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Grinsell et al.

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(54) **STACKABLE MODEL**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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A63H 9/00	(2006.01)
A63H 33/04	(2006.01)

(52) **U.S. Cl.**

CPC ***A63H 3/16*** (2013.01); ***A63H 9/00*** (2013.01); ***A63H 33/04*** (2013.01)

(58) **Field of Classification Search**

CPC . A63H 3/16; A63H 9/00; A63H 33/04; G09B 19/10

See application file for complete search history.

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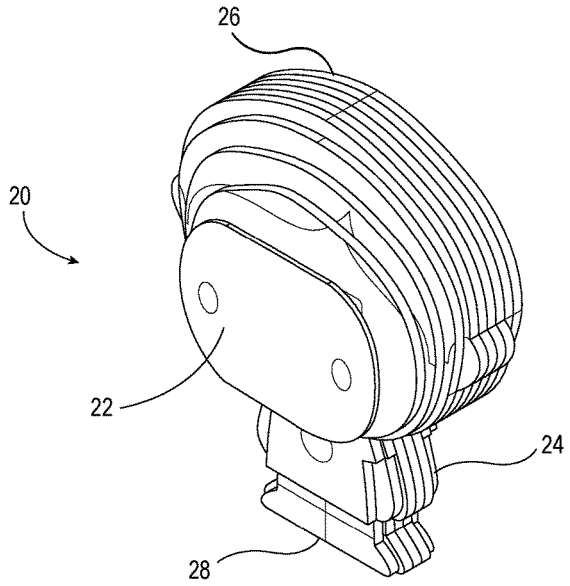
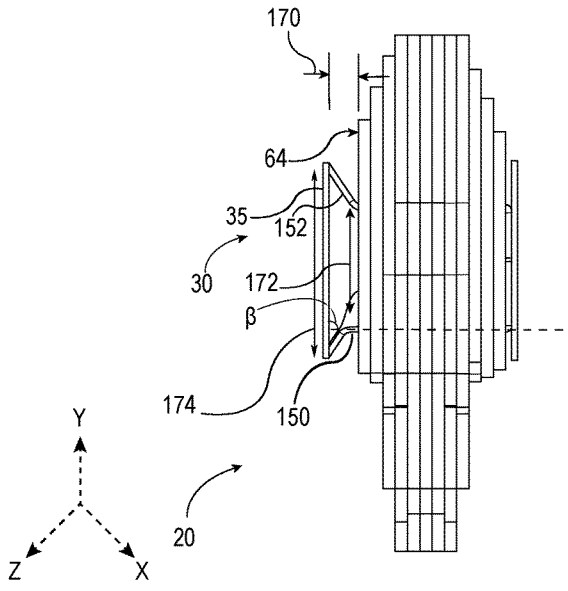
(57) **ABSTRACT**

A model toy with stackable elements. The stackable elements are unitary layers which are attached to one another behind a front plate. The front plate has guide tabs to be threaded through openings in each of the unitary layers. The end of each guide tab is affixed to the last of the unitary layers.

21 Claims, 9 Drawing Sheets





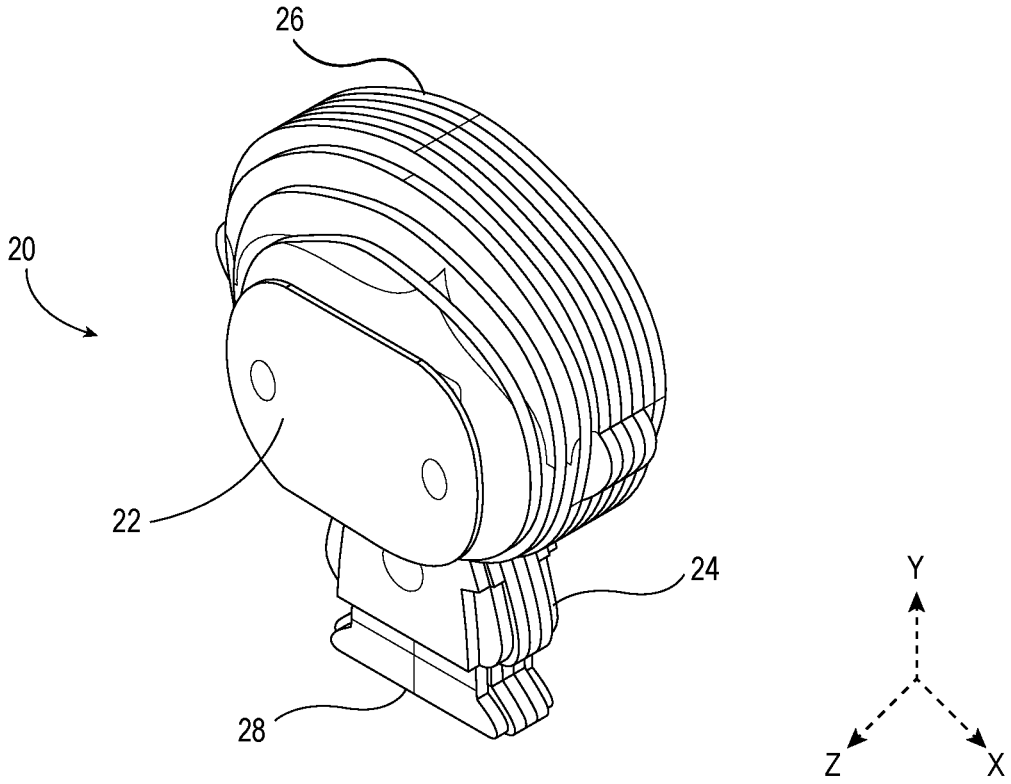


FIG. 1

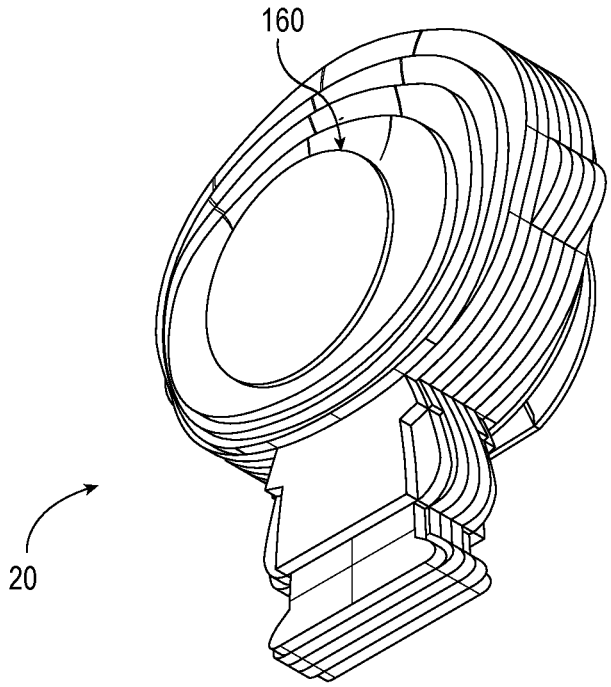


FIG. 2

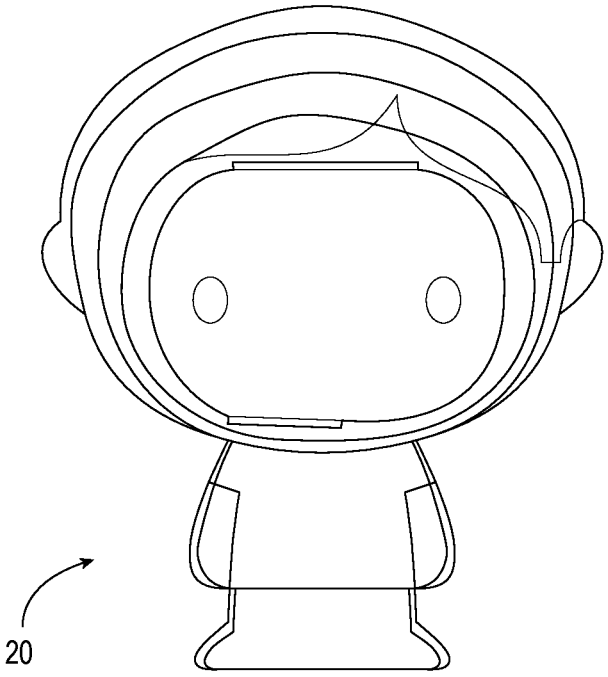


FIG. 3

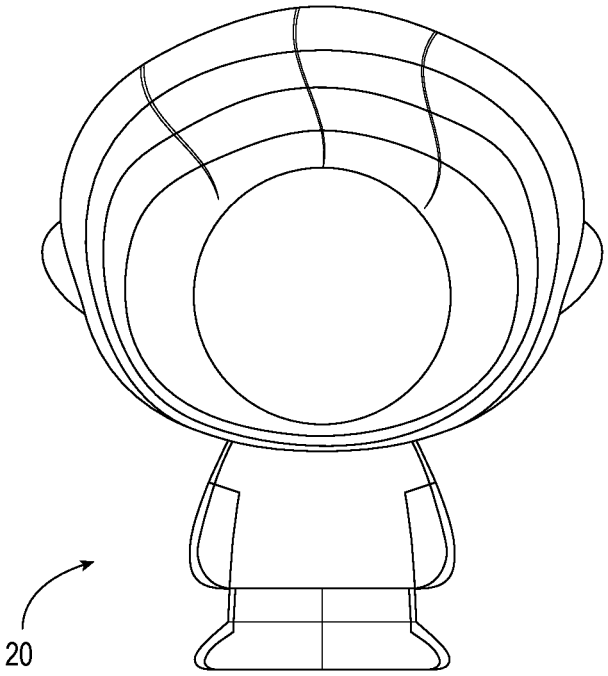


FIG. 4

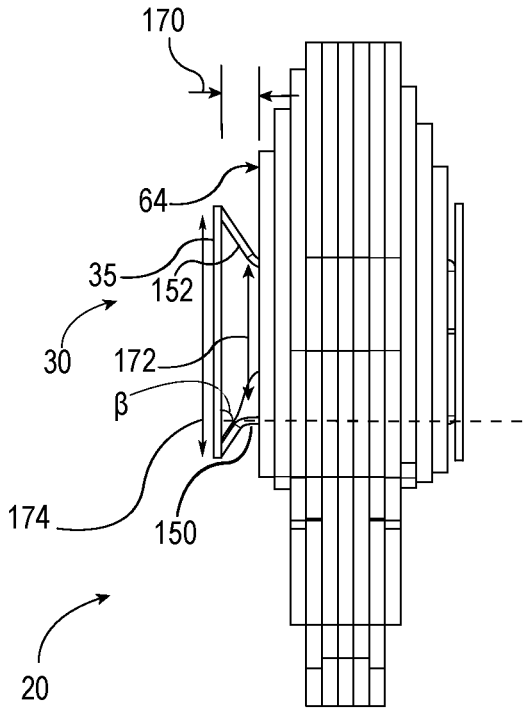
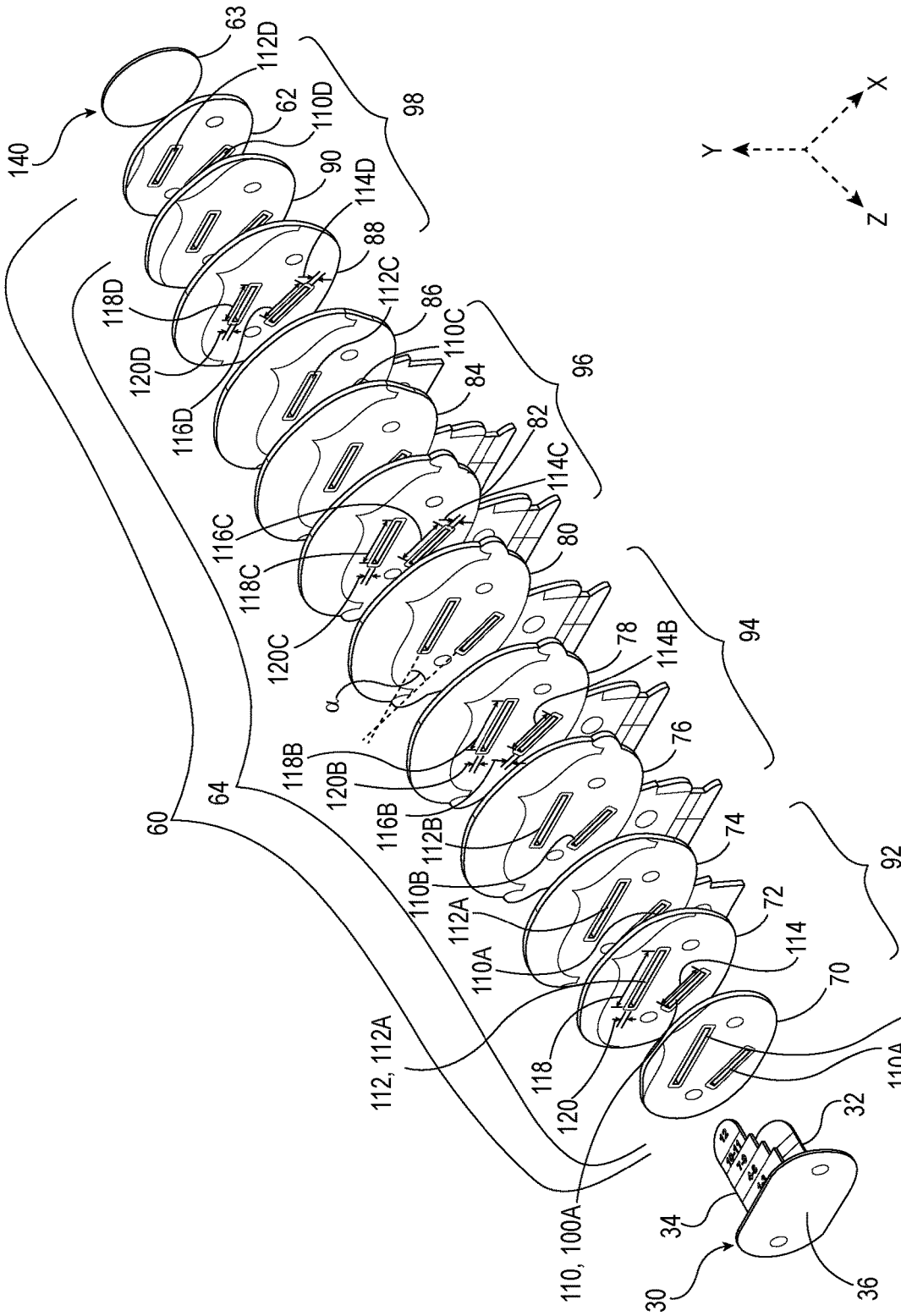


FIG. 5


140
63
112D
62
110D
98
90
114D
88
112C
86
110C
84
96
82
114C
80
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118C
120C
78
114B
94
76
118B
120B
116B
112B
74
110B
112A
72
110A
114
92
70
112, 112A
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36
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α
Y
X
Z

FIG. 6

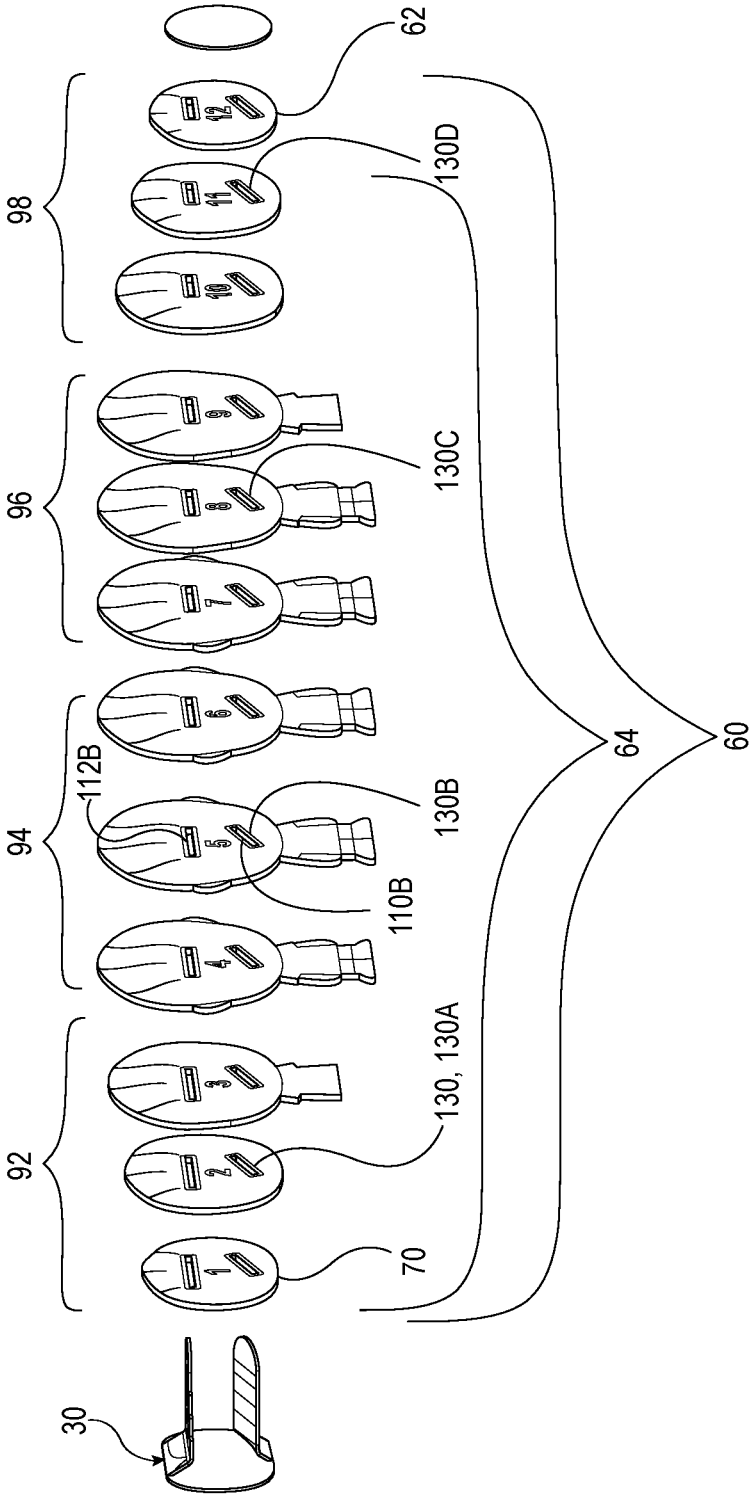

FIG. 7

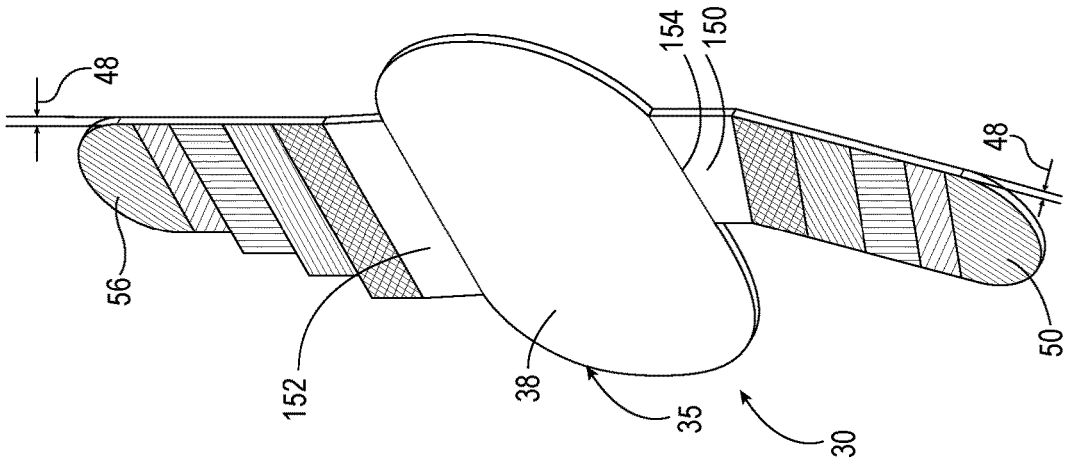

FIG. 10

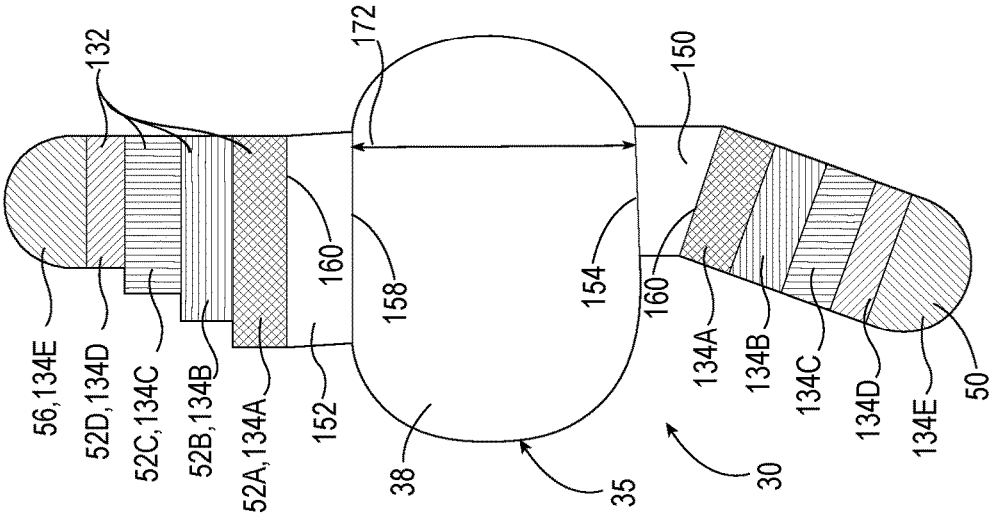

FIG. 9

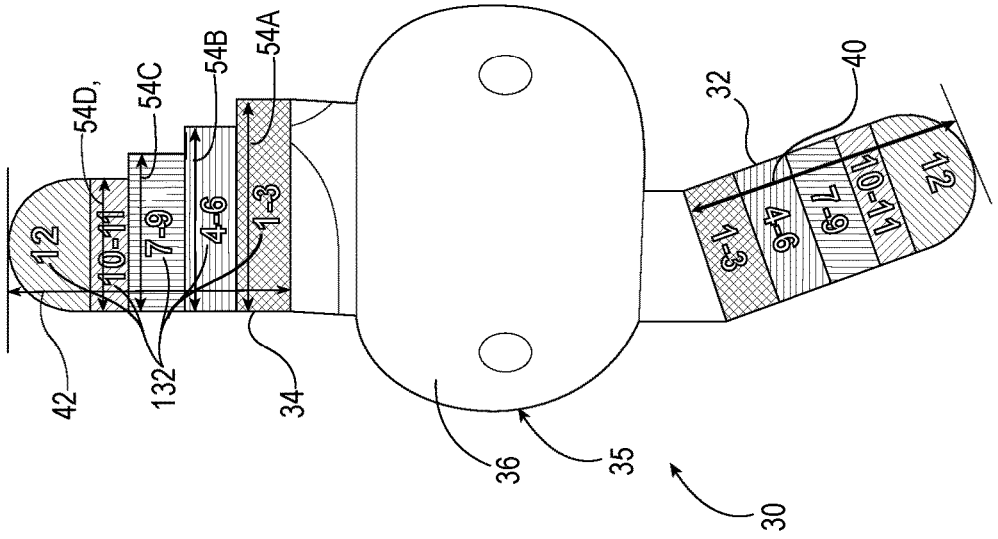

FIG. 8

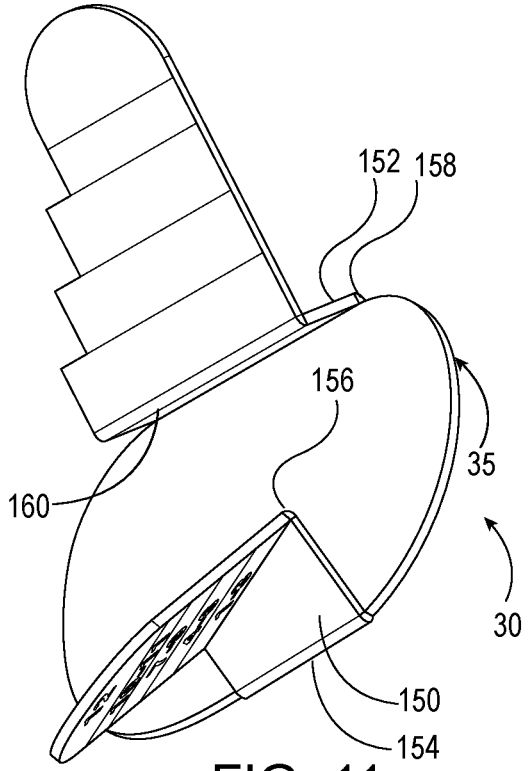

FIG. 11

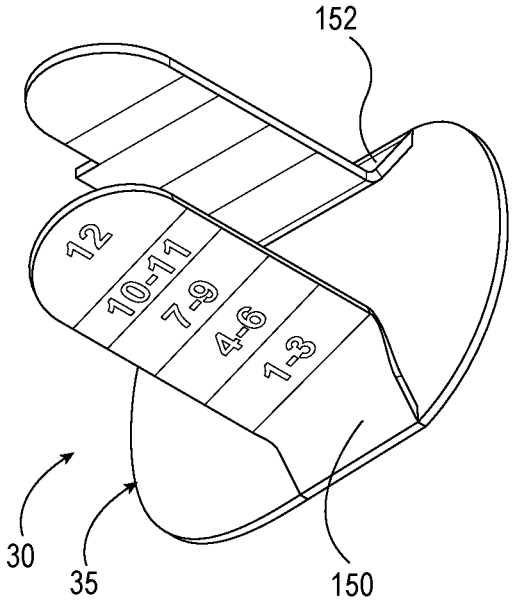

FIG. 12

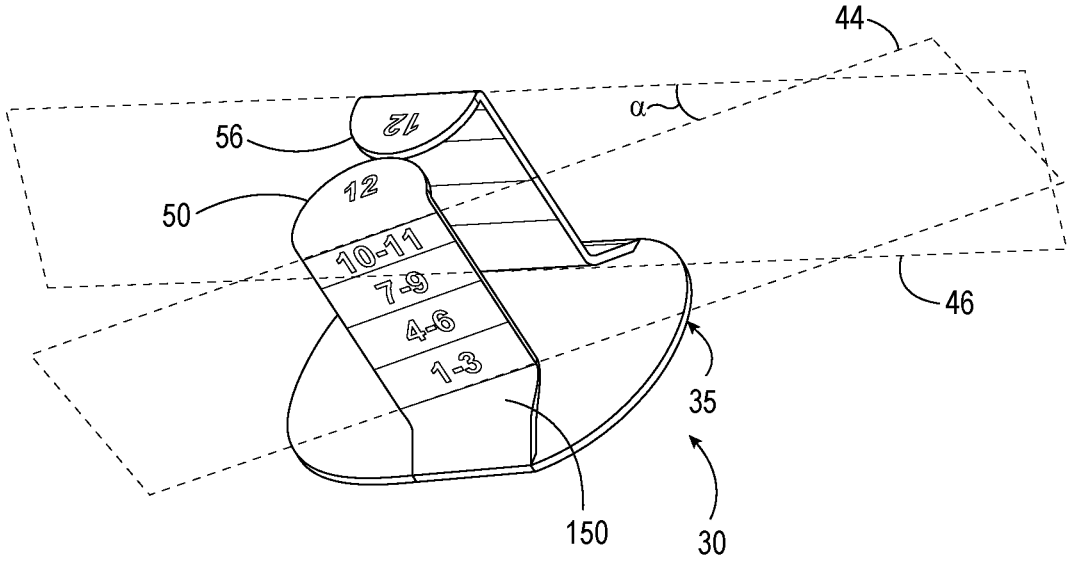

FIG. 13

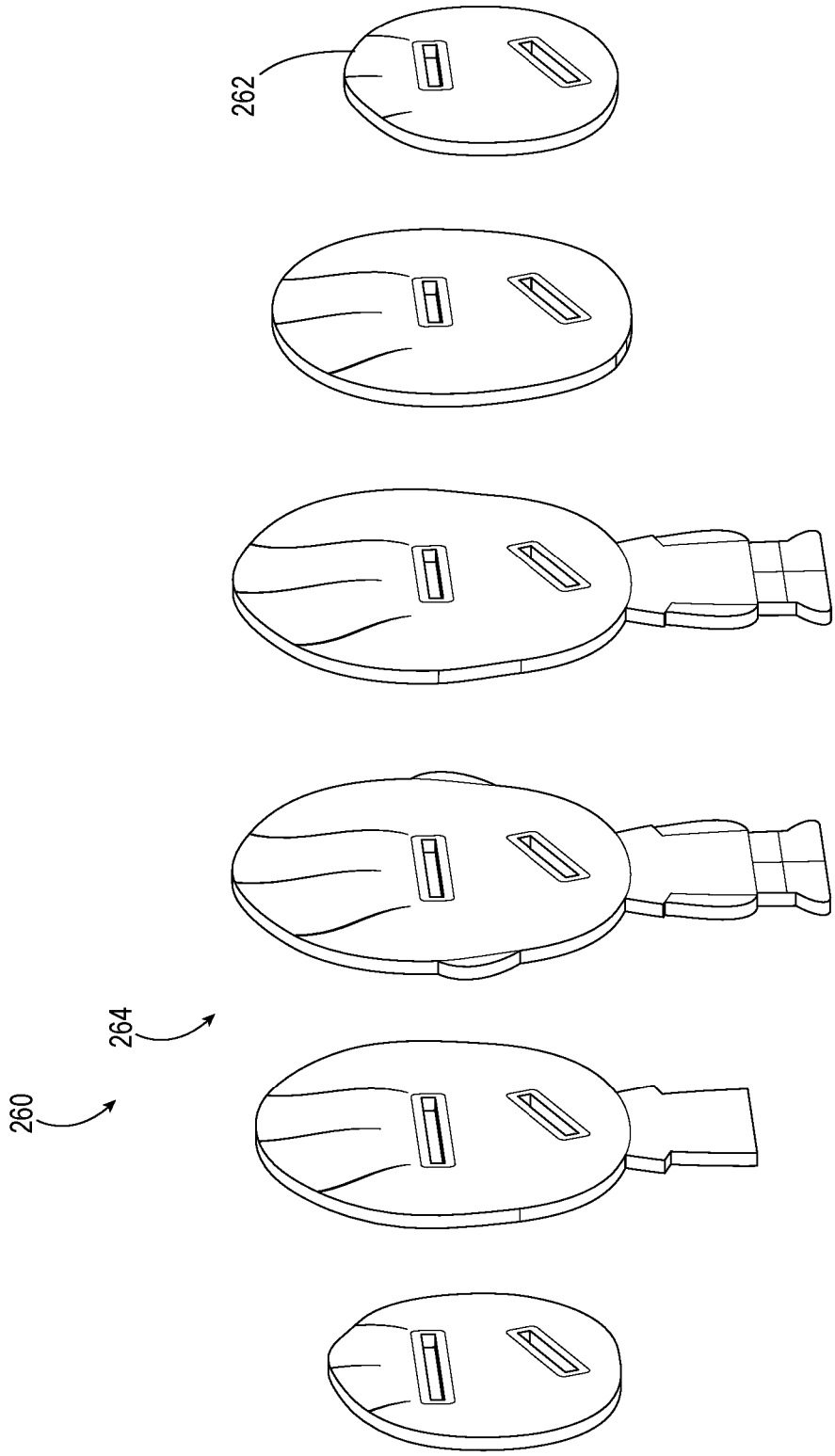

FIG. 14

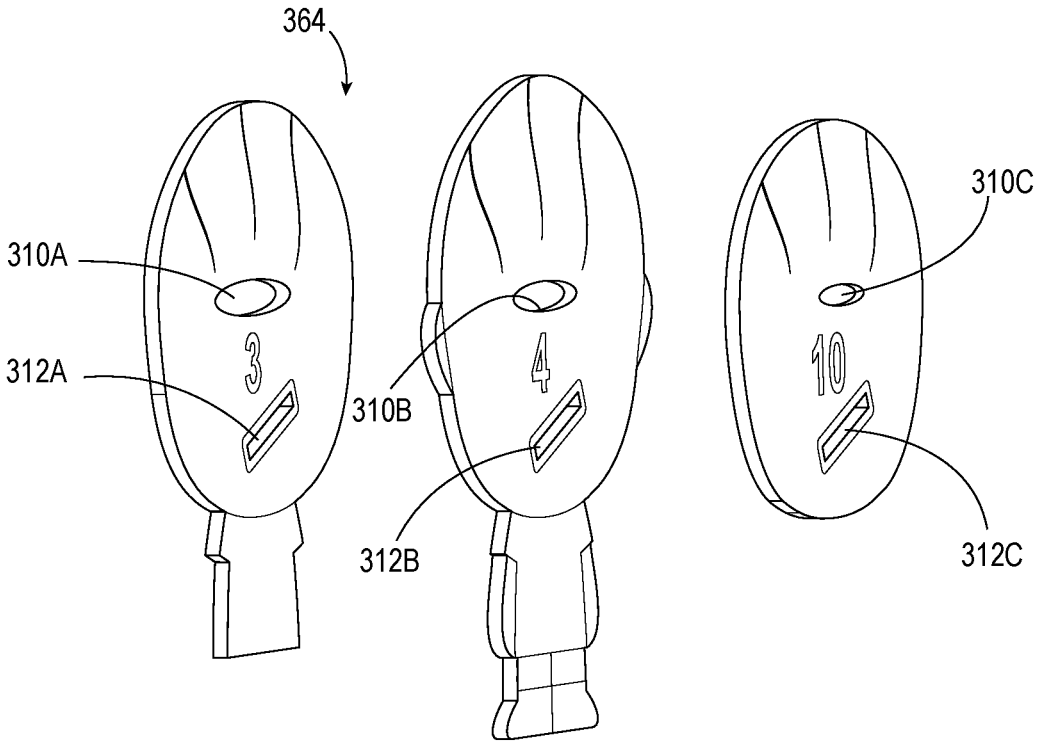
364
310A
312A
310B
312B
310C
312C
3
4
10

FIG. 15

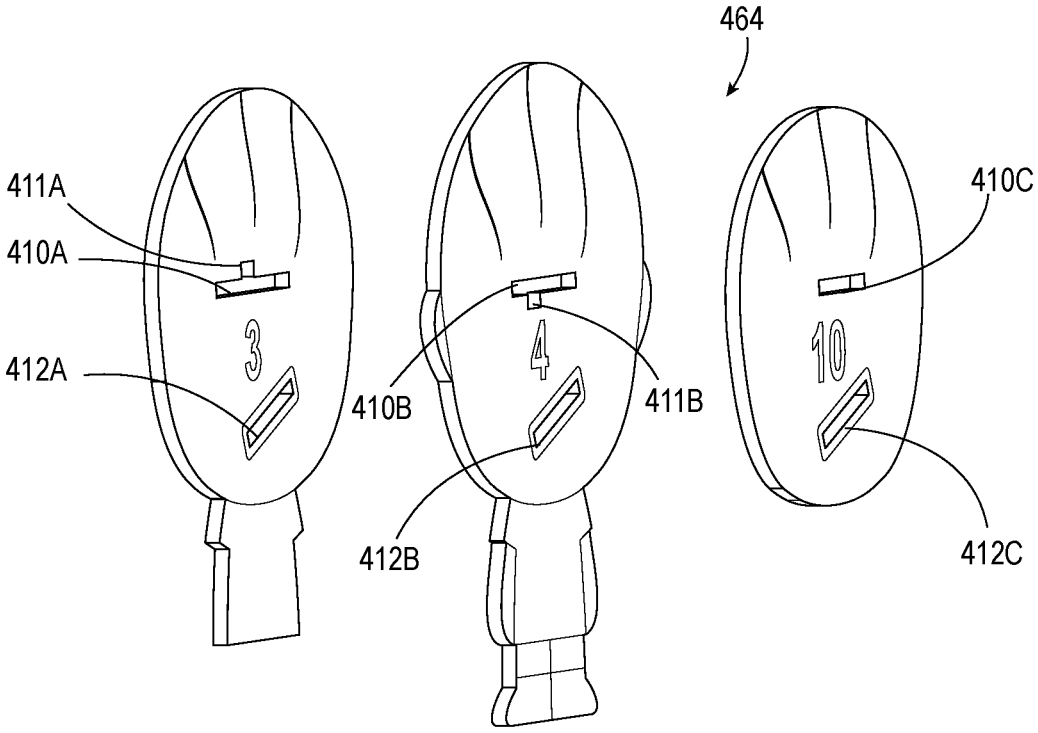
464
411A
410A
412A
410B
411B
412B
410C
412C
3
4
10

FIG. 16

STACKABLE MODEL

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 17/505,593, filed Oct. 19, 2021, the entire contents of which are incorporated by reference herein.

FIELD OF THE INVENTION

The present invention is directed to stackable models and methods of assembly thereof.

BACKGROUND OF THE INVENTION

Models that are built by stacking layers in a prearranged order are known, but existing models can be complex, particularly for children. For example, known methods of making a model with multiple layers are shown in U.S. Pat. Nos. 9,346,136; 5,683,086; 5,568,086; and UK Patent GB 2,422,556. The present disclosure is directed to stackable toys with one or more features for improving ease of assembly, ergonomics, aesthetics, enjoyment, and the like, and may incorporate environmentally-friendly materials.

SUMMARY OF THE INVENTION

In embodiments, a model comprising a plurality of unitary layers, a front plate, and a sticker. The plurality of unitary layers comprises an end layer and a plurality of intermediate layers. The end layer comprises a first opening and a second opening. The plurality of intermediate layers comprises a first intermediate layer and a second intermediate layer. The first intermediate layer comprises a first opening comprising a first length, a second opening comprising a second length greater than the first length, and a first band comprising a first color surrounding each of the first opening and the second opening. The second intermediate layer comprises a first opening comprising the first length, a second opening comprising a second length, and a second band comprising a second color surrounding each of the first opening and the second opening of the second intermediate layer. The second length of the second opening of the second intermediate layer is less than the second length of the second opening of the first intermediate layer and is equal to or longer than the first length of the first opening of the second intermediate layer. The front plate comprises a base plate, a first guide tab comprising a length substantially equal to the first length, and a stepped second guide tab. The stepped second guide tab comprises a first step and a second step. The first step comprises a length substantially equal to the second length of the second opening of the first intermediate layer and the first color. The second step comprises a length substantially equal to the second length of the second opening of the second intermediate layer and the second color. The first guide tab and the stepped second guide tab are configured to be bent 90 degrees from a plane of the front plate. The first and second openings of the end layer and each intermediate layer are configured to align, respectively, with the first guide tab and stepped second guide tab when the first guide tab and stepped second guide tab are bent 90 degrees from a plane of the front plate. The guide tabs comprise a depth configured to simultaneously extend through the openings of the plurality of intermediate layers and the end player. After the guide tabs extend through the openings, the guide tabs further comprise end portions extending beyond the end layer. The sticker is configured to cover the end portions of the guide tabs after they are folded over on the end layer. The sticker fixes the end portions of the guide tabs substantially flat on the end layer.

In embodiments, the base plate of the front plate depicts a face of a character. In embodiments, the first guide tab extends from the front plate and stepped second guide tab extend from the front plate such that when bent 90 degrees from a plane of the front plate, the first guide tab and the stepped second guide tab define intersecting planes.

In embodiments, the front plate comprises a first arm and a second arm. The first arm is located between the base plate and the first guide tab. The first arm comprises a first joint between the first arm and the front plate and a second joint between the first arm and the first guide tab. The second arm is located between the base plate and the stepped second guide tab. The second arm comprises a first joint between the second arm and the front plate and a second joint between the second arm and the stepped second guide tab.

In embodiments, when the first guide tab and stepped second guide tab are bent 90 degrees from the plane of the front plate, and the first arm and second arm are folded flush with the front plate, the first arm lies substantially in a first plane and the second arm lies substantially in a second plane, the first and second planes intersecting at an angle from about 10 degrees to about 90 degrees.

In embodiments, when the front plate is attached to the first intermediate layer, the front plate is separated by a gap from the first intermediate layer, the gap comprising a quadrilateral formed by the first arm, the second arm, the front plate, and the first intermediate layer.

In embodiments, the gap is equal to or greater than the thickness of the first intermediate layer. In embodiments, the plurality of intermediate layers further comprises a third intermediate layer comprising a first opening comprising the first length, a second opening comprising a second length, and a third band comprising a third color surrounding each of the first opening and the second opening. The second length of the second opening is greater than the first length of the first opening.

In embodiments, the stepped second guide tab further comprises a third step comprising a length substantially equal to the second length of the second opening of the third intermediate layer and the third color.

In embodiments, the plurality of intermediate layers further comprises a fourth intermediate layer comprising a first opening comprising the first length, a second opening comprising a second length greater than the first length, and a fourth band comprising a fourth color surrounding each of the first opening and the second opening.

In embodiments, the stepped second guide tab further comprises a fourth step comprising a length substantially equal to the second length of the second opening of the fourth intermediate layer, and the fourth color. In embodiments, there are at least ten unitary layers. In embodiments, the first guide tab comprises a constant length up to the end portion of the first guide tab.

In embodiments, the assembly of the model comprises the steps of preparing the front plate, mounting the plurality of unitary layers on the front plate, bending the end portion of the first guide tab to be substantially flat with the end layer, bending the end portion of the stepped second guide tab to be substantially flat with the end layer, and affixing the end portion of the guide tabs in a way that maintains the end portions in a flush configuration with the end layer. The first guide tab comprises a first length. The stepped second guide

tab comprises a first step comprising a first length and the first color and a second step comprising a second length. Preparing the front plate comprises the steps of bending the first guide tab of the front plate to a position forming a 90 degree angle from a plane of a base plate of the front plate and bending a stepped second guide tab of the front plate to a position forming a 90 degree angle from the plane of the front plate. The plurality of unitary layers comprises a first intermediate layer comprising a first opening of a first length substantially equal to the first length of the first step, a second opening of a second length substantially equal to the first length of the second step, and a first band comprising a first color. The plurality of unitary layers comprises a second intermediate layer comprising a first opening of a first length substantially equal to the first length of the first step, a second opening of a second length substantially equal to the second length of the second step, and a second band comprising a second color. The plurality of unitary layers comprises an end layer comprising a first opening of a first length and a second opening. Mounting the plurality of unitary layers on the front plate comprises the steps of threading the first guide tab through the first opening of the first intermediate layer, threading the stepped second guide tab through the second opening of the first intermediate layer, sliding the first intermediate layer toward the front plate along the first guide tab and the stepped second guide tab. Mounting the plurality of unitary layers further comprises threading the first guide tab through the first opening of the second intermediate layer, threading the stepped second guide tab through the second opening of the second intermediate layer, and sliding the second intermediate layer along the first guide tab and stepped second guide tab. Mounting the plurality of unitary layers further comprises threading the first guide tab through the first opening of the end layer, threading the stepped second guide tab through the second opening of the end layer, and sliding the end along the first guide tab and stepped second guide tab.

In embodiments, the first guide tab and stepped second guide tab define intersecting planes when bent 90 degrees from the front plate. In embodiments, the front plate further comprises a first arm located between the base plate and the first guide tab. The first arm comprises a first joint between the first arm and the front plate and a second joint between the first arm and the first guide tab. The second arm is located between the front plate and the stepped second guide tab. The second arm comprises a first joint between the second arm and the front plate and a second joint between the second arm and the stepped second guide tab. Preparing the front plate further comprises, bending the arm at the first joint, positioning the first arm flush with the front plate, bending the first arm at its second joint, bending the second arm at its first joint, positioning the second arm flush with the front plate, and bending the second arm at its second joint.

In embodiments, the first guide tab further comprises a third color zone comprising the third color. In embodiments, the plurality of unitary layers further comprises a third intermediate layer. The third intermediate layer comprises a first opening of a first length substantially equal to the first length of the first intermediate layer, a second opening of a second length substantially equal to the third length of the third step, and a third band comprising the third color. Mounting the plurality of unitary layers comprises threading the first guide tab through the first opening of the third intermediate layer, threading the stepped second guide tab through the second opening of the third intermediate layer, and sliding the third intermediate layer along the first guide tab and stepped second guide tab.

In embodiments, mounting the plurality of unitary layers further comprises threading the first guide tab through the first opening of the fourth intermediate layer, threading the stepped second guide tab through the second opening of the fourth intermediate layer, and sliding the fourth intermediate layer along the first guide tab and stepped second guide tab.

In embodiments, the stepped second guide tab further comprises a fourth step comprising a fourth length. In embodiments, the plurality of unitary layers further comprises a fourth intermediate layer. The fourth intermediate layer comprises a first opening of a first length substantially equal to the first length of the first intermediate layer, a second opening of a second length substantially equal to the fourth length of the fourth step, and a fourth band comprising the fourth color. Mounting the plurality of unitary layers comprises threading the first guide tab through the first opening of the fourth intermediate layer, threading the stepped second guide tab through the second opening of the fourth intermediate layer, and sliding the fourth intermediate layer along the first guide tab and stepped second guide tab.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be completely understood in consideration of the following detailed description of various embodiments of the invention in connection with the accompanying drawings, in which:

FIG. **1** is a front perspective view of a model according to embodiments of the present disclosure.

FIG. **2** is a rear perspective view of the model of FIG. **1**.

FIG. **3** is a front view of the model of FIG. **1**.

FIG. **4** is a rear view of the model of FIG. **1**.

FIG. **5** is a side view of the model of FIG. **1**.

FIG. **6** is a front perspective exploded view of the model of FIG. **1**.

FIG. **7** is a rear perspective exploded view of the model of FIG. **1**

FIG. **8** is a front view of a front plate of the model of FIG. **1** according to embodiments of the present disclosure.

FIG. **9** is a rear view of the front plate of FIG. **8**.

FIGS. **10-13** are each a rear perspective view of the front plate of FIG. **8** shown in various stages of folding.

FIG. **14** is a rear perspective exploded view of a model according to embodiments of the present disclosure.

FIG. **15** is a rear perspective exploded view of a model according to embodiments of the present disclosure.

FIG. **16** is a rear perspective exploded view of a model according to embodiments of the present disclosure.

While the invention is amenable to various modifications and alternative forms, specifics thereof have been depicted by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION

FIGS. **1-16** show a stackable model **20** according to embodiments of the present disclosure. Referring to FIGS. **1-5**, in embodiments the stackable model **20** comprises a front side **22** and a rear side **24** oriented along a z-axis and a top side **26** and a bottom side **28** oriented along a y-axis.

The stackable model **20** depicts a figure formed by a stack of layers. In embodiments, the figure formed by the model **20** is a human figure. In other embodiments the model **20** may depict any desired figure, such as an animal, vehicle, building, word(s), letter(s), decoration, symbol, and the like.

Referring to FIGS. **6-7**, one embodiment of a model **20** is shown comprising a front plate **30** and a plurality of unitary layers **60** for stacked assembly. In this embodiment, each layer of the plurality of unitary layers **60** is mounted to the front plate **30** by threading two guide tabs **32**, **34** of the front plate **30** through each unitary layer, and then securing the tabs **32**, **34** at an end layer **62**. In certain embodiments, the guide tabs **32**, **34** are secured by a sticker **63**.

In certain embodiments, the plurality of unitary layers **60** comprises an end layer **62** and a plurality of intermediate layers **64**. In these embodiments, "unitary" means that each of the plurality of unitary layers **60** comprises a singular piece. In other words, each layer is one piece, and not made of multiple separable pieces. In certain embodiments, unitary means that each layer is inseparable and made of a single piece of source material, e.g. cardboard, paperboard, plastic, or other biodegradable material or recyclable material. In embodiments using cardboard, for example, the cardboard source material itself may be made up of several layers that are adhered together, however, each unitary layer of the plurality of unitary layers **60** is a layer made from a single piece of cardboard. In certain embodiments, the unitary layers are made of a substantially rigid material, for example, cardboard, paperboard, plastic sheets, or other biodegradable material or recyclable material.

In certain embodiments, the plurality of intermediate layers **64** are contained in the model **20** between the front plate **30** and the end layer **62**. In certain embodiments, the plurality of unitary layers **60** comprise substantially flat pieces of material. In other embodiments, the plurality of unitary layers **60** comprise a piece of material that is not flat. The plurality of unitary layers **60** can be of varying dimensions when assembled and viewed from the front; as shown in FIG. **1-7**, a height in the y-dimension and a width in the x-direction may vary for each layer. In certain embodiments, these varying dimensions of the plurality of unitary layers **60** can form the three-dimensional appearance of the model **20**. In the illustrated embodiment, the plurality of unitary layers **60** have a consistent or substantially equal thickness in the z-direction shown in FIG. **1**. In other embodiments, one or more of the plurality of unitary layers **60** has varying thicknesses.

In some embodiments, the plurality of intermediate layers **64** comprises at least a first intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** and a second intermediate layer **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, and/or **62**. In some embodiments, the first intermediate layer **70**, **72**, **74** is part of a first group of intermediate layers **92**. For example, in the embodiment in FIGS. **6-7**, a first group of intermediate layers **92** comprises three intermediate layers **70**, **72**, **74**. Similarly, in some embodiments, a second group of intermediate layers **94** comprises three intermediate layers **76**, **78**, **80**. Other embodiments can include more than two intermediate layers, or more than two groups of intermediate layers. For the embodiment shown in FIGS. **6-7**, a third group of intermediate layers **96** comprises intermediate layers **82**, **84**, **86** and a fourth group of intermediate layers **98** comprises intermediate layers **88**, **90**, **62**. In some embodiments, the number of intermediate layers in a group of intermediate layers varies for different groups of the model **20**.

In some embodiments, the plurality of intermediate layers **64** comprises at least four unitary intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, and/or **62**. In other embodiments, the plurality of intermediate layers **64** comprises at least four, at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, or more unitary intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, and/or **62**. The embodiment shown in FIGS. **1-7**, for example, has twelve intermediate unitary layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, **62**.

In certain embodiments, each layer of the plurality of unitary layers **60** comprises a first opening **110** and a second opening **112**, the first opening **110** defining a first length **114** and a first width **116** and the second opening **112** defining a second length **118** and a second width **120**. In other embodiments, the intermediate layers and end layer **62** can each have one opening, three openings or more. In these embodiments, the openings can be of the same or different length.

In the embodiment shown in FIGS. **1-7**, the first opening **110**A of layer(s) of the first group of intermediate layers **92** comprises a first length **114**A. The second opening **112**A comprises a second length **118**A greater than the first length **114**A. In some embodiments, having openings of different lengths can correspond to guide tabs **32**, **34** of different lengths, and act as a guide in assembling the model. In some embodiments, one of the openings **110**, **112** in each intermediate layer or end layer **62** can be the same length, e.g. the first opening **110**A, **110**B, **110**C, **110**D, can be the same first length **114**A, **114**B, **114**C, **114**D for all of the plurality of intermediate layers **64** and the end layer **62**. In those embodiments, the second opening **112**A, **112**B, **112**C, **112**D can be the same second length **118**A, **118**B, **118**C, **118**D for all intermediate layers and end layer **62**. In other embodiments, the second opening **112**A, **112**B, **112**C, **112**D can be of different second lengths **118**A, **118**B, **118**C, **118**D for different intermediate layers and the end layer **62**, or different groups of intermediate layers, corresponding to different lengths of steps **52** of the stepped guide tab **34** as discussed further below. Similarly in other embodiments, the first opening **110**A, **110**B, **110**C, **110**D can be of different second lengths **114**A, **114**B, **114**C, **114**D for different intermediate layers and the end layer **62**, or different groups of intermediate layers, corresponding to different lengths of steps **52** of the stepped guide tab **34** as discussed further below.

In some embodiments, the first opening **110**B of layers in the second group of intermediate layers **94** comprises a first length **114**B and a first width **116**B. The second opening **112** of the layers in the second group of intermediate layers **96** comprises a second length **118**B greater than the first length **114**A. The first opening **110**C of the third intermediate layer **28** comprises a first length **114**C. The second opening **112**C of the third intermediate layer **96** comprises a second length **118**C greater than the first length **114**C. The first opening **110**D of the fourth intermediate layer **98** comprises a first length **114**D. The second opening **112**D of the fourth intermediate layer **98** comprises a second length **118**D greater than the first length **114**D. In this embodiment, the first opening **110** is the same first length **114** for all intermediate layers across all of the groups of intermediate layers **92**, **94**, **96**, **98**. In this embodiment, the second opening **112** is the same second length **118** within the intermediate layers of a single particular group of the groups of intermediate layers **92**, **94**, **96**, **98**, corresponding to an equivalent length of a step in the stepped second guide tab **34** as discussed below. However the length of the second opening **112** differs across different groups of intermediate layers **92**, **94**, **96**, **98**, wherein the second length **118**B of the second opening **112**B

of the second group of intermediate layers **94** is less than the second length **118**A of the second opening **112**A of the first group of intermediate layers **92**, the second length **118**C of the second opening **112**C of the third group of intermediate layers **96** is less than the second length **118**B of the second opening **112**B of the second group of intermediate layers **94**, and the second length **118**D of the second opening **112**D of the fourth group of intermediate layers **98** is less than the second length **118**C of the second opening **112**C of the third group of intermediate layers **96**.

In the embodiment shown in FIGS. **6-7**, the first opening **110**D of the end layer **62** comprises a first length **114**D. The second opening **112**D of the end layer **62** comprises a second length **118**D greater than the first length **114**D. In this manner, the end layer **62** conforms with the fourth group of intermediate layers **98**. In other embodiments, the end layer **62** has first and second openings **110**, **112** that do not conform in size to any other intermediate layer or group of intermediate layers.

In certain embodiments, the first opening **110** and the second opening **112** of the intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90** and the end layer **62** are marked by a matching element **130**. The matching element **130** may indicate which group **92**, **94**, **96**, **98** an intermediate layer belongs to, and the matching element **130** may also correspond to a differentiated feature **132** on the corresponding step or portion of the first guide tab **32** and/or second stepped guide tab **34**. In certain embodiments, each intermediate layer and end layer **62** may have different matching elements **130**. In other embodiments, the intermediate layers within each group of intermediate layers **92**, **94**, **96**, **98** may have the same matching elements **130**, but the matching elements **130**A, **130**B, **130**C, **130**D (see FIG. **7**) will be different between the groups of intermediate layers. In some embodiments, the matching element **130** includes a colored band surrounding at least one of the first opening **110** and second opening **112**. In other embodiments, the matching element **130** can include a partial colored band, e.g. a band that does not completely surround each of the first opening **110** and second opening **112**, or other matching elements **130** such as a pattern, a letter, a number, a symbol, a texture, etc. In the embodiment shown in FIGS. **6-7**, the matching elements **130** are provided on both the front and back side of each of the intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, **62**. In other embodiments, the matching elements **130** are provided on only the front side or only the back side of intermediate layers. Accordingly, a feature and benefit of some embodiments is marking elements **130** or other indication to help direct the sequence of assembly by, for example, matching certain other indicia on the first guide tab **32** and stepped second guide tab **34**.

In some embodiments, the first intermediate layer **70**, **72**, **74**, making up first group of intermediate layers **92**, further comprises a matching element **130**A that is a first band **130**A. In certain embodiments, the first band **130**A comprises a first color surrounding each of the first opening **110**A and the second opening **112**A of the first intermediate layer **70**, **72**, **74**. In some embodiments, the second intermediate layer **76**, **78**, **80**, making up second group of intermediate layers **94**, further comprises a second band **130**B. In certain embodiments, the second band **130**B comprises a second color surrounding each of the first opening **110**B and the second opening **112**B of the second intermediate layer **76**, **78**, **80** wherein the second color is different from the first color.

In some embodiments, the third intermediate layer **82**, **84**, **86**, making up third group of intermediate layers **96** further comprises a third band **130**C. In certain embodiments, the third band **130**C comprises a third color surrounding each of the first opening **110**C and the second opening **112**C of the third intermediate layer, wherein the third color is different from the first color and second color. In certain embodiments, the third color is different from the first color and the second color.

In some embodiments, the fourth intermediate layer **88**, **90**, and/or **62**, making up fourth group of intermediate layers **98** further comprises a fourth band **130**D. In certain embodiments, the fourth band **130**D comprises a fourth color surrounding each of the first opening **110**D and the second opening **112**D of the fourth intermediate layer **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, and/or **62** wherein the fourth color is different from the first color, second color, and third color. In certain embodiments, the fourth color is different from the third color.

In certain embodiments, each intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, **90**, and/or **62** comprises a label corresponding to the order in which the intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** are intended to be fitted to the front plate **30**. In certain embodiments, this label comprises a number, a letter, a symbol, or other demarcation of order.

Referring to FIGS. **8-13**, in certain embodiments, the front plate **30** comprises a base plate **35** comprising a forward face **36** opposite a rear face **38**, and extending from the base plate **35** are the at least one first guide tab **32** and the stepped second guide tab **34**. In certain embodiments, the guide tabs **32**, **34** can be unitary with, and extensions of the base plate **35** of the front plate **30**. In some embodiments, the guide tabs **32**, **34** are located on opposing sides of the base plate **35**. In other embodiments, the guide tabs **32**, **34** may be located on the same side of the front plate **30**, or adjacent sides of the front plate **30**.

Certain embodiments include two guide tabs **32**, **34**. In certain embodiments, there are one, or three or more guide tabs **32**, **34**. In certain embodiments, the guide tabs **32**, **34** are of substantially equal depths **40**, **42** (shown in FIG. **8**). In other embodiments, the depths **40**, **42** are unequal. In certain embodiments, the guide tabs **32**, **34** may be coplanar with the base plate **35**. In other embodiments as shown in FIG. **13**, the guide tabs **32**, **34** comprise intersecting planes **44**, **46** when bent 90 degrees from a plane of the base plate **35**, the planes **44**, **46** intersecting at the angle α. In embodiments, the guide tabs **32**, **34** in this position lie substantially in the respective planes **44**, **46**.

In certain embodiments, the first guide tab **32** comprises a length **40** and a width **48** (FIG. **10**) substantially equal to the first length **114** and first width **116** of the first openings **110** of the intermediate layers and end layer **62**. In certain embodiments, "substantially equal" can mean within 0% to about 5% of a reference length, while configured to allow insertion of a guide tab **32**, **34** into a respective opening. In other embodiments, the length **40** (along with step lengths **54**A, **54**B, **54**C, **54**D as discussed below) and width **48** of each guide tab **32**, **34** at each relevant location is configured to fit tightly within the respective opening **110** or **112**, such that the corresponding layers of the plurality of unitary layers **60** have minimal or no ability to shift or "play" when mounted on the guide tabs **32**, **34**. In some embodiments, this may be accomplished by a tight tolerance between the length and width of the guide tabs **32**, **34** and respective openings, and also the relative angle α of the first guide tab **32** and second guide tab **34** (FIG. **13**), and the corresponding angle α between the first opening **110** and second opening **112** (FIG. **6**). In this manner, if there is any play along a first

axis defined by the first opening **110** (e.g., a first axis along the length **114** or the width **116** of the first opening **110**), such movement is counteracted by the interference between the second guide tab **34** in the second opening **112**, provided by the second opening **112** being angled relative to the first opening **110**, such as being angled at angle α shown in FIG. **6**. Such movement is also counteracted by a tight fit provided by a width of the second guide **34** tab being substantially equal to a width of the corresponding second opening **112**. In certain embodiments, the first guide tab **32** has a largely consistent length **40** in an area between the base plate **35** and an end portion **50**. In embodiments, the first guide tab **32** has differentiated features **132** along the length **40** that correspond to matching element **130** of the first openings **110** of the intended corresponding layer while not corresponding to the first openings **110** of the other layer(s) Accordingly, a feature and benefit of some embodiments is a front plate that incorporates tabs providing multiple functions, including securing the layers together, and also preventing relative movement between the layers.

In certain embodiments, the stepped second guide tab **34** comprises a first step **52**A and a second step **52**B. In embodiments, the first step **52**A and the second step **52**B have differentiated features **132** that correspond to matching element **130** of the second openings **112** of the intended corresponding layer while not corresponding to the second openings **112** of the other layer(s). In some embodiments, the differentiated feature **132** includes a colored zone **134**, such as first color zone **134**A, second color zone **134**B, third color zone **134**C, fourth color zone **134**D, and a fifth color zone **134**E on the end portion **56**. In embodiments, the differentiated feature surrounds at least one side of the first guide tab **32** or second stepped guide tab **34**. In other embodiments, the differentiated feature **132** can include a partial zone or colored band, e.g. a band that does not cover each side of the first guide tab **32** or second stepped guide tab **34**, or other differentiated features **132** such as a pattern, a letter, a number, a symbol, a texture, etc. In the embodiment shown in FIGS. **6-7**, the differentiated features **132** are provided on both the front and back side of each of the first guide tab **32** or second stepped guide tab **34**. In other embodiments, the differentiated features **132** are provided on only the front side or only the back side of the first guide tab **32** or second stepped guide tab **34**. In still further embodiments, the differentiated features **132** match corresponding to certain marking elements **130** of the guide tabs.

In certain embodiments, the first step **52**A comprises a length **54**A substantially equal to the second length **118**A of the second opening **112**A of the first intermediate layer **70**, **72**, **74**, and has a first differentiated feature **132** corresponding to matching element **130**A. In certain embodiments, the second step **52**B comprises a length **54**B substantially equal to the second length **118**B of the second opening **112**B of the second intermediate layer **76**, **78** and has a second differentiated feature corresponding to matching element **130**B In certain embodiments, the third step **52**C comprises a length **54**C substantially equal to the second length **118**C of the second opening **112**C of the third intermediate layer **80**, **82**, **84** and has a third differentiated feature corresponding to matching element **130**C. In certain embodiments, the fourth step **52**D comprises a length **54**D substantially equal to the second length **118**D of the second opening **112**D of the fourth intermediate layer **88**, **90** and has a fourth differentiated feature corresponding to matching element **130**D.

In certain embodiments, the second step **52**B comprises a length **54**B substantially equal to the second length **118** (e.g., **118**B) of the second opening **112** (e.g., **112**B) of the second intermediate layer **76**, **78**, **80**.

In certain embodiments, the stepped second guide tab **34** comprises a third step **52**C comprising a length **54**C substantially equal to a second length **118**C of the second opening **112**C of the third group of intermediate layers **96**.

In certain embodiments, the stepped second guide tab **34** comprises a fourth step **52**D comprising a length **54**D substantially equal to a second length **118**D of second opening **112**D of the fourth group of intermediate layers **98**.

In some embodiments, there may be certain benefits of having a stepped guide tab **34**. One such benefit is that the decreasing lengths of the openings and steps allows the plurality of unitary layers **60** to grow smaller as approaching the end layer **62**, where the smaller intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** may not be able to accommodate the larger openings **112** of the previous, larger layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**. Another benefit is that the different lengths of openings **112** and steps **54** allows the unitary layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** to be more easily matched and stacked in the correct order by the user. In other words, if the length of the opening **112** in an intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** and the next step **54** on the stepped second guide **34** do not match, then it indicates that the user is stacking the intermediate layers **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** in the wrong order. In the same manner, in certain embodiments the differentiated feature **132** corresponding to matching element **130** of the corresponding second opening of the corresponding intermediate layer. Accordingly, a feature and benefit of some embodiments is steps incorporated into one or more of the guide tabs, the steps being sized to correspond with one or more particular layers of the model, such that the steps help to ensure that the proper sequence of layers is assembled.

In certain embodiments, when the model **20** is assembled, the first guide tab **32** and the stepped second guide tab **34** are configured to be bent at an angle (FIG. **5**) of 90 degrees from the base plate **35**, with the stepped second guide tab **34** and the first guide tab **32** further comprising a depth **40**, **42** configured to simultaneously extend through the openings **110**, **112** of the plurality of intermediate layers **64** and the end layer **62** while also providing respective end portions **50**, **56** of the guide tabs **32**, **34** extending beyond the end layer **62**. In this embodiment, the openings **110**, **112** form right angles with the corresponding layer and are aligned to overlap allow the 90 degree angle. In other embodiments, the first guide tab **32** and the stepped second guide tab **34** are configured to be bent at angle β of approximately 90 degrees from the base plate **35**. In still other embodiments, the first guide tab **32** and the stepped second guide tab **34** are configured to be bent at an angle β from the base plate **35** corresponding to an angle formed by the respective first and second openings **110**, **112** of the intermediate layers, wherein at least one of the first openings and second openings of such intermediate layers do not form an axis 90 degrees from the base plate **35**. In those embodiments, such axis may comprise an angle from 10 to 90 degrees.

In certain embodiments, the front plate **30** further comprises a first arm **150** and a second arm **152**. In certain embodiments, the first arm **150** is located between the base plate **35** and the first guide tab **32**. In certain embodiments, the second arm **152** is located between the base plate **35** and the stepped second guide tab **34**. In certain embodiments, when the first guide tab **32** and stepped second guide tab **34** are bent 90 degrees from the base plate **35**, and the first arm **150** and second arm **152** are folded flush with the base plate

35, the first guide tab 32 lies substantially in a first plane 44 and the second guide tab 34 lies substantially in a second plane 46, the first and second planes intersecting at an angle α (FIG. 13) from about 10 degrees to about 90 degrees.

In embodiments, the first arm 150 of the front plate 30 comprises a first joint 154 between the first arm 150 and the front plate, and a second joint 156 between the first arm and the first guide tab 32. In embodiments, the second arm 152 of the front plate 30 comprises a first joint 158 between the second arm 152 and the front plate, and a second joint 160 between the second arm 152 and the stepped second guide tab 34. In embodiments, the first arm 150 can be bent at the first joint 154 and the first arm 150 can be bent at the second joint 156. In embodiments, the second arm 152 can be bent at the first joint 158 and the second arm 152 can be bent at the second joint 160. In embodiments, the first arm 150 and the second arm 152 can be bent at the first joint 154, 158 such that the first arm 150 is substantially flush with the base plate 35. In embodiments, the first arm 150 and the second arm 152 can be bent at the second joint 156, 160 such that the first guide tab 32 and the second guide tab 34 are substantially coplanar. In certain embodiments, the first arm 150 comprises a rectangle whereas the second arm 152 comprises a quadrilateral with two angles that do not comprise 90 degrees, causing the first guide tab 32 and stepped second guide tab to define intersecting planes (see FIG. 13) when the first arm 150 and second arm 152 are substantially flush with the front plate 30.

Certain embodiments include a locking mechanism 140 for securing the first guide tab 32 and the second guide tab 34, or the respective end portions 50, 56 thereof, to the end layer 62. By securing the end portions 50, 56 to the end layer 62, the plurality of unitary layers 60 can be fixed in a substantially stable formation. In the embodiment shown in FIGS. 1-7, the locking mechanism includes a sticker 63 configured to cover the end portions 50, 56 of the guide tabs 32, 34 after they are folded over on the end layer 62, fixing the end portions 50, 56 of the guide tabs 32, 34 substantially flat on the end layer 62. In certain embodiments, the end portions 50, 56 are fixed by a locking mechanism 140 comprising a staple, pins, clips, glue, and the like. Accordingly, a feature and benefit of some embodiments is guide tabs that help to hold the model together after serving to guide and locate layers during assembly. Another feature and benefit of some embodiments is end portions and/or a locking mechanism that hold the model together without extra materials or several additional assembly steps, for example without glue between the layers. Another feature and benefit of certain embodiments is that the front plate 36 includes integral guide tabs 32, 34 that both serve to guide and locate layers during assembly and secure the model together after assembly without the use of glue or any other way of binding each layer relative to each other. In other words, in certain embodiments, the model is constructed without binding the individual intermediate layers to each other, other than each intermediate layer being threaded onto guide tabs 32, 34.

In certain embodiments, the first openings 110 and second openings 112 of the end layer 62 and each intermediate layer 60 are configured to align, respectively, with the first guide tab 32 and stepped second guide tab 34 when the first guide tab 32 and stepped second guide tab 34 are bent 90 degrees from a plane of the base plate 35.

In certain embodiments, when the front plate 30 is mounted to the first intermediate layer 70, the front plate 30 is separated by a gap 170. In certain embodiments, the gap 170, when viewed from a lateral side as shown in FIG. 5, comprises a quadrilateral formed by the first arm 150, the second arm 152, the front plate 30, and the first intermediate layer 70 of the plurality of intermediate layers 6. In certain embodiments, the gap 170 comprises other geometric shapes, e.g. a square, rectangle, rhomboid, etc. In certain embodiments, the gap 170 is equal to or greater than the thickness of the first intermediate layer 70 of the plurality of intermediate layers 64. In some embodiments, the gap 170 is formed by the first opening 110A and second opening 112A of the first intermediate layer 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, and/or 90 having a minimum distance between that is less than the distance 172 between the first joint 154, 158 of the first arm 150 and second arm 152 (see FIGS. 5 and 13), which in effect retains the first intermediate layer at or rearward of the second joint 156, 160. Accordingly, a feature and benefit of some embodiments is a front plate that is spaced forward from the rest of the model and may be movable, providing 3-D aesthetics and additional playability, while securing the stack of intermediate layers at or rearward of the second joints 156, 160.

Referring to FIG. 14, another embodiment of the present disclosure is shown with a plurality of unitary layers 260 including a plurality of intermediate layers and an end layer 262. In this embodiment, the plurality of intermediate layers 264 comprises five layers.

Referring to FIG. 15, another embodiment of the present disclosure is shown with a plurality of intermediate layers 364 successively having first openings 310A, 310B, 310C that are ovals and second openings 312A, 312B, 312C that are rectangles. The first openings 310A, 310B, 310C are of progressively decreasing length and width, while the second openings 312A, 312B, and 312C are of consistent size. In embodiments, the first and second openings 310, 312 may be any various shapes, e.g. straight, V-shape, U-shape, S-shape, W-shape, Z-shape, circular, square, rectangular, rhomboid, etc. In other embodiments, both the first openings 310 and the second openings 312 can have changing sizes (increasing or decreasing).

Referring to FIG. 16, another embodiment of the present disclosure is shown with a plurality of intermediate layers 464 successively having first openings 410A, 410B, 410C and second openings 412A, 412B, 412C. The first opening 410A has a notch 411A extending upward therefrom, and the first opening 410B has a notch 411B extending downward therefrom. The notches 411A, 411B can receive corresponding protrusions (not shown) extending from the first and second guide tabs 32, 34, to further improve alignment and fit. In other embodiments, each first opening 410 comprises a notch 411 at the same position. In still other embodiments, the notch can comprise a shape selected from semicircular, keyhole, triangular, rectangular, square, and the like.

In certain embodiments, the method for assembling the model 20 comprises preparing the front plate 30, mounting the plurality of unitary layers 60 on the front plate 30, and affixing the end portions 50, 56 of the first and second guide tabs 32, 34 to the end layer 62.

In certain embodiments, the step of preparing the front plate 30 comprises bending the first guide tab 32 and bending the stepped second guide tab 34. In certain embodiments, both guide tabs 32, 34 are bent to positions forming 90 degree angles from a plane of the front plate 30. In other embodiments, the guide tabs 32, 34 are bent to angles other than 90 degrees. In other embodiments, both guide tabs 32, 34 are bent to positions forming different angles from one another.

In certain embodiments, the step of bending the first guide tab 32 comprises the steps of bending the arm 150 at the first

joint **154** of the first arm **150**, positioning the first arm **150** flush with the front plate **30**, bending the first arm **150** at the second joint **156**, bending the second arm **152** at the first joint **158**, positioning the second arm **152** flush with the base plate **35**, and bending the second arm **152** at the second joint **160** of the second arm **152**. While the intermediate layers are mounted, the first arm **150** and second arm **160** may remain flush with the base plate **35**. However, in certain embodiments, the first joints and second joints **154**, **158** of the first arm and second arm are configured to be resilient, such that after assembly the first arm and second arm do not remain flush with the base plate.

In certain embodiments, the first guide tab **32** and second guide tab **34** are preformed to have the first arm **150** and second arm **152**, respectively, to be affixed flush with the base plate **35**. In certain embodiments, the first arm **150** and second arm **152** are not positioned to be flush with the base plate **35**.

In certain embodiments, the step of mounting the plurality of unitary layers **60** on the front plate **30** comprises threading the first guide tab **32** through the first opening **110**A of the first intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, threading the stepped second guide tab **34** through the second opening **112**A of the first intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, sliding the first intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** until the matching elements **130**, e.g. bands **130**A comprising the first color match the first differentiated feature of the first guide tab **32** and the first differentiated feature of the stepped second guide tab **34**.

In certain embodiments, the step of mounting the plurality of unitary layers **60** on the front plate **30** comprises threading the first guide tab **32** through the first opening **110**B of the second intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, threading the stepped second guide tab **34** through the second opening **112**B of the second intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, sliding the second intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** until the bands **130**B comprising the second color match the second differentiated feature **132**, **134**A of the first guide tab **32** and the second differentiated feature **132**, **134**B of the stepped second guide tab **34**.

In certain embodiments, the step of mounting the plurality of unitary layers **60** on the front plate **30** comprises threading the first guide tab **32** through the first opening **110**C of the third intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, threading the stepped second guide tab **34** through the second opening **112**C of the third intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, sliding the third intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** until the bands **130**C comprising the third color match the third differentiated feature **132**, **134**C of the first guide tab **32** and the third differentiated feature **132**, **134**D of the stepped second guide tab **34**.

In certain embodiments, the step of mounting the plurality of unitary layers **60** on the front plate **30** comprises threading the first guide tab **32** through the first opening **110**D of the fourth intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, threading the stepped second guide tab **34** through the second opening **112**D of the fourth intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90**, sliding the fourth intermediate layer **70**, **72**, **74**, **76**, **78**, **80**, **82**, **84**, **86**, **88**, and/or **90** until the bands **130**D comprising the fourth color match the fourth differentiated feature **132**, **134**D of the first guide tab **32** and the second differentiated feature of the stepped second guide tab **34**.

In certain embodiments, the step of mounting the plurality of unitary layers **60** on the front plate **30** occurs before the front plate **30** is prepared.

In certain embodiments, the step of affixing the end portions **50**, **56** to the end layer **62** comprises the steps of bending the end portion **50** of the first guide tab **32** to be substantially flat with the end layer **62**, bending the end portion **56** of the second guide tab **34** to be substantially flat with the end layer **62**, and affixing the locking mechanism **140**, e.g. sticker **63** over the end portions **50**, **56** in a way that maintains the end portions **50**, **56** in a flush configuration with the end layer **62**.

In certain embodiments, the step of affixing the end portions **50**, **56** to the end layer **62** comprises the step of latching the end portions **50**, **56** to one another. In certain embodiments, the step of affixing the end portions **50**, **56** to the end layer **62** comprises attaching the end portions **50**, **56** to one another with a staple. In certain embodiments, the step of affixing the end portions **50**, **56** to the end layer **62** comprises gluing the end portions **50**, **56** to one another.

All of the features disclosed, claimed, and incorporated by reference herein, and all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive. Each feature disclosed in this specification may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is an example only of a generic series of equivalent or similar features. Inventive aspects of this disclosure are not restricted to the details of the foregoing embodiments, but rather extend to any novel embodiment, or any novel combination of embodiments, of the features presented in this disclosure, and to any novel embodiment, or any novel combination of embodiments, of the steps of any method or process so disclosed. In examples, the model may have arms and guide tabs extending from a rear plate or an individual layer instead of the front plate.

Although specific examples have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement calculated to achieve the same purpose could be substituted for the specific examples disclosed. This application is intended to cover adaptations or variations of the present subject matter. Therefore, it is intended that the invention be defined by the attached claims and their legal equivalents, as well as the illustrative aspects. The above described embodiments are merely descriptive of its principles and are not to be considered limiting. Further modifications of the invention herein disclosed will occur to those skilled in the respective arts and all such modifications are deemed to be within the scope of the inventive aspects.

What is claimed is:

1. A model comprising:

a plurality of layers comprising:

a plurality of intermediate layers, comprising:

a first intermediate layer, comprising:

a first opening comprising a first length, and

a second opening comprising a second length greater than the first length,

a second intermediate layer, comprising:

a first opening comprising the first length, and

a second opening comprising a second length that is less than the second length of the first intermediate layer, the second length of the second intermediate layer being equal to or longer than the first length thereof,

a front plate, comprising:

a base plate,

a first guide tab comprising a length substantially equal to the first length and an end portion,

a stepped second guide tab, comprising:

a first step, comprising a length substantially equal to the second length of the second opening of the first intermediate layer,

a second step, comprising a length substantially equal to the second length of the second opening of the second intermediate layer,

an end portion, and

the first guide tab and the stepped second guide tab further comprising a depth configured to simultaneously extend through the openings of the plurality of intermediate layers; and

wherein the end portion of the first guide tab and the end portion of the stepped second guide tab are configured to be bent to be substantially flat with the plurality of intermediate layers.

2. The model of claim **1**, wherein the plurality of layers further comprises a plurality of unitary layers.

3. The model of claim **1**, wherein the plurality of layers further comprises an end layer comprising a first opening and a second opening.

4. The model of claim **1**, wherein

the first intermediate layer further comprises a first band comprising a first color surrounding each of the first opening and the second opening;

the second intermediate layer further comprises a second band comprising a second color surrounding each of the first opening and the second opening of the second intermediate layer; and

the first step of the stepped second guide tab further comprises the first color and the second step of the stepped second guide tab further comprises the second color.

5. The model of claim **4**, wherein the plurality of intermediate layers further comprises:

a third intermediate layer comprising:

a first opening comprising the first length,

a second opening comprising a second length greater than the first length, and

a third band comprising a third color surrounding each of the first opening and the second opening;

wherein the stepped second guide tab further comprises a third step, comprising:

a length substantially equal to the second length of the second opening of the third intermediate layer, and the third color.

6. The model of claim **5**, wherein the plurality of intermediate layers further comprises:

a fourth intermediate layer comprising:

a first opening comprising the first length,

a second opening comprising a second length greater than the first length, and

a fourth band comprising a fourth color surrounding each of the first opening and the second opening,

wherein the stepped second guide tab further comprises a fourth step, comprising:

a length substantially equal to the second length of the second opening of the fourth intermediate layer, and the fourth color.

7. The model of claim **1**, wherein the end portions of the guide tabs are affixed to the plurality of intermediate layers.

8. The model of claim **1**, wherein a forward face of the front plate depicts a face of a character.

9. The model of claim **1**, wherein

the first guide tab and the stepped second guide tab are configured to be bent 90 degrees from a plane of the front plate;

the first and second openings of each of the plurality of layers are configured to align with the first guide tab and stepped second guide tab; and

the first guide tab extends from the front plate and the stepped second guide tab extends from the front plate such that when bent 90 degrees from a plane of the front plate, the first guide tab and the stepped second guide tab define intersecting planes.

10. The model of claim **9**, wherein the front plate further comprises:

a first arm located between the base plate and the first guide tab, the first arm comprising:

a first joint between the first arm and the front plate, and

a second joint between the first arm and the first guide tab, and

a second arm located between the base plate and the stepped second guide tab, the second arm comprising:

a first joint between the second arm and the front plate, and

a second joint between the second arm and the stepped second guide tab.

11. The model of claim **10**, wherein, when the first guide tab and the stepped second guide tab are bent 90 degrees from the plane of the front plate, and the first arm and the second arm are folded flush with the front plate, the first arm lies substantially in a first plane and the second arm lies substantially in a second plane, the first and second planes intersecting at an angle from about 10 degrees to about 90 degrees.

12. The model of claim **11**, wherein, when the front plate is attached to the first intermediate layer, the front plate is separated by a gap from the first intermediate layer, the gap comprising a quadrilateral formed by the first arm, the second arm, the front plate, and the first intermediate layer, wherein the gap is equal to or greater than the thickness of the first intermediate layer.

13. The model of claim **1**, wherein the first guide tab comprises a constant length up to the end portion of the first guide tab.

14. A method of assembling a model comprising the steps of:

preparing a front plate comprising the steps of:

bending a first guide tab of the front plate to a position forming an angle from a plane of a base plate of the front plate, the first guide tab comprising a first length;

bending a stepped second guide tab of the front plate to a position forming an angle from the plane of the front plate, the stepped second guide tab comprising a first step comprising a first length and a second step comprising a second length;

mounting a plurality of layers on the front plate, wherein the plurality of layers comprises a first intermediate layer comprising a first opening of a first length substantially equal to the first length of the first step and a second opening of a second length substantially equal to the second length of the second step, wherein mounting a plurality of layers on the front plate comprises:

threading the first guide tab through the first opening of the first intermediate layer;

threading the stepped second guide tab through the second opening of the first intermediate layer;

sliding the first intermediate layer toward the front plate along the first guide tab and stepped second guide tab;

the plurality of layers comprising a second intermediate layer, comprising a first opening of a first length substantially equal to the first length of the first intermediate layer and a second opening of a second length substantially equal to the second length of the second step, the mounting of the plurality of layers on the front plate further comprising:

threading the first guide tab through the first opening of the second intermediate layer,

threading the stepped second guide tab through the second opening of the second intermediate layer, and

sliding the first intermediate layer along the first guide tab and stepped second guide tab,

bending an end portion of the first guide tab to be substantially flat with the second intermediate layer, and

bending an end portion of the stepped second guide tab to be substantially flat with the second intermediate layer.

15. The method of claim **14**, wherein the plurality of layers comprises a plurality of unitary layers.

16. The method of claim **15**, wherein mounting the plurality of layers on the front plate further comprises affixing the end portion of the first guide tab and the end portion of the stepped second guide tab in a way that maintains the end portions in a flush configuration with the second intermediate layer.

17. The method of claim **16**, wherein the front plate further comprises:

a first arm located between the base plate and the first guide tab, the first arm comprising:

a first joint between the first arm and the front plate, and

a second joint between the first arm and the first guide, and

a second arm located between the front plate and the stepped second guide tab, the second arm comprising:

a first joint between the second arm and the front plate, and

a second joint between the second arm and the stepped second guide tab, wherein the step of preparing the front plate further comprises:

bending the first arm at the first joint;

positioning the first arm flush with the front plate;

bending the first arm at the second joint;

bending the second arm at the first joint;

positioning the second arm flush with the front plate; and

bending the second arm at the second joint.

18. The method of claim **14**, wherein

the angle formed between the first guide tab and the plane of the base plate comprises a 90 degree angle;

the angle formed between the stepped second guide tab and the plane of the front plate comprises a 90 degree angle; and

the first guide tab and stepped second guide tab define intersecting planes when bent 90 degrees from the front plate.

19. The method of claim **14**, wherein the plurality of layers further comprises an end layer, comprising a first opening of a length substantially equal to the first length and a second opening and wherein the mounting of the plurality of layers on the front plate further comprises:

threading the first guide tab through the first opening of the end layer, and

threading the stepped second guide tab through the second opening of the end layer.

20. The method of claim **14**, wherein the first step of the stepped second guide tab comprises a first color and the first intermediate layer comprises a first band comprising the first color.

21. The method of claim **20**, wherein the second step of the stepped second guide tab further comprises a second color and the second intermediate layer comprises a second band comprising the second color.

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