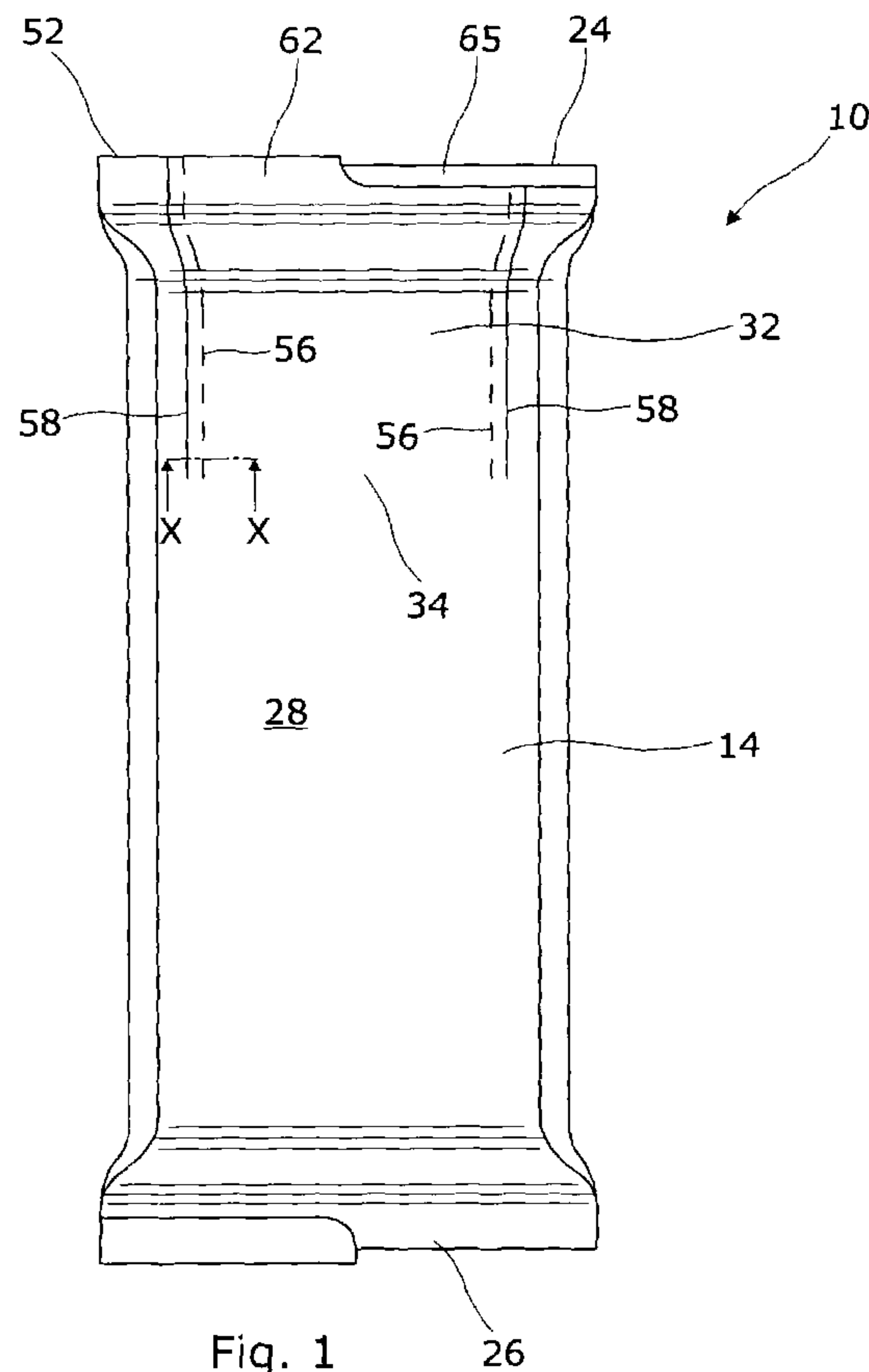




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(54) **Titre : EMBALLAGE ET PROCEDE D'EMBALLAGE**
(54) **Title: PACKAGING AND METHOD OF PACKAGING**



(57) **Abrégé/Abstract:**

Packaging (10) comprising a wrapper of flexible material (14) folded about a product (12) into a sleeve with opposed longitudinal side edge regions overlapping and sealed together to form a longitudinal seal, the ends of the sleeve being closed by transverse



(57) Abrégé(suite)/Abstract(continued):

end seals (24, 26). An opening arrangement comprises an aperture in a main body (28) of the wrapper adjacent one of the end seals (24). The wrapper has a flap portion (32) integrally formed with the main body for closing the aperture. The flap portion includes an opening tab portion (62) located at least partially within or on said one end seal (24) that can be grasped by a user to initiate opening of the package. The flap portion (32) may be bonded to the main body (28) by means of a peelable and re-sealable adhesive.

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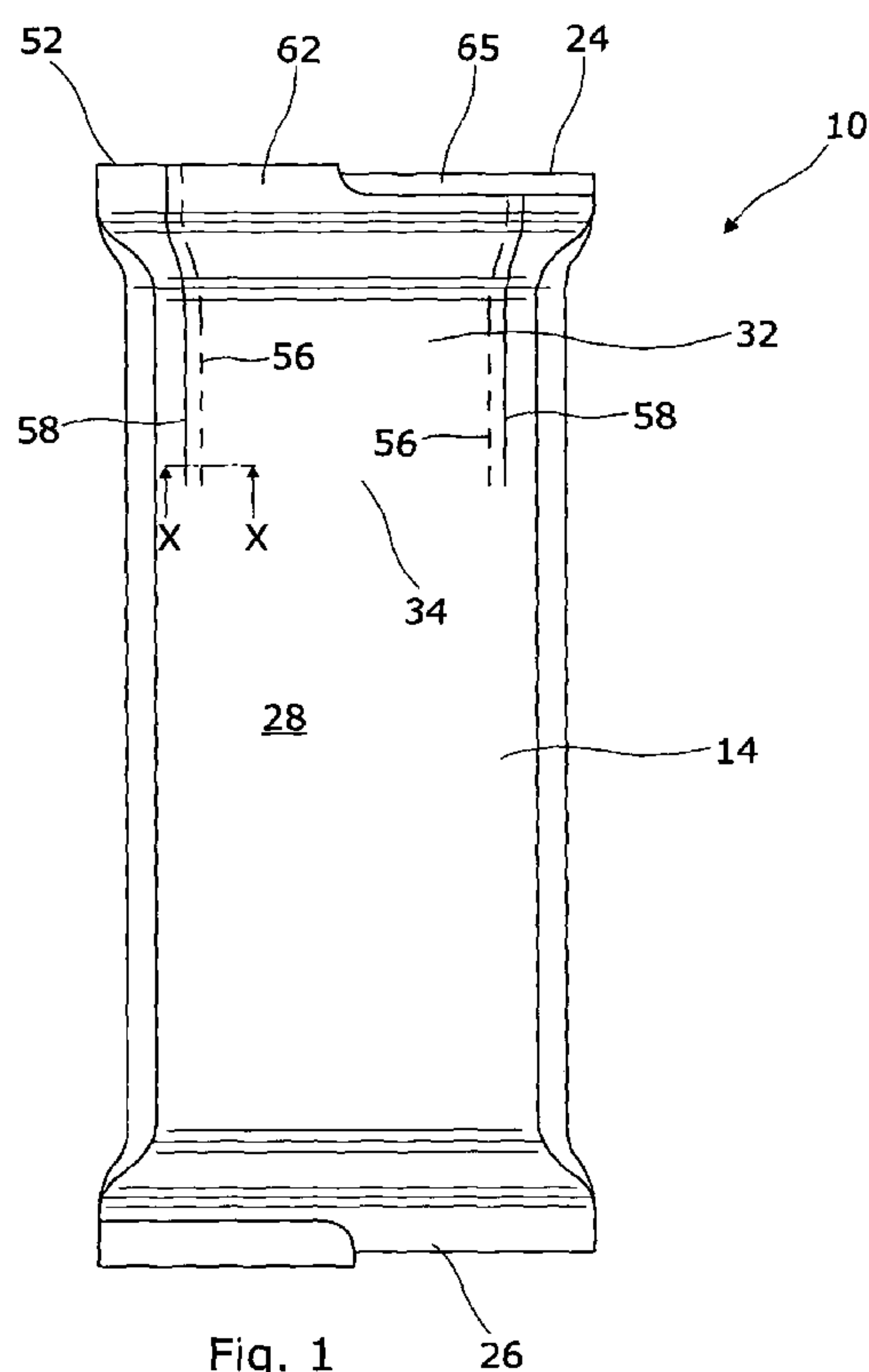
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(54) Title: PACKAGING AND METHOD OF PACKAGING



(57) Abstract: Packaging (10) comprising a wrapper of flexible material (14) folded about a product (12) into a sleeve with opposed longitudinal side edge regions overlapping and sealed together to form a longitudinal seal, the ends of the sleeve being closed by transverse end seals (24, 26). An opening arrangement comprises an aperture in a main body (28) of the wrapper adjacent one of the end seals (24). The wrapper has a flap portion (32) integrally formed with the main body for closing the aperture. The flap portion includes an opening tab portion (62) located at least partially within or on said one end seal (24) that can be grasped by a user to initiate opening of the package. The flap portion (32) may be bonded to the main body (28) by means of a peelable and re-sealable adhesive.

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Packaging and Method of Packaging

Technical Field of the Invention

The present invention relates to packaging, and in particular, but not
5 exclusively, to improved packaging for food products such as confectionery
products. The present invention is also directed to a method of packaging.

Background to the Invention

It is known to package food products, including confectionery products,
in a wrapper fabricated from a substantially gas and moisture impervious
10 material, such as a metal foil or laminate, in order to maintain the freshness of
the product. This type of packaging is often used to package generally block-
shaped food products such as chocolate bars and other similarly shaped snack
type products.

Such known wrappers may be formed from a length of flat, foldable
15 material having an inner surface directed to the product and an outer surface.
The outer surface may be printed on or otherwise be provided with information
for the consumer. The material is folded about the product and the longitudinal
side edges are bonded together, inner face to inner face, to form a longitudinal
sealed seal, sometimes referred to as a "fin seal" or "fin seam". The material
20 extends beyond the ends of the product and opposing edge regions at either end
of the wrapper are bonded together to form transverse end seals or seams. The
seals may be formed using an adhesive to bond the opposing surfaces of the
wrapper or by heating the material under pressure so that the opposing surfaces
melt and fuse together to form a welded seal or seam.

25 Packaging of this nature can be produced using a flow-wrap method in
which a film of material is supplied in a roll to package a number of products in
a substantially continuous process. The material is fed through a machine
which folds it about each product in turn so that opposing side edges are

brought into contact and bonded together to form the longitudinal seal, which usually extends along a rear face of the product. The material is crimped at either end of the product to form the end seals and the material is cut to separate each package from the remainder of the film.

5 The known packaging forms a fully sealed sleeve-like container for the product and which is substantially gas and moisture impervious. However, the material used to form such packages is typically quite tough and it can be difficult to open as it does not easily tear in a controlled fashion, often requiring multiple tears to get the product out of the wrapper.

10 Furthermore, the known packaging is not resealable or re-closable once opened. This limits the life of the product after opening and allows spillage of any remaining contents. For example, many chocolate bars are divided into portions with the intention that a consumer will break off one or more portions at a time and keep the reminder for later consumption. Typically, a consumer
15 has to push the remaining bar back into the wrapper after a portion has been removed and fold the open end of the wrapper over to keep it fresh. When the consumer wishes to break off some more of the bar, the wrapper has to be unfolded and the remaining bar pushed back out. This can be a cumbersome procedure and does not ensure the remaining contents are kept fresh and
20 secure.

 In order to make this type of packaging easier to open, it has been proposed in GB 1, 107, 200 A to use a peelable and re-sealable adhesive coating to form the longitudinal seal and to provide folded tabs that can be grasped by a consumer and pulled apart to peel open the longitudinal seal. This
25 arrangement helps in making the packaging easier to open and enables the packaging to be reclosed after opening. However, it has been found that the packaging is not wholly effective in securely retaining the remaining contents as it relies on the re-sealable coating to hold the elongate longitudinal seal together. This is a particular problem with packaging for larger portioned bars

which may be opened and resealed a number of times, as the resalable coating tends to become less effective with continued opening over time, thus compromising the integrity of the packaging. Furthermore, it has been found that end consumers are resistant to opening packages of this type using the
5 longitudinal seal on the rear of the package.

It is an object of the invention to provide an improved packaging which overcomes or at least mitigates the above problems.

It is a further object of the invention to provide an improved method of packaging which overcomes or at least mitigates the above problems.

10 Summary of the Invention

In accordance with a first aspect of the invention, there is provided packaging comprising a wrapper of flexible material, the wrapper being folded about a product into a sleeve with opposed longitudinal side edge regions overlapping and sealed together to form a longitudinal seal, the ends of the
15 sleeve being closed by transverse end seals in which opposed end regions of the wrapper are bonded together, the wrapper having an opening arrangement adjacent to one of the end seals, the opening arrangement comprising an aperture in a main body of the wrapper, the wrapper having a flap portion integrally formed with the main body for closing the aperture, the flap portion
20 including an opening tab portion that can be grasped by a user to initiate opening of the package, the flap portion being located at least partially within or on said one end seal.

The opening arrangement may comprise a pair of spaced lines of weakness that extend into said one of the end seal regions to define an opening
25 tab portion between them. In said one end seal, the opposed end regions of the wrapper within the tab portion may be bonded together only over an inner extent, outer portions of the opposed end regions being un-bonded.

The flap portion may be connected to the main body of the wrapper for movement between open and closed configurations about a transverse fold line on the opposite side of the aperture from said one end seal.

5 The flap may be defined in the wrapper by means of one or more cuts through the wrapper, the cut(s) having a profile configured such that marginal free edge regions of the flap portion overlap marginal edge regions of the main body, the overlapping marginal edge regions of the flap portion and the main body being bonded together by means of a peelable adhesive, which may be a re-sealable or reclosable adhesive.

10 The wrapper may comprise a laminated material having inner structure and outer structure bonded together, each of the inner and outer structures comprising at least one layer of flexible material, and the flap portion may be defined by means at least one outer line of weakness in the outer structure and at least one inner line of weakness in the inner structure, the inner and outer
15 lines of weakness being off-set from one another, a marginal region of the outer structure between adjacent inner and outer lines of weakness being bonded to the underlying inner structure by means of a peelable adhesive, which may be a re-sealable or reclosable adhesive. At least one of the inner and outer lines of weakness may extend into said one end seal. The opening tab portion may be
20 defined by a section of the marginal region of the outer structure within said one end seal. At least part of the section of the marginal region within said one end seal that defines the opening tab portion may not be bonded to the underlying inner structure. At least one of the lines of weakness may define a curved opening tab portion within said one end seal. The lines of weakness
25 may define a generally semi-circular opening tab portion in part of said one end seal.

Within said one end seal, inner surfaces of the opposed end regions of the wrapper may be bonded together to form the transverse end seals, and the opening tab portion may be defined by section within said one end seal in

which the opposed regions are bonded together only over an inner extent, the opposed regions within the section but outside of said inner extent being unbonded.

Within said one end seal, the inner surfaces of the opposed end regions
5 of the wrapper may be bonded together only over an inner extent of the opposed end regions and one of the opposed regions may have a cut-out formed outwardly of said inner extent such that the portion of the other of the opposed regions opposite the cut-out is exposed on both sides.

The overlapping opposed longitudinal side edge regions may be bonded
10 together inner face to inner face to form a longitudinal fin seal.

In accordance with a second aspect of the invention, there is provided a method of packaging comprising, providing a wrapper of flexible material having a main body defining an aperture and having an integral flap portion for closing the aperture, the flap portion including an opening tab portion; folding
15 the wrapper into a sleeve about a product and bonding together overlapping opposed longitudinal side edge regions to form a longitudinal seal, bonding opposed end regions of the wrapper together to form transverse end seals at either end of the product; wherein the method also comprises positioning the wrapper so that the flap portion is located proximal to one of the transverse end
20 seals such that the opening tab is at least partially located in or on one of the end seals of the finished packaging.

The method may comprise producing the package using a flow-wrap method, the wrapper being provided a part of a film of material in a roll to package a number of products in a substantially continuous process, a plurality
25 of flap portions being defined in the film of material at appropriately spaced locations.

The wrapper used in the method in accordance with the second aspect of may have any of the features of the wrapper forming the package in accordance with the first aspect of the invention.

Detailed Description of the Invention

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

5 Figure 1 is a plan view of a packaging in accordance with a first embodiment of the present invention, showing the packaging in a closed condition;

Figure 2 is a view similar to that of Figure 1 but showing the packaging in an open condition;

10 Figure 3 is a plan view of the inner surface of a flexible wrapper suitable for forming the packaging of Figures 1 and 2;

Figure 4 is a cross sectional view through part of the wrapper taken on line X-X of Figure 1;

15 Figure 5 is a view similar to that of Figure 1, illustrating an alternative method of forming an opening flap in the wrapper;

Figure 6 is a plan view of a packaging in accordance with a second embodiment of the present invention, showing the packaging in a closed condition;

20 Figure 7 is a plan view of the packaging of Figure 6 showing the packaging in an open condition; and

Figure 8 is a perspective view of a packaging assembly comprising packaging in accordance with a third embodiment of the invention.

25 With reference initially to Figures 1 to 4, packaging in accordance with a first embodiment of the invention is indicated generally at 10. The packaging 10 in accordance with the present embodiment is particularly suited for packaging generally block shaped food products such as chocolate bars 12 or other similar confectionery or snack products. However, the packaging 10 can

be adapted for packaging other generally block shaped products, especially food products. The packaging 10 can also be used to package products provided in two or more generally block shaped portions. For example, the packaging 10 could be used to package multiple chocolate bars arranged in-line. Whilst the packaging 10 is particularly suited for packaging generally block shaped products, the packaging could be adapted for packaging non-block shaped products as will be apparent to those skilled in the art.

The packaging 10 comprises a wrapper 14 of flexible material which is folded around the product to form a sleeve and sealed to fully enclose the product. Overlapping longitudinal edge regions 16, 18 of the wrapper 14 are bonded together inner face to inner face to form a longitudinal fin seal (not shown) which extends along a rear face of the packaging in a known manner. In the finished packaging, the longitudinal fin seal is folded over to one side or the other. The fin seal need not be positioned centrally along the rear face but may be offset to one side or another. Opposing laterally extending end edge regions 20, 22 of the material are bonded together to form transverse seals 24, 26 at either end of the product. The longitudinal and transverse seals 24, 26 are formed using an adhesive 27 applied to an inner surface of the wrapper.

In an alternative arrangement, the longitudinal edge regions 16, 18 could be sealed in an overlapping arrangement to form a lap type seam with the inner surface of one of the edges bonded to the outer surface of the other edge.

The wrapper 14 can be made of any foldable, flexible material suitable for packaging the product concerned. The material will typically be a film-like material which conforms to the shape of the product about which it is wrapped. Where the product is a food product, the material may be substantially moisture and gas impervious so that when it is fully sealed, the packaging provides a hermetically sealed container for the product. Although, for certain food products a hermetically seal packaging is not desirable. Examples of typical materials that can be used include: paper based materials, one or more

polymeric materials, and metallic foils. In the present embodiment, the wrapper is a lamination comprising layers of different materials, which may include any of those mentioned above in any suitable combination. In one embodiment, the material comprises a laminate of a metal foil, which may be an aluminium foil, on one side and a plastics material on the other side. When the material is formed into the package, the metallic side is positioned on the inside facing the product and the plastics material is on the outside. The wrapper, and especially the plastics material, may be printed on.

The wrapper 14 has a main body portion 28 which defines an aperture 30 adjacent one end and an integral flap portion 32 which forms an initially sealed and re-closable closure for the packaging. The flap portion 32 is foldably connected with the main body portion 32 along an edge 34 on the opposite side of the aperture 30 from the end seal 24. The flap has two side edges 36, 38 and a free end edge 40 located in the end seal region 24. Marginal edge regions 41 of the flap overlap corresponding marginal edge regions 42 of the main body portion 28 of the wrapper to form first and second seal portions. The overlapping seal portions 41, 42 are bonded together by means of a peelable and re-sealable adhesive 44.

The laminated wrapper 14 comprises an inner structure 46 and outer structure 48 bonded together as illustrated in Figure 4. Each of the inner and outer structures 46, 48 comprises at least one layer of flexible material. In this embodiment, the inner structure 46 comprises a single layer, which may be a metallic foil or another metallised material, and the outer structure 48 comprises a single layer which may be a plastics material. However, in other embodiments, one or both of the inner and outer laminated structures 46, 48 could themselves comprise a lamination of two or more layers of different materials.

The flap portion 32 is defined in the wrapper between two pairs of offset inner and outer lines of weakness which extend inwardly from an outer end

edge 52 of the wrapper in spaced relation to define flap portion 32 between them. In the completed package, the lines of weakness extend from an outer edge of the end seal 24 inwardly to define the flap portion 32 in a front face of package. Each of the pairs of inner and outer lines of weakness comprises an
5 inner line of weakness 56 in the inner, metallic layer 46 and an outer line of weakness 58 in the plastic outer layer, the outer line of weakness being off-set outwardly from the inner line of weakness 56. The distance between the inner and outer lines of weakness 56, 58 defines the depth of the overlapping marginal edge regions 41, 42 of the flap portion 32 and the main body. The
10 inner and outer lines of weakness 56, 58 may be cut lines extending completely through their respective inner and outer structure as shown or they may be score lines that extend only partially through their respective inner and outer laminate structure. The inner and outer lines of weakness 56, 58 are preferably formed using laser cutters 59 that can be calibrated to cut the material to the
15 required depth but any suitable method of forming the lines of weakness can be used.

The inner and outer structures 46, 48 are bonded together by a permanent adhesive 60 over the majority of their areas but in the marginal edge regions 41, 42 between the inner and outer lines of weakness, they are bonded
20 together by means of the peelable and resalable adhesive 44. As shown in Figure 4, the adhesive 44 may extend marginally over the positions of the lines of weakness 56, 58 to allow for a margin of error in positioning the cuts. When the packaging is formed, the flap portion 32 is in a closed position and the overlapping marginal edge regions 41, 42 of the inner and outer structures 46,
25 48 are bonded together so that the packaging is sealed. To gain access to the product, the flap portion 32 is peeled open by pulling the end edge 40 of the flap portion 32 in the end seal 24 outwardly. This causes the outer laminate structure 48 to separate from the underlying inner laminate structure 46 along the marginal edge regions 41, 42 between the inner and outer lines of weakness
30 56, 58. This is facilitated by the use of a peelable adhesive 44 in these regions.

The inner laminate structure 46 between the inner lines of weakness 56 is permanently bonded to the outer laminate structure 58 and peels away from the opposed end edge region of the wrapper in the end seal 24 so as to be lifted as part of the flap portion 32 to reveal the aperture 30 through which the product 12, or a part of the product, can be removed from the packaging. The packaging 10 can be re-closed by placing the flap back in its closed position and pressing along the marginal edge regions so that it is held in place by the re-sealable adhesive 44. To make opening of the packaging 10 easier, part of the flap portion 32 in the end seal 24 between the two pairs of inner and outer lines of weakness 56, 58 comprises an opening tab portion 62 that can be grasped by a user and pulled to initiate separation of the flap portion 32 along the lines of weakness.

There are various ways in which an opening tab portion 62 can be provided. In this embodiment, the adhesive 27 used to bond opposed end edge regions 20, 22 together in the end seals 24, 26 is not applied right up to the outer ends 52, 64 of the wrapper 14. As a result, the opposed end edge regions in the end seals 24, 26 are only bonded together over an inner extent Y. Outwardly of this inner extent Y, the opposed end edge regions 20, 22 are not bonded. Accordingly, the unbounded outer end edge regions 65 of the wrapper in the end seal 24 between the inner lines of weakness 52 form opening tabs 62 that can be grasped by a user and pulled apart to initiate opening of the wrapper. To further assist in opening the package 10, cut-outs 66 can be provided in the end edge regions 20, 22 outside of the inner extent Y over which the adhesive 27 is applied. When the wrapper is folded to form a sleeve as shown in Figure 1, the cut-out 66 in the end seal 24 enables both sides of the opposed end edge region 65 opposite the cut-out to be grasped, making it easier to pull the opposed end edge regions apart to initiate opening of the packaging 10.

It will be appreciated that the end seal 26 opposite from the flap portion 32 could be sealed over its full extent (depth). Furthermore, the end seal 24

could also be sealed over its full extent outside of the flap portion 32 or at least outside of the tab portion 62.

The peelable and re-sealable adhesive 44 may be a cold seal adhesive and may be applied to the marginal edges 41 of the flap 24 or to the underlying
5 marginal edge regions 42 the main body portion 34 or both. The flap seal may include a tamper evident seal arrangement which provides a visual indication when the flap has been opened. The flap arrangement could include two seals, a first seal which breaks when the flap is first opened and a second, peelable and re-closable seal to enable the package to be re-closed and possibly re-
10 sealed after it has been opened. The first, breakable seal will usually be positioned outside the second peelable seal so that a clear visual indication is given to potential consumers if the flap portion 32 has been opened and re-closed.

Although the peelable seal on the flap portion 32 is referred to as being
15 re-closable or re-sealable, in practice the flap portion will not usually be expected to form a hermetic seal when it is reclosed. However, the flap portion 32 will act to hold the remaining contents in the package and will provide some protection for the product from the environment when it is re-closed.

It has been found that a cold seal is particularly suitable for providing an
20 improved reclosability in peelable seals of the type used to close the flap portion 32 in packaging in accordance with the invention. In this context, it has particularly been found that the reclosability characteristics can be improved when a cold seal is formed between a first and a second sealing portion, such as the overlapping marginal edge regions 41, 42, in which the bonding force of
25 the cold seal to each of the first and the second sealing portions is greater than the bonding force within the cold seal. This causes the cold seal to be separated when the package is opened and the seal is broken. As a consequence the cold seal partly adheres to the first sealing portion and partly adheres to the second sealing portion. This behaviour of the cold seal leads to a reclosable package

having a seal which provides a sufficient, initial sealing force as well as reclosability and a sealing force after reclosing, which is high enough to retain the products or parts thereof and, at the same time, somewhat lower than the initial bonding force, so that the consumer can advantageously feel that the
5 package is in the reclosed state.

Separation of the cold seal in this way may be called a cohesive split and is particularly advantageous as the cold seal will reliably stay with the first and second sealing portions and will not tear or delaminate the first or second sealing portions when the seal is opened. During manufacture, it is currently
10 preferred to apply the cold seal both of the sealing portions 41, 42. When the sealing portions 41, 42 are first brought together, the cold seal of both sealing portions is bonded to each other. This has been found to provide a good basis for the desired cohesive split, when the seal is broken, which leads to superior reclosability. However, the cold seal may be applied only to one of the sealing
15 portions during manufacture of the wrapper. As discussed above, each of the inner and outer laminate structures 46, 48 that make up the first and second sealing portions 41, 42 may itself be a lamination of various layers. When the bond between the cold seal and a laminated material is too high, there is the risk that the material may delaminate when the seal is opened rather than the
20 cold seal cohesively splitting. This is not desirable as it reduces the reliability of the reclosing structure. For increased reliability in reclosing the package it is preferred that part of the cold seal stays with the first sealing portion and part of the cold seal stays with the second sealing portion so that these split parts of the cold seal are brought together when the package is reclosed. In other words,
25 the cold seal is separated with regard to its thickness. Thus, when a certain surface portion is considered, part of the cold seal which is closer to the first sealing portion adheres to the first sealing portion and part of the cold seal which is closer to the second sealing portion adheres to the second sealing portion. This cohesive split takes place in at least 50%, preferably at least 70%
30 and most preferred in 100% of the area of the cold seal. In some portions, the

cold seal may completely adhere to the first or the second sealing portion, which will not deteriorate the reclosability characteristics.

Reclosability of the package is improved by having a seal with an initial opening force of 2, preferably 2,5, to 4 N/15 mm, and opening forces for one or
5 more reclosings of 0,5 to 2 N/15 mm, preferably 1 to 1,5 N/15 mm. The given forces correspond to that force which is necessary to peel a strip of material having a width of 15 mm and being provided with the described seal. This force can, in particular, be measured in accordance with the DIN 55529. The forces given above have been found to provide an adequate initial opening
10 force which is not so high that the consumer will have difficulty opening the package. The opening forces for the reclosed state are high enough to retain the product or parts thereof but significantly lower than the initial opening force so that the consumer can feel the difference between the reclosed state and the initial, not yet opened state. The opening force may become smaller and
15 smaller with more reclosings. However, it is currently preferred that the opening force is still above 1 N/15 mm after the fourth reclosing. Moreover, the opening force may be above 2 N/15 mm for the first reclose, provided the initial opening force is still somewhat higher, for example above 2,5 N/ 15 mm. The above-mentioned values have, moreover, shown to be efficient for
20 avoiding de-lamination of the first and second sealing portions.

Generally, the preferred cold seal can be described to be a "hard," cold seal, as compared to a conventional "soft" cold seal, with a relatively high rubber content and a relatively low content of polymers. The high rubber content leads to an undesired stringing or webbing effect, in which strings of
25 cold seal are separated from the sealing portions. In contrast, the preferred "hard" cold seal contains less rubber and more polymers or copolymers, particularly acrylic polymers or copolymers. In this context, a polymer/copolymer content of above 30%, preferably above 50% and even more preferred above 70% will be advantageous. It has particularly been found
30 that a cold seal containing at least one acrylic polymer or copolymer provides

good reclosability. In particular, such a type of cold seal can advantageously be combined with an acrylic coating on the first and/or second sealing portion. It has been found that this combination provides particularly good reclosability characteristics and leads to a reliable cohesive split as described above. One
5 explanation, to which the invention is, however, not limited, is that the acrylic coating and the acrylic polymer or copolymer provide a good anchorage to each other. In this context, it is currently preferred that the cold seal contains at least one styrene acrylic polymer or copolymer, preferably two different kinds thereof. In particular, a softer styrene acrylic polymer or copolymer may have
10 relatively large molecules and will provide, together with the rubber, particularly a natural latex based rubber, a good initial sealing. In particular, superior test results were obtained with a cold seal, which was a Swale grade 8113, which is, accordingly, preferred in connection with the invention.

The cold seal may be applied in amounts of 3 to 5, preferably 3,5 to 4,9
15 g/m² on each sealing portion.

The packaging 10 can be produced using a flow-wrap method in which a film of material having a number of appropriately positioned flap portions 32 disposed along its length is supplied in a roll to package products 12 in a substantially continuous process. The material is fed through a machine in a
20 direction corresponding to arrow Z in Figure 3. The machine folds it about each product in turn so that opposing longitudinal edge regions are brought into contact inner face to inner face and bonded together to form the longitudinal seal. The material is crimped at either end of the product to form the transverse end seals 24, 26 and the material cut to separate each package 10 from the
25 remainder of the film in turn. The adhesive 27 for forming the seals 24, 26 may be pre-applied to an inner face of the film or applied as part of the packaging process.

An alternative arrangement for laser treatment (e.g. laser cutting/etching) of the wrapper material to define a flap having marginal edge

regions 41 that overlap marginal edge regions 42 of the main body is illustrated in Figure 5. Figure 5 is a cross sectional view through the edge 36 of the flap portion 32 similar to that of Figure 4 and is also taken at the same position as line X-X in Figure 1. A laser is used to make a cut 68 through the material of the wrapper having a stretched or elongate “S” shape in transverse cross section to create overlapping marginal edge regions 41, 42 on the flap portion 32 and the main body portion 28. This method can be applied to packaging substantially as described above by replacing each of the pair of inner and outer lines of weakness 52, 54 with a single laser cut formed as shown in Figure 5. A peelable and preferably re-sealable adhesive, such as a cold seal as discussed above, is applied to one or both of the marginal edge regions 41, 52. An advantage of this alternative arrangement is that it can be used to create a reclosable flap 32 in wrapper 14 made of a single layer of material or in a laminated material that is not suitable for use with the previous method described above.

In a further alternative arrangement, a non-reclosable flap portion 32 can be formed in the packaging 10 according to the first embodiment by replacing each pair of off-set inner and outer lines of weakness 52, 54 or each of the “S” shaped laser cuts in the embodiments described above with single score lines that extend though only part of the depth of the material so that when the packaging 10 is initially formed it is fully sealed. To open the package, the user pulls apart the opposed end edge regions in the end seal 24 between the score lines using the tab portions 62 as described above. This initiates tearing along the score lines allowing the flap portion 32 to be folded out to provide access to the product. Whilst the flap portion 32 in this embodiment cannot be re-sealed, it can be folded back after initial opening to help protect any remaining product.

Figures 6 and 7 illustrate a further embodiment of packaging 110 in accordance with the invention. The same reference numerals but increased by 100 will be used to identify the same features or features that perform the same,

or substantially the same, function as features described above in relation to the first embodiment 10.

The packaging 110 in accordance with this further embodiment is substantially the same as the packaging 10 in accordance with the first embodiment described above, to which the reader should refer for details, accordingly, only the differences between the packaging 110 in accordance with this further embodiment and the packaging 10 in accordance with the first embodiment will be described in detail.

In the packaging 110, the opening tab portion 162 is formed by a portion of the outer laminate structure 148 only in the end seal 124. The flap portion 132 is defined by off-set inner and outer lines of weakness 156, 158 in the inner and outer laminate structures respectively in a manner similar to that described above in relation to the first embodiment. In this case however, there is a single continuous inner line of weakness 156, indicated by dashed lines in Figure 6, which follows a substantially inverted “U” shaped path about one end of the package. In the embodiment as shown in Figure 6, the inner line of weakness does not extend into the end seal region 124 but the bridging portion 156a of the U shape runs generally parallel with the end seal close to it. However, the inner line of weakness 156 could be arranged to extend into the end seal 124 if desired. The outer line of weakness 158 is divided into two parts 158a, 158b, which each follow generally the path of the inner line of weakness from opposite sides of the package towards a central region of the end seal 124. As the outer lines of weakness 158a, 158b approach the central region of the end seal, they deviate outwardly from the path of the inner line of weakness to extend across the end seal 124 to an outer edge 152 of the wrapper in generally parallel spaced relation to define the tab portion 162 between them.

The marginal edge region 141 of the outer laminate structure 148 between the inner and outer lines of weakness and the tab portion 162 are bonded to the underlying regions 142 of the inner laminate structure 146 with a

peelable and preferably re-sealable adhesive such as a cold seal as discussed above. To open the packaging 110, the user peels the tab portion 162 of the outer laminate structure away from the inner laminate structure in the end seal 124. The user continues to pull the tab portion 162 so that the marginal edge region 141 of the outer laminate structure of the flap is pulled away from the underlying marginal edge region 142 of the inner laminate structure 146 of the main body to open the flap portion 132, substantially as described above. The packaging 110 can be reclosed by repositioning the flap. In this embodiment, the opposed end regions of the wrapper may be sealed over the full extent (depth) of the end seal 124.

The packaging may be printed on to highlight the tab portion 162 and/or to provide opening instructions. The tab portion 162 may also be shaped to make initial peeling of the tab portion 162 easier. Furthermore, at least an outer end portion 162a of the tab portion may not be bonded to the underlying inner laminate structure 146 so that it is easily grasped by a user. The tab portion 162 need not be centrally located in the end seal 124 and can be shaped as desired.

In an alternative arrangement which is similar to the first embodiment, rather than a single inner line of weakness, the packaging 110 could be modified so as to have two inner lines of weakness that following in an off-set manner the outer lines of weakness 158a, 158b in extending across the end seal 124. In this case, the tab portion 162 would comprise both the inner and outer laminate structures 146, 148 between the two pairs of off-set inner and outer lines of weakness and the opposed regions of the wrapper within the tab portion of the end seal 124 would only be bonded together over a limited inner extent (depth) of the end seal 124 in a manner similar to the first embodiment.

Figure 8 illustrates a further embodiment of packaging 210 in accordance with the invention. The same reference numerals but increased by 200 will be used to identify the same features or features that perform the same,

or substantially the same, function as features described above in relation to the first embodiment 10.

The packaging 210 in accordance with this further embodiment is substantially the same as the packaging 10 in accordance with the first embodiment described above, to which the reader should refer for details, accordingly, only the differences between the packaging 210 in accordance with this further embodiment and the packaging 10 in accordance with the first embodiment will be described in detail.

As with the packaging 110 in accordance with the second embodiment described above, the opening tab portion 262 in the packaging 210 of the present embodiment is formed by a part of the outer laminate structure 248 in the end seal 224. The flap portion 232 is defined by a single pair of continuous, off-set inner and outer lines of weakness 256, 258 which follow substantially parallel inverted, generally U-shaped paths. The inner and outer lines of weakness 256, 258 pass through the end seal 224 in a curved path, with the outer line of weakness 258 extending to an outer end edge of the wrapper in the end seal 224 at its outermost point at a position roughly in the centre (from side to side) of the end seal. The marginal edge region 241 of the outer laminate structure 248 between the inner and outer lines of weakness is bonded to the underlying region of the inner laminate structure with a peelable and preferably re-sealable adhesive, such as a cold seal as discussed above. To open the packaging 210, the user peels the tab portion 262 of the outer laminate structure at the end edge of the transverse seal 224 away from the inner laminate structure 246 to initiate opening of the flap portion 232 in the manner described above in relation to previous embodiments. If desired, the outer edge of the tab portion 262 of the outer laminate structure 248 in the end seal 224 may not be bonded to the underlying inner laminate structure to make it easier for a user to initiate peeling of the tab portion. However, it will usually be desirable to ensure that the flap portion 232 is sealed over its entire length prior to first opening of the packaging.

The flap portion 232 in the packaging 210 is relatively large forming an opening through which the product can be removed with ease but which is easily re-closable. The curved tab portion 262 also provides an interesting and aesthetically pleasing aspect of the packaging which may appeal to end users.

5 Packaging 10, 110, 210 in accordance with the invention is particularly suitable for use in packaging large (e.g. 500g or more) portioned chocolate or other confectionery bars as it allows the consumer to easily open the packaging periodically to remove one or more portions and holds the remaining contents in a secure and sealed container. However packaging in accordance with the
10 invention may also be useful in packaging smaller “snack” size bars as it provides an easy to open package which produces less mess than the known packaging. In some cases, more than one bar may be contained in the package, with the bars arranged in line. In this case, the package 10, 110, 210 can be opened and one of the bars removed before the flap is reclosed the hold the
15 remaining bar or bars in that package. Indeed as has already been stated, packaging 10, 110, 210 in accordance with the invention can be adapted to pack any suitable product where is it is desirable to have packaging which is easy to open and re-close and can also be adapted for use.

 The ability to open the packaging 10, 110, 210 using an opening flap on
20 a front face of the packaging is more naturally acceptable to many end consumers than prior art arrangements in which a fin seal at the rear of the package must be peeled apart. Furthermore, by locating a tab portion for the flap in an end seal, the majority of the front face is available for printing on with any desired logo or information which is an important consideration in
25 packaging, particularly for confectionery and snack foods that are often displayed at or close to the point of sale.

 The foregoing embodiments are not intended to limit the scope of protection afforded by the claims, but rather to describe examples as to how the invention may be put into practice.

Claims

1. Packaging comprising a wrapper of flexible material, the wrapper being folded into a sleeve with opposed longitudinal side edge regions overlapping and sealed together to form a longitudinal seal, the ends of the sleeve being closed by transverse end seals in which opposed end regions of the wrapper are bonded together, the wrapper having an opening arrangement adjacent to one of the end seals, the opening arrangement comprising an aperture in a main body of the wrapper, the wrapper having a flap portion integrally formed with the main body for closing the aperture, the flap portion including an opening tab portion that can be grasped by a user to initiate opening of the package, the flap portion being located at least partially within or on said one end seal.
2. Packaging as claimed in claim 1, wherein the opening arrangement comprises a pair of spaced lines of weakness that extend into said one of the end seal regions to define an opening tab portion between them.
3. Packaging as claimed in claim 2, wherein, in said one end seal, the opposed end regions of the wrapper within the tab portion are bonded together only over an inner extent, outer portions of the opposed end regions being un-bonded.
4. Packaging as claimed in any one of the preceding claims, wherein the flap portion is connected to the main body of the wrapper for movement between open and closed configurations about a transverse fold line on the opposite side of the aperture from said one end seal.
5. Packaging as claimed in any one of the preceding claims, wherein the flap is defined in the wrapper by means of one or more cuts through the wrapper, the cut(s) having a profile configured such that marginal free edge regions of the flap portion overlap marginal edge regions of the main body, the overlapping marginal edge regions of the flap portion

and the main body being bonded together by means of a peelable adhesive.

6. Packaging as claimed in any one of the preceding claims, wherein the wrapper comprises a laminated material having inner structure and outer structure bonded together, each of the inner and outer structures comprising at least one layer of flexible material, the flap portion being defined by means at least one outer line of weakness in the outer structure and at least one inner line of weakness in the inner structure, the inner and outer lines of weakness being off-set from one another, a marginal region of the outer structure between adjacent inner and outer lines of weakness being bonded to the underlying inner structure by means of a peelable adhesive.
7. Packaging as claimed in claim 5 or claim 6, wherein the peelable adhesive is a re-sealable or reclosable adhesive.
8. Packaging as claimed in claim 6, wherein at least one of the inner and outer lines of weakness extend into said one end seal.
9. Packaging as claimed in claim 8, wherein the opening tab portion is defined by a section of the marginal region of the outer structure within said one end seal.
10. Packaging as claimed in claim 9, wherein at least part of the section of the marginal region within said one end seal that defines the opening tab portion is not bonded to the underlying inner structure.
11. Packaging as claimed in any one of claims 8 to 10, wherein at least one of the lines of weakness define a curved opening tab portion within said one end seal.
12. Packaging as claimed in claim 11, wherein the lines of weakness define a generally semi-circular opening tab portion in part of said one end seal.

13. Packaging as claimed in any one of claims 1 to 8, wherein inner surfaces of the opposed end regions of the wrapper are bonded together to form the transverse end seals, the opening tab portion being defined by a section within said one end seal in which the opposed end regions are bonded together only over an inner extent, the opposed end regions within the section but outside of said inner extent being un-bonded.
14. Packaging as claimed in any one of claims 1 to 8, wherein within said one end seal, the inner surfaces of the opposed end regions of the wrapper are bonded together only over an inner extent of the opposed end regions, one of the opposed regions having a cut-out formed outwardly of said inner extent such that the portion of the other of the opposed regions opposite the cut-out is exposed on both sides.
15. Packaging as claimed in any one of the preceding claims, wherein the overlapping opposed longitudinal side edge regions are bonded together inner face to inner face to form a longitudinal fin seal.
16. Packaging substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.
17. A method of packaging comprising, providing a wrapper of flexible material having a main body defining an aperture and having an integral flap portion for closing the aperture, the flap portion including an opening tab portion; folding the wrapper into a sleeve about a product and bonding together overlapping opposed longitudinal side edge regions to form a longitudinal seal, bonding opposed end regions of the wrapper together to form transverse end seals at either end of the product; wherein the method also comprises positioning the wrapper so that the flap portion is located proximal to one of the transverse end seals and such that the opening tab is at least partially located in or on one of the end seals of the finished packaging.

18. A method as claimed in claim 17, wherein the packaging is produced using a flow-wrap method, the wrapper being provided a part of a film of material in a roll to package a number of products in a substantially continuous process, a plurality of flap portions being defined in the film of material at appropriately spaced locations.
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19. A method of packaging substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.

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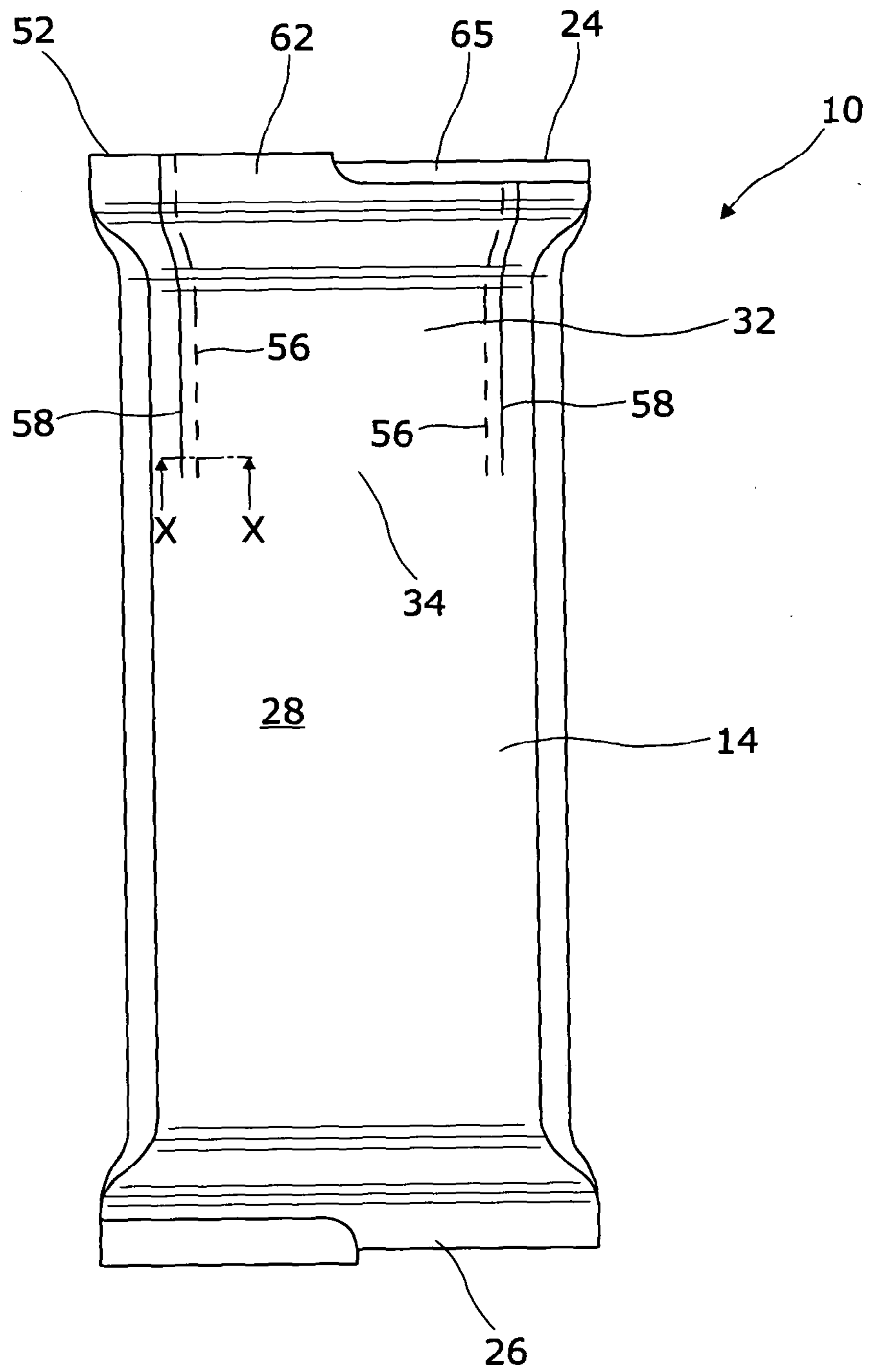


Fig. 1

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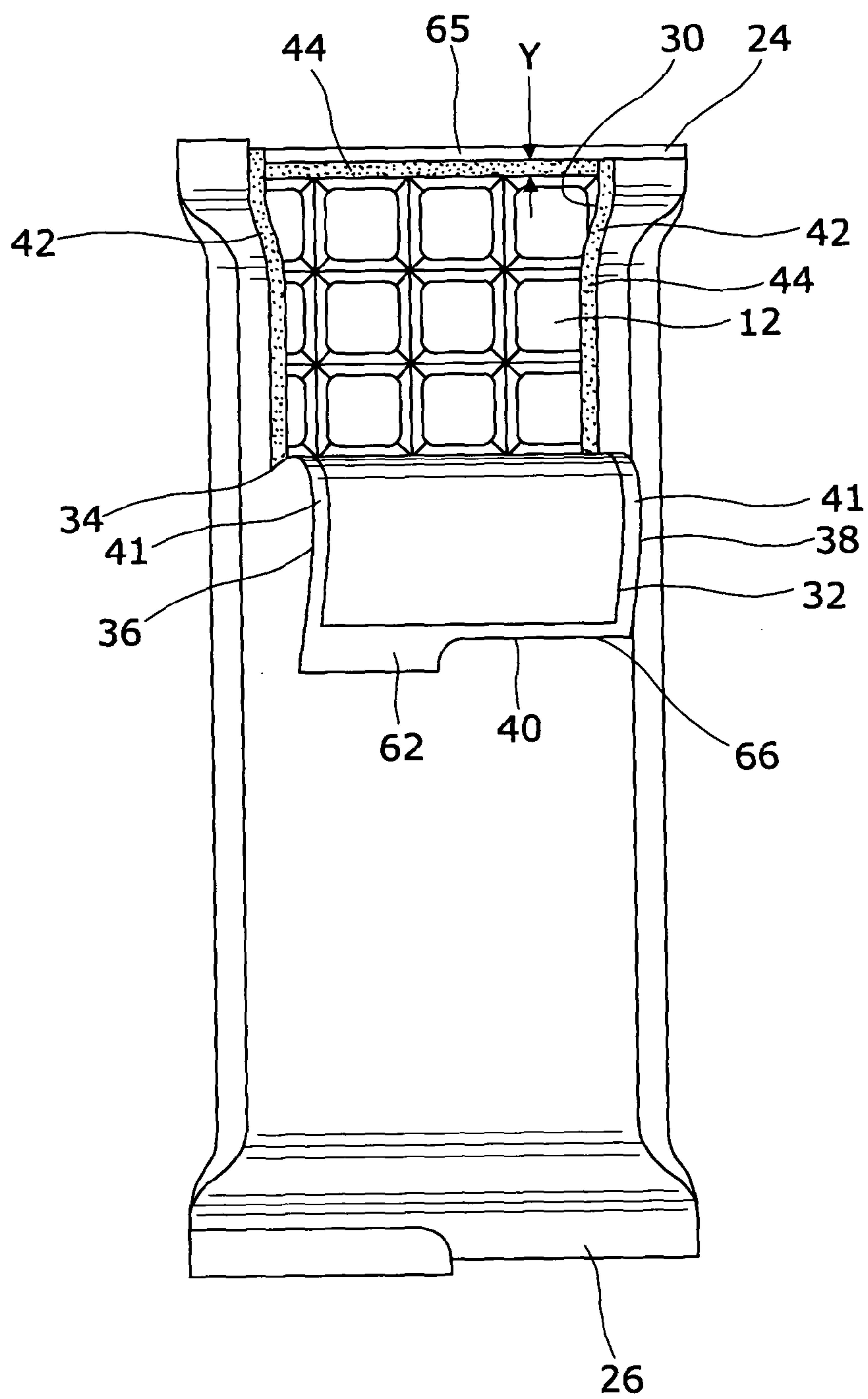


Fig. 2

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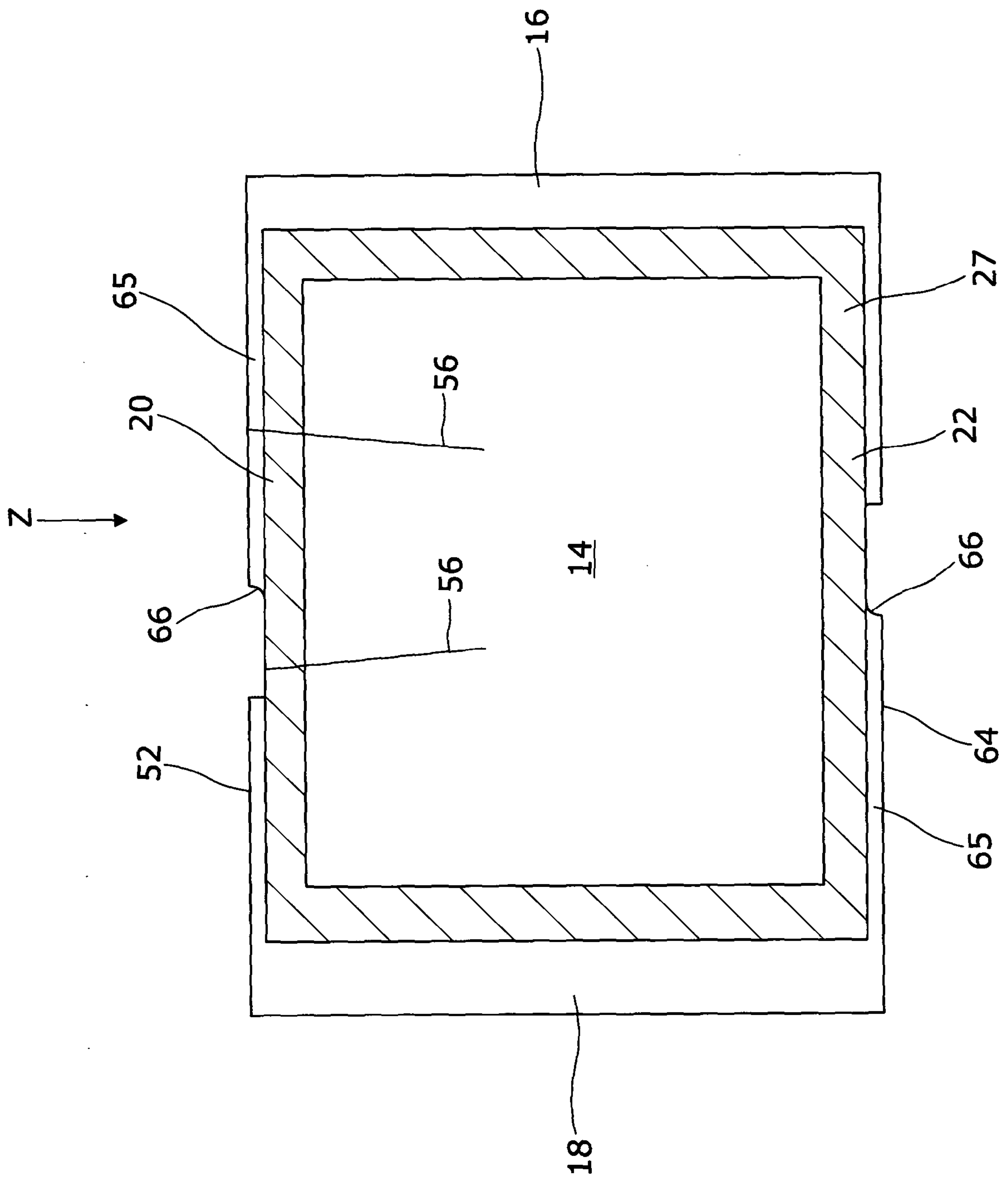


Fig. 3

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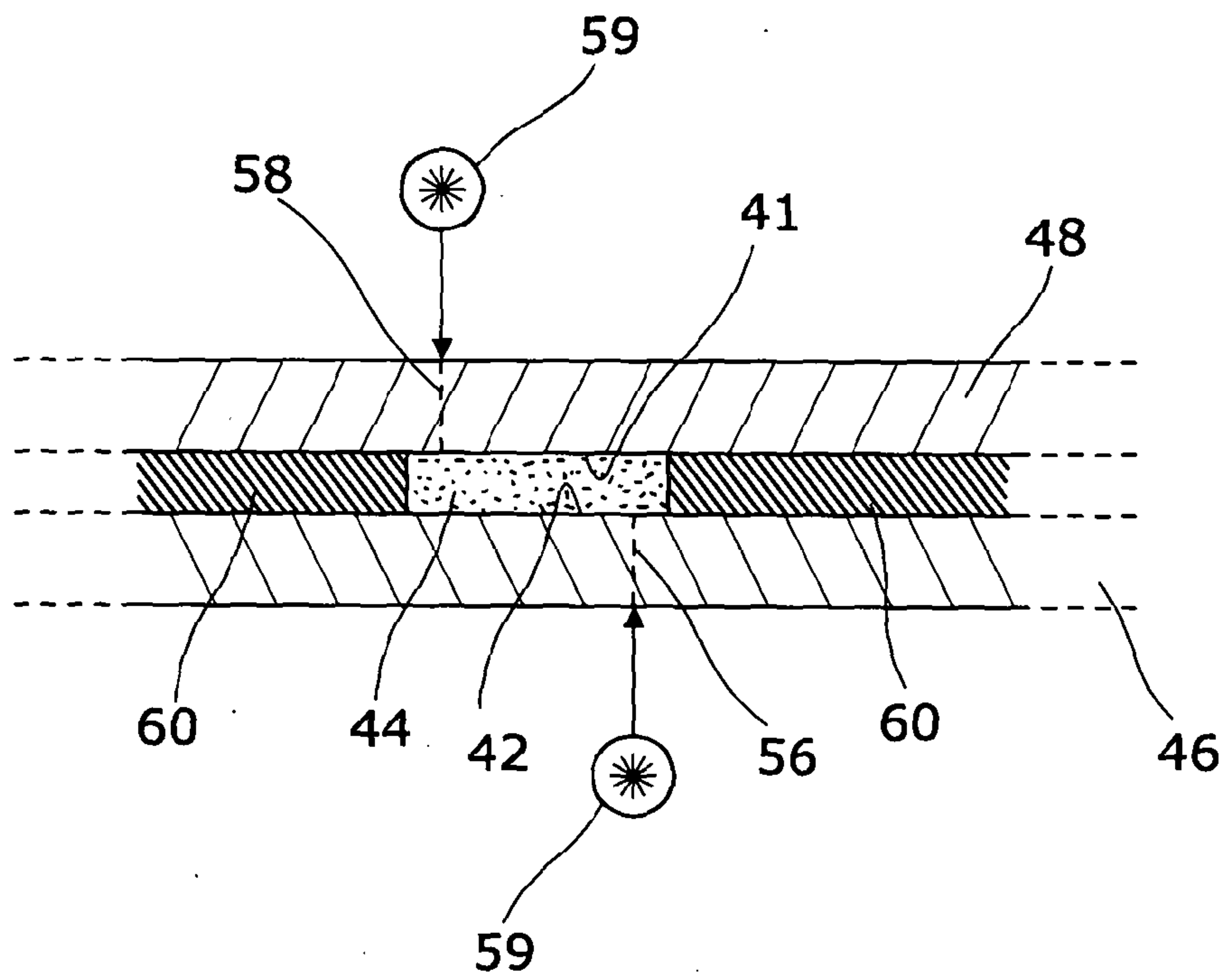


Fig. 4

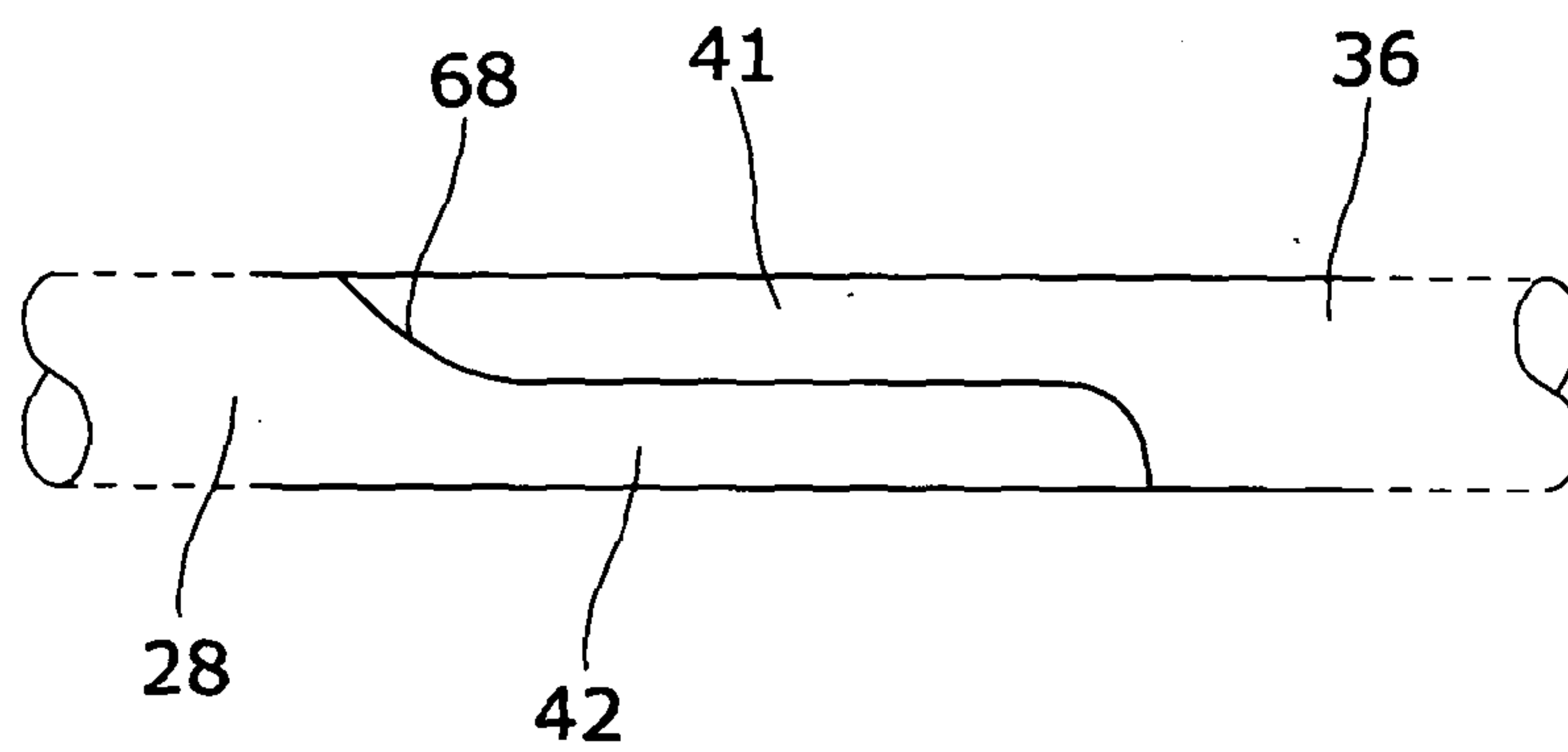


Fig. 5

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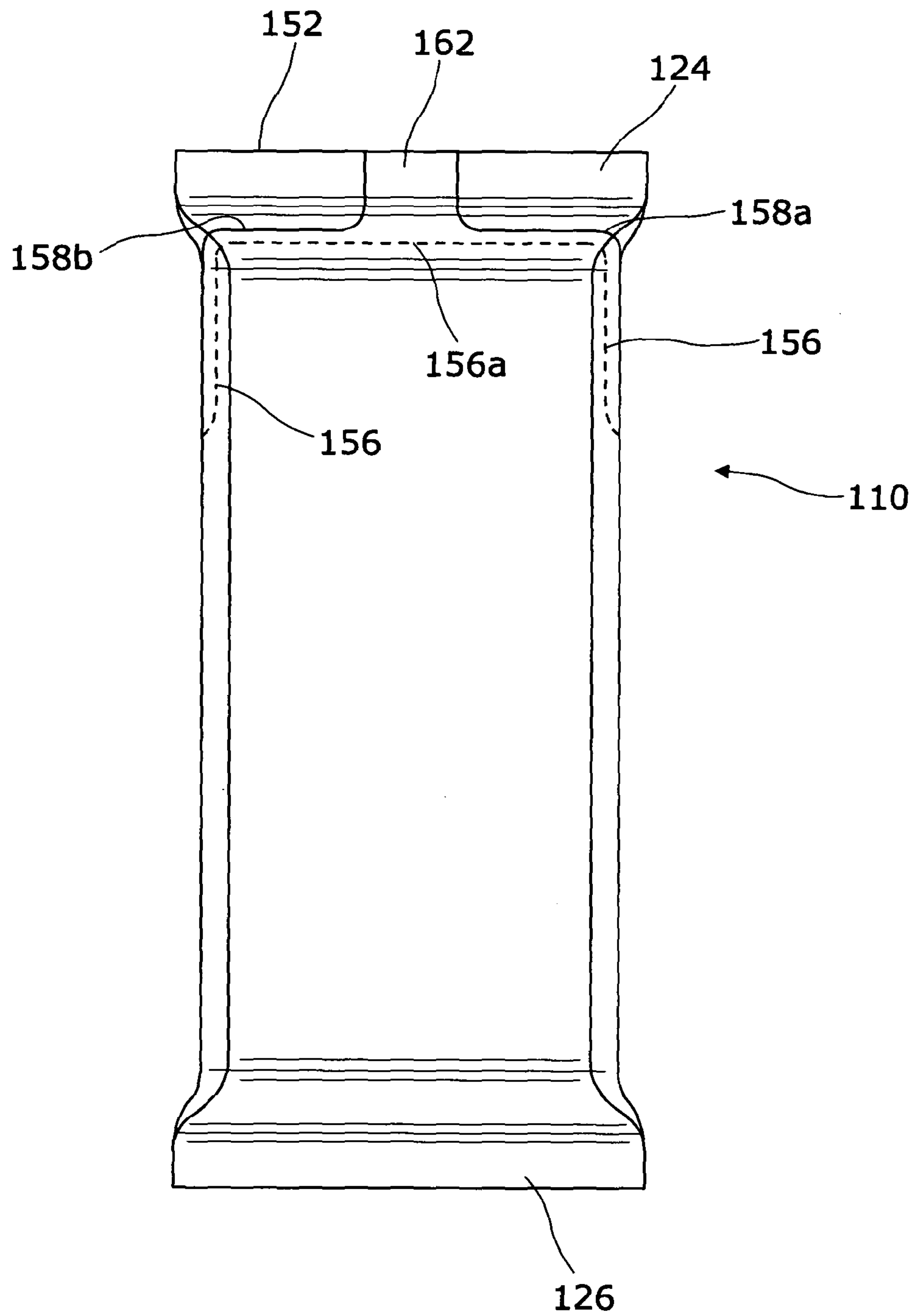


Fig. 6

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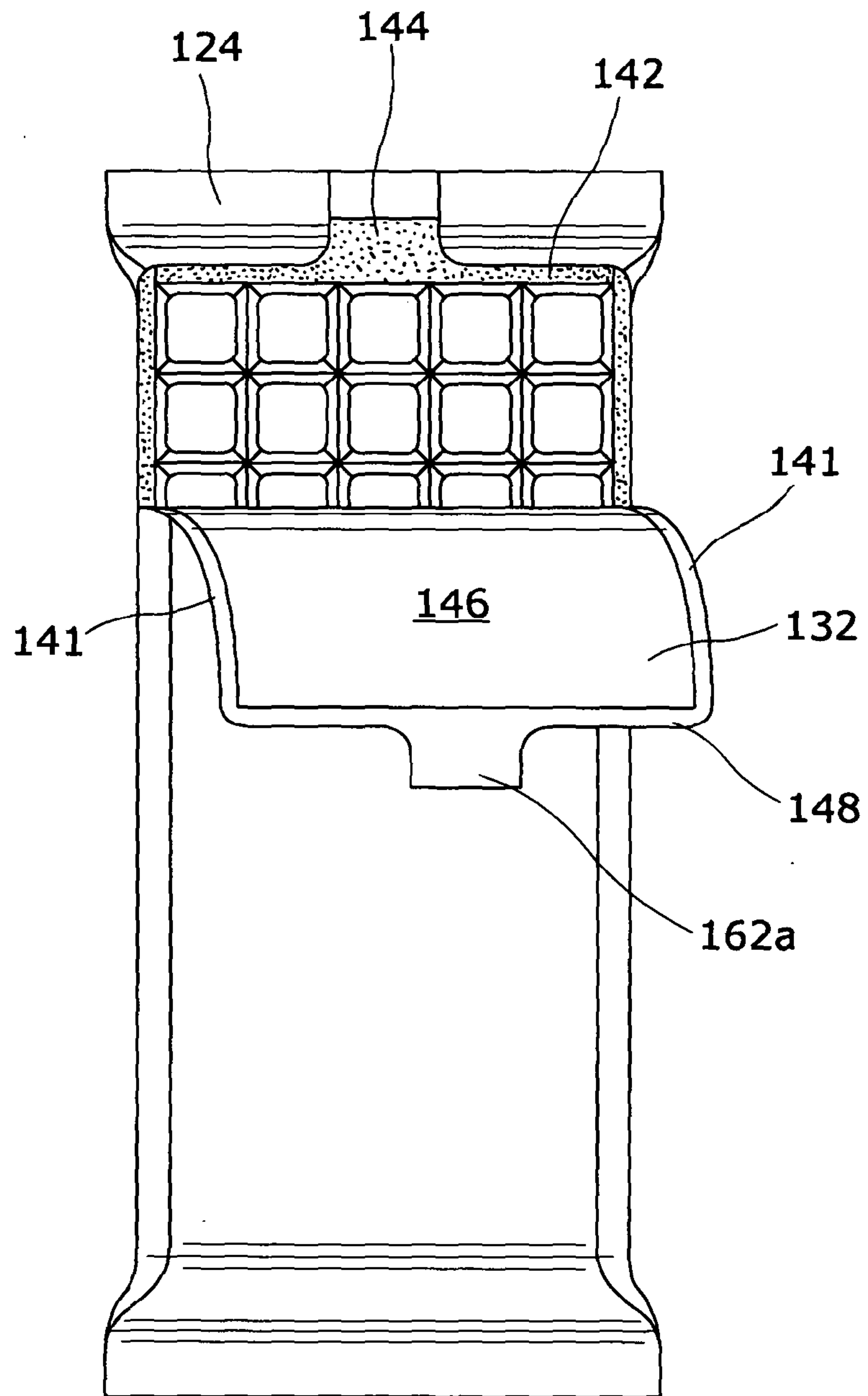


Fig. 7

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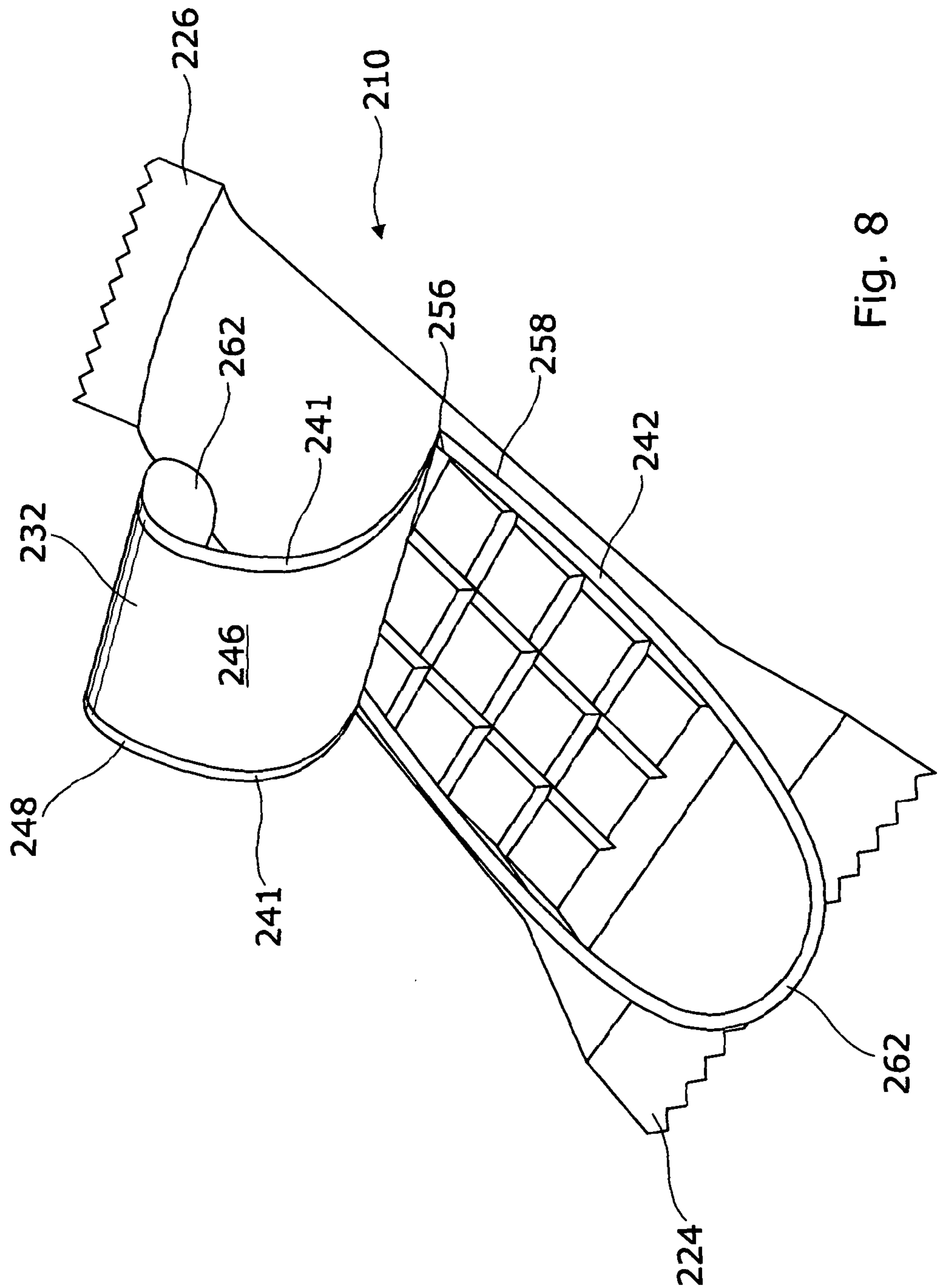


Fig. 8

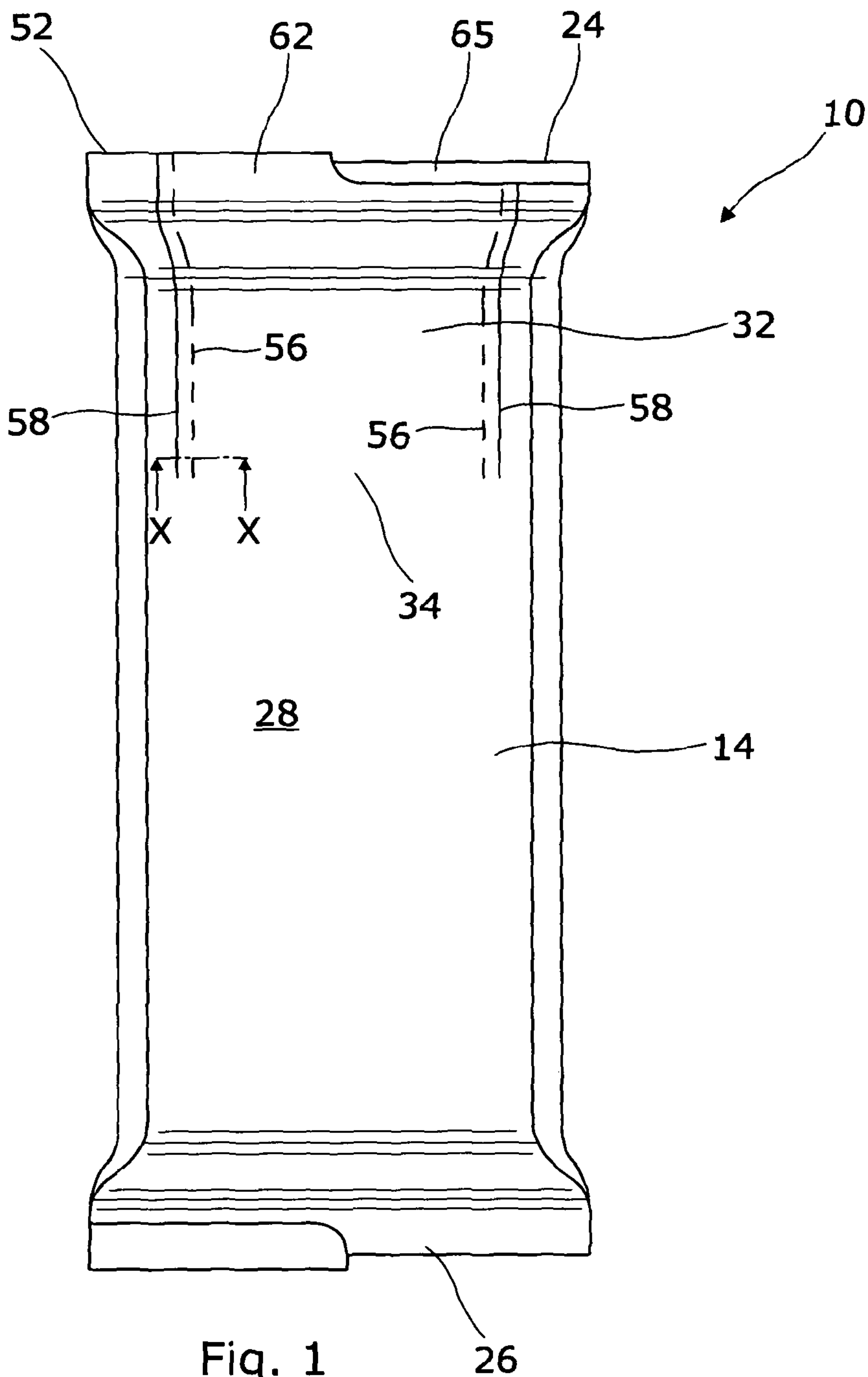


Fig. 1

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