United States Patent

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[54] **DISPLAY FIXTURE FRAME**
2 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **248/188.8,** 211/177, 211/183
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[50] **Field of Search** 248/188.8, 188.1, 250, 158; 108/108; 211/148, 176, 177, 182, 183; 312/108

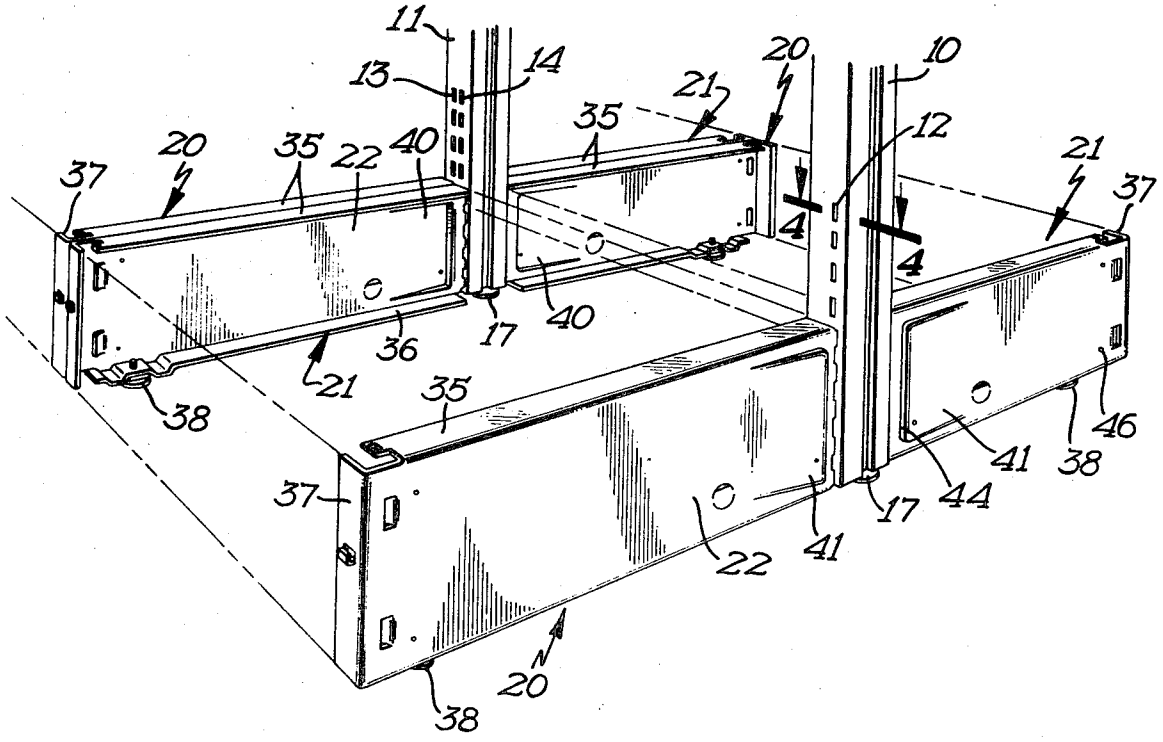
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ABSTRACT: The invention relates to a frame for a display fixture or the like. Frames of this type have vertical posts or standards and extending laterally from each standard and connected thereto with hooks are a pair of structural members known as base arms. The hooks are subjected to relatively heavy compressive and tensile forces due to loads applied to the base arms. The base arms are dished on their inboard ends to effectively redirect the forces applied to the hooks to minimize or reduce the effect of the loading on the hooks.



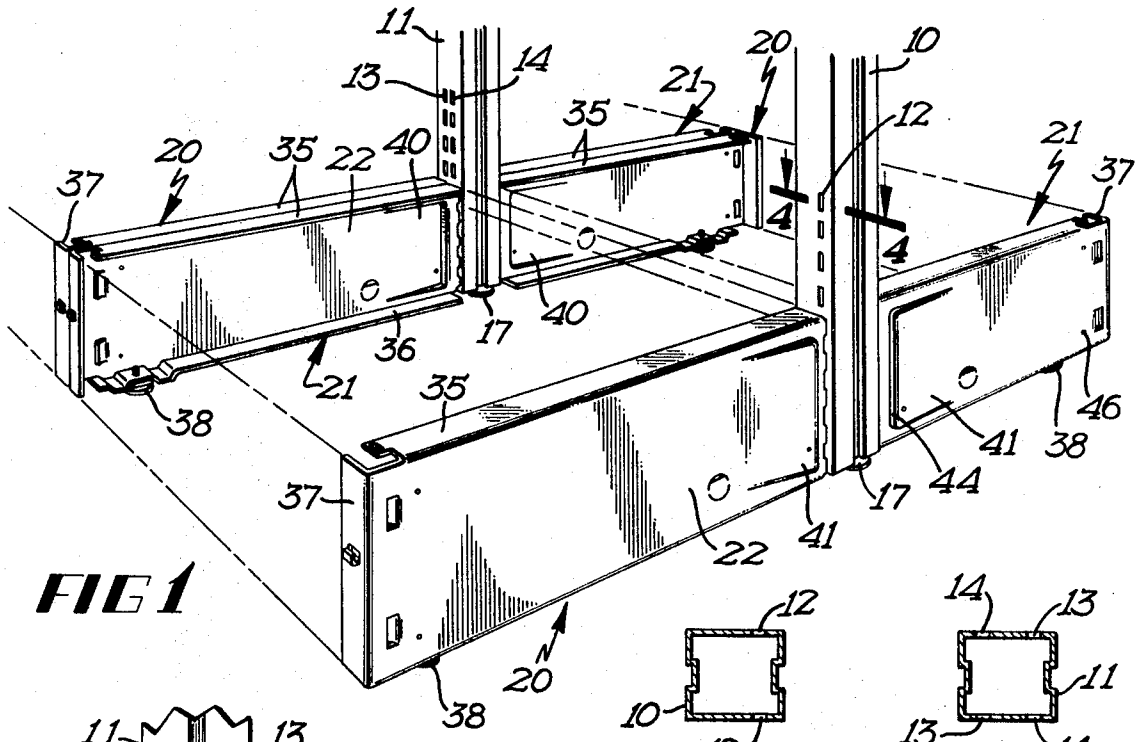


FIG 1

FIG 4

FIG 5

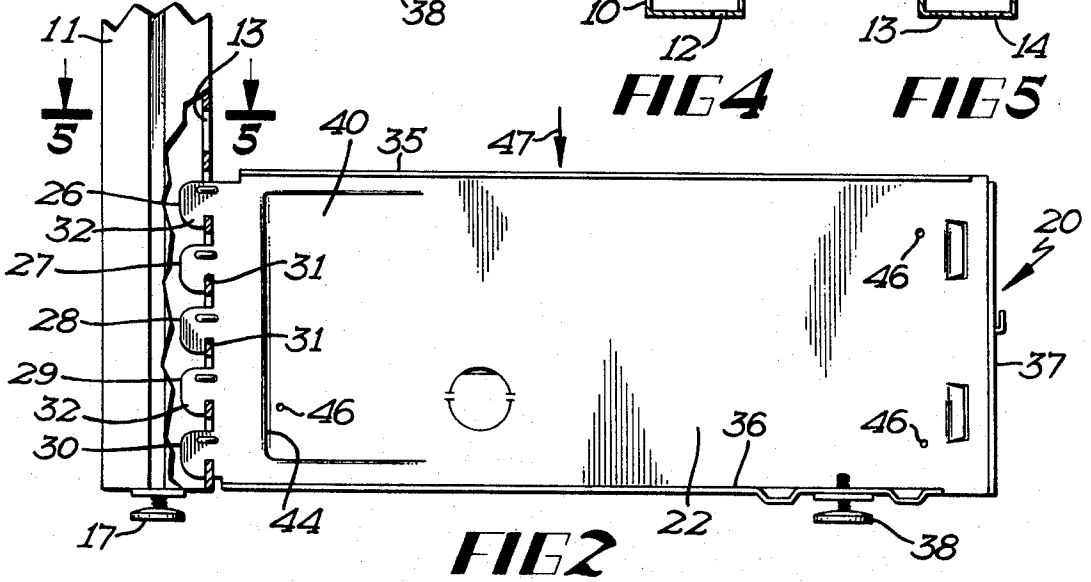


FIG 2

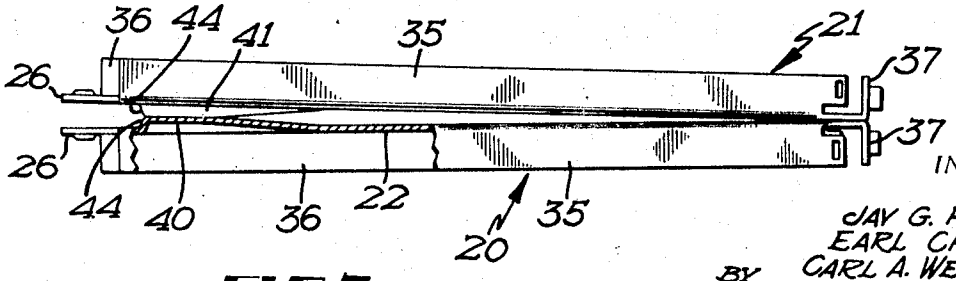


FIG 3

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DISPLAY FIXTURE FRAME

The invention relates to a new and improved frame for a display fixture or the like and particularly to constructional features of the base arms of the frame.

Display fixtures of the type found in department stores must, in addition to their aesthetic appearance, be sufficiently strong, rigid and rugged to hold merchandise displayed thereon and to withstand a certain amount of abnormal abuse at various times that any article used in serving the public is subjected to. Although absolute strength required for a display fixture is admittedly relatively small it is of course highly desirable to achieve the required strength as economically as possible.

The present invention is directed to the improvement of the base arms of display fixtures and it has been found that a simple change effected with a forming operation produced greatly improved results in the form of an increased moment of inertia which resulted in a substantial reduction in size of the base arm.

A main object of the invention is to provide a new and improved frame for a display fixture and particularly to an improvement in the base arms thereof which results in a lighter, stronger and more rigid structure which effects a substantial economy in the manufacture thereof.

Other objects and advantages of the invention will become apparent from the following specification, drawings and appended claims.

In the drawing:

FIG. 1 is a fragmentary perspective view of a frame for a display fixture having base arm assemblies embodying the invention;

FIG. 2 is a fragmentary elevational view showing a base arm assembly embodying the invention attached to a slotted vertical standard with a portion of the standard broken away to show the hooks of the base arm inserted in the slots of the standard; and

FIG. 3 is a plan view of the assembly shown in Fig. 2 except that the vertical standard has been omitted in this view; and

FIGS. 4 and 5 are sectional views taken on lines 4–4 and 5–5, respectively, of Figs. 1 and 2.

Referring to Fig. 1, the fragmentary perspective view shows a partial frame assembly for a display fixture or the like which includes two vertically extending, slotted standards 10 and 11. Standards 10 and 11 are of tubular construction and have generally rectangularly shaped cross sections.

Standard 10 is an end-type standard having on each opposite side thereof one vertically extending column of vertically spaced apart slots 12. Standard 11 is an intermediate-type standard having on each opposite side thereof two horizontally spaced apart columns of vertically spaced apart slots 13 and 14. Additional intermediate-type standards 11 could be added to increase the length of the display fixture frame and an end-type standard 10 would be added at the opposite or far end of the fixture frame such that there would be any desired number of intermediate-type standards 11 disposed between two end-type standards 10.

With reference to Figs. 4 and 5, the single column of slots 12 on each opposite side of standard 10 has the same relative position thereto as the column of slots 14 on each opposite side of standard 11. Each of the standards 10 and 11 has a screw-type leveling base 17 for leveling purposes.

On opposite sides of end standard 10, extending laterally therefrom, are base arms 20 and 21. The base arms 20 and 21 have or may have exactly the same construction except that one is the reverse or mirror image of the other. A description of one base arm will thus also serve as a description of the other.

With particular reference to Figs. 3 and 4, the base arm 20 has an overall generally rectangular shape and may be formed by molding, as with a plastic, or by using sheet metal material and performing cutting, bending and stamping operations on the sheet metal used. These forming operations will not be described as it is only the ultimate form of the base arm that is of interest relative to the invention.

A major portion of the base arm 20 comprises a sheet material wall portion 22 which occupies a generally vertical plane. Extending from one end of the base arm and attached to the wall portion 22 are a plurality of hooks 26 to 30. Each of the hooks has a flange portion 31 and a downwardly extending portion 32, their hook portions being in the same plane as wall portion 22.

Horizontally extending upper and lower right angle flanges 35 and 36 extend laterally from the upper and lower sides respectively of wall portion 22. A vertically extending right angle flange 37 extends laterally from the end of the wall portion 22 opposite the hook end thereof. The flanges 35 to 37 all extend in the same lateral direction relative to the wall portion 22 and function in a normal manner to provide overall strength and rigidity for the base arm. The flange 36 has a screw-type leveling base 38 attached at the outboard end thereof for leveling purposes.

Wall portion 22 has a dished portion adjacent the hooks 26 to 30 which forms a depression 40 on the flange side of wall portion 22 and a bulge 41 on the opposite side of the wall portion. The dished portion has a generally rectangular shape and is in closely spaced relation to the flanges 35 and 36 and is as close as practicable to the hooks 26 to 30. The bulge 41 is generally wedge-shaped with the portion thereof furthest removed from the plane of wall portion 22 being closest to the hooks and being defined by a vertically extending edge 44. The opposite end of the bulge 40 blends smoothly into the plane of wall portion 22.

Fig. 3 shows most clearly how a pair of base arms 20 and 21 are attached together with their respective bulges 41 in abutting engagement. The respective hooks of the base arms 20 and 21 are spaced apart the same distance as the columns of slots 13 and 14 of standard 11 and the ends of the base arms opposite the hooks are in abutting engagement. Holes 46 are provided in the base arms 20 and 21 to facilitate the use of nuts and bolts or the like (not shown) for attaching the base arms together. For convenience, the assembly resulting from the joining together of two base arms 20 and 21 as best illustrated in Fig. 3 will be referred to as a base arm set 20—21.

With reference to the general arrangement of parts of the frame assembly shown in Fig. 1, single base members 20 and 21 extend laterally from the opposite sides of standard 10 and have their respective hooks inserted in the slots 12 on opposite sides of the standard 10. Laterally extending from opposite sides of standard 11 are base arm sets 20—21 with the respective hooks of the base arms being disposed in the slots 13 and 14 on opposite sides of the standard 11. The broken construction lines depicted in Fig. 1 indicate or suggest the presence of other structural members which would be necessary to complete an actual frame assembly but such structural members are not illustrated because they have no bearing on the invention.

Reference is now made to the function and purpose of the bulge 41 formed in the base arms 20 and 21. With reference to Fig. 2, a load indicated by the arrow 47 would tend to cause the base arm 20 to rotate in a counterclockwise direction about the leveler 38. The reaction force to the load which would tend to rotate the base arm in the opposite direction would be applied upwardly from the bottoms of the slots 12 to 14 of the standards 10 and 11 to the hook flange portions 31. The effect of this loading without the bulge construction 41 would be to produce relatively high compression forces on the flange portions of hooks 26 and 27 and relatively high tensile forces on the flange portions of hooks 29 and 30. The bulge construction 41 reduces these forces by substantial amounts by increasing the moment of inertia of the base arm. In practice it has been found that the bulge construction permitted the height of the base arm to be reduced from 9 inches to 6 inches without reducing the load carrying capacity of the base arm.

The bulge construction has a further use and function when two base arms are joined to form a base arm set as is best shown in Fig. 3. In this construction the bulges **41** on adjacent base arms **20** and **21** are in abutting engagement and loads applied to the base arm set cause the bulges **41** to react against each other and thereby causes an increase in the effective overall moment of inertia of the base arm set to a value greater than twice the moment of inertia of a single base arm **20** or **21**.

Another advantage of the base arm set construction shown in Fig. **3** is that the two sets of hooks may be spaced apart a distance equal to the spacing between the two columns of slots **13** and **14** in the standard **11**. The hooks and flanges thereof thus remain in the plane of the base arm wall portions **22** and the hook flange portions **31** thus functioning as struts in resisting the compression and tensile loading forces referred to above. The alternative to this construction would be to form two right-angle bends in the hook flange portions **31** to facilitate the above referred to lateral spacing between the respective sets of hooks on the base arms **20** and **21** corresponding to the spacing between the standard slots **13** and **14**. With that construction each hook flange portion **31** would have a built-in lever arm which would permit distortion of the form thereof with much lower compression and tensile loading forces.

We claim:

1. A base arm assembly for the frame of a display fixture or the like comprising a first base arm for said frame having a generally rectangularly shaped sheet material wall portion in a vertical plane, a plurality of vertically arranged and spaced hooks in said plane extending from one side of said wall portion, each of said hooks having a neck portion and a downwardly extending portion attached to said neck portion, horizontally extending upper and lower right-angle flanges extending from the upper and lower sides of said wall portion, said wall portion having a dished portion adjacent said hooks forming a depression on the flange side of said wall portion and a bulge on the opposite side of said wall portion, said dished portion being generally rectangularly shaped and in spaced relation to said horizontally extending flanges, said dished portion having a vertically extending edge adjacent said hooks and in spaced relation to said horizontally extending flanges, said vertically extending edge of said dished portion being of a height so that it extends at least from the level of one of said hook neck portion to the level of another of said hook neck portions, a second base arm which is the mirror image of said first base arm, vertically extending standard means having two spaced apart columns of slots, said base arms being attached together with their bulges in abutting relation and the respective hooks thereof being spaced apart the same distance as said columns of slots, and the ends of said base arms opposite said hooks being in abutting engagement.

2. A base arm for the frame of a display fixture or the like comprising a generally rectangularly shaped sheet material wall portion in a vertical plane, a plurality of vertically arranged and spaced hooks in said plane extending from one side of said wall portion, each of said hooks having a neck portion and a downwardly extending portion attached to said neck portion, horizontally extending upper and lower right-angle flanges extending from the upper and lower sides of said wall portion, said wall portion having a dished portion adjacent said hooks forming a depression on the flange side of said wall portion and a bulge on the opposite side of said wall portion, said dished portion being generally rectangularly shaped and in spaced relation to said horizontally extending flanges, said dished portion having a vertically extending edge adjacent said hooks and in spaced relation to said horizontally extending flanges, said vertically extending edge of said dished portion being of a height so that it extends at least from the level of one of said hook neck portions to the level of another of said hook neck portions, said vertically extending edge of said dished portion being of a height so that it extends from the level of the lowermost one of said hook neck portions to the level of the uppermost one of said hook neck portions.