March 7, 1967 A. J. HARRISS, JR., ETAL 3,307,320

PROCESS OF PACKAGING

Filed March 2, 1965 2 Sheets-Sheet 1

FIG. 1

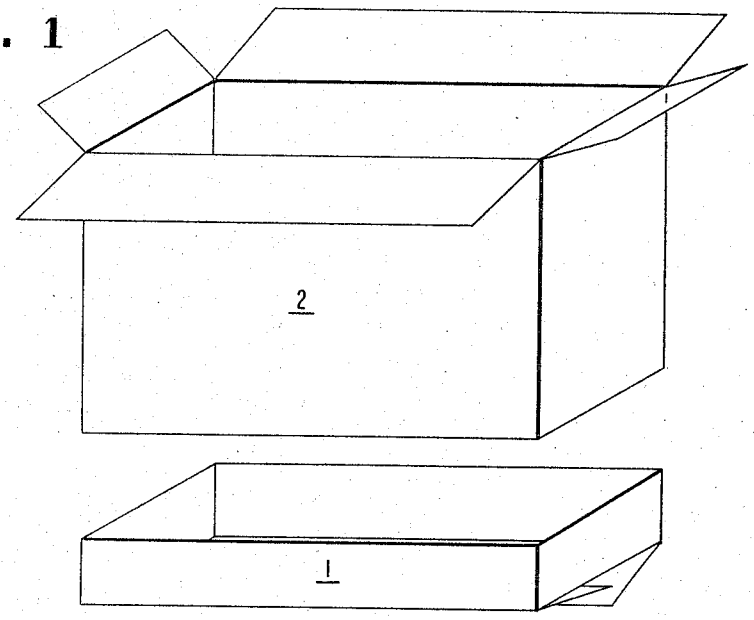
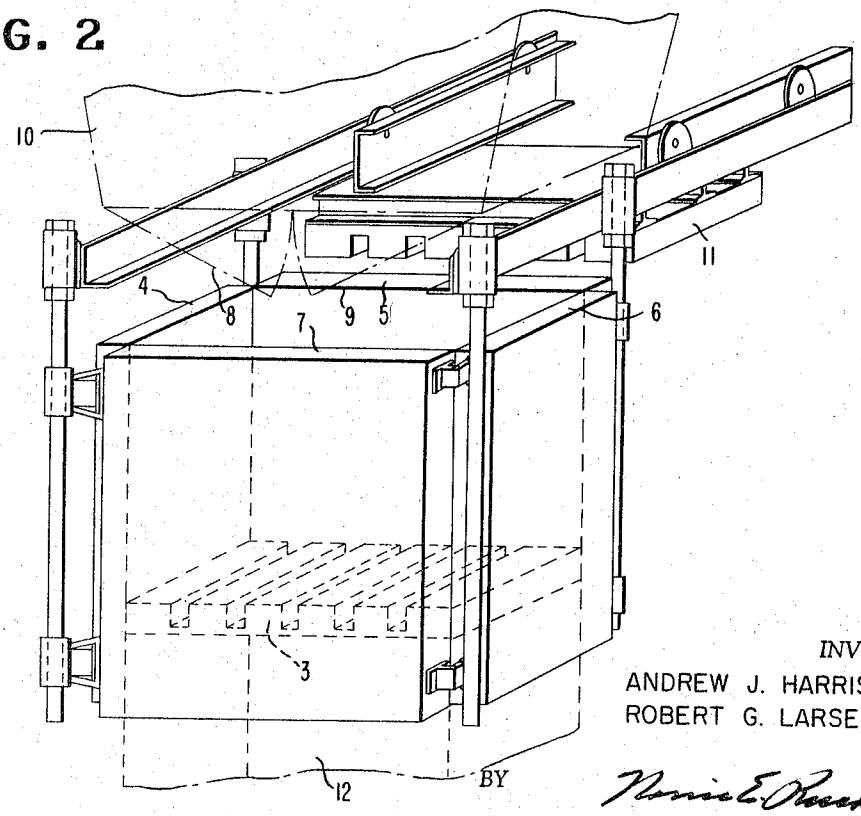


FIG. 2



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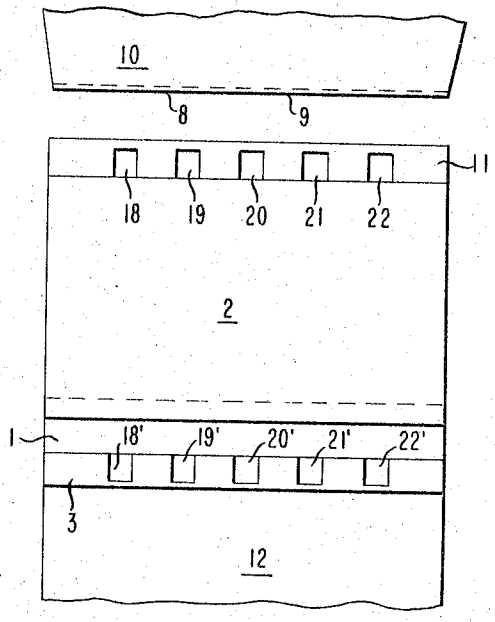


FIG. 3

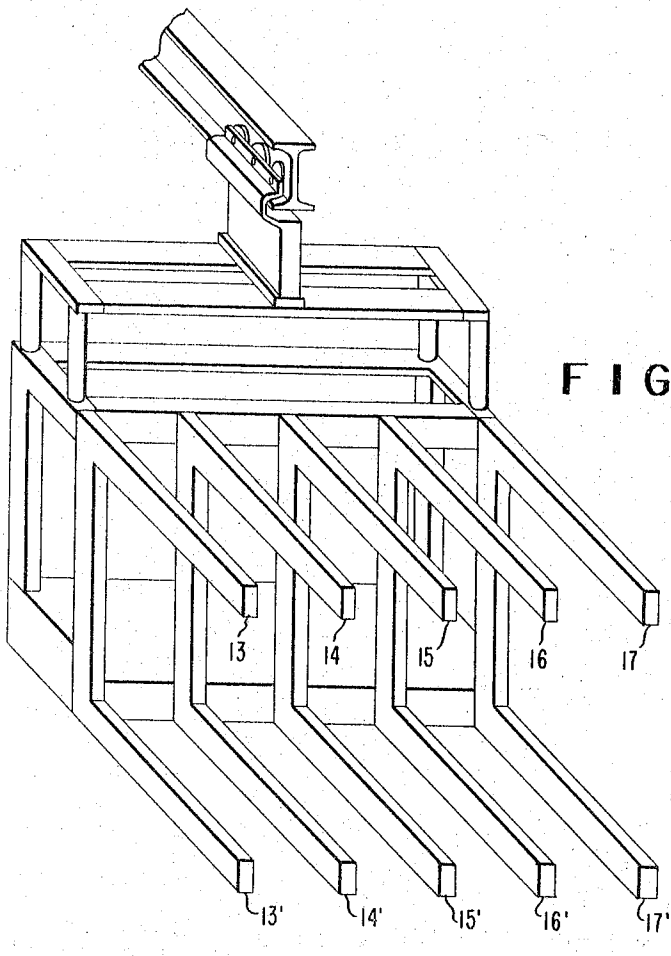


FIG. 4

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3,307,320
Patented Mar. 7, 1967

3,307,320

PROCESS OF PACKAGING

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Filed Mar. 2, 1965, Ser. No. 436,581
1 Claim. (Cl. 53—24)

This invention relates to a method for packaging staple fibers, and is more particularly concerned with the baling of staple fibers.

The usual practice in packaging staple fibers for shipment is to compress the fibers into a bale and bind the bale with steel straps while still in the baling press. In the baler, the fibers are compressed between top and bottom platens provided with conventional slots for inserting the straps while maintaining the bale under pressure. A container having separate upper and lower portions is positioned between the platens in a chamber formed by doors or sides which can be opened after the bale is formed. The chamber is charged with the desired weight of fibers, such as 630 pounds, the low density mass is compressed into the container between the platens, the doors are opened, straps are passed through the platen slots and secured around the container to complete the baling operation, the platens are opened and the bale is then removed.

Expensive equipment is required for the baling operation. The baling function is completed when the fibers have been compressed into the container, but this is followed by a time-consuming strapping operation. As a consequence of these dual functions, the baling efficiency of the apparatus is greatly reduced, resulting in a low production rate or a need for additional balers.

It is an object of this invention to provide an improved method of packaging staple fibers.

These and other objects of this invention will become apparent when reference is made to the following description and the drawings in which:

FIGURE 1 is a perspective view of a container used in the practice of this invention;

FIGURE 2 is a perspective view of apparatus for compressing the staple fibers;

FIGURE 3 is a front elevation view showing the fibers compressed in an unstrapped container; and

FIGURE 4 is a perspective view of a carrier suitable for transporting the unstrapped bales from the baler to a strapping station.

The container shown in FIGURE 1 consists of two telescoping portions. The lower portion or tray **1** is dimensionally sized to provide a sliding fit within the side walls of the upper portion **2**. The top of upper portion **2** consists of four folding flaps.

Referring to FIGURE 2, doors **4** and **5** are closed and the container tray **1** is placed upon bottom platen **3**. The bottom platen is then lowered to just below floor level and door **6** closed. Upper container portion **2** is then placed within the open space formed by doors **4**, **5**, and **6** so as to rest on lips provided therein, the flaps forming the top of the container being folded back out of the way, and door **7** is closed. Hinged gates **8** and **9** of bin **10**, which contains staple fibers to be packed, are then opened to permit the staple fibers to fall into the opened container. While the previous operations have been in progress, a staple cutter and conveyor, not shown, have been

engaged in supplying additional cut staple fibers to bin **10**. As the cutting operation continues, the bottom platen is lowered into its pit **12** until about 630 pounds of staple fibers have accumulated into the space provided by the lowering of the bottom platen and the volume enclosed by the walls of the open container. At this time, the staple fibers will be about level with the opened top of the container. The flaps are then closed and the top platen **11** is moved into position over the top of the container. The bottom platen is then raised to compress the fibers and is advanced until tray **1** is just within top portion **2**. The doors of the baler are then opened to provide access to the container as shown in FIGURE 3.

The carrier shown in FIGURE 4 is then moved forward so that the five pairs of bale-clamping fingers **13–17** and **13′–17′** fit into slots **18–22** and **18′–22′** provided in the top and bottom platens, respectively, to retain the fibers under pressure within the container. The bottom platen is then lowered enough to permit the compressive force of the fibers to be taken up by the fingers of the bale-carrier. The unstrapped bale is removed in the bale carrier and the cycle repeated. The bale carrier may be mounted on a monorail or a lift-truck to transport the unstrapped bale to a strapping station.

Example I

Approximately 630 pounds of polyester staple fibers having a cut length of 1.5 inches, a denier per filament of 2.25, and about 10 crimps per inch are charged to a Logemann baler having a two-piece, telescoping container positioned therein. The ram head is raised to compress the loose staple fibers and is stopped when the bottom of the lower portion is just within the upper portion of the container. The doors of the baler are then opened and a bale-carrier, mounted on a lift-truck is moved forward. The bale-carrier is similar to that shown in FIGURE 4 except that it has three pairs of bale-clamping fingers to retain the bale in its compressed state. The fingers of the bale-carrier are guided into the corresponding slots provided in the top and bottom platens and the bottom platen is lowered. The unstrapped bale, supported in the bale-carrier, is then removed from the baler and the cycle repeated. The cycle requires 4.5 minutes for completion.

Using the customary procedure wherein the container encompassing the compressed staple fibers is strapped by a manual operation while being retained in the baler, 8 minutes are required for the completion of a cycle. As is known to those skilled in the art, modern, high-speed staple-cutting machines are capable of providing cut staple at the rate of 100 to 200 pounds per minute. By application of this invention it will be apparent that the full capacity of staple cutters can be utilized without the need for the purchase and installation of additional baling equipment. In addition to the financial and space savings of the invention, advantage may be taken of automatic strapping means, the use of which is not feasible on single-chambered balers.

Since many different embodiments of the invention may be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited by the specific illustrations except to the extent defined in the following claim.

In the packaging of staple fibers in a container by compressing the fibers in a baler between top and bottom

platens provided with conventional slots for strapping the bale, using a two-piece container having a lower tray that telescopes within a separate upper portion, the method which comprises positioning the lower tray of the container on the bottom platen of the baler, positioning the upper portion of the container adjacent to the top platen, charging the fibers to be packaged between the platens, compressing the fibers into the upper portion of the container by raising the bottom platen until the lower tray is within the upper portion of the container to form a

bale, clamping the bale to retain the fibers compressed within the container by inserting clamping fingers of a bale carrier in the slots of the platens, lowering the bottom platen, transporting the clamped bale in the bale carrier to a different location, and then strapping the bale to complete the package.

No references cited.

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