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(54) An adhesive mounting system and uses therefor

(57) An adhesive mounting system (2) comprises multiple composite layers (5-7), wherein each composite layer comprises a substrate (7) having a back side coated with a removable adhesive (5) and a front side coated with a releasing agent (6). The composite layers are arranged such that the removable adhesive (5) of one composite layer is in contact with the releasing agent (6) of another composite layer. The adhesive mounting system (2) allows objects (3) provided therewith to be removably mounted on a support, for easy relocation. Display items (3) comprising the adhesive mounting system (2) and methods for making the adhesive mounting system (2) are disclosed.

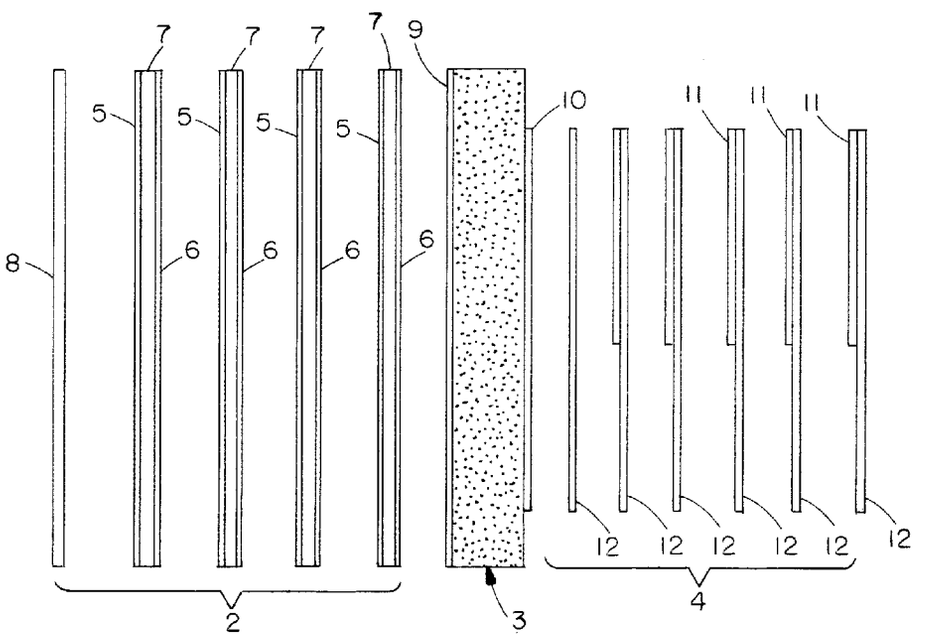

FIG. 2

EP 0 871 154 A2

Description

Signs and other visual displays such as bulletin boards and message boards are frequently used by industry and retail providers as well as individual consumers. However, as a result of the relatively fixed mounting of such signs and visual displays, removal and reuse or repositioning of the display is usually difficulty, if not impossible. Furthermore, removal of the display often causes damage to the surface on which the display is mounted. These qualities are particularly disadvantageous if the information conveyed by the display has a limited time during which it is applicable, such as, for example, a sale price or event.

For example, bulletin boards, signs and similar items are typically hung by means of a hook or wire attached to the item and secured with a nail or a screw to the surface on which the item is to be mounted. Removal, while relatively simple and causing no damage to the display item, leaves the underlying surface marred by the nail or screw (or the hole left upon removal of the nail or screw).

Other mounting systems have also been used with varying levels of success. For example, clay-like tacky substances have been used to mount various objects. These substances allow for removal and repositioning of the mounted item. However, the adhesive strength of these substances is insufficient to support bulky or heavy items, and the clay-like substances often leave an oily residue on both the mounting surface and the display item.

Pressure-sensitive permanent adhesives have also been used to facilitate mounting of visual display items. Typically, a substrate is coated on both sides with a permanent adhesive, and one side is contacted with the item to be mounted. The other side of the substrate is applied to the surface on which the item is to be mounted. However, these compositions have several limitations. The adhesive may not stick to all mounting surfaces, and the permanency of the adhesive makes removal from either the item or the mounting surface highly damaging to both the surface and the adhesive substrate, rendering reuse an impossibility.

U.S. Patent No. 4,671,003 (Vitol) discloses a pressure-sensitive, adhesive-backed information-conveying sign which is removable and reusable. The adhesive-backed sign contains an adhesive-free zone contained entirely within the perimeter of the sign which may be grasped to remove the sign from the surface to which it has been applied. The sign can optionally be reapplied to another surface, as long as the adhesive retains sufficient adhesiveness to permit reapplication.

Thus, it is desirable to utilize a mounting system which allows for easy removal and repositioning of mounted items without damage to the item or surface to which it has been mounted and without loss of adhesion with each repositioning.

The present invention pertains to an adhesive mounting system which allows for easy removal and repositioning of items mounted therewith. The invention also pertains to display items comprising or mounted with the adhesive mounting system of the present invention, as well as to methods for making the adhesive mounting system.

The adhesive mounting system of the present invention comprises multiple (i.e., more than one) composite layers. Each individual composite layer comprises a substrate having a first or back side coated with a removable adhesive and a second or front side coated with a releasing agent; the composite layers are arranged such that the removable adhesive of one composite layer is in contact with the releasing agent of another composite layer. Thus, the multiple composite layers are "stacked" such that all the releasing agent-coated substrate sides face in one direction and all the adhesive-coated substrate sides face in the opposite direction. The adhesive portion of the outermost layer can optionally be covered with a backing sheet prior to mounting to prevent contamination of the adhesive which would result in a loss of adhesiveness.

The adhesive mounting system of the present invention is applied to the back (or mounting side) of a display item by means of an adhesive, and more preferably by a permanent adhesive. The adhesive mounting system is applied to the display item such that the front side of each composite layer (i.e., the side which is coated with the releasing agent) faces the display item and the adhesive-coated side faces away from the item (see Figure 2). Thus, the releasing agent-coated side of the innermost composite layer is attached to the mounting side of the display item by means of an adhesive, leaving the removable adhesive-coated side of the outermost composite layer free to contact the surface to which the item is to be mounted.

According to the present invention, display items which are mounted with the adhesive mounting system of the present invention can be freely relocated (i.e., reused) at another position without causing damage to either the display item or to the surface to which it has been mounted. This objective is achieved by the layered configuration of the adhesive system. When it is desirable to relocate or remove the mounted display item, the outermost composite layer of the adhesive system, which is in contact with the surface to which the item is mounted, is separated from the adjacent composite layer at the interface between the releasing agent of the outermost layer and the removable adhesive of the adjacent layer. This separation leaves a fresh, unused adhesive surface of the next composite layer available for contact with a new surface to which the display item can be mounted.

As described herein, the adhesive mounting system of the present invention has utility in many applications. The system can be used to mount display items such as signs, bulletin boards, message boards, bumper stickers, stickers, tags, labels, pictures or photographs,

and items of art or decoration such as craft items, plaques and paintings. The adhesive mounting system of the present invention is particularly advantageous for mounting display items in settings where the information to be conveyed is of a transient nature, e.g., sale prices or notifications, event information or warning or emergency information. The described system allows the reliable conveyance of information without the expense of creating, affixing, removing and relocating a relatively permanent display, and further without damage to either the display item or the surface to which it has been mounted.

An embodiment of the present invention will now be described in detail with reference to the accompanying drawings, in which

Figure 1 illustrates a display item 3 mounted to a surface 1 by means of an adhesive mounting system 2 of the present invention ; and

Figure 2 illustrates a cut away side view of a display item 3 having an adhesive mounting system 2 of the present invention attached to its back (mounting) side and a self-stick removable note pad 4 attached to its front (display) side. Boch the adhesive mounting system and the self-stick removable note pad are attached to the object by means of permanent adhesive 9, 10. Each composite layer of the adhesive mounting system comprises a two sided substrate 7 having a back side coated with a removable adhesive 5 and a front side coated with a releasing agent 6. The adhesive mounting system has a cover sheet 8 removably attached to the removable adhesive side of the outer composite layer to prevent spoiling of the adhesive layer. The self-stick removable note pad comprises multiple paper sheets 12 coated with a removable adhesive 11.

The present invention pertains to an adhesive mounting system, methods for making the adhesive mounting system, and display items comprising the system. The adhesive mounting system 2 of the present invention comprises multiple (i.e., more than one) composite layers 5, 6, 7. Each individual composite layer comprises a substrate 7 having a first or back side coated with a removable adhesive 5 and a second or front side coated with a releasing agent 6. The composite layers are arranged such that the removable adhesive of one composite layer is in contact with the releasing agent of another composite layer. Thus, the multiple composite layers are "stacked' such that all the releasing agent-coated substrate sides face in one direction and all the adhesive-coated substrate sides face in the opposite direction. The adhesive portion of the outermost layer can optionally be covered with a backing sheet or cover sheet 8 prior to mounting to prevent spoiling of the adhesive. The adhesive mounting system is attached to a display item 3 with an adhesive which is preferably permanent 9, and the display item mounted with the adhesive mounting system can be easily removed and repositioned as desired.

AS used herein, terms are intended to have their art-recognized meaning unless otherwise indicated. As used herein, the term "display item" is intended to encompass signs, bulletin boards, message boards, bumper stickers, stickers, tags, labels, pictures or photographs, and items of art or decoration such as craft items, plaques and paintings. As used herein, "composite" layer is intended to mean a layer which is assembled by coating one side of a substrate with a removable adhesive and the opposite side of the substrate with a releasing agent: the dual-coated substrate is referred to as a "composite layer. The teachings of all references cited herein are hereby incorporated herein by reference.

Suitable substrates which can be coated with both removable adhesive and releasing agent as described herein include paper, foam, plastic and cardboard. The substrate should be suitable for receiving a removable adhesive on one side and a releasing agent on the opposite side; for example, the substrate material should not be degraded or structurally weakened by contact with either the releasing agent or adhesive.

One side of the suitable substrate is coated with a removable adhesive; this side of the substrate is referred to herein as the "back" side of the substrate. The back side of the substrate can be coated completely or in part with the removable adhesive, as long as the area and shape of the adhesive-coated portion is suitable for contacting and maintaining contact with the surface on which an item is to be mounted. The configuration of adhesive on the substrate can be varied according to design preference; a preferred location of the adhesive is at least along one or more marginal edges of the substrate. The coating of removable adhesive can be either uniform or non-uniform, such as in a striated pattern, thereby conserving the amount of removable adhesive required for adhering the display item to the surface to which it is to be mounted.

Suitable removable adhesives for use in the present invention include any adhesive which can be temporarily attached to one surface, removed from the surface without damaging the integrity of the surface from which it is removed, and then adhered to another surface of similar or different material. For example, acrylic adhesives are particularly useful in the invention.

Removable adhesives of the present invention are applied to the back side of the substrate as a coating, generally in an amount of from about 10 to about 25 grams per square meter. However, the adhesive coating thickness, as well as area of application, can be varied depending upon the adhesive strength of the particular adhesive used and the weight of the display item to be mounted. The skilled artisan will be able to readily determine the appropriate thickness and area of the adhesive coating based upon the adhesive strength of the particular adhesive, the display item to be mounted, and

the surface on which the item is to be mounted.

The side of the suitable substrate opposite the adhesive-coated side is coated with a releasing agent; this side of the substrate is referred to herein as the "front" side of the substrate. The front side of the substrate can be coated completely or in part with the releasing agent; for example, the releasing agent can be applied only to the portion of the substrate which corresponds to the position of the removable adhesive on the adjacent composite layer.

Suitable releasing agents for use in the present invention are those which are not self-releasing but which require a pulling force in order to release them from the adhesive. Additionally, it is preferred that the binding force between the releasing agent and the adhesive be less than the binding force between the adhesive and the surface to which the item is mounted; this allows the composite layers to separate at the releasing agent/adhesive interface rather than at the adhesive/mounting surface interface. For example, a material such as a silicone-based agent can be used in this invention. Suitable releasing agents can also be selected from polypropylene, polyethylene, organic fluorinated compounds, acrylic polymers, polyvinylcarbamate, TEFLON™ or similar polymeric materials having a very low surface energy.

The individual composite layers described above are arranged such that the removable adhesive of one composite layer is in contact with the releasing agent of another composite layer. Thus, the multiple composite layers are "stacked" such that all the releasing agent-coated substrate sides face in one direction and all the adhesive-coated substrate sides face in the opposite direction. The number of composite layers which are stacked together determines the number of times the display item can be repositioned; for example, an adhesive mounting system comprising five composite layers allows the display item to be repositioned or reused five times, as each removal/repositioning expends one composite layer. When the final composite layer is used to mount the item, the item can no longer be repositioned, although it can be removed from the surface to which it is mounted. Accordingly, the number of composite layers which can be stacked together ranges from about 2 to about 20, with from about 5 to about 7 being preferred. For example, the number of composite layers included in the stack should be an amount which will not cause the display item to fall off the surface to which it is mounted or to cause self-release at the releasing agent/adhesive interface; thus, the number of appropriate composite layers depends upon the item to be mounted, the surface to which it is to be mounted, and the strength of the adhesive used.

The adhesive portion of the outermost layer can optionally be covered with a backing sheet prior to mounting to prevent contamination of the adhesive. This cover sheet is composed of a material, e.g., polyethylene, polypropylene or TEFLON™ which protects the underlying adhesive-coated side of the substrate prior to mounting and which is removable to provide a fresh, unused adhesive surface. Alternatively, the backing sheet can be a silicone-treated paper. Such backing sheets, also known as release papers, are known in the art and will be readily apparent to the skilled artisan.

The adhesive mounting system of the present invention is applied to the back (or mounting side) of a display item by means of an adhesive, and more preferably by a permanent adhesive. The adhesive mounting system is applied to the display item such that the front side of each composite layer (i.e., the side which is coated with the releasing agent) faces the display item and the adhesive-coated side faces away from the Item (see Figure 2). The optional cover sheet protecting the outermost adhesive layer is removed, and the display item is then mounted to an appropriate surface (see Figure 1). Thus, the releasing agent-coated side of the innermost composite layer is attached to the mounting side of the display item by means of an adhesive, leaving the removable adhesive-coated side of the outermost composite layer free to contact the surface to which the item is to be mounted. The adhesive mounting system of the present invention can be attached to a display item (e.g., by a manufacturer) either during or at the end of the display item manufacturing process. Alternatively, the adhesive mounting system can be attached to a display Item by a consumer after separately obtaining the display item and the adhesive mounting system. The consumer attaches the adhesive mounting system to the display item by means of a permanent adhesive, such as rubber-based adhesives, e.g., rubber cement, or polyvinyl alcohol or acrylic latex. Accordingly, the invention also pertains to a kit comprising the adhesive mounting system of the present invention and a suitable permanent adhesive; such a kit can be utilized by a consumer to mount items using the adhesive mounting system of the present invention.

Display items according to the present invention include, but are not limited to, signs, bulletin boards, message boards, removable and repositionable notepads, bumper stickers, stickers, tags, labels, pictures or photographs, and items of art or decoration such as craft items, plaques and paintings. The display item can be composed of virtually any material, including, for example, wood, plastics (polyvinylchloride, cellulose, acetate, methylmethacrylate and polycarbonate), fabric, metal, paper, ceramics and glass. For example, Figure 2 illustrates one embodiment of the invention wherein a removable and repositionable notepad is attached to the adhesive mounting system of the present invention. The notepad can be directly attached to the adhesive mounting system (not shown) or can be attached to a substrate or display item which is in turn attached to the adhesive mounting system (Figure 2).

According to the present invention, display items which are mounted with the adhesive mounting system of the present invention can be freely relocated (i.e., re-

used) at another position without causing damage to either the display item or to the surface to which it has been mounted. This objective is achieved by the layered configuration of the adhesive system. When it is desirable to relocate or remove the mounted display item, the outermost composite layer of the adhesive system, which is in contact with the surface to which the item is mounted, is separated from the adjacent composite layer at the interface between the releasing agent of the outermost layer and the removable adhesive of the adjacent layer. This separation leaves a fresh, unused adhesive surface of the next composite layer available for contact with a new surface to which the display item can be mounted.

Appropriate surfaces on which the display items comprising the adhesive mounting system can be mounted will be easily recognized by the skilled artisan. These surfaces include natural and synthetic materials, including, but not limited to, wood, paper, plaster, plastic, glass, fabric and metals. For example, the display items can be mounted to doors, windows, walls, furniture, automobiles, shelves and counters. Additionally, display items comprising the adhesive mounting system of the present invention can be mounted in any orientation, including vertically (such as on a door) and horizontally (such as on a desktop or countertop) on both the top or upward facing and bottom or downward facing surfaces of a display.

The present invention also pertains to methods for making the adhesive mounting system of the present invention. Methods for making an adhesive mounting system according to the present invention comprise the steps of applying a releasing agent to a front side of an appropriate substrate, applying a removable adhesive to a back side of the substrate to produce a composite layer, and assembling multiple composite layers such that the removable adhesive of one composite layer is in contact with the releasing agent of another composite layer. Methods of applying both the removable adhesive and the releasing agent are well known in the art and include, for example, screen coating and roll coating. Moreover, the skilled artisan will readily be able to select a Suitable substrate, depending upon the ultimate application of the adhesive mounting system.

EQUIVALENTS

Those skilled in the art will recognize, or be able to ascertain, using no more than routine experimentation, many equivalents to the specific embodiments of the invention described herein. Such equivalents are intended to be encompassed by the following claims:

Claims

1. An adhesive mounting system (2) comprising more than one composite layer, wherein each composite layer comprises a substrate (7) having a back side coated with a removable adhesive (5) and a front side coated with a releasing agent (6), and wherein the composite layers are arranged such that the removable adhesive (5) of one composite layer is in contact with the releasing agent (6) of another composite layer; and for example the adhesive mounting system (2) comprises from about 2 to about 20 composite layers.

2. An adhesive mounting system according to claim 1, wherein the removable adhesive (5) is a pressure sensitive adhesive, for example selected from the group consisting of acrylic adhesives and rubber-based adhesives.

3. An adhesive mounting system according to claim 1 or claim 2, wherein the substrate (7) is selected from the group consisting of paper, foam, plastic and cardboard.

4. An adhesive mounting system according to claim 1, 2 or 3, wherein the releasing agent (6) is selected from the group consisting of silicone, acrylic polymers, polyvinylcarbamate, polypropylene, polyethylene, organic fluorinated compounds, and TEFLON™.

5. An adhesive mounting system according to claim 1, 2, 3 or 4, wherein the adhesive-coated substrate side of the outermost composite layer is provided with a cover sheet (8) to prevent contamination of the adhesive (5).

6. A display item (3) comprising an adhesive mounting system (2) comprising more than one composite layer, wherein each composite layer comprises a substrate (7) having a back side coated with a removable adhesive (5) and a front side coated with a releasing agent (6), and wherein the composite layers are arranged such that the removable adhesive (5) of one composite layer is in contact with the releasing agent (6) of another composite layer.

7. A display item (3) according to claim 6, which is selected from signs, bulletin boards, message boards, removable and repositionable notepads, bumper stickers, stickers, tags, labels, pictures, photographs, art items, craft items, plaques and paintings.

8. A method for making an adhesive mounting system (2) comprising the steps of:

   a) applying a releasing agent (6) to a front side of an appropriate substrate (7);

   b) applying a removable adhesive (5) to a back

side of the substrate (7) of (a) to produce a composite layer;

c) assembling multiple composite layers such that the removable adhesive (5) of one composite layer is in contact with the releasing agent (6) of another composite layer,

thereby producing an adhesive mounting system, and optionally the adhesive mounting system comprises from about 2 to about 20 composite layers.

9. A method according to claim 8, wherein the removable adhesive (5) is a pressure sensitive adhesive, for example selected from the group consisting of acrylic adhesives and rubber-based adhesives.

10. A method according to claim 8 or claim 9, wherein the substrate (7) is selected from paper, plastic, foam and cardboard.

11. A method according to claim 8, 9 or 10, wherein the releasing agent (6) is selected from silicone, acrylic polymers, polyvinylcarbamate, polypropylene, polyethylene, organic fluorinated compounds and TEFLON™.

12. A method according to claim 8, 9, 10 or 11, further comprising providing the adhesive-coated substrate side of the outermost composite layer with a cover sheet (8) to prevent contamination of the adhesive (5).

13. A kit comprising:

a) an adhesive mounting system (2) comprising more than one composite layer, wherein each composite layer comprises a substrate (7) having a back side coated with a removable adhesive (5) and a front side coated with a releasing agent (6), and wherein the composite layers are arranged such that the removable adhesive (5) of one composite layer is in contact with the releasing agent (6) of another composite layer; and

b) an appropriate permanent adhesive to adhere mounting system (2) of (a) to a display item (3).

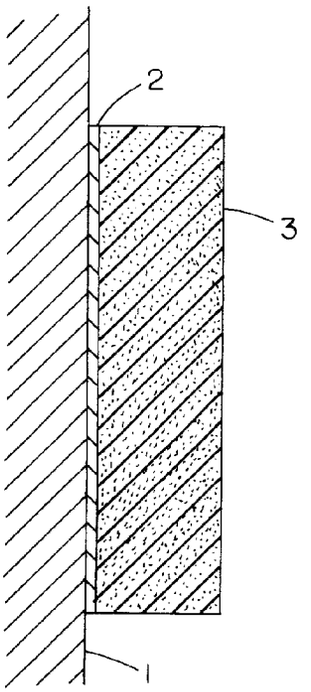

FIG. 1

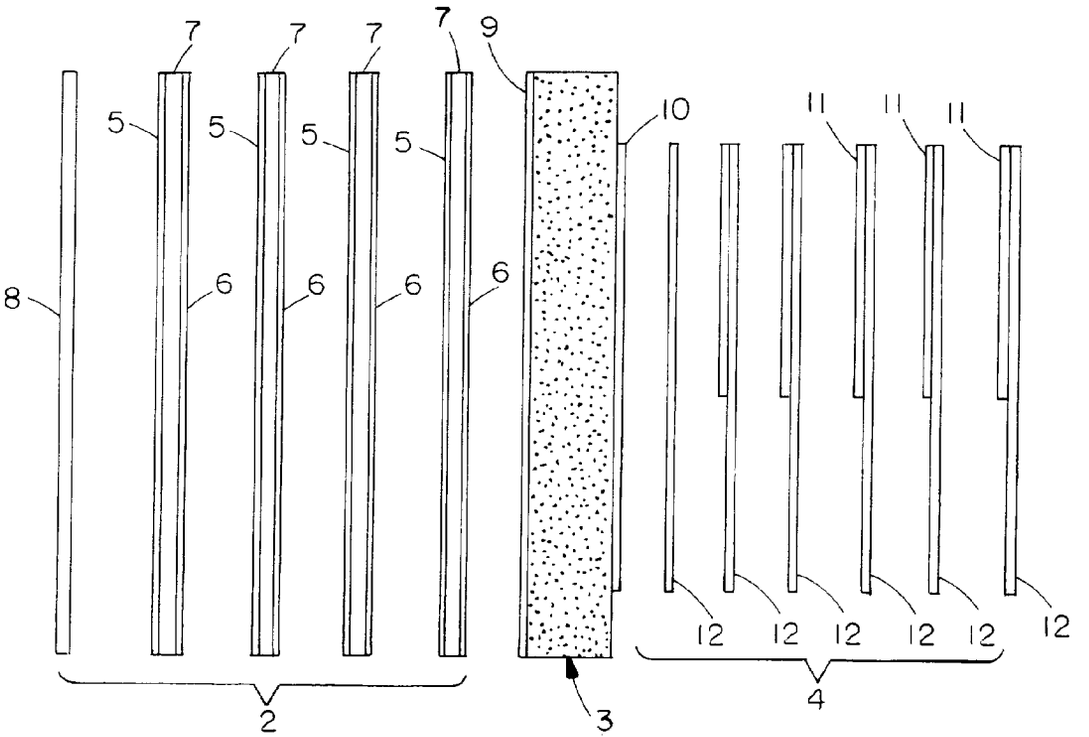

FIG. 2