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(54) **DECORATIVE AND STRENGTH
ENHANCING ASSEMBLY FOR WIRE
SHELVING**

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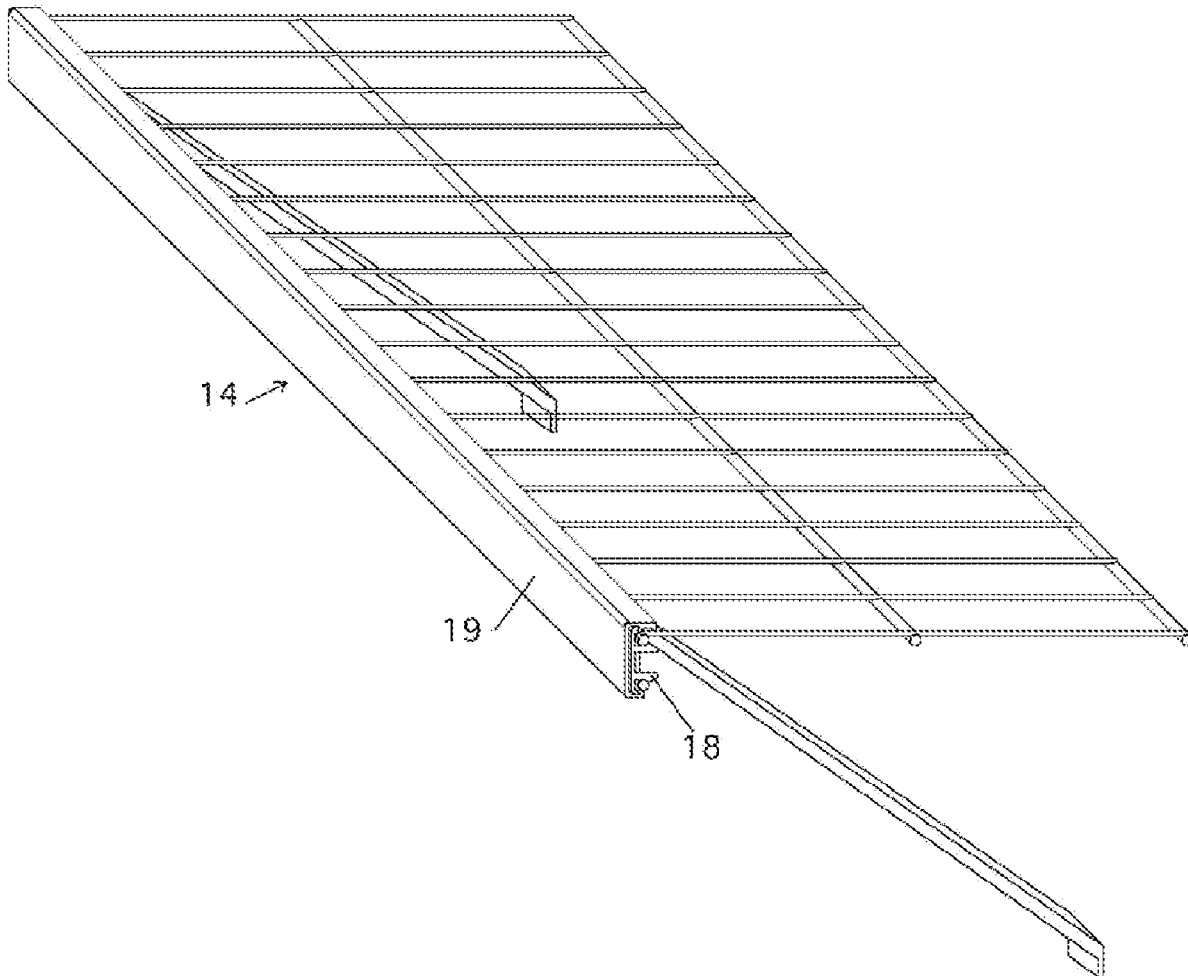
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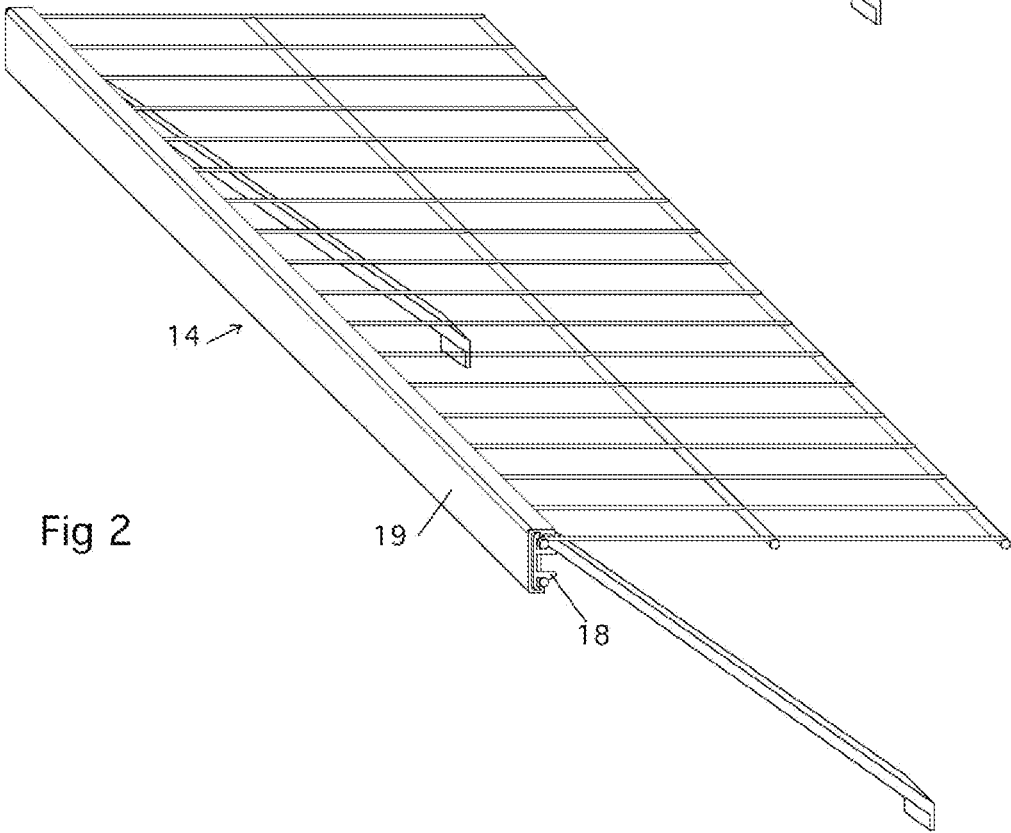
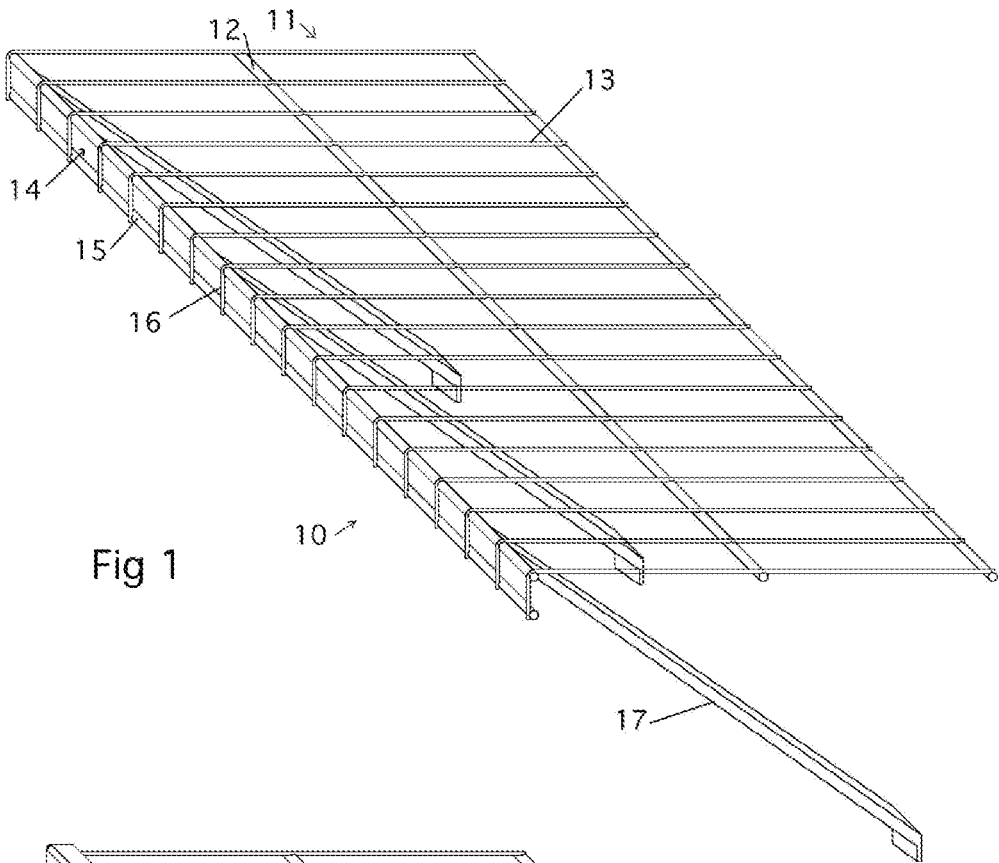
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ABSTRACT

A system is disclosed that enhances the appearance and strength of wire shelves, covering its frontal face with an assembly that generally includes a U-shaped profile with top and bottom slots to fit firmly to specially designed clasps connected to the horizontal frontal top and bottom shelving wires by the action of group of legs.





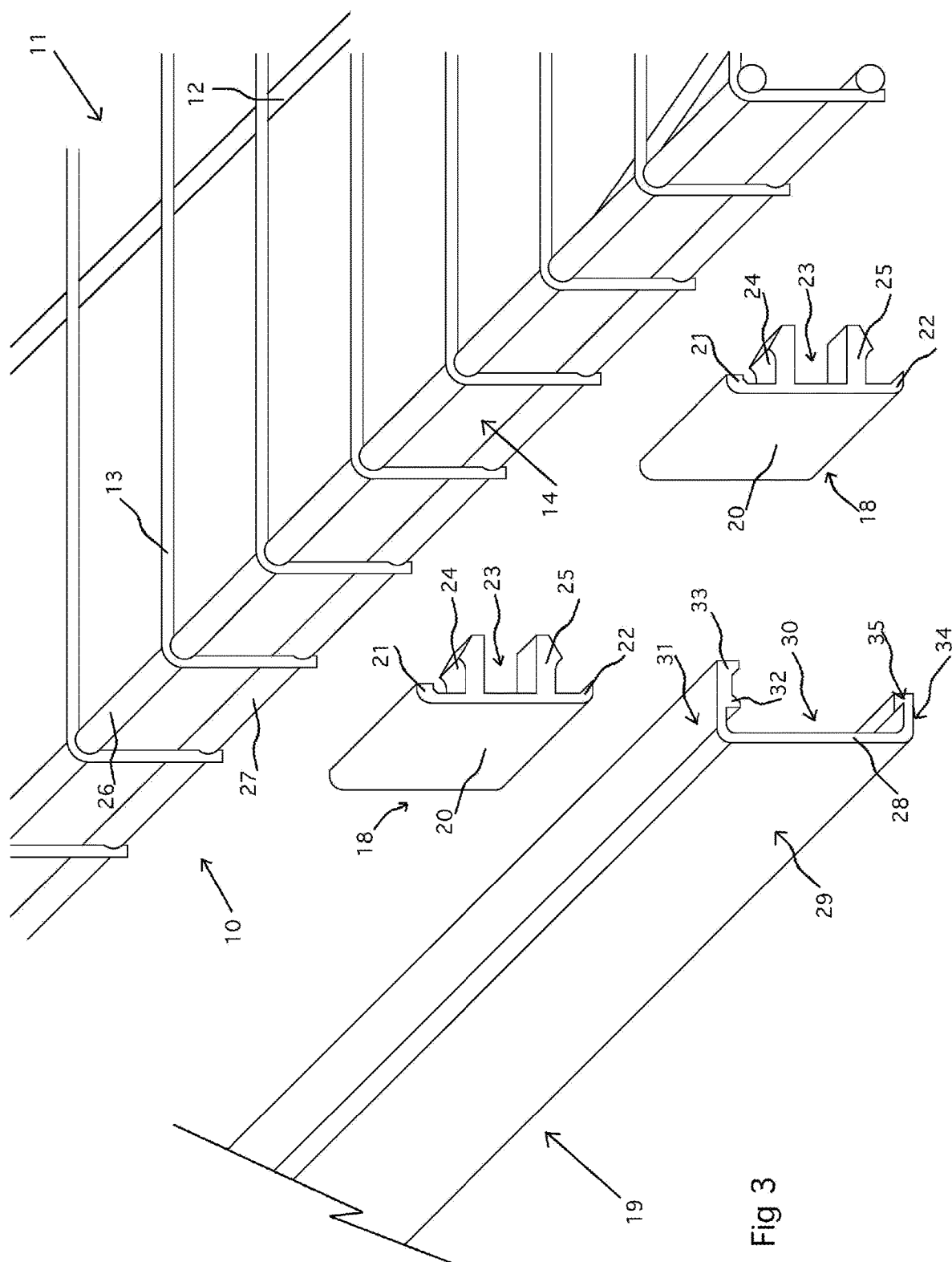


Fig 4

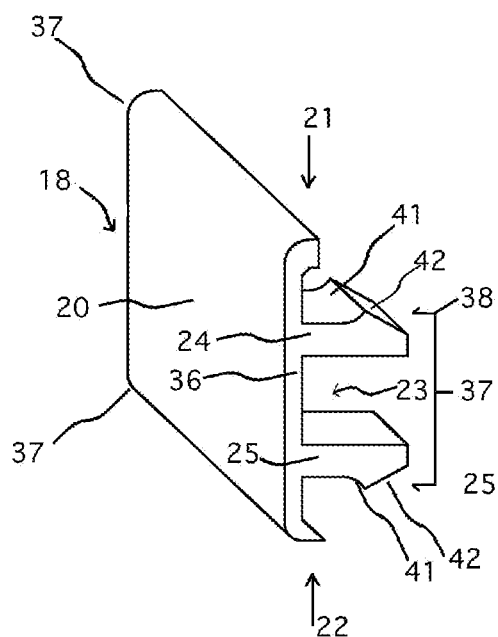


Fig 5

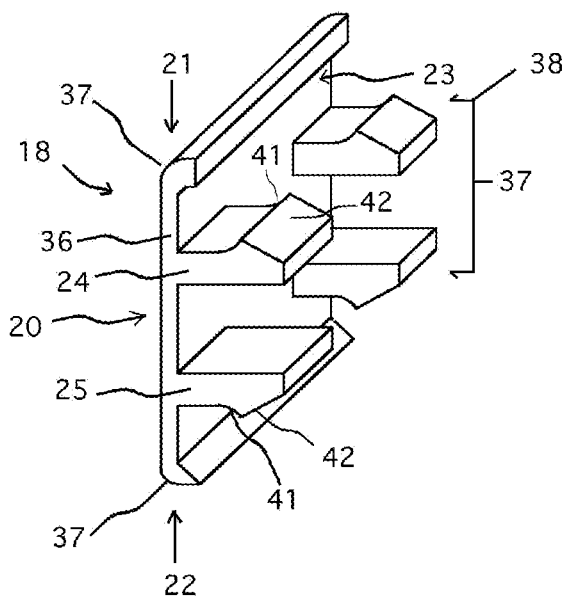


Fig 6

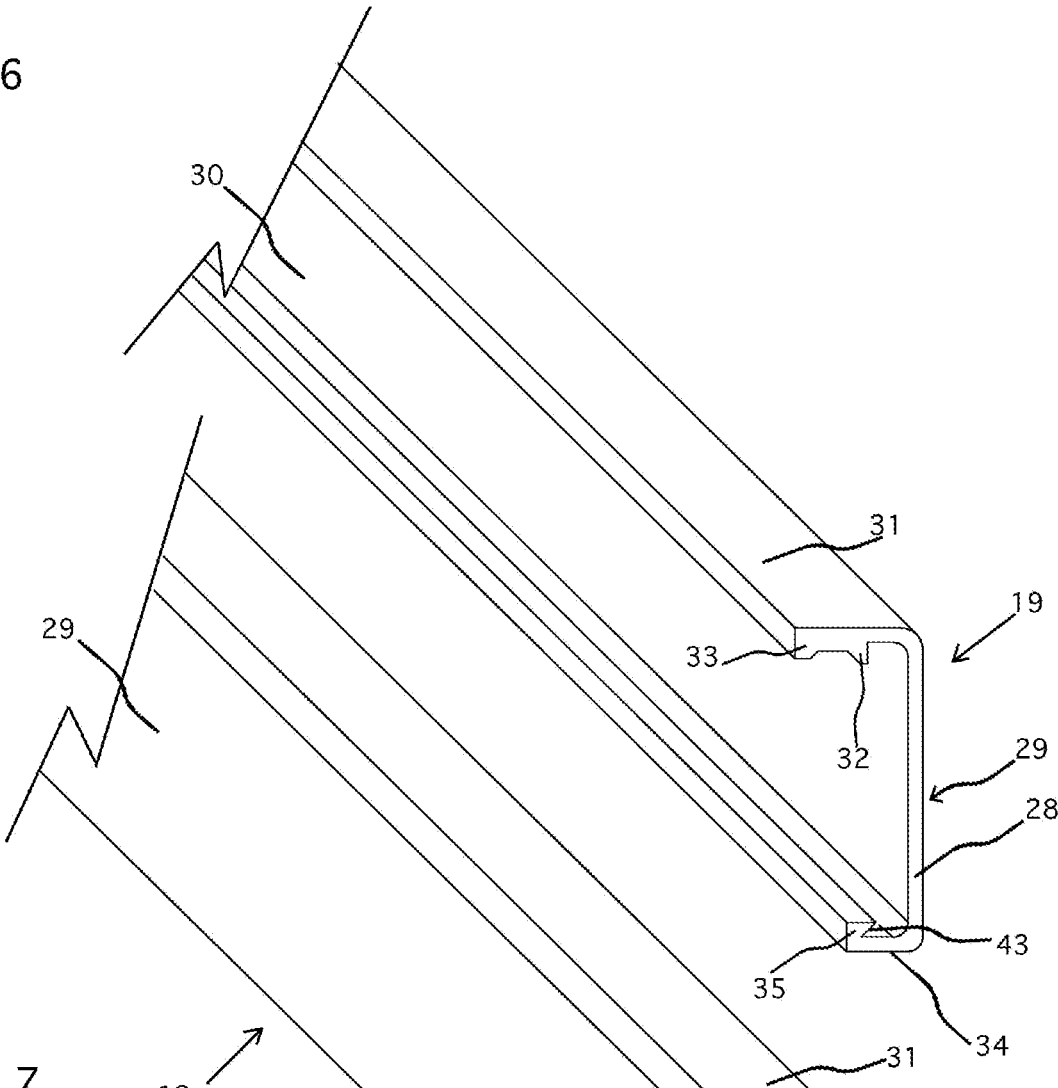
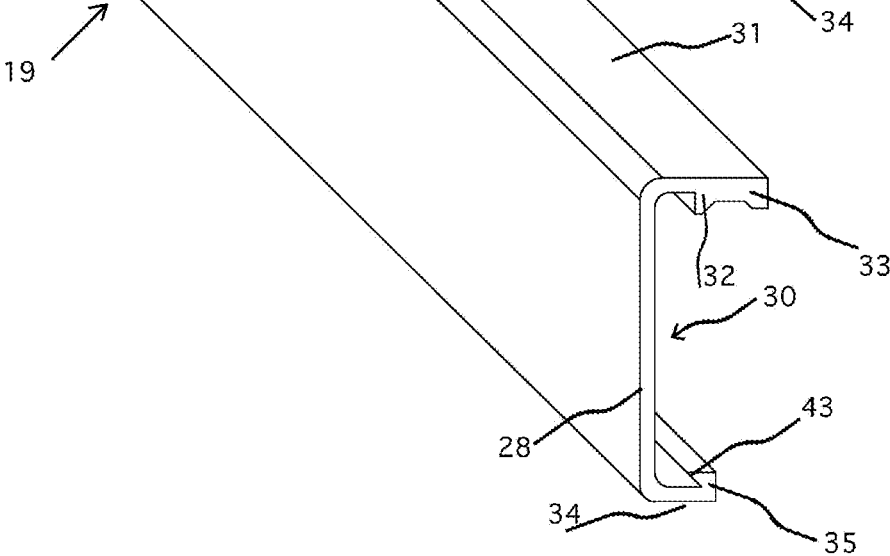
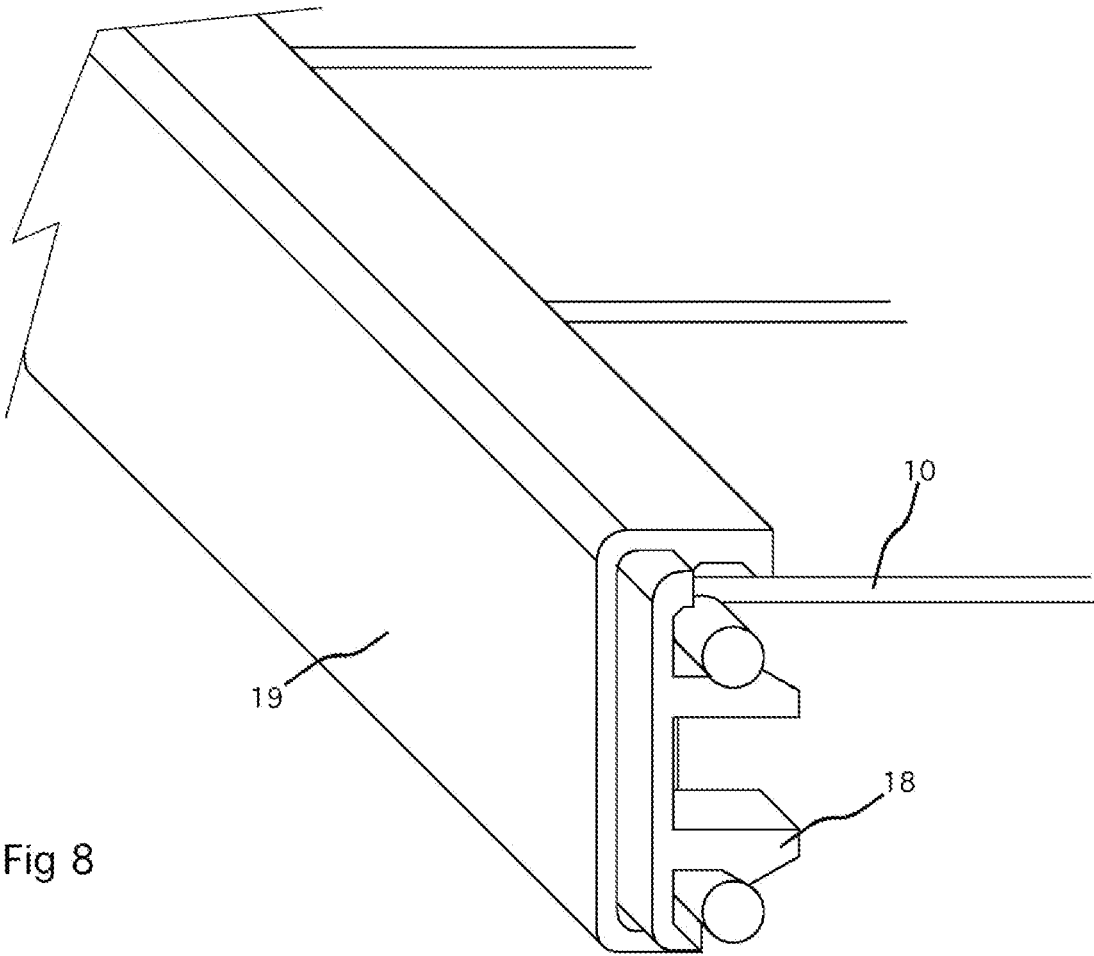


Fig 7





DECORATIVE AND STRENGTH ENHANCING ASSEMBLY FOR WIRE SHELVING

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application No. 62/619884 filed Jan. 21, 2018, with inventor RODRIGO CERON which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates generally to devices and methods used to cover open-wire shelving.

BACKGROUND

[0003] The most popular solution for shelving used in closets and storage compartments, is to use a vinyl-coated wire-frame construction, which typically uses two or more members running the length of the shelf with a number of closely spaced cross-members. This kind of solution is affordable and easy to install for developers or home owners.

[0004] Regardless of these benefits, many users, find this shelving unattractive. A substantial industry has developed for the upgrading of closets and pantries, for examples are when the shelves are removed and replaced with wood or covering the wire shelves with wood, plastic or composite surfaces, or enhancement of the appearance is achieved by placing a decorative frontal fascia. While these solutions work well for their intended purposes, they normally are expensive, difficult to install and/or not sturdy enough for the daily use.

[0005] The present invention is about a system which has, among other advantages, strength, solid connection with the wire shelving, adaptability, easier installation, use and maintenance, while keeping an affordable cost and a long lasting pleasant look.

SUMMARY OF THE INVENTION

[0006] The object of this invention is to provide a system to enhance the aesthetics and strength of the open-wire shelving with a solution firmly attached to the standard front face of the shelving by the use of specially designed clasps connected to the wire with groups of legs, combined with a U-shaped frontal profile attached to the clasps.

[0007] The system includes two basic elements. First: clasps to be attached to the front face of the open-wire shelving separated 6" between them. Each clasp includes a substantially flat surface with a front side and a back side, a top anchor and bottom anchor. The back side of the clasp has group of top and bottom legs specially calculated and shaped to fit the top and bottom horizontal wire of the shelf. Second: A substantially U-shaped profile element to be installed running along the shelving, with three components: A frontal substantially flat surface with a front side and back side and top and bottom elements substantially perpendicular to the front side ending in shoes to be attach to the top and bottom anchors in the clasps.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 Depicts a view of a standard open-wire shelf.

[0009] FIG. 2 Depicts a perspective view of a typical open-wire shelf with the present invention installed.

[0010] FIG. 3 Is an exploded diagram illustrating major components of this invention assembly.

[0011] FIG. 4 Is a front perspective view of a clasp in FIG. 3.

[0012] FIG. 5 Is a back perspective view of a clasp in FIG. 3.

[0013] FIG. 6 Is a front perspective view of the U-shaped profile in FIG. 3.

[0014] FIG. 7 Is a back perspective view of the U-shaped profile in FIG. 3.

[0015] FIG. 8 is an axonometric view of the group in FIG. 3: open-wire shelving, clasp and U-shaped profile connected.

DETAILED DESCRIPTION

[0016] The following detailed description illustrates the invention by way of example and not by way of limitation. The description clearly enables one skilled in the art to make and use the invention, describes several embodiments, adaptations, variations, alternatives, and uses of the invention, including what is presently believed to be the best mode of carrying out the invention,

[0017] The object of this invention is a system that enhances the appearance and strength of open-wire shelves covering the frontal vertical and horizontal wire elements, with an assembly generally including a U-shaped profile with top and bottom shoes to fit firmly to specially designed clasps connected to the horizontal frontal top and bottom shelving wires by the action of group of legs.

[0018] The substantially U-shaped profile element to be installed running along the open-wire shelving has three components: 1. Frontal: substantially flat surface with a front side and back side. 2. Top: perpendicular to Frontal, has a shoe to connect with the clasp anchors and a structural reinforcement at the end. Both, shoe and reinforcement run along the entire profile. 3. Bottom: also has a shoe running along the profile to connect to the clasp anchors.

[0019] The specially engineered clasp includes a substantially flat surface with a front side and a back side, a top anchor and bottom anchor. The back side of the clasp has group of top and bottom legs specially calculated and shaped to fit the top and bottom horizontal wire of the shelf. These clasps are inserted along the wire shelf approximately 6 inches apart. Once the clasps are in place, the U-shaped profile is firmly connected to them, first from the top inserting this part in the clasps anchors and then pushing the whole U-shaped profile against the clasps to make the bottom part of the profile flex and to be inserted in the bottom anchors of the clasps.

[0020] Turning now to FIG. 1 A common wire-frame shelf 10 is shown. This shelf 10 has two basic surfaces: Top 11: composed of at least three parallel longitudinal members 12 spanned by numerous parallel wires 13. Front 14: Substantially perpendicular to Top surface 11, composed by two horizontal parallel members 15 and also spanned by parallel wires 16. Bracing elements 17 are also shown.

[0021] FIG. 2 View of the standard wire shelving in FIG. 1 with the invention installed. In this view the assembly subject of this invention composed for the clasp 18 firmly attached to the wire shelving Front 14 in FIG. 1 and the U-shaped profile 19 anchored to the clasp 18.

[0022] FIG. 3 Exploded view to show the different elements of this system. First, the wire shelf 10, Top surface 11 and Front surface 14, with their main components, the parallel longitudinal members 12 and the perpendicular parallel wires 13. Second, the clasp 18 includes a front side 20 with top 21 and bottom 22 ends anchors, to receive the U-shaped profile 19, and a back side 23 with groups of top 24 and bottom 25 legs shaped to fit the top 26 and bottom 27 horizontal wire of the Front 14 of the shelf wire 10. Third, The U-shaped profile 19 element showing its basic three components: 1. Frontal 28: substantially flat surface with a front side 29 and back side 30. 2. Top 31: substantially perpendicular to Frontal 28, has a top shoe 32 to connect with the clasp anchor 21 and structural reinforcement at the end 33 to provide to the U-shaped profile 19 additional strength to improve the response of the shelf 10 to flexion forces due to weight of the objects to carry. 3. Bottom 34 perpendicular to Frontal 28 ending with a shoe 35 to connect firmly with the bottom anchor 22 in the clasp 18.

[0023] FIG. 4 Shows an axonometric view of a clasp 18 of FIG. 2. The clasp 18 includes a substantially flat element 36 with a front side 20 and a back side 23, a top anchor 21 and bottom anchor 22. The top and bottom end of the flat element 36 ends in a semicircular surface substantially rounded 37 to allows the insertion of the profile 19 in FIG. 2 with some push force. The rectangular shaped top anchor 21 is formed widening the flat element 36 while the bottom anchor 21 is triangular shaped, both designed to receive the top 32 and bottom shoe 35 of the profile 19 in FIG. 2. The back side 23 of the clasp 18 has group 37 of top and bottom legs. The distance 38 between top and bottom leg varies according to the wire shelf 10 to be attached to. Every set of top 24 and bottom 25 legs forms a group 37. Each clasp 18 is designed to have two groups 37 of top and bottom legs as shown in the image 4, but could be two or more groups in one clasp 18 specifically calculated and shaped to fit the top 26 and bottom 27 horizontal wire of the shelf in FIG. 2. Each leg 24-25 are substantially perpendicular to the flat element 36 attached to the back side 23 and rectangular shaped ending in a semicircular catch 41 and angled beveled surface 42 to fit the wire shelf 10, top 26 and bottom 27 horizontal wires, and to allow the easy and firm insertion.

[0024] FIG. 5 Shows an axonometric view of a clasp 18 of FIG. 2. The clasp 18 includes a substantially flat element 36 with a front side 20 and a back side 23, a top anchor 21 and bottom anchor 22. The top and bottom end of the flat element 35 ends in a semicircular surface substantially rounded 37 that allows the insertion of the profile 19 in FIG. 2 with some push force. The rectangular shaped top anchor 21 is formed widening the flat element 36 while the bottom anchor 21 is triangular shaped, both designed to receive the top 32 and bottom shoe 35 of the profile 19 in FIG. 2. The back side 23 of the clasp 18 has group 37 of top and bottom legs. The distance 38 between top and bottom leg varies according to the wire shelf 10 to be attached to. Every set of top 39 and bottom 40 leg forms a group 37. Each clasp 18 is designed to have two groups 37 of top and bottom legs as shown in the image 4, but could be two or more groups in one clasp 18 specially calculated and shaped to fit the top 26 and bottom 27 horizontal wire of the shelf in FIG. 2. Each leg 39-40 is substantially perpendicular to the flat element 36 attached to the back side 23 and rectangular shaped ending in a semicircular catch 41 and angled surface 42 to fit the wire shelf 10 and to allow the easy and firm insertion.

[0025] Referring to FIG. 6 shows an axonometric back view of the U-shaped profile 19 showing its basic three components: 1. Frontal 28: substantially flat surface with a front side 29 and back side 30. 2. Top 31: substantially perpendicular to Frontal 28, and connected in a semicircular way, has a top shoe 32 to connect with the clasp anchor 21 in FIG. 3 and a structural reinforcement wider section at the end 33 to provide to the U-shaped profile 19 additional strength to the group: wire shelf 10, clasp 18 and profile 19 in FIG. 2 to flexion forces due to weight of the objects to carry. 3. Bottom element 34 is substantially perpendicular to front element 28 and connected in a semicircular way, ending in an wider inverted right trapezoidal section 35 with an inner 45 degrees angle face 43 allowing the profile 19 to be inserted easy and firmly into the clasp 18 bottom end 22 in FIG. 3. An alternate version of this profile has not the reinforcement 33.

[0026] Referring to FIG. 7 shows an axonometric frontal view of the U-shaped profile 19 showing its basic three components: 1. Frontal 28: substantially flat surface with a front side 29 and back side 30. 2. Top 31: substantially perpendicular to Frontal 28, and connected in a semicircular way, has a top shoe 32 to connect with the clasp anchor 21 in FIG. 3 and a structural reinforcement wider section at the end 33 to provide to the U-shaped profile 19 additional strength to the group: wire shelf 10, clasp 18 and profile 19 in FIG. 2 to flexion forces due to weight of the objects to carry. 3. Bottom element 34 is substantially perpendicular to front element 28 and connected in a semicircular way, ending in an wider inverted right trapezoidal section 35 with an inner 45 degrees angle face 43 allowing the profile 19 to be inserted easy and firmly into the clasp 18 bottom end 22 in FIG. 3. An alternate version of this profile has not the reinforcement 33.

[0027] FIG. 8 is an axonometric drawing of the assembly, showing how the group, Wire shelving 10 in FIG. 1, U-shaped profile 19 in FIG. 2 and clasp 18 in FIG. 2 are strongly connected and therefore working as a unit to provide a long lasting strong aesthetical solution increasing the resistance to flexion forces of the original wire shelving 10 in FIG. 1, up to 15% of the original strength reducing the amount of needed expensive bracing 17 in FIG. 1.

[0028] Exemplary embodiments of the present invention are being shown and described, many changes, modifications, and substitutions may be made by one having ordinary skill in the art without necessarily departing from the spirit and scope of the invention.

[0029] The assembly described can be formed of a wide range of suitable materials, such as nylon, plastics (e.g., ABS, nylon, polyethylene, etc.), metals (e.g., steel, bronze, etc.), rubber, composite materials, etc. In various embodiments, the assembly described, is molded from plastic. Alternatively, other suitable materials and manufacturing processes can be used to form the assembly. For example, other embodiments include a device that is not monolithically or integrally formed as a single component. Instead, one or more of the device components, such as the interlocking member, clip, and/or catch, may be separately attached to one another to form the device.

[0030] Certain terminology is used herein for purposes of reference only, and thus is not intended to be limiting. For example, terms such as “front”, “back”, “rear”, “bottom” and “side”, describe the orientation of portions of the component within a consistent but arbitrary frame of refer-

ence which is made clear by reference to the text and the associated drawings describing the component under discussion. Such terminology may include the words specifically mentioned above, derivatives thereof, and words of similar import. Similarly, the terms “first”, “second” and other such numerical terms referring to structures do not imply a sequence or order unless clearly indicated by the context.

[0031] When introducing elements or features of the present invention and the exemplary embodiments, the articles “a”, “an”, “the” and “said” are intended to mean that there are one or more of such elements or features. The terms “comprising”, “including” and “having” are intended to be inclusive and mean that there may be additional elements or features other than those specifically noted.

[0032] The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the gist of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.

What is claimed is:

1. A decorative and strength enhancing assembly for use with open-wire shelving, said open-wire shelving having a top panel and a front panel, said shelf enhancing assembly comprising:

A substantially U-shaped profile element to be installed running along the shelving, with three components: A frontal substantially flat surface with a front side and back side and top and bottom elements substantially perpendicular to the front side ending in shoes to be attach to the top and bottom anchors in the specially designed clasps.

Clasps to be attached to the front face of the wire shelving separated 6" between them. Each clasp includes a substantially flat surface with a front side and a back side, a top anchor and bottom anchor. The back side of the clasp has group of top and bottom legs specially calculated and shaped to fit the top and bottom horizontal wire of the shelf.

2. The decorative and strength enhancing assembly in claim 1 wherein the top element of the U-shaped profile,

substantially perpendicular to the frontal, includes a shoe, shaped specially to connect to the top anchor in the clasp.

3. The decorative and strength enhancing assembly in claim 1 wherein the top element of the U-shaped profile, substantially perpendicular to the frontal, includes an end, shaped and calculated specially to provide additional strength to the U-shaped element and therefore to the whole assembly.

4. The decorative and strength enhancing assembly in claim 1 wherein the bottom element of the U-shaped profile, substantially perpendicular to the frontal, includes a shoe, shaped specially to connect to the bottom anchor in the clasp.

5. The decorative and strength enhancing assembly in claim 1 wherein the clasp flat element ends at the top in a specially shaped anchor to connect firmly with to top shoe in the U-shaped profile.

6. The decorative and strength enhancing assembly in claim 1 wherein the clasp flat element ends at the bottom in a specially shaped anchor to connect firmly with to bottom shoe in the U-shaped profile.

7. The decorative and strength enhancing assembly in claim 1 wherein the clasp back side includes top and bottom legs specially designed to connect firmly to the top and bottom elements of the front in the wire shelving.

8. The decorative and strength enhancing assembly in claim 1 wherein legs substantially perpendicular the clasp back side are rectangular shaped ending each one in a semicircular surface to connect to the wire shelving front side, and an angled surface to allow the easy installation to the wire shelving.

9. The decorative and strength enhancing assembly in claim 1, wherein the U shaped profile and the clasp are formed from a material including at least one of metal, plastic, composite, or combination thereof.

10. The decorative and strength enhancing assembly in claim 1 wherein said assembly is pigmented in any color and having any texture.

11. The decorative and strength enhancing assembly in claim 1 wherein said assembly is dimensioned accordingly to the open-wire shelving to be installed on.

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