

June 28, 1932.

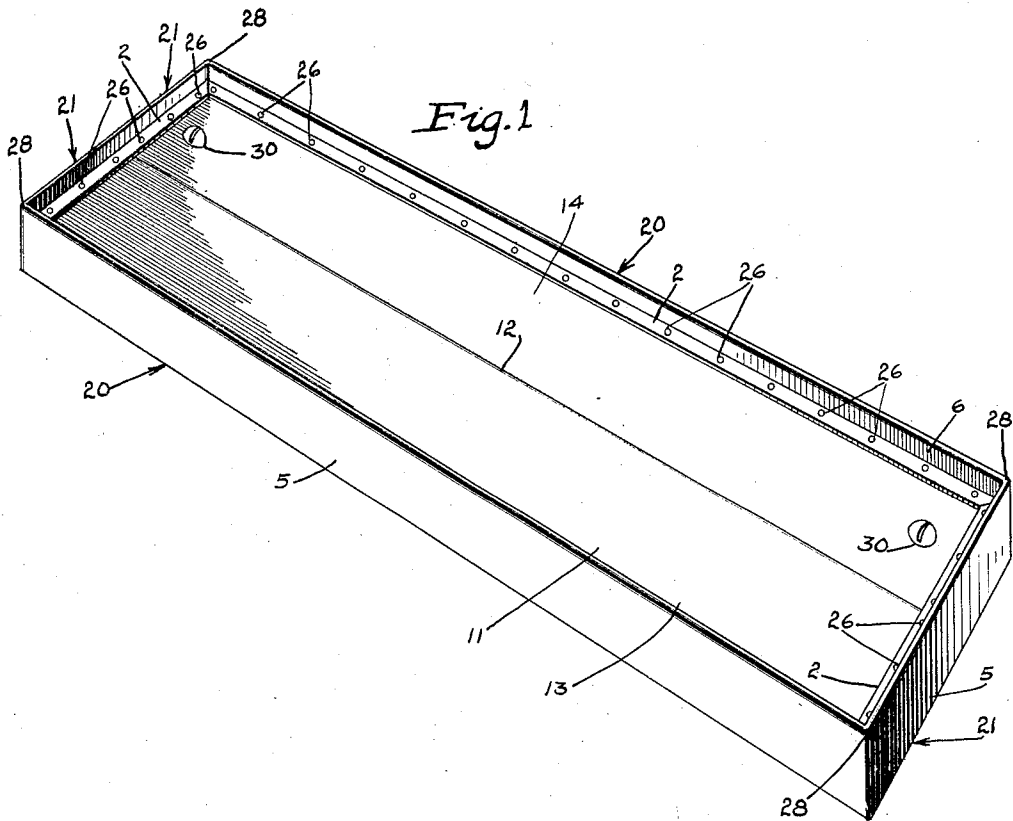
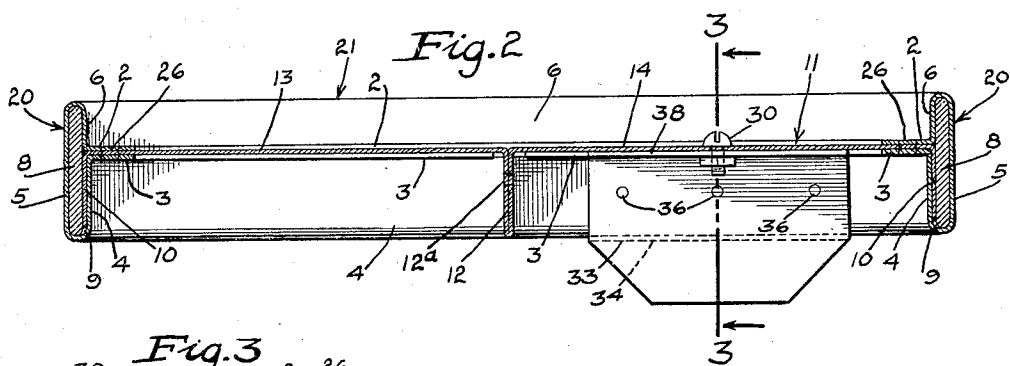
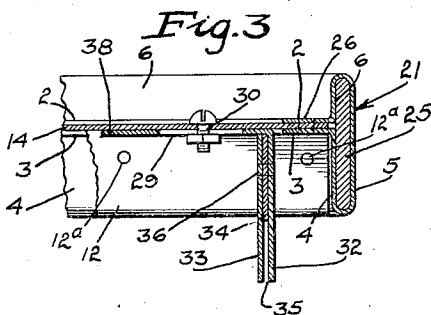
H. B. HYAMS

1,864,907

SHELF

Filed May 24, 1930

2 Sheets-Sheet 1



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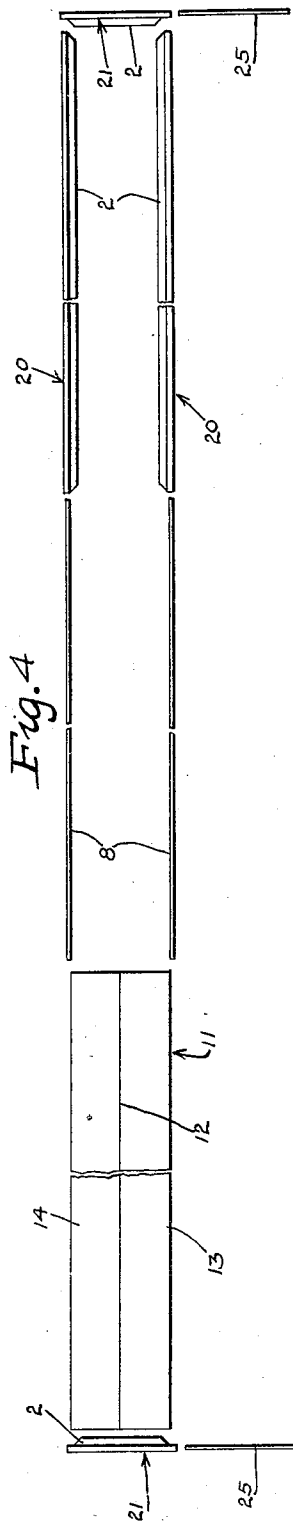
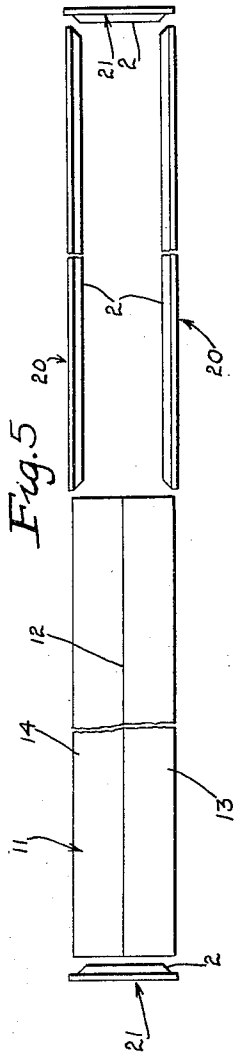
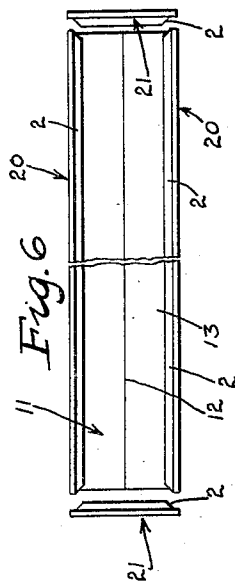
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1,864,907

SHELF

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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SHELF

Application filed May 24, 1930. Serial No. 455,323.

This invention relates to a new article of manufacture and the process of making it. The article is designed for use as a shelf. Objects are: to provide a sheet metal shelf structure marginally and centrally longitudinally reinforced; to provide a trussed shelf structure in which portions of the trussing or reinforcing means are marginally arranged to prevent objects placed upon the shelf from being jolted off; to provide a shelf the elements of which are secured only by spot welding; to provide improved means for attaching the shelf; to provide a speedy cheap method for constructing and assembling the parts of the shelf; and, in general, to provide an article which lends itself to cheap quantity production; and which can be of unusually elongated form and yet support unusually large loads without deflection.

Along with the broader features of the invention, other features relate to the details of construction and to the method of constructing and assembling the parts.

Objects, advantages and features will appear in the specification and in the description of the drawings, and in said drawings:

Figure 1 is a perspective view of the article;

Figure 2 is a transverse vertical section of the article;

Figure 3 is a longitudinal vertical section on line 3—3 of Figure 2;

Figure 4 is a schematic view illustrating the method of assembly, and showing the parts as before assembly;

Figure 5 is a view illustrating another step in assembly in which the cores have been introduced; and

Figure 6 is a view illustrating another step in the process of assembly in which the device is completed with the exception of the placement and attachment of the marginal end sections.

The device is constructed of sheet material, which sheet material is first given a tubular form by any suitable means, see Figure 2. The sheet material is bent to provide at one side spaced flanges respectively indicated at 2—3, which are perpendicular to the side of which they form extensions. The

wall portions of the tube from which the flanges 2—3 are bent are not coplanar, but one portion indicated at 4 is spaced a greater distance from the wall 5 than the portion 6. This spacing is provided so that when the core 8 has been introduced, a space 9 will be left for the reception of a flange 10 of the plate 11. This plate or body portion of the shelf 11 is formed of sheet material bent centrally and longitudinally upon itself as at 12, to provide a longitudinal reinforcement, and then re-bent to provide coplanar portions 13—14 and then bent to provide the marginal flanges 10, which are, in this instance, parallel with the central reinforcement 12. The flanges 10 are provided on the longitudinal edges of the plate, and, as well shown in Figures 2 and 3, the flanges 10 are introduced into space 9, to flatly engage against the core 8, and portion 4 of the tube.

The process of forming the new article herein (which process or method is a feature of the invention) is to cut into proper lengths the tubular stock which has been given the form previously described. For neatness and to facilitate corner-welding, this material is cut in mitered lengths as shown in Figure 4. For convenience, in reference, those tubes which are to form the longitudinal sides are designated 20, and those which form the ends, 21. The cores 8 are now inserted in the long elements 20, and the cores 25 in the short elements 21. At the time of insertion the flanges 2 and 3 do not occupy exactly the position shown in Figure 2, but are spaced slightly farther apart to facilitate introduction of the cores, and later of the flange 10 of plate 11.

After the cores are inserted, the body is slid into place, by introducing its coplanar portions 13 and 14 into the slide-ways formed by the spaced flanges 2—3, and simultaneously the flanges of the shelf are introduced into the spaces 9 between the cores and the walls 4, as shown in Figure 2. Pressure is then put upon the flanges, by any suitable means, and the said flanges are held under compression while a spot welding operation indicated at 26 is performed. A series of spaced welds are made on each side, see Fig-

ure 1. The parts are so proportioned that when the flanges are brought to their final position, shown in Figure 2, the walls of the tubular elements are tightened against and around the cores and the flanges 10. The end elements with their cores are then placed in position, pressure is applied also upon the flanges to draw the parts together and then the spot welds 26 are made. Sometimes both sides 20 and ends 21 are assembled, and pressure is put on all four sides simultaneously. This is optional. A spot welding operation is also performed at the mitered corners as at 28.

By the use of the spot welds 26 and 28, a very rigid and neat construction is provided. After a finishing coat, such as paint, is applied, the article appears to be constructed from a single piece of material.

An article constructed in the manner above mentioned and having a length of six feet and being ten inches wide, has been found to sustain a weight of four hundred pounds, without bending, when the shelf is supported at the ends and loaded evenly at points between the supports.

Another feature of the invention relates to the formation and arrangement of an attaching means. This means includes an element bent upon itself to form a bracket, having two angularly related portions, one angular portion 38 of which is slotted as at 29 and is detachably connected by means of a screw and bolt 30 to the body 11. One of these elements is attached adjacent each end, substantially in the position shown in Figure 1. The opposite angular portion 32 has attached thereto in spaced relation a plate 33, a spacer 34 being introduced, as shown in Figure 3, to obtain the proper spacing and to provide a slot-like socket 35 adapted to be engaged over a comparatively thin shelf-supporting arm not shown. The slot 29 permits the bracket to be moved in different positions and can be swung at any angle to correspond to the angle of the supporting arms whether these arms are in parallel relation or not. The spacer 34 and plate 33 are connected to the bracket by spot welding as at 36.

The device above described can be very cheaply constructed and after the tubular elements are cut to the proper lengths assembly can be made very rapidly. The device, therefore, lends itself to quantity production.

It will be noted that the body or plate 11 is arranged intermediately of and parallel with planes in which the edges of the tubular members lie. This arrangement provides marginal upstanding portions at a level above the plate to prevent objects which are placed upon the shelf from being jolted off.

Inasmuch as a new article of manufacture is claimed, the only known process of making it is also claimed.

The folded together reinforcing portions of the rib 12 are also secured against unfolding by a series of spot welds one of which is indicated at 12^a. The spot welding at this point, of course, resists separation of the opposed rib-forming portions when the shelf is under load.

I claim as my invention:

1. A merchandising shelf, comprising marginal tubular elements forming a frame, said elements having flanges, a body portion lying within the frame and having portions lying between the flanges and within the tubular elements, cores inserted within the tubular elements, said flanges being spot welded to a portion of the body which lies between them.

2. A merchandising shelf comprising marginal tubular elements forming a frame, said elements having flanges, a body portion lying within the frame and having portions lying between the flanges and within the tubular elements, cores inserted within the tubular elements and compressively engaging those body portions which lie within the tubes, said flanges being secured by spot welds to a portion of the body which lies between them.

3. A merchandising shelf composed of marginal tubular members forming a frame, each tubular member having opposed flanges, a body arranged within the frame and having portions lying between the flanges and further having marginal flanges lying within the tubular elements, and core pieces within the tubular elements and engaging the flanges of said body, and means securing the flanges of the tubular members to the body portion.

4. A merchandising shelf composed of tubular elements having spaced apart flange portions, a body having portions arranged between the flange portions and having portions lying within the tubes, core pieces inserted within the tube and engaging those portions of the body which are within the tubular elements and means securing the flanges to the body portions.

5. A merchandising shelf comprising tubular elements having flanges, a shelf body having portions lying between the flanges and within the tubular elements, cores inserted within the tubular elements and engaging the flanges, and means compressively securing the flanges to the body portions.

In witness whereof, I have hereunto set my hand this 21st day of May, 1930.

HERBERT B. HYAMS.