US 20170036810A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2017/0036810 A1**

Burk (43) **Pub. Date: Feb. 9, 2017**

(54) **PLASTIC WRAP SECUREMENT FOR PLASTIC PALLET**

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(21) Appl. No.: **14/820,951**

(22) Filed: **Aug. 7, 2015**

Publication Classification

(51) **Int. Cl.**

B65D 19/38 (2006.01)

B65D 19/00 (2006.01)

(52) **U.S. Cl.**

CPC ***B65D 19/38*** (2013.01); ***B65D 19/0051*** (2013.01); *B65D 2519/00273* (2013.01); *B65D 2519/00298* (2013.01); *B65D 2519/00323* (2013.01); *B65D 2519/00338* (2013.01)

(57) **ABSTRACT**

A pallet comprising means to secure a tarp or plastic covering is designed to minimize the amount of plastic wrap or tarp required and to be simply employed. The securement means of the present invention are at least partially integrated with the pallet and do not interfere with the other operative loading features of the tray or pallet. In general, the means to secure comprise an opening integral to a side or end of the pallet, opening to the bottom edge, and shaped to both accept and secure a portion of the covering.

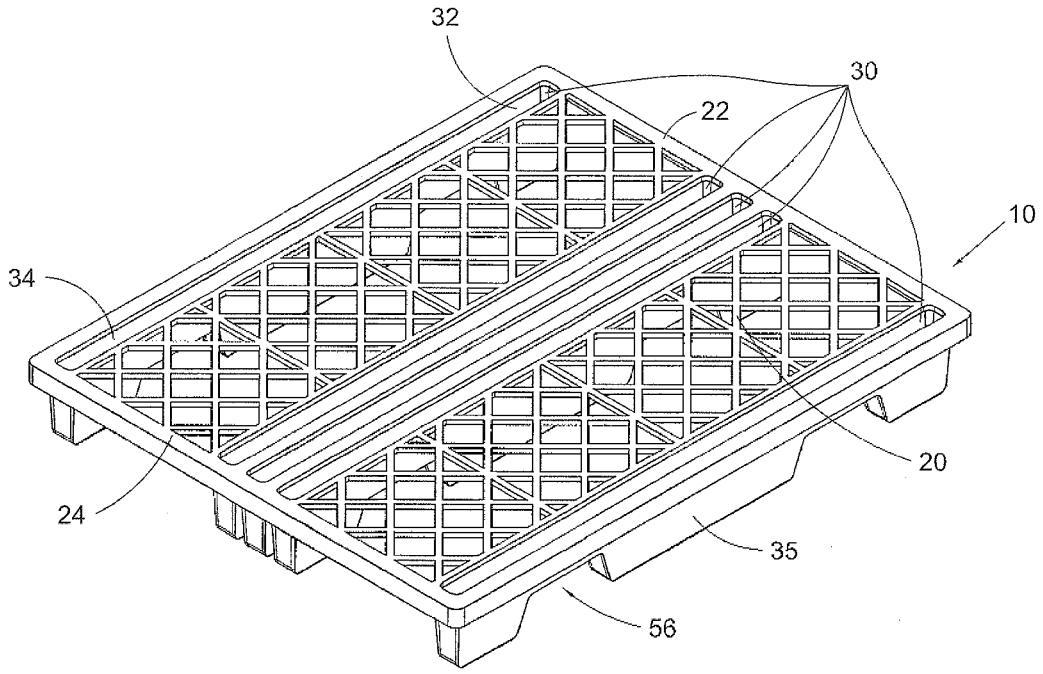


FIGURE 1

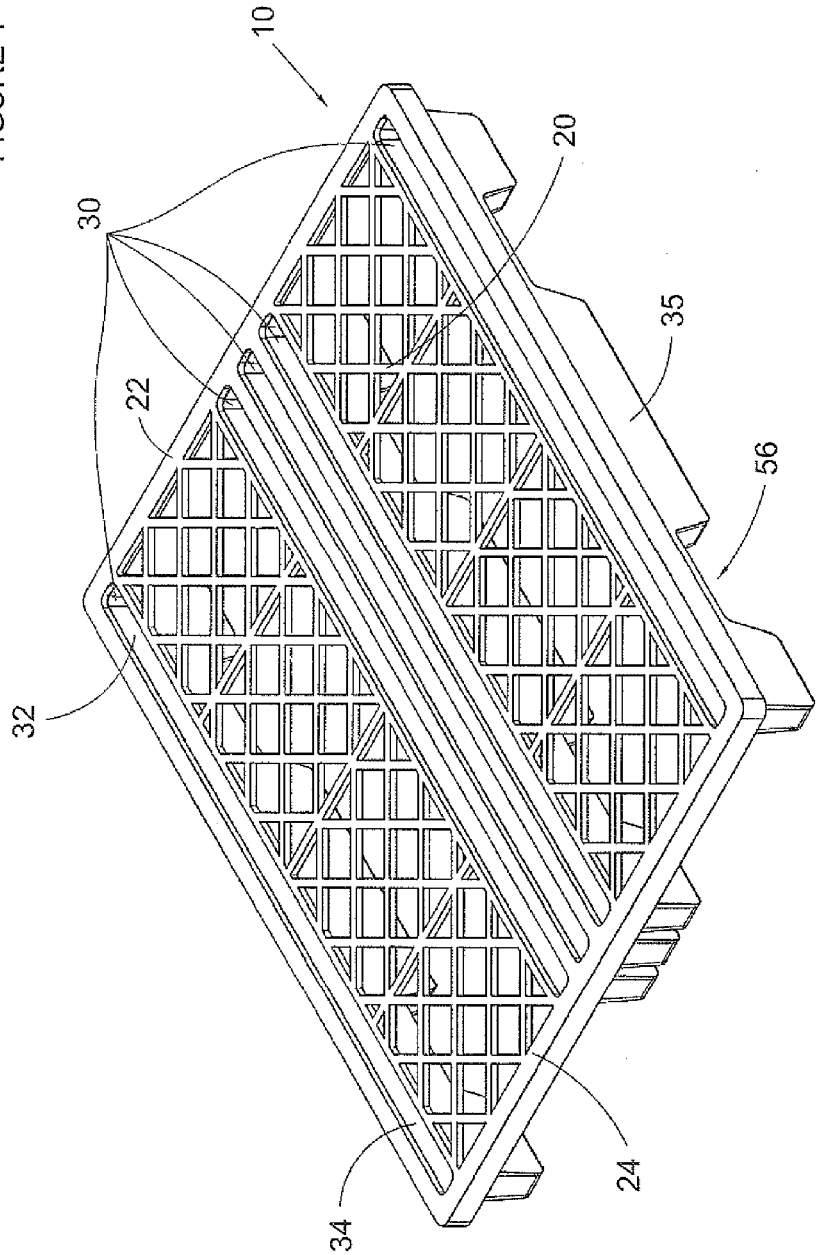
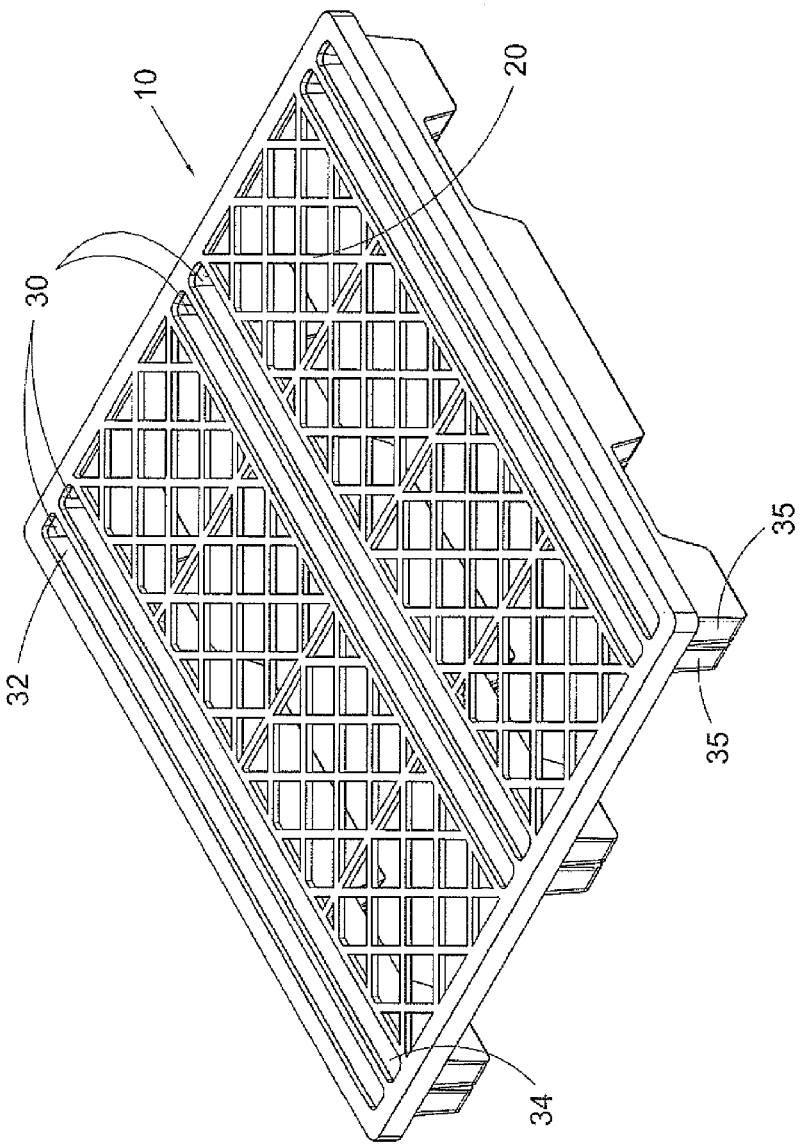


FIGURE 2



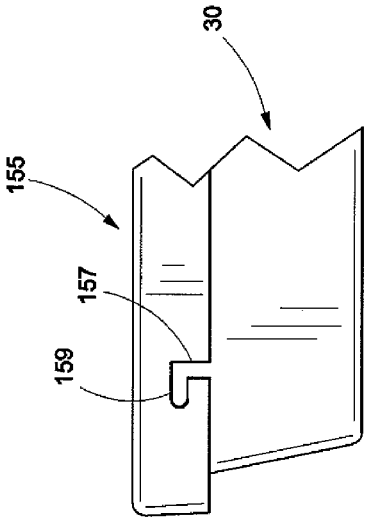


Figure 5

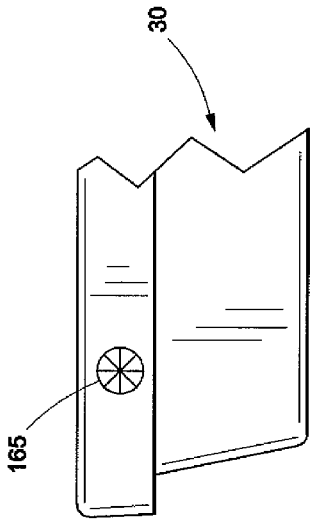


Figure 6

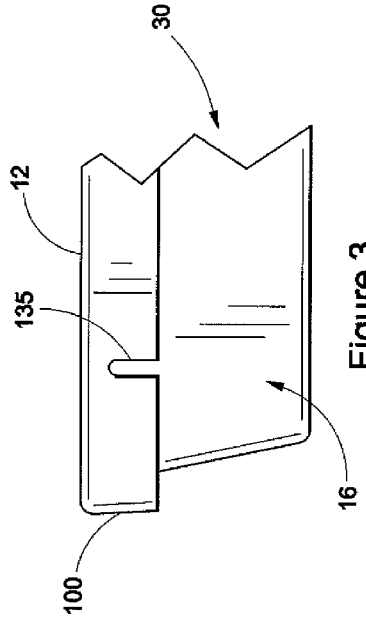


Figure 3

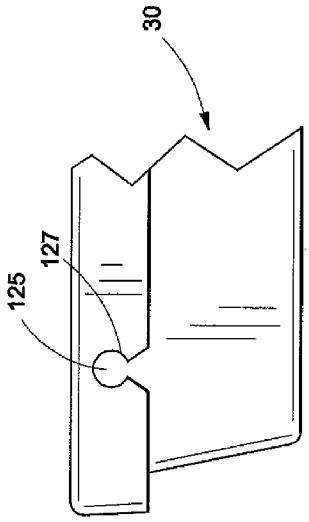


Figure 4

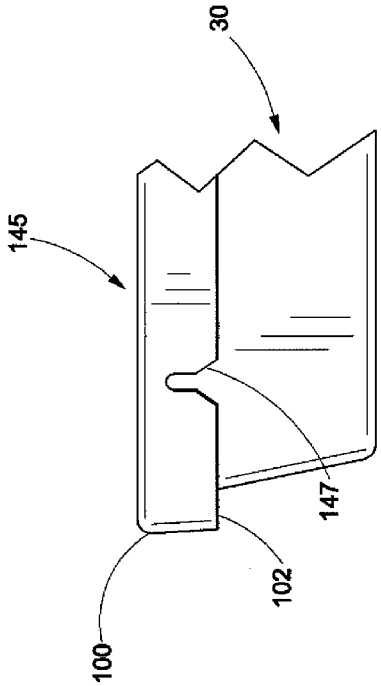


Figure 7

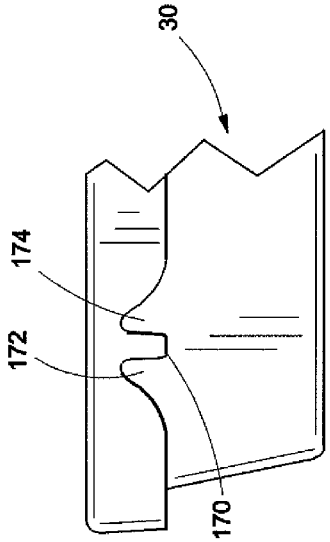


Figure 8

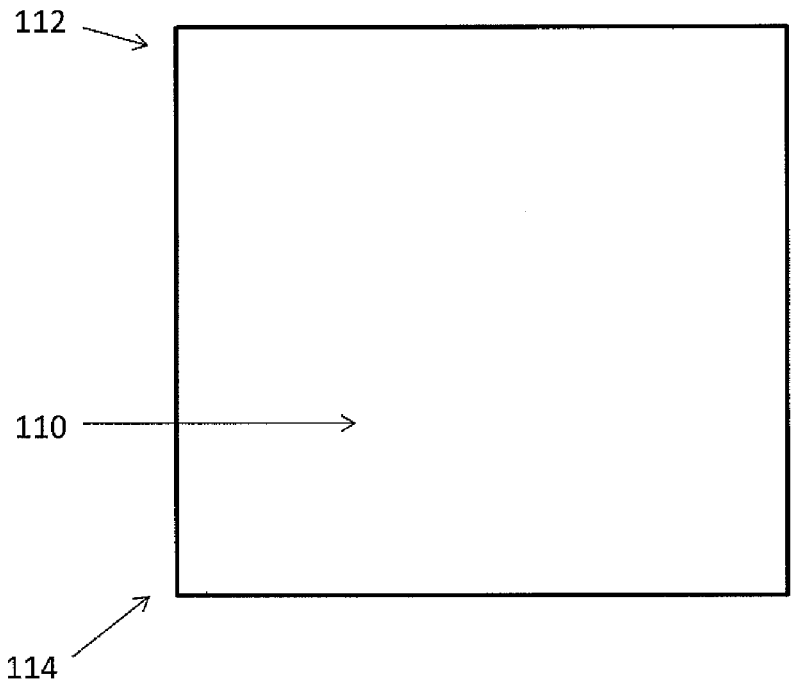


Figure 9

PLASTIC WRAP SECUREMENT FOR PLASTIC PALLET

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] Transportation and storage of objects is a part of daily life in the civilized world. To achieve these objectives, boxes, cases, trays, cartons, and pallets have been designed and re-designed to address these transportation needs. Trays, pallets, and open-topped containers provide excellent utility for moving and storing single items as well as fungible loads. They are often simpler to load and less expensive to manufacture than closed containers.

[0002] For loads that may be sensitive to the elements and/or need to be stored for long lengths of time, or loads that tend to slide easily, trays and pallets may work better if the load is protected. This type of protection is often provided via tarp or plastic wrapping. However, it is difficult to secure the tarp or wrapping. Some simply wrap the entire tray or pallet+load several times and depend on the self-stick characteristics of the plastic to secure it. The self-stick character is not very dependable. It is also difficult to remove/unwrap loads wrapped in multiple layers of plastic. For loads that are not uniform in shape, depending on self-stick is even less dependable. Further, more plastic than is actually necessary to offer protection for the load is often used in order to be more certain it will remain in place.

[0003] In addition to the expected waste and lack of dependability, plastic wrapped or tarp wrapped pallets are difficult to manipulate. In order to move the pallets and their loads, machines such as fork lifts need to be able to easily engage and lift the pallet and its load and then easily disengage from the pallet after the pallet is positioned. If a pallet or tray is wrapped in plastic, the features that may otherwise facilitate easy engagement such as runners or slots may be covered by the plastic making transport difficult or impossible. Alternatively, wrapping in order to avoid blocking these loading features can be time consuming and wasteful of the wrapping material.

[0004] Securing a tarp is even more difficult and sometimes is accomplished using bungee cords or ties with hooks to secure the ends together, or ties to gather the tarp at the corners and secure by securing on the underside of the corner. Many of the same problems that plague the use of plastic wrap also plague the use of tarps. What was needed was simple means to secure plastic wrap or a tarp to a tray or pallet without negatively affecting the function or simplicity of loading the tray or pallet.

[0005] The present invention is designed to minimize the amount of plastic wrap or tarp required. It provides means to secure that are operable with either tarp or plastic and are simple to use. The securement means of the present invention are of simple and easy construction and at least partially integrated with the rack or tray. Finally, the securement means preferably do not interfere with the other operative loading features of the tray or pallet.

[0006] Although the pallets or trays with which the present invention are used are not intended to be limited by this description, it is useful to describe a common type of pallet.

[0007] The securement means of the present invention may be used with a plastic pallet capable of bearing a dynamic load, some comprising a load limit of up to about 2,000 pounds or more. Standard pallets may include pallets that can span a 42 inch or 44 inch open pallet rack. Pallets are typically designed for durability and storage/stacking ease. Some of the pallets with which the present invention may be used are stored in a nesting arrangement with others and may be of relatively low cost. Many are of unitary structure such as manufactured by a molding process. Said securement means of the present invention secure wrap or tarp in such a way that the other advantageous features of the pallet are not diminished in value. Pallets of different dimensions having the features of the present invention would also be desirable especially if the pallet can readily survive several shipping cycles before repair or replacement.

SUMMARY OF THE INVENTION

[0008] The present invention comprises securement means for a pallet or tray having a loading deck. The loading deck may be the result of a molding process. Alternatively, the pallet or tray is generally of a unitary structure resulting from an injection molding, blow molding or vacuum forming process. In a preferred embodiment, the pallet or tray can be nested and stacked with other pallets. The securement means is associated with a surface of the pallet and designed to anchor a covering over a load placed on the pallet or tray. The securement means is preferably designed to lie mostly if not entirely within the plane of the surface with which it is associated so as to minimize or avoid interference with the original functionality of the pallet or tray. In one embodiment, the securement means is integrally formed in a portion of the pallet and lies interior to the plane of the surface.

DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1** depicts a view of an exemplary pallet;

[0010] FIG. **2** depicts a second view of an exemplary pallet;

[0011] FIG. **3** shows one embodiment of the pallet of the present invention;

[0012] FIG. **4** shows a second embodiment of the present invention;

[0013] FIG. **5** depicts a third embodiment;

[0014] FIG. **6** is a perspective of a fourth embodiment;

[0015] FIG. **7** is a perspective of a fifth embodiment;

[0016] FIG. **8** is a perspective of a sixth embodiment; and

[0017] FIG. **9** shows an exemplary cover.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Technical and scientific terms used herein have the meaning commonly understood by one of ordinary skill in the art to which the present invention pertains, unless otherwise defined. In the specification and the appended claims, the singular forms include plural referents unless the context clearly dictates otherwise. The singular forms "a", "an", and "the" specifically also encompass the plural fauns of the terms to which they refer, unless the content clearly dictates otherwise. The word "or" is used in the inclusive sense of "and/or" and not "either/or". The term "about" is used to mean approximately, in the region of, roughly, or around. The term "comprise(s)" and "comprising" are to be interpreted as having an open-ended meaning and synonymous with the phrases "having at least" or "including at least".

[0019] A pallet **10** of the present invention includes at least a top surface **12**, a bottom surface **14**, and a first outer side

16. Many embodiments also include a second outer side **18**, a first end **20**, and a second end **22**. Some embodiments include a plurality of outer sides all equal in dimension. Means to secure **30** may be located on any portion of any one of said top surface **12**, the bottom surface **14**, any outer side **16**, **18**, or either end **20**, **22** if an end is present. In one embodiment, said means to secure **30** comprises a resiliently closed opening **165** (see FIG. **6**); in another embodiment said means to secure **30** comprises a slot **135** (FIG. **3**), a keyhole slot **125** (FIG. **4**), or an "L" shaped slot **155** (FIG. **5**). Still another embodiment comprises an initial ramped portion to assist with alignment of the tarp (FIG. **7**). A final embodiment comprises a tab around which the tarp is wrapped for securement (FIG. **8**). In several embodiments the means to secure **30** comprises the same material as that which makes up the surface **12**, **14**, side, **16**, **18** or end **20**, **22** on which the means to secure **30** is located and is either flush with or interior to an outside level **32** of that surface, side or end. This might be accomplished by integrally molding the means to secure **30** into the surface **12**, **14**, **16**, **18**, **20**, or **22**. Several of the same or different means **30** may be located on one or more of the surfaces **12**, **14**, **16**, **18**, **20**, or **22**.

[0020] In one embodiment, the pallet **10** is a molded pallet of unitary structure, the top surface **12** and a lower most plane **34** of the bottom surface **14** spatially separated. The pallet **10** may comprise runners or ribs in the bottom surface **14** in which case some portions of the bottom surface **14** are closer to or may be integral with the top surface **12** and other portions would be parallel with the lower most plane **34** of the bottom surface **14**. Alternatively, as is known in the art, the pallet's bottom surface may comprise pedestals which allow for nesting and provide securement means for transporting the pallet. These embodiments of a pallet **10** comprise an outer surface **100** extending in a downwardly angular or perpendicular manner from said top surface **12**, said outer surface **100** may or may not comprise a lower edge **102**.

[0021] In another embodiment, the pallet **10** comprises a top surface **12** having an outer surface extending in a downwardly angular or perpendicular manner from said top surface said outer surface **100** comprising a lower edge **102**.

[0022] In yet another embodiment, the pallet **10** comprises a top deck having a surface **12**, a bottom surface **14**, and a first outer side **16**, a second outer side **18**, a first end surface **20***a*, and a second end surface **22***a*. This embodiment resembles a shallow block. The sides **16**, **18**, **20***a* and **22***a* may, together, be referred to as the outer surface **100**.

[0023] Any of the aforementioned embodiments of the pallet **10** may be of unitary structure. Any may include means to facilitate nesting such as runners or pegs.

[0024] The means to secure **30** may be integrally formed in the outer surface **100**. In some embodiments where the outer surface comprises a lower edge **102** said means to secure **30** may be positioned at and may even incorporate the lower edge **102**. The means to secure **30** may be molded integrally into the lower edge **102** during the manufacturing process.

[0025] The means to secure **30** generally operate by friction fit (including tying and/or anchoring with a knot or "T") to secure a covering **110** which may comprise plastic wrap or other tarp-like material **110**. It is possible to create said means to secure **30** to comprise metal rings or hook, however, the spirit of this invention is to provide means to secure that are simple and do not negatively affect the functionality of the pallet, including required maintenance and replacement of parts. While it is within the scope of this disclosure to provide a pallet **10** with a single means to secure **30** as claimed herein, it is expected most often that a plurality of means **30** will be provided on a pallet **10**. In operation, a load is placed on the top surface **12** of the pallet **10**. A first end or side or point **112** (see FIG. **9**) of a covering **110** which may comprise a plastic wrap or a tarp is gathered and inserted into the means to secure **30**. The plastic wrap or tarp **110** is then stretched or extended over the load and a second end or side or point **114** is gathered and secured. The second end or side or point **114** may be secured by a second means to secure **30** as disclosed herein, or may be secured by another means.

[0026] The present invention is intended to provide means to secure **30** plastic wrap or tarp **110** over a load placed on a pallet **10**. It is understood, however, that said means to secure **30** could also be used to secure specially made lids or covers if said lids or covers were equipped with elements that could be retained by the means to secure **30**. Means to secure **30** could be used to directly secure a load if the load were equipped with attachment means that can be frictionally secured to the means to secure **30**.

[0027] In one embodiment, means to secure comprises a keyhole shape **125** opening from said lower edge **102** with stricture **127** for assisting in the securement of the plastic wrap or tarp **110**. (See FIG. **4**)

[0028] In a second embodiment a simple slot **135** opening to the lower edge **102** is provided. (See FIG. **3**)

[0029] In a third embodiment, a ramped slot **145** opens into said lower edge **102**. Here, the slot also comprises a ramp section **147** to assist the user to align and insert the tarp or plastic **110**. (See FIG. **7**)

[0030] A hook-shaped slot **155** is provided in a fourth embodiment wherein said slot comprises a first portion **157** generally perpendicular to said lower edge **102** and a second portion **159** open to said first portion **157** and generally parallel with said lower edge **102**. (See FIG. **5**)

[0031] A fifth embodiment comprises a slotted opening **165** in the outer surface **100** said slotted opening **165** flexible, with high resilience. A corner of the tarp **110** or another portion of the tarp **110** may be inserted into the slotted opening **165** which will secure the tarp **110**. (See FIG. **6**)

[0032] In use, the present invention accommodates insertion of a portion of the plastic or tarp and securing it therein. It is contemplated that the end of the plastic or tarp may be equipped with a stop such as a "T" or a knot or a plate that, once inserted in the means to secure, will provide additional resistance to slippage.

[0033] The present invention will reduce waste otherwise incurred by wrapping the entire pallet, reduce or eliminate loss of functionality caused by fully wrapping a pallet relative to its stackability, and avoid loss of other functionality and sources of weakness that would be caused by exteriorly mounted securement means such as rings or hooks.

[0034] The inventor does not intend to limit the invention to these embodiments but, rather, the invention is directed to the use of single or multiple means to secure, all uniform in a given pallet, or arranged in groupings of different embodiments, or comprising several different embodiments to provide multi-use.

[0035] The present invention has been described in both specificity, and with generality. It is not intended to be limited except as the claims language requires. To that end, the material used to make the pallet or top deck may be of several blends of plastic, fiberglass, or combinations with wood or metal. The pallet includes at least one and may include a plurality of identical means to secure. Alternatively, the pallet may include a plurality of means to secure that differ from one another within the scope of this disclosure. In some embodiments, said means to secure are integrally molded with the pallet or the top deck such that they are co-planar with or interior to the outermost surface of the pallet or top deck in which said means to secure is located.

What is claimed is:

1. A pallet comprising means to secure a covering said pallet comprising:

a) a top surface and at least a first side, said first side having an outer surface, an internal surface, an edge and a means to secure;

b) said means to secure comprising an opening in the outer surface, a first part of the opening extending through the internal surface and a second part of the opening extending through the edge and having a shape for accepting and securing a portion of a covering.

2. The pallet of claim **1** said portion of the covering comprising a stop for securing the portion of the covering.

3. A method of using the pallet of claim **2** comprising inserting the portion of the covering into the second part of the opening and sliding the covering into the first part of the opening thereafter positioning the stop against the internal surface with the covering extended outwardly from the first outer side.

4. The pallet of claim **1**, said means to secure shaped generally like a keyhole.

5. The pallet of claim **1** said means to secure comprising a slanted ramp section at the second part of the opening to assist in aligning the portion of the covering, the first part of the opening shaped as a slot extending away from the edge and the second part of the opening.

6. The pallet of claim **1** said first part comprising an elongated shape, said second part comprising an elongated shape oriented generally perpendicular from the first part to provide means to secure the portion of the covering.

7. The covering of claim **1** comprising a flexible plastic sheet.

8. The covering of claim **1** comprising a tarp.

9. The flexible plastic sheet of claim **7** comprising a corner, said corner equipped with a stop.

10. A pallet of generally unitary plastic structure comprising means to secure a flexible covering, said pallet comprising a first end having an edge, a second end having an edge, a first side having an edge, a second side having an edge, a top deck, and a bottom surface, said means to secure comprising a slot-shape extending upwardly from at least one of said first end edge, said second end edge, said first side edge, and second side edge.

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