



US 20070019891A1

(19) **United States**

(12) **Patent Application Publication**
Daniel

(10) **Pub. No.: US 2007/0019891 A1**

(43) **Pub. Date: Jan. 25, 2007**

(54) **VISUAL ALIGNMENT SYSTEM FOR BALE BAGS**

Publication Classification

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(51) **Int. Cl.**
B65D 33/00 (2006.01)
B65D 30/04 (2006.01)
(52) **U.S. Cl.** **383/105; 383/117**

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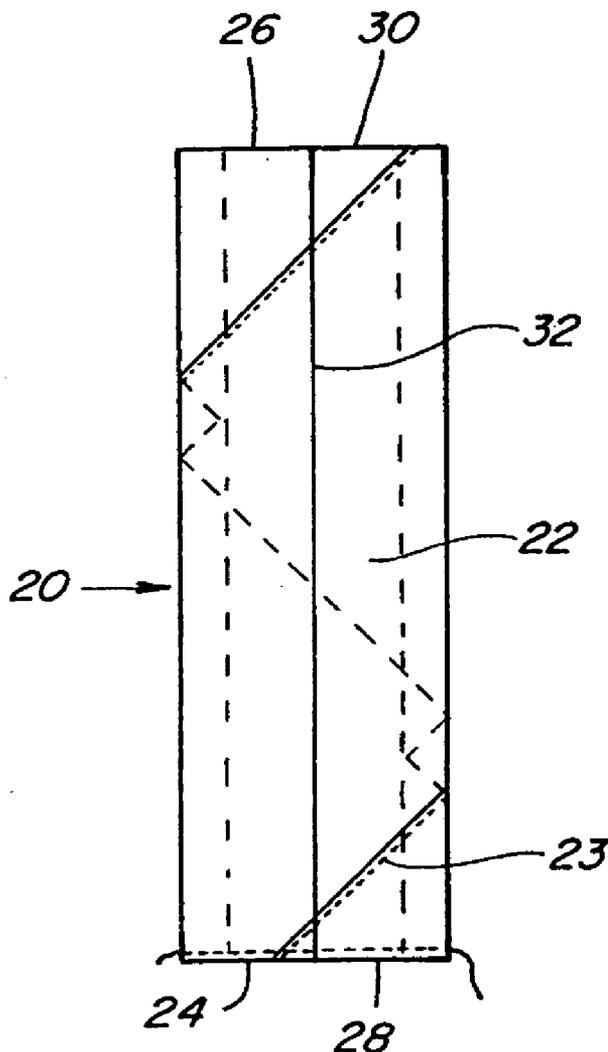
(57) **ABSTRACT**

A bag for a bale of fibrous material with a visual indicator includes at least one panel of material that can be spiral sewn and can also be woven polypropylene; the panel has a first end adjacent to a closed end of the bag and a second end adjacent to an open end of the bag; the panel has a visual indicator intermediate to the first end of the panel and the second end of the panel for aligning the panel relative to a bag applicator.

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(21) Appl. No.: **11/185,165**

(22) Filed: **Jul. 20, 2005**



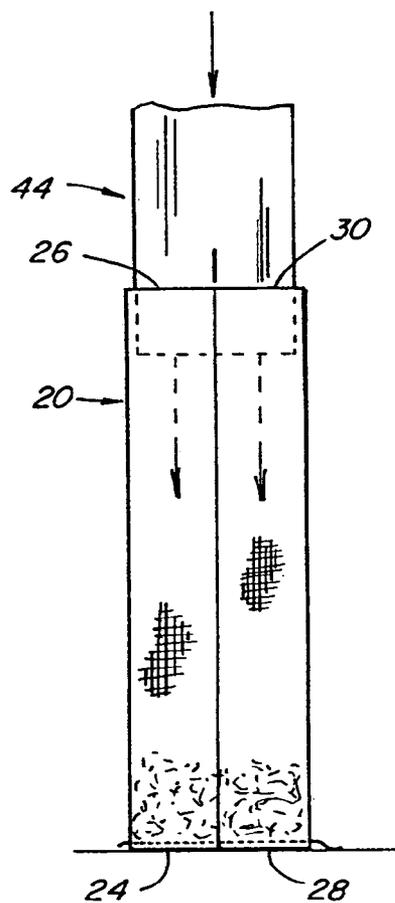


Fig. 7

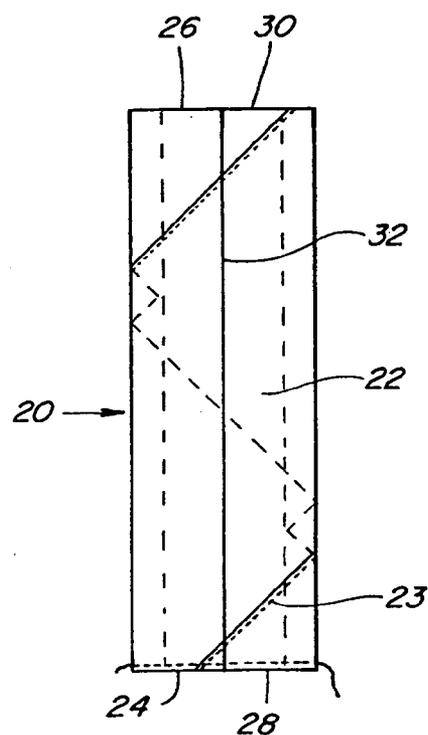


Fig. 1

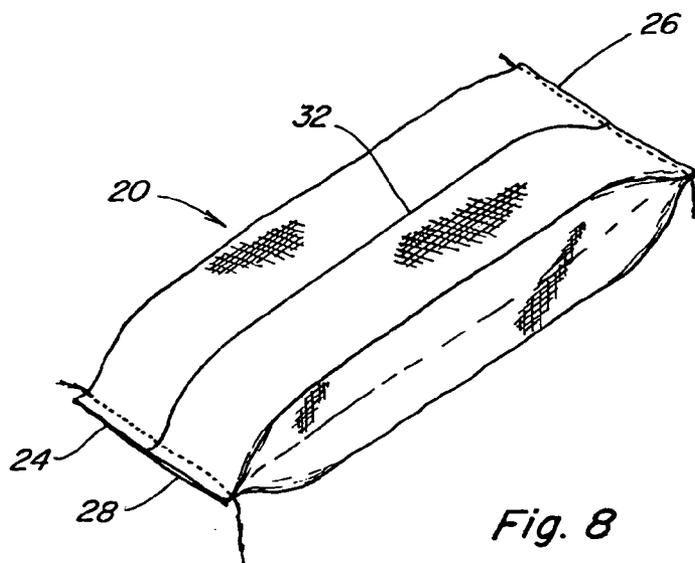


Fig. 8

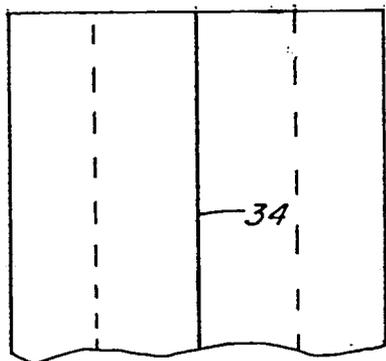


Fig. 2

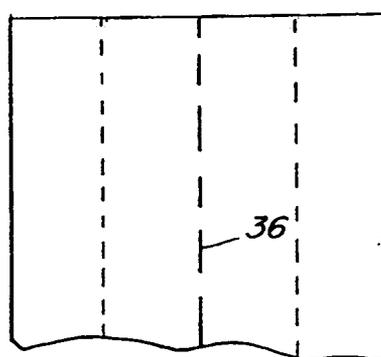


Fig. 3

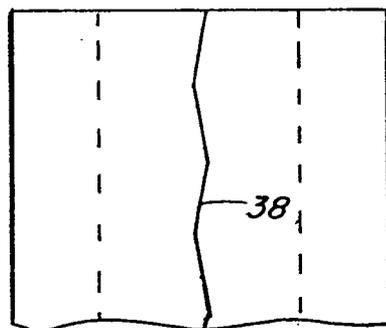


Fig. 4

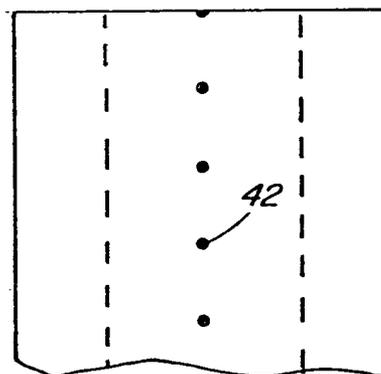


Fig. 6

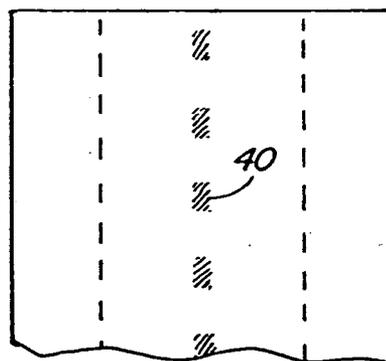


Fig. 5

VISUAL ALIGNMENT SYSTEM FOR BALE BAGS

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention generally relates to storage of fibrous material and, more particularly, to an improved bag for the storage of fibrous material.

[0003] 2. Description of the Related Art

[0004] After cotton or other fibrous materials are harvested, the materials are transferred to gins to separate the fiber from the seeds in a process known as ginning. After ginning and washing, the fibers are compressed into bales, and the bales are placed into bags to protect them during transportation and while they await further processing. To place a 500 pound cotton bale into a bag, laborers position the open end of the bag on a bag applicator. The bale is inserted into the bag, the filled bag is removed from the applicator, and the open end of the bag is closed. If the laborers do not correctly orient the bag relative to the bag applicator, the bale is not inserted all the way to the bottom of the bag, and there is insufficient bag length to close the top of the bag. Then, the bag production process must be stopped to allow time for the bale to be re-bagged. There are two types of bags—polyethylene bags, and polypropylene woven bags. The woven bags are usually sewn together in a spiral pattern.

[0005] One of the drawbacks to existing woven bags is that they contain no visual indicator to guide laborers in applying bags to the bag applicator. Consequently, bags are frequently applied incorrectly to the bag applicator, resulting in increased production costs.

[0006] Various improvements have been made to cotton bale bags. Recyclable, lightweight, and stretchable bags are described in U.S. Pat. Nos. 5,397,612 and 4,071,138. Improvements in absorption properties, stretch characteristics, and resistance to raveling are described in U.S. Pat. No. 5,215,191. Stripes of thermoplastic resin have been fused to bags to prevent fraying, as illustrated in U.S. Pat. No. 4,557,958, but these diagonally-oriented stripes would not be able to serve as a visual indicator of proper bag alignment. In addition, an apparatus for sorting and reorienting individual loose articles as they are packaged automatically is described in U.S. Pat. App. Pub. No. US 2004/0084279 A1, but there is no indication that the invention described would be useful in an application involving the manual orientation of packaging material such as bags. In one particular type of bag, an adhesive seam bag, the seam inherent in the structure of the bag is sometimes used to align the bags on the bag applicator. However, because the seams are not intended for that use, they may not always be consistent, are not always easy for laborers to see, and do not always adequately serve the alignment purpose. In addition, a spiral sewn bag does not have any seam that could serve as a visual alignment marker. No previous inventions have involved marking bags for the purpose of providing better alignment on bag applicators.

[0007] It would be advantageous to provide a bag for bales of cotton or other fibrous material with a consistent and effective visual indicator for helping laborers apply bags correctly to bag applicators, thereby ensuring that the bags will adequately cover and protect the bales.

[0008] The present invention is directed to overcoming one or more of the problems set forth above.

SUMMARY OF THE INVENTION

[0009] An aspect of the present invention is to provide a storage bag for fibrous material (such as cotton) having a consistent and effective visual indicator for aligning bags on bag applicators.

[0010] In accordance with the above aspect of the invention, there is provided a bag for a bale of fibrous material with at least one panel of material having one end adjacent to a closed end of the bag and one end adjacent to an open end of the bag. Placed at a position intermediate to the first and second ends is a visual indicator for aligning the panel relative to the bag applicator.

[0011] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiments of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

[0013] FIG. 1 is a top view of a spiral sewn bag for a bale of fibrous material according to one embodiment of the present invention.

[0014] FIG. 2 is a partial view of a bag for a bale of fibrous material according to one embodiment of the present invention.

[0015] FIG. 3 is a partial view of a bag for a bale of fibrous material according to a second embodiment of the present invention.

[0016] FIG. 4 is a partial view of a bag for a bale of fibrous material according to a third embodiment of the present invention.

[0017] FIG. 5 is a partial view of a bag for a bale of fibrous material according to a fourth embodiment of the present invention.

[0018] FIG. 6 is a partial view of a bag for a bale of fibrous material according to a fifth embodiment of the present invention.

[0019] FIG. 7 is a side view of a bag for a bale of fibrous material positioned on a bag applicator.

[0020] FIG. 8 is a perspective view of a filled bag for a bale of fibrous material according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The following description of the preferred embodiments is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0022] FIGS. 1-6 illustrate various embodiments of bags for fibrous materials according to the present invention. Each bag 20 is constructed in a generally rectangular shape, although this is not an essential feature of the invention. The bag 20 can be manufactured from a wide variety of materials, including natural and man-made materials, such as burlap, cotton, or polyethylene, or polypropylene, and may be woven. The bag 20 can be constructed of a solid panel of material 22 that is folded over and sealed to create the structure of the bag 20. Alternately, the bag 20 can be constructed of a panel of material 22 that is wrapped in a spiral manner and sealed with a seam 23. A spiral sewn bag 20 is illustrated in FIG. 1. In either of these embodiments, it is necessary to seal one end of the structure to complete the basic manufacture of the bag 20.

[0023] The general construction of the bag 20 as described above results in the bag 20 having at least one elongated panel of material 22 running between two ends of the bag 20, a first end 24 adjacent to a closed end 28 of the bag 20 and a second end 26 adjacent to an open end 30 of the bag 20. A visual indicator 32 is provided on this panel of material 22 running generally along at least some portion of the length of the bag 20 from the closed end 28 to the open end 30 of the bag 20. In various embodiments, this visual indicator 32 may run along the entire length of the panel 22 or just along a portion of the panel 22 at either end or anywhere at an intermediate position between the ends 24, 26.

[0024] The visual indicator 32 can be applied to the panel of material 22 in several ways. The visual indicator 32 can be placed on the panel 22 by marking with ink, paint, or any substance that is capable of producing a mark on a surface. Alternately, the visual indicator 32 can be in the form of a separate piece of material that can be adhered with an adhesive or sewn onto the panel 22 at the desired location. Further, the visual indicator 32 can be incorporated directly into the structure of the panel of material 22 by using colored thread, colored yarn, or colored strips of material within the panel 22.

[0025] One embodiment of the invention is illustrated in FIG. 2. In this embodiment, the visual indicator 32 takes the form of a solid line 34. The solid line 34 can extend along the entire panel 22, can be positioned near one of the ends 24, 26 of the panel 22, or can be placed at an intermediate position. The color, width, and length of the solid line 34 can vary.

[0026] Another embodiment of the invention is shown in FIG. 3. In this embodiment, the visual indicator 32 takes the form of an intermittent line 36. The intermittent line 36 can extend along the entire panel 22, can be positioned near one of the ends 24, 26 of the panel 22, or can be placed at an intermediate position. The colors, widths, and lengths of the line segments in the intermittent line 36 can vary, as can the distance between the line segments.

[0027] Another embodiment of the invention is shown in FIG. 4. In this embodiment, the visual indicator 32 takes the form of a geometric pattern 38. The geometric pattern 38 can extend along the entire panel 22, can be positioned near one of the ends 24, 26 of the panel 22, or can be placed at an intermediate position. Although the geometric pattern 38 shown is composed of line segments intersecting at their end points, the specific design of the geometric pattern 38 is not essential to the invention. The geometric pattern 38 can

include other components, such as wavy lines, parallel lines, and intersecting lines, and the components can be arranged in a variety of ways. The color and width of the pattern and its components can vary.

[0028] Another embodiment of the invention is shown in FIG. 5. In this embodiment, the visual indicator 32 takes the form of text 40. The text 40 can extend along the entire panel 22, can be positioned near one of the ends 24, 26 of the panel 22, or can be placed at an intermediate position. The text 40 can be any letters, any words, or a logo. The color, font, capitalization, and size of the letters can vary.

[0029] Another embodiment of the invention is shown in FIG. 6. In this embodiment, the visual indicator 32 takes the form of a series of shapes 42. The series of shapes 42 can extend along the entire panel 22, can be positioned near one of the ends 24, 26 of the panel 22, or can be placed at an intermediate position. Although the shapes 42 shown are circles, any shapes 42 including squares, rectangles, conic sections, trapezoids, or curves can be used. Their color and size can vary.

[0030] FIG. 7 illustrates one way in which the bag 20 could be aligned on a bag applicator 44. When laborers place a bale bag 20 on a bag applicator 44, they can place an open end 30 of the bag 20 on the bag applicator 44. The bag applicator 44 acts to provide an inner shell around which the bag 20 is placed (similar to placing a trash bag around a hollow tube). As the laborers do this, they can align the visual indicator 32 on the bag 20 relative to the bag applicator 44, i.e. align the visual indicator in the middle of the bag applicator 44. This allows proper application of the bag 20 to the bag applicator 44. Because of this relative proper alignment and orientation, the dimensions of bag 20 spatially accommodate the dimensions of a bale of fibrous material, like fitting a rectangular peg into a rectangular hole; and the bale of fibrous material is completely inserted through the bag applicator 44 and then into the bag 20. Because of the proper alignment between the bag and bale, there is sufficient bag length to close the open end 30 of the bag 20, as illustrated in FIG. 8. The bale of fibrous material is then adequately protected.

[0031] As various modifications could be made to the exemplary embodiments, as described above with reference to the corresponding illustrations, without departing from the scope of the invention, it is intended that all matter contained in the foregoing description and shown in the accompanying drawings shall be interpreted as illustrative rather than limiting. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims appended hereto and their equivalents.

What is claimed is:

1. A bag for a bale of fibrous material, comprising:

at least one panel of spiral sewn material, said at least one panel having first and second ends with said first end of said at least one panel adjacent to a closed end of said bag and said second end of said at least one panel adjacent to an open end of said bag; and

- a visual indicator for aligning said at least one panel relative to a bag applicator, said visual indicator being disposed in an area intermediate said first end and said second end.
- 2. The bag as set forth in claim 1, wherein the spiral sewn material is woven polypropylene.
- 3. The bag as set forth in claim 1, wherein the visual indicator is marked on the panel.
- 4. The bag as set forth in claim 1, wherein the visual indicator is applied to the panel.
- 5. The bag as set forth in claim 1, wherein the visual indicator is woven into the panel.
- 6. The bag as set forth in claim 1, wherein the visual indicator is generally linear.
- 7. The bag as set forth in claim 1, wherein the visual indicator comprises a solid line.
- 8. The bag as set forth in claim 1, wherein the visual indicator comprises an intermittent line.
- 9. The bag as set forth in claim 1, wherein the visual indicator comprises a geometric pattern.
- 10. The bag as set forth in claim 1, wherein the visual indicator comprises text.
- 11. The bag as set forth in claim 1, wherein the visual indicator comprises a series of shapes.
- 12. A bag for a bale of fibrous material, comprising:
 - at least one panel of woven polypropylene material, said at least one panel having first and second ends with said first end of said at least one panel adjacent to a closed end of said bag and said second end of said at least one panel adjacent to an open end of said bag; and
 - a visual indicator for aligning said at least one panel relative to a bag applicator, said visual indicator being disposed in an area intermediate said first end and said second end.

- 13. The bag as set forth in claim 12, wherein the woven polypropylene material is spiral sewn.
- 14. The bag as set forth in claim 12, wherein the visual indicator is marked on the panel.
- 15. The bag as set forth in claim 12, wherein the visual indicator is applied to the panel.
- 16. The bag as set forth in claim 12, wherein the visual indicator is woven into the panel.
- 17. The bag as set forth in claim 12, wherein the visual indicator is generally linear.
- 18. The bag as set forth in claim 12, wherein the visual indicator comprises a solid line.
- 19. The bag as set forth in claim 12, wherein the visual indicator comprises an intermittent line.
- 20. The bag as set forth in claim 12, wherein the visual indicator comprises a geometric pattern.
- 21. The bag as set forth in claim 12, wherein the visual indicator comprises text.
- 22. The bag as set forth in claim 12, wherein the visual indicator comprises a series of shapes.
- 23. A bag for a cotton bale, comprising:
 - at least one panel of spiral sewn woven polypropylene material, said at least one panel having first and second ends with the first end of said at least one panel adjacent to a closed end of said bag and said second end of said at least one panel adjacent to an open end of said bag; and
 - a solid line marked approximately at the center of said at least one panel and extending from said second end of said at least one panel towards said first end of said at least one panel.

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