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D-50667 Köln (DE)(54) **Bale wrap kit for compressed, resilient fibers.**

(57) A method for wrapping a bale of compressed, resilient fibers comprises the steps of: providing a bale wrap kit. The kit includes at least two pieces. Each piece, when joined with the other piece, is adapted for substantially enclosing and containing the bale of compressed, resilient fibers. Velcro-type fasteners are located along an edge portion of each piece and are adapted for joining the pieces to one another. Uncompressed, resilient fibers are provided. A portion of the uncompressed, resilient fibers are surrounded with the kit. Those fibers are compressed, and the velcro-type fasteners are engaged.

EP 0 608 871 A2

Field of the Invention

A bale wrap kit for compressed, resilient fibers is disclosed herein. The kit is adapted for enclosing and containing a bale of compressed, resilient fibers.

Background of the Invention

Synthetic fibers, for example cellulose acetate tow for cigarette filters, as well as natural fibers, are sold and delivered to customers in compressed bales. These bales are compacted in a press, at pressures up to 100 tons or more.

Typically, these bales are held in their compressed state with a plurality of baling straps which surround the bale. For example, see U.S. Patent Nos. 3,733,769 and 4,901,855, both of which are incorporated herein by reference. It is noted in the latter patent that the straps are in tension because of expansion forces created by the compressed, resilient fibers.

While the present practice of using baling straps is commonplace, it is not problem-free. For example, safety is a concern when the straps are unfastened. Damage to the continuous fibers is a concern because the strapping can cut the fibers thereby impeding automatic retrieval of the fibers from an opened bale. Disposal of the strapping is a concern for waste management reasons. Bale appearance is a concern because customers for the fibers want good looking packages.

Accordingly, there is a need to provide a new bale wrap system which addresses the foregoing problems.

Summary of the Invention

A method for wrapping a bale of compressed, resilient fibers comprises the steps of: providing a bale wrap kit. The kit includes at least two pieces. Each piece, when joined with the other piece, is adapted for substantially enclosing and containing the bale of compressed, resilient fibers. Velcro-type fasteners are located along an edge portion of each piece and are adapted for joining the pieces to one another. Uncompressed, resilient fibers are provided. A portion of the uncompressed, resilient fibers are surrounded with the kit. Those fibers are compressed, and the velcro-type fasteners are engaged.

Description of the Drawing

For the purpose of illustration the invention, there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise

arrangements and instrumentalities shown.

Figure 1 is an isometric view of the instant invention, a bale wrap kit with velcro-type fasteners surrounding a bale of compressed, resilient fibers.

Figure 2 is an exploded isometric view of the instant invention.

Figure 3 is a bottom plan view of the top cap portion of the instant invention.

Figure 4 is a plan view of the girth wrap portion of the instant invention with a corner thereof folded over to expose its underside.

Detailed Description of the Invention

Referring to the drawings wherein like numerals indicate like elements, there are shown in Figure 1 a bale wrap kit 10, made according to the present invention, surrounding a bale of compressed, resilient fibers.

Velcro-type fastener as used herein refers to loops and hook-type fasteners. These terms can be used interchangeably.

In Figure 2, kit 10 is shown. Kit 10 comprises a top cap 14, a bottom cap 16, and a girth wrap 18. Each of these components of kit 10, when joined together, are adapted to surround and enclose a bale of compressed, resilient fibers 12. While the preferred embodiment of kit 10 comprises three portions, the invention is not so limited. Instead, it is possible that two of the three pieces, e.g. the bottom wrap and the girth wrap, could be joined together to form a single piece, whereby the kit 10 could be a two-piece kit.

Referring to Figure 3, top cap 14 is shown. Top cap 14 and bottom cap 16 are identical, accordingly, only one shall be discussed in detail. Top cap 14 generally comprises a rectangle portion of material having an edge portion 20 located along each of its sides. A fold line 26 is shown in phantom and generally represents the outline of the bale. Velcro-type fasteners 22 are affixed to each edge portion 20. Preferably, the velcro-type fasteners on this cap are loops 24. Of course, the hooks could be used on this cap as well. Details regarding the material and the velcro-type fasteners are set forth below.

Referring to Figure 4, the girth wrap 18 is illustrated. Girth wrap 18 is a generally rectangle portion having a edge portion 28. Velcro-type fastener 30 are located on each edge portion 28. These velcro-type fasteners are preferably hooks 32. The lateral edge portions 34 and 36 are provided for mating engagement so that girth wrap 18 can be secured around the bale 12. Exterior lateral velcro-type fasteners 34 are preferably hooks, whereas interior lateral velcro-type fasteners 36 are preferably loops. It is noted that lateral edge portion 34 and lateral edge portion 36 are disposed on

opposites sides of girth wrap 18 so that when juxtaposed, they can be placed in mating engagement. Details regarding the material and the velcro-type fasteners are set forth below.

With regard to the material comprising the top cap 14, bottom cap 16, and girth wrap 18, it can be any material so long as it has sufficient strength to withstand the internal pressure of the bale of compressed, resilient fibers. For example, this material could be corrugated cardboard, cloth, film, or combinations thereof. These materials may be constructed of paper, polyester, polypropylene, polyethylene, or nylon, for example. One example of such a material is a 5.5 ounce per square yard woven polyethylene cloth having a polyethylene film coated on one side. The edges of this material should be finished so that they are snag-free.

With regard to the velcro-type fasteners 22, 30, 34, and 36, they are designed to have a shear strength (lengthwise) of about 40 pounds per square inch and a peel strength (average) of about 4.0 pounds per inch. These design parameters are such that they include a safety factor of two. One such velcro-type fastener includes as the hook portion "HTH706" and the loop portion "L 3003". Both of these are commercially available from Velcro USA, Inc. of Manchester, NH. These velcro-type fasteners may be joined to the fore-mentioned materials in any manner, for example by sewing or gluing or ultrasonic welding or combination thereof. One glue suitable for use is a commercially available glue, "BOS 1096" from Bostik, Inc. of Middleton, MA.

The velcro-type fasteners shown in the drawings are shown as continuous strips, however, segments of the velcro-type fasteners maybe used. Also, it is possible to make a totally recyclable bale wrap kit by matching the material of construction of the material and the fasteners. Use of this bale wrap system results in cost savings arising from the reduction of man-hours necessary to wrap the bale.

The present invention maybe embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to appended claims, rather than to the foregoing specification, as indicating the scope of the invention.

Claims

1. A method for wrapping a bale of compressed, resilient fibers comprising the steps of:
 - providing a bale wrap kit, said kit including at least two pieces, each said piece, when joined together, being adapted for substantially enclosing and being adapted for containing the bale of the compressed, resilient fibers, and

velcro-type fasteners located along an edge portion of each said piece and being adapted for joining said pieces to one another;

providing uncompressed, resilient fibers; surrounding a portion of said uncompressed, resilient fibers, with said kit; compressing said fibers; and engaging said velcro-type fasteners.

2. A method for wrapping a bale of compressed, resilient fibers comprising the steps of:

providing a bale wrap kit, said kit including a top cap, a bottom cap, and a girth wrap, said top cap and said girth wrap being adapted for engagement by use of velcro-type fasteners, said bottom cap and said girth wrap being adapted for engagement by use of velcro-type fasteners;

providing uncompressed, resilient fibers; surrounding a portion of said uncompressed, resilient fibers with said kit; compressing said fibers; and engaging said velcro-type fasteners.

3. A kit for wrapping a bale of compressed, resilient fibers comprising:

a top cap being formed from a sheet having a plurality of edge portions, and a velcro-type fastener means being disposed on each said edge portion;

a girth wrap being formed from a sheet having at least two edge portions, and a velcro-type fastener means being disposed on each said edge portion; and

a bottom cap being formed from a sheet having a plurality of edge portions, and a velcro-type fastener means being disposed on each said edge portion;

said velcro-type fastener means of said top cap being engagable with said velcro-type fastener means along said first edge portion of said girth wrap, and said velcro-type fastener means of said bottom cap being engagable with said velcro-type fastener means along said second edged portion of said girth wrap.

4. The kit according to claim 3 wherein said velcro-type fasteners means being adapted to have a shear strength of about 40 pounds per square inch.

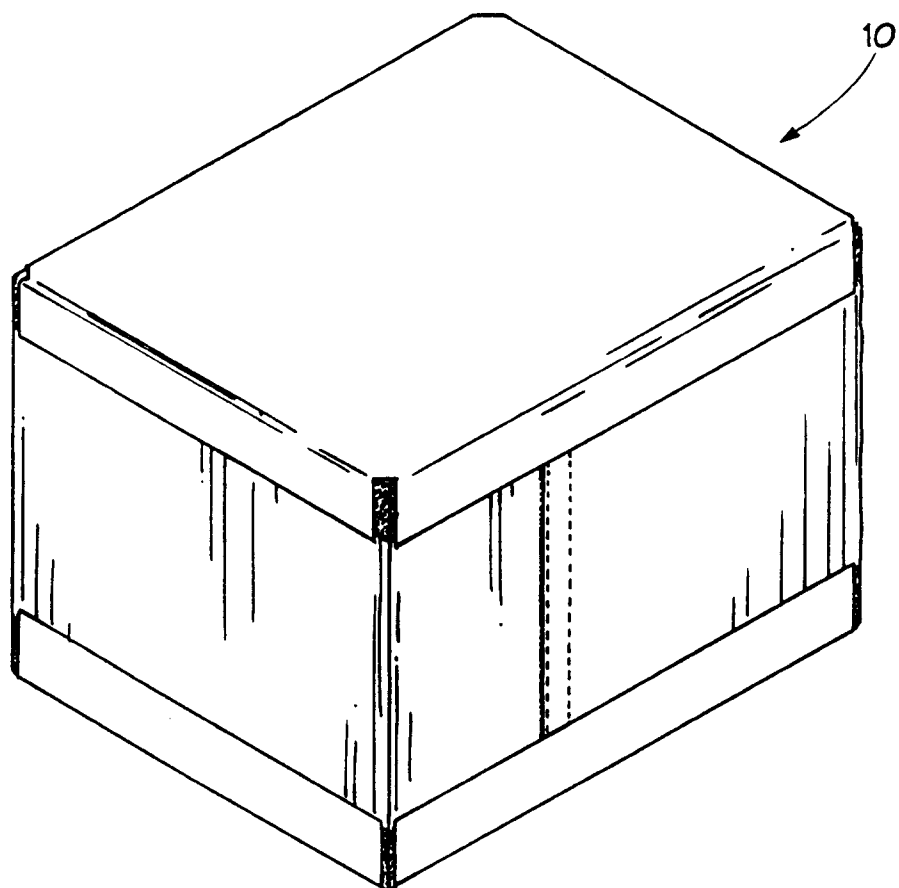


Fig. 1

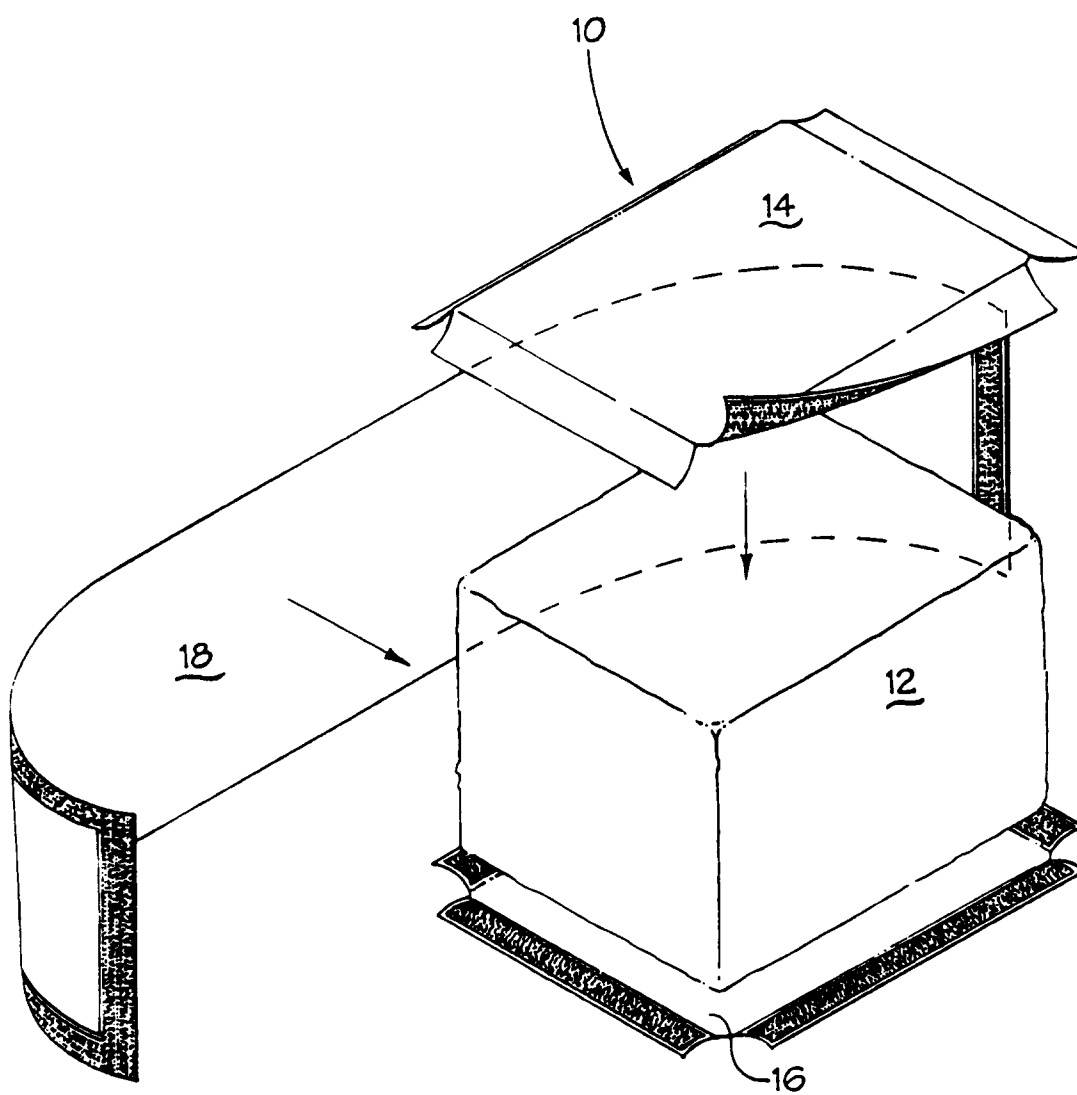


Fig. 2

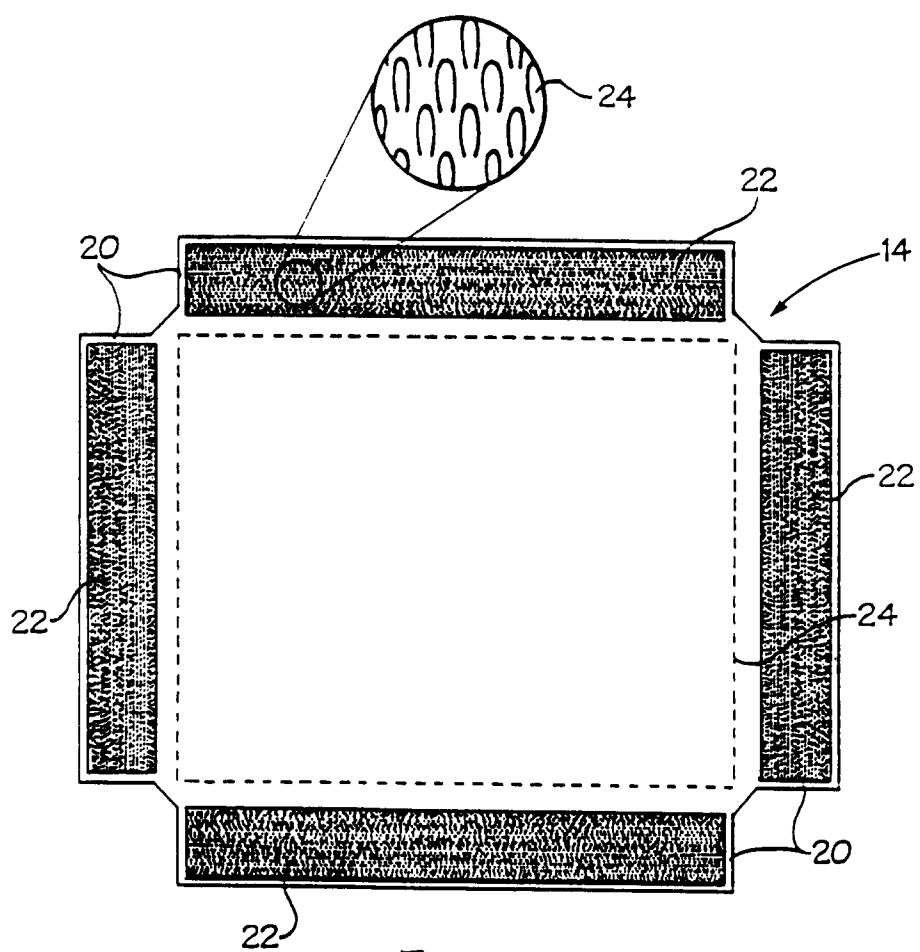


Fig. 3

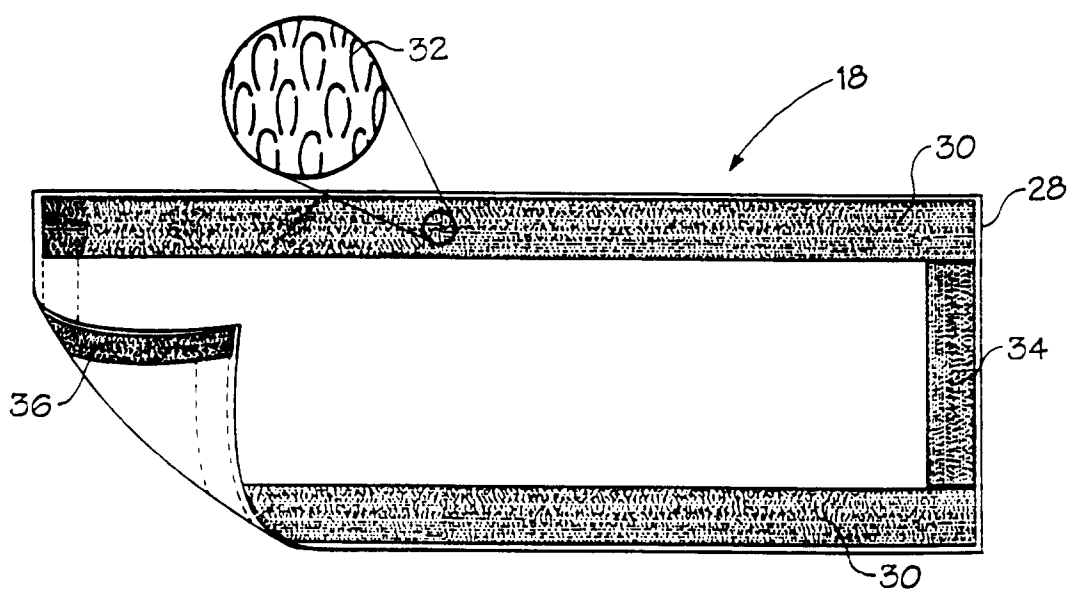


Fig. 4