adjacent exterior plates of the stack disposed at right angles to each other, a vertical strip bent longitudinally to provide flanges disposed at an obtuse angle, one of said plates being fastened to one of said flanges, and fastening means passing through the other plate and said other flange, said fastening means lying inside of planes forming projections of said plates.

12. A rectangular steel stack having beveled corners, rectangular-shaped shelves disposed in said stack and formed with correspondingly beveled corners, said beveled corners having flanged portions formed with diagonally disposed faces, and fastening means passing through the diagonally disposed faces of said stack and shelf corners.

13. A rectangular steel stack of the unit

type comprising corner members formed of vertical strips bent longitudinally to provide flanged portions disposed at an obtuse angle, said strips serving to join adjacent plates disposed at right angles and one of the flanges of each strip forming a beveled corner for the stack.

14. A plurality of connected steel stacks of rectangular shape, each stack having vertically extending strips at its corners, each strip being bent longitudinally at an obtuse angle to form flanges, the strips of adjacent corners of connected stacks being arranged back-to-back, a common side plate fastened between corresponding flanges of said adjacent strips, the other flanges of the adjacent strips having flanged portions of exterior plates overlapping them with fastening means passing therethrough said other flanges and overlapping flanges forming beveled corners for the stacks, shelves for each stack, each of said shelves having beveled corners fitting in a chamfered corner of the stack and having flanged portions attached to the flanges of said strips by the fastening means passing therethrough.

15. A stack of the character described comprising vertically disposed corner strips bent longitudinally to provide flanges disposed at an obtuse angle and braced by a series of struck-out webs extending in spaced relation longitudinally of the strips, side plates and back plates united to the flanges of said strips and forming with said flanged strips beveled corners for the stacks, and a plurality of shelves having correspondingly beveled corners and transversely disposed between said strips and plates, and intermediate said webs, and bolts passing through said plates, the flanges of said strips and said shelves.

In witness whereof, I have hereunto subscribed my name.

CLARENCE E. GERBERICH.