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(71) Applicant (for all designated States except US): **MEAD-WESTVACO CORPORATION** [US/US]; 501 South 5th Street, Richmond, Virginia 23219-0501 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **THOMAS, Laurel** [US/US]; 10248 NW Edgewood Drive, Portland, Oregon 97229 (US).

(74) Agents: **SRISIRI-SISSON, Warunee** et al.; MeadWestvaco Corporation, 501 South 5th Street, Richmond, Virginia 23219-0501 (US).

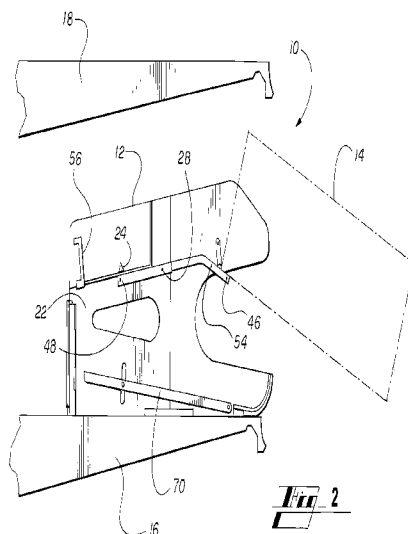
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(54) Title: PRODUCT DISPENSER AND SYSTEM CONFIGURED FOR REDUCED SHELF HEIGHT



(57) Abstract: A product dispenser (12) is disclosed that includes a frame (22) having a front end (32) and a rear end (36), wherein the frame comprises an upper support deck (28) and a lower support deck (30). The lower support deck (30) is positioned below the upper support deck (28) and defines a product display area proximate the front end (32). The upper support deck (28) defines a longitudinal axis that is declined from the front end (32) to the rear end (36). The upper support deck (28) includes a front end portion that is disposed at a non-zero angle relative to the longitudinal axis.



PRODUCT DISPENSER AND SYSTEM CONFIGURED FOR REDUCED SHELF HEIGHT**FIELD**

[0001] This application relates to the dispensing of products from packaging containers and, more particularly, to product dispensers and systems configured for use on shelves having a reduced shelf height.

BACKGROUND

[0002] Products are typically shipped to retailers in bulk by enclosing multiple individual product units in a container, such as a carton or box. For example, canned foods may be shipped to a retailer in a box containing twenty-four individual cans. Then, it is typically the retailer's obligation to remove the individual product units from the container and present them (e.g., on a shelf) to consumers.

[0003] Alternatives to the traditional package-ship-unpack-display model are being developed in an effort to improve operating efficiency. For example, U.S. Patent No. 7,922,437 discloses a new system for dispensing and displaying products packaged in a container. Specifically, the product dispensing system includes a dispenser having a support structure, a product display area and an opening tool. The dispenser may be positioned on a retailer's shelf and loaded with product simply by placing a container comprising multiple units of product onto the support structure of the dispenser. As the container is being placed onto the support structure, the opening tool of the dispenser opens the container in such a manner that product rolls from the container and down to the product display area of the dispenser under the force of gravity.

[0004] Unfortunately, the amount of vertical shelf space available to retailers is often quite limited. Depending on the amount of vertical shelf space available, it may be difficult or impractical for a retailer to implement the product dispensing system mentioned above.

[0005] Accordingly, those skilled in the art continue with research and development efforts directed to apparatus and systems for dispensing products from packaging containers.

SUMMARY

[0006] In one aspect, the disclosed product dispenser may include a frame having a front end and a rear end, the frame including an upper support deck and a lower support deck, the lower support deck being positioned below the upper support deck and defining a product display area proximate the front end, the upper support deck defining a longitudinal axis that is declined from the front end to the rear end, the upper support deck including a front end portion that is disposed at a non-zero angle relative to the longitudinal axis.

[0007] In another aspect, the disclosed product dispensing system may include (1) a container, (2) a plurality of products housed in the container and (3) a dispenser including a frame having a front end and a rear end, the frame including an upper support deck and a lower support deck, the lower support deck being positioned below the upper support deck and defining a product display area proximate the front end, the upper support deck defining a longitudinal axis that is declined from the front end to the rear end, the upper support deck including a front end portion that is disposed at a downward angle relative to the longitudinal axis, and an opening tool positioned to open the container as the container is moved along the upper support deck, thereby allowing the products to be at least partially dispensed from the container to the product display area.

[0008] In yet another aspect, disclosed is a method for dispensing products from a container. The method may include the steps of (1) providing a dispenser including a frame having a front end and a rear end, the frame including an upper support deck and a lower support deck, the lower support deck being positioned below the upper support deck and defining a product display area proximate the front end, the upper support deck defining a longitudinal axis that is declined from the front end to the rear end, the upper support deck including a front end portion that is disposed at a downward angle relative to the longitudinal axis, (2) sliding the container along the angled front end portion, (3) tilting the container upward when the container reaches the rear end of the angled front end portion and, (4) after the tilting step, sliding the container along the upper support deck toward the rear end of the frame.

[0009] Other aspects of the disclosed product dispenser, system and method configured for reduced shelf height will become apparent from the following detailed description, the accompanying drawings and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Fig. 1 is a side elevational view, in section, of one aspect of the disclosed product dispensing system configured for reduced shelf height;

[0011] Fig. 2 is a side elevational view, in section, of the product dispensing system of Fig. 1 shown in a first phase of container loading; and

[0012] Fig. 3 is a side elevational view, in section, of the product dispensing system of Fig. 1 shown in a second phase of container loading.

DETAILED DESCRIPTION

[0013] Referring to Fig. 1, one aspect of the disclosed product dispensing system configured for reduced shelf height, generally designated 10, may include a dispenser 12 and a container 14. The dispenser 12 may be positioned on a first shelf 16 and the container 14 may be positioned on the dispenser 12. Above the first shelf 16 may be a second shelf 18, which may limit the amount of vertical shelf space available to the product dispensing system 10.

[0014] The container 14 may house multiple units of product 20, such as cans (e.g., canned food), jars (e.g., jarred sauce) or bottles (e.g., bottled soft drinks). As the container 14 is loaded onto the dispenser 12 by urging the container 14 along the dispenser 12, the dispenser 12 may open the container 14 and release the products 20 from the container 14 into the dispenser 12. Product dispensing systems in which the container 14 is opened prior to loading the container 14 onto the dispenser 12 are also contemplated.

[0015] The dispenser 12 may include a frame 22 and an optional opening tool 24. The frame 22 of the dispenser 12 may support the container 14 in a desired configuration. The opening tool 24 may open the container 14, such as by cutting the container 14, as the

container 14 is loaded onto the frame 22 of the dispenser 12, thereby releasing the products 20 from the container 14 to the dispenser 12.

[0016] Those skilled in the art will appreciate that the dispenser 12 may include additional components and features, such as one or more of the components and features of the dispensers disclosed in U.S. Patent No. 7,922,437 without departing from the scope of the present disclosure.

[0017] The frame 22 may include a first (e.g., right) side wall 26, a second (e.g., left) side wall, an upper support deck 28 and a lower support deck 30. The right side wall 26 may be laterally spaced from the left side wall, and may be generally parallel with the left side wall. The right 26 and left side walls may define the corresponding right and left sides of the frame 22 of the dispenser 12.

[0018] The lower support deck 30 may laterally extend between the right 26 and left side walls, and may include a front end 32 that longitudinally extends toward the front end 34 of the frame 22 and a rear end 36 that longitudinally extends toward the rear end 38 of the frame 22. Therefore, the lower support deck 30 and the right 26 and left side walls may define a lower level 40 of the frame 22.

[0019] The lower support deck 30 may be inclined from the front end 32 to the rear end 36 (i.e., the rear end 36 may be elevated relative to the front end 32) such that products 20 deposited proximate (i.e., at or near) the rear end 36 of the lower support deck 30 roll down to the front end 32 of the lower support deck 30 under the force of gravity. The extent of the incline of the lower support deck 30 may be dictated by, among other things, the size of the dispenser 12, the coefficient of friction of the material used to form the frame 22 and the shape of the products 20 to be dispensed by the dispenser 12.

[0020] One or more stops 42 may be positioned proximate the front end 32 of the lower support deck 30 to prevent products 20 from rolling beyond the front end 32 of the lower support deck 30. For example, the stop 42 may be connected to (e.g., integral with) the lower support deck 30, and may form an upward curve proximate the front end 32 of the lower support deck 30. Therefore, the stop 42 may collect products 20 proximate the front

end 32 of the lower support deck 30, thereby defining a product display area 44 proximate the front end 32 of the lower support deck 30.

[0021] The upper support deck 28 may laterally extend between the right 26 and left side walls, and may include a front end 46 that extends toward the front end 34 of the frame 22 and a rear end 48 that extends toward, but not to, the rear end 38 of the frame 22. Therefore, the upper support deck 28 and the right 26 and left side walls may define an upper level 50 of the frame 22.

[0022] The spacing between the rear end 48 of the upper support deck 28 and the rear end 38 of the frame 22 may define an opening 52, which may function as a chute to allow products 20 to move from the upper level 50 to the lower level 40 of the frame 22.

[0023] The upper support deck 28 may extend along a longitudinal axis **A**, which may be disposed at an angle **B** relative to the horizontal axis **C** of the dispenser 12. Therefore, the upper support deck 28 may be declined from proximate the front end 46 to the rear end 48. The angle **B** of the upper support deck 28 relative to the horizontal axis **C** may be sufficient to overcome frictional forces and allow products to move toward the rear end 48 of the upper support deck 28 under the force of gravity.

[0024] As an example, the angle **B** may range from about 2 to about 15 degrees, such as about 5 to about 10 degrees. Larger angles **B** may also facilitate the desired movement of products 20 toward the rear end 48 of the upper support deck 28. However, further increasing the angle **B** of the upper support deck 28 relative to the horizontal axis **C** may further increase the amount of vertical shelf space required to accommodate the product dispensing system 10.

[0025] Thus, due to the angle **B** of the upper support deck 28, products 20 supported on the upper support deck 28 may roll under the force of gravity down to the rear end 48 of the upper support deck 28, through the opening 52 to the lower level 40 of the frame 22 and, ultimately, to the product display area 44.

[0026] The front end 46 of the upper support deck 28 may be disposed at an angle **D** relative to the longitudinal axis **A** of the upper support deck 28 to define an angled front end

portion 54 of the upper support deck 28. Therefore, the angled front end portion 54 of the upper support deck 28 may be declined toward the front end 34 of the frame 22.

[0027] The angle **D** of the angled front end portion 54 relative to the longitudinal axis **A** of the upper support deck 28 may be a design consideration, and may depend on various factors, such as the angle **B** of the upper support deck 28 relative to the horizontal axis **C** and the amount of vertical shelf height available. For example, in one embodiment the angle **D** of the angled front end portion 54 relative to the longitudinal axis **A** of the upper support deck 28 may range from about 10 to about 45 degrees. In one embodiment, the angle **D** is from about 15 to about 30 degrees. In one embodiment, the angle **D** is from about 20 to about 25 degrees.

[0028] The length **L** of the angled front end portion 54 may also be a design consideration, and may depend on various factors, such as the overall size of the dispenser 12, the overall length of the upper support deck 28, and the angle **D** of the angled front end portion 54 relative to the upper support deck 28. For example, in one embodiment the length **L** of the angled front end portion 54 may range from about 10 to about 40 percent of the overall length of the upper support deck 28 (i.e., the total length of the upper support deck 28 from front end 46 to the rear end 48). In one embodiment, the length **L** is from about 20 to about 30 percent of the overall length of the upper support deck 28.

[0029] In one alternative implementation, the angled front end portion 54 may be connected to the upper support deck 28 at a pivot point (see point 55 in Fig. 1). A biasing element, such as a spring, may bias the angled front end portion 54 into generally co-axial alignment with the longitudinal axis **A** of the upper support deck 28. However, when a sufficient force is applied to the angled front end portion 54 to overcome the biasing force of the biasing element, such as during loading of a container 14 on the dispenser 12, the angled front end portion 54 may pivot downward relative to the upper support deck 28 about the pivot point 55 to the angled configuration shown in Fig. 1.

[0030] The container 14 may be loaded onto the dispenser 12 by first sliding the container 14 along the angled front end portion 54 of the upper support deck 28, as shown in Fig. 2. Then, as shown in Fig. 3, as the container 14 reaches the end of the angled front end portion

54, the container 14 may be tilted upward (arrow E). With the container 14 tilted upward, the container 14 may continue to be slid along the upper support deck 28 to the fully loaded position shown in Fig. 1.

[0031] Optionally, a stop 56 may be supported in the upper level 50 of the frame 22 proximate the rear end 38 of the frame 22. Engagement between the container 14 and the stop 56 may resist rearward movement of the container 14 beyond the stop 56.

[0032] When the optional opening tool 24 is used, the opening tool 24 may open the container 14 as the container 14 moves past the opening tool 24, thereby allowing the products 20 to exit the container 14, pass through the opening 52 in the frame 22 to the lower level 40 of the frame 22, and roll to the product display area 44 when the container 14 reaches the fully loaded position (Fig. 1). For example, the opening tool 24 may include a cutting edge positioned to slice through the container 14 as the container 14 moves to the fully loaded position shown in Fig. 1.

[0033] Accordingly, the disclosed product dispensing system 10 may employ an upper support deck 28 having an angled front end portion 54 that reduces the amount of vertical shelf space required to load the container 14 onto the dispenser 12.

[0034] Although various aspects of the disclosed product dispensing system configured for reduced shelf height have been shown and described, modifications may occur to those skilled in the art upon reading the specification. The present application includes such modifications and is limited only by the scope of the claims.

[0035] What is claimed is:

1. A product dispenser comprising a frame having a front end and a rear end, said frame comprising an upper support deck and a lower support deck,
said lower support deck being positioned below said upper support deck and defining a product display area proximate said front end,
said upper support deck defining a longitudinal axis that is declined from said front end to said rear end, said upper support deck comprising a front end portion that is disposed at an angle relative to said longitudinal axis.
2. The product dispenser of claim 1 wherein said longitudinal axis is declined at an angle ranging from about 2 to about 15 degrees relative to a horizontal axis of said frame.
3. The product dispenser of claim 2 wherein said angle of said longitudinal axis relative to said horizontal axis ranges from about 5 to about 10 degrees.
4. The product dispenser of claim 1 wherein said front end portion is angled downward toward said lower support deck relative to said longitudinal axis.
5. The product dispenser of claim 1 wherein said angle of said front end portion relative to said longitudinal axis ranges from about 10 to about 45 degrees.
6. The product dispenser of claim 1 wherein said angle of said front end portion relative to said longitudinal axis ranges from about 15 to about 30 degrees.
7. The product dispenser of claim 1 wherein said angle of said front end portion relative to said longitudinal axis ranges from about 20 to about 25 degrees.
8. The product dispenser of claim 1 wherein said front end portion has a first length and said upper support deck has a total length, and wherein said first length is about 10 to about 40 percent of said total length.

9. The product dispenser of claim 1 wherein said front end portion has a first length and said upper support deck has a total length, and wherein said first length is about 20 to about 30 percent of said total length.

10. The product dispenser of claim 1 wherein said lower support deck defines a second longitudinal axis, said second longitudinal axis being declined from said rear end to said front end.

11. A product dispensing system comprising:

a container;

a plurality of products housed in said container; and

a dispenser comprising:

a frame having a front end and a rear end, said frame comprising an upper support deck and a lower support deck, said lower support deck being positioned below said upper support deck and defining a product display area proximate said front end, said upper support deck defining a longitudinal axis that is declined from said front end to said rear end, said upper support deck comprising a front end portion that is disposed at an angle relative to said longitudinal axis; and

an opening tool positioned to open said container as said container is moved along said upper support deck, thereby allowing said plurality of products to be at least partially dispensed from said container to said product display area.

12. The product dispenser of claim 11 wherein said longitudinal axis is declined at an angle ranging from about 2 to about 15 degrees relative to a horizontal axis of said frame.

13. The product dispenser of claim 11 wherein said front end portion is angled downward toward said lower support deck relative to said longitudinal axis.

14. The product dispenser of claim 11 wherein said angle of said front end portion relative to said longitudinal axis ranges from about 10 to about 45 degrees.

15. The product dispenser of claim 11 wherein said front end portion has a first length and said upper support deck has a total length, and wherein said first length is about 10 to about 40 percent of said total length.

16. The product dispenser of claim 11 wherein said front end portion has a first length and said upper support deck has a total length, and wherein said first length is about 20 to about 30 percent of said total length.

17. The product dispenser of claim 11 wherein said lower support deck defines a second longitudinal axis, said second longitudinal axis being declined from said rear end to said front end.

18. A method for dispensing products from a container comprising steps of:

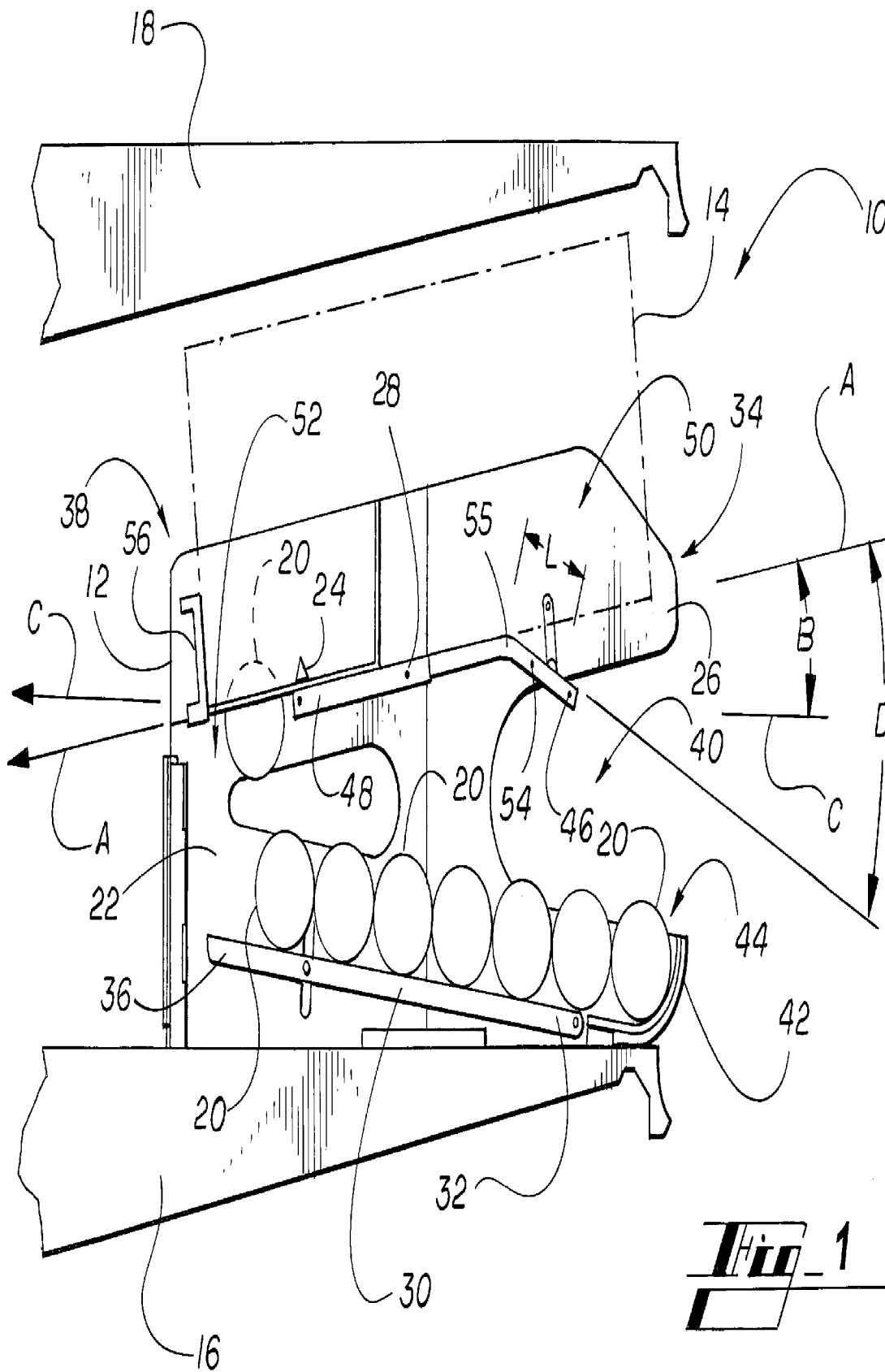
providing a dispenser comprising a frame having a front end and a rear end, said frame comprising an upper support deck and a lower support deck, said lower support deck being positioned below said upper support deck and defining a product display area proximate said front end, said upper support deck defining a longitudinal axis that is declined from said front end to said rear end, said upper support deck comprising a front end portion that is disposed at a downward angle relative to said longitudinal axis, said front end portion comprising a front end and a rear end;

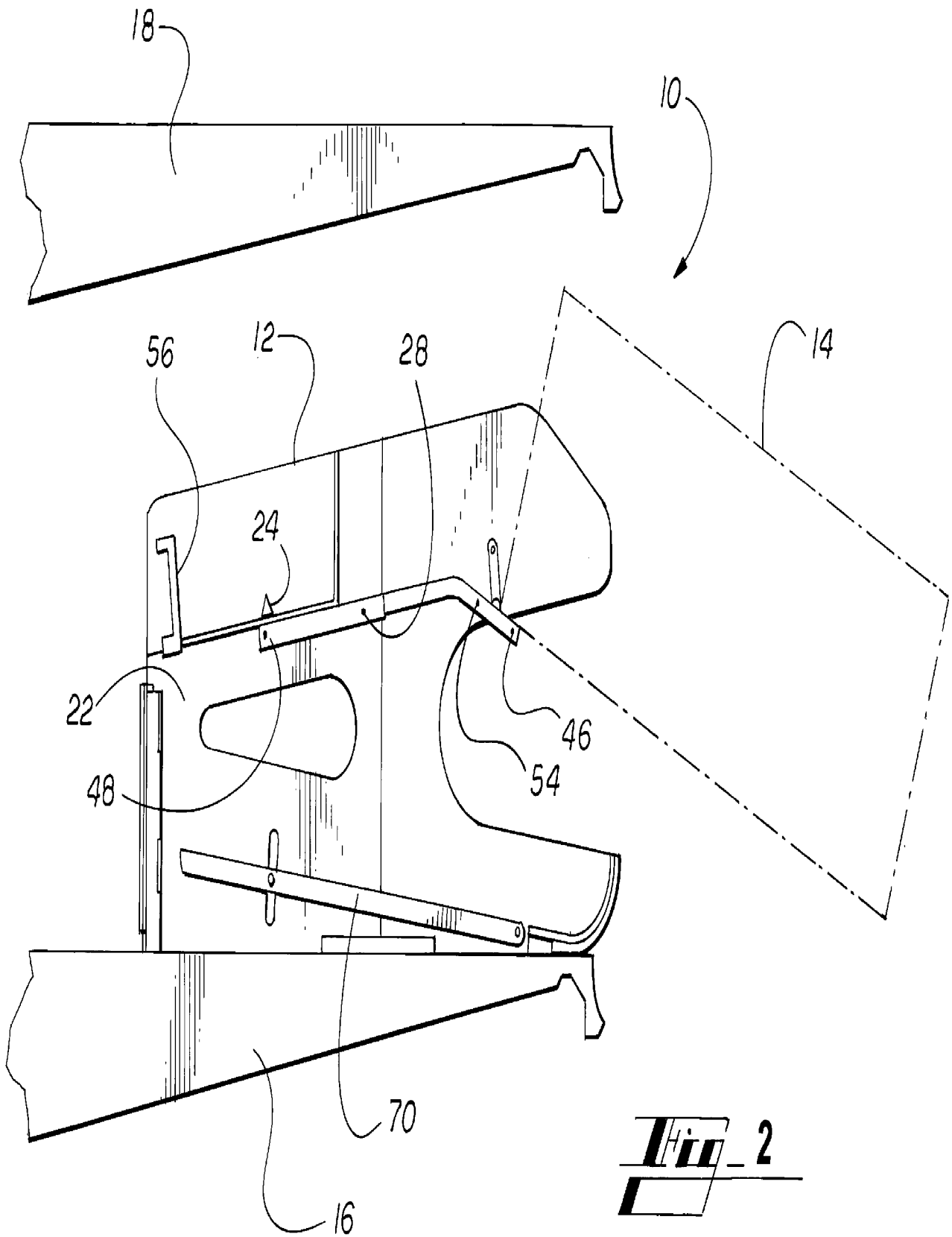
sliding said container along said angled front end portion of said upper support deck; tilting said container upward when said container reaches said rear end of said angled front end portion; and

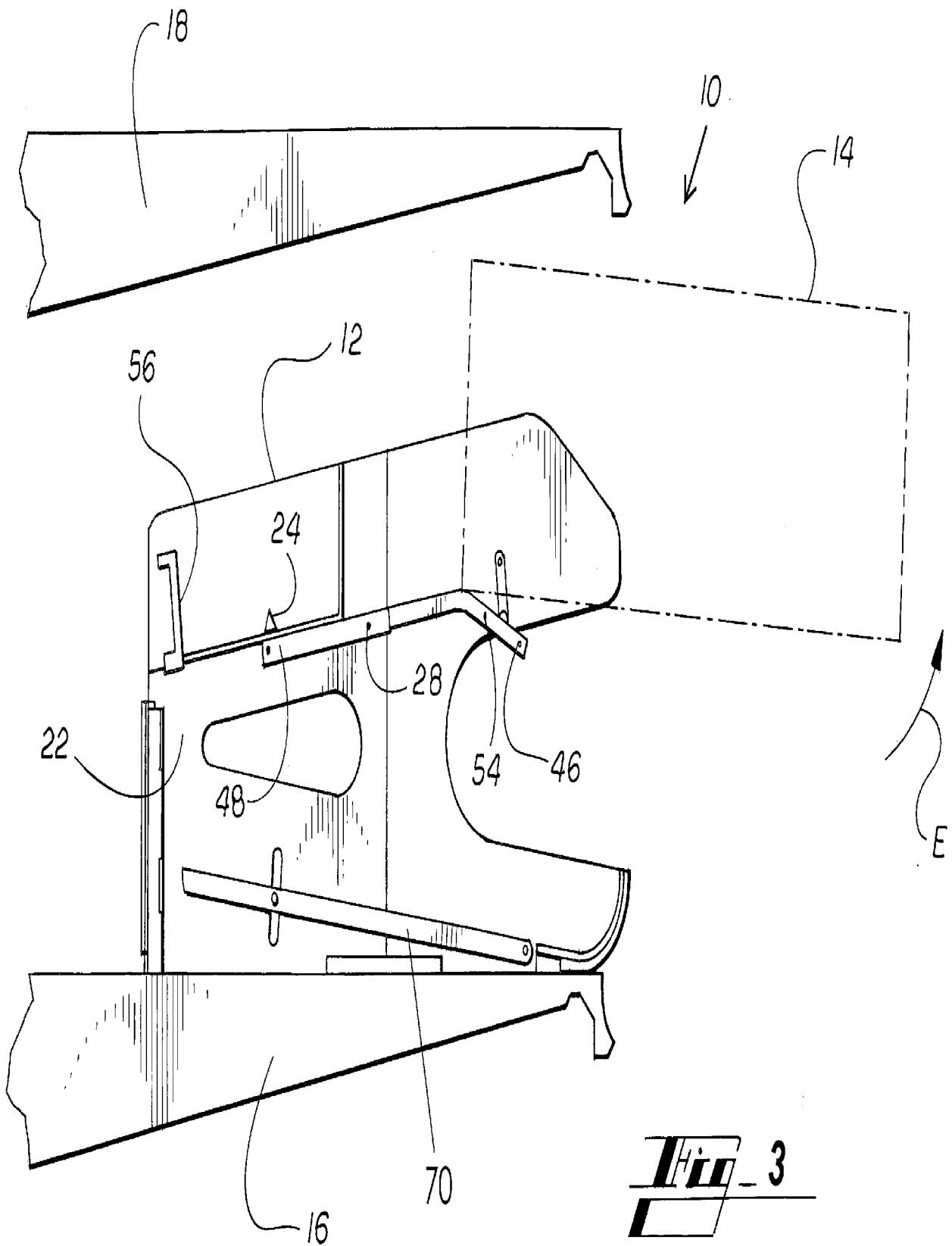
after said tilting step, continuing to slide said container along said upper support deck toward said rear end of said frame.

19. The method of claim 18 wherein said angle of said front end portion relative to said longitudinal axis ranges from about 10 to about 45 degrees

20. The method of claim 18 wherein said angled front end portion has a first length and said upper support deck has a total length, and wherein said first length is about 10 to about 40 percent of said total length.







INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/020736

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D5/52 B65D5/72 A47F1/08 G07F11/28
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D A47F G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/212066 A1 (BAUER JAMIE [US]) 27 August 2009 (2009-08-27)	1-10, 18-20
Y	paragraphs [0014], [0039] - [0050]; figures	11-17
Y	----- GB 2 190 906 A (DURKAN SEAN) 2 December 1987 (1987-12-02) page 3, lines 95-111; figures -----	11-17

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Vigilante, Marco

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/020736

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009212066	A1	27-08-2009	NONE

GB 2190906	A	02-12-1987	GB 2190906 A 02-12-1987
		IE 57269 B1	01-07-1992
