PACKAGING OF PERSONAL ARTICLES BY BANDING BUNDLES

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ABSTRACT

Diaper packaging having a reduced manufacturing cost may be created by bagging stacks of diapers and bundling the bags. Bands may be applied circumscribing the bundled bags of diapers. One band may be applied along a first direction perpendicular with the length of the stacked diapers. A second band may be applied in a second direction parallel with the length of the stacked diapers. The bags of diapers may include several stacks of diapers, and the bundles may include several bags of diapers. For certain bundle configurations of packaged diapers, additional bands may be placed circumscribing the bundles for improved stability. Packaging by banding bundles of diapers may also be used to package other personal care articles and absorbent articles.
FIG. 1
(PRIOR ART)
500

START

510

FORM AT LEAST ONE STACK OF DIAPERS

512

PLACE THE STACK(S) OF DIAPERS IN A BAG

514

MORE BAGS OF DIAPERS?

516

BUNDLE THE BAGS OF DIAPERS

518

APPLY AT LEAST ONE BAND IN A FIRST DIRECTION

520

APPLY AT LEAST ONE BAND IN A SECOND DIRECTION

FIG. 5
PACKAGING OF PERSONAL ARTICLES BY BANDING BUNDLES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/410,680 to Russell Ables entitled “Packaging of Personal Articles by Bundling Bundles” and filed on Nov. 5, 2010, which is hereby incorporated by reference.

TECHNICAL FIELD

[0002] The present disclosure generally relates to packaging of personal articles.

BACKGROUND

[0003] Diapers and other personal care articles are conventionally packaged in boxes for sale in retail stores. A conventional packaging of diapers is illustrated in FIG. 1. A retail box 110 stores a number of stacked diapers 112. The retail box 110 may be a conventional cardboard box with color advertising printed on the surfaces of the box facing away from the diapers. The cost of packaging the diapers in the box represents a large percentage of the entire cost of the box of diapers and reduces the profit per diaper for a manufacturer, increases costs for the consumer, and results in unnecessary waste from discarded packaging material. The cost of the articles being packaged for retail is low enough that the cost of the retail box materials and handling is a large fraction of the final sales price of the packaged articles.

[0004] Additionally, when packaging the diapers 112 in the box 110, the box 110 may be a larger size than the minimum size necessary to fit the diapers 112. That is, the total volume occupied by the diapers 112 in the box 110 is smaller than the volume of the box 110. The additional volume in the box 110 ensures that the box 110 will fit the correct number of diapers 112 with some margin for error and handling. However, the additional volume in the box 110 reduces the number of boxes fitting on pallets for shipping. Thus, the unused volume of the box 110 increases the shipping and handling costs for the diapers 112.

[0005] Thus, there is a need for cheaper packaging of diapers and a need for more efficient packaging of the diapers to address same or all of the aforementioned problems.

SUMMARY

[0006] Accordingly, it is an object of the present disclosure to package diapers using a lower cost method.

[0007] Another object of the present disclosure is to package diapers more efficiently and decrease shipping and handling costs for the diapers.

[0008] Yet another object of the present disclosure is to provide a packaged bundle of diapers at a lower cost than conventional boxed diapers.

[0009] A further object of the present disclosure is to minimize use of packaging materials for environmental reasons.

[0010] Hence, in order to achieve these objects and others and in accordance with one aspect of the present disclosure, there is provided a method of packaging diapers. The method includes the steps of forming at least one stack of diapers, placing the at least one diaper stack in a diaper bag, bundling the diaper bag with at least one other diaper bag to form a diaper bundle, applying at least one band in a first direction of the diaper bundle, and applying at least one band in a second direction of the diaper bundle.

[0011] In some embodiments of the disclosure: applying the at least one band in the second direction may include applying the at least one band in a direction parallel to a length of a diaper in the at least one stack of diapers; placing the at least one diaper stack in the diaper bag may include placing two diaper stacks in the diaper bag; applying the at least one band in the cross direction may include applying two bands in the first direction; and/or bundling the diaper bag with at least one other diaper bag may include bundling the diaper bag with at least three other diaper bags. Additionally, in certain embodiments, the band in the first direction may have a width between approximately 30 millimeters and approximately 70 millimeters with a tension between approximately 10 grams and approximately 7500 grams. Further, in certain embodiments, the band in the second direction comprises applying a tension between approximately 10 grams and approximately 5000 grams.

[0012] In accordance with another aspect of the present disclosure, there is provided a method of packaging diapers. The method includes the steps of forming at least one stack of articles, placing the at least one article stack in an article bag, bundling the article bag with at least one other article bag to form an article bundle, applying at least one band in a first direction of the article bundle, and applying at least one band in a second direction of the article bundle. In accordance with a further aspect of the present disclosure, there is provided an absorbent article bundle. The bundle includes at least two bags. Each bag includes more than one absorbent article. The bundle also includes at least two bands orthogonally positioned relative to one another and encircling the bags.

[0013] In some embodiments of the disclosure: the bundle may include a second band circumscribing the at least two bags, in which the second band is oriented substantially orthogonal to the first band; the first band may have a tension between approximately 10 grams and approximately 7500 grams; the second band may have a tension approximately 10 grams and approximately 5000 grams; each bag may also include a second stack of absorbent articles, in which the first band is substantially aligned with the first stack; the bundle may include a third band substantially aligned with the second stack, in which the second band is substantially orthogonal to the third band; and/or the absorbent article may be a diaper and the absorbent article bundle may be a diaper bundle.

[0014] The foregoing has outlined rather broadly the features and technical advantages of the present disclosure in order that the detailed description of the disclosure that follows may be better understood. Additional features and advantages of the disclosure will be described hereinafter that form the subject of the claims of the disclosure. It should be appreciated by those skilled in the art that the conception and specific embodiments disclosed may be readily used as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the disclosure as set forth in the appended claims. The novel features that are believed to be characteristic of the disclosure, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is expressly...
understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] For a more complete understanding of the present disclosure, reference is now made to the following descriptions taken in conjunction with the accompanying drawings.

[0016] FIG. 1 is an illustration of conventional packaging for diapers.

[0017] FIG. 2 is an illustration of an exemplary packaging of bundled single push bags according to one embodiment of the disclosure.

[0018] FIG. 3 is an illustration of an exemplary packaging of bundled double push bags according to one embodiment of the disclosure.

[0019] FIG. 4 is an illustration of an exemplary packaging of bundled double push bags according to another embodiment of the disclosure.

[0020] FIG. 5 is a flow chart illustrating a method of packaging bundles of diapers according to one embodiment of the disclosure.

DETAILED DESCRIPTION

[0021] Diapers and other personal care articles may be packaged at a lower cost and in a smaller volume of space by bagging stacks of diapers (or other articles), bundling the bags, and packaging the bundles. Bands may be applied around the bundles for shipping and/or retail sale. Eliminating the use of the box for packaging reduces the cost of packaging due to the box and reduces the total volume occupied by the packaged diapers, which reduces the shipping and handling costs associated with sale of the diapers. The diapers may be packaged by stacking diapers, bagging the stacks, and bundling the bags as described in more detail below with reference to FIGS. 2-5.

[0022] FIG. 2 is an illustration of an exemplary packaging of bundled single push bags according to one embodiment of the disclosure. It should be understood that although FIG. 2 refers to diapers, the method of packaging can be applied to other articles and the application to other articles is within the scope of the present disclosure. A stack of diapers 212 may be placed in a bag 214. The bag 214 may be a wrapping, such as paper or plastic, enclosing the diapers 212. The bag 214 may be stacked with other bags 216 and 218 to create a bundle 222. The bundle 222 may be packaged with bands 232 and 234. The bundle 222 may be an assembly of bags grouped together by at least one of band 232 and band 234. The bands 232 and 234 may be securing mechanisms such as, for example, rope, twine, tape, or plastic wrap that extend around a bundle to group the bags 214, 216, and 218 of the bundle 222. The band 232 may be applied to the bundle 222 in a first direction substantially perpendicular to the length of the diapers 212. The band 234 may be applied to the bundle 222 in a second direction, which may be substantially parallel with the length of the diapers 212 and substantially perpendicular to the band 232. Although only three bags 214, 216, and 218 are illustrated, more or less bags may be included in the bundle 222.

[0023] The bands 232 and 234 may be, for example, brown paper, white paper, and/or clear polymer film. The bands 232 and 234 may be different materials or the same material. For example, the band 232 may be white paper with printed advertisements, and the band 234 may be a clear polymer film. The band 232 may have a width between approximately 30 millimeters and 70 millimeters and be the same or a different width as the band 234. According to one embodiment, the tension of the band 232 in the first direction may be between approximately 10 grams and 7500 grams. According to one embodiment, the tension of the band 234 in the second direction may be between approximately 10 grams and 5000 grams. The band 232 may be applied to the bundle 222 before the band 234.

[0024] Bags may include more than one stack of diapers as described with reference to FIG. 3. It should be understood that although FIG. 3 refers to diapers, the method of packaging can be applied to other articles and the application to other articles is within the scope of the present disclosure. FIG. 3 is an illustration of an exemplary packaging of bundled double push bags according to one embodiment of the disclosure. A stack of diapers 310 and a stack of diapers 312 may be placed in a bag 314. The bag 314 may be stacked substantially vertically with another bag 316 in a bundle 322. Bands 332 and 334 may circumscribe the bundle 322 in substantially perpendicular directions. Again, more or less bags of diapers may be included in the bundle 322. If more bags are added to the bundle 322, additional bands may be placed around the bundle 322 to improve stability of the packaging as described with reference to FIG. 4.

[0025] FIG. 4 is an illustration of an exemplary packaging of bundled double push bags according to another embodiment of the disclosure. It should be understood that although FIG. 4 refers to diapers, the method of packaging can be applied to other articles and the application to other articles is within the scope of the present disclosure. A stack of diapers 410 and a stack of diapers 412 may be placed in a bag 414. The bag 414 may be vertically stacked with other bags 416, 418, 420 in a bundle 422. The bundle 422 may be packaged with packaging means such as bands 432, 434, and 436. The bands 432 and 436 may circumscribe the bundle 422 in a cross direction. The band 432 may be placed to run along the first stack of diapers 410, and the band 434 may be placed to run along the second stack of diapers 412. If additional stacks of diapers (not shown) are placed in the bags 414, 416, 418, and 420, additional bands (not shown) may be circumscribed around the bundle 422 and substantially aligned with the additional stacks of diapers. For example, if the bags 414, 416, 418, and 420 included a third stack of diapers, a third band may circumscribe the bundle 422 and placed to run along the third stack of diapers.

[0026] FIG. 5 is a flow chart illustrating a method of packaging bundles of diapers according to one embodiment of the disclosure. It should be understood that although FIG. 5 refers to diapers, the method of packaging can be applied to other articles and the application to other articles is within the scope of the present disclosure. A method 500 describes a method of packaging a bundle of diaper bags. The method 500 begins at block 510 with forming at least one stack of diapers. At block 512, the stack of diapers is placed in a bag. At block 514, a determination is made for bagging additional stacks. If additional bags are to be placed in the bundle, the method 500 returns to block 510 to form additional stack(s) of diapers, and the method 500 then continues to block 512 to place the additional stack(s) of diapers in an additional bag. According to the embodiment described in FIG. 3, the blocks 510, 512, and 514 may be repeated three times to form three bags for bundling or more times for more bags for bundling.
After a desired number of bags are formed, the method 500 continues to block 516 to bundle the bags of diapers. For example, the bags of diapers may be stacked substantially vertically (e.g., a 2x1 stack of bags or a 3x1 stack of bags). In another example, the bags of diapers may be stacked next to each other horizontally and stacked vertically (e.g., a 2x2 stack of bags or a 3x2 stack of bags). The method 500 continues to block 518 to apply at least one band in a first direction, which may be substantially perpendicular to the length of the diapers in the stack(s) of diapers. At block 520, at least one band is applied in a second direction, which may be substantially parallel to the length of the diapers in the stack(s) of diapers. Although the first direction band is shown in Fig. 5 applied before the second direction band, the second direction band may be applied before the first direction band.

Although the present disclosure and its advantages have been described in detail, it should be understood that various changes, substitutions, and alterations can be made herein without departing from the spirit and scope of the disclosure as defined by the appended claims. For example, although packaging of diapers is described above, the packaging method may be applied to the packaging of other personal articles. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods, and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the present disclosure, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present disclosure. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps. What is claimed is:

1. A method of packaging diapers, comprising:
   forming at least one stack of diapers;
   placing the at least one diaper stack in a diaper bag;
   bundling the diaper bag with at least one other diaper bag to form a diaper bundle;
   applying at least one band to the diaper bundle in a first direction; and
   applying at least one band to the diaper bundle in a second direction.

2. The method of claim 1, in which the step of applying the at least one band in the second direction comprises applying the at least one band in a direction parallel to a length of a diaper in the at least one stack of diapers.

3. The method of claim 1, in which the step of placing the at least one diaper stack in the diaper bag comprises placing two diaper stacks in the diaper bag, and in which the step of applying the at least one band in the cross direction comprises applying two bands in the first direction.

4. The method of claim 1, in which bundling the diaper bag with at least one other diaper bag comprises bundling the diaper bag with at least three other diaper bags.

5. The method of claim 1, in which the at least one band in the first direction of the diaper bundle has a width between approximately 30 millimeters and approximately 70 millimeters.

6. The method of claim 1, in which the step of applying the at least one band in the first direction comprises applying a tension between approximately 10 grams and approximately 7500 grams.

7. The method of claim 1, in which the step of applying the at least one band in the second direction comprises applying a tension between approximately 10 grams and approximately 5000 grams.

8. A method of packaging absorbent articles, comprising:
   forming at least one stack of articles;
   placing the at least one article stack in an article bag;
   bundling the article bag with at least one other article bag to form an article bundle; and
   applying at least one band to the article bundle in a first direction.

9. The method of claim 8, further comprising applying at least one band to the article bundle in a second direction.

10. The method of claim 9, in which the step of applying the at least one band in the second direction comprises applying the at least one band in a direction parallel to a length of an article in the at least one article stack.

11. The method of claim 9, in which the step of applying the at least one band in the second direction comprises applying a tension between approximately 10 grams and approximately 5000 grams.

12. The method of claim 8, in which the at least one band in the first direction of the diaper bundle has a width between approximately 30 millimeters and approximately 70 millimeters.

13. The method of claim 8, in which the step of applying the at least one band in the first direction comprises applying a tension between approximately 10 grams and approximately 7500 grams.

14. An absorbent article bundle, comprising:
   at least two bags, each bag comprising a first stack of more than one absorbent article; and
   a first band circumscribing the at least two bags.

15. The absorbent article bundle of claim 14, further comprising a second band circumscribing the at least two bags, the second band oriented substantially orthogonal to the first band.

16. The absorbent article bundle of claim 15, in which the first band has a tension between approximately 10 grams and approximately 7500 grams, and the second band has a tension approximately 10 grams and approximately 5000 grams.

17. The absorbent article bundle of claim 14, in which each bag further comprises a second stack of absorbent articles.

18. The absorbent article bundle of claim 17, in which the first band is substantially aligned with the first stack of absorbent articles.

19. The absorbent article bundle of claim 18, further comprising a third band substantially aligned with the second stack of absorbent articles, in which the second band is oriented substantially orthogonal to the third band.

20. The absorbent article bundle of claim 14, in which the absorbent article is a diaper and the absorbent article bundle is a diaper bundle.

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