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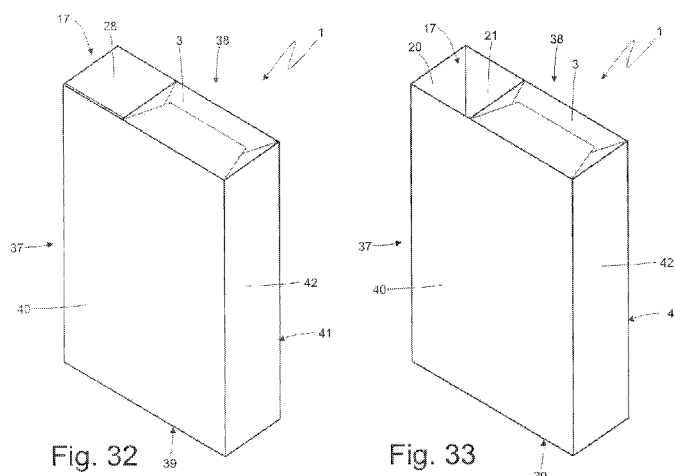
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(54) **Title:** SOFT OR SEMI-RIGID PACKAGE CONTAINING A GROUP OF SMALL-SIZED TOBACCO ARTICLES AND CORRESPONDING WRAPPING METHOD



(57) **Abstract:** A soft or semi-rigid package (1) of tobacco articles having: a container (37) open on the upper side and has no lid; a single inner wrap (3) which encloses a group of tobacco articles, is housed on the inside of the container (37), has a size that is smaller than the size of the container (37), and has a visible upper wall and it is arranged at one open upper end (38) of the container (37); and a filling element (17), which is arranged on the inside of the container (37), is coupled to the inner wrap (3), consists of a blank (27) that is folded and glued onto itself, and compensates for the smaller size of the inner wrap (3) compared to the size of the container (37); the filling element (17) has a tubular body (19), which is deformable in a flat configuration, in which the tubular body (19) has a flat shape, and in an expanded configuration in which the tubular body (19) has a parallelepiped shape.

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"SOFT OR SEMI-RIGID PACKAGE CONTAINING A GROUP OF SMALL-SIZED TOBACCO ARTICLES AND CORRESPONDING WRAPPING METHOD"

TECHNICAL FIELD

5 The present invention relates to a package containing a group of small-sized tobacco articles and to a corresponding wrapping method.

10 The present invention finds advantageous application to a package of cigarettes, to which the following description will make explicit reference without implying any loss of generality.

PRIOR ART

15 The patent US4771882 describes a rigid package of cigarettes with a hinged lid that has been modified to house a group of small-sized cigarettes, i.e. a group of cigarettes smaller in respect to the total inner volume (because the group of cigarettes is formed by a lower number of cigarettes compared
20 to the number of standard cigarettes, and/or because the cigarettes have a smaller diameter than the standard diameter). In particular, the package of cigarettes comprises a filling element, which is made of corrugated cardboard and is inserted inside the package of cigarettes to occupy the
25 portion of the inner volume left free by the group of cigarettes. The function of the filling element is to avoid empty spaces inside the package of cigarettes and thus preventing the group of cigarettes from "shaking" inside the package of cigarettes; in fact, if the group of cigarettes
30 were free to "shake" inside the package of cigarettes, the movement of the group of cigarettes during the handling of the package of cigarettes (both in the production step, and during the distribution and sales step) would subject the cigarettes to mechanical stress that could easily determine an emptying
35 of the tips (i.e. loss of tobacco fibers from the free ends of the cigarettes).

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However, the filling element described in the patent US4771882 has some drawbacks. First, the insertion of the filling element inside of the package of cigarettes involves considerable constructional complications in the packing machine that must be modified for handling relatively large-sized solid objects (the filling elements). In particular, the filling elements always occupy significant volumes and therefore require a large occupation of space for their handling; consequently, in an existing packing machine it is challenging to find free space for adding the necessary elements for handling the filling elements. Moreover, said filling element uses a relatively high amount of material with an evident increase of expenses and environmental costs during production and disposal (after the use) of the package of cigarettes; consider, for example that the mass of the filling element is comparable, if not greater than the total mass of the wrapping material used to form the package of cigarettes.

Patent applications EP0443365-A2, EP0801011-A1 and EP2666736-A1 describe a rigid package of cigarettes with a hinged lid that has been modified to house a group of small-size cigarettes. The package of cigarettes comprises a collar, which is provided with containing elements that project inwards to rest against the group of cigarettes in order to prevent the group of cigarettes from "shaking" inside the package of cigarettes. However, this technical solution has some drawbacks, as it is not always able to provide adequate holding of the group of cigarettes (i.e. it is not always able to effectively prevent the group of cigarettes from "shaking" inside the package of cigarettes). Furthermore, starting from an existing packing machine that produces the standard type of cigarette packages (i.e. with a collar free of containing elements) it is necessary to make relatively complex (and therefore expensive) changes to the packing machine in order to be able to produce rigid packages of cigarettes with a

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hinged lid and with a collar provided with containing elements.

The patent US1381087-A describes a soft package of cigarettes in which the only inner wrap that encloses a group of cigarettes has the same transverse size of the container, i.e. on the inside of the container and next to the inner wrap there is not any empty space of appreciable size.

10 DESCRIPTION OF THE INVENTION

The object of the present invention is to provide a package containing a group of small-sized tobacco articles and a corresponding wrapping method, in which the package is free from the drawbacks described above and is, at the same time, easy and inexpensive to manufacture.

According to the present invention, a package containing a group of small-sized tobacco articles and a corresponding wrapping method are provided, as claimed in the attached claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described with reference to the accompanying drawings, which illustrate some non-limiting examples of embodiments, wherein:

- Figure 1 is a front perspective view of a rigid package of cigarettes in a closed configuration that is not object of the present invention;
- Figure 2 is a rear perspective view of the package of cigarettes of Figure 1 in a closed configuration;
- Figures 3 and 4 are two different front perspective views of the package of cigarettes of Figure 1 in an open configuration;
- Figure 5 is a plan view of a group of cigarettes housed in the package of cigarettes of Figure 1;
- Figure 6 is a schematic view and in cross section of the

package of cigarettes of Figure 1;

- Figure 7 is a perspective view of a filling element and of an inner wrap of the package of cigarettes of Figure 1;

- Figure 8 is a view of the filling element of Figure 7;

5 - Figures 9, 10 and 11 are three schematic views of the filling element of figure 7 in a flat configuration, in an intermediate configuration and in an expanded configuration, respectively;

10 - Figure 12 is a plan view of a blank used to make a container and a lid for the package of cigarettes of Figure 1;

- Figure 13 is a plan view of a blank used to make the filling element of Figure 7;

- Figure 14 is a perspective view of an alternative of the filling element of Figure 7;

15 - Figure 15 is a plan view of a blank used to make the filling element of Figure 14;

- Figure 16 is a perspective view of a further alternative of the filling element of Figure 7;

20 - Figure 17 is a plan view of a blank used to make the filling element of Figure 16;

- Figure 18 is a plan view of a different embodiment of the group of cigarettes of Figure 5;

25 - Figure 19 is a perspective view of a filling element and of an inner wrap shaped for housing the group of cigarettes of Figure 18;

- Figure 20 is a view of the filling element of Figure 19;

- Figure 21 is a plan view of a blank used to make the filling element of Figure 19;

30 - Figure 22 is a schematic view and in cross section of another alternative of the filling element of Figure 7;

- Figures 23-27 schematically illustrate the coupling steps between the filling element of Figure 7 and the corresponding inner wrap during the manufacturing of the package of cigarettes of Figure 1;

35 - Figure 28 is a schematic view and in cross section of another alternative of the filling element of Figure 7 with

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the tubular bodies in the expanded configuration;

- Figure 29 is a schematic view and in cross section of the filling element of Figure 28 with the tubular bodies in the flat configuration;

5 - Figure 30 is a schematic view and in cross section of a further alternative of the filling element of Figure 7 with the tubular bodies in the expanded configuration;

10 - Figure 31 is a schematic view and in cross section of the filling element of Figure 30 with the tubular bodies in the flat configuration;

- Figure 32 is a front perspective view of a soft or semi-rigid package of cigarettes made according to the present invention;

15 - Figures 33, 34 and 35 are front perspective views of respective alternatives of the package of cigarettes of Figure 32;

- Figure 36 is a plan view of a rigid blank usable to make a container of the package of cigarettes of Figure 32;

20 - Figure 37 is a plan view of a soft wrapper usable for forming a container of the package of cigarettes of Figure 32; and

25 - Figures 38-41 schematically illustrate the coupling steps between the filling element of Figure 7 and the corresponding inner wrap during the manufacturing of the package of cigarettes of Figure 32.

PREFERRED EMBODIMENTS OF THE INVENTION

In Figures 1-4, number 1 denotes as a whole, a rigid package of cigarettes (not the object of the present invention), which
30 comprises a rigid container 2 which has a parallelepiped shape and a single (only one) inner wrap 3 (illustrated in figures 3 and 4) which encloses a group of cigarettes (illustrated in figure 5) and is housed on the inside of the container 2. The inner wrap 3 has a parallelepiped shape and consists of a
35 wrapper of metallized paper wrapped around the group of cigarettes. As illustrated in Figure 5, the group of

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cigarettes comprises twenty cigarettes of reduced diameter compared to the standard size and arranged in four rows each having five cigarettes.

5 As illustrated in Figures 1-4, the container 2 has an open upper end 4 and is provided with a lid 5, which is cup-shaped and is hinged to container 2 along a hinge 6 to rotate, relative to the container 2 itself, between an open position (illustrated in figures 3 and 4) and a closed position
10 (illustrated in figures 1 and 2) of the open upper end 4.

The lid 5, when in its closed position, gives the container 2 a rectangular parallelepiped shape having an upper wall 7 and a lower wall 8 parallel and opposite to each other, a front
15 wall 9 and a rear wall 10 parallel and opposite to each other, and two side walls 11 parallel and opposite to each other. Between the side walls 11 and the front 9 and rear 10 walls four longitudinal edges are defined, whereas between the upper 7 and lower 8 walls and the front 9, rear 10 and side 11 walls
20 eight transverse edges are defined; in particular, between the upper 7 and lower 8 walls and the front 9 and rear 10 walls four major transverse edges are defined, whereas between the upper 7 and lower 8 walls and the side walls 11 four minor transverse edges are defined.

25

As illustrated in Figures 3 and 4, the inner wrap 3 (i.e. the group of cigarettes inside the inner wrap 3) has a cross section smaller (significantly) compared to the cross section of the container 2, and therefore in the container 2 a space
30 of significant size (approximately 10-50% of the total volume of the container 2) remains, unoccupied by the inner wrap 3. In particular, the inner wrap 3 is narrower compared to the container 2 (i.e. the width of the inner wrap 3 is less than the width of the container 2), the inner wrap 3 has the same
35 depth of the container 2 (i.e. the depth of the inner wrap 3 is equal to the depth of the container 2), and the inner wrap

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3 has the same height of the container 2 (i.e. the height of the inner wrap 3 is equal to the height of the container 2). According to a different embodiment not illustrated, the inner wrap 3 is narrower compared to the container 2 (i.e. the width of the inner wrap 3 is less than the width of the container 2) and, at the same time, the inner wrap 3 is also not as deep compared to the container 2 (i.e. the depth of the inner wrap 3 is less than the depth of the container 2) and/or the inner wrap 3 is also shorter compared to the container 2 (i.e. the height of the inner wrap 3 is less than the height of the container 2). The width of the inner wrap 3 and of the container 2 is measured perpendicular to the side walls 11 of the container 2, the depth of the inner wrap 3 and of the container 2 is measured perpendicular to the front 10 and rear 9 walls of container 2, and the height of the inner wrap 3 and of the container 2 is measured perpendicular to the upper 7 and lower 8 walls of the container 2. Generally, the group of cigarettes has a reduced size compared to the standard size because the group of cigarettes is formed by a smaller number of cigarettes compared to the number of standard cigarettes, and/or because the cigarettes have a diameter smaller than the standard diameter (the so-called "slim" or "superslim" cigarettes).

As illustrated in Figures 3, 4 and 6, the package 1 of cigarettes comprises a collar 12, which is connected (by gluing) to the inside of the container 2 to project partly outwards of the open upper end 4 and engage a corresponding inner surface of the lid 5 when lid 5 itself is arranged in the aforementioned closed position. The collar 12 has, in cross section, a "U" shape and comprises: a side wall 13 which rests against and is glued to (by means of glue A) a corresponding side wall 11 of the container 2, a front wall 14 which rests against and is glued (by means of glue B) to the front wall 9 of the container 2, and a side wall 15 that is opposite to the side wall 13 and rests against and is glued

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(by means of glue C) to a corresponding side wall 11 of the container 2. The front wall 14 of the collar 12 has, on the upper side, a window 16 that is arranged on the outside of the container 2 (i.e. located completely in the part of the front wall 14 projecting from the container 2) in the area of the inner wrap 3 and is "U"-shaped"; the window 16 has the function to facilitate the extraction of the cigarettes from the inner wrap 3.

The collar 12 has the function of keeping the lid 5 in the closed position with a certain force to avoid unintentional opening of the lid 5 itself; said "locking" function of the lid 5 in the closed position is carried out due to the fact that when the lid 5 is in the closed position the inner collar 12 partially projects from the open end of the container 2 and then engages with a corresponding inner surface of lid 5: in this way to open the lid 5 it is necessary to slightly elastically deform the lid 5 and/or the collar 12 and therefore it is necessary to apply a certain force to the lid 5 to open the lid 5 itself. According to a preferred embodiment illustrated in the attached figures, the front wall 14 of the collar 12 is provided with a pair of extensions 50 which project laterally to interblock the lid 5 when lid 5 is in the closed position so as to keep the lid 5 in the closed position with greater force. According to a different embodiment not illustrated, the front wall 14 of the inner collar 12 has no extensions 50.

Finally, the package 1 of cigarettes comprises a filling element 17, which is autonomous and separate from the collar 12, is arranged on the inside of the container 2, and is coupled to the inner wrap 3 to keep the inner wrap 3 in a correct position thus compensating for the smaller width of the inner wrap 3 compared to the width of the container 2. In other words, the filling element 17 has the function to keep the inner wrap 3 in a correct position, i.e. to prevent the

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inner wrap 3 from performing unwanted movements on the inside of the container 2 (since the inner wrap 3 is smaller than the container 2).

5 As illustrated in Figures 6, 7 and 8, the filling element 17 comprises a base wall 18 which has the same size of the front wall 9 and of the rear wall 10 of the container 2, it is arranged parallel to the front wall 9 and to the rear wall 10 of the container 2, and rests against (with the interposition
10 of the collar 12) the front wall 9 of the container 2 (according to an alternative and perfectly equivalent embodiment, the base wall 18 of the filling element 17 rests against the rear wall 10 of the container 2). Preferably, the base wall 18 of the filling element 17 has the same size of
15 the front wall 9 and of the rear wall 10 of the container 2; in this way, the base wall 18 of the filling element 17 is housed without appreciable clearance on the inside of the container 2 and thus keeps still the filling element 17 on the inside of the container 2 even when the inner wrap 3 begins
20 sagging as the cigarettes contained therein are consumed (i.e. it is not necessary for the element 17 to be glued to the container 2 or to the inner wrap 3 or to the inner collar 12 to be kept still).

25 In addition, the filling element 17 comprises a tubular body 19, which rises from the base wall 18 (that is, is supported by the base wall 18), is bounded on one side by the base wall 18, and has a smaller width compared to the base wall 18 (i.e. only a part of the base wall 18 more or less extended is
30 involved with the tubular body 19). As illustrated in Figures 6 and 7, the inner wrap 3 rests against the base wall 18 of the filling element 17, next to the tubular body 19 (i.e. the inner wrap 3 rests against the part of the base wall 18 left free by the tubular body 19 and then is located side by side
35 with the tubular body 19 itself).

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As illustrated in Figures 9, 10 and 11, the tubular body 19 of the filling element 17 can freely be deformed in a flat configuration (illustrated in Figure 9) in which the tubular body 19 has a flat shape (i.e. the tubular body 19 is collapsed on the base wall 18 and is completely extended) and in an expanded configuration (illustrated in figure 11) in which the tubular body 19 has a parallelepiped shape (i.e. the tubular body 19 is raised from the base wall 18 thus defining a parallelepiped cavity internally).

As illustrated in Figure 6, the tubular body 19 comprises a side wall 20, which is hinged to the base wall 18 (i.e. is connected to the base wall 18 along a hinge formed by a pre-weakened fold line) and rests against (with the interposition of the collar 12) a side wall 11 of the container 2, an intermediate wall 21 which is hinged to the side wall 20 (i.e. is connected to the side wall 20 along a hinge formed by a pre-weakened fold line) and rests against the rear wall 10 of the container 2, a central wall 22 which is hinged to the intermediate wall 21 (i.e. is connected to the intermediate wall 21 along a hinge formed by a pre-weakened fold line) and rests against the inner wrap 3, and a connection tab 23 which is hinged to the central wall 22 (i.e. is connected to the central wall 22 along a hinge formed by a pre-weakened fold line) and is glued to the base wall 18 by means of glue D.

In the embodiment illustrated in the accompanying figures, the base wall 18 of the filling element 17 rests against (with the interposition of the collar 12) the front wall 9 of the container 2 and the intermediate wall 21 of the filling element 17 rests against the rear wall 10 of the container 2; according to a different embodiment not illustrated, the filling element 17 is upside-down and thus the base wall 18 of the filling element 17 rests against the rear wall 10 of the container 2 and the intermediate wall 21 of the filling element 17 rests against (with the interposition of the collar

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12) the front wall 9 of the container 2.

As illustrated in Figure 6, the inner wrap 3 rests frontally against the front wall 14 of the collar 9 and against the front wall 12 of the container 2 (with the interposition of the base wall 18 of the filling element 17), on the rear side rests against the rear wall 10 of the container 2, and laterally rests against, from one side, against the side wall 13 of the collar 12 and to a side wall 11 of the container 2, and, on the opposite side, against the central wall 22 of the filling element 17.

As illustrated in Figures 9, 10 and 11, the tubular body 19 of the filling element 17 is deformed in the flat configuration and in the expanded configuration by rotating together the side wall 20 and the central wall 22 relative to the base wall 18; in other words, the side wall 20 and the central wall 22 rotate together and synchronously with respect to the base wall 18 while always keeping the intermediate wall 21 parallel to the base wall 18. In essence, the tubular body 19 forms a freely deformable articulated quadrilater, in which the base wall 18 forms the fixed frame, the side wall 20 and the central wall 22 forms the cranks, and the intermediate wall 21 forms the connecting rod.

As illustrated in Figure 8, the base wall 18 of the filling element 17 has a window 24 which overlaps the window 16 of the front wall 14 of the collar 12 so as to facilitate the extraction of the cigarettes (i.e. so as not to cover, from the inside, the window 16 of the front wall 14 of the collar 12).

As illustrated in Figure 12, the container 2 and the lid 5 are obtained starting from a flat blank 25 having a substantially rectangular elongated shape and of a known type; the blank 25 is provided with pre-weakened fold lines that guide the

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folding (in the absence of pre-weakened fold lines the thickness of the blank 25 would not allow to obtain an adequate precision in forming the folds). Also the collar 12 is obtained starting from a flat blank (not illustrated) of known type which is shaped to be cut without waste (scrap) from a continuous strip of wrapping material.

As illustrated in Figure 13, the filling element 17 is obtained starting from a flat blank 26 which is shaped to be cut without waste (scrap) from a continuous strip of wrapping material. The blank 26 is folded and glued onto itself (by applying glue D between the connection tab 23 and the base wall 18) so as to form the filling element 17. The blank 26 has four pre-weakened fold lines 27, which separate a panel 18' which forms the base wall 18, a panel 20' which forms the side wall 20, a panel 21' which forms the intermediate wall 21, a panel 22' which forms the central wall 22, and a panel 23' which forms the connection tab 23.

In the embodiment illustrated in Figures 1-13, the tubular body 19 of the filling element 17 is open on the upper side and is used to house other objects (such as a lighter) that may be inserted during the formation of package 1 of cigarettes or they can be inserted in use, by the user, after the first opening of the package of cigarettes.

According to an alternative embodiment illustrated in Figures 14-17, the tubular body 19 of the filling element 17 comprises an upper wall 28 which closes, on the upper side, the tubular body 19 itself (i.e. closes an upper end of the tubular body 19).

In the embodiment illustrated in Figures 14 and 15, the upper wall 28 of the tubular body 19 is hinged to the base wall 18 and has a connection tab 29, which is hinged to the upper wall 28, it is folded by 90° relative to the upper wall 28 and

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rests against (and is possibly glued) to the intermediate wall 21 which is opposite to the base wall 18.

In the embodiment illustrated in Figures 16 and 17, the upper wall 28 of the tubular body 19 is hinged to the intermediate wall 21 and has a connection tab 29, which is hinged to the upper wall 28, is folded by 90° relative to the upper wall 28, and it rests against (and is possibly glued) to the base wall 18 that is opposite to the intermediate wall 21.

The embodiments illustrated in Figures 1-17 show a group of cigarettes (illustrated in Figure 5) having a cross section that is close to a square shape (i.e. having a similar width, although still slightly larger, compared to the depth). In figures 18-21 an alternative is illustrated, wherein the group of cigarettes (illustrated in Figure 18) has an elongated cross-section (i.e. having a significantly larger width than the depth); in this alternative, the group of cigarettes (illustrated in Figure 18) comprises twenty cigarettes arranged in six rows laterally, each having three cigarettes and a centrally arranged row having two cigarettes.

In the embodiments illustrated in Figures 1-21, the filling element 17 has a single tubular body 19 arranged on one side of the inner wrap 3. In the alternative illustrated in Figure 22, the filling element 17 has two distinct tubular bodies 19, which are arranged on opposite sides of the inner wrap 3; in this embodiment, therefore, the inner wrap 3 is arranged in the centre and is surrounded on both sides by the two tubular bodies 19 of the filling element 17. The two tubular bodies 19 of the filling element 17 can have the same size, or can also have different sizes.

From what has been described above it is evident that the filling element 17 can freely be deformed in the flat configuration and in the expanded configuration only when

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located on the outside of the container 2 (i.e. is not forced by the mechanical constraints imposed by the walls 9, 10 and 11 of the container 2). Furthermore, the filling element 17 can be inserted into the container 2 only in the expanded configuration (i.e. the container 2 can be formed by folding the blank 25 around the filling element 17 only when the filling element 17 is in the expanded configuration). Finally, the filling element 17 when arranged on the inside of the container 2 is no longer deformable from the expanded configuration (that is, it is locked in the expanded configuration) due to the geometric constraints imposed by the walls 9, 10 and 11 of the container 2.

With reference to what is illustrated in Figures 23-27, in the following the method used to manufacture the package 1 of cigarettes described above is described.

Initially the inner wrap 3 is made in a known manner by forming the group of cigarettes and then by folding a soft wrapper around the group of cigarettes itself. Subsequently, the filling element 17 with the tubular body 19 in the flat configuration (as illustrated in Figure 23) is fed and then the inner wrap 3 is coupled to the filling element 17 with the tubular body 19 in the flat configuration by resting the inner wrap 3 against the base wall 18 of the filling element 17 next to the tubular body 19 (as illustrated in figure 24).

At this point, the inner wrap 3 together with the filling element 17 (always with the tubular body 19 in the flat configuration) are inserted together into a pocket 30 of a wrapping conveyor (as illustrated in Figure 25). The pocket 30 has a "U" shape in cross section and is laterally bounded by two side walls 31 which give the pocket 30 itself a smaller size compared to the overall size of the filling element 17 with the tubular body 19 arranged in the flat configuration (as illustrated in figure 25).

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Upon entering into the pocket 30, the tubular body 19 of the filling element 17 hits against a side wall 31 of the pocket 30 and therefore is deformed by passing from the flat configuration to the intermediate configuration (as illustrated in Figure 26); in other words, the entrance in the pocket 30 determines the deformation of the tubular body 19 of the filling element 17 that passes from the flat configuration to the intermediate configuration by way of the impact against a side wall 31 of the pocket 30. The impact of the tubular body 19 of the filling element 17 against a side wall 31 of the pocket 30 and therefore the consequent deformation of the tubular body 19 are determined by the fact that the pocket 30 has a smaller size compared to the size of the filling element 17 with the tubular body 19 arranged in the flat configuration. Once the filling element 17 and the inner wrap 3 have fully entered into the pocket 30, the tubular body 19 is arranged in the expanded configuration, and therefore the content of the package 1 of cigarettes (as illustrated in Figure 27) is completed. At this point, around the inner wrap 3 and around the filling element 17 the blank (not illustrated) of the collar 12 is folded in a known manner and then the blank 25 is folded in a known manner so as to form the container 2 provided with the lid 5.

In the embodiments illustrated in Figures 1-27, the tubular body 19 (or each tubular body 19 if two tubular bodies 19 are provided) of the filling element 17 is arranged next to the inner wrap 3, i.e. between the inner wrap 3 and a corresponding side wall 11 of the container 2 so as to compensate for a smaller width of the inner wrap 3 compared to the width of the container 2. In the alternative embodiment illustrated in figures 28 and 29, each tubular body 19 (of course it could also be alternatively provided that a single tubular body 19) is arranged behind the inner wrap 3, i.e. between the inner wrap 3 and the rear wall 10 of the container

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2 so as to compensate for a smaller depth compared to the depth of inner wrap 3 of the container 2.

5 In this embodiment, the base wall 18 of each tubular body 19 is arranged parallel to and rests against a corresponding side wall 11 of the container 2 and has the same size of the side wall 11 itself. In this embodiment, the filling element 17 comprises a further connection wall 32, which connects the two base walls 18 to one another, is arranged perpendicular to the 10 two base walls 18, rests against the front wall 9 of the container 2 and has the same size of the front wall 9 itself. In this embodiment, in each filling element 17 the base wall 18 is parallel to and rests against a corresponding side wall 11 of the container 2, the side wall 20 is arranged parallel 15 to and rests against the rear wall 10 of the container 2, the intermediate wall 21 is perpendicular to the rear wall 10 of the container 2 and does not rest against any wall of the container 2, and the central wall 22 is parallel to the rear wall 10 of the container 2 and rests against (from behind) the 20 inner wrap 3.

According to an alternative which not illustrated, the filling element 17 is rotated by 180° so as to rest the connection wall 32 against the rear wall 10 of the container 2 and thus 25 rest the side walls 20 of the tubular bodies 19 against the front wall 9 of the container 2.

In the alternative illustrated in Figures 30 and 31, the filling element 17 also comprises two containing bodies 33 30 that project inwards from the base wall 18 so as to laterally rest against the inner wrap 3 and compensate for a smaller width of the inner wrap 3 compared to the width of the inner container 2. Each containing body 33 comprises an intermediate wall 34 which is arranged perpendicular to a corresponding 35 base wall 18, a central wall 35 which is arranged perpendicular to the intermediate wall 34 and rests against

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the inner wrap 3, and a connection tab 36, which is perpendicular to the central wall 35 and is glued to the connection wall 32 by means of glue E. Each connection tab 23 is formed by a portion of a corresponding intermediate wall 34 by means of a "U"-shaped through-incision which separates the connection tab 23 from the intermediate wall 34; in other words, each intermediate wall 34 has a "U"-shaped through-incision which separates a corresponding connection tab 23 from the intermediate wall 34 itself.

In the embodiments illustrated in Figures 1-31, the package 1 of cigarettes is of a rigid type, i.e. comprises a rigid container 2 provided with a hinged lid 5 and a collar 12 which partially projects outwards from the upper open end 4 of the rigid container 2; the inner wrap 3 and the filling element 17 are coupled together and arranged in the rigid container 2 so as to be completely surrounded (i.e. completely non-visible from the outside) when the lid 5 is closed.

In the alternative embodiments illustrated in Figures 32-41 (object of the present invention), the package 1 of cigarettes is of a soft or semi-rigid type, i.e. comprises a semi-rigid or soft container 37, which is open on the upper side and has no lid; the inner wrap 3 and the filling element 17 are coupled together and arranged in the semi-rigid or soft container 37 so that an upper wall of the inner wrap 3 and an upper portion of the filling element 17 are arranged in the area of an upper open end 38 of the container 37. In the case of a soft type package 1 of cigarettes, the container 37 is soft and therefore has a reduced thickness; whereas, in the case of a semi-rigid type package 1 of cigarettes, the container 37 is semi-rigid and therefore has a greater thickness.

It is important to note that between the embodiments illustrated in Figures 1-31 and the embodiments illustrated in

- 18 -

Figures 32-41, the only difference is in the shape of the containers 2 and 37 whereas the inner wrap 3 and the filling element 17 are completely identical.

5 The container 37 has a rectangular parallelepiped shape and has an open upper end 38, a bottom wall 39 opposite to the open upper end 38, a front wall 40 and a rear wall 41 parallel and opposite to one another, and two side walls 42 parallel and opposite to one another.

10

In the embodiment illustrated in Figure 32, the tubular body 19 of the filling element 17 comprises the upper wall 28 which closes, on the upper side of the tubular body 19 itself (i.e. closes an upper end of the tubular body 19).

15

In the embodiment illustrated in Figure 33, the tubular body 19 of the filling element 17 has no upper wall 28, and therefore the inner cavity of the tubular body 19 of the filling element 17 is immediately visible and accessible
20 through the open upper end 38 of the container 37.

20

In the embodiments illustrated in Figure 34 and 35, a band 43 is provided, which is arranged transversely straddling the open upper end 38 of the container 37 and is glued to the
25 front wall 40 and to the rear wall 41 of the container 37. The band 43 can also be a tax stamp, i.e. attesting the payment of a fee. The band 43 can also consist of a repositionable adhesive label of "open and close" type. Preferably (but not obligatorily), the band 43 is arranged in the area of the
30 tubular body 19 of the filling element 17, i.e. closes, on the upper side, the tubular body 19 of the filling element 17 (regardless of the fact that the tubular body 19 is or is not provided with the upper wall 28). According to an alternative embodiment not illustrated, the band 43 is centred relative to
35 the inner wrap 3 (i.e. symmetrically covers the upper wall of the inner wrap 3) and does not touch (if not marginally) the

- 19 -

tubular body 19 of the filling element 17.

In the embodiment illustrated in Figure 34, the band 43 has the same size of the tubular body 19 of the filling element 17 and therefore completely covers the tubular body 19 without touching (if not marginally) the upper wall of the inner wrap 3. In the embodiment illustrated in Figure 35, the band 43 has a larger size compared to the size of the tubular body 19 of the filling element 17 and therefore, beside completely covering the tubular body 19, also partially covers the upper wall of the inner wrap 3.

As illustrated in Figure 36, the container 37 in the semi-rigid version is obtained starting from a flat blank 44 having a substantially rectangular elongated shape and of known type. The blank 44 is provided with pre-weakened fold lines that guide the folding (in the absence of pre-weakened fold lines the high thickness of the blank 44 would not allow to obtain an adequate precision in forming the folds).

As illustrated in Figure 37, the container 37 in the soft version is obtained starting from a wrapper 45 having an elongated rectangular shape and of known type. The wrapper 45 is entirely devoid of any pre-weakened fold lines that guide the folding (the reduced thickness of the wrapper 45 allows to obtain an adequate precision in forming the folds even in the absence of pre-weakened fold lines).

From what has been described above it is evident that the filling element 17 can freely be deformed in the flat configuration and in the expanded configuration only when located on the outside of the container 37 (i.e. is not forced by the mechanical constraints imposed by the walls 40, 41 and 42 of the container 37). In addition, the filling element 17 is inserted into the container 37 only in the expanded configuration (i.e. the container 37 can be formed by folding

- 20 -

the blank 44 or the wrapper 45 around the filling element 17 only when the filling element 17 is arranged in the expanded configuration). Finally, the filling element 17 when placed on the inside of the container 37 is no longer deformable from the expanded configuration (that is, when it is locked in the expanded configuration) due to the geometric constraints imposed by the walls 40, 41 and 42 of the container 37. With reference to what has been illustrated in figures 38-41, in the following the method used to manufacture the package 1 of cigarettes, illustrated in figures 32-35 is described.

Initially the inner wrap 3 is made in a known manner by forming the group of cigarettes and then by folding a soft wrapper around the group of cigarettes itself. Subsequently, the filling element 17 with the tubular body 19 in the flat configuration is fed, and then the inner wrap 3 is coupled to the filling element 17 with the tubular body 19 in the flat configuration by resting the inner wrap 3 against the base wall 18 of the filling element 17 next to the tubular body 19 (as illustrated in figure 38).

At this point, the inner wrap 3 together with the filling element 17 (always with the tubular body 19 in the flat configuration) are inserted together in a pocket 46 of a packing conveyor 47 (a packing wheel in the embodiment illustrated) with the interposition of the blank 44 or of the wrapper 45 (as illustrated in figure 38). Upon entering the pocket 46, the inner wrap 3 together with the filling element 17 carry with them the blank 44 or the wrapper 45 which becomes "U"-folded (as illustrated in Figure 39); inside the pocket 46, the tubular body 19 of the filling element 17 initially remains in the flat configuration and projects partially outwards from the pocket 46 itself (as illustrated in Figure 39).

At this point, a movable folding member 48 arranged next to

- 21 -

the pocket 46 performs a relative movement with respect to the pocket 46 (i.e. with respect to the packing conveyor 47) to fold by 90° a first flap of the blank 44 or of the wrapper 45 projecting from the pocket 46 and, simultaneously, to deform
5 (push) the tubular body 19 of the filling element 17 from the flat configuration (illustrated in figures 38 and 39) to the expanded configuration (illustrated in figures 40 and 41). In other words, the thrust of the movable folding member 48 on the tubular body 19 of the filling element 17 deforms the
10 tubular body 19 by transforming the tubular body 19 itself from the flat configuration (illustrated in Figures 38 and 39) to the expanded configuration (illustrated in Figures 40 and 41).

15 Once the movable folding member 48 has come to the end of its stroke (i.e. its action) as illustrated in Figure 40, the packing conveyor 47 performs an advancing step to move the pocket 46 towards a subsequent processing station; the movement of the packing conveyor 47 brings a second flap of
20 the blank 44 or of the wrapper 45, projecting from the pocket 46, against a fixed folding member 49 that is arranged on the opposite side of the movable folding member 48; in this way, the second flap of the blank 44 or of the wrapper 45 is folded by 90° onto the first flap of the blank 44 or of the
25 previously folded wrapper 45 thus completing the tubular folding of the blank 44 or of the wrapper 45 around the inner wrap 3 and the filling element 17.

Subsequently, in the packing conveyor 47 the folding of the
30 blank 44 or of the wrapper 45 forming the lower wall 39 is completed, and therefore finishing the manufacturing of the package 1 of cigarettes.

In all the embodiments, the rigid, semi-rigid or soft package
35 1 of cigarettes is normally wrapped with a transparent plastic overwrapping provided with a tear-off strip that facilitates

- 22 -

the opening thereof.

The package 1 of cigarettes described above has numerous advantages.

5

Firstly place, the package 1 of cigarettes described above in all its versions (rigid, semi-rigid or soft) is simple to produce even in an existing packing machine (which is to be subjected to very few non-invasive modifications). In fact, 10 the package 1 of cigarettes described above with respect to a similar standard package of cigarettes has a single additional component, i.e. the filling element 17 which can be fed in the machine by using, without substantial changes (if not by format adaptation), a feeding line of known type designed for 15 a possible coupon. In fact, the filling element 17 is initially completely flat (i.e. quite similar to a coupon), and has a comparable size to that of a coupon, and especially does not require any type of active folding operation as it is able to expand (i.e. to deform so as to be able to pass its 20 own tubular body 19 from the flat configuration to the expanded configuration) in a completely autonomous way by entering the pocket 30 of a wrapping conveyor simply by contact against a wall 31 of the pocket 30, or by exploiting the movement of the movable folder 48 normally provided to 25 perform the tubular folding of the blank 44 or of the wrapper 45.

In addition, the filling element 17 is made with few simple folds of a blank 26, which is obtainable with no scraps from a 30 continuous strip of wrapping material with similar processes to those performed for the manufacturing a standard blank for a collar.

Finally, in the package 1 of cigarettes described above the 35 inner wrap 3 rests against (i.e. is locked) the inside of the main chamber 18 in a particularly stable and durable manner;

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consequently, in the package 1 of cigarettes described above the inner wrap 3 is prevented, in an effective way, from "shaking" inside the package 1 of cigarettes.

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CLAIMS

1. A package (1) for tobacco articles comprising:

a container (37), which is open on the upper side, has no lid,
5 has a parallelepiped shape, and has a lower wall (39), an open
upper end (38) opposite to the lower wall (39), a front wall
(40), a rear wall (41), and two side walls (42);

a single inner wrap (3), which encloses a group of tobacco
articles, is housed on the inside of the container (37), which
10 has a size that is smaller than the size of the container (37)
so as to leave, inside the container (37), free space not
occupied by the inner wrap (3), and has a visible upper wall,
which is arranged in the area of the open upper end (38) of
the container (37); and

15 a filling element (17), which is arranged on the inside of the
container (37), is coupled to the inner wrap (3), and consists
of a blank (27) that is folded and glued onto itself, and
compensates for the smaller size of the inner wrap (3)
compared to the size of the container (37);

20 the package (1) for tobacco articles **is characterized in that:**
the filling element (17) comprises at least one tubular body
(19), which can be deformed in a flat configuration, in which
the tubular body (19) has a flat shape, and in an expanded
configuration, in which the tubular body (19) has a
25 parallelepiped shape; and

the filling element (17) can freely be deformed in the flat
configuration and in the expanded configuration only when it
is located on the outside of the container (37), can be
inserted in the container (37) only in the expanded
30 configuration, and once arranged inside the container (37) can
no longer be deformed from the expanded configuration due to
the geometric constraints imposed by the walls (40, 41, 42) of
the container (37).

35 2. The package (1) for tobacco articles according to claim 1,
wherein the tubular body (19) forms an articulated quadrilater

- 25 -

that can be freely deformed.

3. The package (1) for tobacco articles according to claim 1 or 2, wherein the tubular body (19) of the filling element (17) is arranged next to the inner wrap (3) between the inner wrap (3) and a corresponding side wall (42) of the container (37) so as to compensate for a smaller width of the inner wrap (3) compared to the container (37).

4. The package (1) for tobacco articles according to claim 3, wherein the filling element (17) comprises a base wall (18), which rests against the front wall (40) or the rear wall (41) of the container (37), supports the tubular body (19) and is of the same transverse size, measured perpendicular to the side walls (42) of the container (37), of the front wall (40) and of the rear wall (41) of the container (37) so that the base wall (18) is in contact at one end with a side wall (42) of the container (37) and is in contact at the opposite end with the other side wall (42) of the container (37).

5. The package (1) for tobacco articles according to claim 4, wherein the base wall (18) of the filling element (17) rests against the inner wrap (3).

6. The package (1) for tobacco articles according to claim 5, wherein the tubular body (19) comprises a side wall (20), which is hinged to the base wall (18) and rests against a side wall (42) of the container (37), an intermediate wall (21), which is hinged to the side wall (20) and rests against the rear wall (41) or the front wall (40) of the container (37), a central wall (22), which is hinged to the intermediate wall (21) and rests against the inner wrap (3), and a first connection tab (23), which is hinged to the central wall (22) and is glued to the base wall (18).

7. The package (1) for tobacco articles according to claim 6,

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wherein the tubular body (19) is deformed in the flat configuration and in the expanded configuration by rotating together with the side wall (20) and the central wall (22) relative to the base wall (18).

5

8. The package (1) for tobacco articles according to one of the claims from 1 to 7, wherein the tubular body (19) of the filling element (17) has an upper wall (28), which closes an upper end of the tubular body (19).

10

9. The package (1) for tobacco articles according to claim 8, wherein the upper wall (28) of the tubular body (19) is hinged to a first wall (18; 21) of the tubular body (19) and has a second connection tab (29), which is hinged to the upper wall (28), is folded by 90° in relation to the upper wall (28), and rests against a second wall (21; 18) of the tubular body (19) that is opposite to the first wall (18; 21).

15

10. The package (1) for tobacco articles according to claim 9, wherein the second connection tab (29) is glued to the second wall (21; 18) of the tubular body (19).

20

11. The package (1) for tobacco articles according to claim 1 or 2, wherein the tubular body (19) of the filling element (17) is arranged behind the inner wrap (3) between the inner wrap (3) and the rear wall (41) or the front wall (40) of the container (37) so as to compensate for a smaller depth of the inner wrap (3) compared to the container (37).

25

12. The package (1) for tobacco articles according to claim 11, wherein the filling element (17) comprises a containing body (33), which projects inwards from the base wall (18) so as to laterally rest against the inner wrap (3) and compensate for a smaller width of the inner wrap (3) compared to the container (37).

30

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- 27 -

13. The package (1) for tobacco articles according to claim 12, wherein the containing body (33) comprises an intermediate wall (34) which is arranged perpendicular to the base wall (18), a central wall (35), which is arranged perpendicular to the intermediate wall (34) and rests against the inner wrap (3), and a third connection tab (36), which is perpendicular to the central wall (35) and is glued to a connection wall (32).

14. The package (1) for tobacco articles according to claim 11, 12 or 13, wherein the filling element (17) comprises two distinct base walls (18), two distinct tubular bodies (19), and a connection wall (32), which connects the two base walls (18) to one another, is arranged perpendicular to the two base walls (18), and rests against the front wall (40) or the rear wall (41) of the container (37).

15. A wrapping method to manufacture a rigid package (1) for tobacco articles comprising:

a container (37), which is open on the upper side, has no lid, has a parallelepiped shape, and has a lower wall (39), an open upper end (38) opposite to the lower wall (39), a front wall (40), a rear wall (41), and two side walls (42);

a single inner wrap (3) which encloses a group of tobacco articles, is housed on the inside of the container (37), has a size that is smaller than the size of the container (37), and has a visible upper wall, which is arranged in the area of the open upper end (38) of the container (37); and

a filling element (17), which is arranged on the inside of the container (37), is coupled to the inner wrap (3), consists of a blank (27) that is folded and glued onto itself, and compensates for the smaller size of the inner wrap (3) compared to the size of the container (37);

wherein the filling element (17) comprises at least one tubular body (19), which can freely be deformed in a flat configuration, in which the tubular body (19) has a flat

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shape, and in an expanded configuration, in which the tubular body (19) has a parallelepiped shape;

the wrapping method comprises the steps of:

coupling the inner wrap (3) to the filling element (17) with

5 the tubular body (19) arranged in the flat configuration;

inserting the inner wrap (3), together with the filling element (17) arranged in the flat configuration, into a pocket (46) of a wrapping conveyor (47), so that one end of the tubular body (19) projects from the pocket (46); and

10 causing the end of the tubular body (19) projecting from the pocket (46) to come into contact with a first folder (48), so as to push the tubular body (19) from the flat configuration to the expanded configuration.

15 16. The wrapping method according to claim 15, wherein the first folder (48) is movable and moves in relation to the pocket (46) of the wrapping conveyor (47), when the wrapping conveyor (47) is still.

20 17. The wrapping method according to claim 15 or 16 and comprising the further step of interposing a blank (44) or a wrapper (45) between the inner wrap (3) the filling element (17) and the pocket (46), so that the blank (44) or the wrapper (45) is folded in a "U" shape around the inner wrap
25 (3) and the filling element (17) as it enters the pocket (46).

18. The wrapping method according to claim 17, wherein the first folder (48), at the same time, presses against the end of the tubular body (19) projecting from the pocket (46) and
30 folds by 90° a first flap of the blank (44) or of the wrapper (45) projecting from the pocket (46).

19. The wrapping method according to claim 17, wherein a second folder (49) arranged on the opposite side of the first
35 folder (48), folds by 90° a second flap of the blank (44) or the wrapper (45) projecting from the pocket (46) above the

- 29 -

previously folded first flap of the blank (44) or the wrapper (45).

20. The wrapping method according to any of the claims from 15
5 to 19, wherein the filling element (17) comprises at least one
base wall (18) and wherein the tubular body (19) comprises a
side wall (20), which is hinged to the base wall (18) and
rests against a side wall (42) of the container (37), an
intermediate wall (21) which is hinged to the side wall (20)
10 and rests against the rear wall (41) or the front wall (40) of
the container (37), a central wall (22), which is hinged to
the intermediate wall (21) and rests against the inner wrap
(3), and a first connection tab (23), which is hinged to the
central wall (22) and is glued to the base wall (18).

15

21. The wrapping method according to claim 20, wherein the
tubular body (19) is deformed in the flat configuration and in
the expanded configuration by rotating together with the side
wall (20) and the central wall (22) relative to the base wall
20 (18).

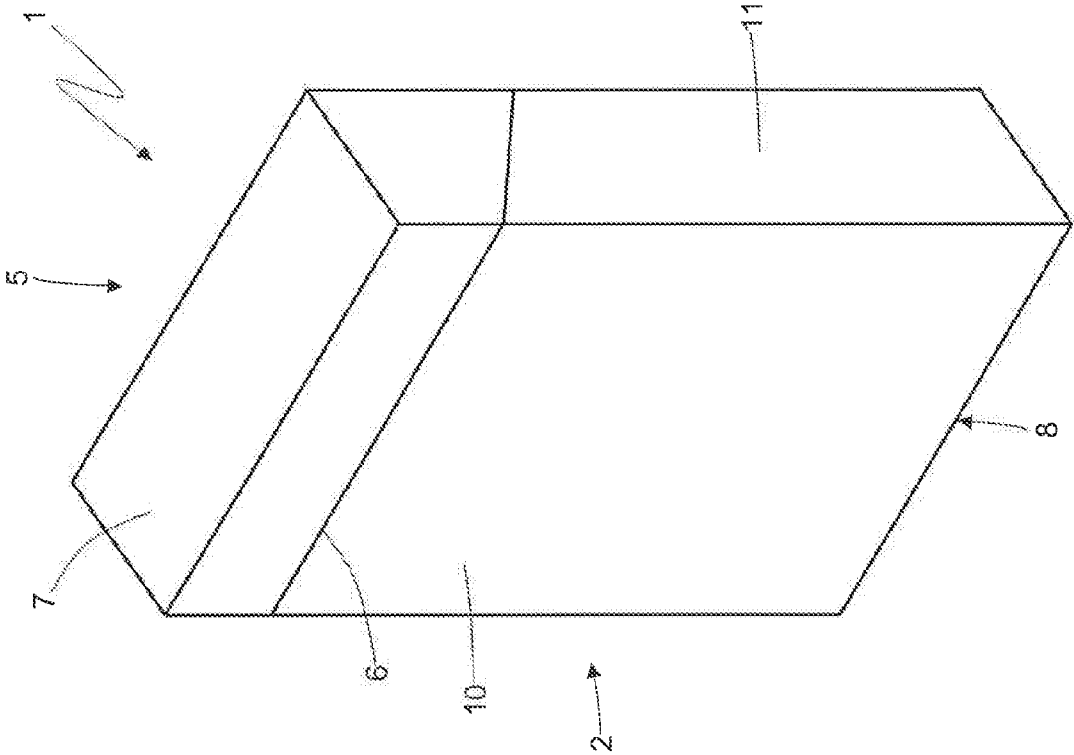


Fig. 2

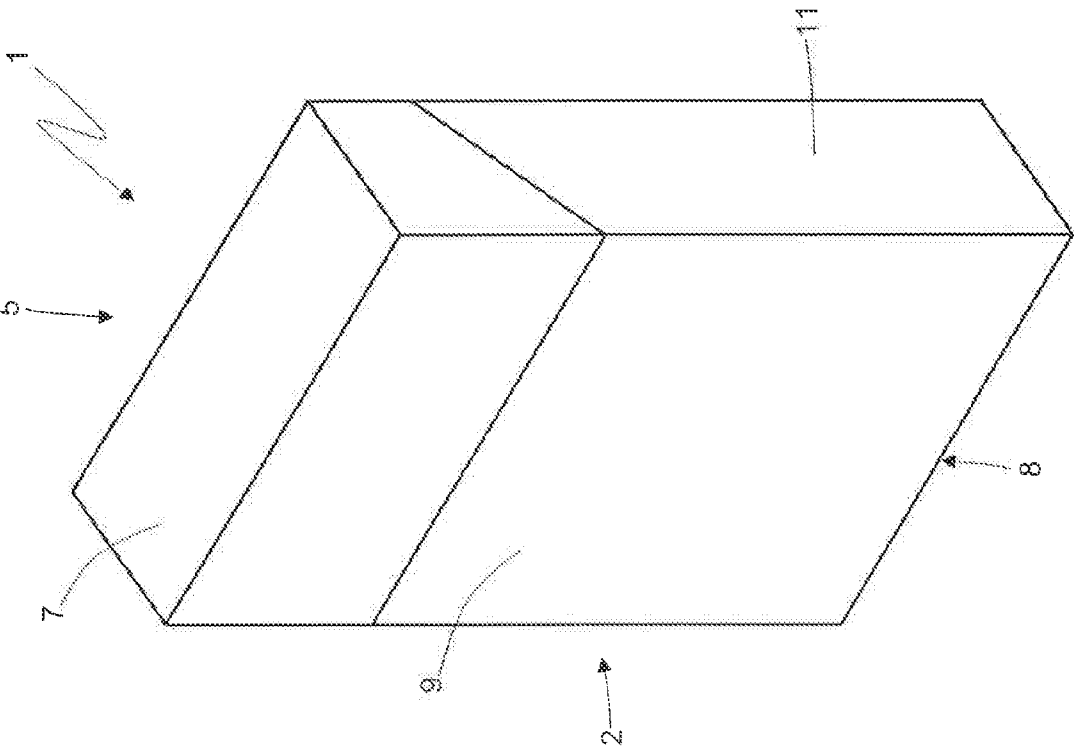


Fig. 1

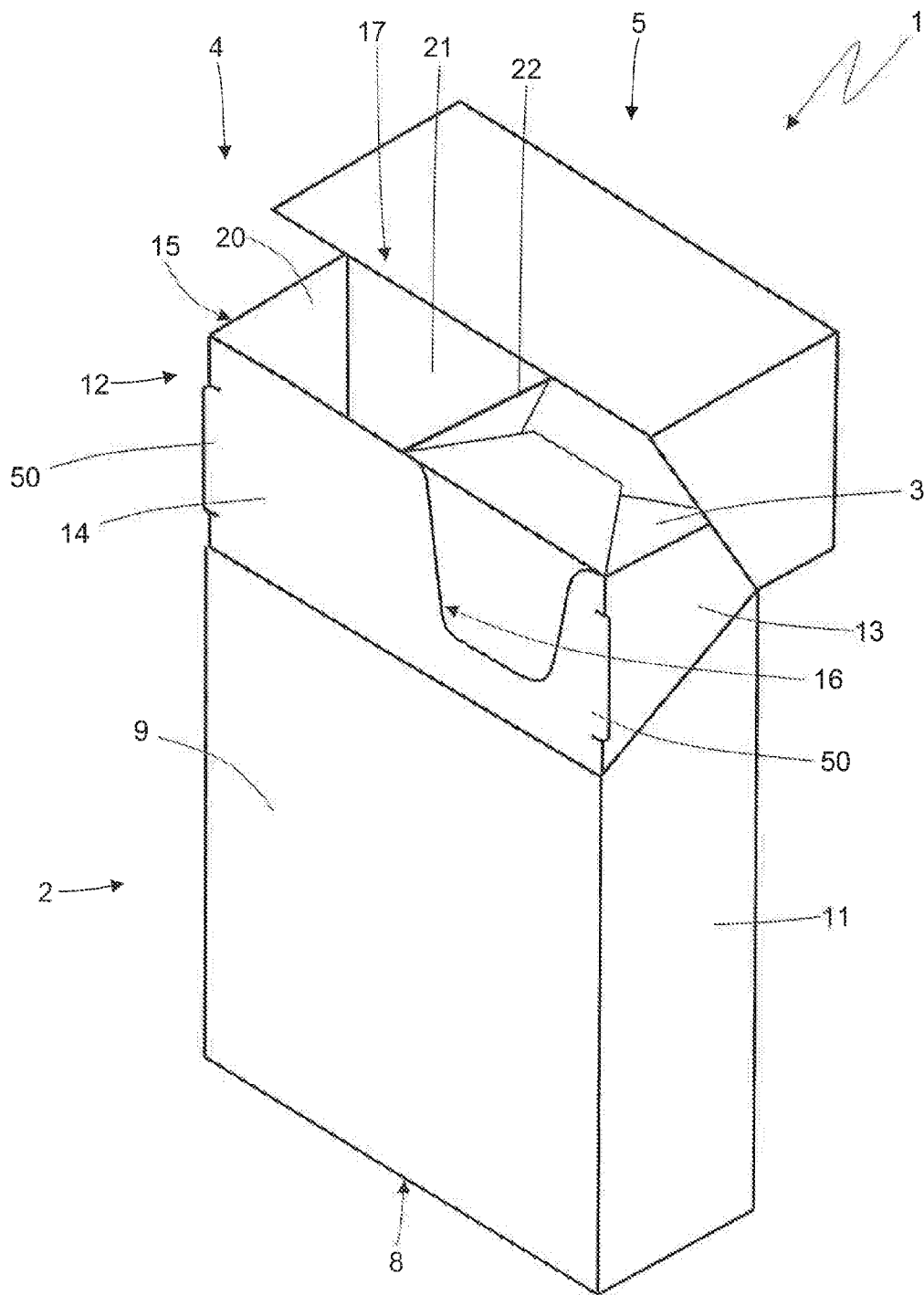
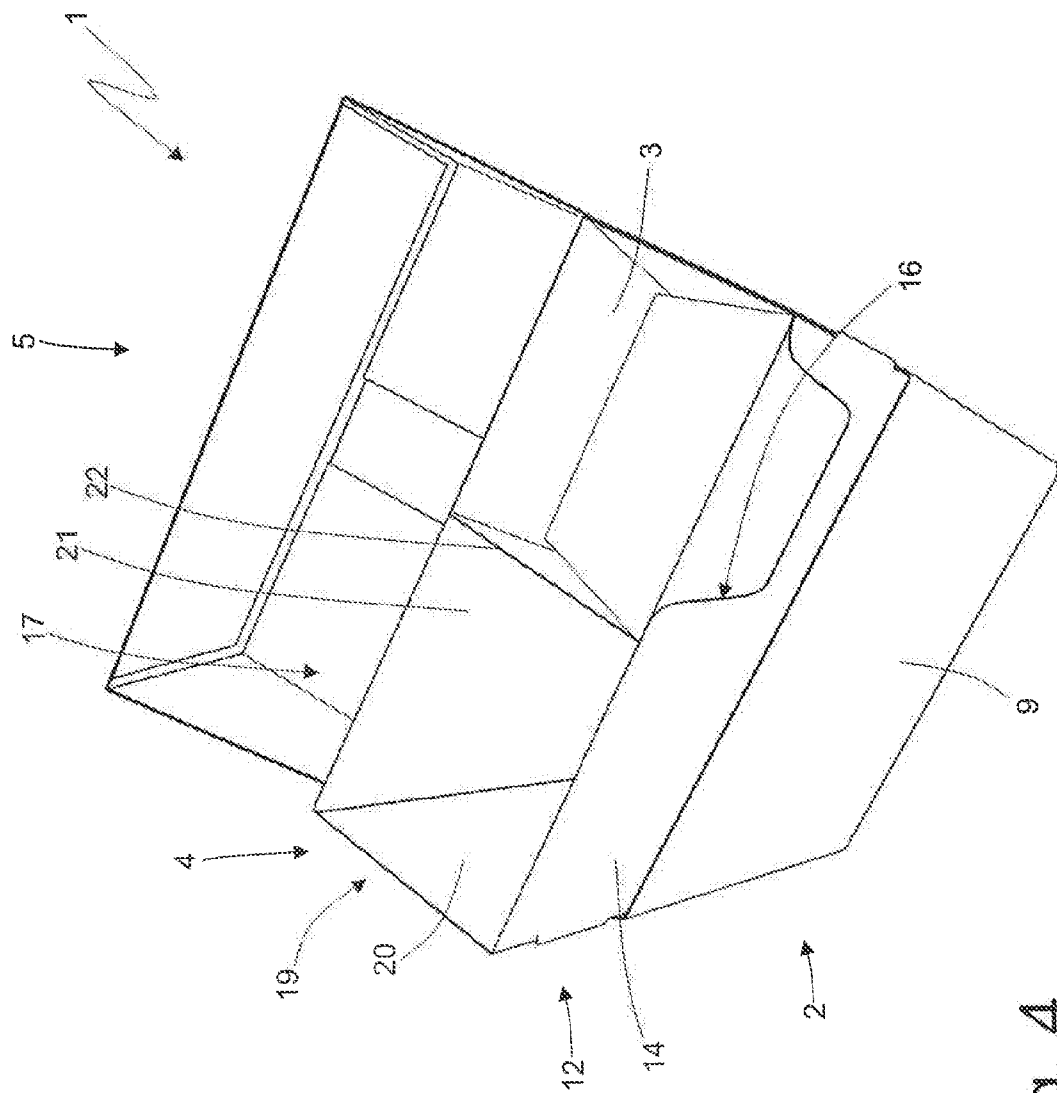


Fig. 3



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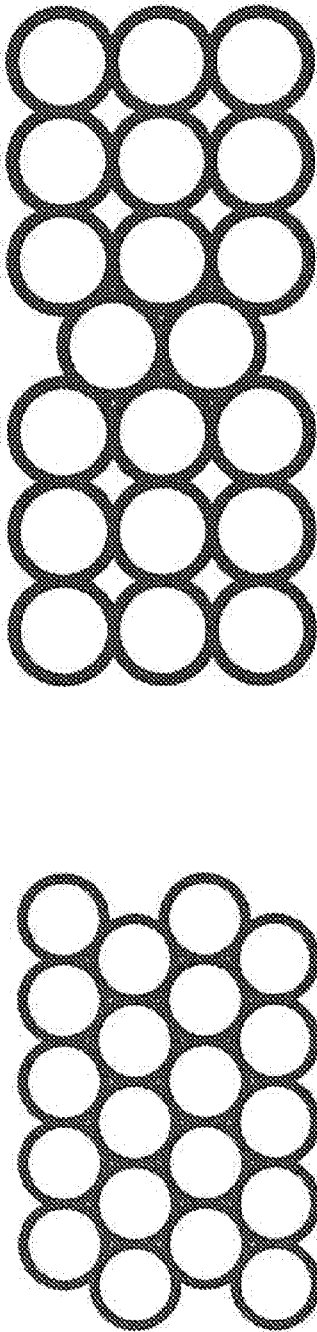
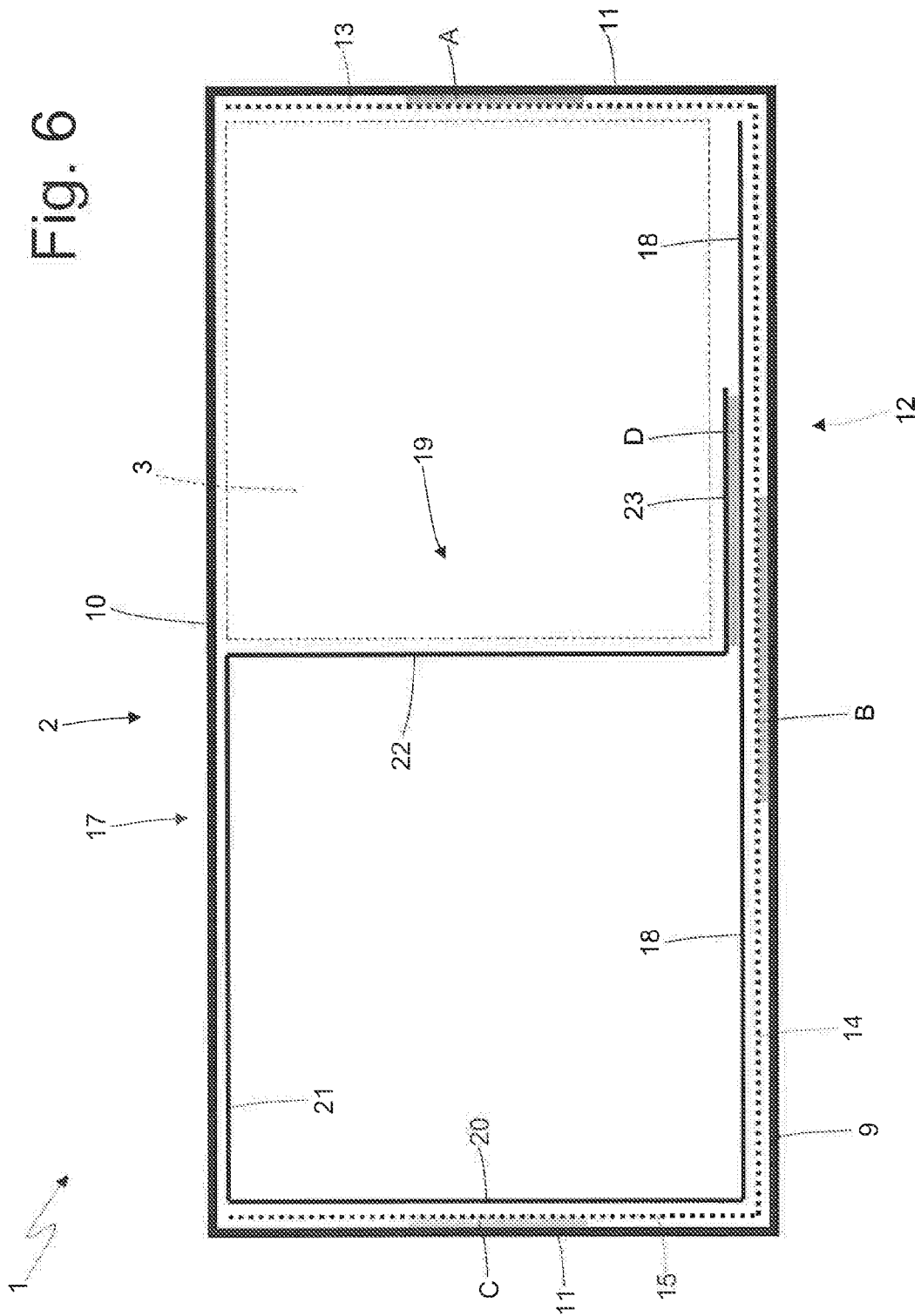


Fig. 5

Fig. 18

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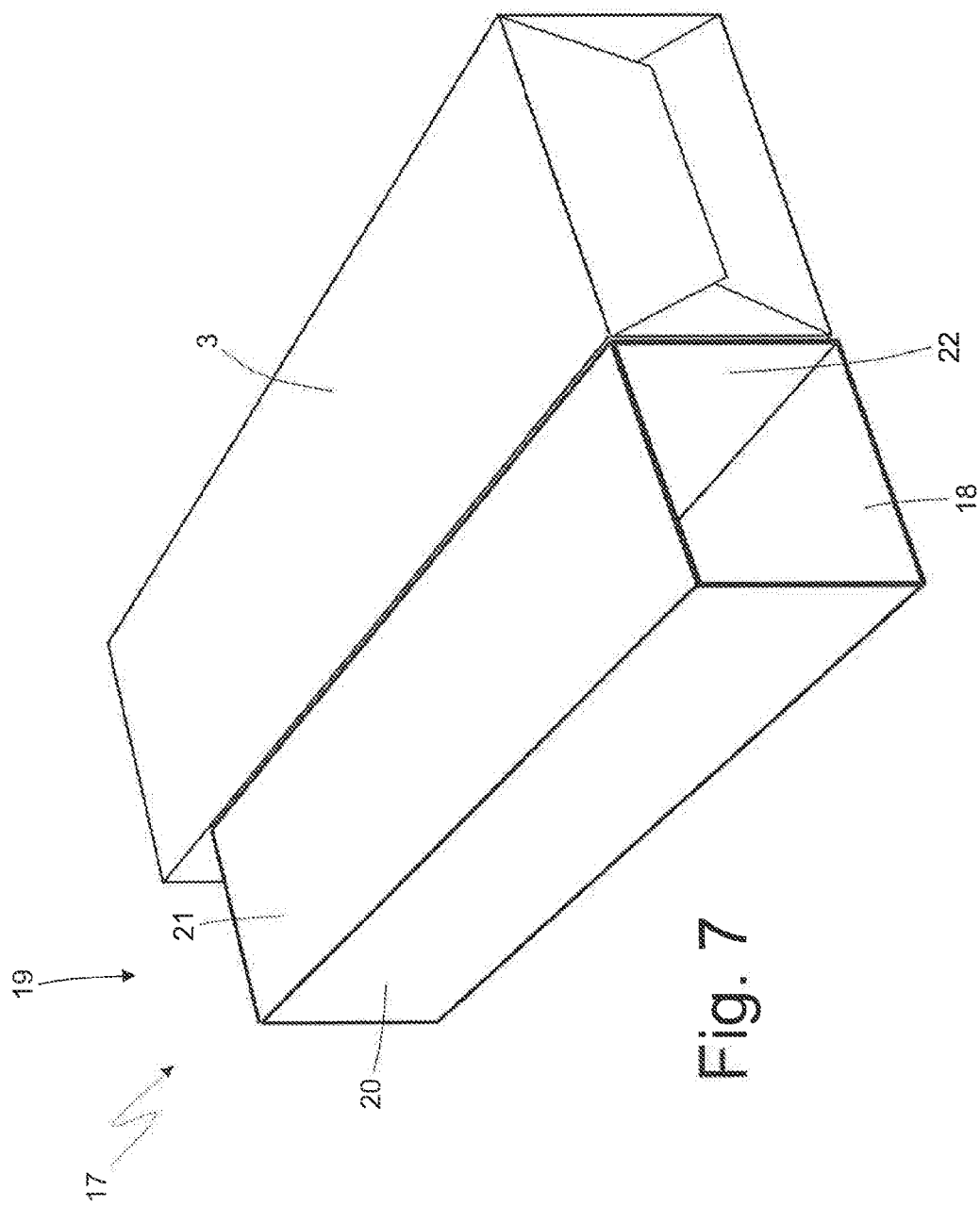
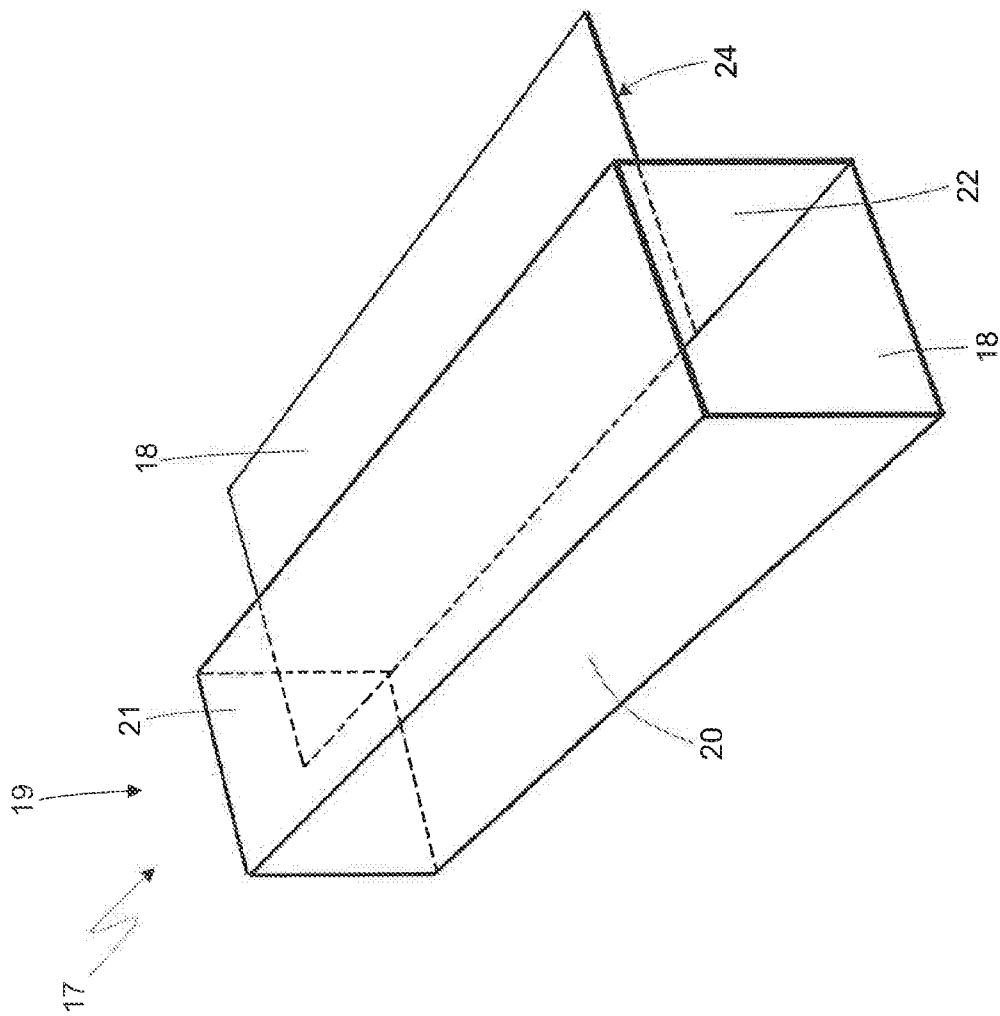
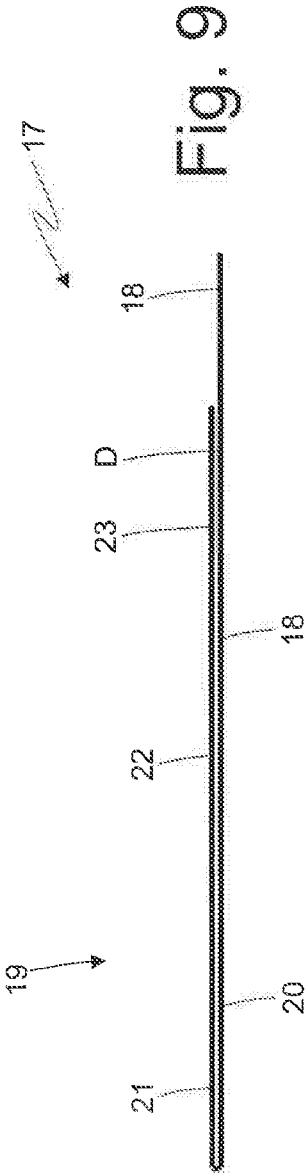
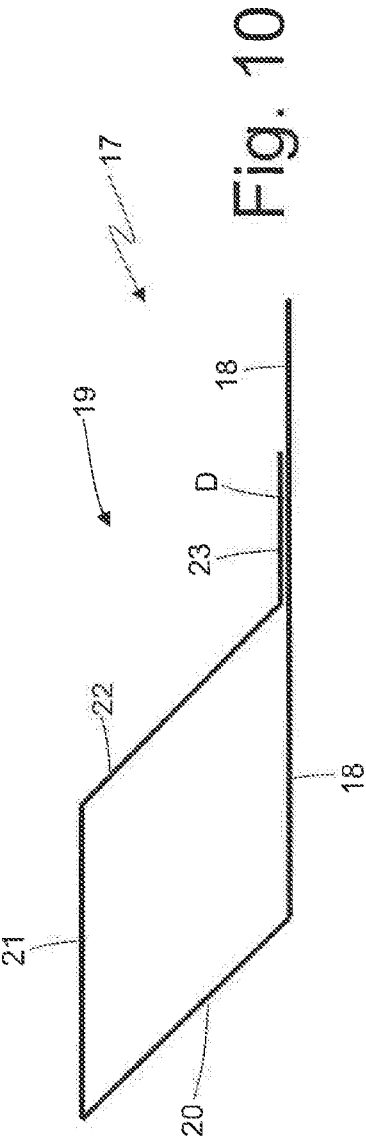
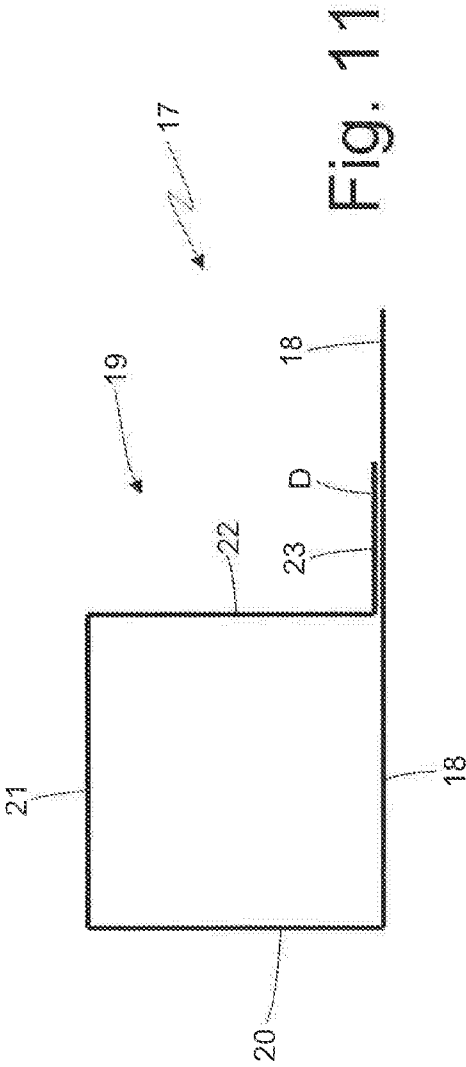
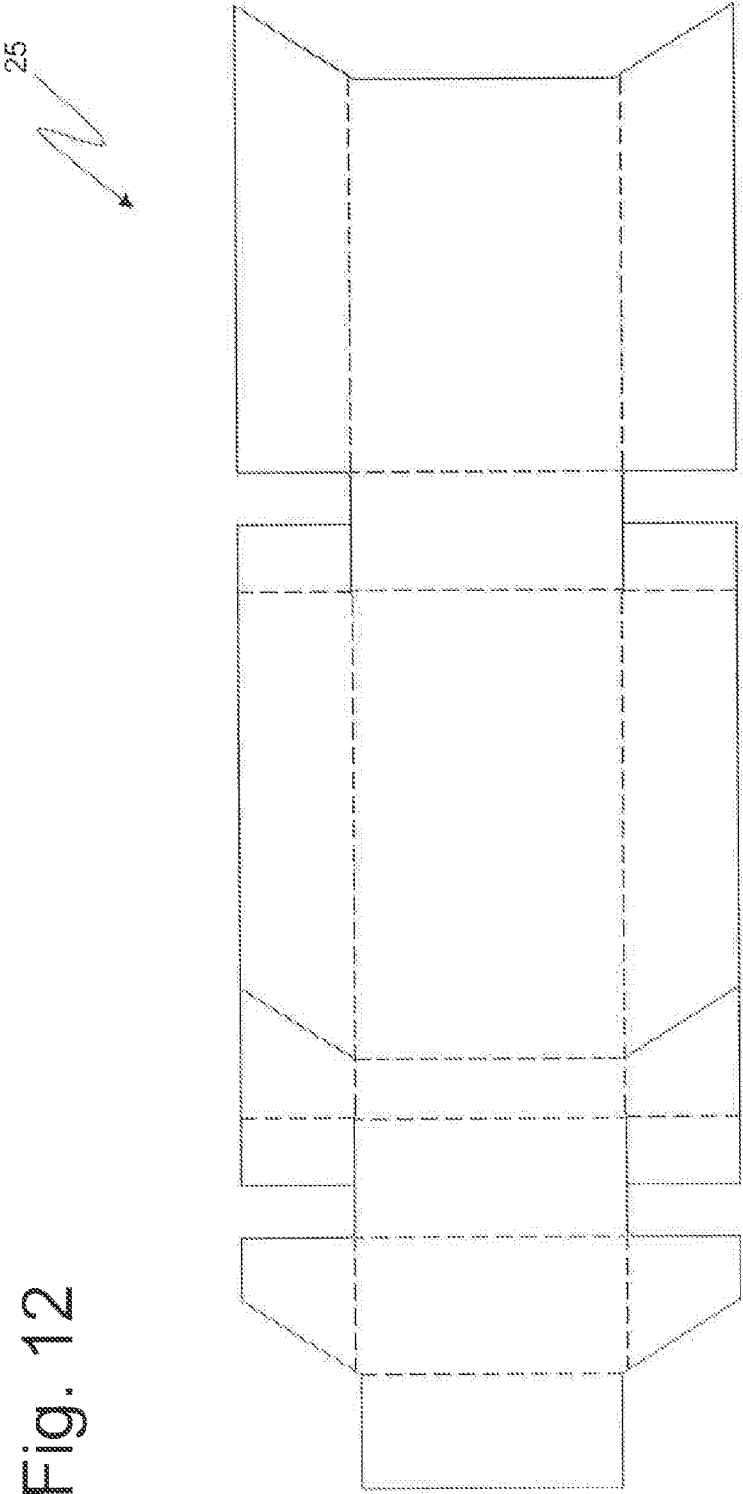


Fig. 7

Fig. 8







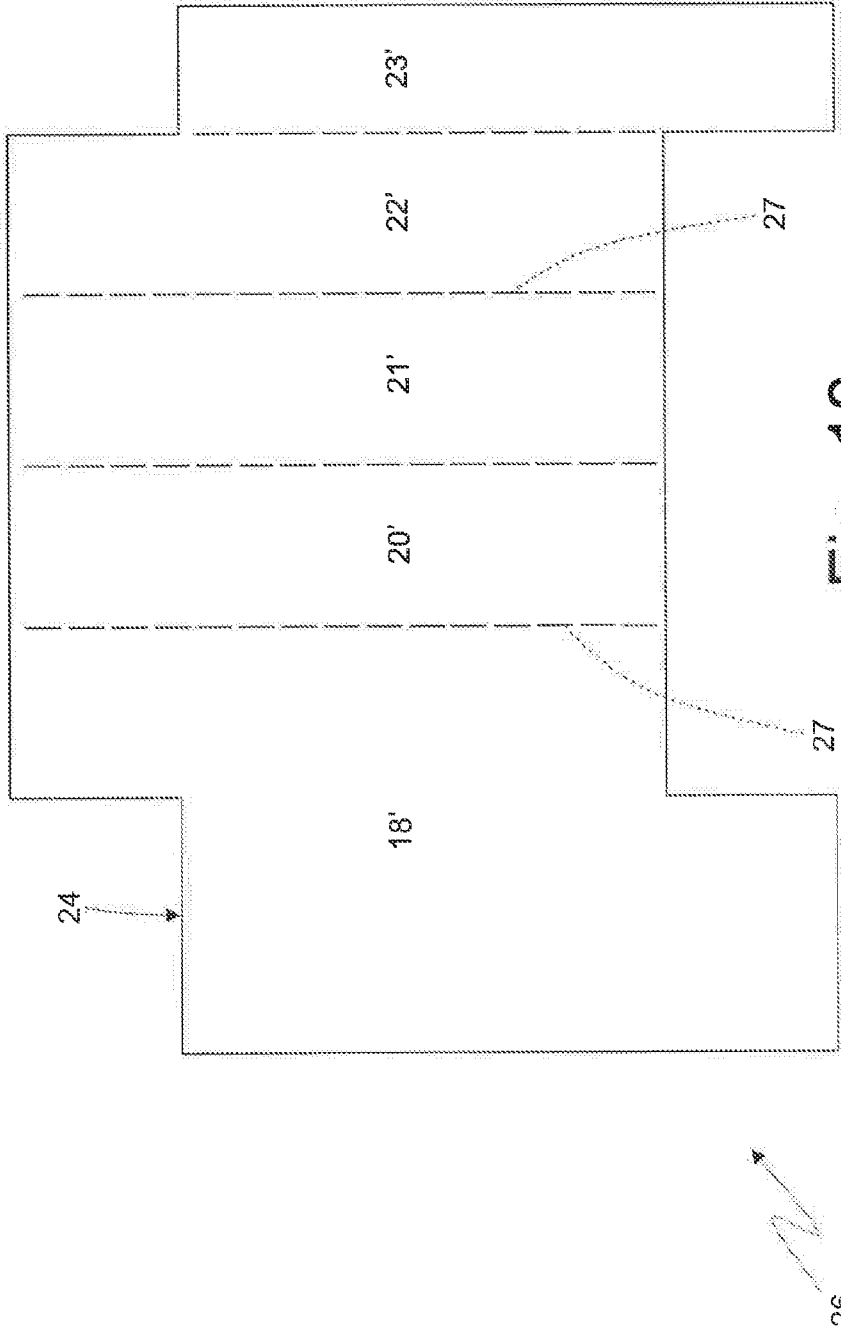


Fig. 13

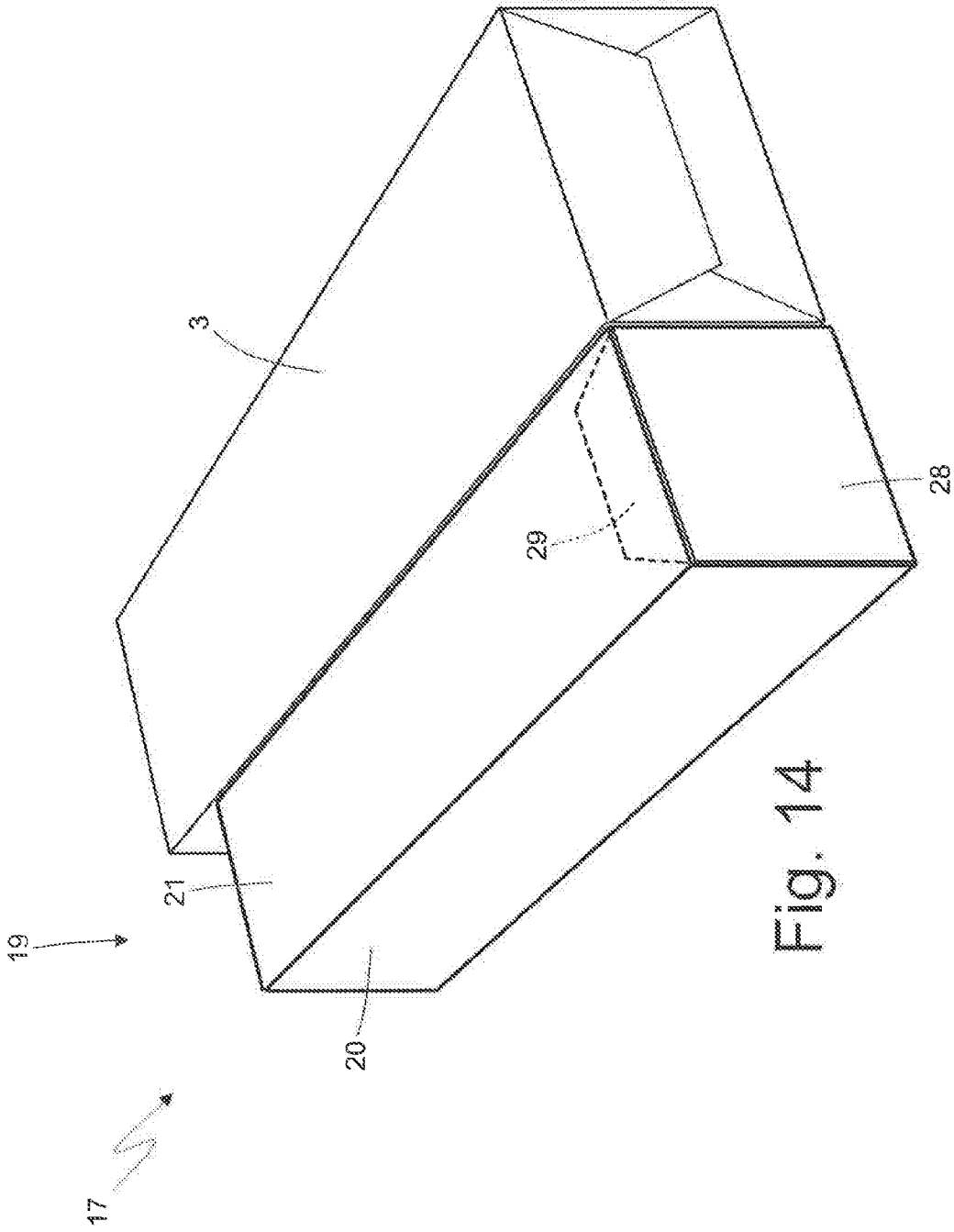


Fig. 14

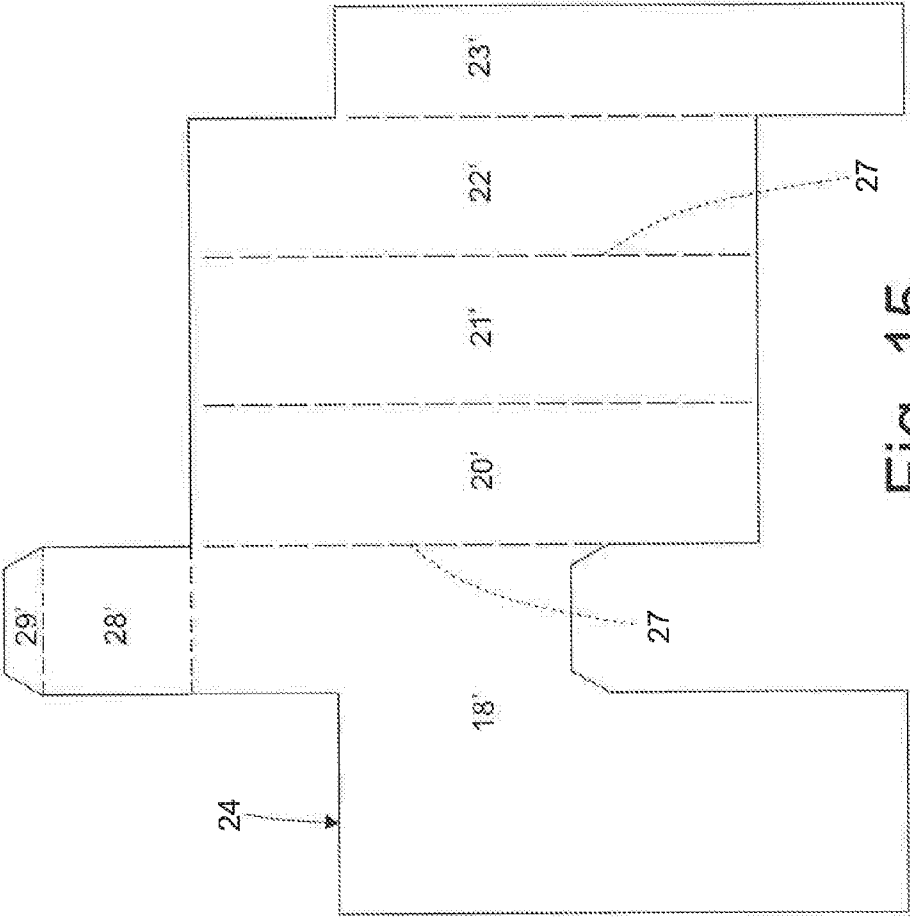


Fig. 15



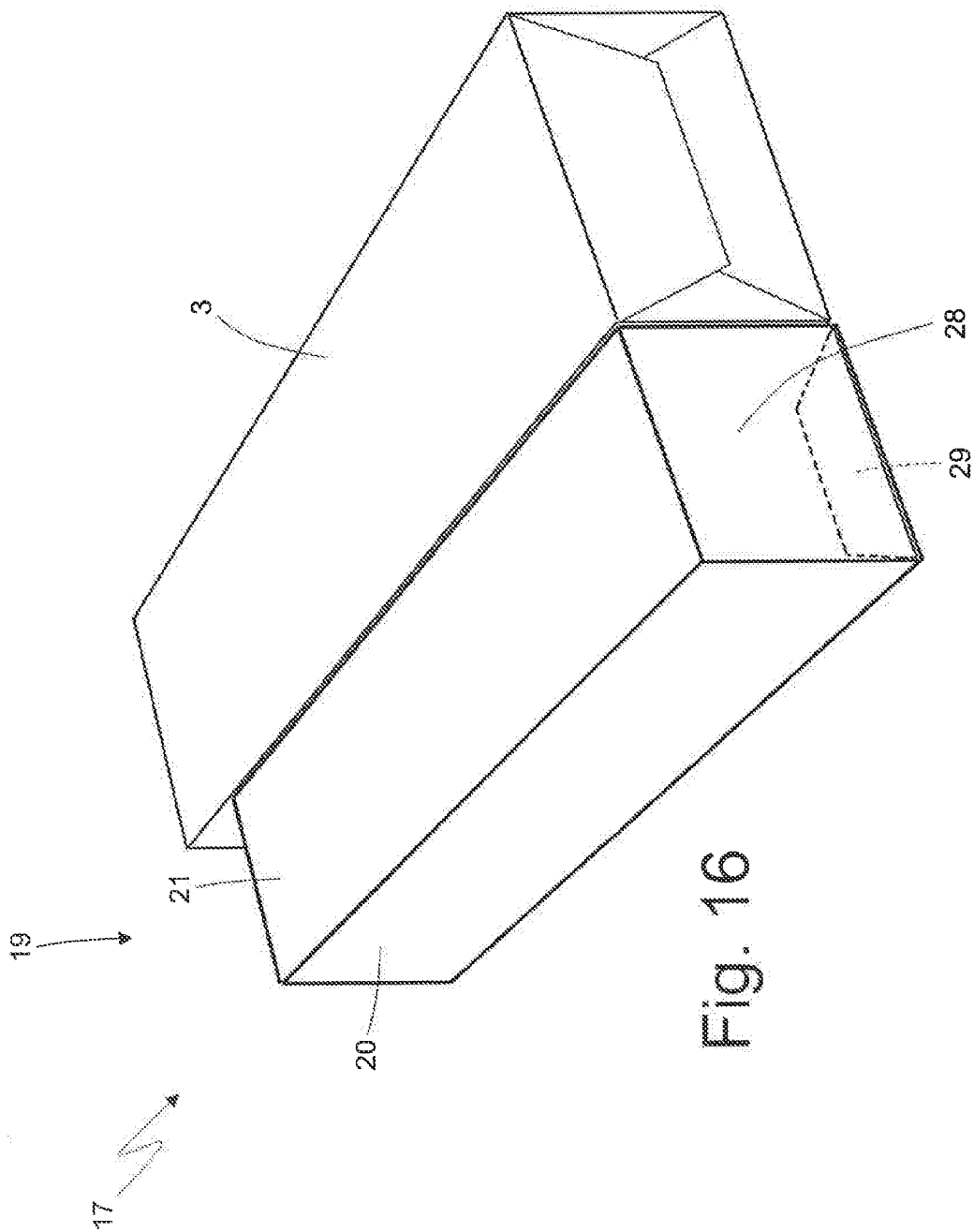


Fig. 16

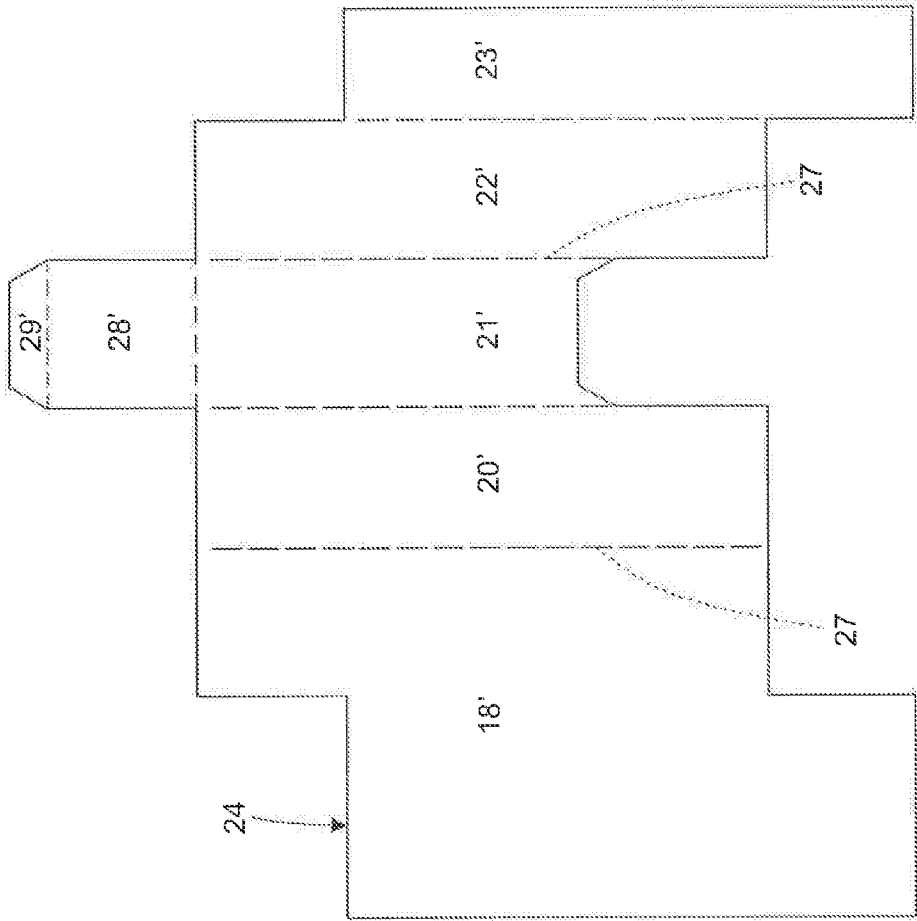


Fig. 17



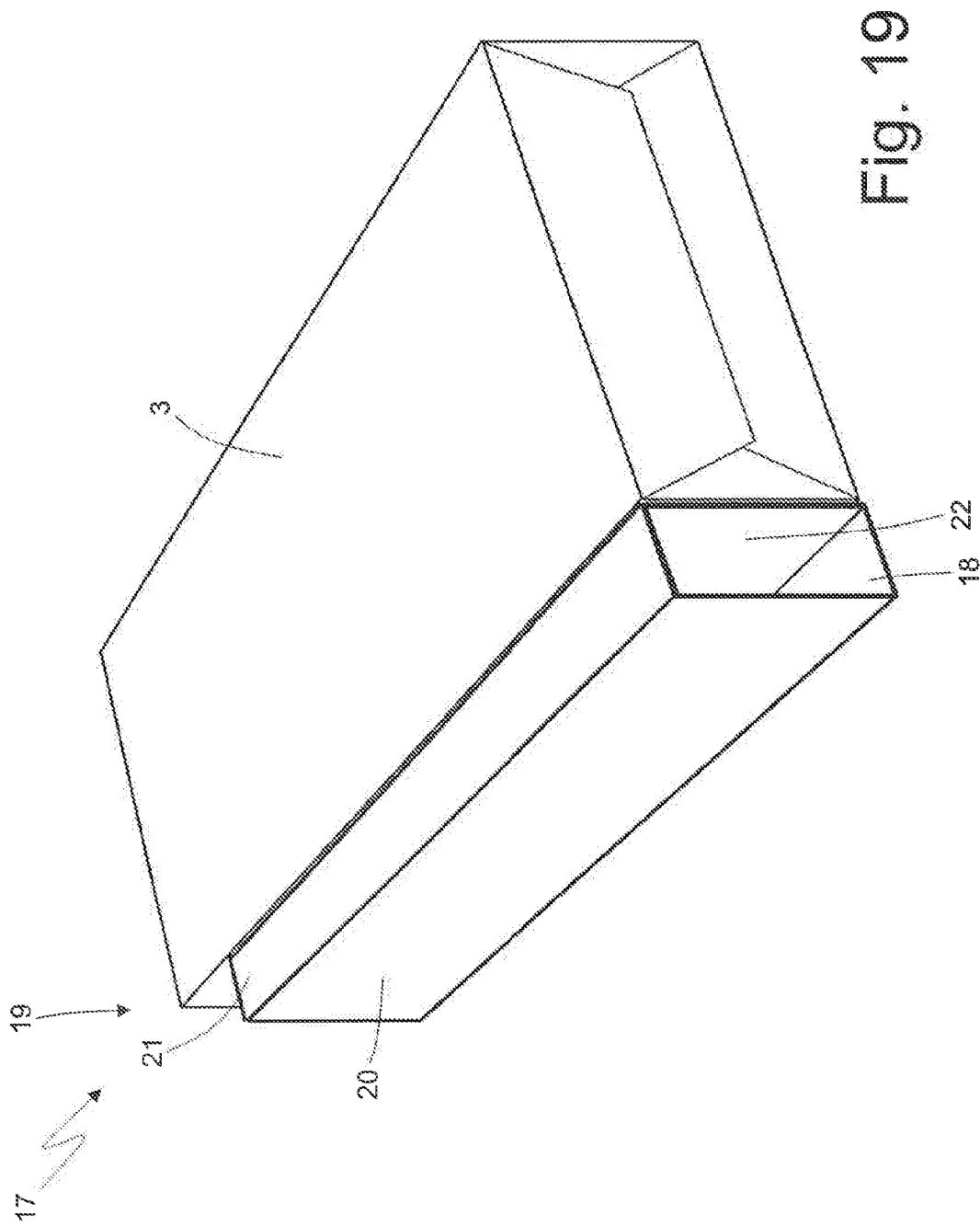
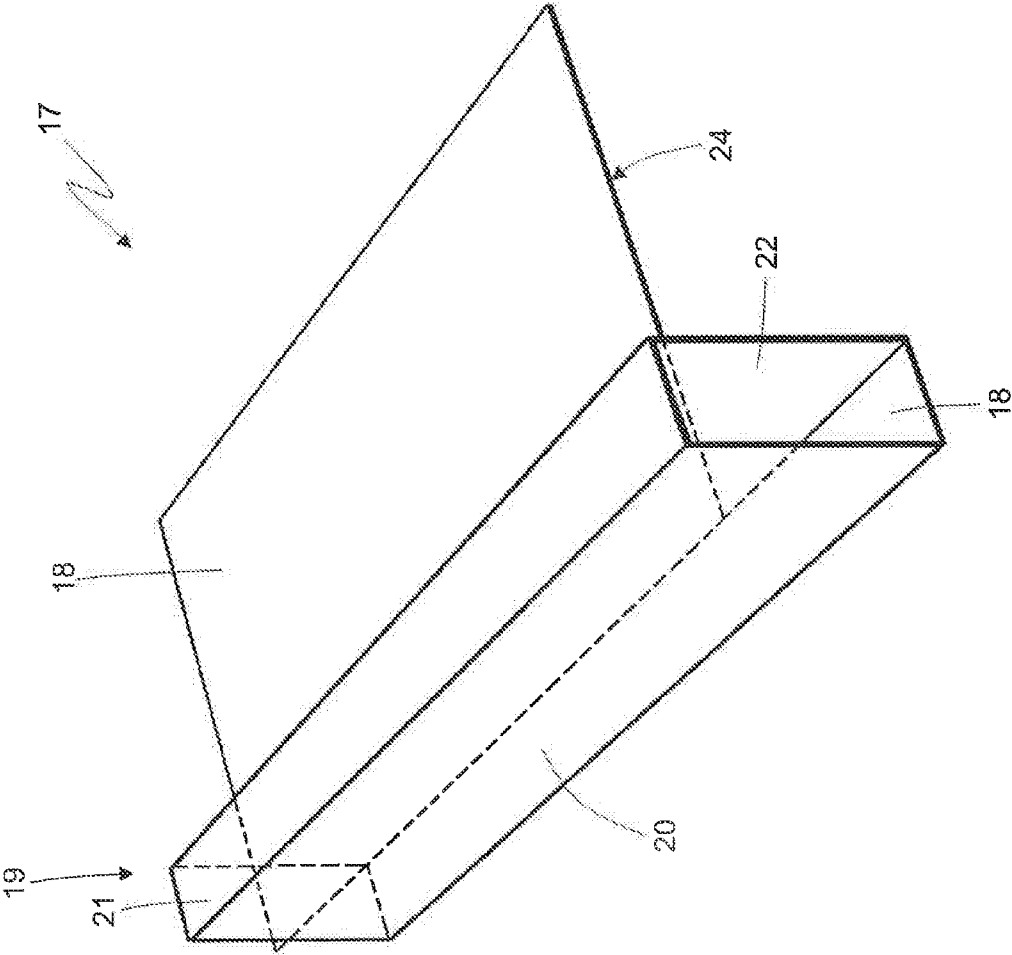
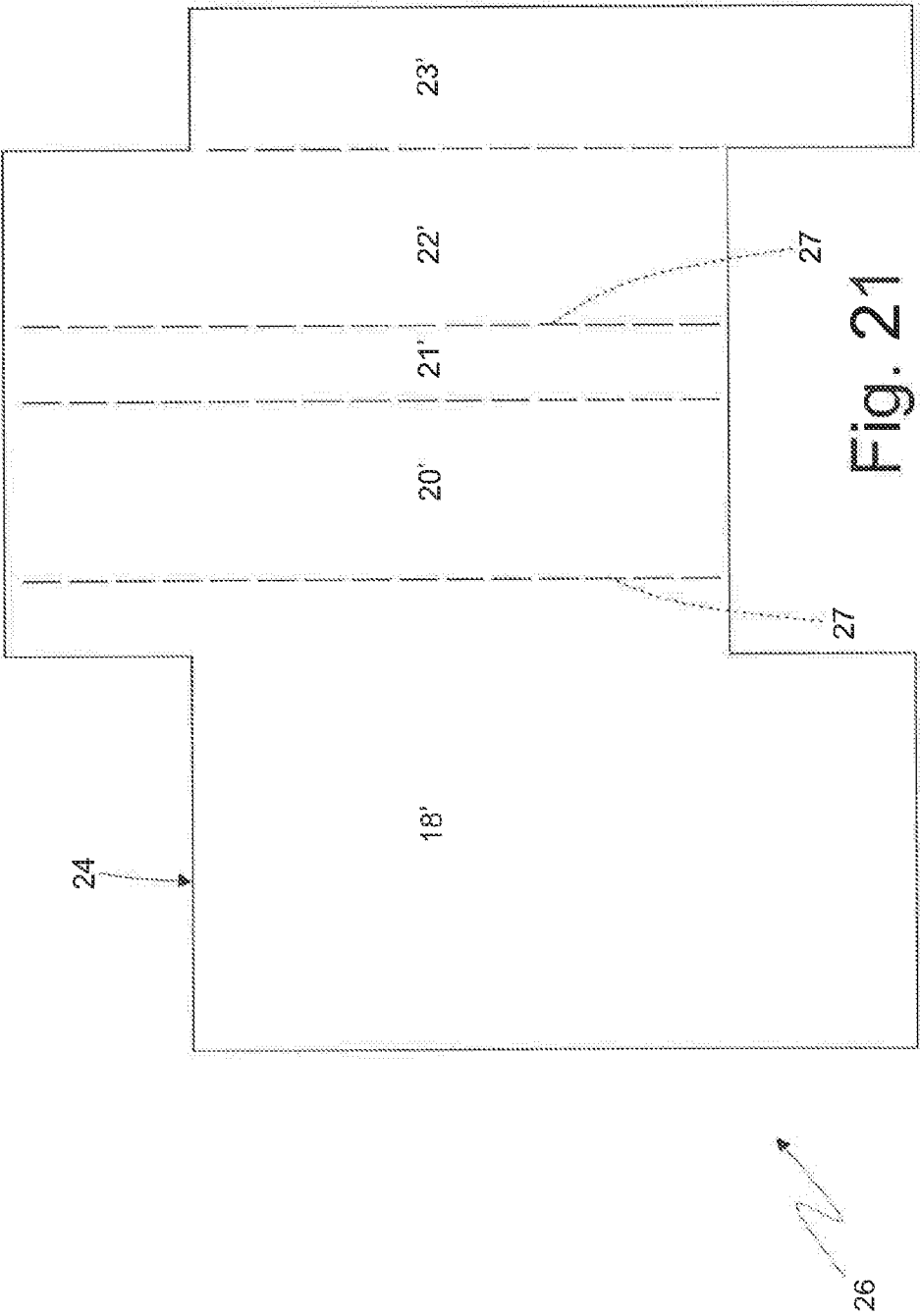


Fig. 20





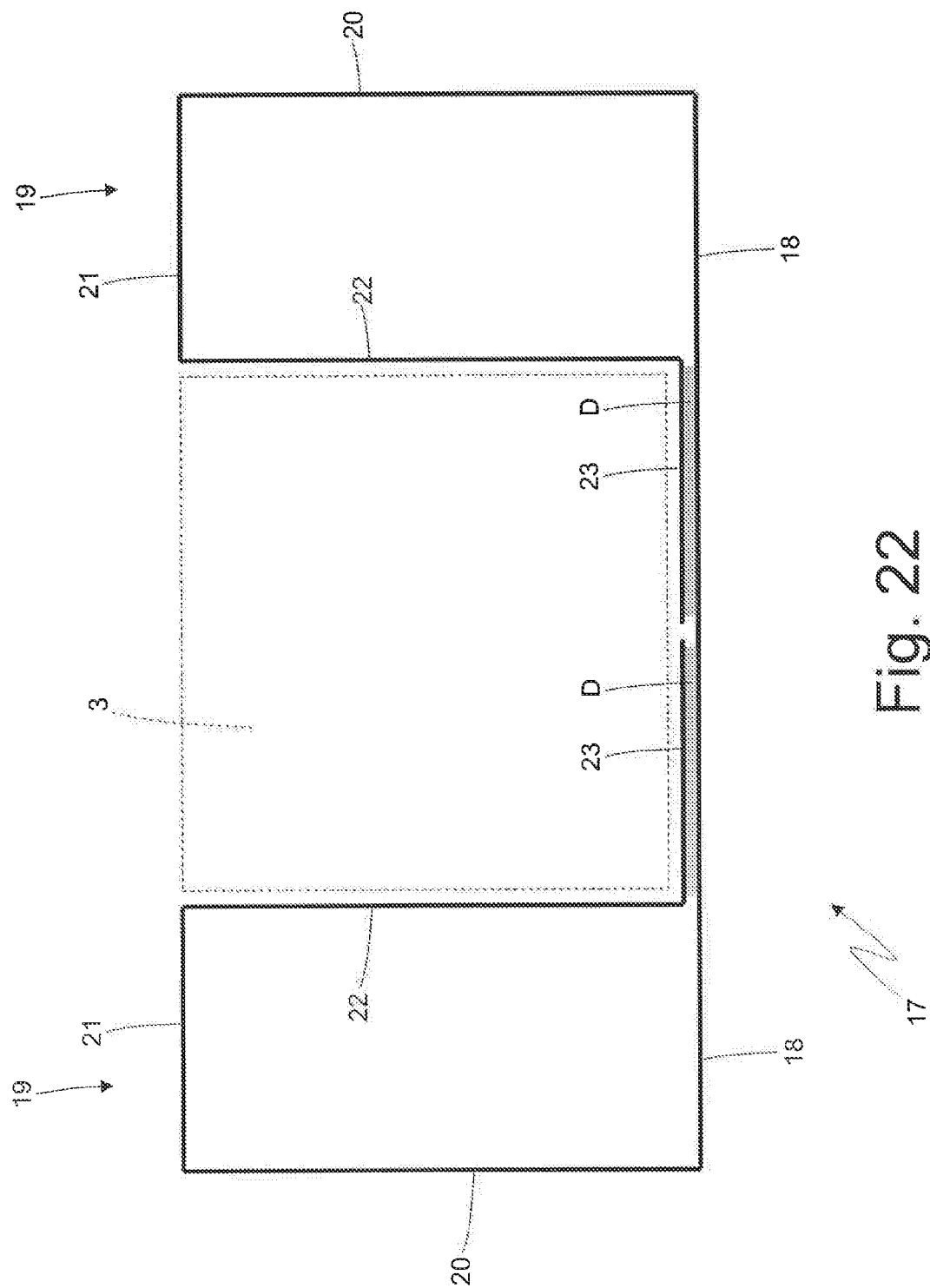
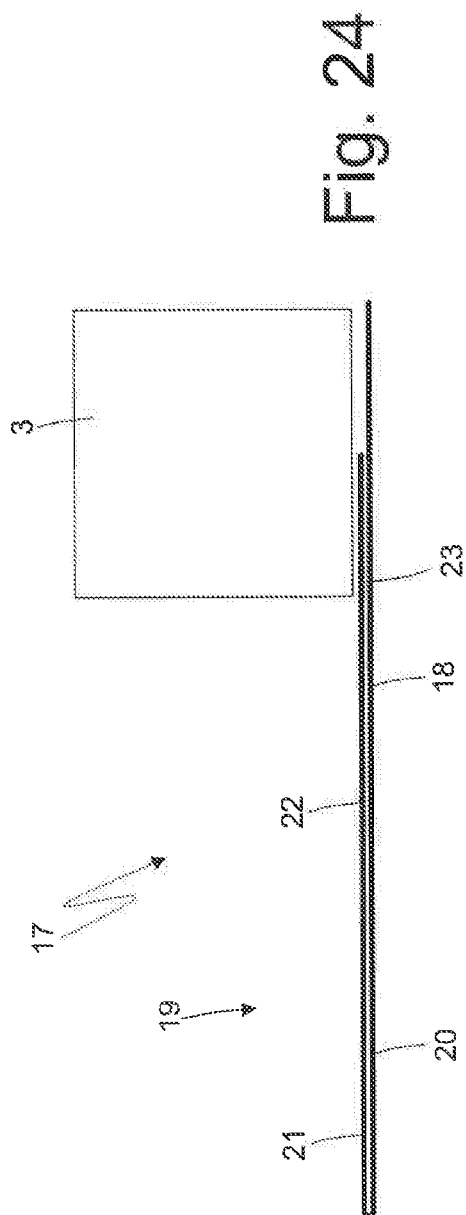
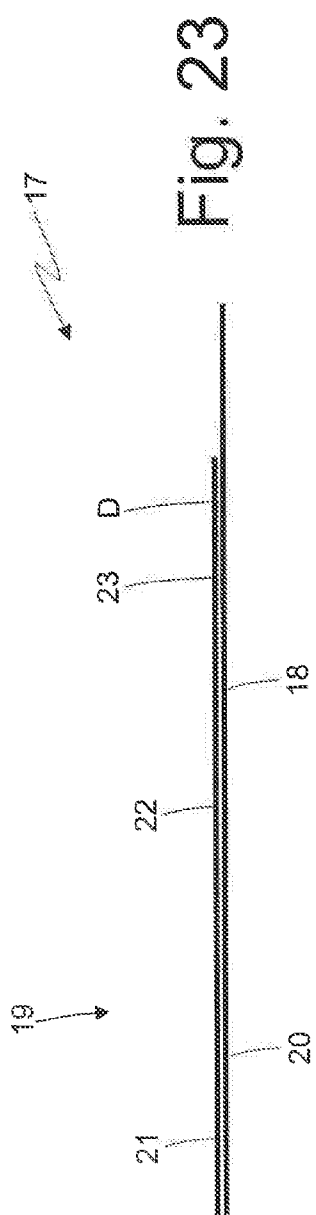


Fig. 22



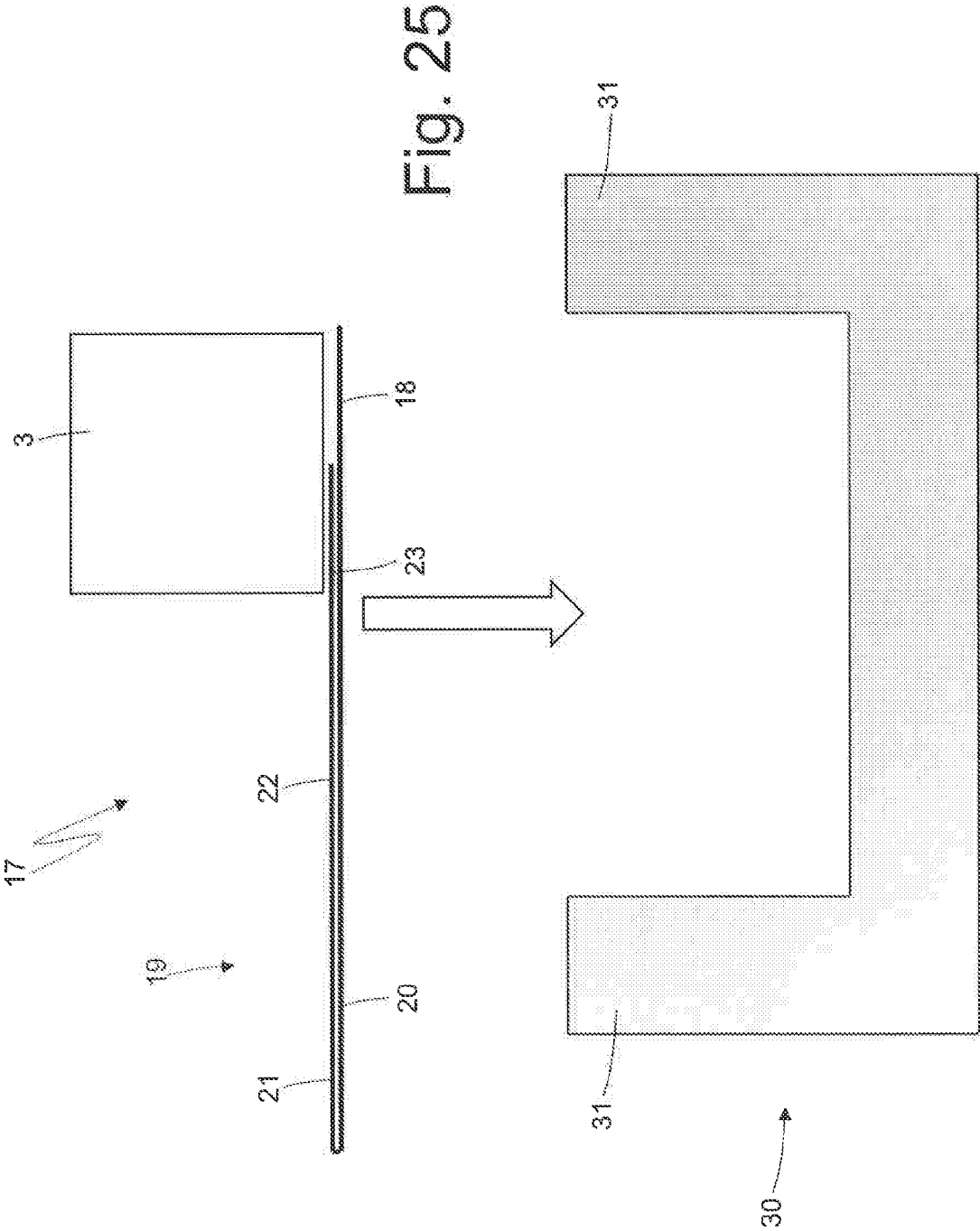


Fig. 26

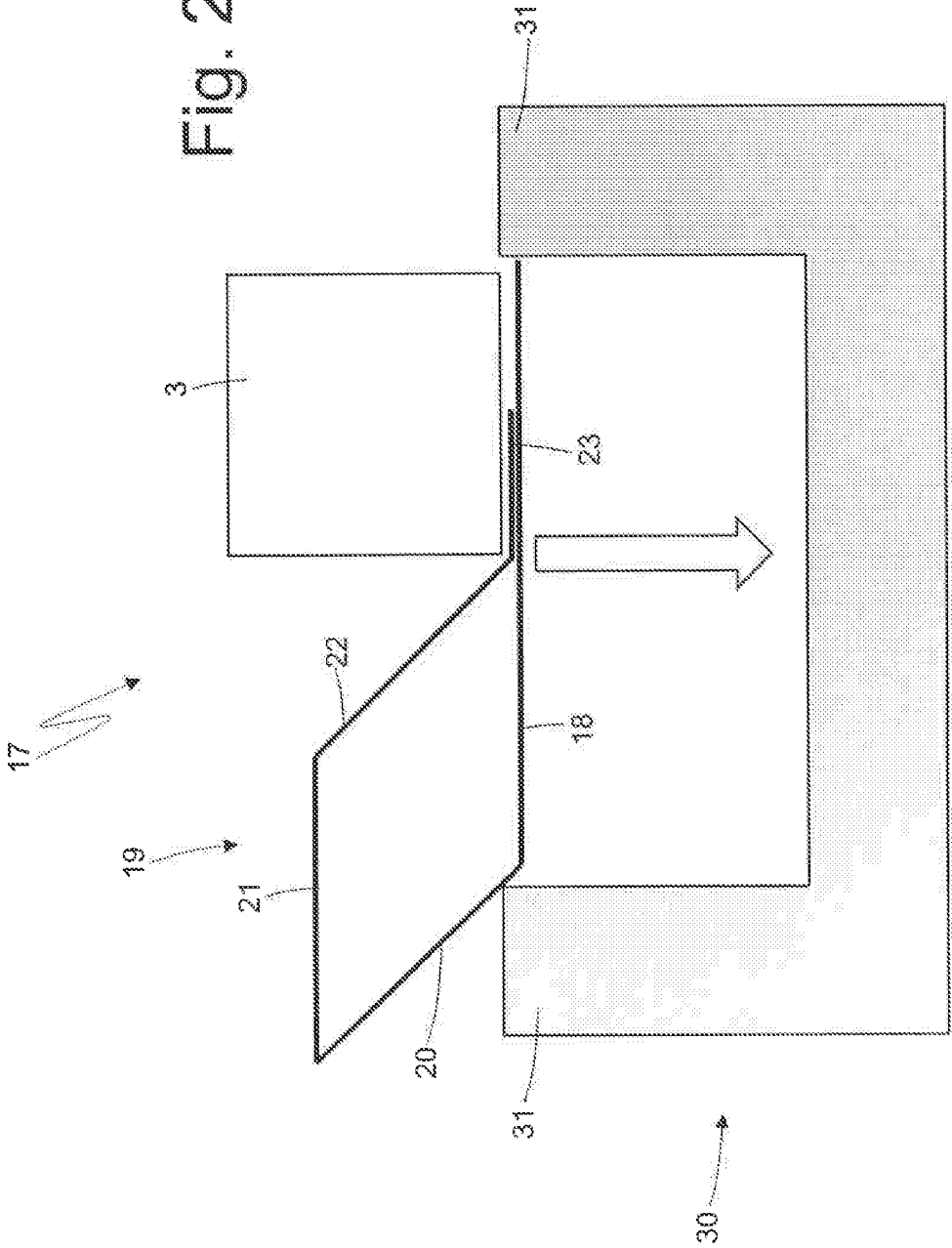
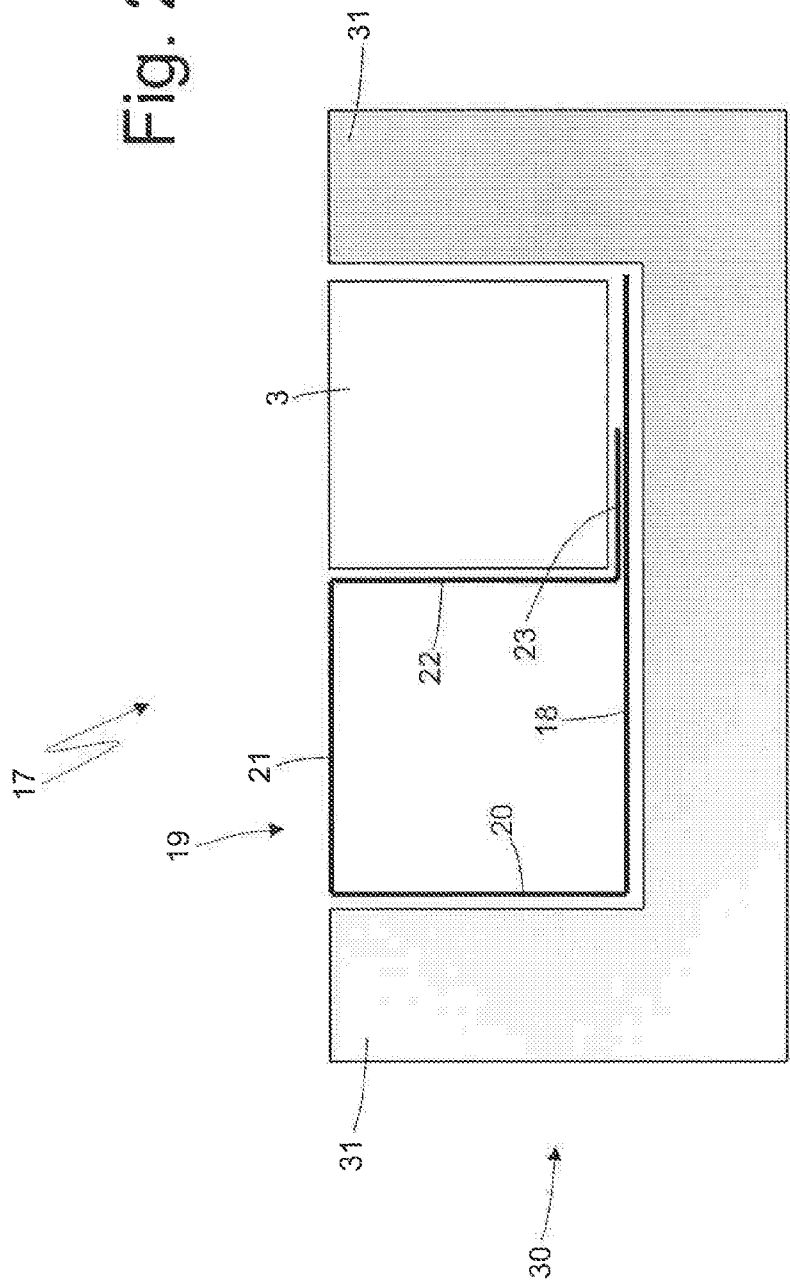
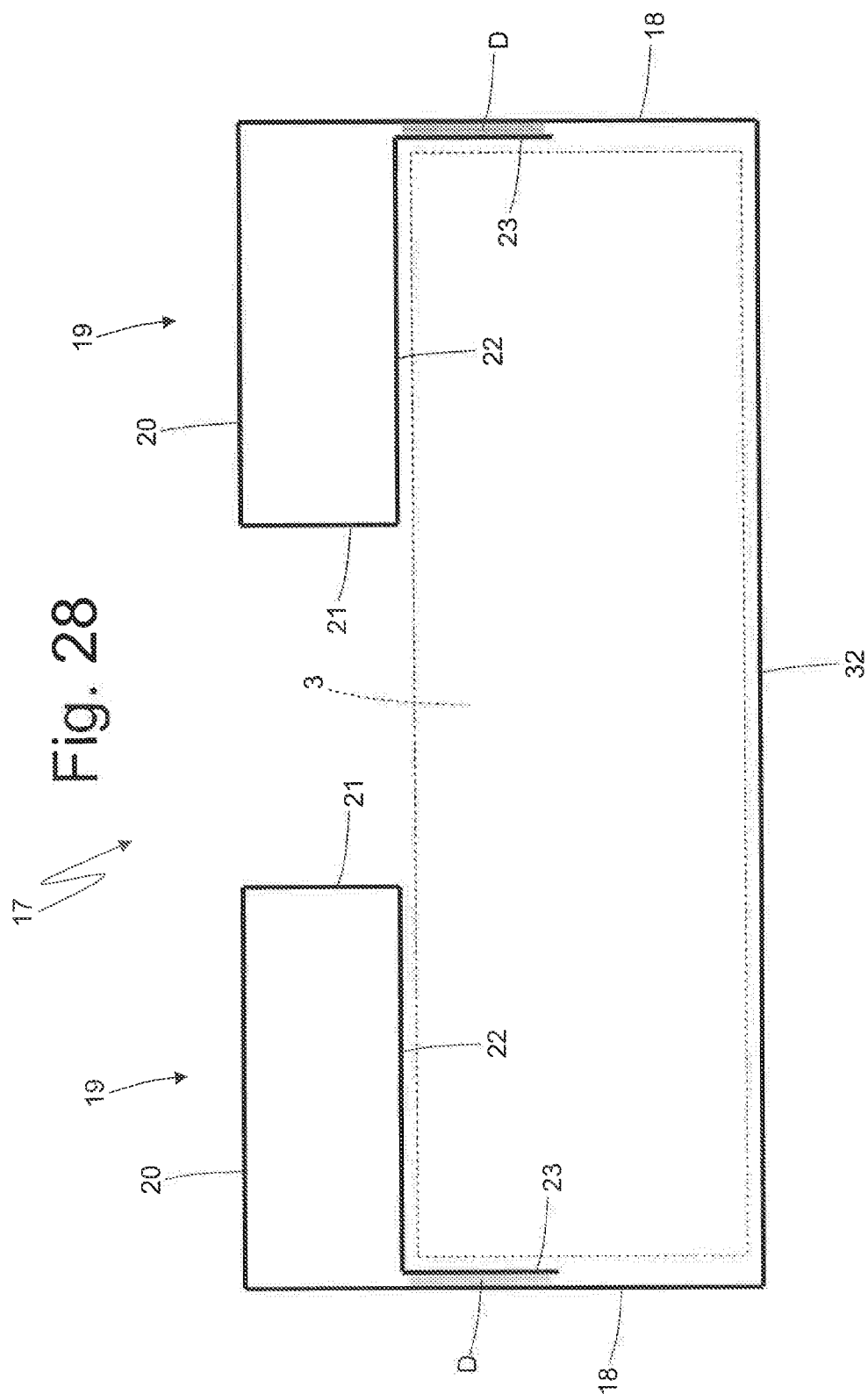
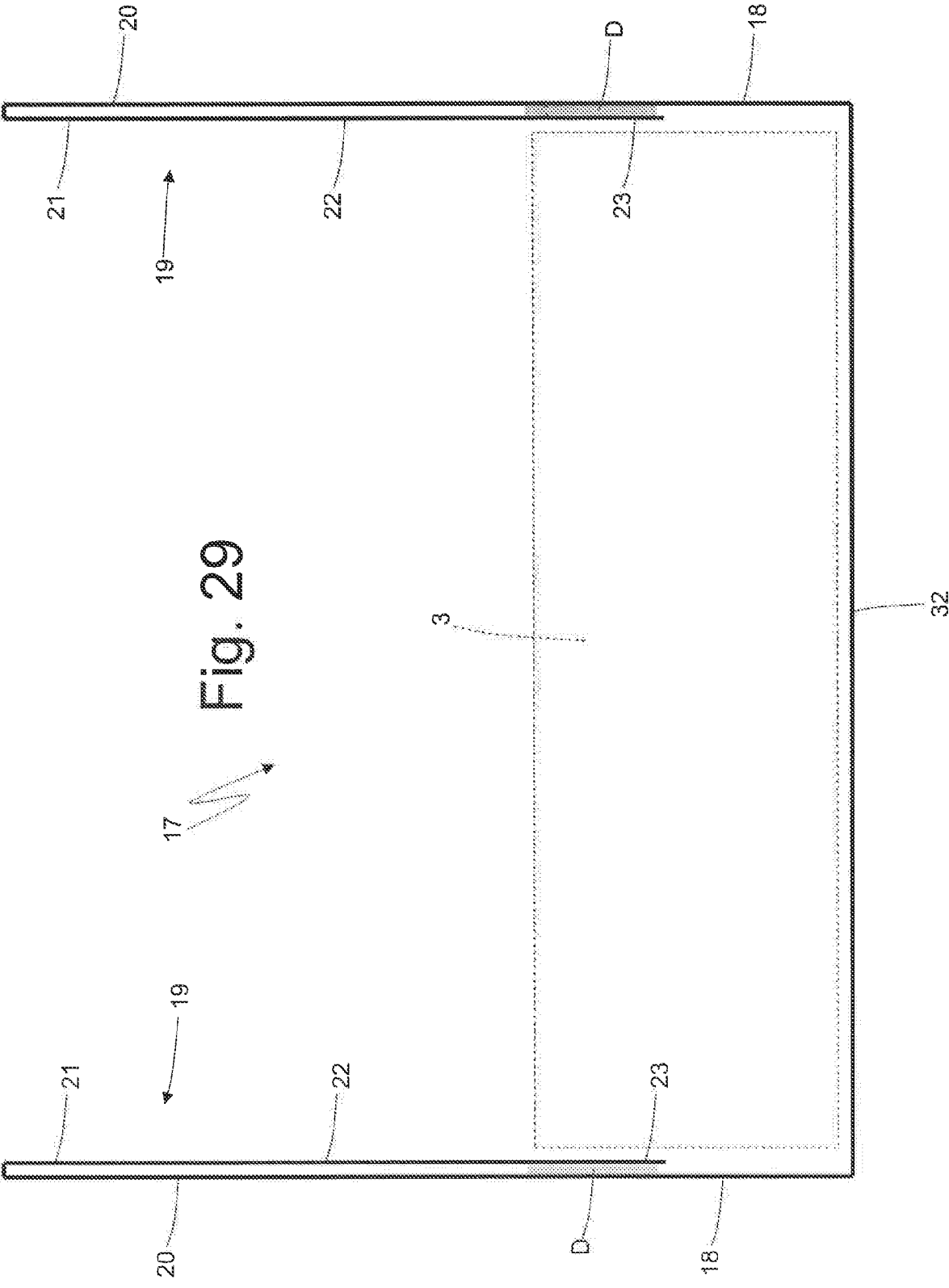
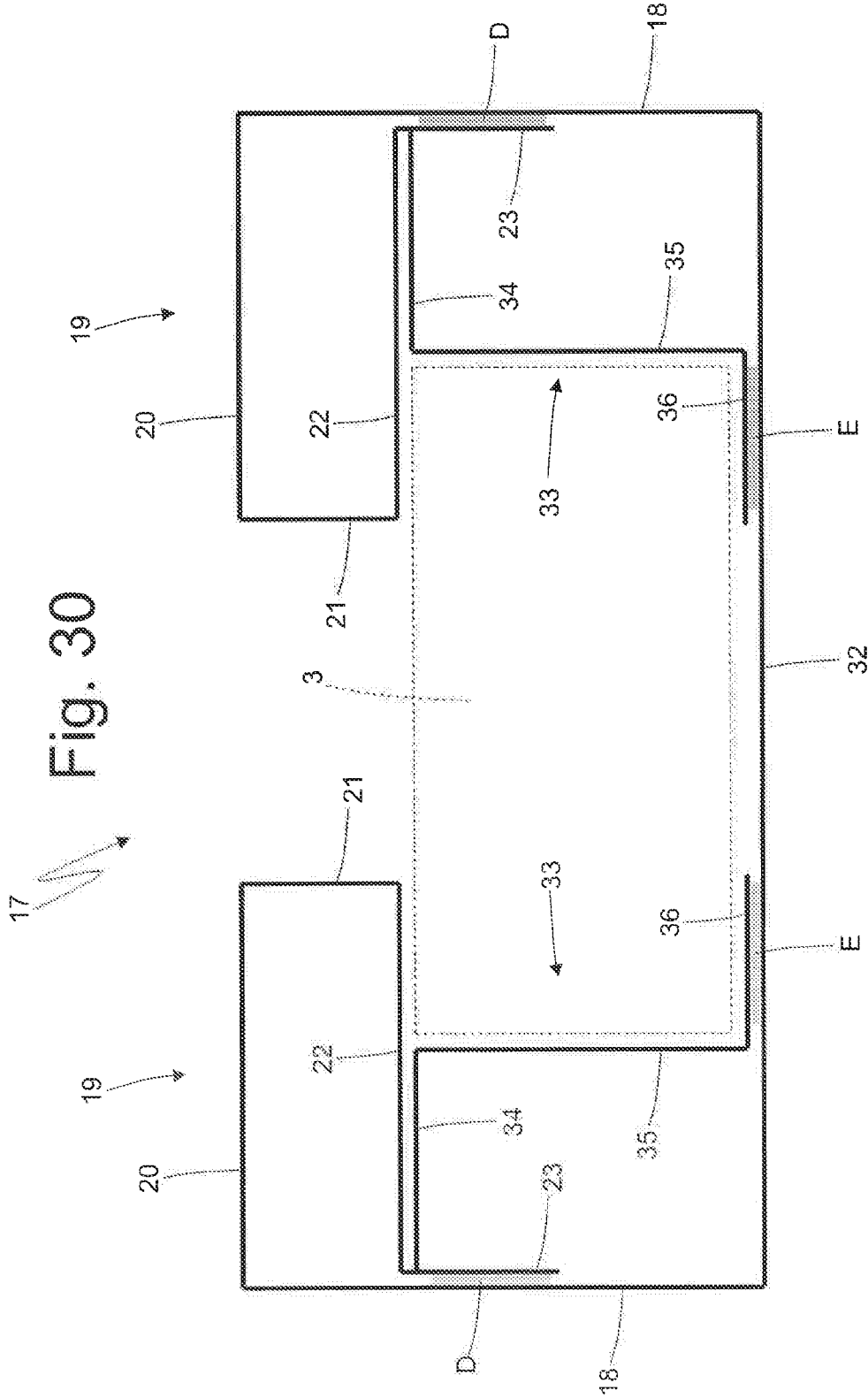


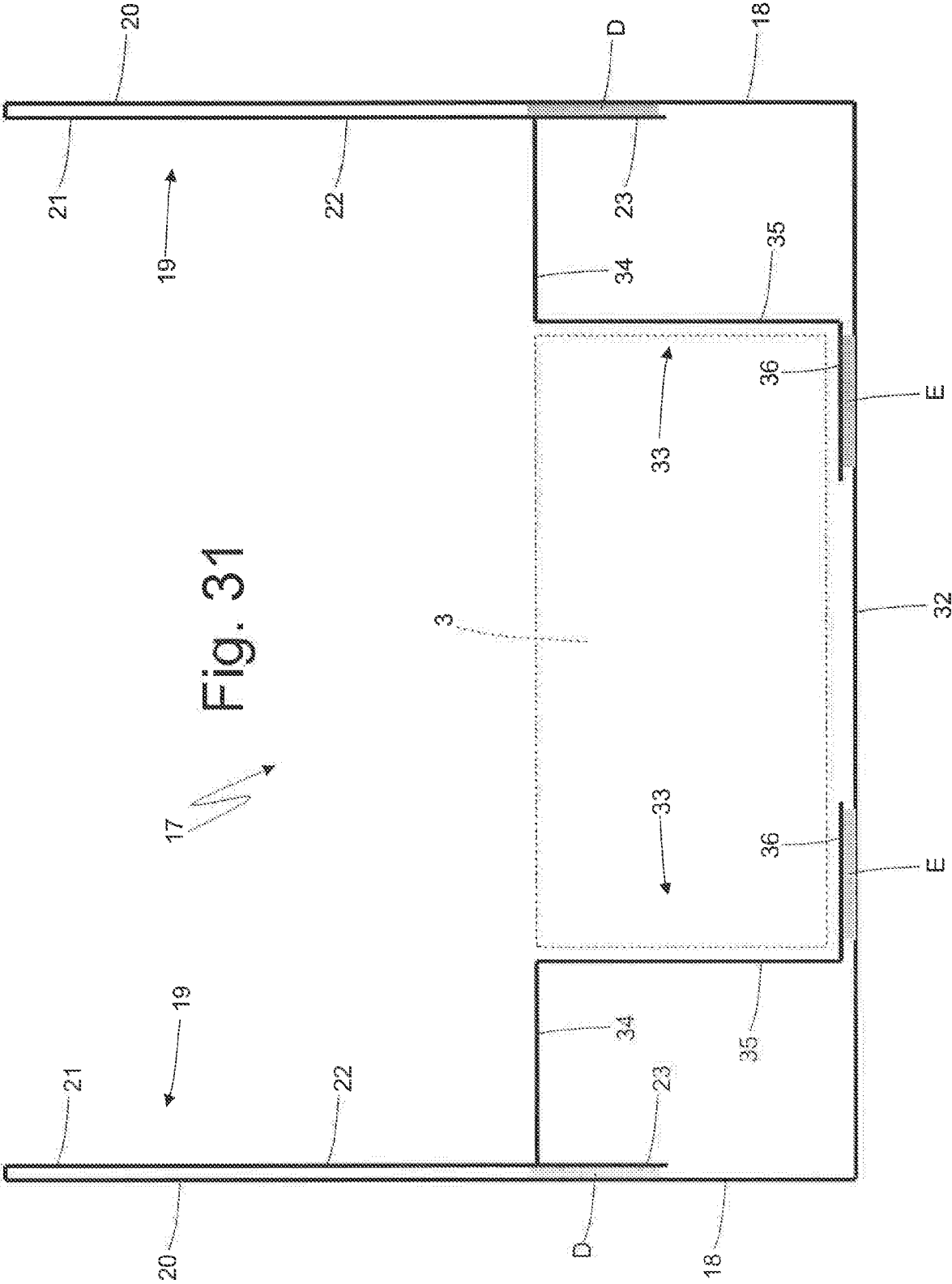
Fig. 27











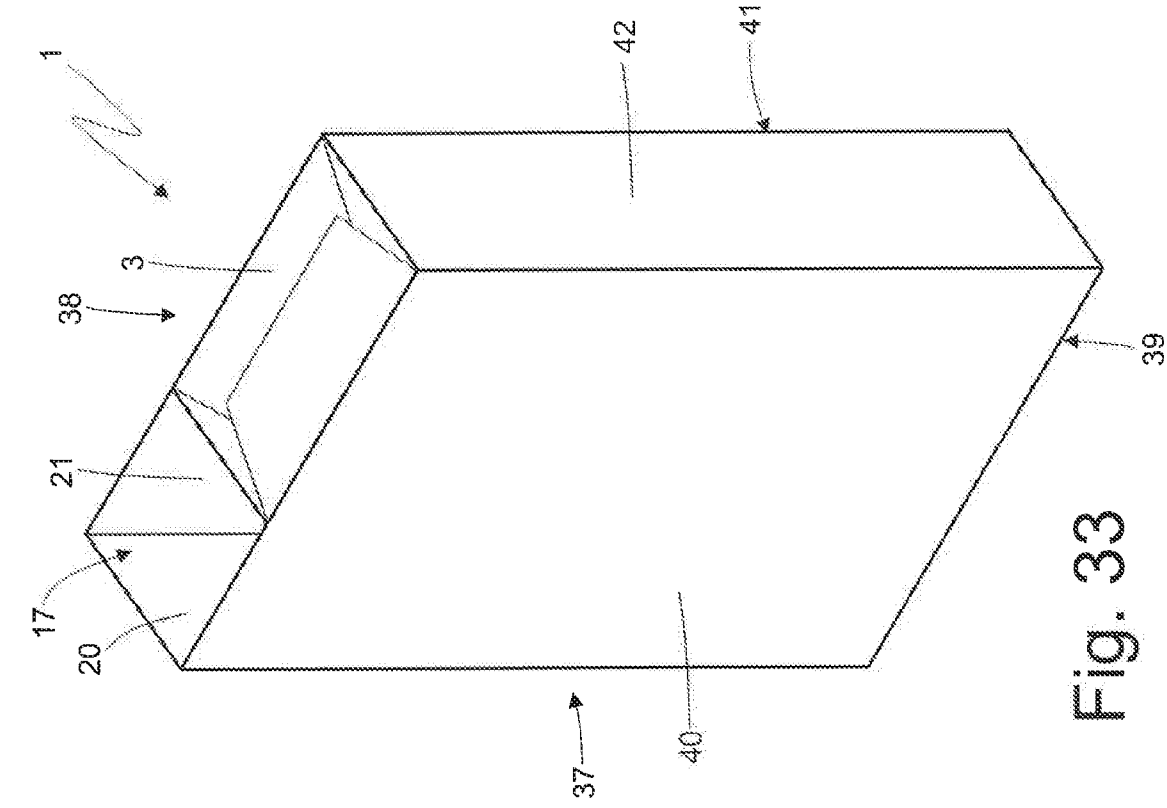


Fig. 32

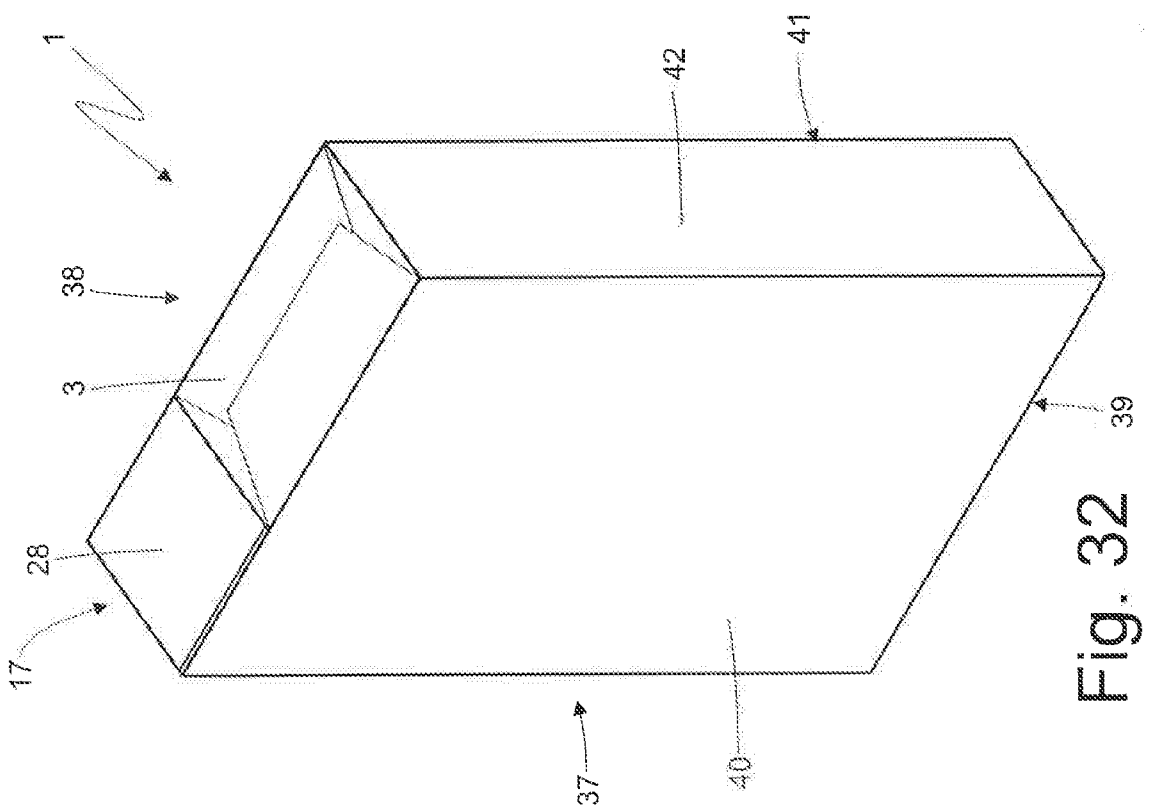


Fig. 33

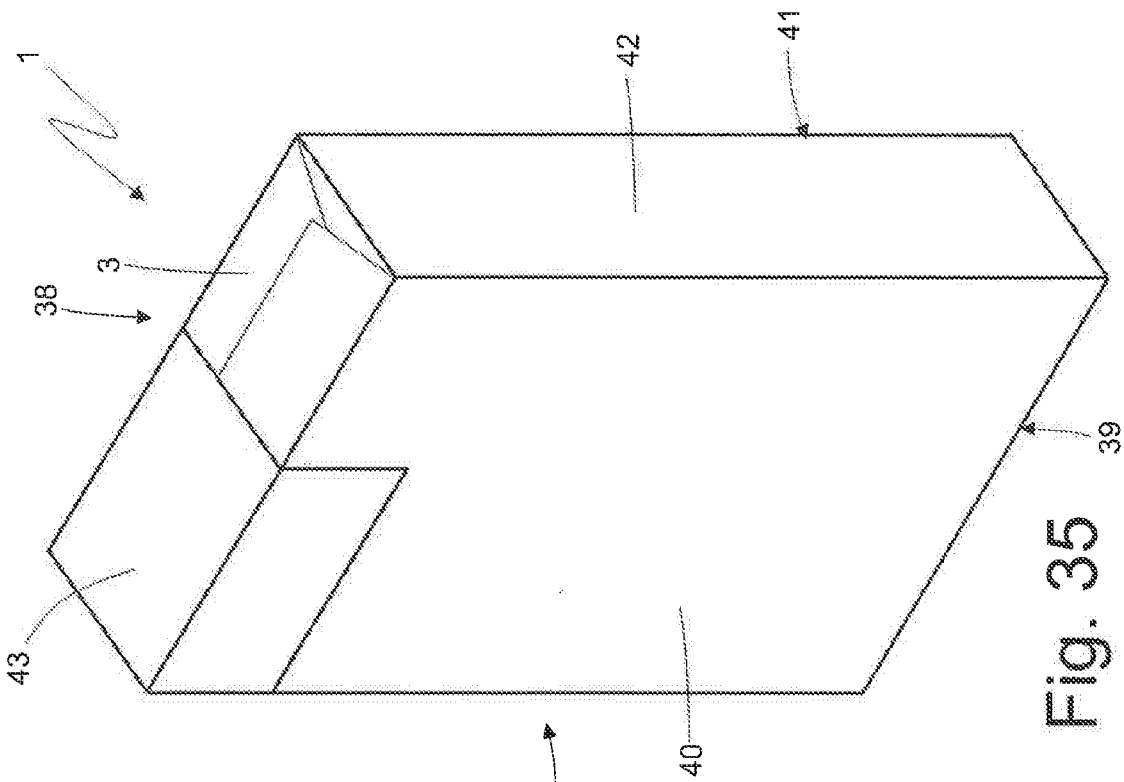


Fig. 35

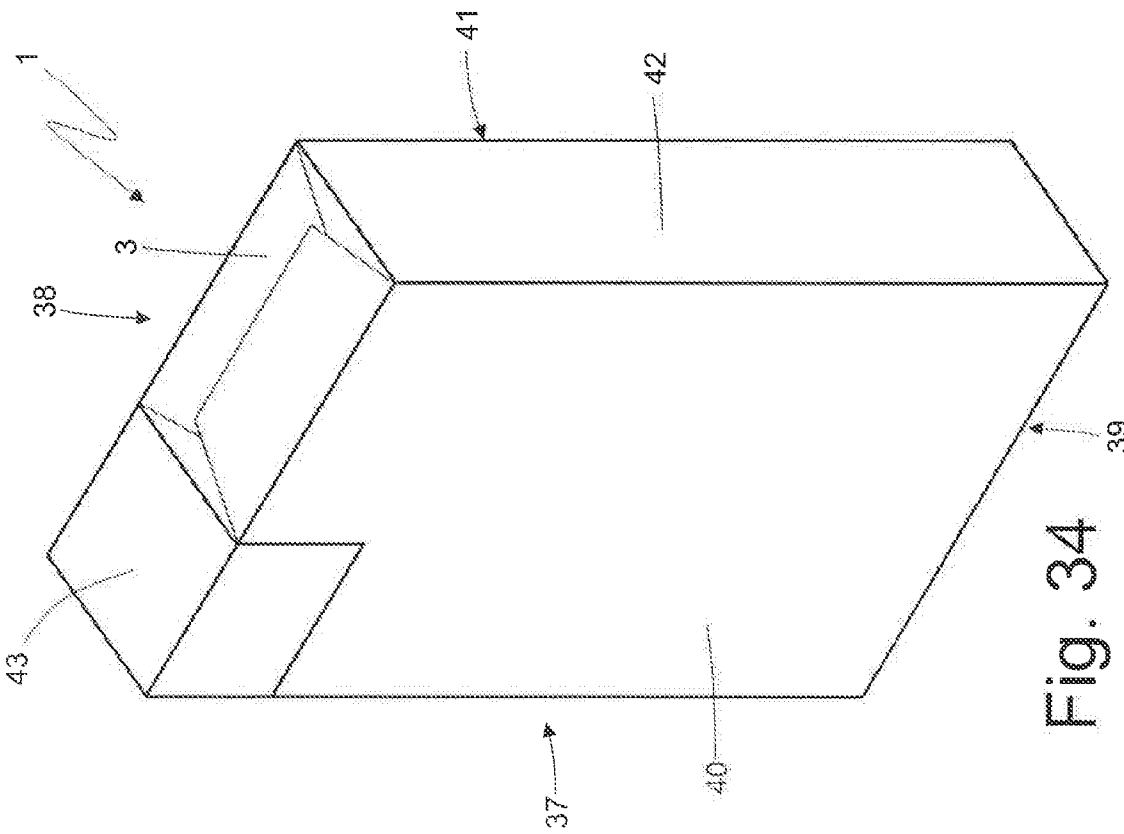


Fig. 34

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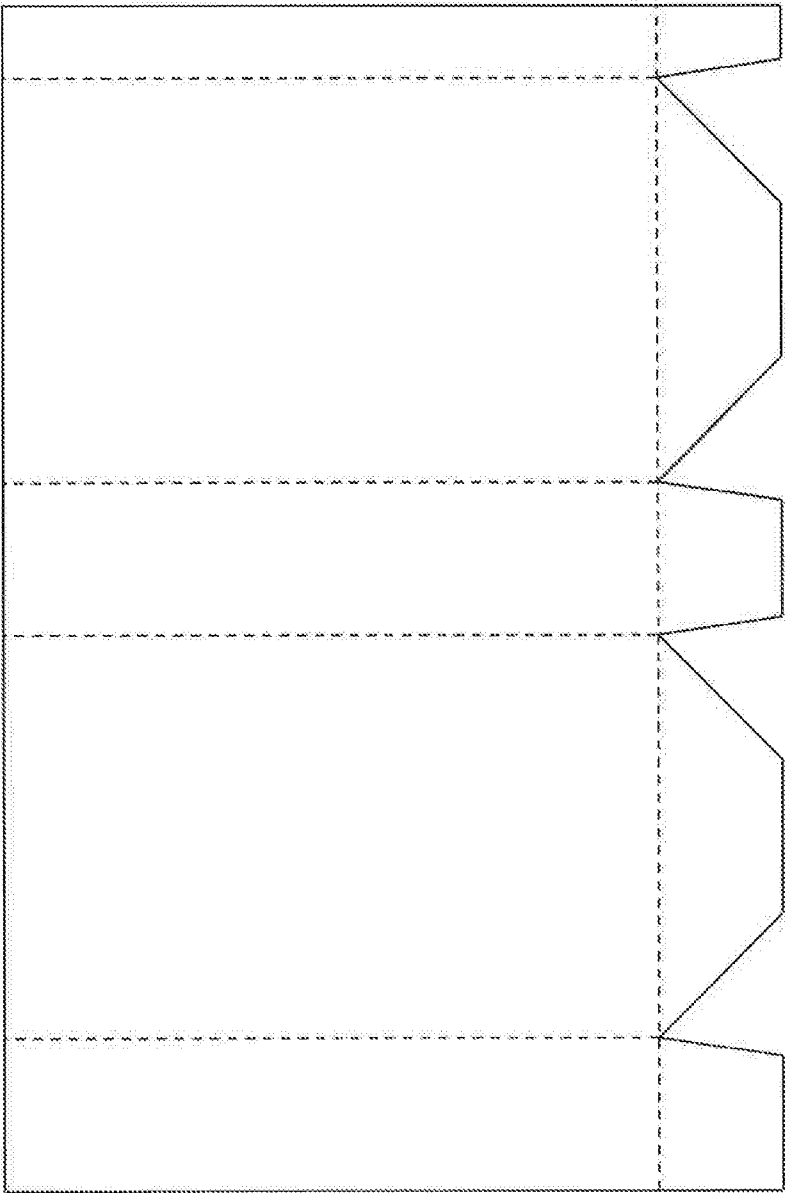


Fig. 36

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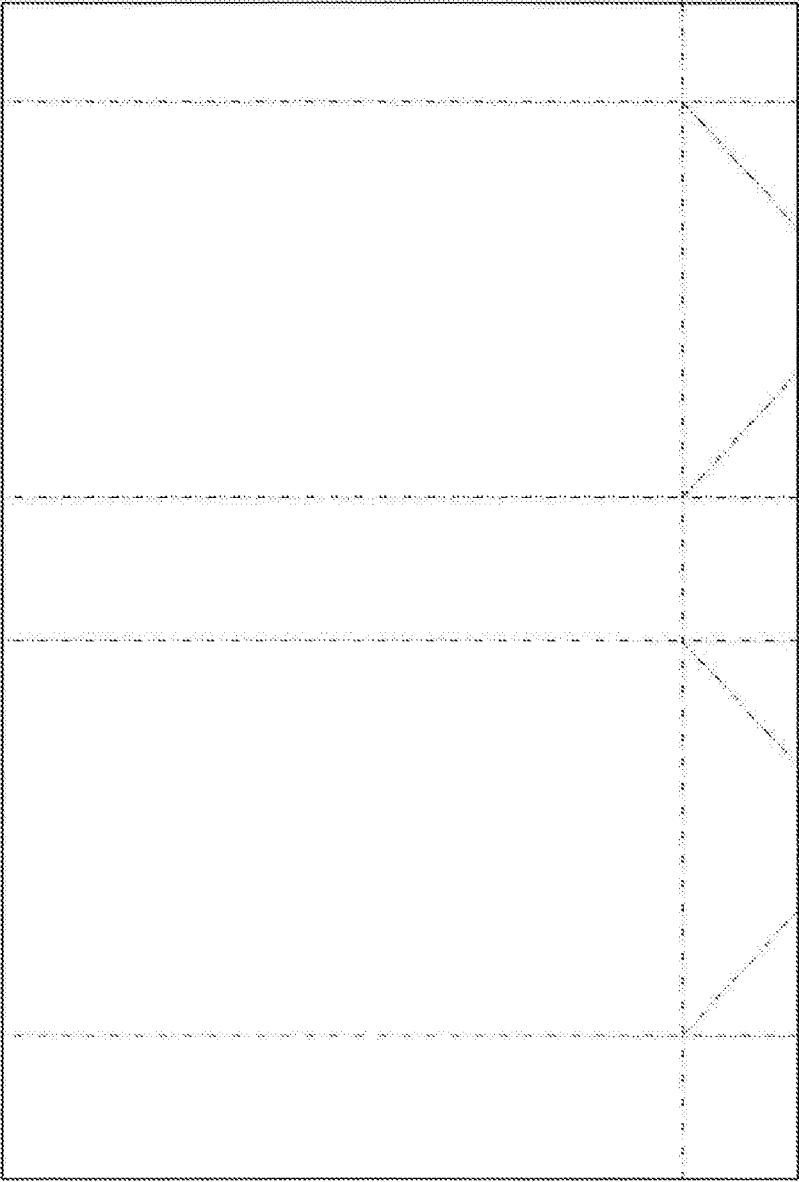


Fig. 37

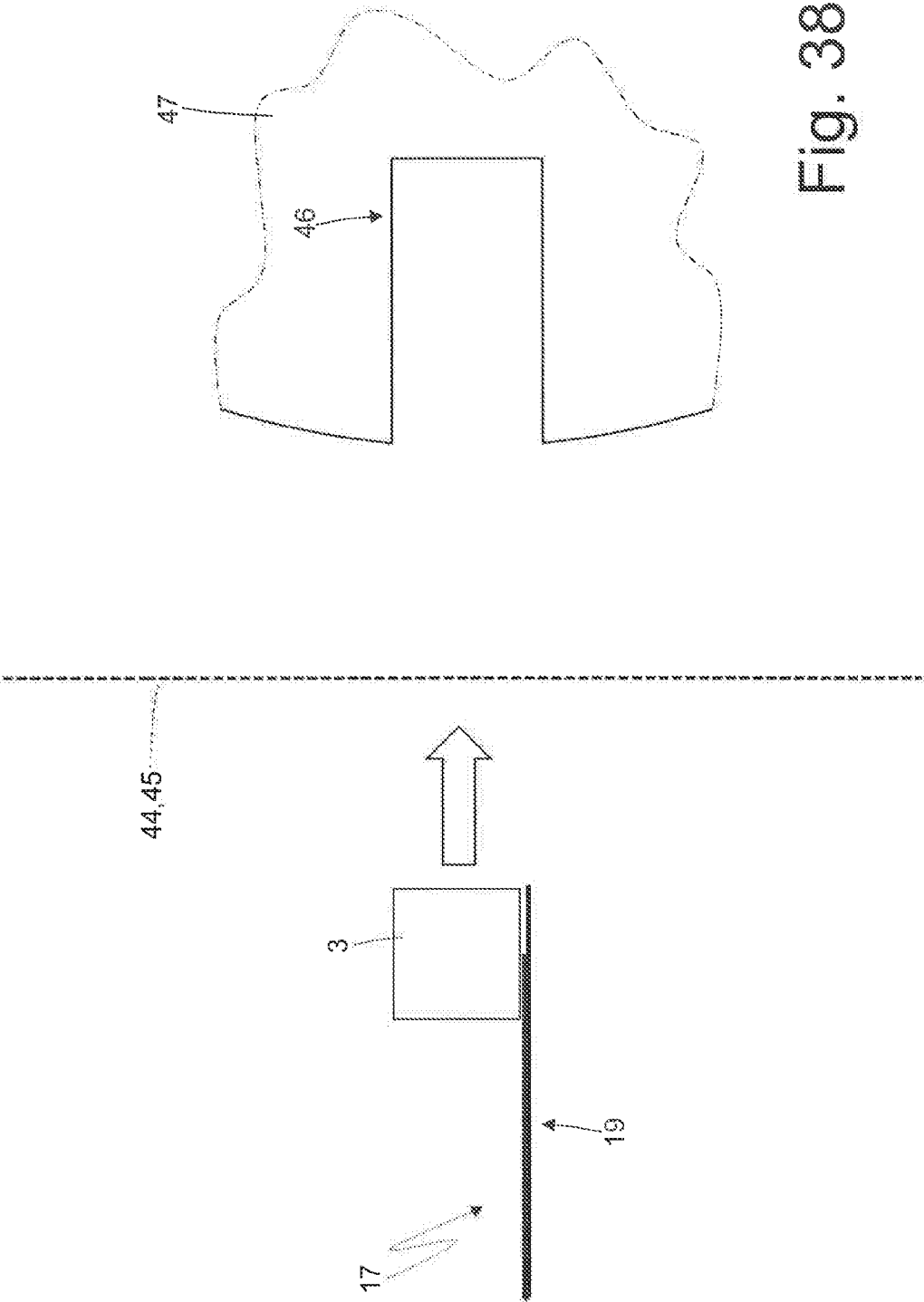


Fig. 38

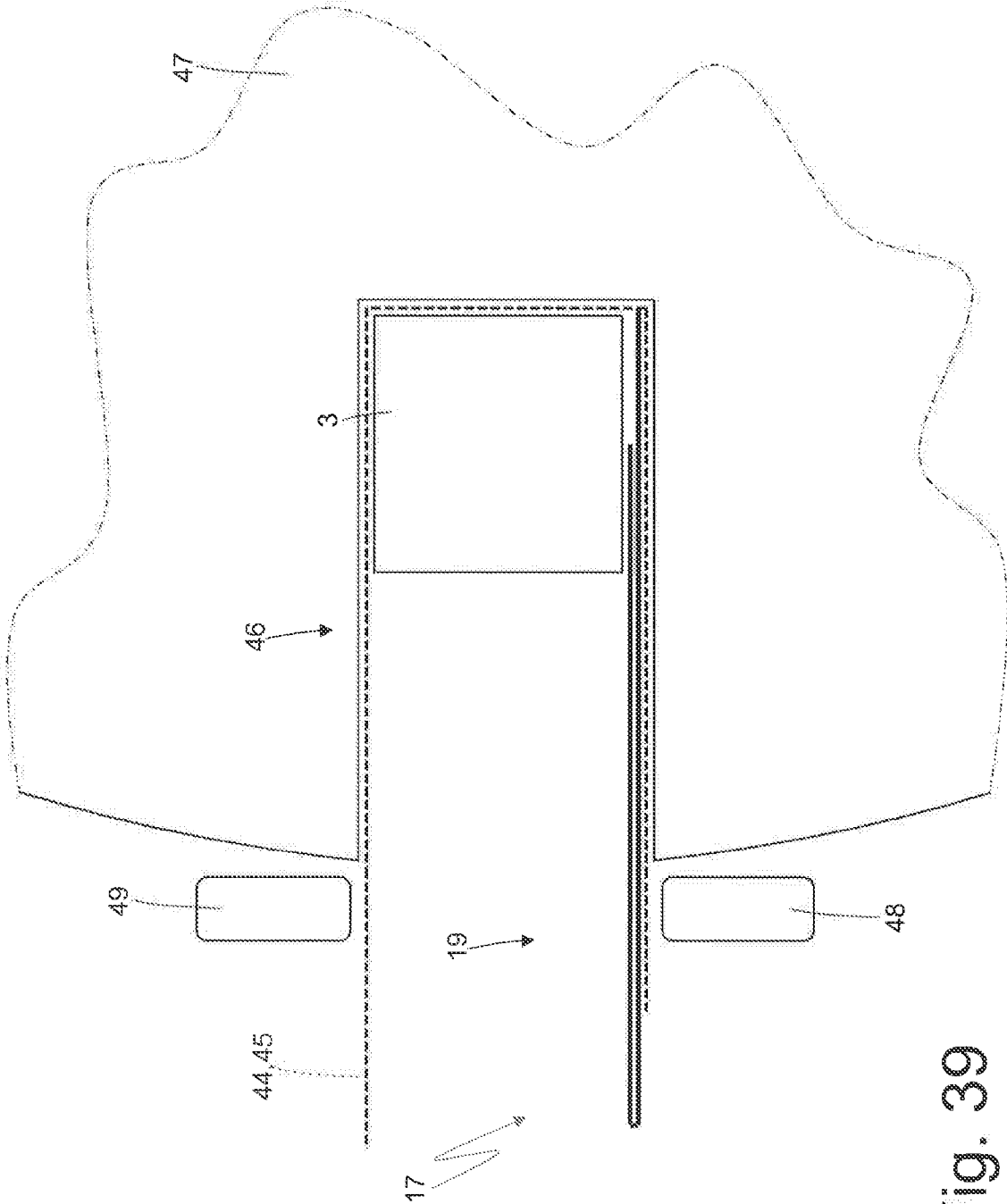


Fig. 39

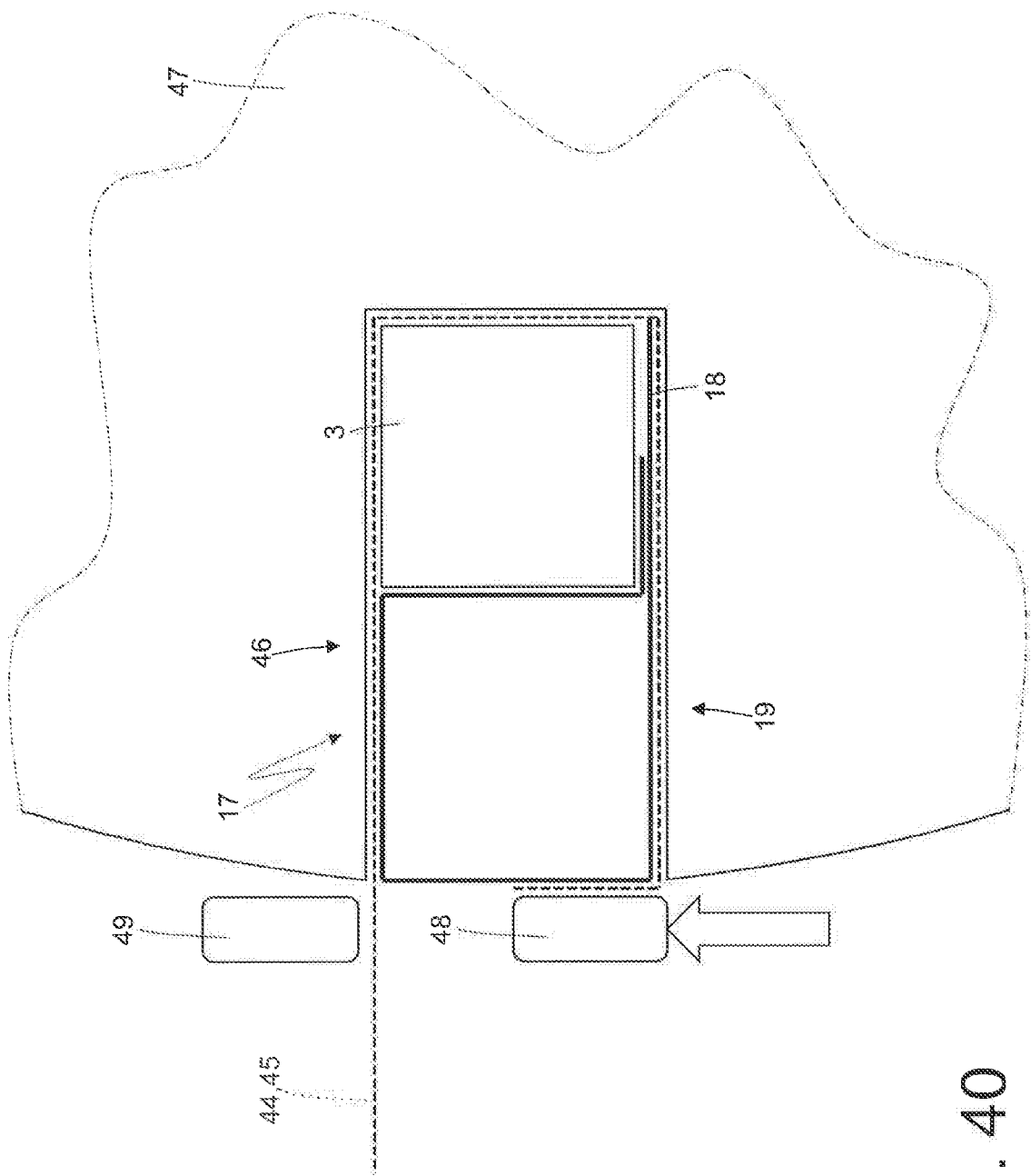


Fig. 40

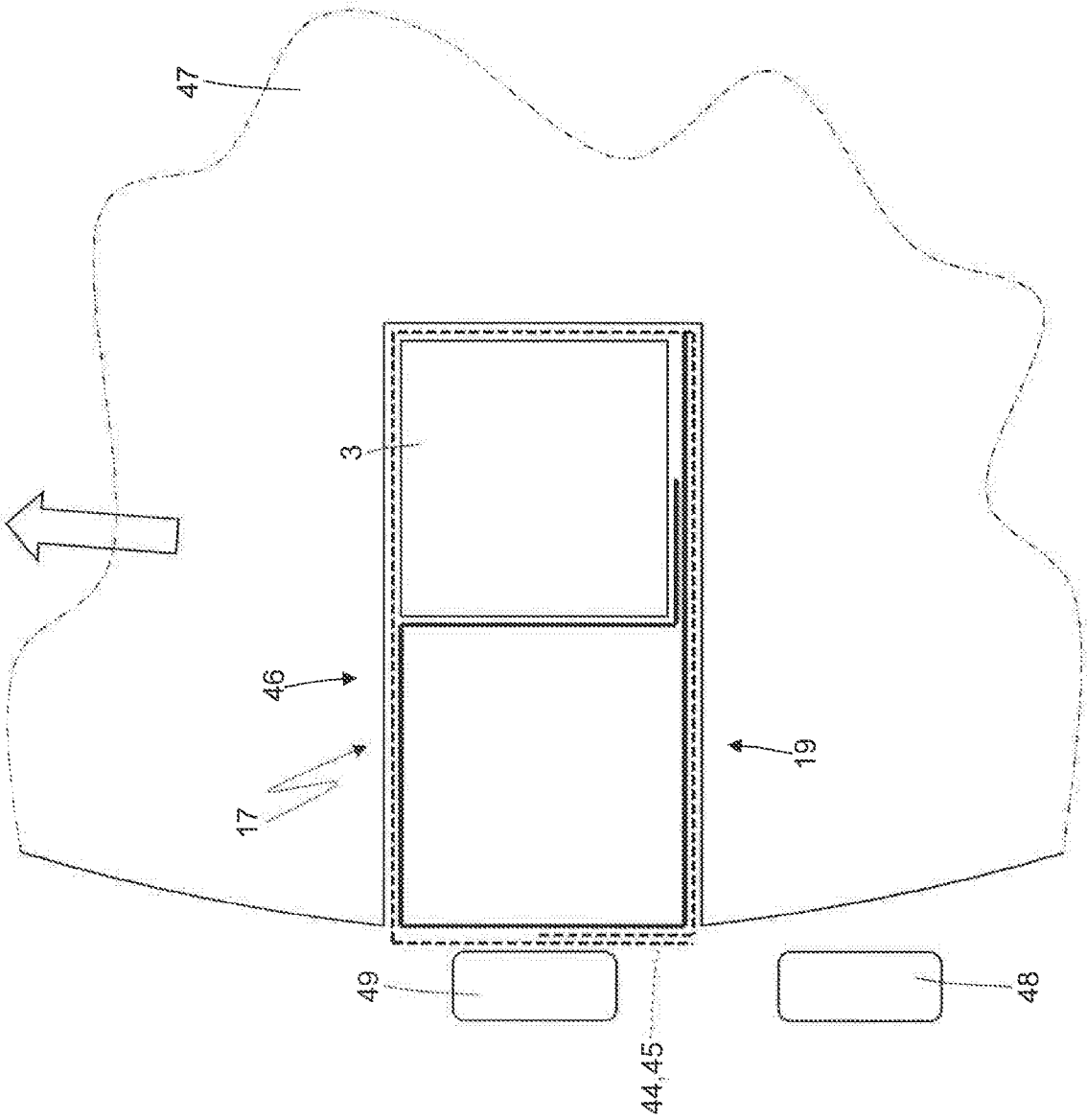


Fig. 41

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/054121

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D5/496 B65D85/10 B65B43/32
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D B65B

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	DE 89 09 298 U1 (HWANG FENG LIN) 28 December 1989 (1989-12-28) page 1, paragraph 1; figures 1-3 -----	1-7, 11-14 15-21
Y	US 4 335 842 A (BRADFORD JUDSON T ET AL) 22 June 1982 (1982-06-22) column 5, line 14 - line 26; figures 3-6 -----	1-5,7, 11-13
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A	NL 8 105 057 A (CARTONNAGEFABRIEK HOLLANDIA B) 1 June 1983 (1983-06-01) page 3, line 30; figures 1, 2 ----- -/-	1-14



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

14 October 2016

Date of mailing of the international search report

24/10/2016

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Czerny, M

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/054121

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	DE 10 2011 119344 A1 (FÖCKE & CO [DE]) 11 April 2013 (2013-04-11) figure 18 -----	15-21
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International application No

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