NOVEL SYSTEMS FURNITURE AND METHOD OF MANUFACTURE

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ABSTRACT

The present invention provides a customizable cubicle skin and a method of manufacture. A pre-selected image is digitized and manipulated by imaging software to create a template with an image and a border. The template is printed onto a canvas using known large format printing processes and the canvas adhered onto a planar core with the border portion wrapped around the edges, and onto the back of the core. Attachment means are affixed to the back of the core, the canvas is coated with a protectant, and the skin is mounted onto a cubicle frame.
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BACKGROUND

[0001] Systems furniture is customizable, commercial-grade furniture for office use. They are more commonly known as cubicles. Typically, a systems furniture consultant visits an office space and determines the optimal configuration of cubicle-type work stations for the specific space.

[0002] Once the configuration is determined, the individual cubicle pieces are delivered to the office space for assembly at the site. The cubicle pieces include frames, desktops, skins, tackboards, and storage units, such as filing cabinets and drawers, among other pieces.

[0003] A carpenter will assemble the pieces according to the pre-determined configuration at the site of installation usually by first constructing the frame and then adding the other pieces onto the frame.

[0004] FIG. 1A shows some basic, simple and typical furniture system components according to the prior art. A frame 10 is hollow and normally rectangular in shape. Its height can vary from 34" to 108" high and its width from 12" to 60" wide depending on the business’s needs. A number of slots 12 are predisposed along its outer edges. Alternatively, the frame may lack slots and instead, the pieces will have clips that engage the inner perimeter of the frame edge and apply outward pressure to keep the object in place.

[0005] A number of pieces can be attached to the frame 10 for customization. To provide a simplified example, FIG. 1A shows a skin 16 and a desk 18. The skin 16 has tabs 14 that fit into the slots 12 of the frame 10. Normally, there are at least two tabs 14 on each component, each tab 14 fitting into a slot 12 on either side of the frame 10. The desk has two tabs 14 at the back end of the desk 18 for insertion into the corresponding slots 12, determined by the height of the desk 18. The desk 18 would also normally include a support leg 19.

[0006] FIG. 1B shows a simple cabin construction using the pieces of FIG. 1. Two frames 10 are affixed to each other, usually at a right angle, by a connector 11 that may also have tabs that fit into slots on the sides of the frame (not shown). Skins 16 are attached to the frames 10 to create partitions and provide a private workspace. The desk 18 is also attached to one of the frames 10 by inserting the desk tabs 14 into the frame slots 12. For the sake of efficiency, the tabs and slots are usually the same size and interchangeable so that any of the tabs on any component can fit into any slot on a particular frame.

[0007] Any number of frames, skins, or desks can be used to create a customized work station or plurality of work stations in any given space. In addition, overhead storage bins, tackboards, cabinets, and drawers can be attached to a frame as well.

[0008] FIG. 1C shows the exterior view of the cubicle from FIG. 1B. Skins 16 are affixed to the frame 10. The skins 16 are planar and consist of a core that may be made from a number of different materials depending on the rigidity required, and a covering over the core that is usually some fabric chosen from a limited selection provided by the manufacturer.

SUMMARY OF THE INVENTION

[0009] In accordance with a preferred embodiment of the present invention, a method for creating a novel systems furniture skin is provided that allows an image to become part of the furniture itself. Any pre-selected image is transferred to a visual-image substrate, such as an artist-grade canvas, and affixed to a planar core. The core having the image affixed thereto, is fitted with attachment means to be attached to a systems furniture frame.

[0010] In further detail, a cubicle skin according to a preferred embodiment of the present invention comprises a planar core having a first side and a second side; an adhesive layer on the first side; attachment means affixed to the second side; and an image substrate having a front, a back and an edge: a graphic image disposed over a first portion of the front and a border disposed over a second portion of the front; wherein the back of the image substrate is attached to the first side of the planar core via the adhesive layer and the second portion is wrapped around the edges of the core.

[0011] The planar core can be fiberglass, the adhesive layer can be a spray mount artist adhesive, and the attachment means could be a metallic tab. In addition, a protective coating can be applied over the graphic image.

[0012] According to an alternative embodiment of the present invention, the attachment means could be a substantially flat, elongated rectangular member with abutments at each of its sides having tabs extending at a substantially right angle from the elongated member. This embodiment of the attachment means, or adapter, can be used to fit an inventive skin over a pre-existing systems furniture structure.

[0013] According to alternative embodiments, a method for manufacturing the cubicle skin is provided as well and comprises the steps of selecting an image; creating a digitized template including the image and a border; cutting a planar member to a first predetermined size; applying the template to a front side of a visual substrate material; cutting the visual substrate material to a second predetermined size greater than the first predetermined size; covering a front side of the planar member with an adhesive; applying the visual substrate material over the entire front side of the planar member; wrapping the border around the planar member; affixing the border to a back side of the planar member; and, affixing attachment means to the back side. Applying the template to the front of the visual substrate material can be done by a printer.

[0014] Again, here, a protective coating can be applied over the visual substrate material. When creating the digitized template, the image can be made the same size as the planar member. In addition, affixing the attachment means to the back side can include inserting spikes of a metallic tab into the back side to affix the tab to the back side, or adhering the tabs to the back side.

[0015] Further, the attachment means used in the method can include affixing the above-mentioned adapter to the back of the planar member. In further detail, this would include affixing an elongated member having substantially the same width as the planar member to the back of the planar member. The elongated member would have an abutment at each end with a tab extending at a substantially right angle from the elongated member.

[0016] Because large format printing is unavailable to residences, an alternative embodiment of the present invention includes a method for marketing large volume printing to residential areas. The method comprises visiting a residence with potential clients, each having a number of pre-selected images; advising the potential clients as to how the images can be converted into large format print; accepting an image from the pre-selected images; digitizing the image; creating a digitized template including the image and a border; applying
the template to a front side of a visual substrate material to produce a large format print of the image.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1A shows the prior art components used in building furniture system, or cubicles;
[0018] FIG. 1B shows the components in FIG. 1A assembled to form a cubicle workstation;
[0019] FIG. 1C shows the exterior of the cubicle in FIG. 1B;
[0020] FIG. 2 shows the process of large volume printing according to a preferred embodiment of the present invention;
[0021] FIG. 3A shows the process of affixing an image substrate to a planar core in accordance with a preferred embodiment of the present invention;
[0022] FIG. 3B shows a back-side perspective view of the process shown in FIG. 3A;
[0023] FIG. 4A depicts a cubicle skin according to a preferred embodiment of the present invention;
[0024] FIG. 4B shows the skin in FIG. 4A from the front;
[0025] FIG. 5A shows an adapter bracket for attaching a skin according to an embodiment of the present invention to a pre-existing, fully assembled cubicle panel;
[0026] FIG. 5B depicts the adapter and skin of FIG. 5A being attached to a pre-existing, prior art systems furniture structure;
[0027] FIG. 6 shows a system furniture frame according to a preferred embodiment of the present invention; and,
[0028] FIG. 7 shows the frame of FIG. 6 with a number of inventive skins mounted thereon.

DETAILED DESCRIPTION

[0029] Large format printing is the process of transferring an image to a larger than photo-size, photographic material, such as a canvas. The process is well-known and its detailed description is unnecessary to enable the present invention.
[0030] FIG. 2 shows a simple explanation of the large format printing process as it applies to preferred embodiments of the present invention. A pre-selected image 20 is fed into a scanner 22 that digitizes the original image 20. That is, the scanner 22 converts the visual information of the image 20 into digital bits for computer processing.
[0031] Image selection is the first step in a method of manufacturing a system furniture skin according to an embodiment of the present invention. Any image may be used and the selection may be done by anyone along the system furniture distribution chain. For example, the end user purchasing the furniture, the installer of the furniture, the manufacturer of the furniture, the distributor, and so on. The image would not include repeating patterns like those on textiles and wood grain, but rather an image such as a photograph, logo, painting, or any other artistic work or graphic design. This, however, would not preclude the use of the same image multiple times on one skin.
[0032] The process of digitizing the image 20 by the scanner 22 and feeding the digitized image to a computer 24 is also well-known and its detailed description unnecessary to the present specification.
[0033] A graphic designer manipulates the digitized image file via image-processing software on the computer 24 to attain a certain artistic effect and create a template that determines the placement of the image, its appearance, and places a border around the image.

[0034] The computer 24 feeds the template to a printer 26 that outputs the template that includes the digitized image 25.2 on a first side, or front 25.1, of a suitable image substrate 25, such as artist-grade canvas. A suitable image substrate is a material that can accept and retain ink or other forms of coloring to maintain a pre-determined image on its surface; it will absorb coloring substances, such as ink or paint, without bleeding or otherwise allowing the coloring substances to shift and distort the original image. Put another way, a suitable image substrate for the present invention is one that will allow a transfer of the original image 20 to the substrate 25 and maintain the appearance of the original image without unwanted distortion or change.

[0035] Preferably, the template will place the image 25.2 near the center of the canvas 25 and within a border 25.3 that extends from the ends of the image 25.2 to the outer edge of the canvas 25. In this example, the border 25.3 is blank space but does not necessarily have to be. After the canvas 25 is output with the image 25.2 printed thereon, it is cut off a roll of canvas (not shown) fed from the printer 26.

[0036] When cutting the canvas 25 from the printer 26, space is left between the edge of the image 25.2 and the place where the canvas is cut to maintain the border 25.3. The dimensions of the border should be a function of the thickness, or width of a planar core 30, shown in FIGS. 3A and 3B, onto which the canvas is mounted. In other words, the border 25.3 should be wide enough to allow the edges of the canvas 25 to wrap around the edges of the core 30 with enough material to affix to the back of the core 30.

[0037] The planar core 30 should be made of a material rigid enough to maintain its planar form and configuration. An exemplary material is a sufficiently thick piece of fiberglass, Styrofoam, or particle board.

[0038] The height and length of the image 25.2 should be substantially equal to the height and length of the core 30 so that the image covers the entire front of the core 30 when mounted. However, some extension of the image 25.2 past the edge of the core 30 is acceptable.

[0039] Referring to FIGS. 3A and 3B, a planar member, or core 30 has a first side, or front side 30.1, and a second, or back side 30.2. As previously mentioned, the border 25.3 should be of a sufficient width to extend past the thickness of the core 30 with enough material left over to wrap around the edge of the core 30 and rest against the back side 30.2, so that the left-over material extending past the edges of the core can be adhered or otherwise affixed to its back side 30.2.

[0040] FIG. 3A shows a front view for mounting the canvas 25 onto the core 30. The front 30.1 of the core 30 is covered with an adhesive 31, such as a spray mount artist adhesive. The adhesive 31 may be applied by spraying, brushing, or by simply pouring it onto the front side 30.1. Any method that will evenly disperse the adhesive 31 over the front side 30.1 of the core 30 is sufficient to effectively practice the present invention. The canvas 25 is then pressed onto the front 30.1 of the core 30 as indicated by arrow 34.

[0041] When applying the back side of the canvas 25 to the front 30.1 of the core 30, the center of the image 25.2 on the front of the canvas 25 should be substantially aligned with the center of the core 30. The canvas 25 should be evenly and completely applied over the entire front surface 30.1 to eliminate any wrinkles or bubbles that may form in the canvas 25. The excess canvas material that extends beyond the edges of the core, the border 25.3, is then folded and wrapped around the edges of the core 30.
FIG. 3B is a back-side-perspective view of the process shown in FIG. 3A. Two tabs, or clips 32, are attached to the back side 30.2 of the core 30. The clips 32 are configured so as to snap into place of a system furniture frame slot (12 of FIG. 1A). Preferably, industry standard clips are used to provide ease of installation and near-universal application of the invention.

The canvas 25 is applied to the core 30 as shown by arrows 34. In this particular figure, an optional reduction of the border 25.3, thereby reducing the folded canvas material, is shown. A rectangular or square piece of material is cut from the corners 25.4 of the canvas 25 to reduce the amount of material wrapped and folded around the edges of the core. This material should be taken from the border portion alone. It is an optional and not absolutely essential step in practicing an embodiment of the present invention.

FIG. 4 shows a back-perspective view of the completed decorative cubicle skin, generally indicated by reference numeral 40. From this view, only the borders 25.3 of the canvas can be seen as the image (not shown from this view) is displayed on the front. The borders 25.3 are wrapped around the edges of the core 30 and may be affixed to its back 30.2 by additional adhesive, taping over the borders 25.3, stapling through the borders 25.3 and into the core 30, or any combination of these. The same methods of attachment may be used for the clips 32. Alternatively, the clips 32 may have integrated attachment means such as spikes for digging into the back side 30.2 of the core 30 or an adhesive applied to the surface of the clips 32 that contact the core 30 on its back side 30.2.

If desired, a covering (not shown) can be applied over the back of the skin 40 to prevent contact with any potentially harmful materials used in the construction of the skin 40, such as fiberglass and certain commercial grade adhesives. Preferably, such a covering would cover virtually the entire back side of the skin, except for apertures through which the clips 32 pass. Preferred materials for the covering include paper or a plastic sheet.

Finally, a synthetic coating is applied over the front of the skin 40, over the image 25.2 to protect and preserve the image 25.2. Preferably, the coating is applied to the sides of the skin 40 as well and the preferred method of application is by paintbrush. More than one coat may be applied, with a minimum of two preferred. Further, a protective coating, if desired, a certain synthetic coating may suffice. Exemplary coatings include a ministex polyurethane or a veneer matte.

The inventive cubicle skin 40 may now be installed onto a prior art system furniture frame, like the one shown in FIG. 1A, by inserting the clips 32 into the slots 12. Alternatively, depending on the particular frame, the clips may engage the inner perimeter of the frame if slots are absent.

FIG. 4B shows the skin 40 from the front with an exaggerated depth to show placement of the image 25.5 and the borders 25.3 on the canvas 25. In this particular example, the image 25.2 covers only the front of the skin 40 and not sides, or borders 25.3. It may, in some situations however, be acceptable to have part of the image or a separate graphic design on the borders 25.3 to cover the edges of the skin 40.

This same process may be used to create a tack board that attaches to the interior of a cubicle, usually between a work surface and an overhead storage compartment. The tack board is typically used to attach documents and other materials to it using thumb tacks, for example.

The dimensions of the skin 40 can be made to fit any size frame from 12" to 65" wide, 12" to 85" high, and any size in between. These ranges are not limited by their respective upper and lower constraints and are only provided as examples. The system furniture industry manufactures frames in pre-set, standard sizes. The method of the present invention is flexible and adaptable to accommodate any changes in the sizes of pre-fabricated frames that the relevant industry may adopt. So if a frame is made that is less than 12" wide, the present invention can be made to accommodate such a frame by changing the dimensions of the core, canvas, and image to the appropriate sizes.

For example, the core 30 can be 24" Wx12" Hx1/4" W. The image 25.2 would have dimensions closely resembling the height and width of the core 30, but no width since the image 25.2 is two-dimensional. The image may have the same height and width of the core 30, or slightly larger dimensions to ensure covering the front 30.1 of the core 30. It should be noted that blank space may be considered part of an image, so that the size of such an image would be the same as the core, but any graphic itself may be smaller, creating an area of blank space between the graphic and the edges of the core.

For example, a corporate logo may include a simple graphic such as a circle set within a square. An inventive skin as described herein is to include the corporate logo in its center. If the skin is rectangular, there will be blank space on either side of the square. This blank space, however, is considered part of the image and would be accounted for and included in its corresponding template. So it is not necessary that graphic or artistic material be present over the entire front of a decorative cubicle skin. Whatever is shown on the front of a decorative skin according to the present invention is considered part of the "image" as used in this description.

The size of the canvas 25, that is also two-dimensional having only a length and height, should be greater than that of the core. The difference may be a set dimension or percentage of the core dimensions. For example, the canvas will be 3 inches, or 5-10% greater than the core in length and height. Different differences may be desirable as well, such as 3 more inches in length and two more inches in height, or vice-versa. The difference in dimensions between the image 25.2 and the canvas 25 creates the area for the border 25.3 and should be determined when creating the template.

FIG. 5A shows an adapter 50 according to a preferred embodiment of the present invention that may be used to install an inventive skin 52 like the one described above, onto a pre-existing system furniture structure that has already been assembled, and over a prior art cubicle skin already in place.

The adapter 50 has an elongated, planar and rectangular middle piece with abutments at each side end with tabs 50.1 extending at a substantially right angle from the adapter 50. The adapter 50 attaches to the back of the decorative skin 52 by adhesive or mechanical means, such as stapling or integrated spikes that dig into, and removably attach to, the back of the skin 52. The tabs 50.1 that fit over the outer edges of a prior-art system furniture frame, like those shown in FIG. 1B (reference numeral 10).

The adapter 50 should be wide enough to reach from one end of a designated frame to the other and embrace its outer edges. The adapter extension tabs 50.1 should be thin enough to fit between two frames attached to each other.

FIG. 5B shows the adapter 50 of FIG. 5A being fitted onto a prior-art systems furniture construction of three
connected, prior art frames, a left frame 57, a middle frame 55 and a right frame 59. The tabs 50.1 of the adapter 50, which is attached to the back of the inventive skin 52, fit over and onto the side edges of the middle panel 55, and in between the side edges of the middle panel 55 and the side edges of the left 57 and right 59 panels.

Figs. 6 shows a system furniture frame 60 according to another aspect of a preferred embodiment of the present invention. The frame 60 can be made of four individual rails, a top rail 61, a bottom rail 67, a left rail 69, and a right rail 65, all connected at their edges. The edges of the top rail 61 connected to the top ends of the left 69 and right 65 rail and the bottom rail 67 connected to the bottom ends of the left 69 and right 65 rail.

Ordinarily, prior-art cubicle frames allow for only one skin to be attached across its width and do not allow skins of different heights to be installed next to each other on one, single frame. The inventive frame 60 includes an additional attachment surface 64, or middle rail, in between the 69 and right 65 rails of the frame 60. This particular frame 60 has slots 62 along its left 69 and right 65 rails and along the additional attachment surface 64. This configuration allows a number of different mounting options of inventive skins onto the frame 60.

It should be noted that the attachment means on the rails do not necessarily have to be slots, but can be any form of mechanical attachment means.

In this particular example, only one middle rail 64 is included. Depending on the overall width of the frame, 60, however, there could be multiple vertical rails installed along the frame’s width.

Figs. 7 shows one of many possible examples for a mounting configuration of inventive skins, as described herein, onto the inventive frame 60. Assuming the following dimensions, the frame 60 is two-feet wide by four feet high (2’ W x 4’ H), there are two one-foot wide by one-and-a-half foot high (1’ W x 1.5’ H) skins 71, a one-foot wide by three-foot high (1’ W x 3’ H) skin 74, and a one-foot high by four-foot wide (1’ H x 4’ W) skin 72 all mounted on a single frame with a different pre-selected visual image on each. The frame 60 allows a number of different sized skins to be mounted onto a single frame side-by-side as well as above and below each other.

A method for marketing the inventive skin to residences, where large format printing is normally unavailable, is included in a preferred embodiment of the present invention as well. According to this marketing method, a gathering of potential clients occurs at a pre-designated residence. The potential clients will bring the images they wish to have converted into a large-format print with them to the gathering. At this gathering, a consultant knowledgeable in the present invention advises the potential clients as to what size the image can be converted to and what substrates they can have their images printed on, and what kind of mounting options are available, including the types of planar cores available for mounting according to the method of creating a cubicle skin disclosed herein.

The consultant can have a portable scanner with him at the gathering for accepting and digitizing the images chosen by the potential clients to create digitized images and store them on a portable computer-readable medium. This portable set-up can simply include a scanner and a notebook computer to digitize and store the images on the computer’s hard drive.

The consultant would then take the digitized images, whether stored on a notebook computer or some portable computer-readable medium, and process them using image manipulation software as discussed above to create a template for processing to manufacture a skin as described previously.

In the event the core itself is made of a material that can be painted or otherwise retain an image thereon, it may eliminate the need for covering the core with an image substrate. For example, a planar piece of wood could be used instead of fiberglass for the core and the wood itself could be painted with an image or graphic. In this case, the wood performs the function of both the core (provide a mounting surface) and the canvas (to display an image). It should be noted that such a modification of the method disclosed herein has been contemplated and is within the scope of the present invention.

In the preceding specification, the invention has been described with reference to specific exemplary embodiments thereof. It will however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention as set forth in the claims that follow. The specification and drawings are accordingly to be regarded in an illustrative manner rather than a restrictive sense.

What is claimed is:
1. A cubicle skin comprising:
   a planar core having a first side and a second side;
   an adhesive layer on the first side;
   attachment means affixed to the second side;
   an image substrate having a front, a back and an edge;
   a graphic image disposed over a first portion of the front and a border disposed over a second portion of the front; wherein the back of the image substrate is attached to the first side of the planar core via the adhesive layer and the second portion is wrapped around the edges of the core.
2. The cubicle skin of claim 1 wherein the planar core is fiberglass.
3. The cubicle skin of claim 1 wherein the adhesive layer is a spray mount artist adhesive.
4. The cubicle skin of claim 1 wherein the attachment means comprise a metallic tab.
5. The cubicle skin of claim 1 wherein the attachment means further comprise a substantially flat, elongated rectangular member with abutments at each of its side ends with tabs extending at a substantially right angle.
6. The cubicle skin of claim 1 further comprising a protective coating over the graphic image.
7. A method for manufacturing a cubicle skin comprising the steps of:
   selecting an image;
   creating a digitized template including the image and a border;
   cutting a planar member to a first predetermined size;
   applying the template to a front side of a visual substrate material;
   cutting the visual substrate material to a second predetermined size greater than the first predetermined size;
   covering a front side of the planar member with an adhesive;
   applying the visual substrate material over the entire front side of the planar member;
   wrapping the border around the planar member;
affixing the border to a back side of the planar member; and,
affixing attachment means to the back side.
8. The method of claim 7 further comprising applying a protective coating over the visual substrate material.
9. The method of claim 7 wherein the creating a digitized template step further comprises making the image the same size as the first predetermined size.
10. The method of claim 7 wherein the affixing the attachment means to the back side further comprises inserting spikes of a metallic tab into the back side to affix the tab to the back side.
11. The method of claim 7 wherein the affixing the attachment means to the back side further comprises adhering metallic tabs to the back side.
12. The method of claim 7 wherein the affixing the attachment means to the back side further comprise affixing an elongated member having substantially the same width as the planar member, and an abutment at each end with a tab extending at a substantially right angle from the elongated member, to the back side.
13. The method of claim 7 wherein the applying step further comprises printing the template onto the visual substrate material.
14. A method for marketing large format printing to residential areas comprising the steps of:
visiting a residence with potential clients, each having a number of pre-selected images;
advising the potential clients as to how the images can be converted into large format print;
accepting an image from the pre-selected images;
digitizing the image;
creating a digitized template including the image and a border;
applying the template to a front side of a visual substrate material to produce a large format print of the image.

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