

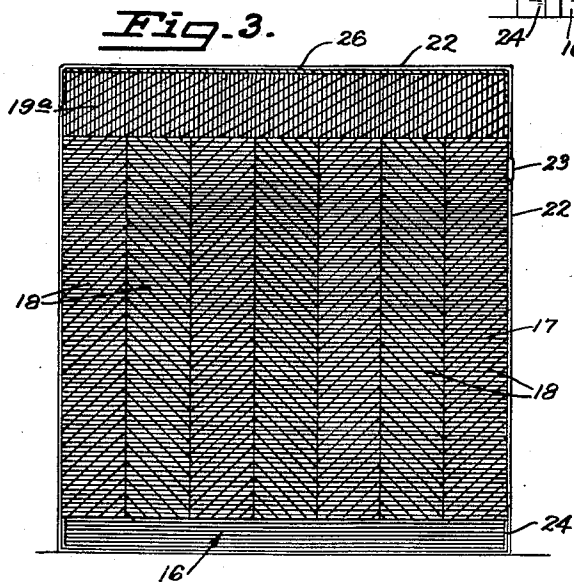
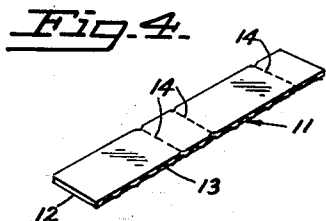
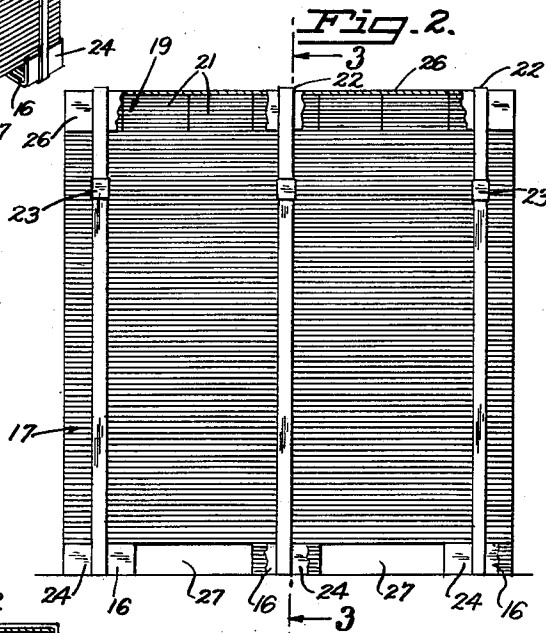
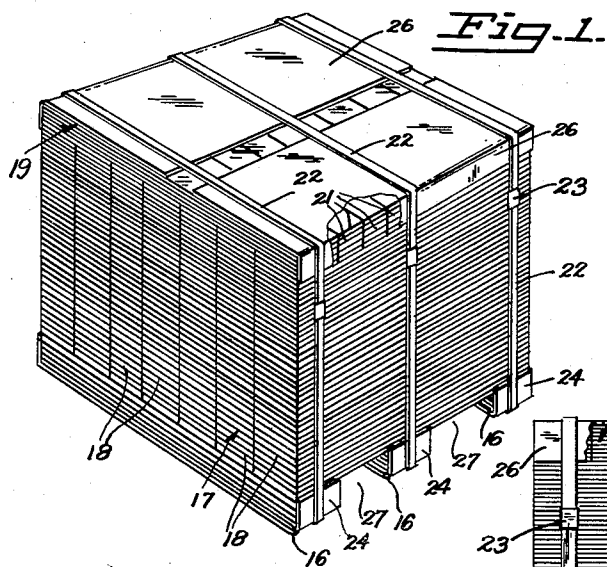
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2,833,403

BALE OF STRIP MATERIAL

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BALE OF STRIP MATERIAL

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This invention relates to a new and improved bale or unit load of long, narrow strips of sheet material, and to a method of handling such strips, especially for storage and transportation.

The present invention has particular application in the transportation and storage of paperboard shipping container collars which are relatively long, narrow strips of corrugated paperboard having transverse score lines so that the collar may be folded to fit snugly inside the container adjacent the side and end walls thereof. The purpose of the collar is to provide additional strength to the side and end walls of the container, particularly stacking strength when containers are stacked on top of each other.

Heretofore, collars of the general nature with which this invention is concerned have been shipped from the factory flat and tied in bundles of a weight and size such that they may be handled manually. Loading, unloading, storing and handling bundles of such collars has been a time-consuming and expensive operation. The present invention provides a load of like collars, all of substantially the same size and shape, secured in a unit bale which greatly reduces the amount of manual labor required.

The bale of the present invention is many times larger and heavier than the individual bundles previously employed, and is thus ideally suited for handling by a lift truck. It is provided with openings at the bottom into which the fork elements of a lift truck may be inserted to lift a bale, and any bales supported thereon.

A further important feature of the invention is the use of a short layer of the collars themselves to form each of a plurality of spaced apart legs at the bottom of the bale, the spacing between the legs providing openings for the lift truck fork.

Another feature of the bale hereinafter described is the manner in which layers of collars are arranged transversely to one another so that the load is reinforced, and the likelihood of bending during handling is greatly reduced.

Other objects of the present invention will become apparent upon reading the following specification and accompanying drawings in which similar reference characters represent corresponding parts in each of the several views.

In the drawings:

Fig. 1 is an isometric view of a bale made up in accordance with the present invention.

Fig. 2 is an end elevation thereof viewed from the right-hand end of Fig. 1 with paper protector sheets shown in Fig. 1 partially broken away to reveal the underlying collars.

Fig. 3 is a vertical section of a modified construction taken at the position corresponding to line 3—3 of the modification of Fig. 2.

Fig. 4 is an isometric view of a collar.

The collar 11 shown in Fig. 4 comprises a relatively long, narrow one piece and unfolded strip of corrugated paperboard having relatively narrow ends 12 and relatively long sides 13. Three transverse score lines 14 are formed on the strip separating the strip into four panels,

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alternate panels being of equal size and corresponding to the inner dimensions of side and end walls of a container in which the collar is to be inserted.

The unit load or bale of such collars is formed with a plurality of spaced apart supporting legs 16 on the bottom. Three such legs are shown in the accompanying drawings, but it will be understood that two or more may be employed. Each leg is made up of a short stack of collar strips 11 positioned flat, the width and length of each leg being equal to the width and length of a single strip. The thickness of the layers making up the legs is sufficient to elevate the main body 17 of the bale to enable a fork element of a lift truck to fit under the main body; the height being such as to allow insertion of the fork element with substantial clearance.

Main body 17 of the bale which constitutes a major part thereof, rests upon legs 16, and comprises abutting parallel stacks 18 of strips 11 placed flat in a direction transverse to the strips making up legs 16. The number of stacks of strips in the main body is such that the aggregate width thereof approximately equals the length of the legs, so that the outer sides of body 17 aline with the ends of legs 16. The sides of the outer legs 16 are positioned, preferably, immediately adjacent and in line with the end edges of the strips of the main body; and an intermediate leg is situated approximately midway between the outer legs.

The main body of the unit may be of any suitable height limited only by factors such as the load capacity of the lift truck employed or the overhead clearance of the vehicle in which the bales are transported. In this connection, it is to be understood that a plurality of the bales may be stacked in storage, and the lift truck can handle the lowermost bale, and any reasonable number stacked thereon. Also, the described arrangement enables upper bales in a stack to be handled by the lift truck.

Above the main body is a shorter top layer 19 of strips which reinforce and impart rigidity to the unit. As shown in Figs. 1 and 2, the top layer is composed of abutting parallel low stacks 21 of strips laid flat and in the same direction as the strips forming the legs 16, but transversely across the stacks 18. The number of stacks 21 is sufficient to extend across the entire top of the unit so that the four corners of the unit have substantially straight edges, with the edges of all sides in alignment. Such arrangement is preferred. However, as shown in Fig. 3, the top layer 19a of strips may be laid edgewise, the lengths extending transverse to the direction of the legs 16, and in the same direction as the strips of the main body portion 17.

Metal straps, wires, or other securing means 22 hold the unit together. One strap 22 is passed under each leg 16, extending lengthwise of the leg. The straps extend up the sides and across the top and are joined together by conventional strap securing means 23. To prevent the straps from injuring the strips, heavy paper protectors 24 may be placed under each leg, and up over the corners thereof, and additional protectors 26 may be placed over the top corners about which straps 22 pass.

In assembling a unit of the character described, short, parallel layers of flat strips 11 to make up the legs 16 are placed spaced apart so that the distance between the outer edges of the outermost legs equals the length of a collar strip 11; and the intermediate leg is located between the outer legs to provide relatively wide and high free channels or openings 27 extending from one side of the bale to the opposite side into which the usual two lift fork elements may be inserted without damaging the strips.

The main body stacks 18 are then placed crosswise on top of legs 16, the stacks abutting each other and being sufficient in number so that the total width equals the

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length of the legs. Additional top layer strips are placed flatwise on top of stacks 18 either in the position shown in Figs. 1 and 2, or edgewise in the position of Fig. 3. The preferred position is that shown in Fig. 1. The top layer 19 or 19a is of considerably less height than the main body 17, and is approximately equal in height to the legs 16. In this connection, it will be noted that both of the top layers 19, 19a are arranged out of register with respect to the strips 11 of main body portion 17. This is so because the strips of layer 19 are positioned in horizontal planes crosswise of the main body strips 11, while the strips of layer 19a extend in vertical planes or edgewise on such main body strips. After the protectors 24 are installed in the manner related, the securing members 22 are then passed around the bale.

The unit thus formed is compact and may be moved by a lift truck, the fork elements entering into the channel-like openings or recesses 27 between the legs. When the unit is disassembled, the securing members 22 are severed and paper protectors 24 and 26 removed. The fact that most of the collars, i. e. that major portion comprising the middle layer 17, are all in the same direction facilitates handling. In use, it has been found that the bale of this invention reduces unloading time from about 40 man hours per railroad car load to about 3 man hours per car.

I claim:

1. A bale of relatively long and narrow unfolded and flat one piece rectangularly shaped paperboard strips all of substantially the same length, said bale consisting essentially of three vertically arranged sections of said strips, one of said sections comprising some of said strips stacked in overlying relationship to provide three substantially parallel spaced apart supporting legs, the spaces between the legs forming free openings each adapted to receive a lift

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element, the outermost legs being spaced apart a distance in the order of the length of said strips to support the end portions of other of said strips, said other strips being arranged in a plurality of abutting parallel stacks supported by and extending transversely over all of said legs with the end portions thereof supported by said outermost legs, and said other strips forming as a second bale section the main body portion of said bale constituting the major part thereof, the third section of said bale comprising a reinforcing layer of additional strips supported by the top of said main body portion, said last named additional strips being out of register with respect to the stacked strips of said main body portion, and a plurality of securing members about said bale holding said strips together, said securing members extending about said bale only in a direction lengthwise of said legs with a securing member extending over the under surface of each of said legs.

2. The bale of claim 1 in which the reinforcing layer of additional strips comprises a plurality of abutting stacks supported flatwise on and extending transversely across the stacks of the main body portion.

3. The bale of claim 1 in which the additional strips of the reinforcing layer are supported edgewise on and extend in the direction of the strips of the main body portion.

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