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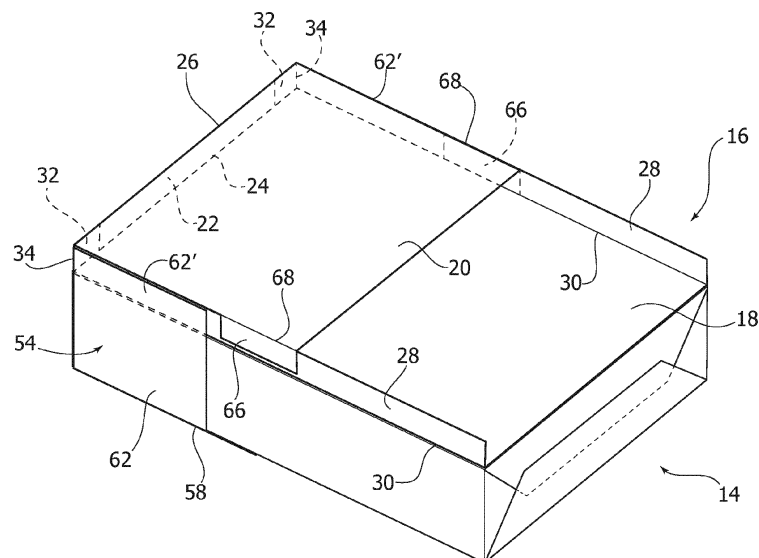
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(54) **A FILLING ELEMENT FOR PACKETS OF SMOKING ARTICLES, AND METHOD FOR PRODUCING A PACKET OF SMOKING ARTICLES**

(57) A filling element for packets of smoking articles (10), comprising
- a front wall (18) and a rear wall (20) parallel to each other,
- a head wall (22) connected to the front wall (18) and to the rear wall (20) by means of respective transverse folding lines (24, 26),
- a pair of first side walls (28) perpendicular to the front

wall (18) and connected to the front wall (18) by respective first longitudinal folding lines (30), and
- a pair of second side walls (66) perpendicular to the rear wall (20) and connected to the rear wall (20) by respective second longitudinal folding lines (68), wherein the second side walls (66) are parallel and external with respect to the first side walls (28).

FIG. 8



DescriptionField of the invention

[0001] The present invention relates in general to the packaging of smoking articles and regards a filling element for packets of smoking articles.

[0002] In this text, reference will be made to the generic expression "smoking articles" indicating a category of products which includes: cigarettes, cigars, cigarillos, electronic cigarettes or *e-cigs*, auxiliary products such as filters, refills for *e-cigs* and other tobacco-based products or alternative or substitute components to tobacco.

[0003] According to another aspect, the present invention also relates to a method for producing a packet of smoking articles including a filling element.

State of the art

[0004] Normally, a packet of smoking articles comprises a group of smoking articles wrapped in an inner wrapper of metallized paper, and an outer wrapper that encloses the inner wrapper. The outer wrapper can be soft, or it can be a rigid container, commonly made of cardboard, usually provided with a hinged cover.

[0005] In certain applications it may be necessary to make packets of smoking articles having a thickness that is greater than the thickness of the group of smoking articles that they contain, in order to meet regulations that foresee minimum predetermined dimensions of the outer surface of the packets of smoking articles dedicated to printing deterrent messages. In these cases, the use of filling elements inserted within the packets of smoking articles is known to occupy the part of the inner volume of the packet not occupied by the group of smoking articles.

[0006] The Italian patent application no. 10 2017 00007777993 by the same Applicant describes a filling element for a packet of smoking articles having a front wall against which a group of smoking articles rests, wrapped in an inner wrapper, a head wall connected to an upper end of the front wall, two side walls arranged on opposite sides of the front wall, a rear wall connected to the head wall and folded up to touch the edges of the side walls, and two spacer tabs connected to respective side walls and folded inwards to form a support for the rear wall.

[0007] Filling elements of this type are produced from a continuous cardboard tape on which cutting lines and folding lines are formed between the various parts of the filling element.

[0008] One problem of the prior art is that in the case in which the filling element is very thin (for example with a thickness equal to or less than 5 mm), the spacer tabs do not give sufficient support for the rear wall. Consequently, the spacer elements with a reduced thickness made according to the prior art have insufficient stiffness and are unable to form an effective support for the group

of smoking articles within the packet.

Object and summary of the invention

[0009] The object of the present invention is to provide an improved filling element that overcomes the problems of the prior art.

[0010] According to the present invention, this object is achieved by a filling element having the characteristics forming the subject of claim 1.

[0011] According to another aspect, the present invention also relates to a method for producing a packet of smoking articles according to claim 5.

[0012] The claims form an integral part of the disclosure provided here in relation to the invention.

Brief description of the drawings

[0013] The present invention will now be described in detail with reference to the attached drawings, given purely by way of non-limiting example, wherein:

- Figure 1 is a perspective view of a packet of smoking articles, illustrated with the cover open, provided inside with a filling element,
- Figure 2 is a plan view of a first embodiment of a filling element blank,
- Figures 3-8 are perspective views illustrating some steps of a first embodiment of a method for producing a packet of smoking articles,
- Figure 9 is a plan view of a second embodiment of a filling element blank,
- Figures 10 and 11 are perspective views illustrating some steps of a second embodiment of a method for producing a packet of smoking articles.

Detailed description

[0014] Numeral 10 in Figure 1 indicates a packet of smoking articles (for example cigarettes, cigars, electronic cigarettes or *heat-not-burn-type* products).

[0015] In the following description and in the claims, geometric references such as "front", "rear", "upper", "lower", "high", low "etc. refer to the condition in which the packet 10 of smoking articles is located in a vertical position and with the opening of the packet 10 facing upwards, or rather, in an arrangement such that the direction of its prevalent development (i.e. the axis of the smoking articles) is a "longitudinal" direction that coincides with the vertical direction and, therefore, a "transverse" direction is to be understood as a horizontal direction.

[0016] The parallelepiped-shaped packet 10 comprises a rigid outer casing 12, having a front wall 60, a rear wall 52, two side walls 64, a lower wall and an upper opening 56, and a cover 50 hinged to the rear wall 52 of the outer casing 12.

[0017] "Thickness" means a dimension measured per-

pendicularly to the front wall 60 of the outer casing 12 and parallel to the side walls 64 of the outer casing 12.

[0018] The packet 10 comprises a collar 54, arranged internally, which protrudes from the upper opening 56 of the outer casing 12. The collar 54 has a front wall 58 parallel to the front wall 60 of the outer casing 12, and two side walls 62 parallel to the respective side walls 64 of the outer casing 12.

[0019] The packet 10 comprises a group of smoking articles 14 wrapped in an inner wrapper formed, for example, of a sheet of metallized paper. The group of smoking articles 14 has a thickness less than the thickness of the outer casing 12. To prevent the group of smoking articles 14 from moving in the outer casing 12, a filling element 16 is housed inside the outer casing 12 to fill the volume left free by the group of smoking articles 14.

[0020] With reference to Figure 8, the filling element 16 comprises a front wall 18 and a rear wall 20 parallel to each other. The filling element 16 has a head wall 22 orthogonal to the front wall 18 and to the rear wall 20. The head wall 22 is connected to the upper side of the front wall 18 by means of a first transverse folding line 24 and to the upper side of the rear wall 20 by means of a second transverse folding line 26. The thickness of the head wall 22 is equal to the distance between the front wall 18 and the rear wall 20.

[0021] The filling element 16 comprises a pair of first side walls 28 orthogonal to the front wall 18 and connected to respective sides of the front wall 18 by means of respective longitudinal folding lines 30. The side walls 28 have a thickness equal to the thickness of the head wall 22 and that extend orthogonally to the front wall 18 and to the rear wall 20. Preferably, the first side walls 28 have respective end tabs 32 folded around respective folding lines 34 and parallel to the head wall 22.

[0022] Still with reference to Figure 8, the filling element 16 comprises a pair of second side walls 66 orthogonal to the rear wall 20 and connected to the rear wall 20 by means of respective second longitudinal folding lines 68. The second side walls 66 are parallel and external with respect to the first side walls 28.

[0023] The filling element 16 of Figure 8 is obtained by folding an initially flat cardboard blank 70 around preformed folding lines, the blank having the shape illustrated in Figure 2. In Figure 2, the dashed lines indicate weakened lines along which folding lines are formed and the solid lines indicate cutting lines. In Figure 2, the weakened lines are indicated with the same numerical references as the folding lines that will be subsequently formed.

[0024] In the embodiment illustrated in Figures 2-8, the second side walls 66 only extend in the longitudinal direction for a part of the length of the rear wall 20. More specifically, the second side walls 66 extend along a portion of the rear wall 20 from the side of an end transverse edge 72 of the rear wall 20, so as to leave empty spaces between the head wall 22 and transverse edges of the second side walls 66 opposite the transverse end edge

72.

[0025] A first embodiment of a method for producing a packet of smoking articles 10 comprises the sequence of steps illustrated in Figures 3-8.

5 **[0026]** In a first step illustrated in Figure 3, the group of smoking articles 14 wrapped in an inner wrapper is arranged in contact with the front wall 18 of the flat blank 70. Then, the end tabs 32 are folded orthogonally to the respective side walls 28 around the respective transverse folding lines 34, as illustrated in Figure 4.

10 **[0027]** Subsequently, the first side walls 28 of the blank 70 are folded orthogonally to the front wall 18 around the respective first longitudinal folding lines 30, as illustrated in Figure 5.

15 **[0028]** Subsequently, the head wall 22 is folded orthogonally to the front wall 18 around the first transverse folding line 24, bringing the blank 70 into the configuration shown in Figure 6.

20 **[0029]** Then, the rear wall 20 is folded orthogonally to the head wall 22 around the second transverse folding line 26 so as to arrange the rear wall 20 parallel to the front wall 18 and with the second side walls 66 oriented in an orthogonal direction with respect to the first side walls 28 (Figure 7).

25 **[0030]** The assembly formed by the group of smoking articles 14 and the partially folded blank 70 as in the configuration shown in Figure 7 is positioned on a collar 54. The front wall 58 of the collar 54 is arranged in contact with a front wall of the group of smoking articles 14 and the two side walls 62 of the collar extend along the sides of the group of smoking articles 14. Distal portions 62' of the side walls 62 of the collar 54 are overlapped on corresponding portions of the first side walls 28 of the blank 70.

30 **[0031]** Then, the second side walls 66 of the filling element 16 are folded orthogonally to the rear wall 20 around the respective longitudinal folding lines 68, so as to arrange the second side walls 66 parallel and outside with respect to the first side walls 28 (Figure 8). The folding of the second side walls 66 of the filling element 16 can be carried out before or after applying the collar 54 to the assembly formed by the group of smoking articles 14 and the filling element blank 70.

35 **[0032]** Finally, the outer casing 12 is folded around the assembly formed by the group of smoking articles 14, the filling element 16 and the collar 54, according to methods known per se.

40 **[0033]** In the embodiment illustrated in Figure 8, the second side walls 66 do not overlap on the corresponding distal portions 62' of the side walls 62 of the collar 54. The distal portions 62' of the side walls 62 of the collar 54 are located between the upper edges of the second side walls 66 and the side edges of the head walls 22. Therefore, there is no overlap between the second side walls 66 and the distal portions 62' of the side walls 62 of the collar 54.

45 **[0034]** The second side walls 66 of the filling element 16 can be glued to the first side walls 28. The distal por-

tions 62' of the side walls 62 of the collar 54 can be glued to the first side walls 28 or to respective side walls 64 of the outer casing 12. The rear wall 20 of the filling element 16 can be glued to the rear wall 52 of the outer casing 12.

[0035] A second embodiment of a filling element 16 is illustrated in Figure 11. The elements corresponding to those previously described are indicated with the same numerical references.

[0036] In this second embodiment, the second side walls 66 of the filling element 14 extend longitudinally along the entire length of the rear wall 20.

[0037] The filling element 16 is obtained by folding an initially flat blank 70 having the shape shown in Figure 9.

[0038] A second embodiment of a method for producing a packet of smoking articles 10 is illustrated in Figures 10 and 11. The sequence of the folding steps for forming the second embodiment of the filling element 16 is analogous to the sequence of folding steps described previously with reference to Figures 2-8.

[0039] In this second embodiment, the second side walls 66 are overlapping on the corresponding distal portions 62' of the side walls 62 of the collar 54. The folding of the side walls 66 around the respective folding lines 68 is carried out after applying the collar 54 to the assembly formed by the group of smoking articles 14 and the blank 70.

[0040] The distal portions 62' of the side walls 62 of the collar 54 can be glued to the first side walls 28. The second side walls 66 can be glued to the distal portions 62' of the side walls 62 of the collar 54 and to the first side walls 28 or to respective side walls 64 of the outer casing 12. In this case as well, the rear wall 20 of the filling element 16 can be glued to the rear wall 52 of the outer casing 12.

[0041] The second side walls 66 establish a stable connection between the rear wall 20 and the front wall 18 and increase the stiffness of the rear wall 20. This solution allows obtainment of sufficient stiffness even in cases where the filling element has a very reduced thickness (for example, less than 5 mm).

[0042] Of course, without prejudice to the principle of the invention, the details of construction and the embodiments can be widely varied with respect to those described and illustrated, without thereby departing from the scope of the invention as defined by the claims that follow.

Claims

1. A filling element for packets of smoking articles (10), comprising:

- a front wall (18) and a rear wall (20) parallel to each other,
- a head wall (22) connected to the front wall (18) and to the rear wall (20) by means of respective transverse folding lines (24, 26) and

arranged orthogonally to said front and rear walls (18, 20),

- a pair of first side walls (28) perpendicular to the front wall (18) and connected to the front wall (18) by respective first longitudinal folding lines (30), and
- a pair of second side walls (66) perpendicular to the rear wall (20) and connected to the rear wall (20) by respective second longitudinal folding lines (68),

wherein the second side walls (66) of the filling element (16) are parallel and overlapped externally with respect to the first side walls (28) of the filling element (16).

2. A filling element according to claim 1, wherein the second side walls (66) extend in the longitudinal direction for only a part of the length of the rear wall (20), along a lower part of the rear wall (20).

3. A filling element according to claim 1, wherein the second side walls (66) extend longitudinally along the entire length of the rear wall (20).

4. A filling element according to any of claims 1-3, wherein the first side walls (28) have respective end tabs (32) connected to respective side walls (28) by means of respective transverse folding lines (34), folded at right angles to said side walls (28) and parallel to said head wall (22).

5. A method for producing a packet (10) of smoking articles, comprising:

- providing a flat blank (70) of a filling element (16) comprising: a front wall (18), a rear wall (20), a head wall (22) connected to the front wall (18) and to the rear wall (20) by respective transversal folding lines (24, 26), a pair of first side walls (28) connected to the front wall (18) by respective first longitudinal folding lines (30), and a pair of second side walls (66) connected to the rear wall (18) by respective second longitudinal folding lines (68),
- placing a group of smoking articles (14) wrapped in an inner wrapper, in contact with the front wall (18) of the blank (70) of the filling element (16),
- folding the first side walls (28) orthogonally to the front wall (18) around the respective first longitudinal folding lines (30),
- folding the head wall (22) orthogonally to the front wall (18) around a first transverse folding line (24),
- folding the rear wall (20) orthogonally with respect to the head wall (22) around a second transverse folding line (26) and placing the rear

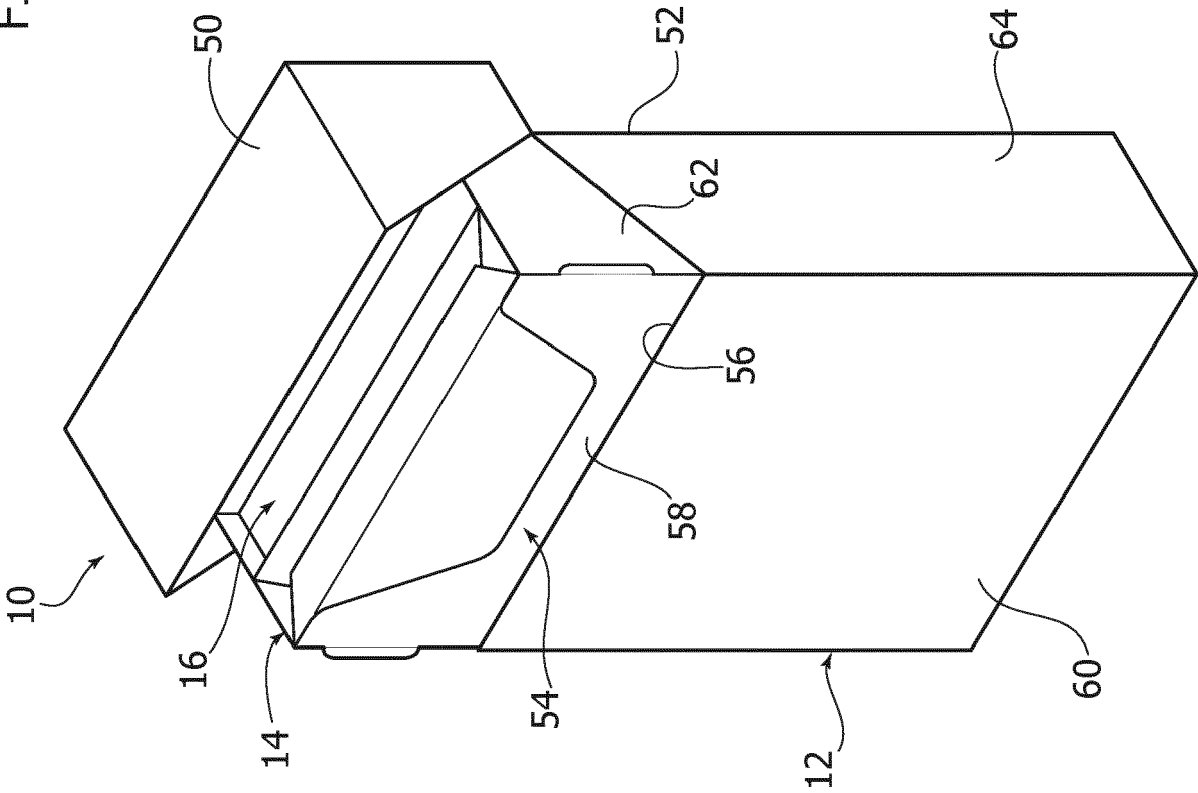
wall (20) parallel to the front wall (18) and with the second side walls (66) oriented in a transverse direction to the corresponding first side walls (28),

- placing the assembly formed by the group of smoking articles (14) and the blank (70) partially folded on a folded collar (54) having a front wall (58) in contact with a front wall of the group of smoking articles (14) and two side walls (62) extending along corresponding side walls of the group of smoking articles (14), wherein distal portions (62') of the side walls (62) of the collar (54) are overlapped on corresponding portions of said first side walls (28), and

- folding said second side walls (66) around respective longitudinal folding lines (68) so that the second side walls (66) are parallel and overlapped externally with respect to the first side walls (28).

6. A method according to claim 5, wherein said second side walls (66) are not overlapped on the corresponding distal portions (62') of the side walls (62) of the collar (54).
7. A method according to claim 5, wherein said second side walls (66) are overlapped externally on the corresponding distal portions (62') of the side walls (62) of the collar (54).
8. A method according to any of claims 5-7, wherein the first side walls (28) have respective end tabs (32) connected to respective side walls (28) by respective transverse folding lines (34), including the step of folding said end tabs (32) orthogonally to said first side walls (28) around respective transverse folding lines (34).
9. A method according to any of claims 5-8, wherein the second side walls (66) of said filling element (16) are glued to corresponding portions of said first side walls (28).
10. A method according to any of claims 5-9, wherein the second side walls (66) of said filling element (16) are glued to the respective side walls (64) of an outer casing (12) and/or wherein the rear wall (20) of said filling element (16) is glued to a rear wall (52) of the outer casing (12).
11. A method according to any of claims 5-10, wherein the distal portions (62') of the side walls (62) of the collar (54) are glued to the filling element (16) at the first side walls (28) or at the second side walls (66).

FIG. 1



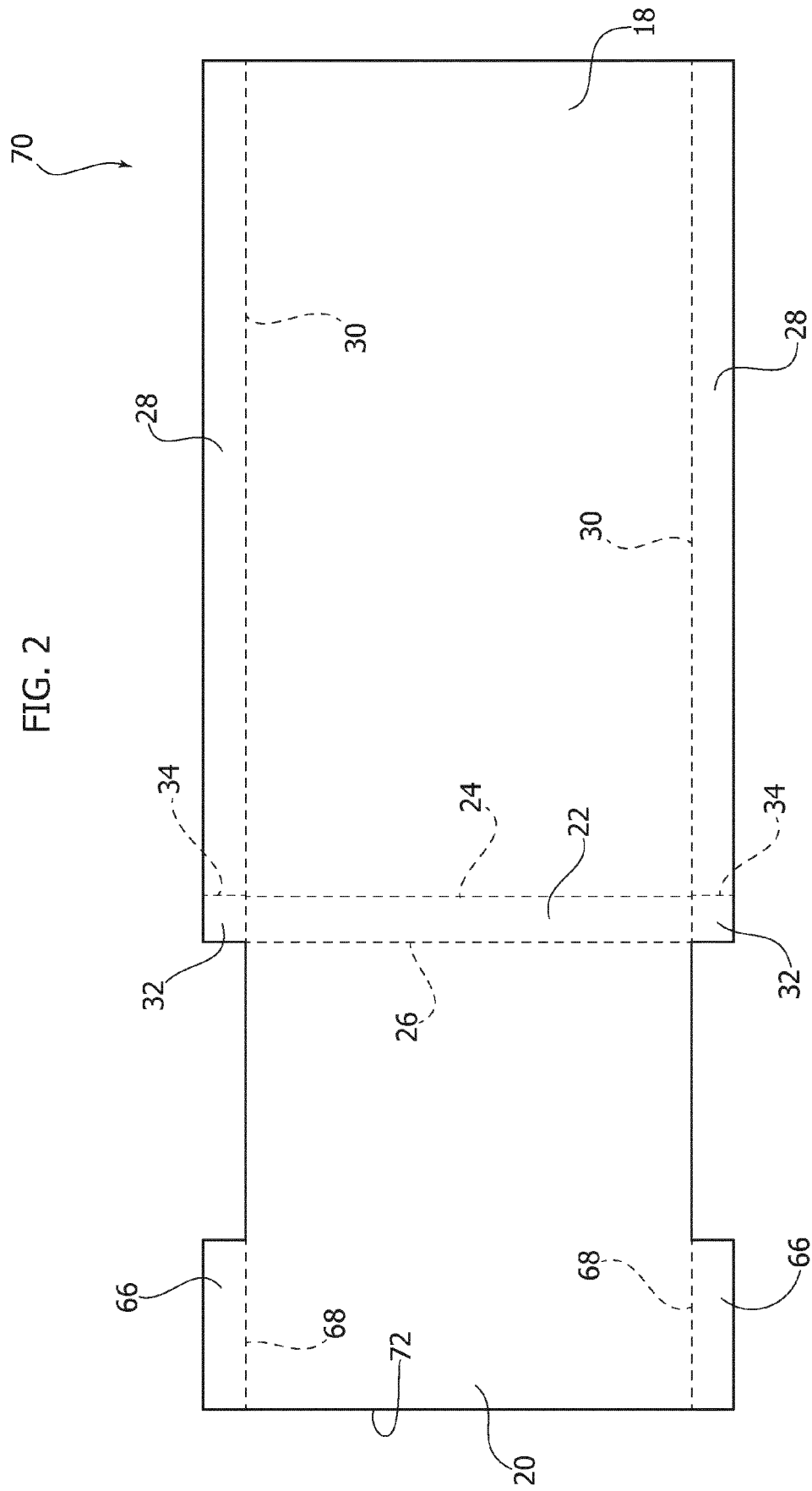


FIG. 3

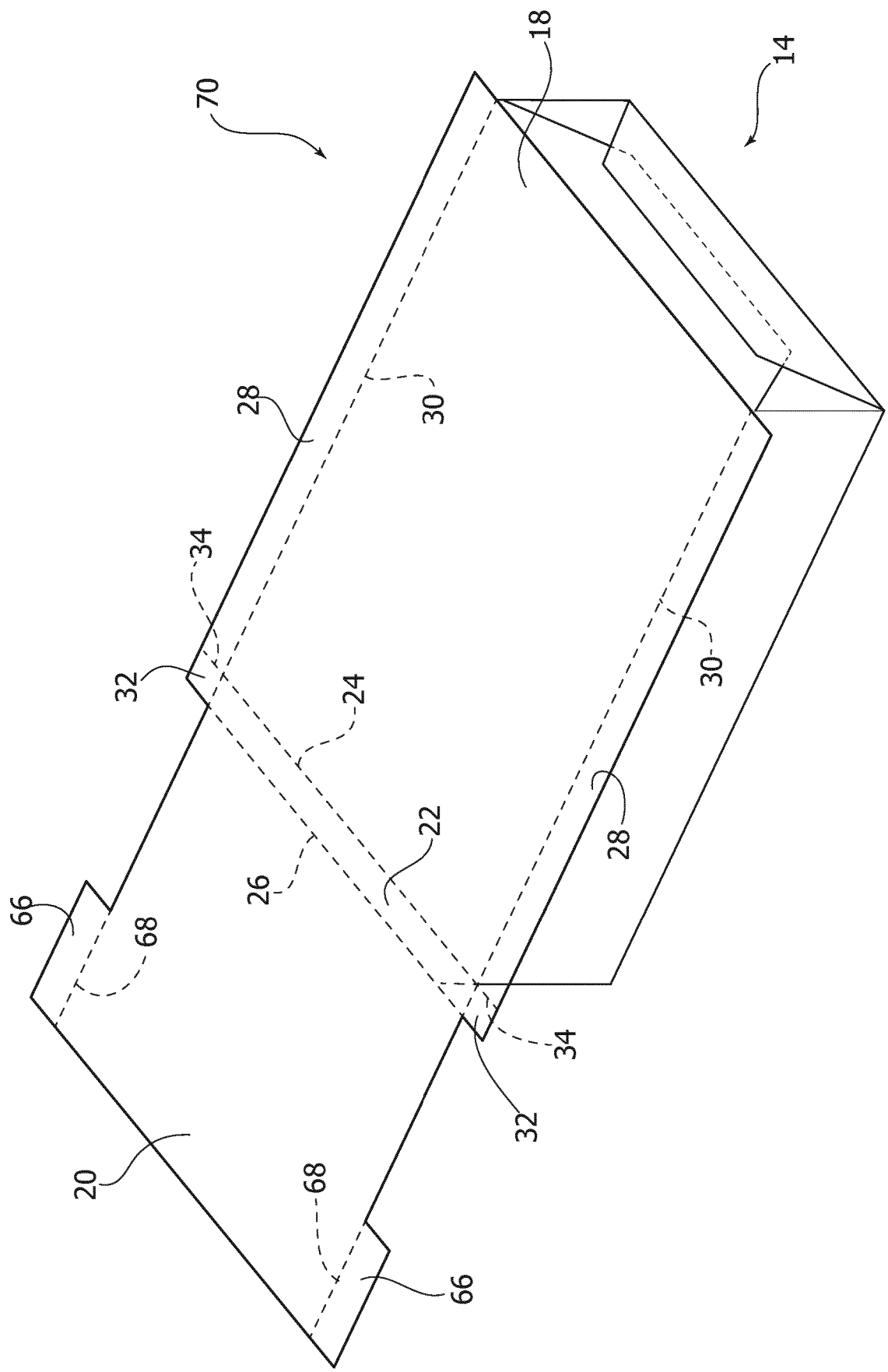
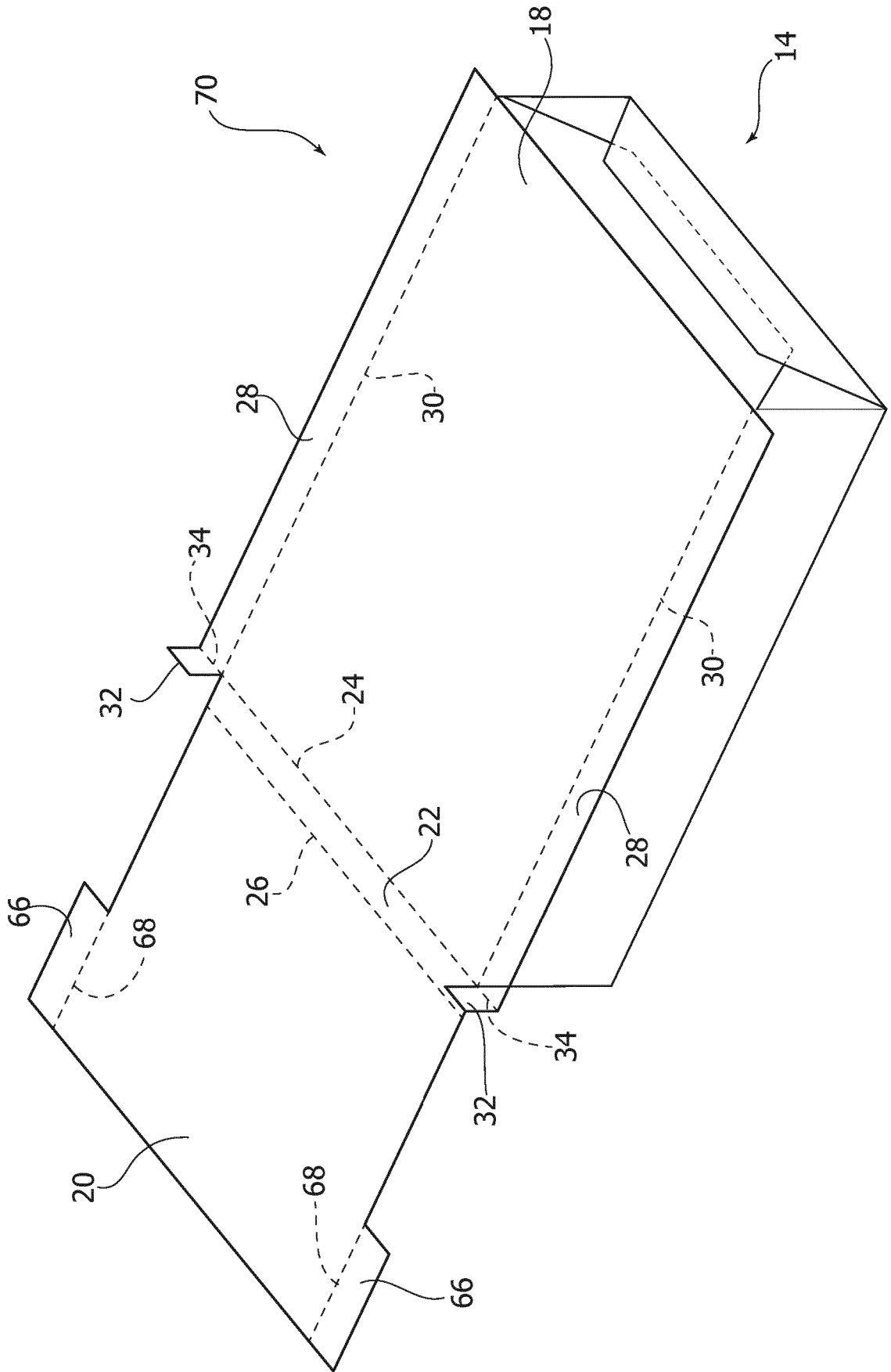


FIG. 4



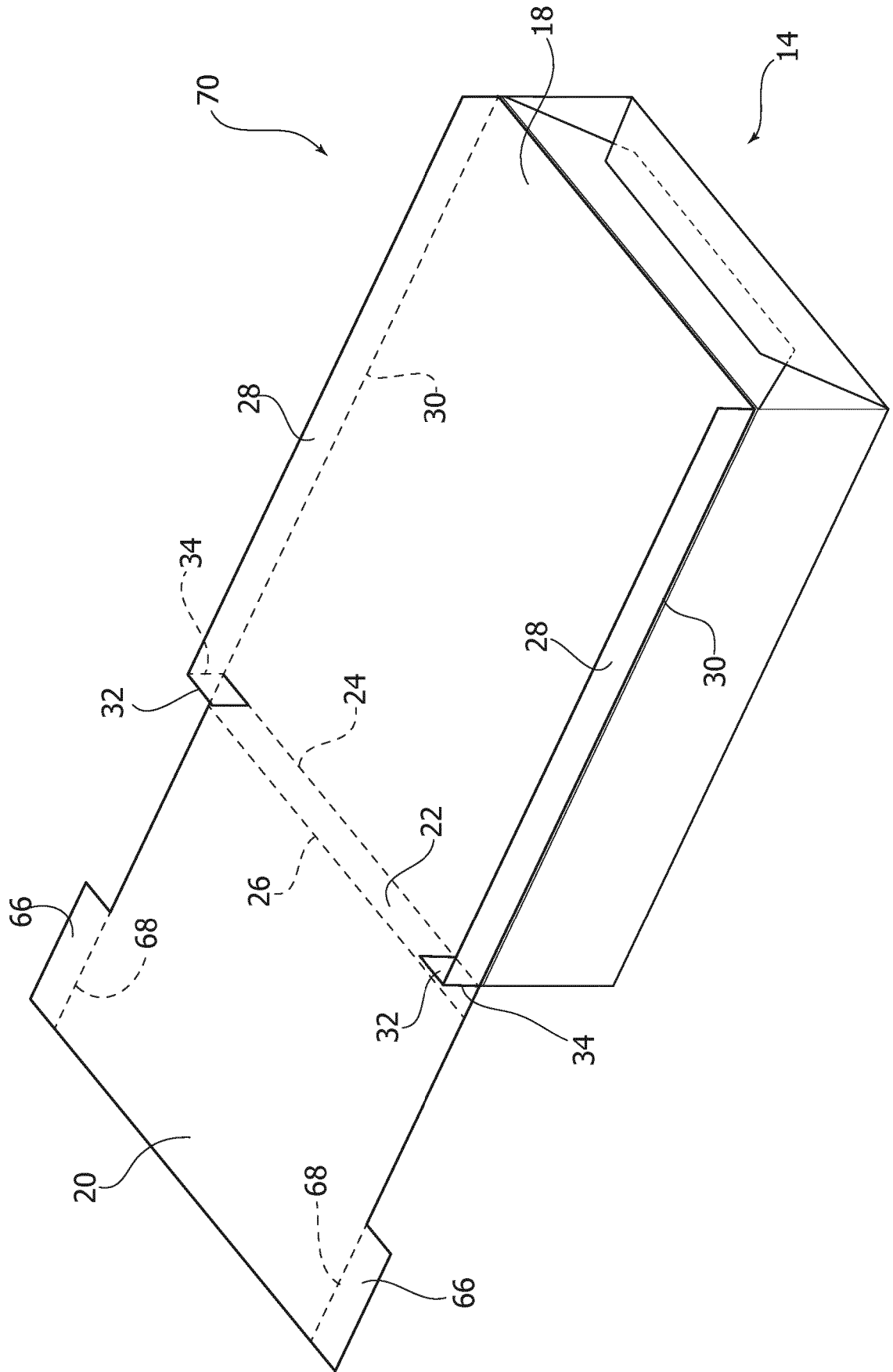


FIG. 5

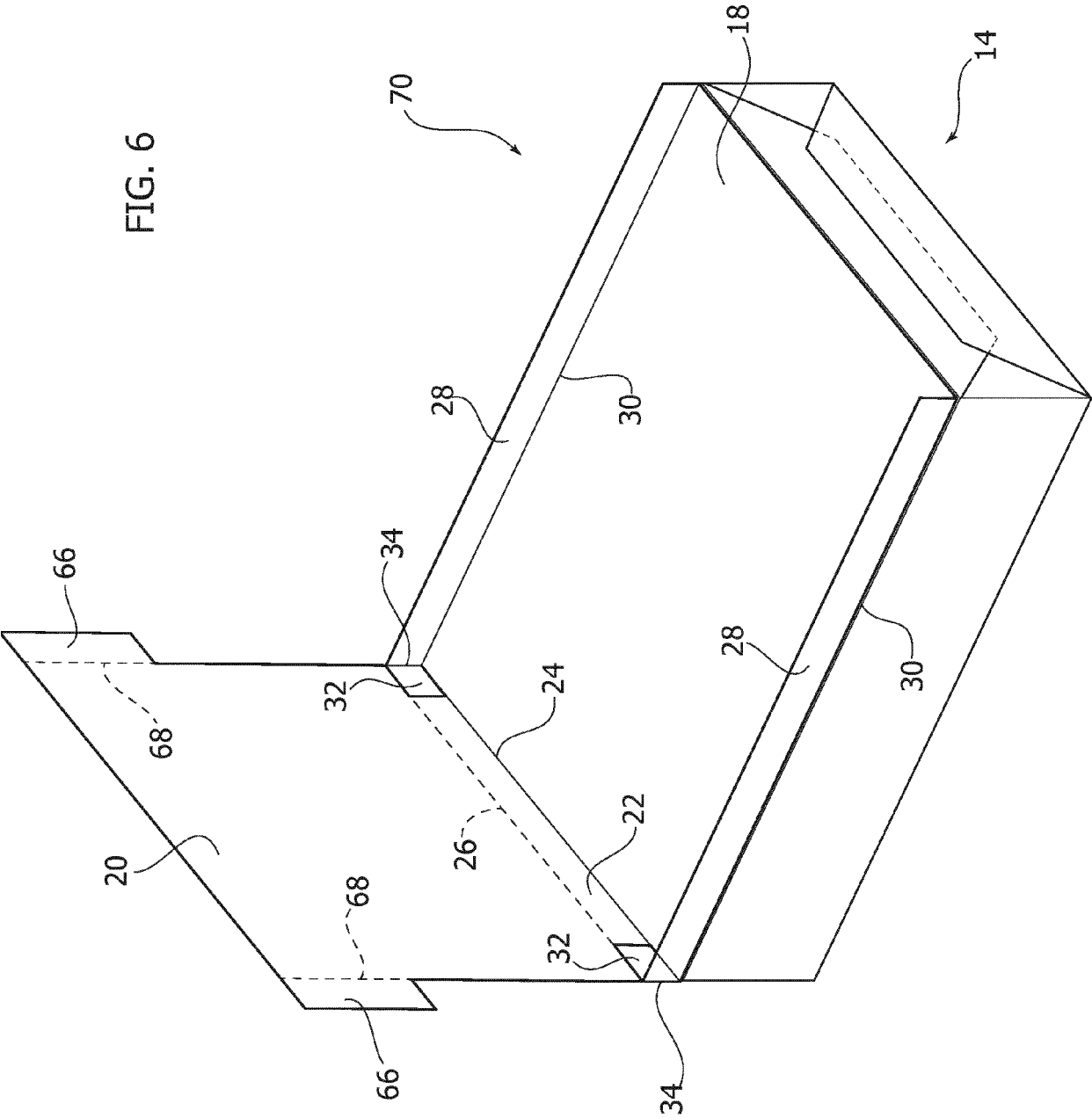


FIG. 7

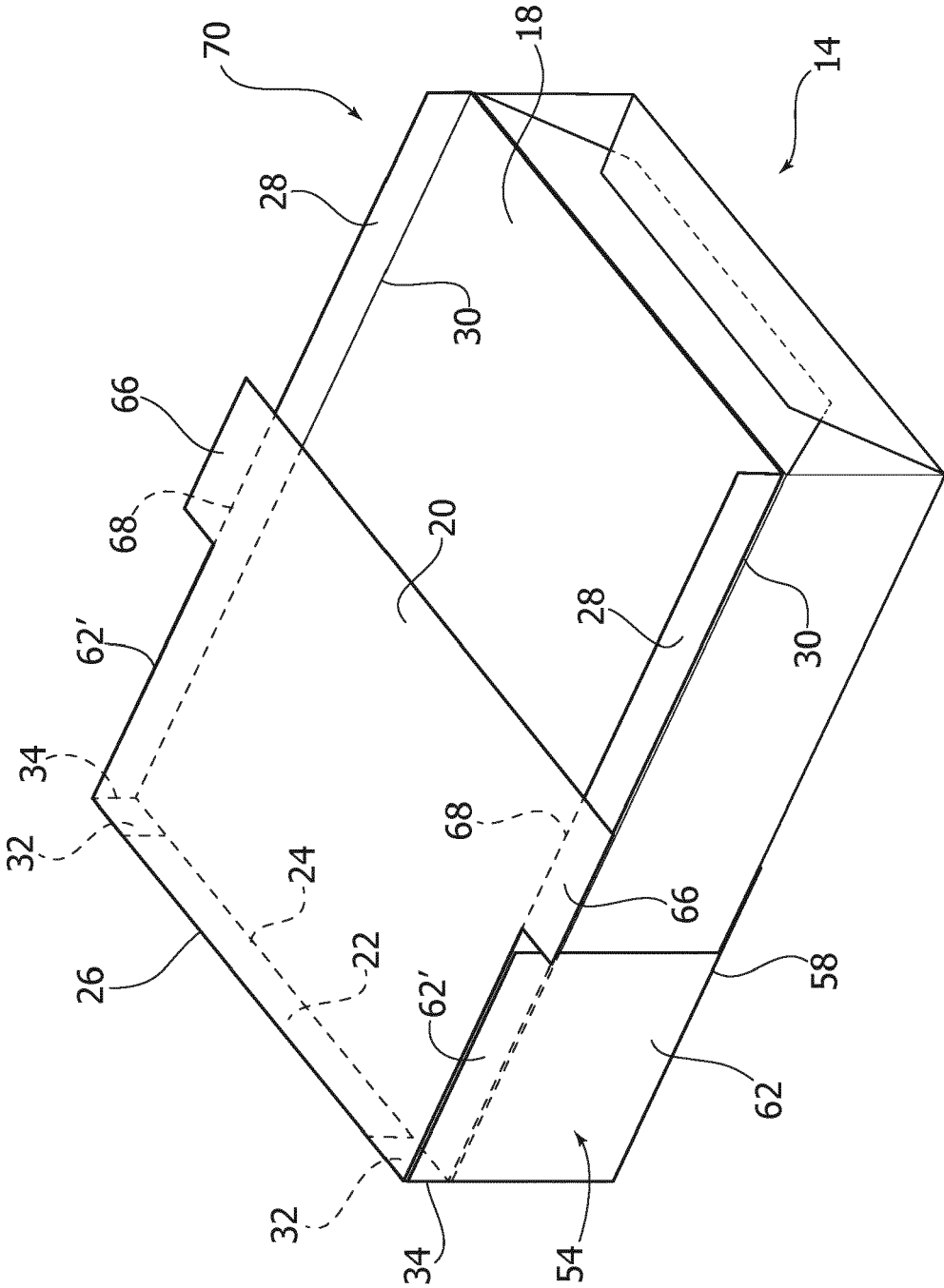


FIG. 8

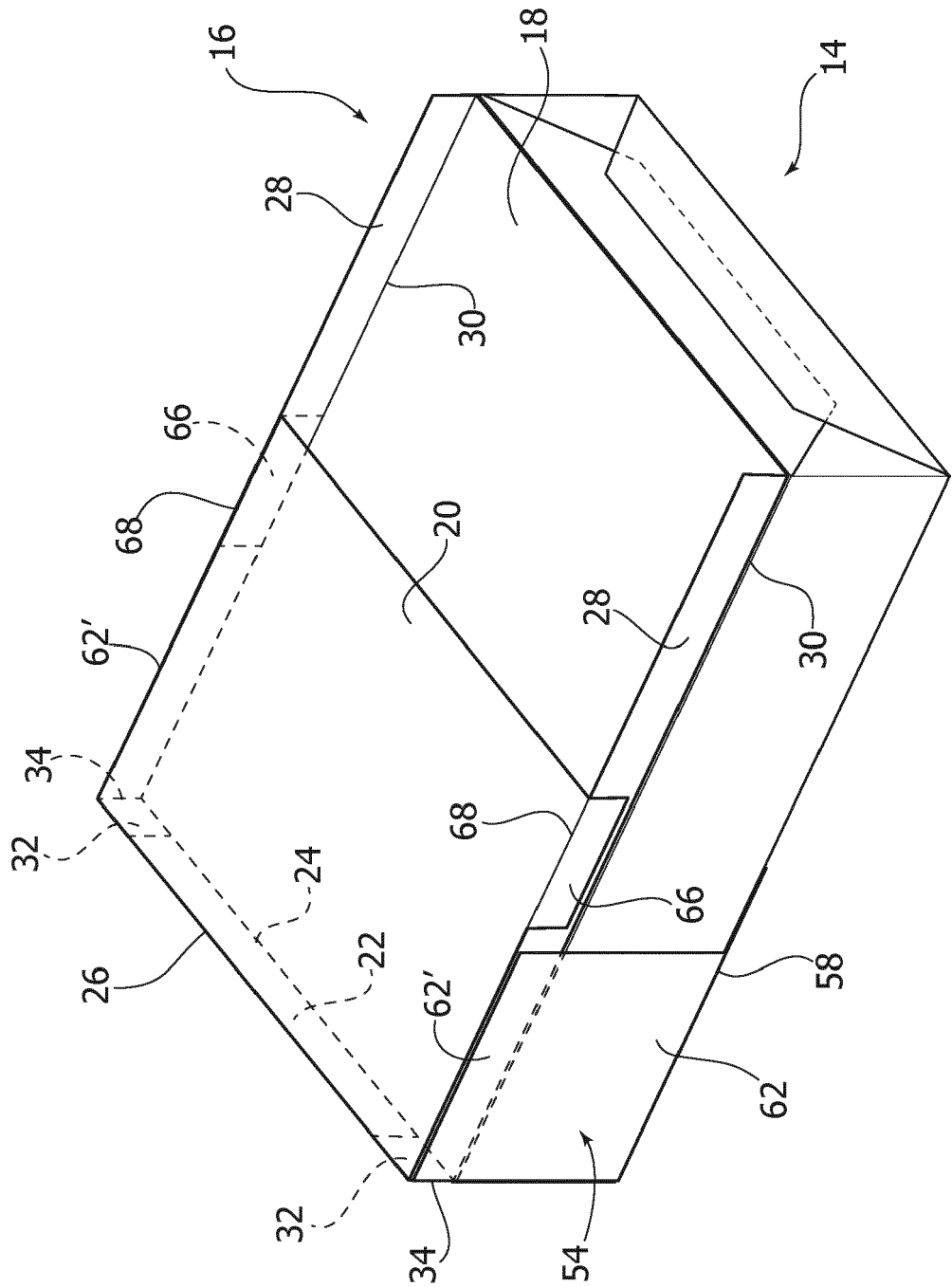


FIG. 9

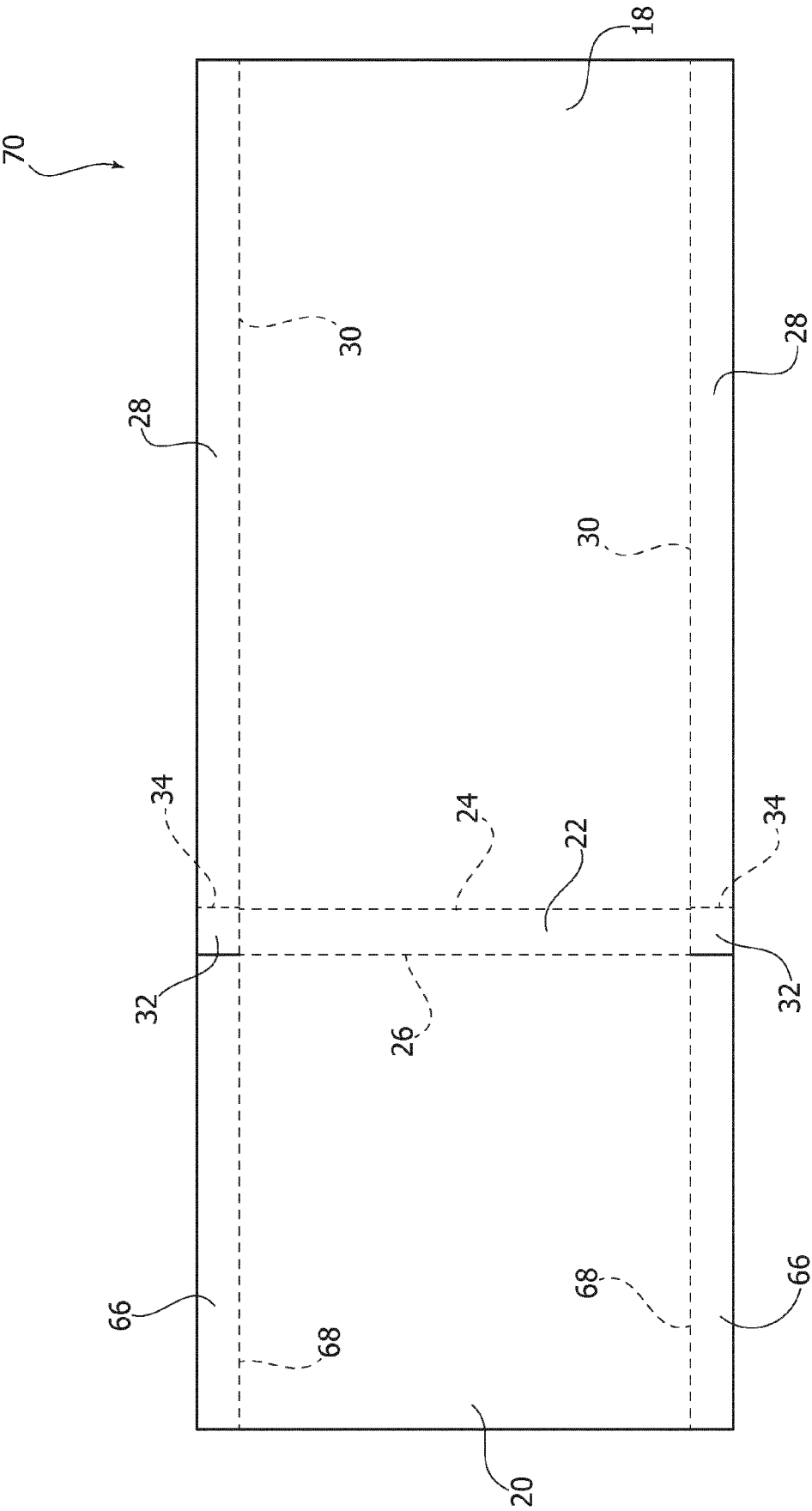


FIG. 10

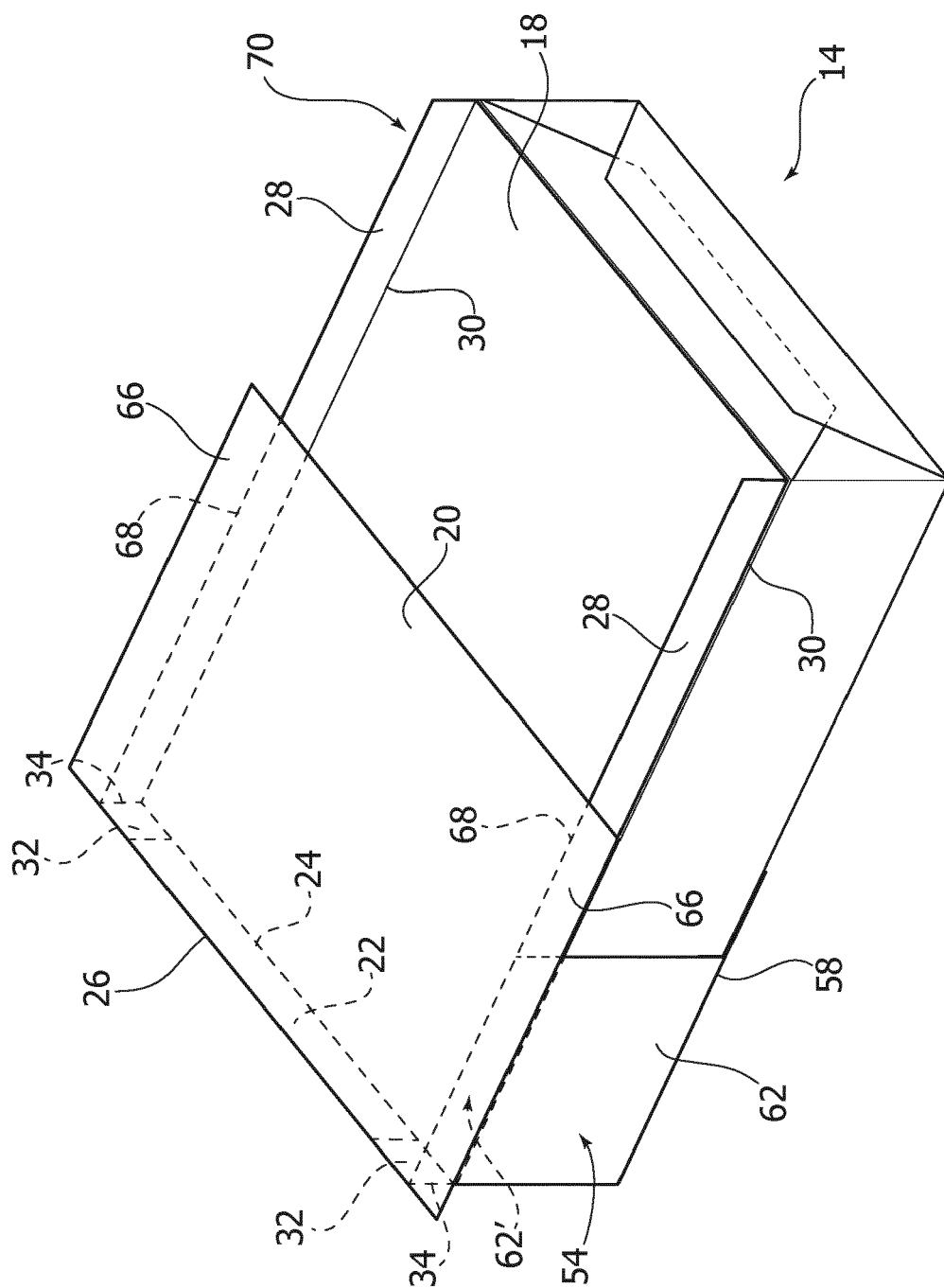
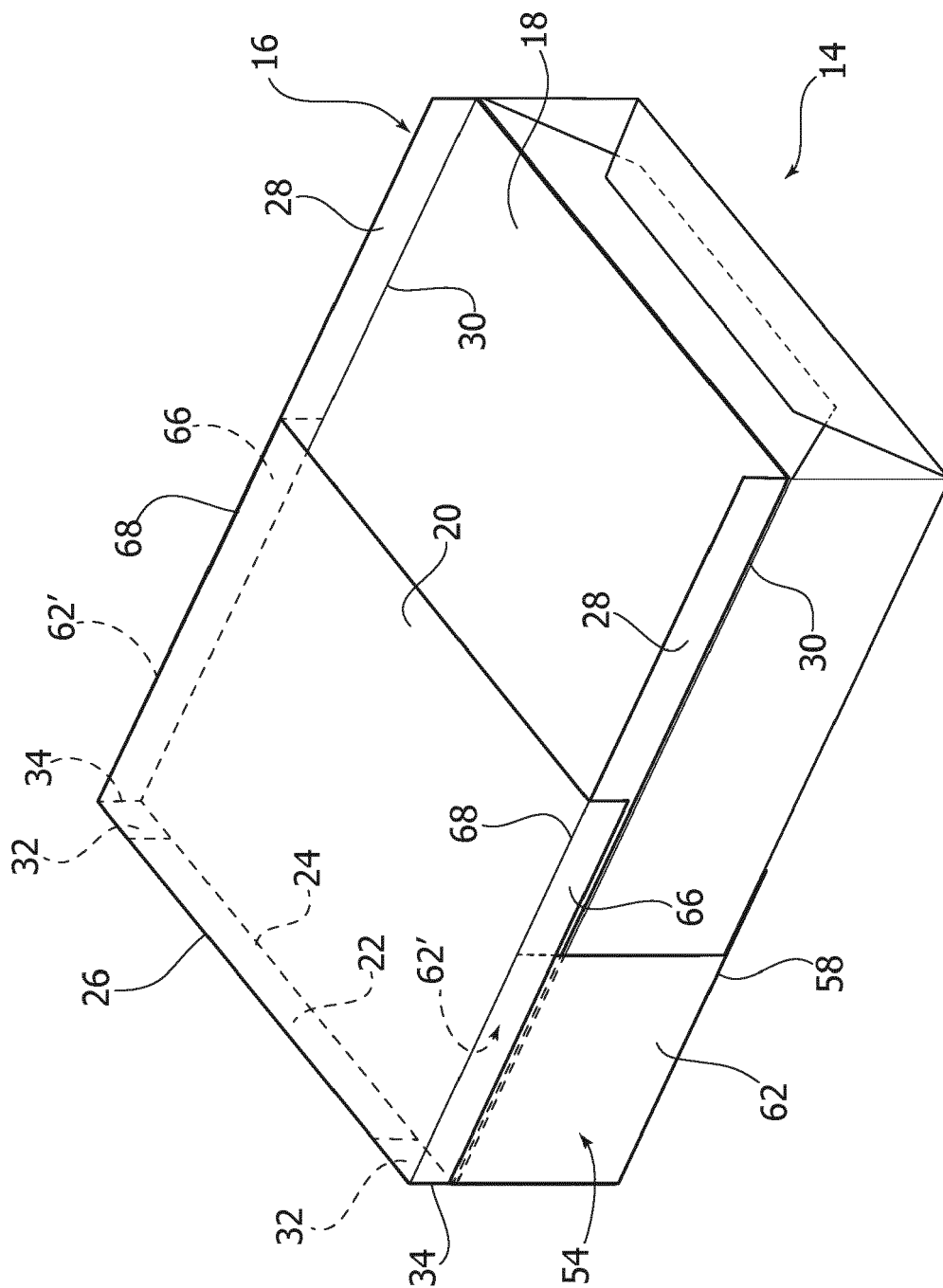


FIG. 11





EUROPEAN SEARCH REPORT

Application Number
EP 20 17 2969

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			TECHNICAL FIELDS SEARCHED (IPC)
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Place of search Munich		Date of completion of the search 11 September 2020	Examiner Segerer, Heiko
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