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(54) **CRATE**

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(75) Inventor: **Narayan Raghunathan**, Mississauga  
(CA)

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Correspondence Address:  
**WIGGIN AND DANA LLP**  
**ATTENTION: PATENT DOCKETING**  
**ONE CENTURY TOWER, P.O. BOX 1832**  
**NEW HAVEN, CT 06508-1832 (US)**

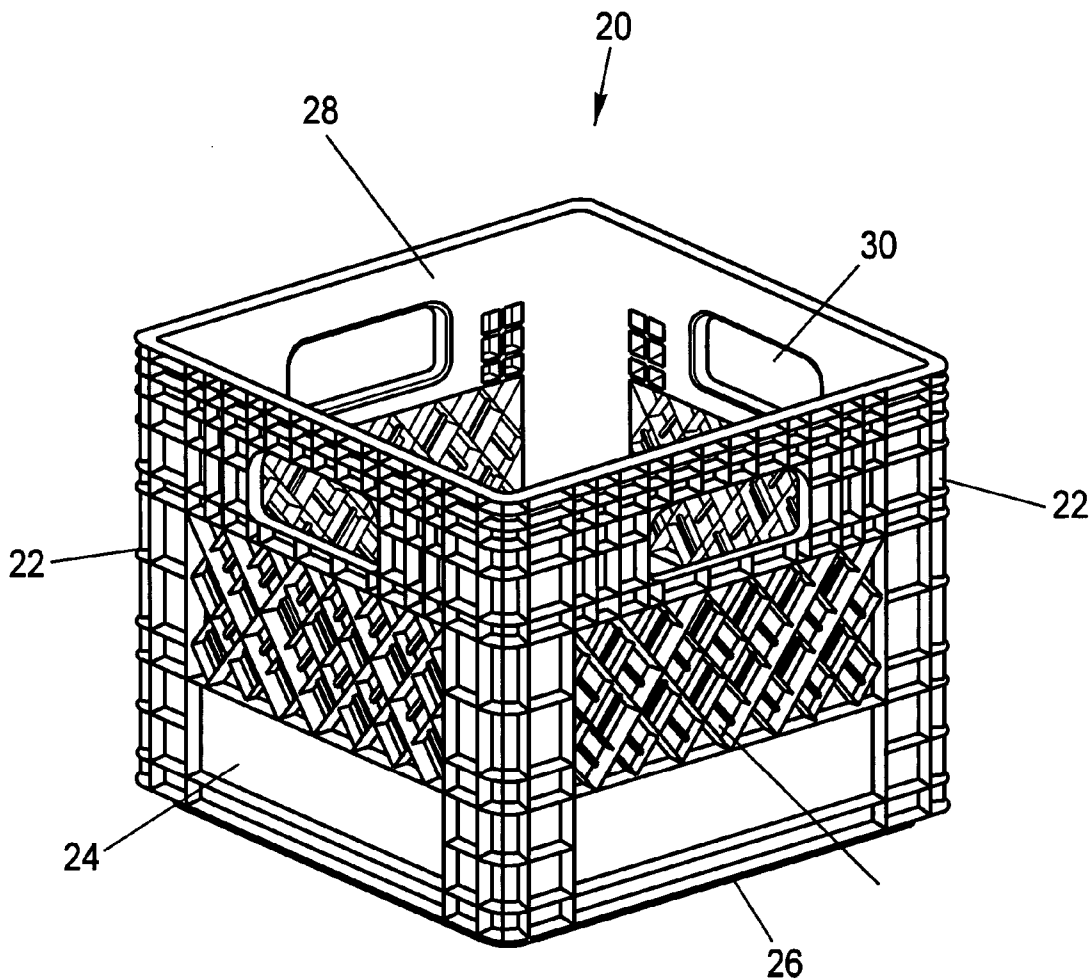
(57) **ABSTRACT**

A crate including a bottom, a plurality of sides extending upwardly from the bottom, each of the plurality of sides being joined with the bottom and the plurality of sides being joined with one another to define an open top in the crate, at least one of the plurality of sides including a first opening defining a handle, at least one of the plurality of sides including a plurality of secondary openings, wherein each of the plurality of secondary openings is sized to prevent the insertion of a grabbing tool such as a hook.

(73) Assignee: **Norseman Plastics Ltd.**, Ontario (CA)

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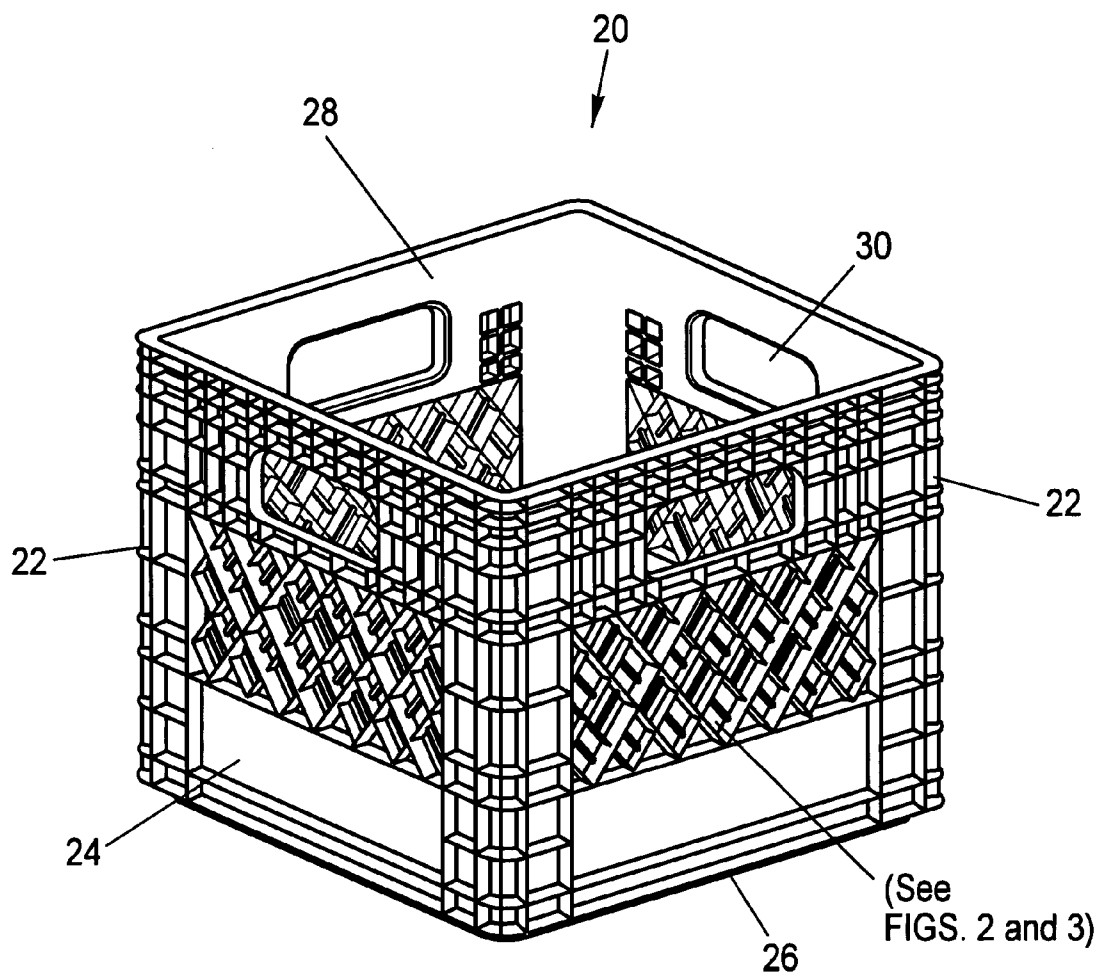


FIG. 1

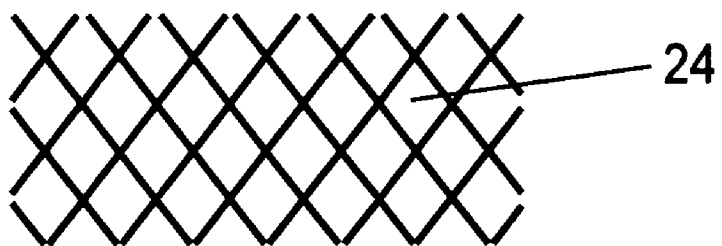


FIG. 2

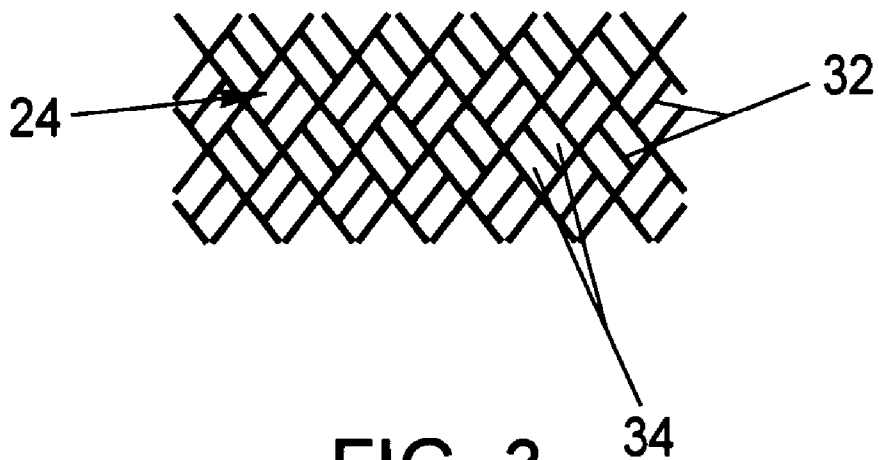


FIG. 3

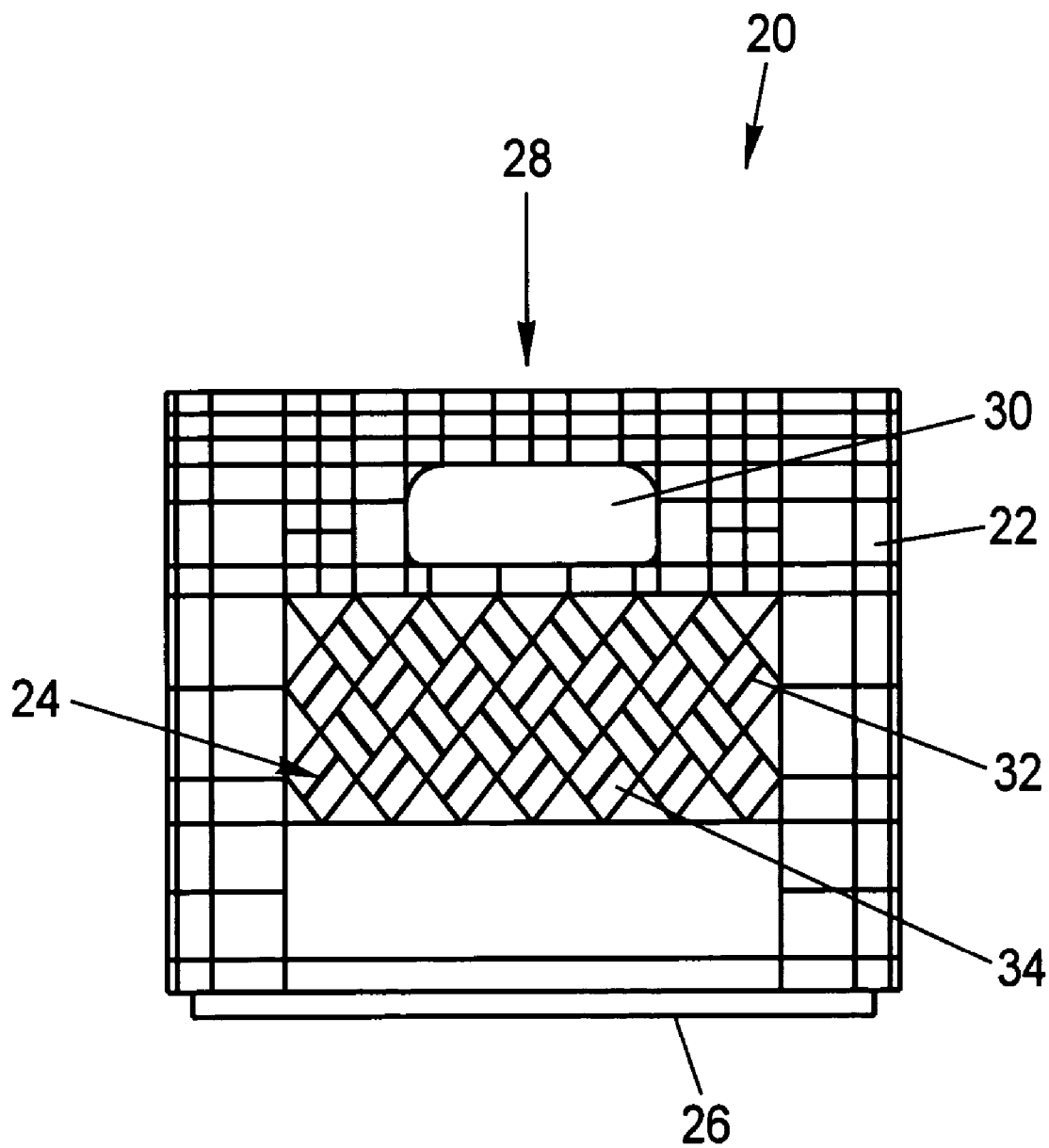


FIG. 4

**CRATE**

**DETAILED DESCRIPTION**

**BACKGROUND OF THE INVENTION**

[0001] (1) Field of the Invention

[0002] The present invention generally relates to a crate having sides with openings. In particular, the present invention is directed to a dairy crate having openings sized to prevent the insertion of a hook.

[0003] (2) Description of the Related Art

[0004] Crates are often used to transport dairy products such as milk. At dairies and in stores where the products are sold, grabbing tools such as hooks or similar instruments are often used to move the plastic crates. For crates that have solid sides with only a reinforced opening for a handle, the hooks are inserted through the handle opening. However, for crates that have both handle openings and other smaller openings on the side, the hooks are sometimes inserted through the smaller openings rather than the handle opening. However, smaller openings are typically not reinforced and tend to break when pulled on by a grabbing tool or instrument such as a hook.

**BRIEF SUMMARY OF THE INVENTION**

[0005] One aspect of the present invention is a crate including a bottom and a plurality of sides extending upwardly from the bottom. Each of the plurality of sides are joined with the bottom and the plurality of sides are joined with one another to define an open top in the crate. At least one of the plurality of sides includes a first opening defining a handle and a plurality of secondary openings. Each of the plurality of secondary openings is sized to prevent the insertion of a grabbing tool.

[0006] Another aspect of the invention is a crate including a bottom having an outer edge and a plurality of sides extending upwardly from the bottom. Each of the plurality of sides is joined with the bottom and the plurality of sides are joined with one another to define an open top in the crate. At least one of the plurality of sides includes a first opening defining a handle and a plurality of secondary openings. The crate also includes a plurality of ribs, which are each positioned within one of the plurality of secondary openings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0007] For the purpose of illustrating the invention, the drawings show a form of the invention that is presently preferred. However, it should be understood that the present invention is not limited to the precise arrangements and instrumentalities shown in the drawings, wherein:

[0008] FIG. 1 is a front isometric view of a crate according to one embodiment of the present invention;

[0009] FIG. 2 is an enlarged view of partial section of the secondary openings in one embodiment of the present invention;

[0010] FIG. 3 is an enlarged view of a partial section of the secondary openings in one embodiment of the present invention; and

[0011] FIG. 4 is a side view of one embodiment of the present invention.

[0012] Referring now to the drawings in which like reference numerals indicate like parts, and in particular to FIGS. 1-4, one aspect of the present invention is a crate 20, which includes a plurality of sides 22 (referred to as sides 22 hereafter) that each have a plurality of secondary openings 24 (referred to as openings 24 hereafter) that are configured to prevent the insertion of a grabbing tool such as a hook (not shown).

[0013] Crate 20 also includes a bottom 26, which is joined with sides 22. Sides 22 extend upwardly from bottom 26. Typically, crate 20 includes four of sides 22. However, in other embodiments, other numbers of sides 22 are possible, e.g., three, five, or more. Sides 22 are joined with one another to define an open top 28 in crate 20. Of course, in other embodiments, a lid (not shown) may also be included. At least one of the plurality of sides includes a first opening 30 defining a handle. Each openings 24 is smaller than first opening 30. Referring to FIG. 2, in one embodiment, each of openings 24 has a largest dimension that is less than or equal to 1 inch. Alternatively, openings 24 are sized according to the dimensions of a particular grabbing tool, e.g., hook or similar instrument.

[0014] As best shown in FIGS. 3 and 4, in one embodiment, crate 20 includes a plurality of ribs 32 (referred to as ribs 32 hereafter), which are each positioned within one of openings 24. Each of ribs 32 defines at least two smaller openings 34 (referred to as smaller openings 34 hereafter) in one openings 24. Each of smaller openings 34 is sized to prevent the insertion of a hook (not shown) and is generally smaller than first opening 30. Typically, each of smaller openings 30 has a largest dimension that is less than or equal to 1 inch. Alternatively, smaller openings 30 are sized according to the dimensions of a particular grabbing tool, e.g., hook or similar instrument.

[0015] Crate 20 is typically used as a dairy crate and is generally fabricated from a thermoplastic or the like, as sold by Norseman Plastics Ltd. of Ontario, Canada. Aspects of the present invention are not limited to a specific crate geometry, material, or use. Rather, it is contemplated that the present invention may be incorporated into any type of crate that is moved using a grabbing instrument such as a hook or similar device.

[0016] A crate according to the present invention offers advantages over prior art designs in that it reduces the damage caused to the crate by pulling on unreinforced openings on the sides of the crate inserting using grabbing tools such as hooks. Instead, a worker is forced to insert the hook into larger, reinforced openings, thereby reducing damage to the crate.

[0017] A crate according to the present invention that includes ribs offers additional reinforcement over prior art crates. The ribs help increase the strength of the crate sides thereby increasing the amount of stress they can withstand without failing.

[0018] Although the invention has been described and illustrated with respect to exemplary embodiments thereof, it should be understood by those skilled in the art that the foregoing and various other changes, omissions and additions may be made therein and thereto, without parting from

the spirit and scope of the present invention. Accordingly, other embodiments are within the scope of the following claims.

What is claimed is:

- 1. A crate comprising:
  - a bottom;
  - a plurality of sides extending upwardly from said bottom, each of said plurality of sides being joined with said bottom and said plurality of sides being joined with one another to define an open top in the crate, at least one of said plurality of sides including a first opening defining a handle, at least one of said plurality of sides including a plurality of secondary openings, wherein each of said plurality of secondary openings is sized to prevent the insertion of a grabbing tool.
  - 2. A crate according to claim 1, wherein each of said plurality of secondary openings is smaller than said first opening.
  - 3. A crate according to claim 1, wherein each of said plurality of secondary openings has a largest dimension of about less than or equal to 1 inch.
  - 4. A crate according to claim 1, further comprising:
    - a plurality of ribs, each positioned within one of said plurality of secondary openings.

- 5. A crate comprising:
  - a bottom including an outer edge;
  - a plurality of sides extending upwardly from said bottom, each of said plurality of sides being joined with said bottom, said plurality of sides being joined with one another to define an open top in the crate, at least one of said plurality of sides including a first opening defining a handle, at least one of said plurality of sides including a plurality of secondary openings;
  - a plurality of ribs, each positioned within one of said plurality of secondary openings.
  - 6. A crate according to claim 5, wherein each of said plurality of ribs defines at least two smaller openings in one of said plurality of secondary openings.
  - 7. A crate according to claim 6, wherein each of said smaller openings is smaller than said first opening.
  - 8. A crate according to claim 6, wherein each of said smaller openings is sized to prevent the insertion of a grabbing tool.
  - 9. A crate according to claim 8, wherein each of said smaller openings has a largest dimension of about less than or equal to 1 inch.

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