(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 366 034 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **89119593.5**

(51) Int. Cl.[5]: **B65D 85/671 , B65D 85/672**

(22) Date of filing: **21.10.89**

(30) Priority: **26.10.88 US 262644**
27.03.89 US 329157

(43) Date of publication of application:
02.05.90 Bulletin 90/18

(84) Designated Contracting States:
AT BE CH DE ES GB GR IT LI LU NL SE

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(54) Roll-restraining dispensing carton.

(57) Disclosed is a dispensing container for a flexible sheet-like material wound on a roll and having restraining means to prevent inadvertent removal or "pop-out" of the roll from the container when the sheet-like material is drawn from the roll (64). The restraining (26) means being positioned in the front corners of the dispensing container and having cradle-like indented (26e) faces for retention of the end portions of the roll during withdrawal of the sheet-like material from the roll.

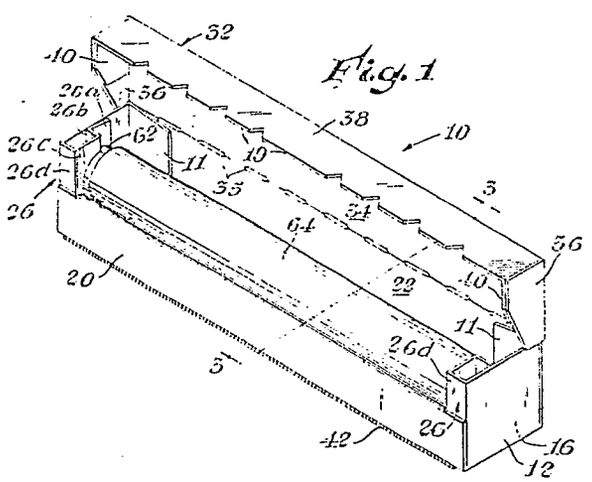

Fig. 1

EP 0 366 034 A1

ROLL-RESTRAINING DISPENSING CARTON

This invention relates to an improved dispensing container for thin, flexible, sheet-like materials in roll form, particularly polymeric films, waxed paper, and the like wrapping material for household and industrial use. The dispensing container is a derivative of a generally elongate, rectangular, "trunk-lid" style carton, wherein the improvement comprises a means to prevent the inadvertent removal or "pop-out" of the contained roll from the container when the sheet-like material is pulled from the roll.

The problem with inadvertent removal or pop-out of the roll arises from the normal and intended use of the container, which is to provide a holder for the roll and facilitate the removal of the sheet-like material in segments of varied lengths. When the force necessary to rotate and unwind the roll, or technically, to separate a layer of sheet-like material from the successive underlying layer of the same material exceeds the total resistance against removing the roll from the container, the roll will pop out of the container in a direction normal to the force applied. The resistance against the removal of the roll from the container is a function of the angle of pull, friction between the outer surfaces of the sheet-like material on the rotating roll and inner container surfaces contacting the roll, and container structural panels that partially or totally restrain nonrotational movement of the roll.

The problem of roll "pop-out" is especially acute with high "cling" polymeric films such as those made wholly or partly of polyvinylidene chloride, polyethylene, and their derivatives. The term "cling" refers to the intrinsic or extrinsically introduced property of a film to stick to itself or various host surfaces.

Attempts in the prior art to rectify the problem of roll pop-out in containers which dispense sheet-like materials have consisted primarily of inserting or fabricating single-wall collars or receptacles for the roll ends with full circle, 360° holes or cavities therein positioned adjacent to the side panels. The holes have a diameter slightly larger than that of roll ends to be inserted in order to allow rotation of the roll.

The drawback of using receptacles with full, 360° holes or cavities is that rolls must be inserted into the container during assembly of the product package. This insertion step is more mechanically complicated and expensive than a single "drop" or gravity feed or a side feed not involving insertion. Also, removal of the roll by the consumer to locate the leading edge of the sheet-like material and subsequent reinsertion thereof is made more difficult by the use of receptacles with full circle holes.

The invention described herein discloses a dispensing container having means to restrain and prevent a roll of sheet-like material from being inadvertently pulled from the container when the sheet-like material is drawn therefrom.

More particularly, the invention resides in a dispensing container for a flexible sheet-like material supplied in roll form comprising a substantially rectangular container having a back panel, a front panel, a bottom panel, opposed side panels, and a lid hingedly mounted on the back panel, a roll retention member adjacent each side panel for preventing inadvertent removal of a roll from the container when the sheet-like material is to be drawn therefrom, the roll retention member having an indented face directed to and remote from the back panel of the dispensing container, the roll having end portions, each of the indented faces of the retention members being adapted to receive an end portion of the roll.

The invention also resides in a dispensing container blank for use with a roll of a flexible sheet-like material, comprising a foldably interconnected bottom panel, a back panel, a front panel, first and second side panels, a lid comprising a top panel hingedly connected to the back panel, a front flange foldably connected to the top panel, and first and second retention members foldably attached to the front, bottom, side, or back panels, the retention members having means forming indented faces directed to and remote from the back panel of the dispensing container upon assembly of the dispensing container from the blank.

The invention additionally resides in a package comprising a dispensing container and a roll of a flexible sheet-like material positioned in the container, wherein the dispensing container has retention members for preventing inadvertent removal of a roll from the container when the sheet-like material is withdrawn therefrom, said retention members being situated in the container adjacent a pair of opposed side panels, the retention members having indented faces directed to and remote from the back panel of the container, and a roll of the sheet-like material positioned between the retention members.

The improved restraining means of the invention takes the form of a concave, arcuate, cradle-like retention member positioned in each of the front corners of the container with an open face directed toward the back panel of the container. Preferably, the sides of the cradle-like retention members are adjacent to the side panels of the

container. The roll becomes engaged in the cradle of the retention member only when sheet-like material is pulled therefrom.

The present invention is embodied in various configurations of a film dispensing container. In a first embodiment, the retention members are foldably attached to the side panels. In a second embodiment, the retention members are foldably attached to the front panel. In a third and fourth embodiments, the retention members are foldably attached to the back panels. The roll may be either "drop-fed" or inserted into a side of the container.

The structure and positioning of the cradle-like indented faces in the assembled container is essentially the same for all embodiments. Also, the structure of the dispensing container itself is essentially the same for all embodiments save for the structure of the retention members.

The novel features of the present invention and the context within which they are set out will be better understood upon a reading of the following description, together with the several drawings in which the same reference numbers are employed for the same parts in the various views and wherein:

Figure 1 is a front isometric view of a trunk lid style dispensing container made in accordance with the present invention in an open configuration with a roll of a sheet-like material positioned therein;

Figure 2 is a planar view of a blank that is cut, scored and perforated, and from which the container of Figure 1 is formed;

Figure 3 is a cross-sectional side view of the dispensing container of Figure 1 when taken along section line 3-3.

Figure 4 is a fragmentary, front isometric view of a second embodiment of a dispensing container;

Figure 5 is a planar view of a blank that is cut, scored and perforated, and from which the dispensing container of Figure 4 is formed;

Figure 6 is a fragmentary, front isometric view of a third embodiment of a dispensing container;

Figure 7 is a planar view of a blank as cut, scored, and perforated, and from which the dispensing scontainer of Figure 6 is formed;

Figure 8 is a fragmentary, cutaway front isometric view of a fourth embodiment of a dispensing container; and

Figure 9 is a planar view of a blank as cut, scored, and perforated, and from which the dispensing container of Figure 8 is formed.

Referring now to Figures 1, 2, and 3, a dispensing container constructed in accordance with this invention for dispersing a film, paper, foil, or other sheet-like materials supplied in roll form is generally designated by reference numeral 10.

The container 10 forms a generally hollow, rectangular box, and is primarily composed of a plurality of panels foldably connected. All folding lines connecting structural elements or parts of the container 10 are generally designated by reference number 18, regardless of location.

The rectangular bottom portion of container 10 generally comprises a bottom panel 16, a back panel 22, a front panel 20, and a pair of side panels 12 and retention members 26. The retention members 26 of the container have means forming cradle-like indented faces directed to and remote from back panel 20 of the container upon assembly of the dispensing container 10 from the blank. The top or lid portion 32 of the container generally comprises a top panel 34, a front flange 38, a pair of side flanges 36 and top construction flaps 40. Panels 16, 20, 22, 34 and front flange 38 are connected to each other along folding lines 18.

Front panel 20 may extend vertically from the lowest portion, i.e. the bottom panel, to the uppermost portion, i.e. the top panel, of the dispensing container 10. Preferably, however, the front panel 20 extends vertically from the bottom panel 16 to a height of between one-third and two-thirds of the depth of the container. For purposes of defining the height of the front panel 20, the front portion of container 10 includes front panel 20, front flange 38, and any space or aperture therebetween.

A roll 64 is positioned in the container comprising a core 62 made of a tubular piece of cardboard, paperboard, or the like, having a sheet-like material 60 wound on the core 62. The roll 64 may also comprise a self-supporting circumferentially and concentrically wound sheet-like material 60 having a core-like support extending part way into the ends of the roll. It is preferred, however, to wind the sheet-like material on a tubular core extending through the entire length of the roll.

The dimension between the transverse edges of the sheet-like material 60 is preferably less than the length of the core 62 to prevent the sheet-like material 60 from becoming entangled in retention members 26 when the sheet-like material 60 is drawn from the container 10. The transverse edges of the sheet-like material 60 are the edges defining the nonmachine or transverse dimension of sheet-like material 60. The end portions of the core 62 extend beyond the transverse edges of the sheet-like material 60. Each of the end portions of the core 62 are embraced within a cradle-like indented face 26e provided by each of the retention members 26. The width of the cradles formed by the retention members 26 along the length of core 62 determines the minimum difference in transverse dimension or width of sheet-like material 60 and the length of core 62.

The present invention also provides for retention members 26 which are capable of receiving a self-supported roll 64, which is not wound upon a core 62, and in which the end portions of the roll 64 itself are embraced by the cradle-like indented faces of the retention members 26 when the sheet-like material 60 is drawn from container 10. The sheet-like material of a self-supporting roll should have a sufficient stiffness to render it self-supporting, such as aluminum foil. The sheet-like material 60 may be drawn from the self-supported roll 64 without the sheet-like material 60 becoming entangled in the retention members 26 provided that the angle at which the sheet-like material is withdrawn from the roll is sufficiently nonhorizontal to enable the sheet-like material 60 to pass over the retention members 26 while roll 64 is cradled or engaged therein.

The top panel 34 of the container lid 32 is hingedly mounted to the back panel 22. The front flange 38, pair of side flanges 36, and top construction flaps 40 are foldably connected to the top panel. More particularly, the side flanges 36 are connected to the end portions of the top panel 34 along folding lines 18. Front flange 38 is connected to the top panel 34 along a folding line 18. Side flanges 36 and front flange 38 are generally perpendicular to top panel 34 and to each other and secured therewith by top construction flaps 40. Top construction flaps 40, which are connected to front flange 38 by folding lines 18, are secured to the undersurfaces of side flanges 36, as by an adhesive. The container lid 32 is connected to back panel 22 along a folding line 18. The juncture between the lid and back panel is preferably provided with grooves or perforations 35 to enhance flexibility.

An overlap member 23, shown in Figures 2 and 3, is foldably connected to the front panel 20 and is folded back and secured to the inner surface of front panel 20 to provide a low-friction leading surface along the top of front panel 20.

A cutter bar 42 having a straight, serrated, or grooved edge is preferably mounted to the outer surface of bottom panel 16 and positioned so that the edge is exposed at the front panel and bottom panel interface. The cutter bar 42 is made of a relatively hard polymeric material or a metal and has a grooved or serrated edge extending from one end of the dispensing container 10 to the other. The sheet-like material 60 may be drawn across the cutting edge of the cutter bar 42 and severed along a generally straight line in a line pattern similar to that of the edge. A tab flange 37 is detachably secured to the front flange 38 (see Figure 2) to expose the edge of the cutter bar 42 upon removal thereof.

The side panels 12 are connected to the bottom panel 16 along folding lines 18 and are secured to back panel 22 by back construction flap 11. Each side panel 12 is secured in a position generally perpendicular to the front, back and bottom panels 20, 22 and 16 and is adhesively secured to the front panel by a planar retention panel 26d of retention member 26 and the inner surface of front panel 20 respectively. The width of the planar retention panel 26d is optimized to provide sufficient adhesion to the front panel 20 with a minimal use of construction material and a minimal reduction of the sheet-like material 60 width along the length of the core 62 of roll 64.

The present invention particularly resides in a pair of retention members 26 each of which is situated in the front corner of container 10, i.e. in the corners formed between the front panel 20 and the side panels 12. Each retention member 26 forms a cradle-like indented face 26e which, preferably, is arcuate to the degree of that of the end portion of the core 62 of roll 64. The indented face 26e opens toward, that is, faces toward the back panel 22. While the arcuate configuration of the indented face 26e of retention member 26 is preferred, indented faces of other geometric configurations are possible.

Retention member 26 comprises an end flap 26a, strut 26b, a cradle side 26c, and a planar wall portion 26d. The end flap 26a, strut 26b, cradle side 26c, and planar wall section 26d are connected to each other along fold lines 18.

An end portion of the dispensing container 10 is illustrated in Figures 1 and 3 showing the side panel 12 connected to the bottom panel 16 and positioned perpendicular and adjacent to back panel 22. The retention member 26 and the back construction flap 11 are foldably connected to opposite sides of the side panel 12 with the back construction flap 11 being folded to a position where it is in a coplanar relationship with the back panel 22 and secured to the back panel. Side panel 12 is in contiguous overlap and attached to the end flap of the retention member 26.

With particular reference to the embodiment illustrated in Figures 4 and 5, the retention member 126 is contiguous to bottom panel 16 and to top panel 34 when the lid 32 is in the closed position. The front panel 20 is coextensive with a pair of upstanding wall portions 121 at the opposite ends of the front panel. Each upstanding wall portion is connected to a planar wall section 126a which is folded at a 90° angle with respect to the wall portion 121. The planar wall section 126a, in turn, is connected to a strut 126b, with the strut being folded at a 90° angle with respect to the planar wall section 126a. The strut 126b, in turn, is connected to the cradle side 126c, with the cradle side being folded at a 90° angle with respect to the

strut 126b. The cradle side 126c, in turn, is connected to an end flap 126d, with the end flap being folded at a 90° angle with respect to the cradle side 126c. It will be recognized that the retention member 126 is of a rectangular and tubular cross section. In other words, each of the components of the retention member is folded at a right angle with respect to an adjacent component to form a four sided structure in which the components are of substantially equal dimension in a horizontal plane to form a tube of a rectangular cross section.

The cradle-like indented face 126e of the retention member 126 is formed upon orientation of the cradle side 126c and strut 126b at substantially right angles to each other.

In a further embodiment of the invention, illustrated in Figures 6 and 7, the retention member 226 comprises a flap 226a, a strut 226b, and a cradle side 226c having a cradle-like indented face 226e. Each of the components of the retention member 226 is foldably connected at a 90° angle with respect to each other, but with the flap 226a and the cradle side 226c being in an offset parallel relationship with respect to each other and in a perpendicular relationship with respect to the strut 226b. The front end portion of the cradle side 226c abuts the inner surface of the front panel 20 as well as an upstanding wall portion 220 which is coextensive with the front panel. The front end portion of the cradle side 226c may or may not be fastened to the inner surface of the front panel 20 and the upstanding wall portion 220.

An overlap portion 23, forming a part of the front panel 20 is folded back over the top and is in abutment with the inner surface of front panel 20, except for the upstanding wall portion 220 which defines an inner positional boundary for the cradle side 226c. A front panel tab 17 is foldably connected to the upstanding wall portion 220 and extends at an angle of 90° with respect to the upstanding wall portion 220. The front panel tab 17 is parallel to and overlaps a portion of the flap 226a and is secured thereto in order to provide the retention member 226 with the desired structural stability. Side panel 12, which is foldably connected to the bottom panel 16, overlaps the front panel tab 17 and the flap 226a and is secured to the front panel tab 17. Optionally, the side panel can also be secured to the flap 226a.

Another embodiment of a retention member 326 is illustrated in Figures 8 and 9. In this embodiment, the retention member, adjacent each end of the container, comprises a flap 326a, a strut 326b, and a cradle side 326c. The cradle side 326c slants inwardly at an acute angle with respect to side panel 12 and the flap 326a. The strut 326b is positioned outwardly at a substantially right angle with respect to the cradle side 326c. The front portion of the strut 326b abuts the front corner of the container and may be, but preferably is not, fastened thereto. The slanted configuration of the retention member 326 results in a cradle-like indented face 326e which is directed to and remote from the back panel 22. Thus, the cradle-like indented face 326e is functionally equivalent to the indented faces formed by the other disclosed embodiments. The cradle side 236c preferably does not extend all the way back to or connect to back panel 22 so as to enhance removal of a roll of sheet-like material from the rear portion of container 10.

Figure 3 shows the dispensing container 10 in an open position with a roll 64 therein from which the sheet-like material 60 is being drawn off a core 62. The core 62 is shown pulled into the cradles formed by retention members 26 by the force exerted thereon when the sheet-like material 60 is drawn from the roll 64. Core 62 rotates in the cradle while the sheet-like material 60 is dispensed, but roll 64 is not allowed to pop out. The cradles provided by the retention members 26 laterally or horizontally dissipate the vertical component of the force of pull of the sheet-like material 60 acting to cause inadvertent removal or pop-out of roll 64. The retention members 126, 226, and 326 act in substantially the same manner to prevent a pop-out of roll 64.

The front panel 20 of each of the disclosed embodiments has a plurality of oval-shaped impressions 21 traversing its length upon which an adhesive coating is provided to secure the tab flange 37 to the front panel 20. The tab flange 37 extends downwardly over the front panel 20 sufficient to cover the exposed edge of cutter bar 42. Although not shown, all of the containers illustrated in the several embodiments are likewise provided with cutter bars. Tab flange 37 is detachable from the container along grooved line 19 and is intended to be detached from the front flange 38 when the dispensing container is opened. Further, a slot-like aperture between front panel 20 and front flange 38 is exposed upon detaching the tab flange 37 from the front flange 38 and front panel 20.

Figure 1 shows the position of roll 64 in container 10 at rest when the sheet-like material 60 is not being withdrawn. Roll 64 normally rests between retention member 26 and back panel 22, but is not engaged in the cradles formed by the retention members 26.

In the embodiment of Figure 2, the retention members 26 are foldably attached to the front portions of the side panels 12. In the embodiment of Figure 5, the retention members 126 are foldably attached to the end portions of the front panel 20. In the embodiment of Figure 7, the retention members 226 are foldably attached to the

end portions of the back panel 22. In the embodiment of Figure 9, the retention members 326 are attached to the end portions of the back panel 22.

The several embodiments of the container blanks can vary in shape or location of attachment of the various container components such as the back construction flaps 11, side flanges 36, and top construction flaps 40, and still be within the scope of the present invention.

The container blank of Figure 2 is better suited for gravity or drop feeding of a roll 64 during assembly of a package than the container blanks of Figures 5 and 7, while the container blanks of Figures 5, 7 and 9 are better suited for side feeding of a roll 64 into the containers during assembly of a package 70.

It will be obvious to the skilled practitioner that the retention members 26 may be secured in the dispensing container 10 by any suitable fastening means, such as by an adhesive, mechanical fasteners, or any combination thereof. It will likewise be obvious that a roll restraining means possessing the structural features of the present invention may be formed by other means than those of the disclosed embodiments. Retention members 26 may be formed in conjunction with the remainder of container 10 or situated in container 10 after the remainder of container 10 is formed. Retention members 26 may be formed of the same or different material of construction as the remainder of container 10.

While the preferred embodiments of the invention have been shown with regard to specific details in container designs, it will be appreciated that depending upon the container design and the manufacturer's desires, the invention may be modified by various changes while still being fairly within the scope of the general teachings and principles hereof.

Claims

1. A dispensing container for a flexible sheet-like material supplied in roll form, comprising a substantially rectangular container having a back panel, a front panel, a bottom panel, opposed side panels, and a lid hingedly mounted on the back panel, a roll retention member adjacent each side panel for preventing inadvertent removal of a roll from the container when the sheet-like material is to be drawn therefrom, the roll retention member having an indented face directed to and remote from the back panel of the dispensing container, the roll having end portions, each of the indented faces of the retention members being adapted to receive an end portion of the roll.

2. The dispensing container of Claim 1, wherein the roll comprises a core having end portions extending beyond the transverse edges of the sheet-like material wound on the core, and each of the indented faces of the retention members being adapted to receive an end portion of the core.

3, The dispensing container of Claim 1 or 2, wherein each of the retention members is foldably attached to the remainder of the dispensing container and is composed of the same material of construction as the remainder of the dispensing container.

4. The dispensing container of Claim 1, 2 or 3, wherein a front portion of the container comprises the front panel, a front flange, and an aperture therebetween, the front panel extending from one-third to two-thirds the height of the front portion of the container.

5. The dispensing container of any one of the preceding claims, including a cutter bar having a cutting edge, the cutter bar being mounted to the outer surface of the bottom panel such that the cutting edge of the cutter bar is exposed at the front panel and bottom panel interface, a tab flange detachably connected to the front flange along a scored or grooved line, the inner surface of the tab flange being in contiguous overlapping contact with the outer surface of the front panel, and a slot-like aperture between the front panel and the front flange for withdrawing sheet-like material therethrough, the slot-like aperture being exposed when the tab flange is detached from the front flange and the front panel.

6. The dispensing container according to any one of the preceding claims, including a plurality of oval shaped impressions on the outer surface of the front panel, and an adhesive coating on the impressions.

7. The dispensing container according to any one of the preceding claims, wherein the indented faces of the retention members are arcuate.

8. The dispensing container of Claim 1, wherein each of the retention members (Figure 8) comprises a flap, a strut, and a cradle side, the flap being parallel and contiguous to the side panel, the cradle side being inwardly slanted at an acute angle with respect to the flap and foldably connected thereto, the strut being positioned outwardly at a substantially right angle with respect to the cradle side and foldably connected thereto, the front panel, the side panels, and the bottom panel forming front corners, the strut having a front portion which is in abutment with the front corner.

9. A dispensing container blank for use with a roll of a flexible sheet-like material, comprising a foldably interconnected bottom panel, a back panel, a front panel, first and second side panels, a lid comprising a top panel hingedly connected to the back panel, a front flange foldably connected to the

top panel, and first and second retention members foldably attached to the front, bottom, side, or back panels, the retention members having means forming indented faces directed to and remote from the back panel of the dispensing container upon assembly of the dispensing container from the blank.

10. The blank of Claim 9, wherein the retention members are selectively foldably attached to the front panel, the bottom panel, the side panels, or the back panel.

11. The blank of Claim 9 or 10, wherein the indented faces are arcuate.

12. A package comprising a dispensing container and a roll of a flexible sheet-like material positioned in the container, wherein the dispensing container has retention members for preventing inadvertent removal of a roll from the container when the sheet-like material is withdrawn therefrom, said retention members being situated in the container adjacent a pair of opposed side panels, the retention members having indented faces directed to and remote from the back panel of the container, and a roll of the sheet-like material positioned between the retention members.

13. The package as recited in Claim 12, wherein the roll has a core, the core having end portions extending lengthwise beyond the transverse edges of the sheet-like material contained on the roll, and wherein the indented faces are adapted to receive the end portions of the core.

14. The package as recited in Claim 12, wherein the indented faces are arcuate.

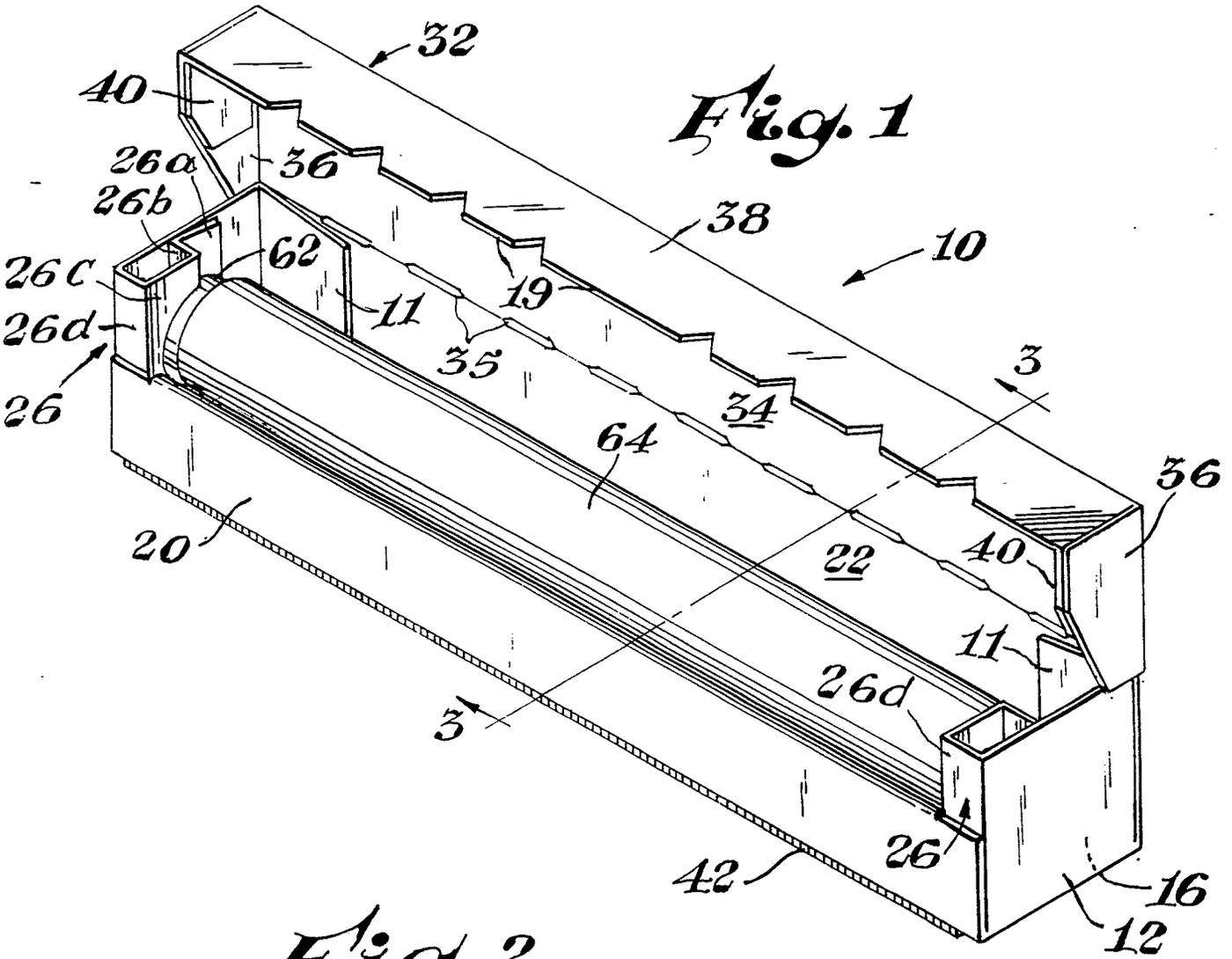
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Fig. 1

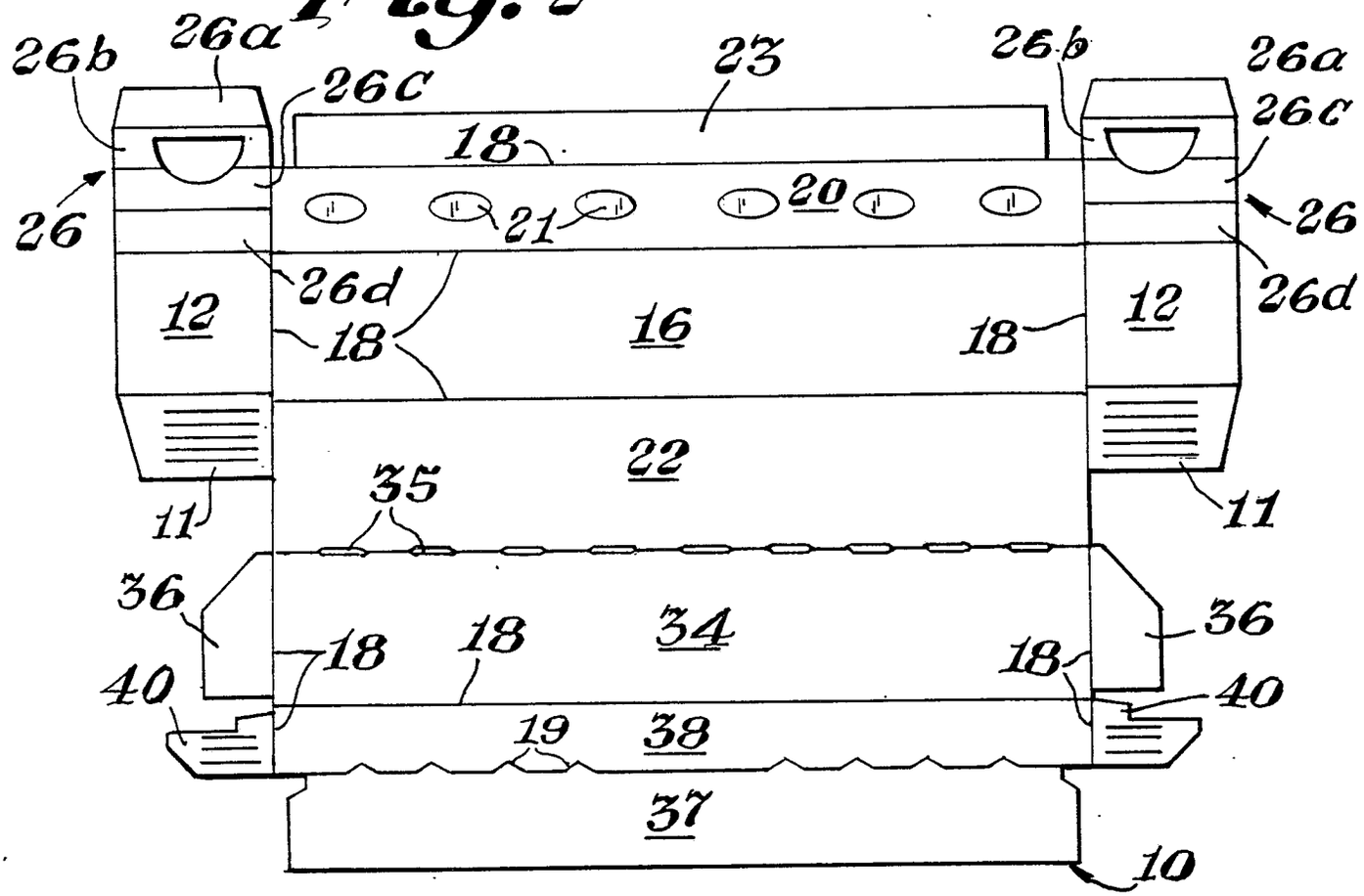
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Fig. 2

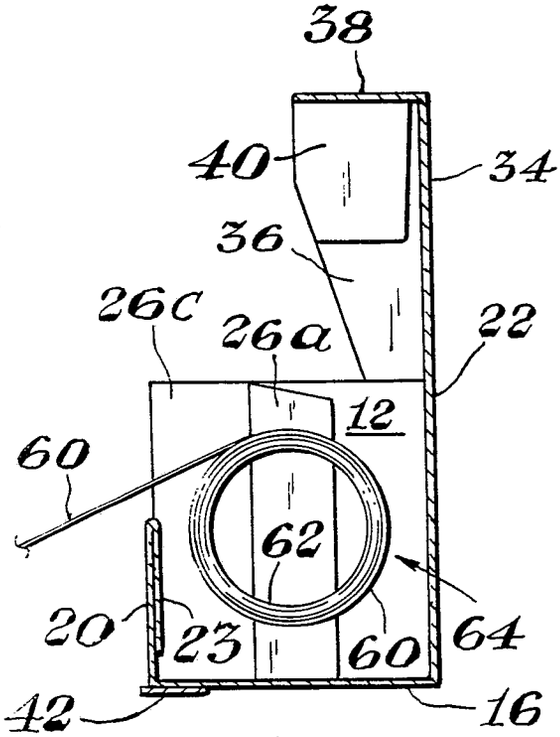

Fig. 3

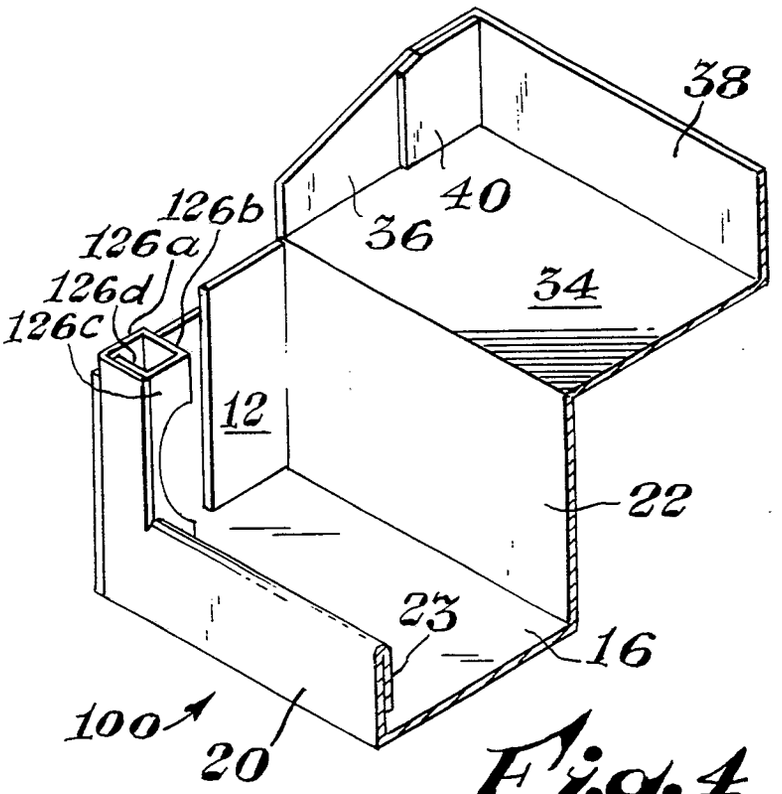

Fig. 4

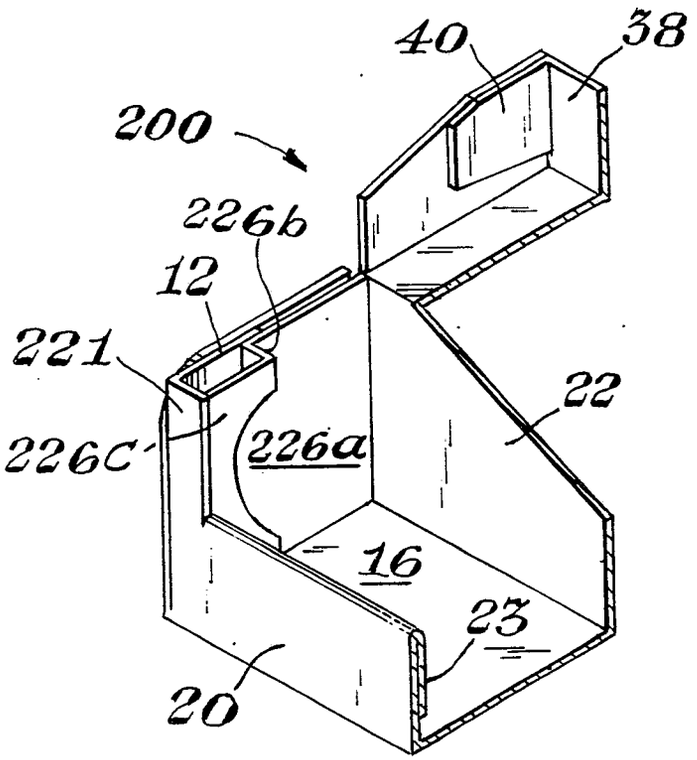

Fig. 6

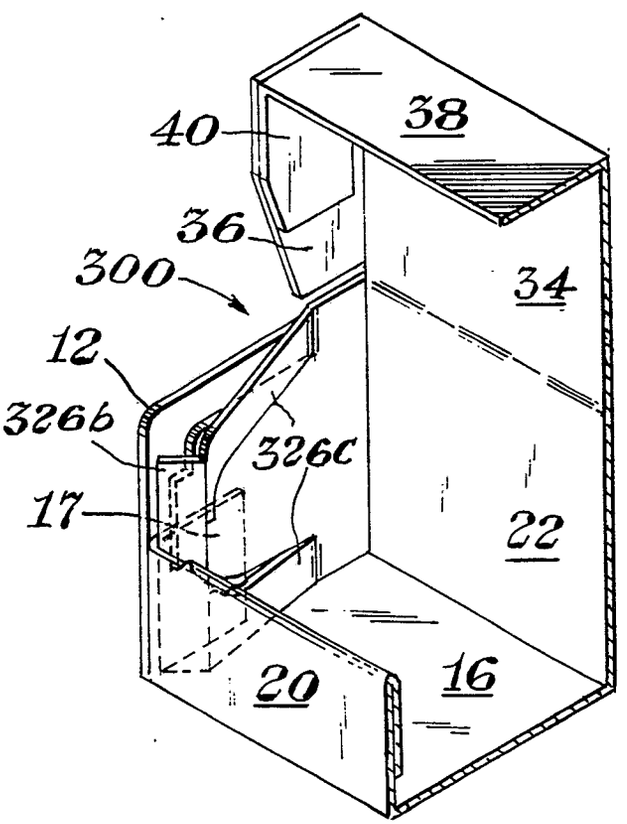

Fig. 8

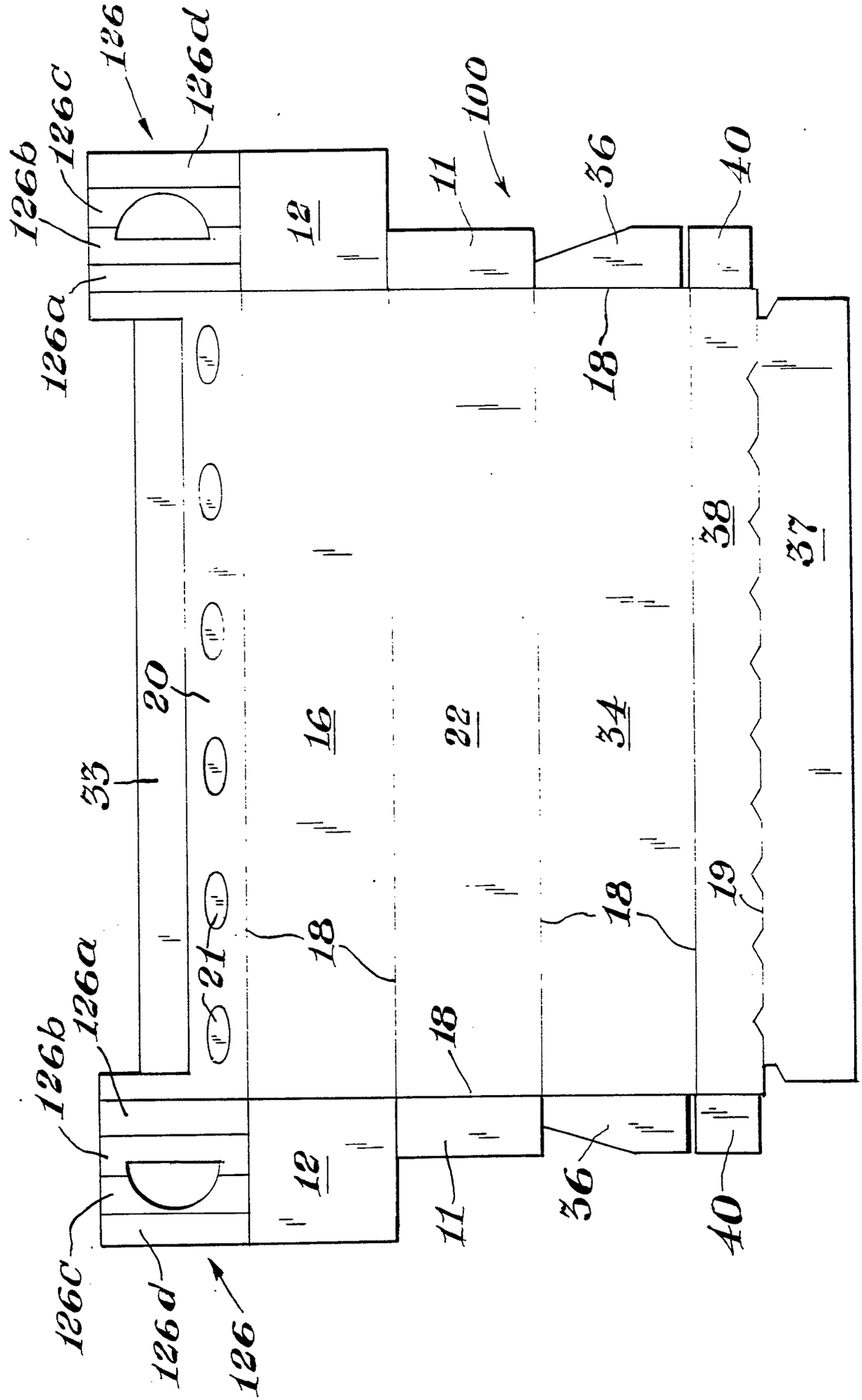
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Fig. 5

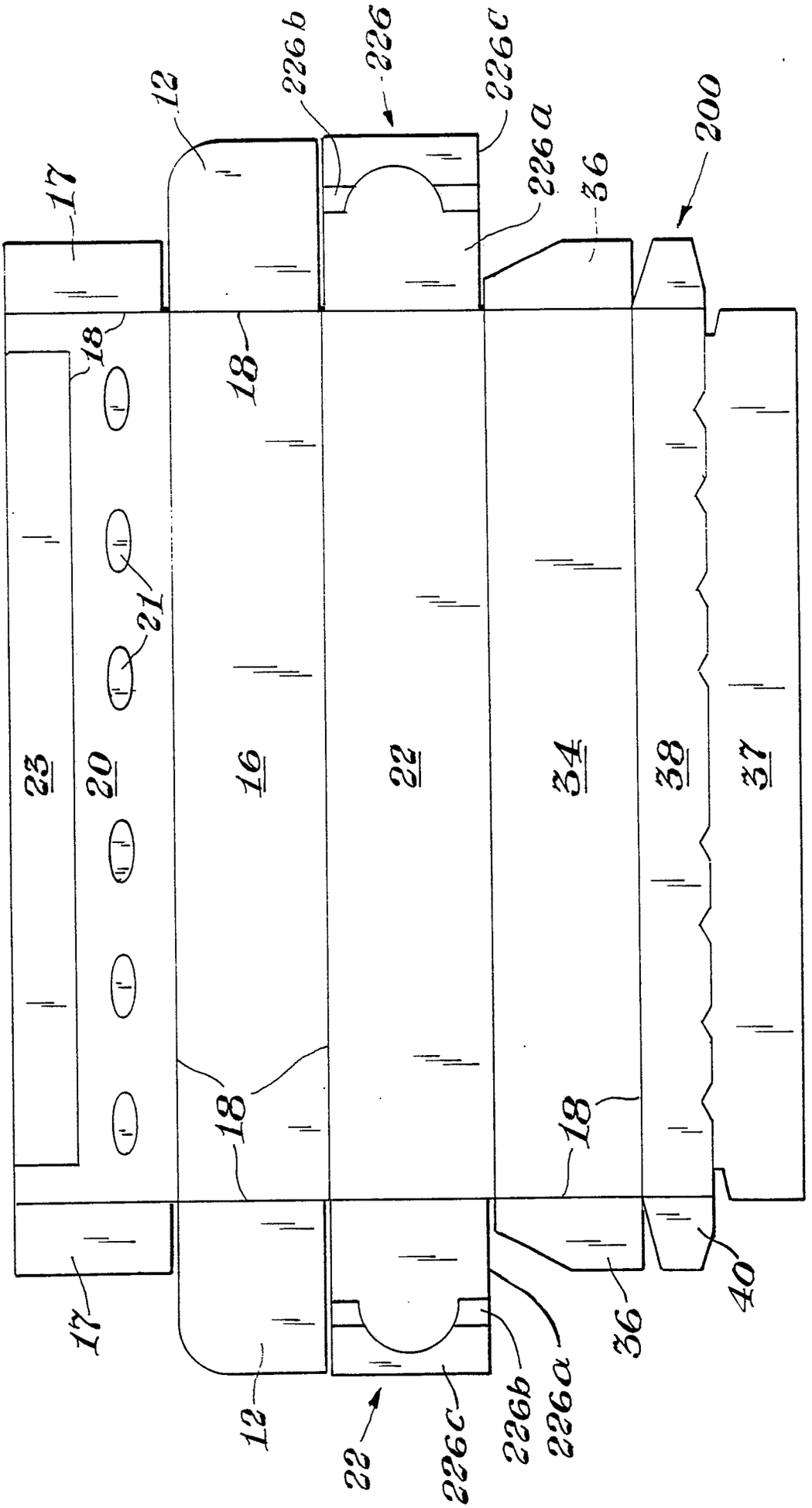
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Fig. 7

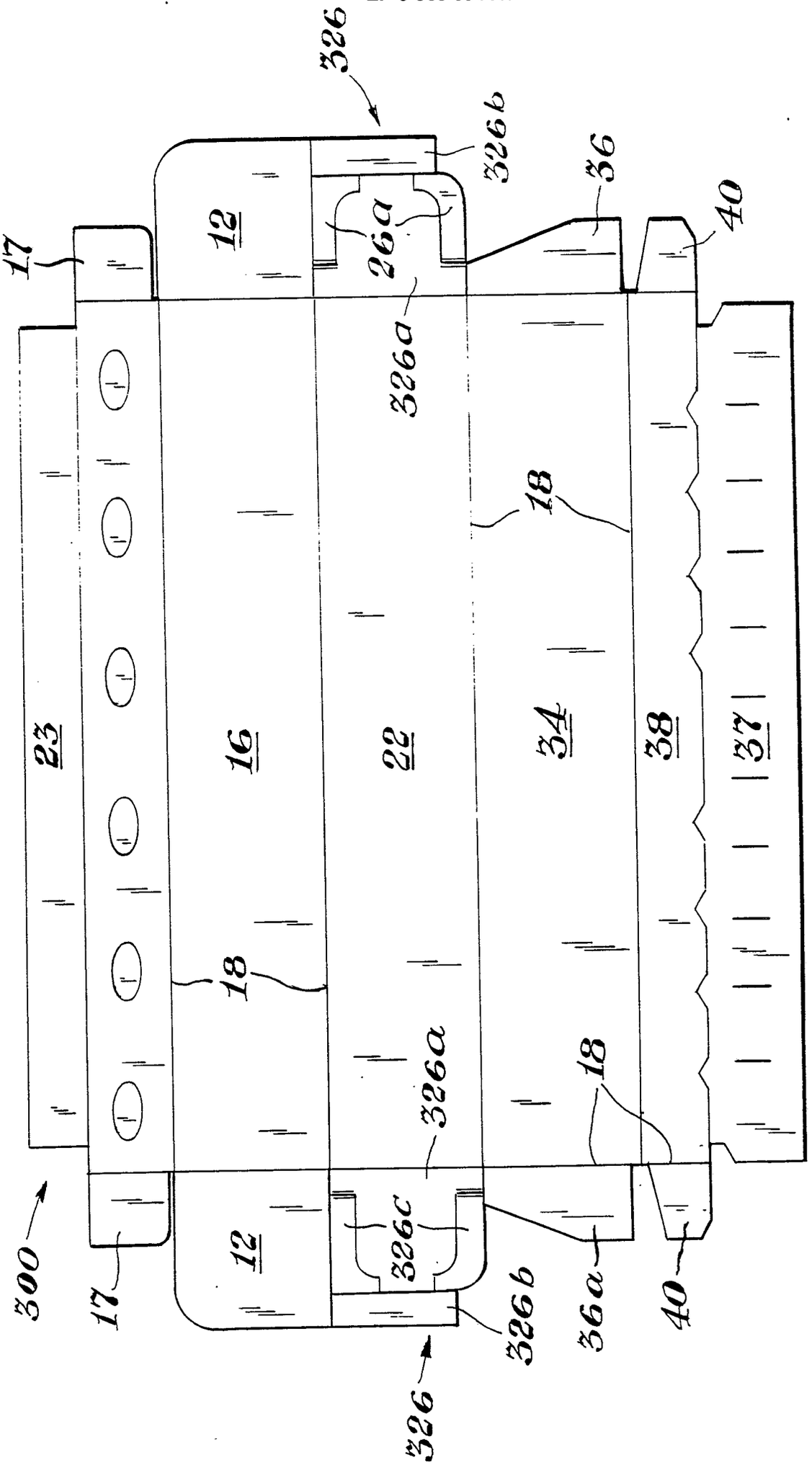

Fig. 9

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 11 9593

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-2 330 117 (FEINBERG) * Page 1, left-hand column, lines 44-55; page 2, left-hand column, lines 21-38, right-hand column, lines 8-14; figures 1-5 *	1-3,7,9-14	B 65 D 85/671 B 65 D 85/672
Y		4,5,6	
Y	US-A-3 777 957 (BUTTERY) * Column 3, lines 44-63; column 4, lines 24-27; figures 3,4 *	4,5,6	
A	US-A-2 970 686 (TOLAAS)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	31-01-1990	LEONG C.Y.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
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