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(54) **REFRIGERATOR/FREEZER INSULATION BLANKET AND PACKAGING SOLUTION**

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(57) **ABSTRACT**

A combined shipping and insulation cover for an electrical appliance comprises a hood of insulating material and layer of polymer film. The cover includes a tear off panel connected to the hood by a perforated score line that allows access to the underlying electrical appliance.

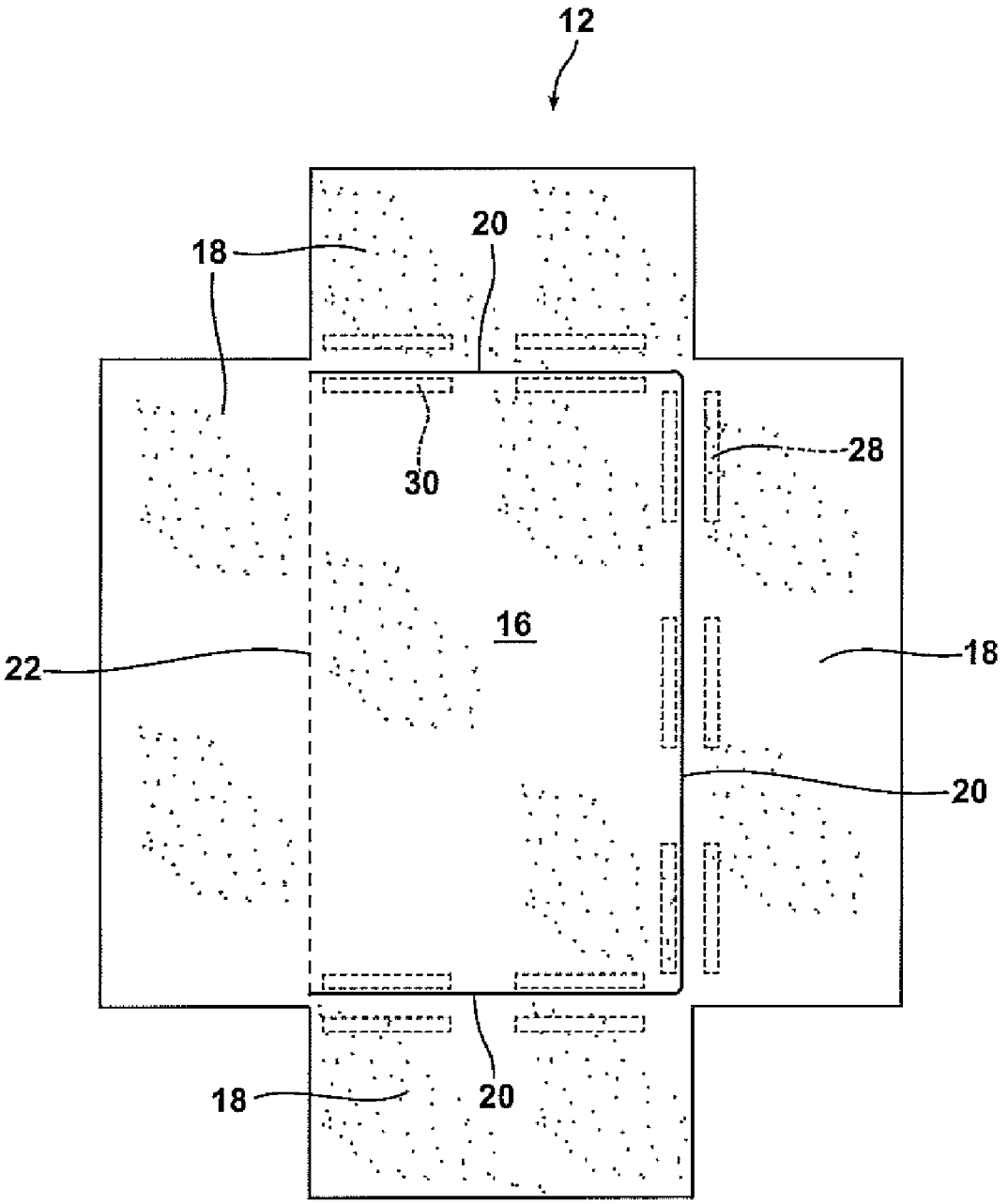
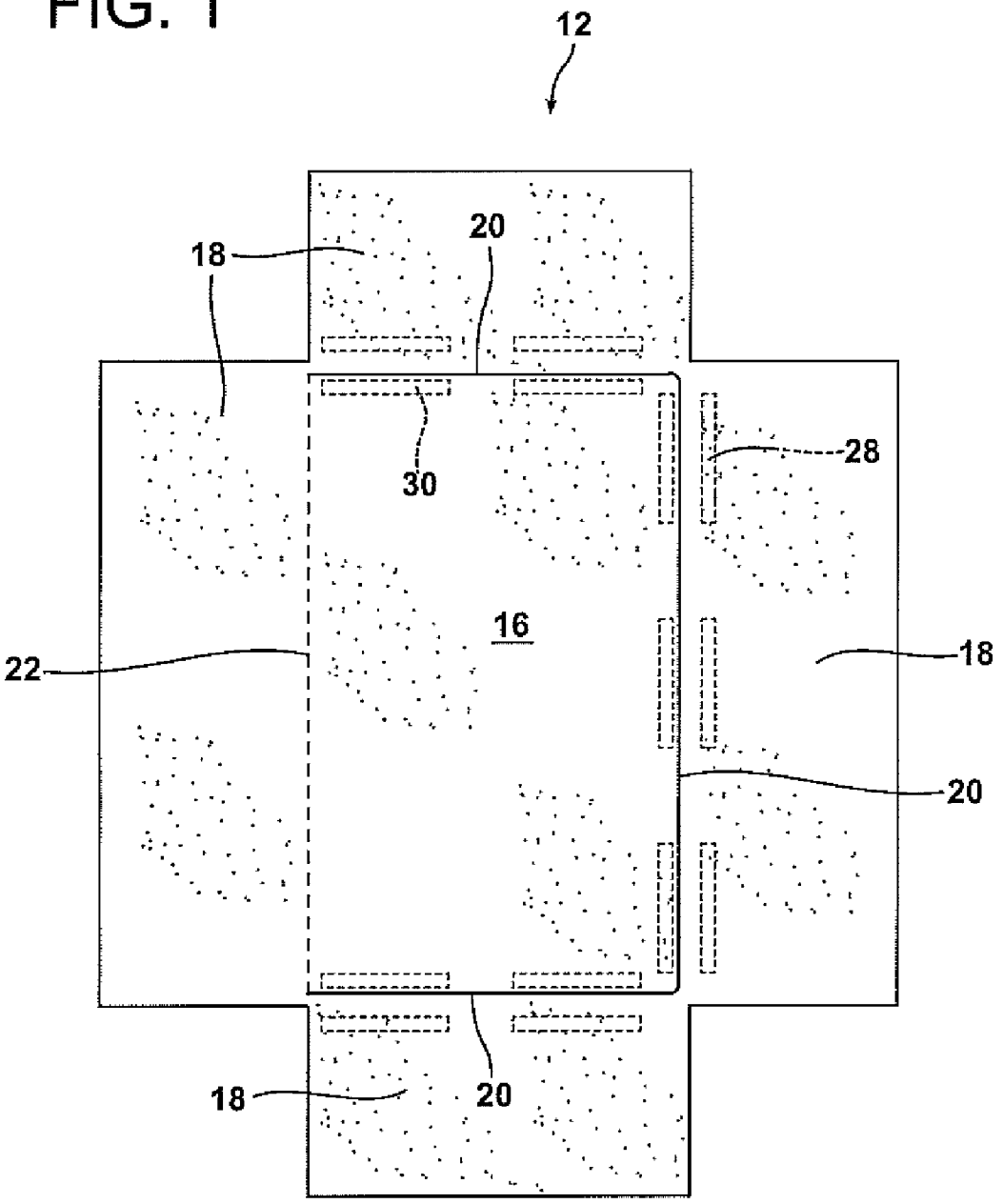


FIG. 1



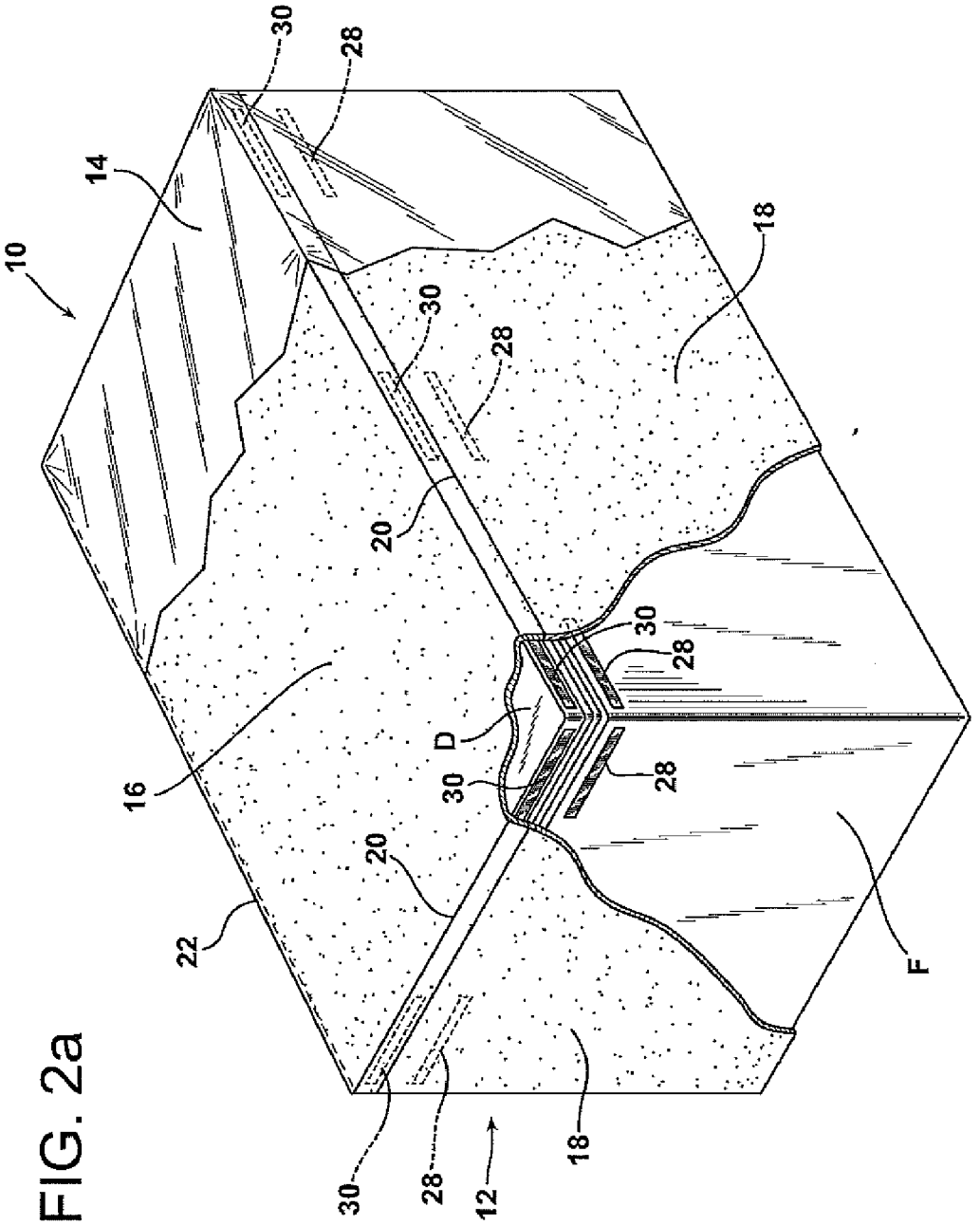


FIG. 2a

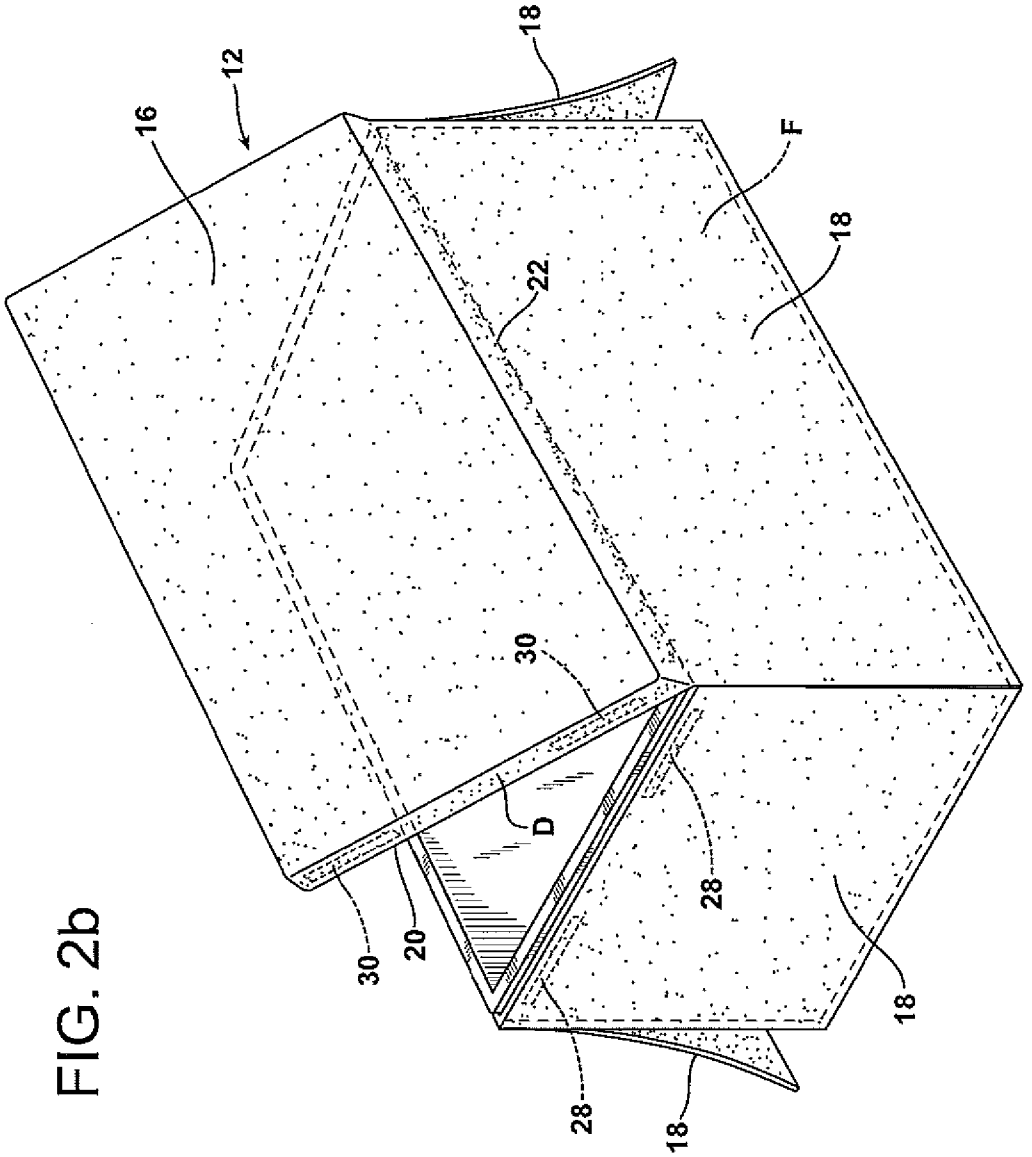
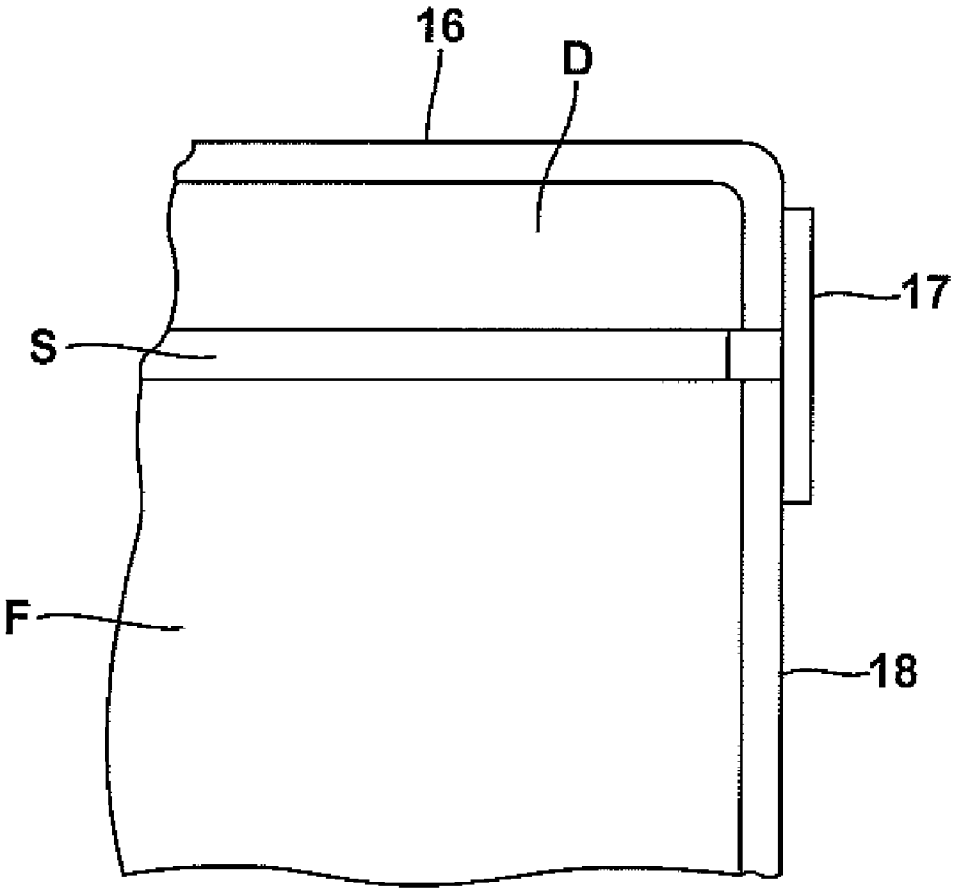


FIG. 2b

FIG. 2c



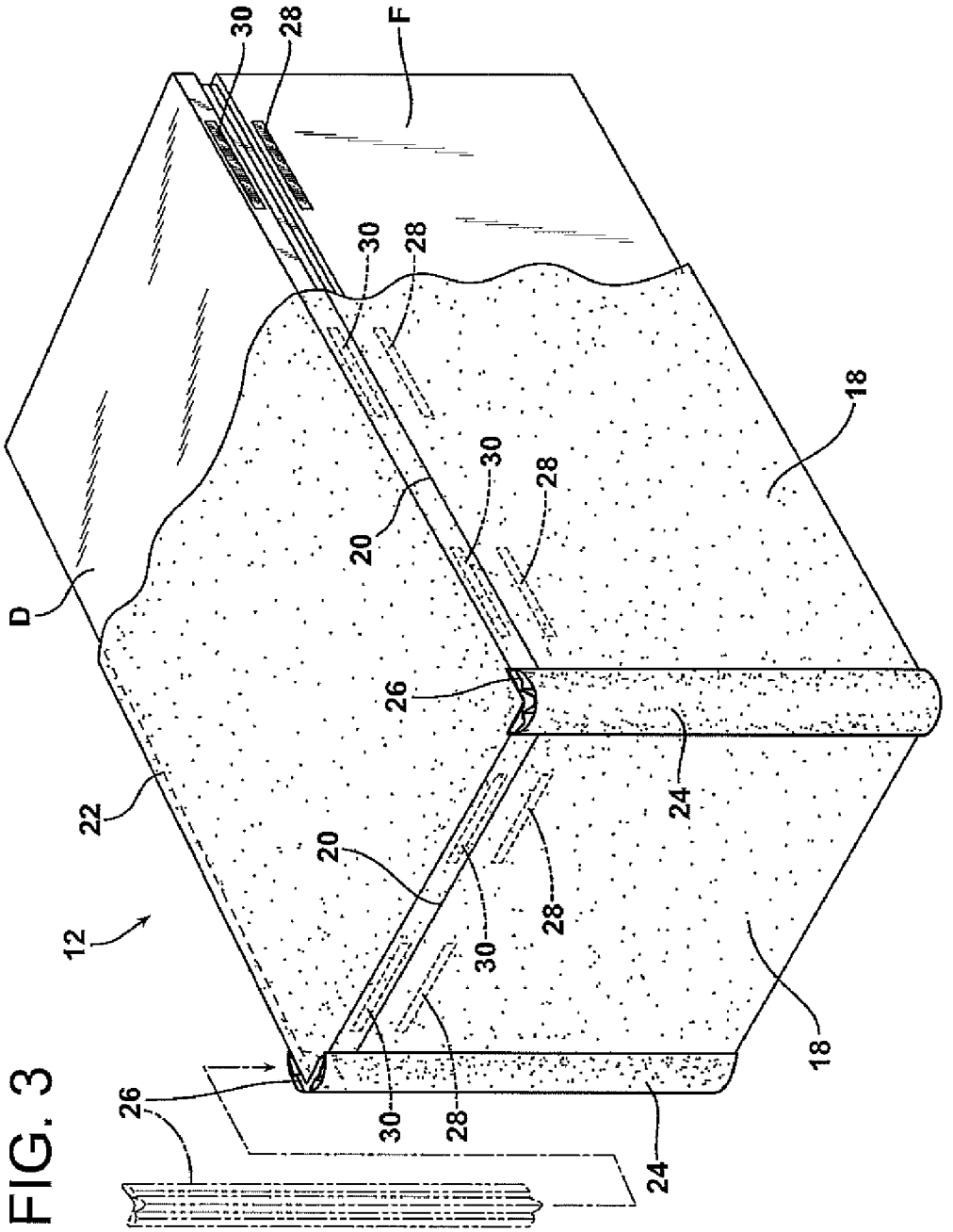


FIG. 3

FIG. 4a

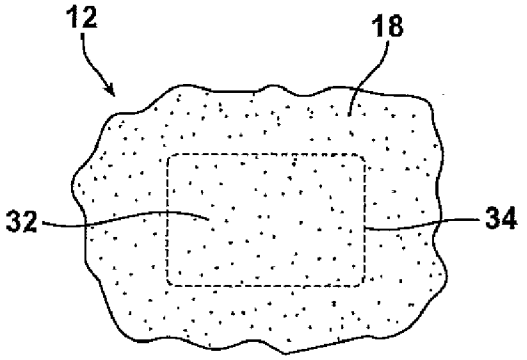


FIG. 4b

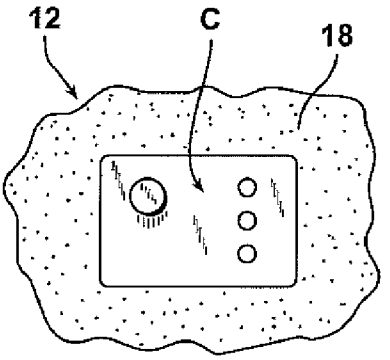


FIG. 4c

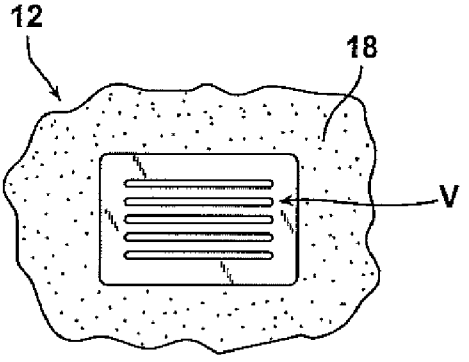


FIG. 5

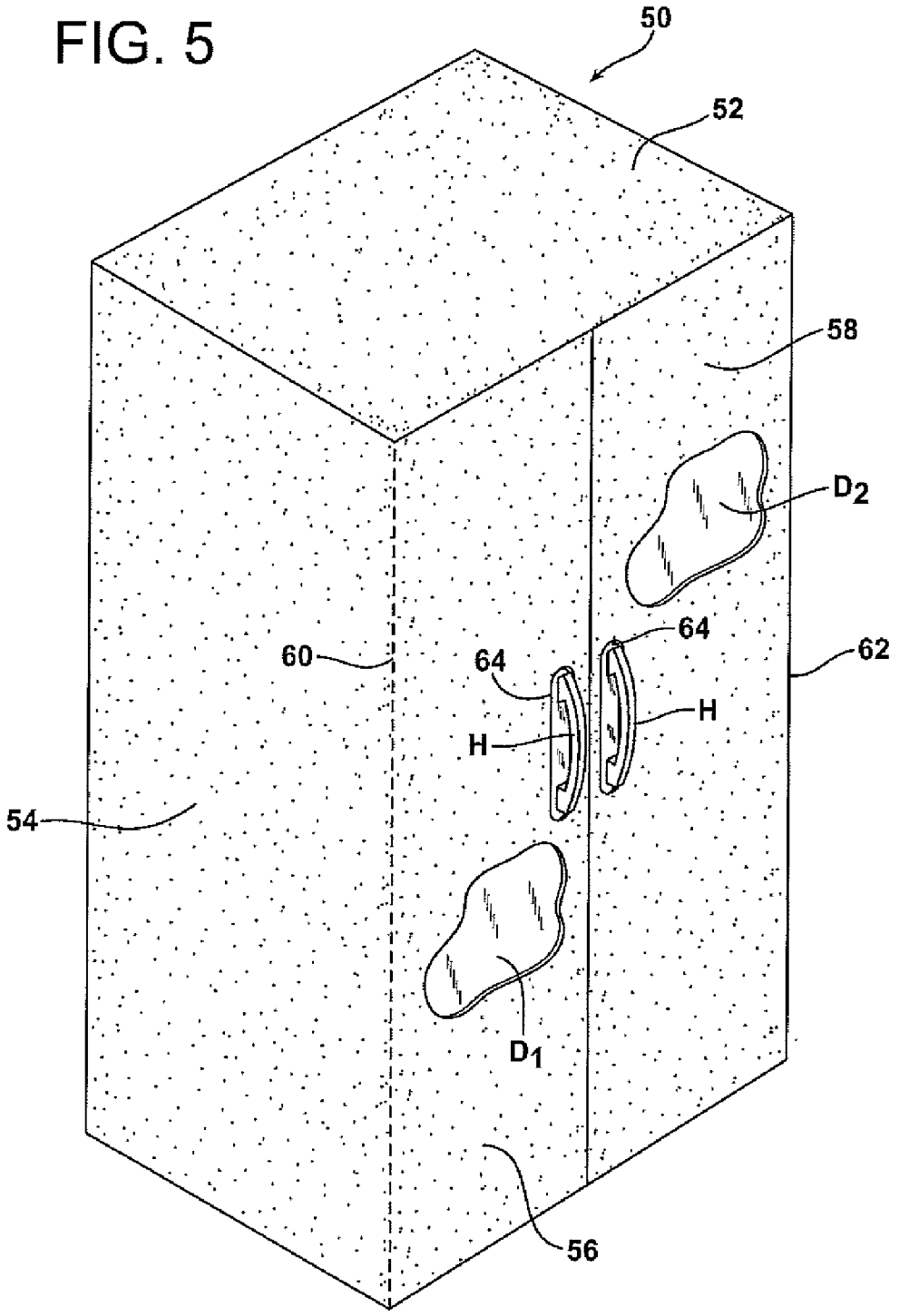


FIG. 6

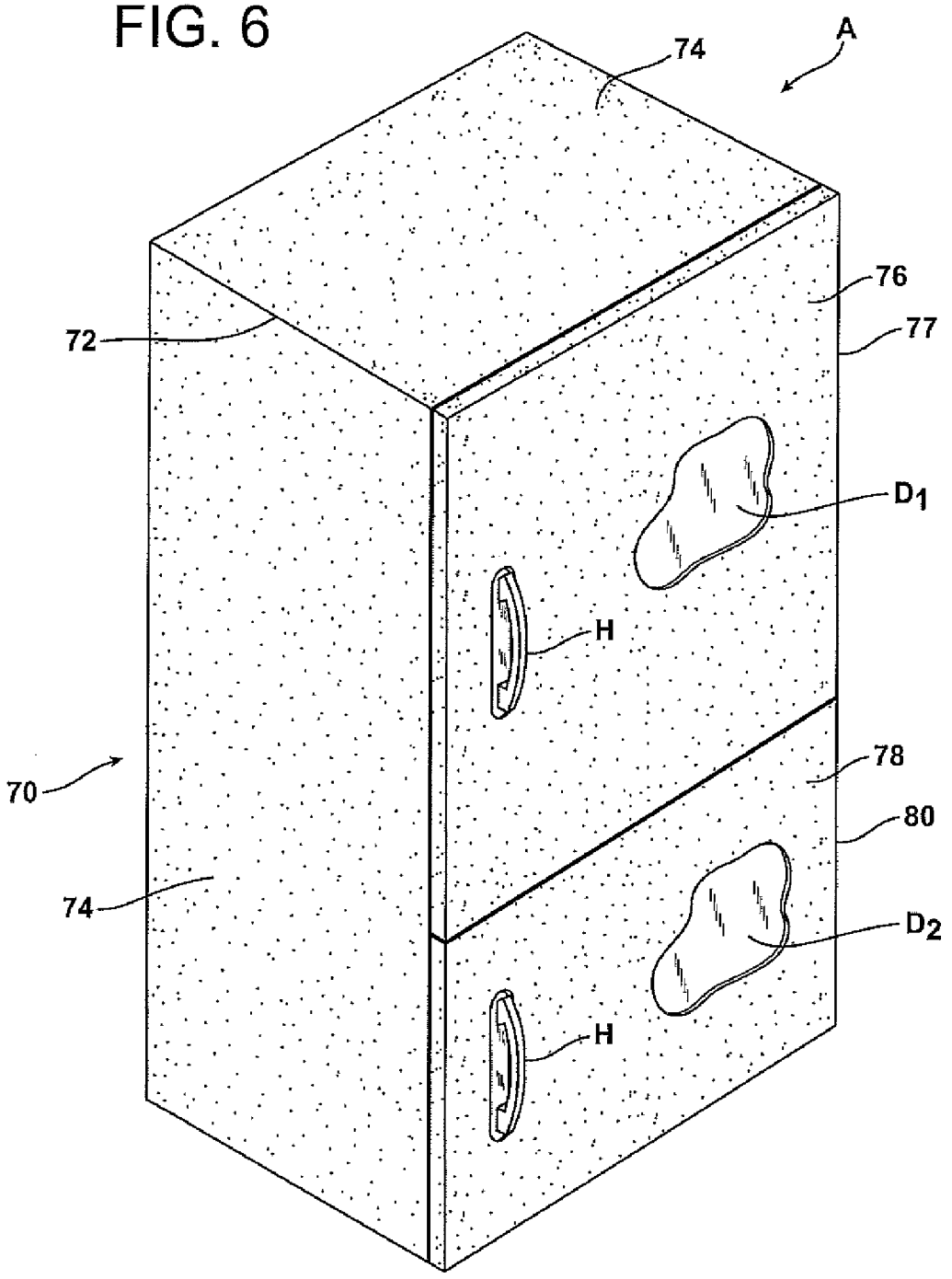


FIG. 7

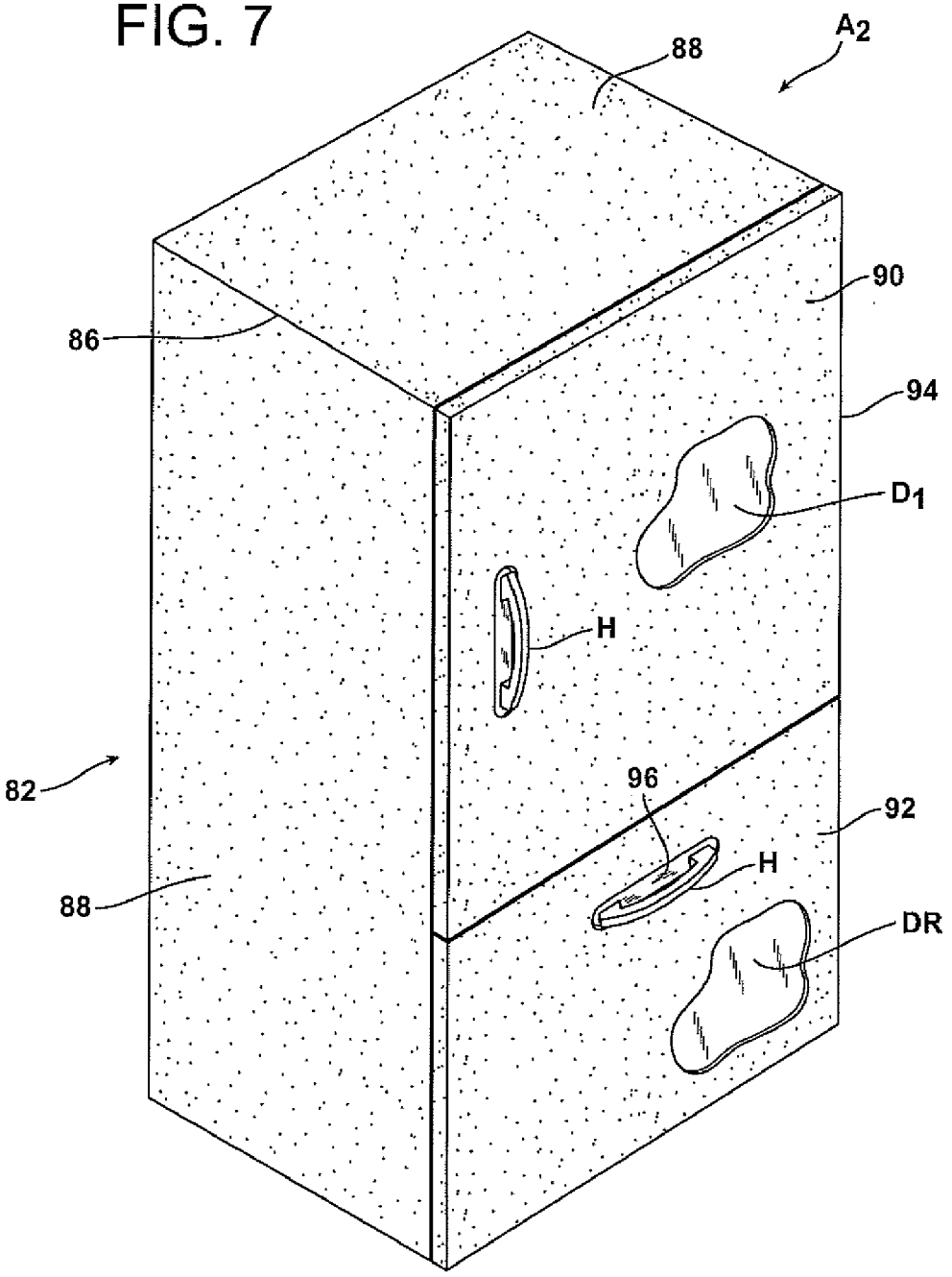


FIG. 8

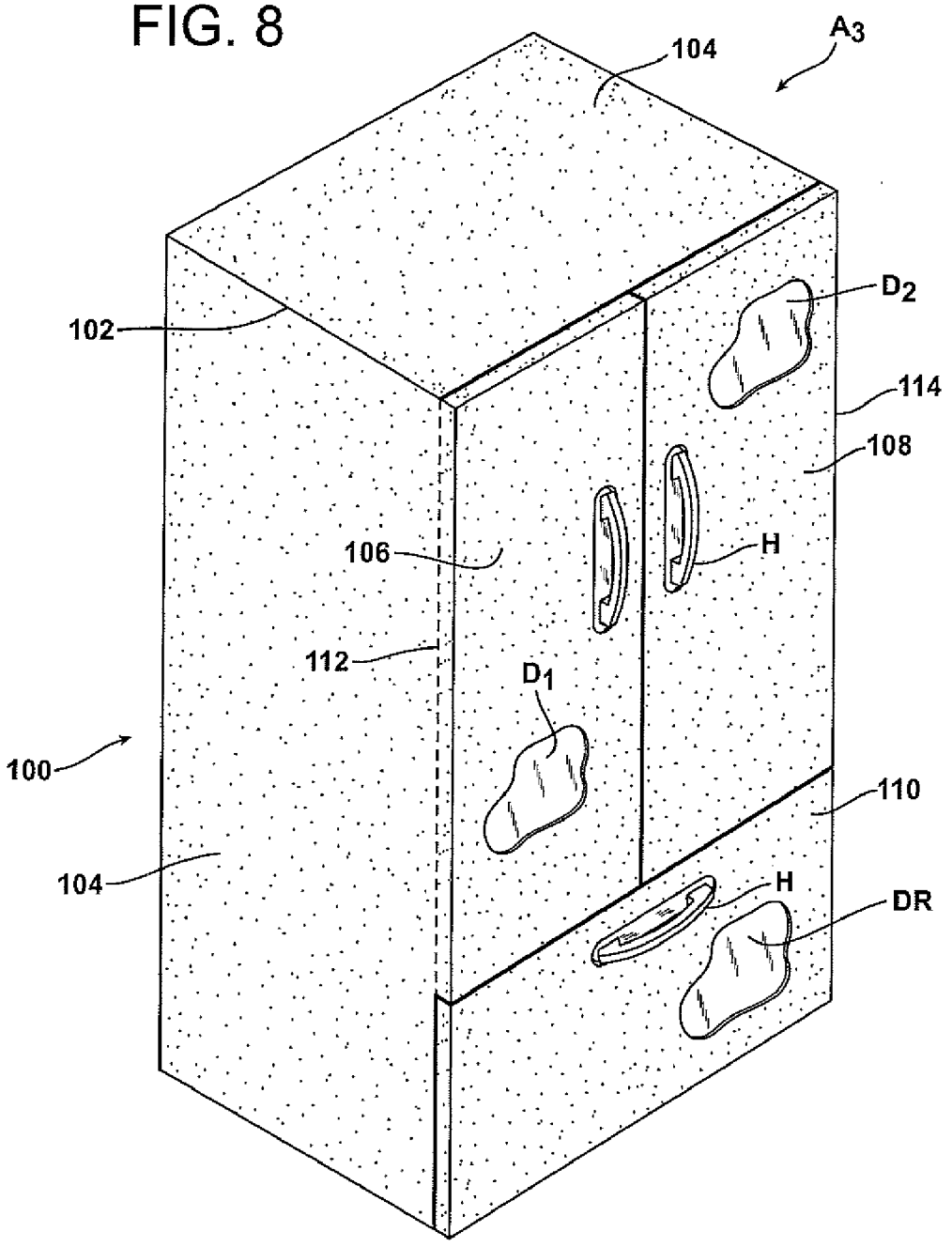
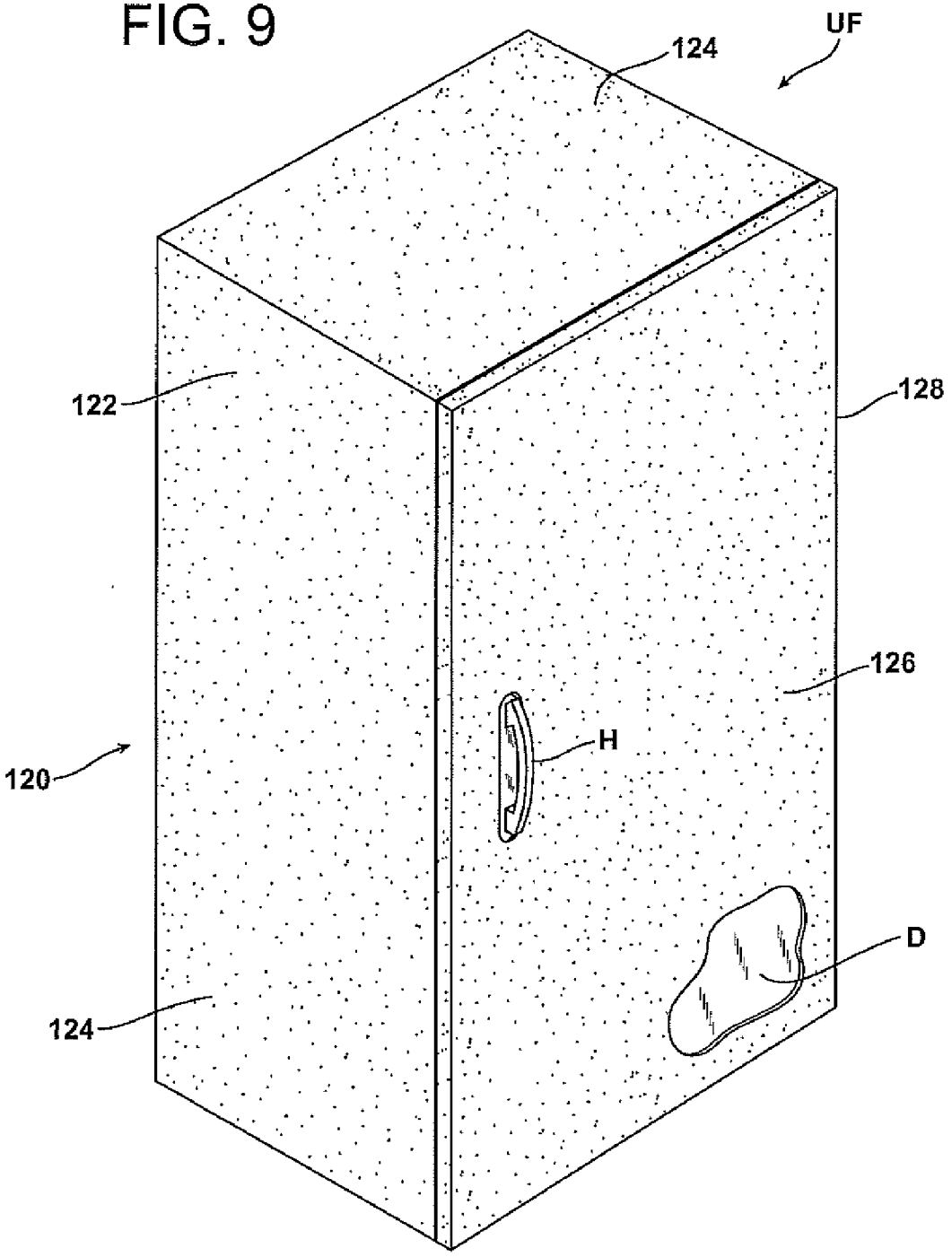


FIG. 9



REFRIGERATOR/FREEZER INSULATION BLANKET AND PACKAGING SOLUTION

TECHNICAL FIELD AND INDUSTRIAL APPLICABILITY OF THE INVENTION

[0001] The present invention relates generally to the product packaging field and, more particularly, to a combined shipping and insulation cover for a refrigerator, freezer or refrigerator-freezer.

BACKGROUND OF THE INVENTION

[0002] Electrical appliances, such as refrigerators, freezers and refrigerator-freezers, undergo significant handling and shipping prior to delivery and use. Significant time, effort and expense are invested in shipping containers for such electrical appliances. For example, the front, top and side faces of a chest freezer are covered with a protective material. Corner boards of foam or cardboard may be provided to protect the corners. Finally, an outer cardboard box encloses the chest freezer and completes the shipping container.

[0003] It should be appreciated that the outer cardboard box is typically made from corrugated cardboard material. Such material is relatively heavy thereby adding to shipping weight and shipping costs. The outer cardboard box is also a waste material that must be disposed of after delivery of the chest freezer. The material is relatively heavy and cumbersome to haul away and takes up substantial space in any landfill.

[0004] The present invention relates to a new and improved cover for electrical appliances such as refrigerators, freezers and refrigerator-freezers as well as to a new and improved method for reducing shipping costs as well as shipping waste associated with shipping such an electrical appliance.

SUMMARY OF THE INVENTION

[0005] In accordance with the purposes of the present invention as described herein, a combined shipping and insulation cover is provided for an electrical appliance. The cover comprises a hood of insulating material. The hood of insulating material is provided in a shipping position covering the electrical appliance. The cover further includes a layer of polymer film extending around the hood of insulating material and holding the hood of insulating material on the electrical appliance in the shipping position. Further, the cover is characterized by having a tear off panel connected to the hood by a perforated score line.

[0006] In accordance with yet another aspect of the present invention, a combined shipping and insulation cover for an electrical appliance such as a refrigerator, freezer or refrigerator-freezer, comprises a hood of insulating material provided in a shipping position covering the electrical appliance. The cover further includes a layer of polymer film extending around the hood of insulating material and holding the hood of insulating material on the electrical appliance in the shipping position. The cover is further characterized by including a main body and an access panel. The access panel covers a door of the electrical appliance. The access panel is connected to the main body by a hinge line so that the access panel allows the door of the electrical appliance to be opened and closed with the cover in place on the electrical appliance after the layer of polymer film is removed and the electrical appliance is placed in service. As the cover has insulative properties it can reduce energy consumption and energy costs relating to operation of the electrical appliance. The cover is particularly useful for appliances exposed to temperature extremes such as found in unconditioned air spaces including garages and the like.

[0007] In the following description there is shown and described several different embodiments of the invention, simply by way of illustration of some of the modes best suited to carry out the invention. As it will be realized, the invention is capable of other different embodiments and its several details are capable of modification in various, obvious aspects all without departing from the invention. Accordingly, the drawings and descriptions will be regarded as illustrative in nature and not as restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accompanying drawings incorporated herein and forming a part of the specification, illustrate several aspects of the present invention and together with the description serve to explain certain principles of the invention. In the drawings:

[0009] FIG. **1** is a top plan view of a blanket of insulating material that may be used to construct the cover of the present invention;

[0010] FIG. **2***a* illustrates the cover of the present invention in a shipping position with the main body of the cover covering the front, rear and side faces and the flap covering the top face or door of a chest freezer;

[0011] FIG. **2***b* illustrates the cover and chest freezer of FIG. **2***a* with the door of the chest freezer open;

[0012] FIG. **2***c* is a detailed schematical view illustrating an optional skirt that may be provided on the hood in order to overlap the seal of the chest freezer when the door of the freezer is closed;

[0013] FIG. **3** is a perspective view of the cover of insulating material incorporating pockets holding removable corner guards or corner protectors;

[0014] FIG. **4***a* is a detailed plan view illustrating the tear off panel of the cover and the perforated score lines that connects the tear off panel to the cover;

[0015] FIG. **4***b* shows the tear off panel of FIG. **4***a* removed to expose the controls of the chest freezer; and

[0016] FIG. **4***c* is a side elevational view illustrating how a tear off panel is removed from the cover to expose vents for the refrigeration system of the chest freezer;

[0017] FIG. **5** illustrates a cover including two flaps for covering both doors of a side-by-side refrigerator so as to allow opening and closing of the doors with the cover in position on the refrigerator;

[0018] FIG. **6** illustrates a cover including two access panels for covering the two doors of a top mount freezer and bottom mount refrigerator appliance;

[0019] FIG. **7** illustrates a cover including two access panels for covering a top mount refrigerator door and bottom mount freezer drawer appliance;

[0020] FIG. **8** illustrates a cover including three access panels for covering a two-door top mount refrigerator and a bottom mount freezer drawer appliance; and

[0021] FIG. **9** illustrates a cover for an upright freezer.

[0022] Reference will now be made in detail to the present preferred embodiment of the invention, examples of which are illustrated in the accompanying drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

[0023] Reference is now made to FIGS. **1**, **2***a* and **2***b* illustrating the combined shipping and insulation cover **10** of the present invention used to cover an electrical appliance illustrated in FIGS. **2***a* and **2***b* as a chest freezer F. As should be appreciated, the cover **10** comprises a hood **12** of insulating material and a layer of polymer film **14**.

[0024] As best illustrated in FIG. **1**, the hood **12** includes a first portion or flap **16** and a second portion or main body **18**. The lines **20** define cut lines while the line **22** defines a fold line or hinge line extending between the cut lines whereby the flap **16** is hingedly connected to the main body **18**.

[0025] As best illustrated in FIG. **2***a*, the hood **12** is provided on the chest freezer F in a shipping position wherein the main body **18** covers the front face, the rear face and two opposing sidewalls or faces of the chest freezer F while the flap **16** covers the top face or door D of the chest freezer F. The layer of polymer film **14** extends around the hood **12** of insulating material and holds the hood of insulating material on the chest freezer F in the shipping position. Together, the hood **12** and polymer film **14** provide a lightweight and durable protective shell for the chest freezer F.

[0026] The hood **12** is made from an insulating material selected from a group consisting of polyester, polyolefin, polyethylene, polypropylene, rayon, nylon, acrylic, hemp, kenaf, cotton, polyethylene terephthatlate, polybutylene terephthatlate and combinations thereof. The insulating material may also include reinforcing fibers selected from a group consisting of glass fibers, polypropylene fibers and combinations or mixtures thereof.

[0027] In one particularly useful embodiment of the hood **12**, the insulating material includes a densified outer skin as described and illustrated in issued U.S. Pat. Nos. 6,539,955 and 6,669,265, both to Tilton et al and assigned to the assignee of the present invention. The full disclosure of these two patents is incorporated herein by reference. It should be appreciated that the densified skin provides a tough outer coating. It should further be appreciated that the hood **12** including the densified skin is a non-laminate and, thus, it is not subject to potential delamination.

[0028] Advantageously, the tough densified outer skin is both flexible and tear resistant and, accordingly, will resist damage during handling of the chest freezer F including engagement with the paddles or forks of a lift truck during shipping. Such paddles commonly tear and damage corrugated cardboard cartons often leading to discounts in pricing for the electrical appliances contained in those cartons. In many instances, the hood **12** will resist that damage thereby eliminating the need for "shipping damage discounts". This saves the manufacturer significant money thereby increasing profitability. Similarly, while corrugated cardboard cartons or boxes may lose integrity and deteriorate when wet, the outer polymer film/stretch wrap layer **14** of the cover **10** is water impervious. Thus, the hood **12** maintains full integrity so undesirable potential shipping discounts are once again avoided. The hood **12** and layer of polymer film **14** of the cover **10** function together to protect the chest freezer F during shipping effectively eliminating the need for the outer corrugated carton. This reduces weight thereby saving shipping costs. Further, it eliminates this corrugated cardboard material from the waste product stream. Significantly, the cover **10** is also green friendly as it is free of wood products. In contrast, trees are used to produce the corrugated cardboard outer packaging of the prior art.

[0029] As illustrated in FIG. **3**, the cover **10** and, more particularly, the hood **12** may include pockets **24** on the main body **18** positioned so as to overly the corners of the chest freezer F when the hood is in the shipping position. A removable corner guard or corner protector **26** is provided in each pocket **24**. More specifically, each corner protector **26** is made from a material selected from a group consisting of cardboard, fiberboard, plastic, rubber, elastomer, neoprene, polyethylene terephthalate, composite material and combinations thereof. This includes pultruded products and resin enhanced VersaMat materials available from Owens Corning. In the illustrated embodiment the corner protectors **26** are inserted into the pockets **24** which are open at the top. Thus, the protectors **26** may be removed if desired. In an alternative embodiment (not shown) the corner protectors **26** may, be permanently affixed to the hood **12** by adhesive or other means. In such an embodiment, the pockets **24** may be eliminated.

[0030] Prior to placing the chest freezer F into service, the layer of polymer film **14** is removed. For some applications, the corner protectors **26** may also be removed. These are the only waste materials from shipping. Thus, it should be appreciated that the hood **12** may be maintained on the operating electrical appliance or chest freezer F. More specifically, first fasteners **28** may be provided for securing the main body **18** of the hood to the front face, rear face and side walls or side faces of the chest freezer F (see FIGS. **1**, **2***a*, **2***b* and **3**). Such a fastener **28** may comprise cooperating hook and loop fasteners wherein one component of the fastener is adhered to the wall of the chest freezer F while the other component of the fastener is adhered, sewn or otherwise attached to the hood **12**. Similarly, second fasteners **30** are provided for securing the access panel or flap **16** to the door D of the chest freezer F. Thus, as illustrated in FIG. **2***b*, when the door D is opened, the access panel **16** pivots with the door D along the hinge line **22** thereby allowing unimpeded access to the interior of the chest freezer F.

[0031] As further illustrated in FIGS. **4***a*-**4***c*, the hood **12** may also include a tear off panel **32** that is connected to the hood **12** by a perforated score line **34**. Prior to placing the chest freezer F into service, the tear off panel **32** may be removed by tearing along the perforated score line **34**. Thus, for example, it is possible to remove a tear off panel **32** to expose freezer controls C (see FIG. **4***b*) or vents V (see FIG. **4***c*) in order to allow the refrigeration system of the chest freezer F to breathe. Still further, as illustrated in FIG. **2***c*, the flap **16** may include a depending skirt **17** that hangs downwardly when the door D of the chest freezer F is closed. In this position, the skirt **17** overlies or covers the door seal S so as to insulate that seal and increase the operating efficiency of the freezer F.

[0032] As should be appreciated from the above description, the cover **10** of the present invention provides a number of benefits and advantages. The cover **10** better resists many shipping abuses than a state-of-the-art corrugated cardboard carton. Further, the cover is green friendly. In addition, the hood **12** of the cover **10** may be utilized to provide additional thermal and acoustical insulation for the electrical appliance/chest freezer F after it is placed in operation. While perhaps not appropriate for use on a chest freezer F provided in a finished room of the home, it should be appreciated that many chest freezers F are maintained in unconditioned air spaces such as garages. Such chest freezers F are exposed to temperature extremes in both the summer and winter that may lead to inefficient operation of the chest freezer that increases operating costs. Advantageously, since the hood **12** is made from insulating material it can protect the chest freezer F from these temperature extremes and allow it to be operated more efficiently and at a reduced cost. Further, as described above and illustrated in FIGS. **2***a* and **2***b*, the hood may be maintained in place to provide this benefit and at the same time not interfere with access to the consumer goods held in the freezer F as the access panel **16** hinges with the door D.

[0033] An alternative embodiment of the present invention is illustrated in FIG. **5**. This cover **50** includes a hood **52** including a main body **54**, a first access panel **56** and a second access panel **58**. The main body **54** covers the two sidewalls

and the top wall of the side-by-side refrigerator R. The first access panel **56** is connected to the main body **54** by the hinge line **60** while the second access panel **58** is connected to the main body **54** by the hinge line **62**. As should be appreciated, the first access panel **56** is secured to the first door D_1 of the refrigerator R while the second access panel **58** is secured to the second door D_2. When the door D_1 is opened or closed, the first access panel **56** hinges about the hinge line **60** and freely moves with that door. Similarly, when the second door D_2 is opened or closed, the second access panel **58** hinges about the hinge line **62** and freely moves with that door. Thus, the access panels **56**, **58** allow one to freely access the contents of the refrigerator R by opening either door D_1 or D_2.

[0034] As further illustrated in FIG. **5**, each access panel **56**, **58** includes an opening **64** positioned over a handle H on the doors D**1**, D**2** of the refrigerator R. Thus, the handles H project through the access panels **56**, **58** so that they may easily be engaged with the hand to open and close the doors D_1 and D_2 of the refrigerator R.

[0035] As should be appreciated, during shipping, the hood **52** is wrapped in a layer of polymer film in the same manner the chest freezer F was wrapped in a layer of polymer film **14** as illustrated in FIG. **2***a*. Thus, the alternative embodiment of the cover **50** also forms a protective shell during shipping providing all of the advantages outlined above respecting the first embodiment of the cover **10**.

[0036] During shipping, the handles H may be covered by the hood **52**. After removing the outer layer of polymer film, perforated lines in the hood **52** overlying the handles H may be torn open and the hood **52** may then be pushed around the handles so that the handles H project through the resulting opening or slit where they can be easily engaged.

[0037] In FIG. **6**, a top mount freezer and bottom mount refrigerator appliance A is illustrated covered in yet another alternative embodiment of the present invention. Specifically, the cover **70** includes a hood **72** having a main body **74**, a first access panel **76** and a second access panel **78**. The main body **74** covers the two sidewalls and the top wall of the appliance A. The first access panel **76** is connected to the main body **74** by hinge line **77** while the second access panel **78** is connected to the main body **74** by the hinge line **80**. As should be appreciated, the first access panel **76** is secured to the first door D_1 of the appliance A while the second access panel **78** is secured to the second door D_2. When the door D_1 is opened or closed, the first access panel **76** hinges about the hinge line **77** and freely opens with the door. Similarly, when the second door D_2 is opened or closed, the second access panel **78** hinges about the hinge line **80** and freely moves with that door. Thus, the access panels **76**, **78** allow one to freely access the contents of the freezer and refrigerator by opening the respective doors D_1 and D_2.

[0038] Reference is now made to FIG. **7** illustrating yet another embodiment of the present invention for covering a top mount refrigerator door and bottom mount freezer drawer appliance A_2. This cover **84** includes a hood **86** having a main body **88**, a first access panel **90** and a second access panel **92**. The main body **88** covers the two sidewalls and the top wall of the appliance A_2. The first access panel **90** is connected to the main body **88** by hinge line **94**. In addition, the first access panel **90** is secured to the door D_1 of the appliance A_2. Thus, when the door D_1 is opened or closed, the first access panel **90** hinges about the hinge line **94** and freely opens or closes with that door.

[0039] In contrast, the second access panel **92** is completely separate from the main body **88**. More specifically, the second access panel **92** is sized and shaped to overlie the front face and side margins of the freezer drawer DR. In addition, the access panel **92** includes an opening **96** to allow access to the handle H on the freezer drawer DR. This allows an operator to access the handle to open and close the drawer DR. When this is done the second access panel **92** moves freely with the drawer DR.

[0040] FIG. **8** illustrates yet another embodiment of the present invention shown covering a two-door top mount refrigerator and a bottom mount freezer drawer appliance A_3. More specifically, the cover **100** includes a hood **102** having a main body **104**, a first access panel **106**, a second access panel **108** and a third access panel **110**. The first access panel **106** is connected to the main body **104** by the hinge line **112** while the second access panel **108** is connected to the main body **104** by the hinge line **114**. As should be appreciated, the first access panel **106** is secured to the first door D_1 of the appliance A_3 while the second access panel **108** is secured to the second door D_2. When the doors D_1, D_2 are opened or closed, the respective first and second access panels **106**, **108** hinge about the respective hinge lines **112**, **114** and freely move with the doors. Thus, the access panels **106**, **108** allow one to freely access the contents of the refrigerator by opening either door D_1 or D_2.

[0041] In contrast to the fist and second access panels **106**, **108**, the third access panel **110** is separate from the main body **104**. The third access panel **110** is connected to the freezer drawer DR and covers the front face and side margins of that drawer. As described above with respect to the second access panel **92** in the FIG. **7** embodiment, the third access panel **110** moves freely with the drawer DR as it is opened and closed.

[0042] FIG. **9** illustrates yet another alternative embodiment of the present invention on an upright freezer UF. In this embodiment, the cover **120** includes a hood **122** having a main body **124** and a single access panel **126**. The main body **124** covers the two sidewalls and the top wall of the upright freezer UF. The access panel **126** is connected to the main body **124** by the hinge line **128**. As should be appreciated, the access panel **126** is secured to the door D of the upright freezer UF. Thus, when the door D is opened or closed, the access panel **126** hinges about the hinge line **128** and freely moves with that door. Thus, the access panel **126** allows one to freely access the contents of the upright freezer UF by opening the door D.

[0043] The foregoing description of the preferred embodiments of the present invention have been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Obvious modifications or variations are possible in light of the above teachings. Thus, it should be appreciated that the cover **10** of the present invention may include any combination of flaps and access panels to be useful on substantially any design of refrigerator, freezer or refrigerator-freezer regardless of the size, shape and layout of any doors, drawers or the like. The embodiments were chosen and described to provide the best illustration of the principles of the invention and its practical application to thereby enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the appended claims when interpreted in accordance with the breadth to which they are fairly, legally and equitably entitled. The drawings and preferred embodiments do not and are not intended to limit the ordinary meaning of the claims in their fair and broad interpretation in any way.

What is claimed is:

1. A combined shipping and insulation cover for an electrical appliance, comprising:

a hood of insulating material, said hood of insulating material being provided in a shipping position covering said electrical appliance; and

a layer of polymer film extending around said hood of insulating material and holding said hood of insulating material on said electrical appliance in said shipping position;

said cover being characterized by having a tear off panel connected to said hood by a perforated score line;

said hood includes a main body and an access panel, said access panel covering a door of said electrical appliance, said access panel being connected to said door, and said access panel being connected to said main body by a hinge line, whereby said access panel allows said door of the electrical appliance to be opened and closed while the access panel is connected to the door with said cover in place on said electrical appliance after said layer of polymer film is removed.

2. The cover of claim **1**, wherein said hood of insulating material includes a densified outer skin.

3. The cover of claim **2**, wherein said hood of insulating material is a nonlaminate.

4. The cover of claim **1**, wherein said hood of insulating material includes at least one protector overlying said electrical appliance when said hood of insulating material is in said shipping position.

5. The cover of claim **4**, wherein said protector is held in a pocket on said hood so as to cover and protect said electrical appliance.

6. The cover of claim **5**, wherein said protector is a corner protector made from a material selected from a group consisting of cardboard, fiber board, plastic, rabber, elastomer, neoprene, polyethylene terephthalate, composite material and combinations thereof.

7. The cover of claim **5**, wherein said hood remains with said electrical appliance following installation and said corner protector is removed from said pocket.

8. The cover of claim **1**, wherein said hood of insulating material is made from a group consisting of polyester, polyolefm, polyethylene, polypropylene, rayon, nylon, acrylic, hemp, kenaf, cotton, polyethylene terephthalate, polybutylene terephthalate and combinations thereof.

9. The cover of claim **8**, wherein said insulating material further includes reinforcing fibers selected from a group consisting of glass fibers, polypropylene fibers and combinations thereof.

10. (canceled)

11. The cover of claim **1**, wherein said access panel includes an opening positioned over a handle on said door of said electrical appliance so that said handle projects through said access panel.

12. The cover of claim **11**, further including a first fastener securing said main body of said hood to said electrical appliance.

13. The cover of claim **12**, further including a second fastener securing said access panel of said hood to said door of said electrical appliance.

14. A combined shipping and insulation cover for an electrical appliance, comprising:

a hood of insulating material, said hood of insulating material provided in a shipping position covering said electrical appliance; and

a layer of polymer film extending around said hood of insulating material and holding said hood of insulating material on said electrical appliance in said shipping position;

said cover being characterized by said hood including a main body and an access panel, said access panel covering a door of said electrical appliance, said access panel being connected to said door, and said access panel being connected to said main body by a hinge line, whereby said access panel allows said door of said electrical appliance to be opened and closed while the access panel is connected to the door with said cover in place on said electrical appliance after said layer of polymer film is removed.

15. The cover of claim **14**, wherein said hood of insulating material includes a densified outer skin.

16. The cover of claim **15**, wherein said hood of insulating material is a nonlaminate.

17. The cover of claim **14**, wherein said hood of insulating material includes at least one protector overlying said electrical appliance when said hood of insulating material is in said shipping position.

18. The cover of claim **17**, wherein said protector is held in a pocket on said cover so as to cover and protect said electrical appliance.

19. The cover of claim **18**, wherein said protector is a corner protector made from a material selected from a group consisting of cardboard, fiber board, plastic, rubber, elastomer, neoprene, polyethylene terephthalate, composite material and combinations thereof.

20. The cover of claim **18**, wherein said hood remains with said electrical appliance following installation and said corner protector is removed from said pocket.

21. The cover of claim **14**, wherein said hood of insulating material is made from a group consisting of polyester, polyolefin, polyethylene, polypropylene, rayon, nylon, acrylic, hemp, kenaf, cotton, polyethylene terephthalate, polybutylene terephthalate and combinations thereof.

22. The cover of claim **21**, wherein said insulating material further includes reinforcing fibers selected from a group consisting of glass fibers, polypropylene fibers and combinations thereof.

23. The cover of claim **14**, wherein said access panel includes an opening positioned over a handle on said door of said electrical appliance so that said handle projects through said access panel.

24. The cover of claim **23**, further including a first fastener securing said main body of said cover to said electrical appliance.

25. The cover of claim **24**, further including a second fastener securing said access panel of said cover to said door of said electrical appliance.

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