Abstract

The present invention generally relates to the field of article packaging and particularly, to a power tool case protection and display system. An aspect of the present invention is directed to a power tool case protection and display system, comprising: printed shrink film; and, one or more power tool cases; wherein the printed shrink film at least partially encompasses the one or more power tool cases; wherein the printed shrink film includes one or more visual markers displaying graphic designs which provide information related to the power tool(s).
START

802 IDENTIFY THE PRODUCT TO BE COUPLED WITH THE PRINTED SHRINK FILM

804 SELECT MATERIAL TO BE USED AS THE SHRINK FILM (FILM RESIN)

806 ESTABLISH CONFIGURATION OF SHRINK FILM

808 DETERMINE GRAPHIC DESIGN CONFIGURATION

810 APPLY GRAPHIC DESIGN TO SHRINK FILM (FILM RESIN)

812 COUPLE PRINTED SHRINK FILM WITH PRODUCT

END

FIG. 8
POWER TOOL CASE PROTECTION AND DISPLAY SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority under 35 U.S.C. §119(e) to U.S. Provisional Application No. 60/523, 724 entitled: Power Tool Case Protection and Display System filed Nov. 19, 2003, which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention generally relates to the field of article packaging, and particularly to a power tool case protection and display system.

BACKGROUND OF THE INVENTION

[0003] In the current marketplace, retailing of some power tools involves packaging the power tool within an accompanying power tool case. These power tools often include various accessories and additional parts which are separate from the power tool, but are included within the retail packaging of the power tool. For example, a number of power tools are packaged using a corrugated cardboard sleeve. The sleeve encompasses the power tool, the accompanying power tool case, and the additional accessories and parts. The accessories and parts are stored within the packaging (i.e.—the sleeve), but outside of the case. Such packaging often allows for pre-sale removal of the accessories and parts without damaging the encompassing sleeve, therefore providing no indication to a customer that the accessories have been removed. Further, such packaging may be susceptible to damage by exposure to the elements, which leads to less aesthetically pleasing packaging.

[0004] Therefore it would be advantageous to have a power tool case protection and display system for packaging containers, such as power tool cases, which deters pre-sale removal of the power tool's accompanying accessories and parts and further, allows the power tool case to be displayed in an aesthetically pleasing manner.

SUMMARY OF THE INVENTION

[0005] Accordingly, the present invention is directed to a power tool case protection and display system. An aspect of the present invention is directed to a power tool case protection and display system, comprising: printed shrink film; and, one or more power tool cases; wherein the printed shrink film at least partially encompasses the one or more power tool cases; wherein the printed shrink film includes one or more visual markers displaying graphic designs which provide information related to the power tool(s).

[0006] A further embodiment of the present invention is directed to a power tool case protection and display system, comprising: printed shrink film; and, one or more power tools; wherein the printed shrink film at least partially encompasses the one or more power tools; wherein the printed shrink film includes one or more visual markers displaying graphic designs which provide information related to the power tool(s).

[0007] An additional embodiment of the present invention is directed to a method for manufacturing a printed shrink film-wrapped product, including the steps of identifying a product to be coupled with the printed shrink film; selecting a material to be used as the shrink film; establishing a configuration for the shrink film; determining a graphic design configuration for the shrink film; applying a graphic design to the shrink film; and, coupling the printed shrink film with the product.

[0008] It is to be understood that both the foregoing description and the following detailed description are exemplary and explanatory only and are not necessarily restrictive of the invention as claimed. The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate embodiments of the invention and together with the general description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The numerous advantages of the present invention may be better understood by those skilled in the art by reference to the accompanying figures in which:

[0010] FIG. 1A is an illustration of a power tool case protection and display system in accordance with an exemplary embodiment of the present invention at least partially encompassing a first power tool case;

[0011] FIG. 1B is an illustration of a power tool case for use with a power tool case protection and display system in accordance with an exemplary embodiment of the present invention;

[0012] FIG. 2 is an illustration of a second exemplary power tool case protection and display system at least partially encompassing the first power tool case;

[0013] FIG. 3 is an illustration of a power tool case protection and display system at least partially encompassing a second power tool case;

[0014] FIG. 4 is an illustration of a power tool case protection and display system at least partially encompassing a third power tool case;

[0015] FIG. 5 is an illustration of a power tool case protection and display system at least partially encompassing a first bundled multiple power tool case assembly;

[0016] FIG. 6 is an illustration of a power tool case protection and display system at least partially encompassing a second bundled multiple power tool case assembly;

[0017] FIG. 7 is an illustration of a power tool case protection and display system at least partially encompassing a compressor assembly; and

[0018] FIG. 8 is a method of manufacturing the power tool case protection and display system in accordance with an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings.

[0020] Referring generally to FIGS. 1A through 7, exemplary embodiments of the present invention are shown. In the exemplary embodiments, the power tool case protection...
and display system is a printed shrink film employed to at least partially encompass one or more containers, such as a power tool case. In present embodiments, the printed shrink film includes various graphic designs, such as a product name, a logo, a trademark, a depiction of the product, and the like. The graphic designs assist in product identification. In further embodiments, the graphic designs provide manufacturer information, safety warnings, warranty information, product use information, and the like. Those of ordinary skill in the relevant art will understand that the graphic designs of the present invention may be used to display various other types of information without departing from the scope and spirit of the invention.

[0021] It is further understood that the graphic designs may be of various qualities. In a present embodiment of the invention, the printed shrink film includes high quality graphic designs for displaying a container in an aesthetically appealing manner. This may be advantageous in the highly competitive power tool market, wherein the display of the container in a retail environment may play a significant factor in a consumer’s purchasing decision.

[0022] Another advantage of the present invention is the increased ease with which the printed shrink film may be kept clean. For instance, during shipping from the manufacturer to the retailer, containers may be exposed to multiple environmental factors such as water, dirt, dust, and debris. Such environmental factors may adversely affect the appearance of currently used container wraps, such as corrugated cardboard sleeves, by damaging the material of the wrap or by damaging graphics on the material. However, the printed shrink film of the present invention and the graphic designs included thereon may be resistant to becoming damaged by environmental factors. Further, the printed shrink film provides for the ability to be cleaned, such as by wiping with a cloth, through the use of water, through the use of cleaning solutions, or other contemplated cleaning methods.

[0023] The current marketplace finds retailing of power tools, within power tool cases, to include various other features, such as various accessories and additional parts, which may be used by the power tool but are separate from the power tool. These various accessories and additional parts may be stored within the power tool case or outside the case but within the packaging of the power tool. With the currently employed sleeves, which are used to encompass various power tool cases, these additional parts and accessories may be removed from the retail package of the power tool without damage to the sleeve. This may result in significant economic loss to the manufacturer and retailer which are unable to sell these power tools which have had various features, and therefore various capabilities, removed from them. Further, consumer dissatisfaction of these products, unwittingly purchased with missing features, may be increased. The present invention may provide a simple and effective device which may reduce such deleterious activity from occurring. By employing the present invention, access to the power tool case or other accessories and parts may be accomplished only by some form of destruction of the present invention. This may provide a deterrent and may provide a noticeable indication of damage.

[0024] A printed shrink film 102, of a printed shrink wrap package 100, is shown in FIG. 1A. The printed shrink film 102 may be composed of various shrink film (film resin) materials. In a present embodiment, the shrink film is composed of a transparent polyethylene material allowing for visual ascertainment of a container 104, which is at least partially encompassed by the printed shrink film 102. Materials, such as PVC (polyvinylchloride), and the like are also contemplated for use with the present invention. In alternative embodiments, a printed shrink film 202, at least partially encompassing a container 204 of the present invention may comprise a non-transparent, non-translucent, and the like film resin, as shown in the shrink wrap package 200 of FIG. 2. Thus, the printed shrink film 202 and container 204 may be similar to the printed shrink film 102 and container 104 in every other respect. It is contemplated that the printed shrink film 202 may include various colors, designs, patterns, and the like, which are distinct from the visual markers (described below).

[0025] In exemplary embodiments, the material which composes the printed shrink film 102 may be of various thicknesses to provide preferred operational tolerances. For example, the thickness of the film resin material may range between 0.002 millimeters to 0.005 millimeters. A preferred embodiment of the present invention includes a film resin material having a thickness of 0.003 millimeters. It is understood that the thickness of the film resin material may be greater than or less than the exemplary range and preferred embodiment without departing from the scope and spirit of the present invention.

[0026] It is contemplated that the printed shrink film 102 may be of various sizes for at least partially encompassing differently sized containers. As shown in FIG. 7, the printed shrink film of the present invention may be variously sized to accommodate application to items other than the containers shown in FIGS. 1A through 6. As seen in FIGS. 3 and 4, printed shrink wrap packages 300 and 400, each including a printed shrink film 302 and 402, encompassing containers 304 and 404, respectively, are alternately configured with respect to their containers, relative to that shown in FIG. 1A. Thus, the sizing of the printed shrink film 102 may accommodate various container configurations as contemplated by those of ordinary skill in the art.

[0027] In present embodiments, the container 104, as shown in FIG. 1B, is employed for storing a variety of power tools, such as a tiger saw, circular saw, router, and the like. The container 104 comprises a base 106, a lid 108, a first side 110, second side 112, top side 114, bottom side 116, third side 118, and fourth side 120. In exemplary embodiments, the container 104 is composed of various materials, such as metals, woods, plastics, and the like. Visual ascertainment of the container 104 may include ascertainment of a handle 122 of the container 104, a fastening assembly, including a first latch assembly 124 and a second latch assembly 126, which affixes the lid 108 to the base 106 of the container 104, a coupling assembly, including a first dovetail assembly 128 and second dovetail assembly 130, which enables multiple containers to be coupled together, and the like. Various other features, as contemplated by those of ordinary skill in the art, may be included upon the container 104 and visually ascorable through use of the printed shrink film 102, without departing from the scope and spirit of the present invention.

[0028] In a current embodiment, shown in FIG. 1A, the printed shrink film 102 further includes a plurality of visual
markers 140, 142, 144, 146, 148, 150, 152, and 154. The visual markers indicate various positions where the various graphic designs, discussed previously, may be a visually ascertained. In the present embodiment, the visual markers are shown generically representing the identification of “NAME” and “LOGO”. Other identifying features may be represented by the markers, such as safety warnings, warranty descriptions, contents descriptions, and the like. In further embodiments, the visual markers are depictions or picture representations of the product within the container 104. It is understood that the configuration, positioning, and number of the plurality of visual markers of the printed shrink film 102, may be varied. For example, the printed shrink film 102 may include a single visual marker located in correspondence with a particular side of the container 104. Alternatively, each side of the container 104 may be correspondingly disposed with a single visual marker of the printed shrink film 102. In a further alternative embodiment, the visual markers may correspondingly extend across multiple sides of the container 104.

[0029] It is contemplated that the configuration of the visual markers 140 through 154 may vary to accommodate various needs. In the present embodiment, the configuration of the visual marker(s), as ovals and rectangles, may limit the graphic design choices available for the visual markers. In alternative embodiments, the visual markers may provide a picture representation of the product stored within the container 104. Such a picture representation may necessitate a larger visual marker configuration in order to achieve desired clarity and resolution of various features on the product. For instance, a picture representation may substantially cover the first side 110 (FIG. 1B) of the container 104. Alternatively, a picture representation may extend across multiple sides of the container 104.

[0030] It is further contemplated that the plurality of visual markers may be alternatively configured with respect to their display orientation. It is understood that the display orientation of the plurality of visual markers may be based on the preferred display orientation of the container, which the printed shrink film 102 partially encompasses. For example, the container, as shown in FIGS. 1A, 1B, 2, and 4 is configured with a length greater than its height. Such a container configuration may preferentially employ the printed shrink film 102 wrapped about the container length. Thus, the visual markers are oriented relative to the length of the container. In an alternative example, FIG. 3 shows a container 304 whose preferred display orientation gives it a greater height than length, with the printed shrink film 302 providing the visual markers oriented relative to the height of the container. Other visual marker configurations may be employed without departing from the scope and spirit of the present invention.

[0031] It is common for products, such as power tools, to be packaged together with other power tools, accessory kits, and the like. These “bundled” packages or assemblies often offer consumers increased functionality, whether through two different power tools or various accessories. This bundling may also include the bundling of the containers within which the products may be sold. As such, the present invention may be employed with a bundled assembly 500 comprising a printed shrink film 502 at least partially encompassing a first container 504 and a second container 506, as shown in FIG. 5. In a current embodiment, the printed shrink film 502 is sized around a bundled assembly 500 including two containers 504 and 506 of the type shown in FIG. 3. The visual markers are oriented relative to the preferred display orientation of the containers, as described above.

[0032] In the exemplary embodiment of FIG. 5, it is contemplated that the visual marker configuration may be altered as described previously. For example, the visual marker configuration may provide a graphic design on a side of the printed shrink film 502 which at least partially extends across both containers 504 and 506 in the bundle 500. It is further contemplated that the printed shrink film of the present invention may be employed to bundle together three or more products stored within three or more containers, as shown in FIG. 6. FIG. 6 includes a bundled package 600 having a printed shrink film 602 at least partially encompassing a first container 604, a second container 606, a third container 608, a fourth container 610, a fifth container 612, a sixth container 614, a seventh container 616, and an eighth container (not shown).

[0033] It is further contemplated, in FIGS. 5 and 6, that the individual containers (or products), may be individually wrapped with the printed shrink film of the present invention and then included within a bundled package, which includes a secondary wrapping of the printed shrink film of the present invention. It is also contemplated that multiple bundled packages may be wrapped into variously-sized shipping units, using the printed shrink film of the present invention. Thus, it is understood that various configurations of containers, for shipping, distribution, retail, and other purposes, are contemplated and that the present invention may be employed for at least partially encompassing such configurations.

[0034] FIG. 1A and FIGS. 2-6 show closures formed by the printed shrink film when operationally coupled with a container. It is contemplated that one or more closures may be disposed proximal to various sides of the containers around which the printed shrink film substantially encompasses. For example, in FIG. 1A, the printed shrink film 102 forms a first printed shrink film closure 132 and a second printed shrink film closure (not shown). The first printed shrink film closure 132 is disposed proximal to the third side 118 (FIG. 1B) and the second printed shrink film closure is disposed proximal to the fourth side 120. (FIG. 1B) The first and second closures may be of various configurations as contemplated for use with various containers. In alternative embodiments, the closures may be formed around different features of the container, such as around the handle 122 which would allow access to the handle for the user.

[0035] In the embodiments shown in FIG. 1A and FIGS. 2-6, the printed shrink film may be configured to include one or more cutouts. The cutouts may enable access to the handle 122, the fastening assembly, the coupling assembly, or various other features as may be desired. The cutouts may be variously configured as contemplated by those of ordinary skill in the relevant art. For example, the handle cutout may be a large square-like configuration, while a cutout for the fastening assembly may include first and second small circular configurations for at least partially encircling the areas of the first and second latch assemblies 124 and 126.

[0036] The printed shrink film 102 may further include a printed shrink film removal assembly. The printed shrink
film removal assembly may include a tab coupled to a strip of material embedded within the printed shrink film 102. The strip of material may substantially extend along a length of the printed shrink film 102, such that when the printed shrink film 102 is enclosed about a container, the strip of material substantially encircles the container. A user, when opening the container, removes the printed shrink film 102 by pulling the tab which causes the strip to tear apart the printed shrink film 102, thus enabling removal of the printed shrink film 102. It is understood that the printed shrink film removal assembly may be alternately configured and disposed within the printed shrink film 102 without departing from the scope and spirit of the present invention.

[0037] FIG. 7 shows a compressor packaging unit 700 including a compressor 702 at least partially encompassed by a printed shrink film 704. The printed shrink film 704 may be similar in every respect to the printed shrink film described above in reference to FIG. 1A and FIGS. 2-6. The printed shrink film 704 is operationally coupled directly with the compressor 702, thus, it is understood that the printed shrink film 102, 202, 302, 402, 502, and 602, may operationally couple directly with a product not stored within a container. As shown in FIG. 7, the printed shrink film of FIG. 1A and FIGS. 2-7 may be of various configurations to accommodate variously-sized products and the like.

[0038] A method 800, for manufacturing a printed shrink film-wrapped product, such as a power tool case, is shown in FIG. 8. In step 802 the product is identified. The product may be various design configurations, including but not limited to a power tool case, a compressor assembly, and the like. The product may also comprise individual units or bundled packages, as described previously. After the product has been identified, the material to be employed as the shrink film (film resin) is identified in step 804. The material selection for the shrink film may be based on operational tolerances specified for a material to be employed with the identified product from step 802. The configuration of the material identified in step 804 is determined in step 806. The configuration parameters may include determination of direction of wrapping of the product identified in step 802. As discussed previously, different products may have different presentation orientations which may be accounted for by the configuration parameters established for the material in step 806. After the configuration is determined, the graphic designs for the shrink film are determined in step 808. The graphic designs may include design specifications for individual units, bundled packages, or a variety of configurations as described previously. In step 810 the finished printed shrink film is provided by applying the selected graphic design to the material of the shrink film and producing a standard rollout-style spindle of printed shrink film. The spindle of printed shrink film, produced in step 810, is then operationally coupled with the identified product through a standard shrink film application procedure in step 812.

[0039] It is understood that the specific order or hierarchy of steps in the methods disclosed are examples of exemplary approaches. Based upon design preferences, it is understood that the specific order or hierarchy of steps in the method can be rearranged while remaining within the scope and spirit of the present invention.

[0040] It is believed that the present invention and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely an explanatory embodiment thereof.

What is claimed is:

1. A power tool case protection and display system, comprising:

   printed shrink film; and,

   one or more power tool cases;

   wherein the printed shrink film at least partially encompasses the one or more power tool cases;

   wherein the printed shrink film includes one or more visual markers displaying graphic designs which provide information related to the power tool(s).

2. A system as claimed in claim 1, wherein the printed shrink film is composed of a material which allows for visual ascertainment of the one or more power tool cases.

3. A system as claimed in claim 1, wherein the printed shrink film is of a thickness which provides a preferred operational tolerance.

4. A system as claimed in claim 1, wherein the printed shrink film includes one or more cutouts for providing access to features of the one or more power tool cases.

5. A system as claimed in claim 1, wherein the printed shrink film includes a removal assembly.

6. A system as claimed in claim 1, wherein the display orientation of the one or more visual markers is based upon a preferred display orientation of the power tool case(s).

7. A system as claimed in claim 1, wherein multiple power tool cases are each individually wrapped with a first layer of printed shrink film and are also wrapped collectively as a bundled unit with a second layer of printed shrink film.

8. A power tool case protection and display system, comprising:

   printed shrink film; and,

   one or more power tools;

   wherein the printed shrink film is operationally coupled directly with and at least partially encompasses the one or more power tools;

   wherein the printed shrink film includes one or more visual markers displaying graphic designs which provide information related to the power tool(s).

9. A system as claimed in claim 8, wherein the printed shrink film is of a thickness which provides a preferred operational tolerance.

10. A system as claimed in claim 8, wherein the printed shrink film includes one or more cutouts for providing access to features of the one or more power tools.

11. A system as claimed in claim 8, wherein the printed shrink film includes a removal assembly.

12. A system as claimed in claim 8, wherein the display orientation of the one or more visual markers is based upon a preferred display orientation of the power tool(s).
14. A system as claimed in claim 8, wherein multiple power tools are each individually wrapped with a first layer of printed shrink film and are also wrapped collectively as a bundled unit with a second layer of printed shrink film.

15. A method for manufacturing a printed shrink film-wrapped product, comprising:
   identifying a product to be coupled with the printed shrink film;
   selecting a material to be used as the shrink film;
   establishing a configuration for the shrink film;
   determining a graphic design configuration for the shrink film;
   applying a graphic design to the shrink film; and,
   coupling the printed shrink film with the product.

16. A method as claimed in claim 15, wherein the material to be used as the shrink film is selected based upon specified operational tolerances for the material.

17. A method as claimed in claim 15, wherein establishing a configuration for the shrink film includes determining direction of wrapping of the identified product.

18. A method as claimed in claim 15, wherein establishing a configuration for the shrink film includes accounting for a presentation orientation of the identified product.

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