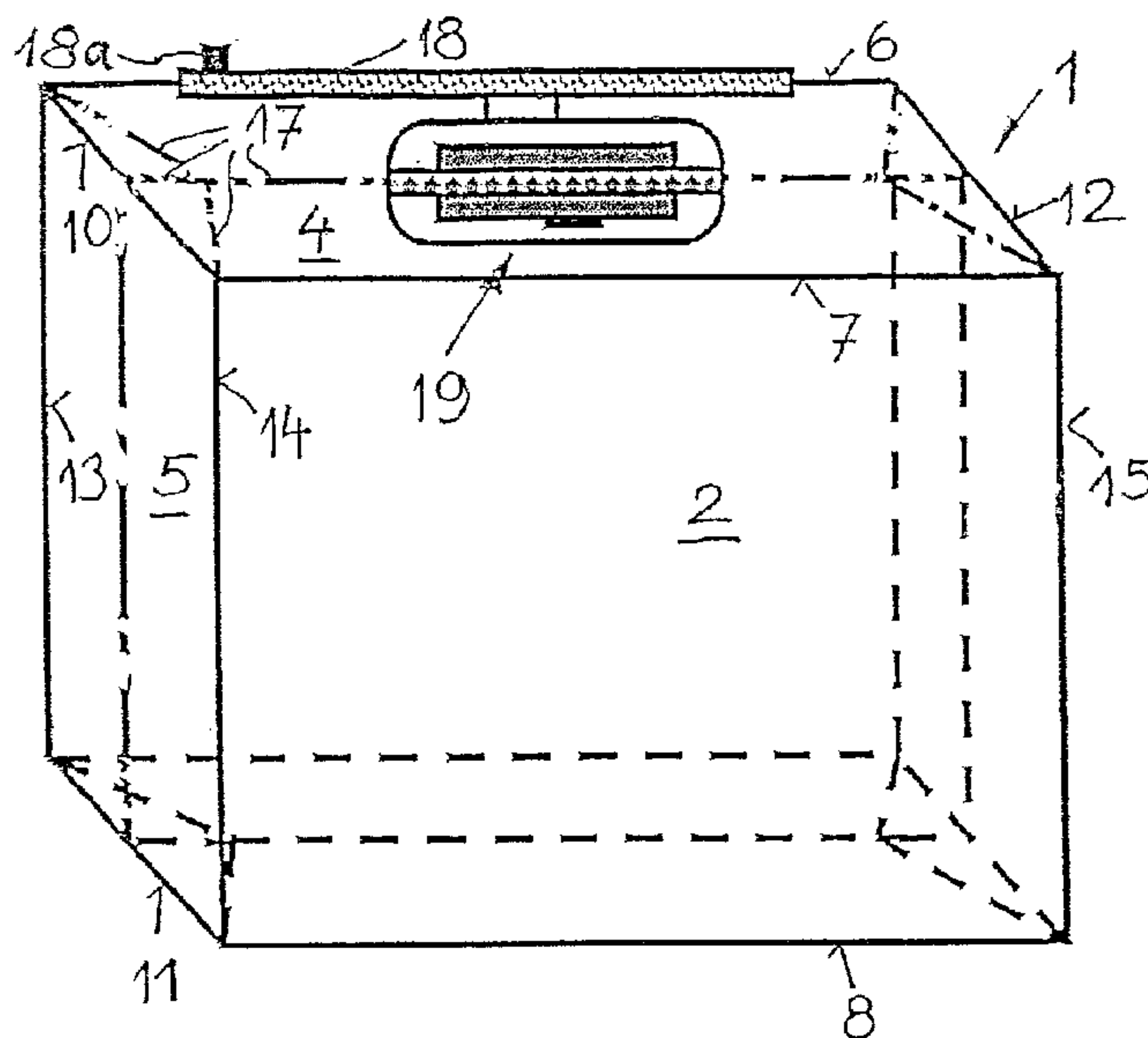




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 (54) Title: PACKAGING CONTAINER



(57) **Abrégé/Abstract:**

For a chunky or flowable commodity, a packaging container is provided that maintains its shape and enables an improved filling level, made of a film material sealable at least on one side, and fillable to a parallelepipedal shape with rectangular main, side and end walls positioned opposite each other and alternate and adjoin each other with longitudinal or transverse edges and, when empty, is foldable flat with V-shaped inwardly folded side or end walls. The container comprises a slot-shaped removal opening provided with a reclosure device and fill opening that is sealed after filling. The main, side, and end walls comprise surfaces positioned in pairs opposite each other and peripherally connected to each other exclusively at edges with seal seams. The side and end walls are foldable inwardly as side gusset walls in a V-shape between the main walls, and the removal opening extends along one of the longitudinal edges.

**ABSTRACT**

For a chunky or flowable commodity, a packaging container is provided that maintains its shape and enables an improved filling level, made of a film material sealable at least on one side, and fillable to a parallelepipedal shape with rectangular main, side and end walls positioned opposite each other and alternate and adjoin each other with longitudinal or transverse edges and, when empty, is foldable flat with V-shaped inwardly folded side or end walls. The container comprises a slot-shaped removal opening provided with a reclosure device and fill opening that is sealed after filling. The main, side, and end walls comprise surfaces positioned in pairs opposite each other and peripherally connected to each other exclusively at edges with seal seams. The side and end walls are foldable inwardly as side gusset walls in a V-shape between the main walls, and the removal opening extends along one of the longitudinal edges.

## Packaging Container

The invention concerns a packaging container.

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Packaging containers of this kind in the form of side gusset bags or folded bottom bags are widespread and not only provide a minimal packaging expenditure with regard to space, volume, and costs but can also be manufactured, filled, and closed effectively in highly developed machine passes.

10 A parallelepipedal shape of the (filled) packaging that is desired usually for storage, shipping, and goods display can however be produced for the usual conventional packagings only in approximation because it requires complete filling, which is difficult to achieve, and because, for flowable commodities to be packaged, deformations happen easily overall. When then, as is conventional,  
15 the packagings are joined to a removal opening at a (head) end, where possibly also side gussets converge and wherein possibly also a central transverse bottom seam forms the closure at the other end, packagings that are incompletely filled tend to form variable shapes. The standing-upright capability of the packaging is uncertain in this context. Moreover, packagings are difficult to  
20 access in case of a removal opening provided with a reclosure device inasmuch as the removal slot is short and possibly also impaired by side gussets in the head closure.

Packaging containers of the aforementioned kind with side gusset walls that can  
25 be folded out to a substantially parallelepipedal shape but end in inserts and are arranged between main walls which converge at ends that are positioned opposite to each other to a central seam or strip, in particular a bottom seam or head strip, are disclosed, for example, in DE 10 2008 011 471 A1, US 6,481,183 B1, US 6,874,935 B1, US 7,396,163 B2, US 2006/0189467 A1, and JP  
30 03240650 A. A packaging container with a folded bottom wall and a head strip formed as a reclosure device is disclosed in EP 1 266 836 A1. DE 103 16 065

A1 discloses a method for various packaging containers which each have two adjacently positioned folds in one wall, wherein one fold forms an opening indicator in connection with a closure device. However, this causes the shape of the containers to have difficult and complex terminal and transition areas.

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It is an object of the invention to provide a packaging container which, in case of a chunky or flowable commodity, enables an improved filling level, approximates in this context more closely the desired parallelepipedal shape so that therefore it can also be positioned well on side walls or end walls, and enables a removal opening that is as wide as possible and easily accessible and permits reclosure.

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According to an aspect of the present invention, there is provided a packaging container for a chunky or flowable commodity, made of a film material that is sealable at least on one side, that is fillable to a parallelepipedal shape with rectangular main walls, side walls as well as end walls that are positioned opposite each other and alternate and adjoin each other with longitudinal edges or transverse edges and that, in the empty state, is foldable flat with V-shaped inwardly folded side walls or end walls and that is provided with a slot-shaped removal opening provided with a reclosure device as well as a fill opening that is to be sealed after filling, characterized in that the main, side, and end walls are comprised of surfaces that are positioned in pairs opposite each other which peripherally are connected to each other exclusively at edges with seal seams, in that the side walls as well as the end walls are foldable inwardly as side gusset walls in a V-shape between the main walls, and in that the removal opening extends along one of the longitudinal edges.

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According to the invention, an important step resides in that the removal opening extends along one of the longitudinal edges. In this context, the removal opening that is arranged conventionally process-technologically at the head closure of the packaging container is moved to a longitudinal edge which, already due to its edge length, enables a greater or longer fill opening/removal opening which, accordingly, can also be opened wider and more easily. This area of the packaging container can indeed be kept free easily from incorporation or termination of side gusset walls of the conventional type and can therefore be accessed easily without impairment. In particular, the

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displacement of the removal opening to the lateral edge and an arrangement away from the central area of the container walls has the result that the neighboring walls of the container are substantially bent open flat when opened and accordingly exhibit little bulk. This applies even when the packaging container in a parallelepipedal shape with edge lengths that are not very different should approximate more a cubic shape. The more liberal design possibility of an end wall in the prior head area due to movement of the removal opening to a lateral edge enables also an improved filling of the packaging container that is

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advantageous for a more exact parallelepipedal shape and the upright positioning on a side wall or end wall.

5 The removal opening which is extending "along a length" of a longitudinal edge must not be positioned exactly symmetrical on the longitudinal edge but instead the constructive shape of the reclosure device can lead to it being positioned directly adjacent to one or the other (main or side) wall.

10 Preferably, the reclosure device is formed of two reclosure strips which have a connection that is irreversibly separated upon first opening. This provides in sales the advantage of a "guaranteed new" feature offered widely in distribution of packagings and also in connection with conventional reclosure devices and delivery in an intact condition. Moreover, reclosure strips in this way can be protected additionally relative to breaking open upon extraordinary loading of the  
15 packaging container during shipping and distribution. Reclosure devices, for example, with two reclosure strips that are to be closed or opened with interlocking profile strips, optionally also with a slider that is longitudinally movable, can be secured and sealed by a separable connection between the reclosure strips. Up to the point of first opening, it is also possible to have  
20 reclosure strips connected to each other by a peelable (peel-off) film web which enables first opening without requiring a tool.

The empty and thus still to be filled packaging bag can be expediently provided with a wide fill opening which is closed after filling, wherein according to the  
25 invention, this fill opening, in contrast to what is conventional, is not positioned directly adjacent to the removal opening and adjoining the reclosure device but instead is positioned better along one of the other longitudinal edges or extends within one of the transverse edges. In this way, the fill opening which is to be closed only once filling is done, for example, by means of a seal seam, can be  
30 embodied, independent of the removal opening and its reclosure device, to be wide and easily accessible. This enables not only a comfortable filling but also a

high filling level which can be improved to a residual volume of significantly below 5% instead of the conventional 10% to 15%. Depending on the conditions of the machine-based filling process, it may be advantageous to form the fill opening initially with a projecting fill socket which, after filling, can be closed and cut off easily with a separating seal seam. Such a fill socket, for example, can be formed by projecting film portions of the adjoining walls which are pulled out as strips contacting each other and are connected to each other at the edges to a hose shape.

10 In particular inasmuch as packaging containers of the kind considered herein have a large volume that surpass a "manageable" size, they can be expediently provided with at least one grip which advantageously is collapsible together with the packaging container to a flat shape. Such a grip is not only advantageous to the buyer for handling a filled packaging container during transport to his home but also during opening in order to pull open, by means of the grip, one side of the removal opening. The grip can be a strip that is made of film and is attached to one of the walls so as to rest flat on it. It can be arranged on one of the walls at a predetermined spacing to the reclosure device for the pull-open action.

20 In order to avoid the disadvantageous shaping by central transverse seals or transverse seams at the head and optionally also at the bottom that is easily produced but is particularly disadvantageous for filling, it can be provided with a strictly geometric shape in which the sealing seams as a whole are extending only along the edges between the walls. This provides an inherent predetermined parallelepipedal shape that must not be created by means of a matched and complete filling. In this context, preferably a hose shape is produced, for example, by means of a hose-like extruded blown film, more generally even a hose shape of a flat film which is formed to a hose by a longitudinal seam, and its open end cross-sections are positioned with mutual spacing in accordance with the parallelepipedal shape and are closed by end walls by means of edge seams on all sides.

In this context, the longitudinal seam for the hose can be advantageously positioned at the edge. The hose shape can also be achieved in that the individual walls, for example, the main and side walls, are sealed relative to each other by four lateral seams forming the longitudinal edges wherein the  
 5 longitudinal seams contribute in a stiffening way to the edge formation for the parallelepipedal shape.

The described packaging containers exhibit their special advantages in case of larger packaging sizes in which the improved filling level and the more exact  
 10 parallelepipedal shape are particularly effective. These packaging sizes may be produced with reduced material expenditure relative to the packaging volume, may be transported and stored with a very low-loss spatial requirement, and primarily, in case of a sales display, may be presented effectively on the sales shelf in that they present the main surface to the buyer when placed onto a side wall  
 15 (“transverse format”) or onto an end wall (“upright format”). The presentation space that is available, for example, the depth of the sales shelves, may be utilized in that the packagings are positioned behind each other.

Four embodiments of the article of the invention are illustrated in the drawing  
 20 and will be explained in the following in more detail. In the drawings it is shown in:

- Fig. 1 perspective view of a packaging container according to the invention in the filled state;  
 25  
 Fig. 2 packaging container according to Fig. 1 in a rear view, filled and opened at a removal opening;  
 Fig. 3 packaging container in a second embodiment in the folded state;  
 30  
 Fig. 4 perspective view of the packaging container according to Fig. 3 in

the unfolded state ready for filling;

Fig. 5 perspective view of a further packaging container in the folded state;

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Fig. 6 perspective view of the packaging container according to Fig. 5 in the unfolded state ready for filling.

A packaging container indicated as a whole by 1 in Fig. 1 has according to the drawing (and in practice also in approximation) a parallelepipedal shape with three pairs of oppositely positioned parallelepipedal sides that are typically of different size from pair to pair. The packaging container is manufactured from a film material which is sealable at least on the inner side, i.e., has at least on its inner side a sealable plastic material. As a whole, the film material can be monolithic but also can be comprised of a layer system of plastic or metal materials in order to fulfill different demands on the packaging with regard to moisture stability, vapor permeability, aroma tightness, tear resistance etc.

The walls joined to the parallelepipedal shape will be referred to, depending on their size, as main walls 2, 3, side walls 4, and end walls 5. The main walls 2, 3 and the side walls 4 are to be distinguished from each other by longitudinal edges 6, 7, 8, 9. They represent uniformly the longest edges of the parallelepiped. The other edges that surround the end walls 5 are all transverse edges, characterized in the drawings by 10, 11, 12, 13, 14, 15, 16, even when they can be differentiated by two different lengths.

In Fig. 1, dash-dotted lines 17 are illustrated in the side walls 4 and the end walls 5, partially parallel to the main surfaces 2, 3 and partially extending from the corners at a slant inwardly relative to the surface, and indicate only folding lines or folding edges when the packaging container 1 with V-shaped inwardly folded side walls and end walls and parallel stacked main walls is folded flat, ready for

shipping. The central lines which extend parallel to the main surfaces 2, 3 mark the actual fold line. The slantedly extending lines indicate that the V-folding in the corner area can only be realized from one side to the edge while the folding from the other side is then to be adjusted by triangular backward folding.

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However, the illustrated packaging container 1 as a whole has no central seam which is usually present due to the manufacturing process in conventional side gusset or folded bottom bags, which however then also causes unfavorable transitions upon joining of the main and side surfaces to a single seam for the parallelepipedal shape. Here, the film pieces that form the rectangular walls are connected to each other by means of sealing seams which extend along all longitudinal and transverse edges.

It is indeed understood that the parallelepipedal shape can also be formed from a film piece which forms as a single piece the main and side walls 2, 3, 4 and which only along a single longitudinal edge, e.g. the longitudinal edge 6, is then joined to a hose shape in order to close the open hose ends subsequently with the end walls 5. The seams along the longitudinal edges that can be optionally dispensed with in this way with regard to process technology have however also the advantage in the illustrated more complex embodiment that the longitudinal edges are marked and stiffened and that the parallelepipedal shape is formed more easily in this way.

The longitudinal edge 6 can be completely, or at least substantially, opened by a reclosure device 18 whose sealed-in connection between the main wall 3 and the side wall 4 thus replaces the seal seam between the walls. The arrangement along a longitudinal edge, here the longitudinal edge 6, has the general advantage that a large opening is enabled so that the neighboring walls for removal can be moved away from each other across a large surface area and so that, for pouring out through the removal opening, sliding surfaces are formed with the inner sides of the neighboring walls.

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Moreover, a grip 19 is arranged approximately centrally on the side wall 4 which enables manipulation in particular of large-volume packaging containers. The arrangement on the side wall 4 (instead of on one of the main walls) leads to a carrying position that projects less laterally. The grip 19 can be designed as is conventional, for example, according to one of the embodiments disclosed in WO 2005 012 122, wherein it is embodied in the present arrangement on one of the folding lines at the center not only flat but also foldable in longitudinal direction. This configuration comprises a flat grip band 20 which can be centrally gripped from below, sealed at the ends onto a carrier plate 21 which, in turn, for transmitting the load onto the thinner film of the side wall 4, is attached to a seal film 22. The grip serves not only for transport of the (filled) packaging but also as a manipulation device during opening, as is illustrated in Fig. 2. The lateral surface 4 can be pulled open by means of the grip in order to reach the filling of the packaging which is accessible when the reclosure device 18 is open. In particular, in case of packaging fillings that should not be contacted by hand, opening by means of the grip 19 and removal with a tool (spoon) 23 can be provided.

The reclosure device 18 in the present case is a "slider" closure as is conventional in film packagings, i.e., a pre-manufactured closure with two profile strips which across their length can be interlocked with each other, wherein interlocking is facilitated additionally by a sliding device (slider) 18a. The profile strips, as is known in the art, are provided with connecting flaps of plastic material (not illustrated) by means of which they can be sealed into a film packaging, as disclosed herein, and which are also connected with each other. Accordingly, the reclosure device is closed, independent of a possible sliding of the slider 18a, and secures the seal-tightness of the packaging container 1, even relative to loads on the packaging container the filled state during transport.

As is conventional, the connection of the connecting flaps is to be torn open or cut so that a first opening of the packaging container is then also visible. An

alternative solution according to the invention for a separation of the reclosure strips or connecting flaps resides in that the connection is to be formed in the form of a peel-open ("peelable") strip so that a tool is not required here.

- 5 The packaging container 1, due to the special precise parallelepipedal shape, has advantages with regard to the extensive utilization of transport space, storage space, and presentation space. For example, it can be positioned in the position shown in Fig. 1, with the grip at the topside and with a main surface that can be directly viewed (with the desired packaging design), on a sales shelf and,  
10 for utilization of the shelf depth, can also cover further packagings of the same kind that are positioned parallel therebehind.

For the exact parallelepipedal shape a high degree of filling is of interest which at the same time also ensures a minimized packaging for a predetermined product  
15 quantity to be packaged. For filling, advantageous filling openings are to be provided that must be large enough for quick machine-based filling and that is provided with access to all corners of the packaging container.

In Fig. 3, a further packaging container 24 in the folded state is illustrated which  
20 has a main wall 25 with a longitudinal edge 26 and a reclosure device 27 on this longitudinal edge. A fill opening 28 is formed at the top with a socket 29 and projects past the actual main wall 25. The design of the packaging container 24 in the unfolded state is illustrated in Fig. 4 wherein adjacent to the main wall 25 a side wall 30 and an end wall 31 have been unfolded. The socket which is  
25 projecting past the actual main wall 25 and past the end wall 31 in upward direction is formed by a projection of the film material of the main wall, on the one hand, and a projection of the film material of the end wall 31, on the other hand, which, along an extension of the longitudinal edges, are both joined by sealing and thus provide a fill opening 28 which extends across the entire width  
30 of the main wall 25. In this way, a comfortable and complete filling of the packaging container 24, for example, with a flowable material, is possible easily,

wherein the packaging container 24 to be filled can also be positioned at a slant such that also the end wall 31 descends away from the socket 29 at a slant and a complete filling underneath it is possible during the filling process. After filling, the socket portion 29, for example, can be cut off by means of a separating seal seam whereby the fill opening 28 is then also closed off.

In Figs. 5 and 6, a packaging container 32 in a slight modification relative to the packaging container 24 is shown in the folded form (Fig. 5) or unfolded form (Fig. 6) with a front-side main wall 33 and an end wall 34 as well as a fill opening 35 on a socket 36. Here, as in the packaging container 24, a reclosure device 37 is arranged on a longitudinal edge while the fill opening 35 is not immediately located at the reclosure device, as is the case frequently in conventional gusset bags with reclosure device, but at another surface or edge. While the fill opening 28 in the packaging container 24 is positioned at a transverse edge, the fill opening 35 together with the fill socket 36 is positioned at the center of the end wall 34 in the embodiment of the packaging container 32 of Figs. 5 and 6. Here, the fill socket is also produced by projecting film material of the neighboring wall, i.e., the end wall 34, wherein the end wall is combined of two halves between which the projecting film converges and is then sealed at the edge. In particular in machine-based filling without providing a slanted positioning of the packaging container, the central arrangement of the socket serves for improved filling of the upper corner areas.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A packaging container for a chunky or flowable commodity, made of a film material that is sealable at least on one side, that is fillable to a parallelepipedal shape with rectangular main walls, side walls as well as end walls that are positioned opposite each other and alternate and adjoin each other with longitudinal edges or transverse edges and that, in an empty state, the packaging container is foldable flat with V-shaped inwardly folded side walls or end walls and that is provided with a slot-shaped removal opening provided with a reclosure device as well as a fill opening that is to be sealed after filling,

wherein the main, side, and end walls are comprised of surfaces that are positioned in pairs opposite each other which peripherally are connected to each other exclusively at edges with seal seams,

wherein the side walls as well as the end walls are foldable inwardly as side gusset walls in a V-shape between the main walls, and

wherein the removal opening extends along one of the longitudinal edges.

2. The packaging container according to claim 1, wherein the reclosure device has two reclosure strips which are closed by a connection that is irreversibly separated upon first opening.

3. The packaging container according to claim 2, wherein the two reclosure strips have profile strips that are to be interlocked with each other.

4. The packaging container according to claim 3, wherein the reclosure strips are connectable or separable by a slider that is movable in longitudinal direction.

5. The packaging container according to any one of claims 2 to 4, wherein the reclosure strips are provided with sealable connecting flaps which are monolithically passing into each other before first opening.

6. The packaging container according to any one of claims 1 to 5, wherein the fill opening extends along one of the longitudinal edges not correlated with the removal opening.
7. The packaging container according to any one of claims 1 to 5, wherein the fill opening is arranged in one of the transverse edges.
8. The packaging container according to claim 6 or 7, wherein the fill opening is provided with a projecting fill socket of two filmstrips connected at edges of the film strips that are to be cut off after filling of the container and sealing of the fill opening.
9. The packaging container according to claim 8, wherein at least one of the film strips of the fill socket is formed as a projection of the adjoining main, side or end walls.
10. The packaging container according to any one of claims 1 to 9, further comprising at least one grip that is collapsible together with the packaging container to a flat state.
11. The packaging container according to claim 10, wherein the at least one grip is in form of a strip formed of film and is attached so as to rest flat on one of the main, side or end walls.
12. The packaging container according to claim 10 or 11, wherein the at least one grip is arranged in an alignment parallel to the longitudinal edges at a spacing to the reclosure device on one of the main or side walls.
13. The packaging container according to any one of claims 1 to 12, wherein the container is formed of a hose-shaped film element comprising the main and

side walls whose open end cross-sections are closed off by the end walls by means of edge seams.

14. The packaging container according to any one of claims 1 to 13, wherein, in a flat collapsed state with stacked main walls, the side and end walls are V-shaped and inwardly folded, and the side and end walls are folded onto each other below the corners of the main walls relative to each other in such a way that alternatively the side or end walls extend V-shaped up to the edge, the adjoining side or end wall however is folded back triangularly with overlap.



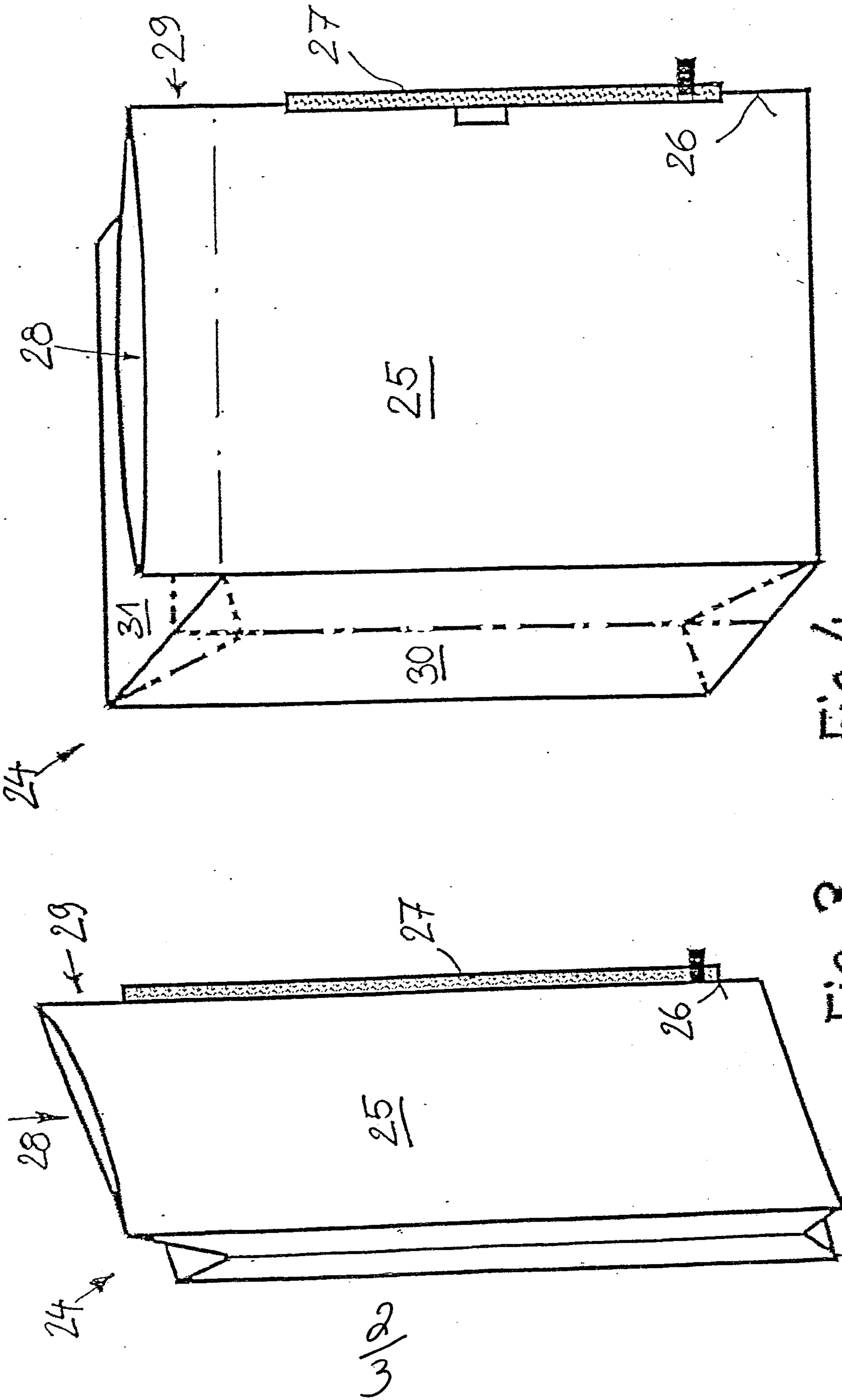


FIG. 4

FIG. 3

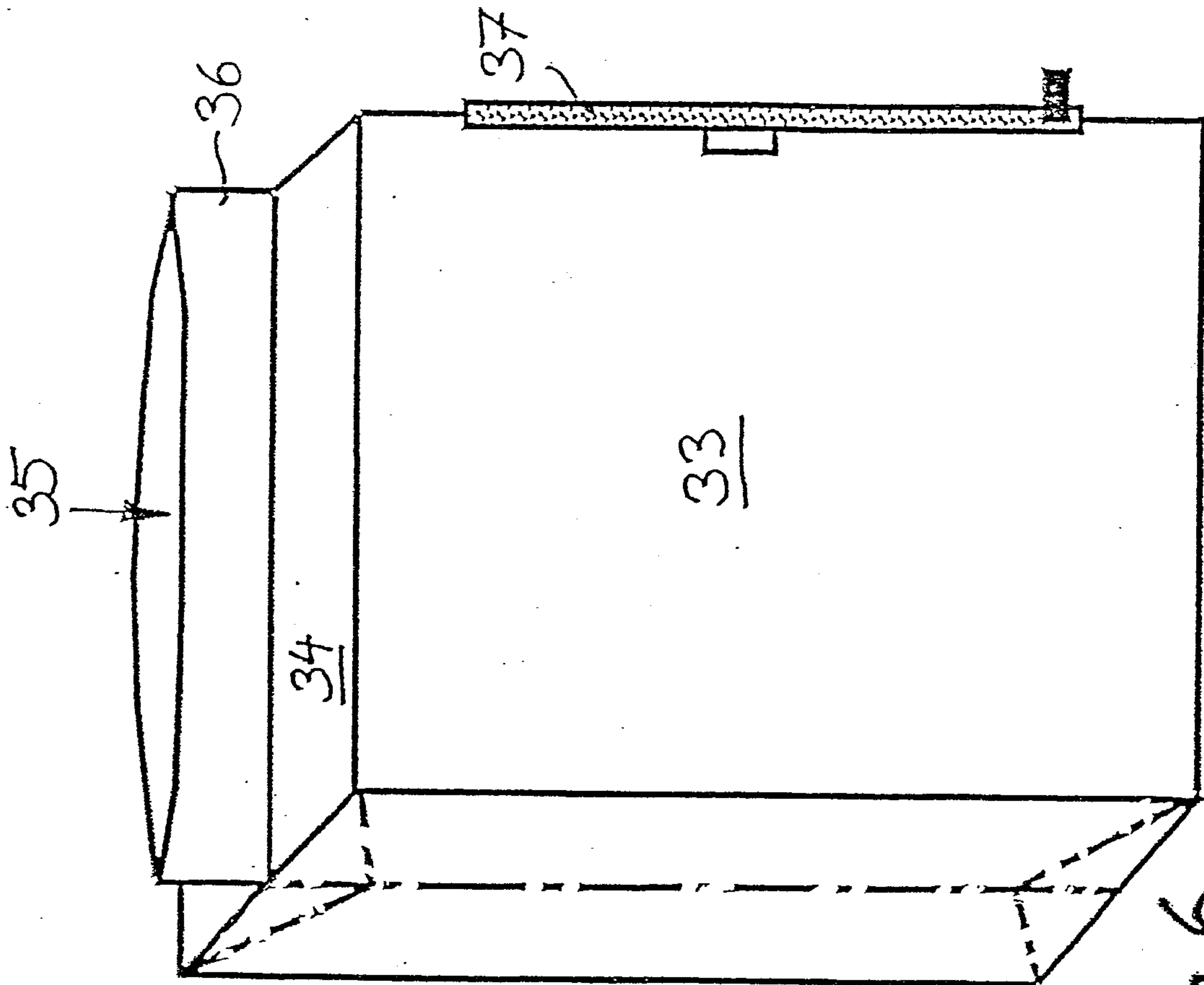


FIG. 6

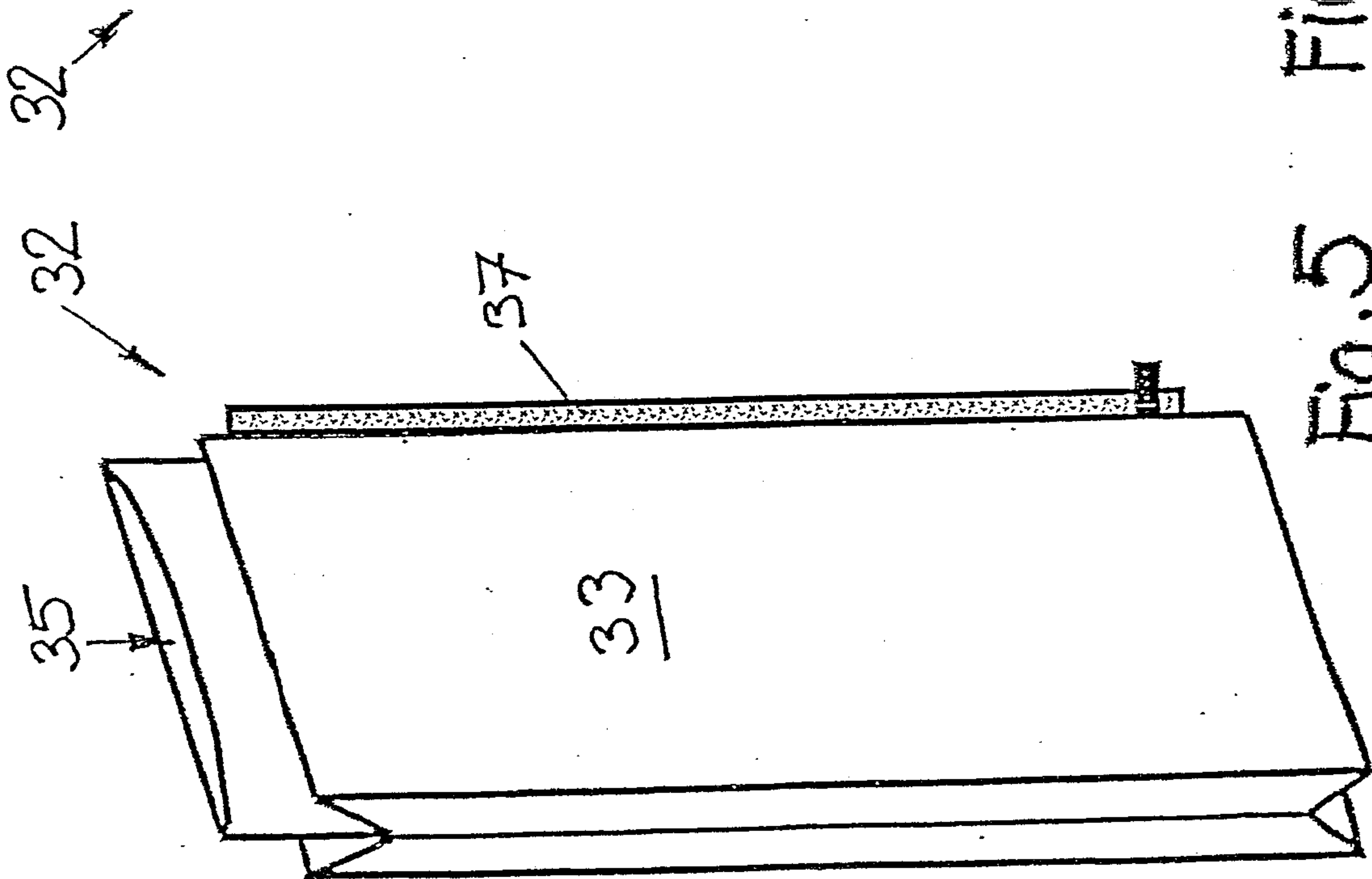


FIG. 5

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