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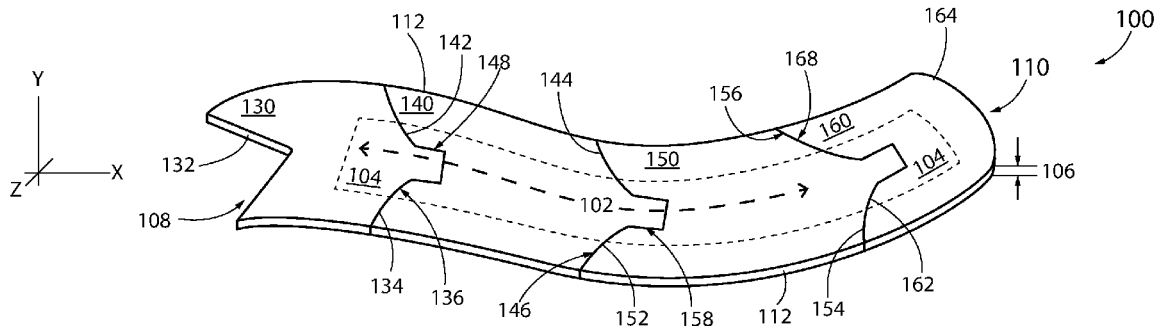
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(57)

ABSTRACT

Puzzle messages and techniques for making the same are disclosed. A puzzle message has a message direction at a lengthwise orientation and a contour. The puzzle message includes at least a first puzzle message piece having a first piece first end and a first piece second end along the lengthwise orientation, a second puzzle message piece having a second piece first end and a second piece second end along the lengthwise orientation. The first piece second end is defined by a matched interface and the second piece first end defined by a complementary interface mating with the matched interface, and the first piece and the second piece define a continuous portion of the contour when mated.



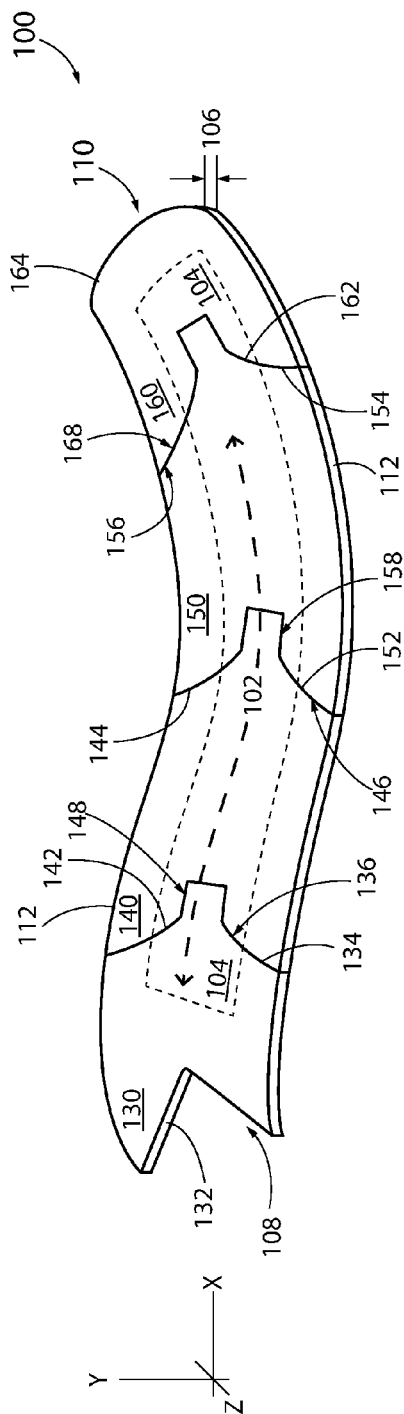


FIG. 1A

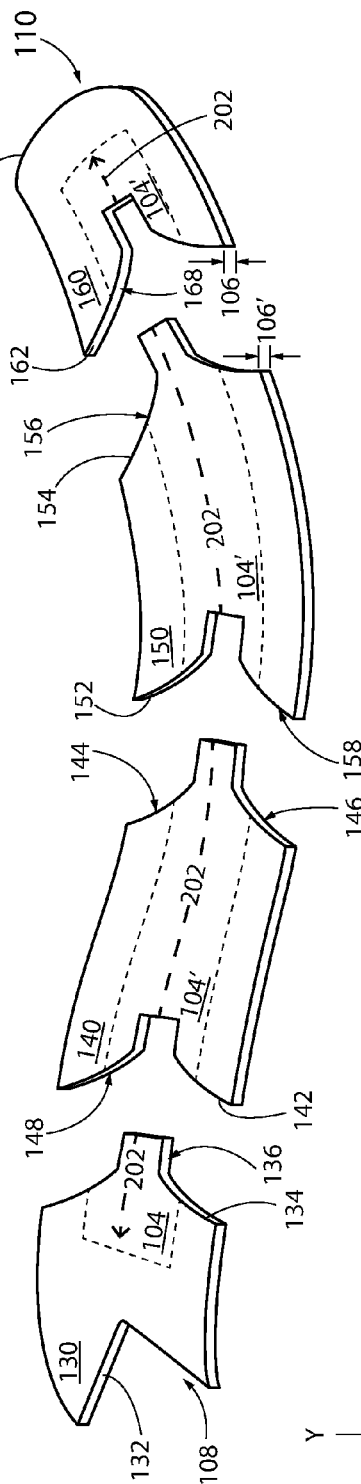
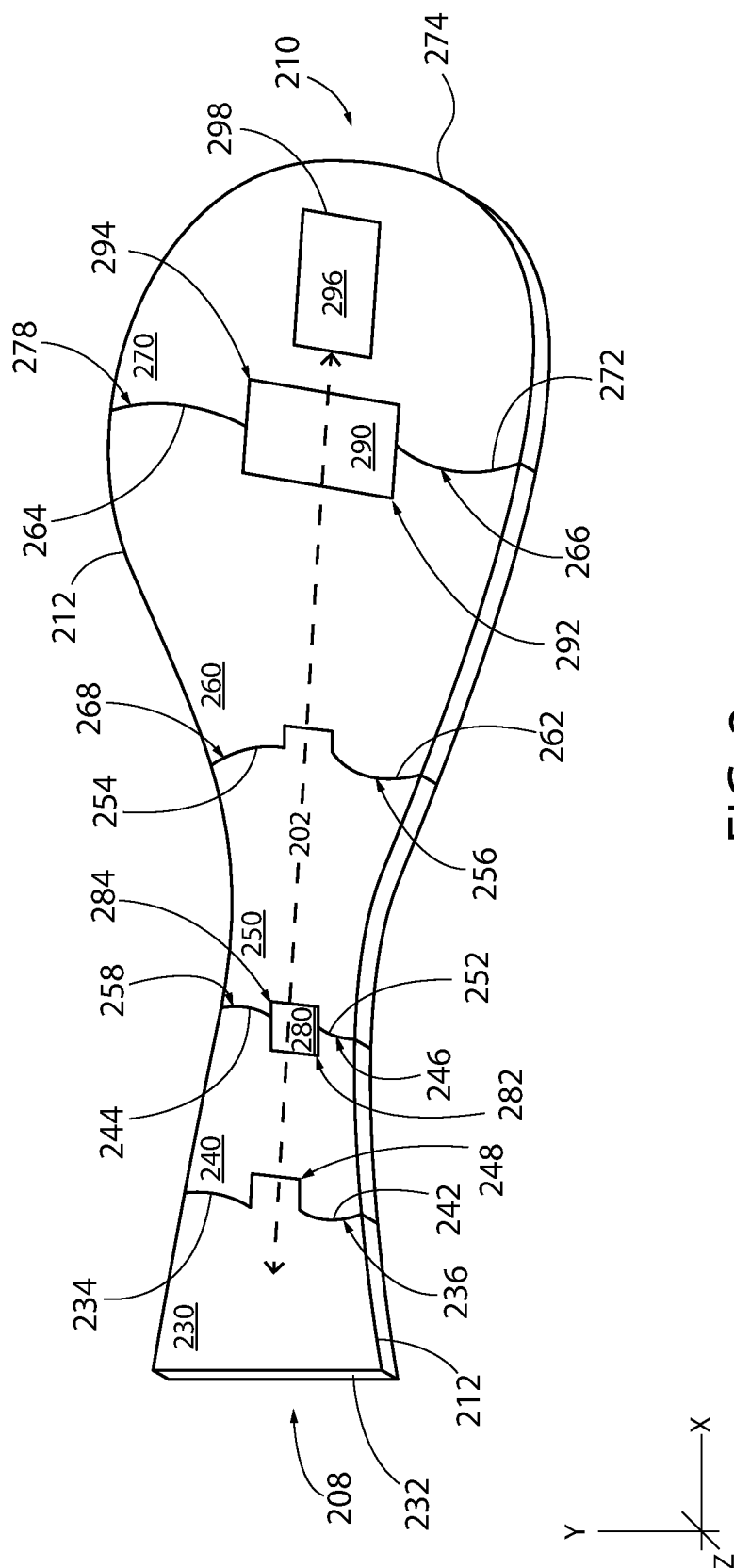


FIG. 1B



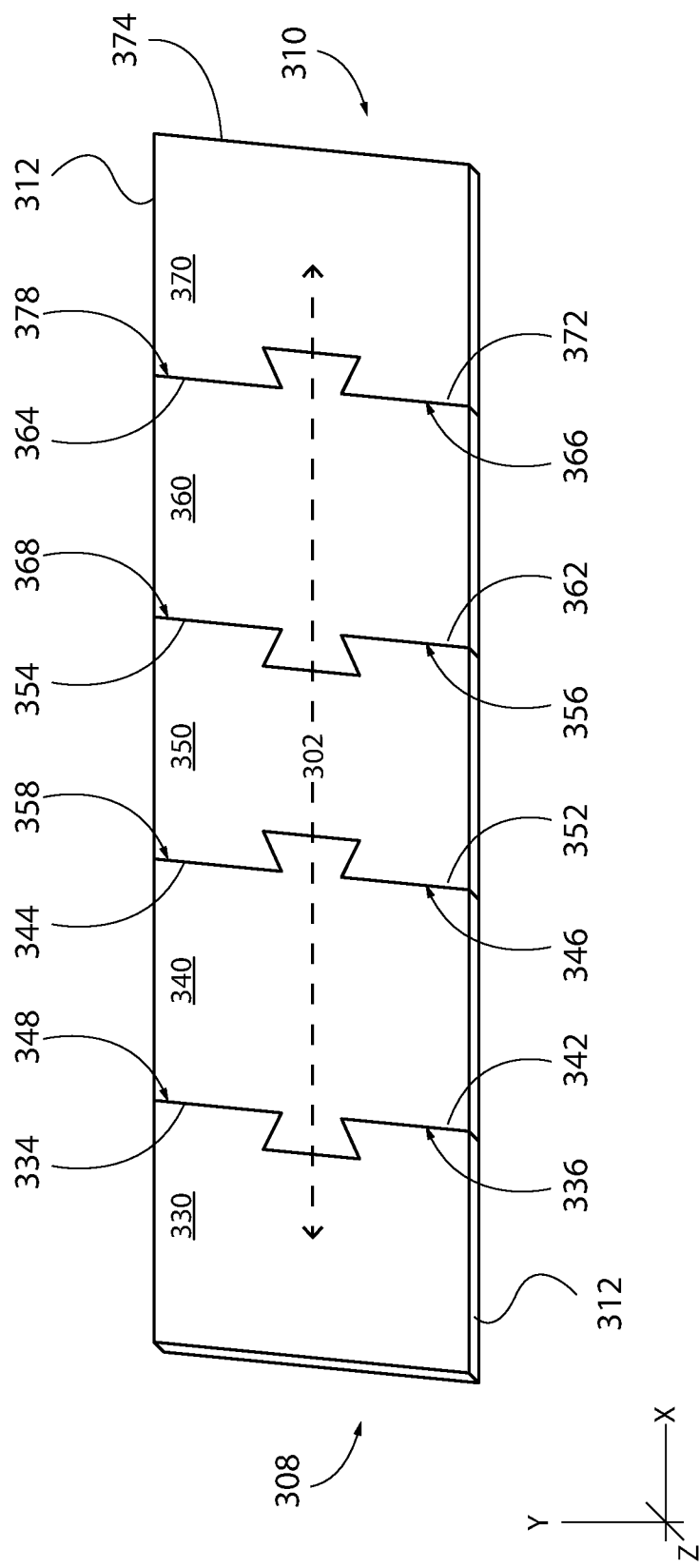


FIG. 3

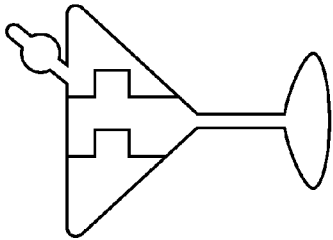


FIG. 4A

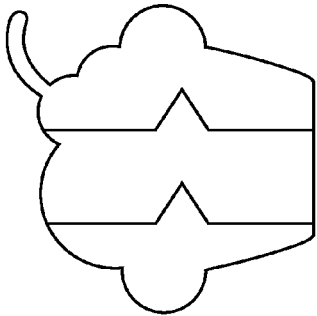


FIG. 4B

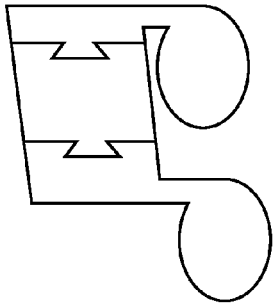


FIG. 4C

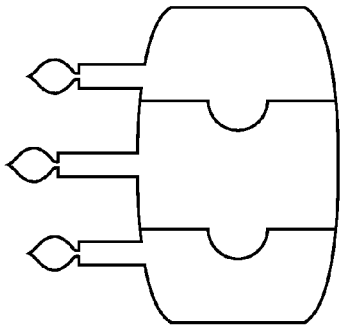


FIG. 4D

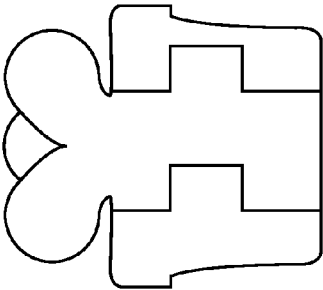


FIG. 4E

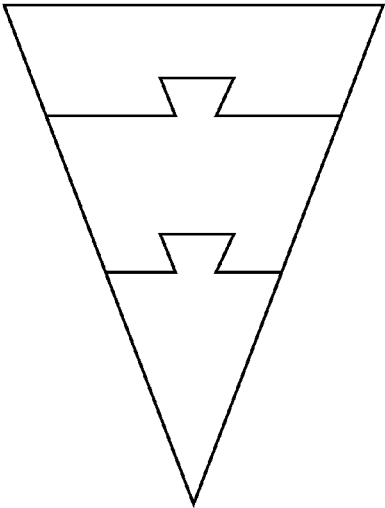


FIG. 4F

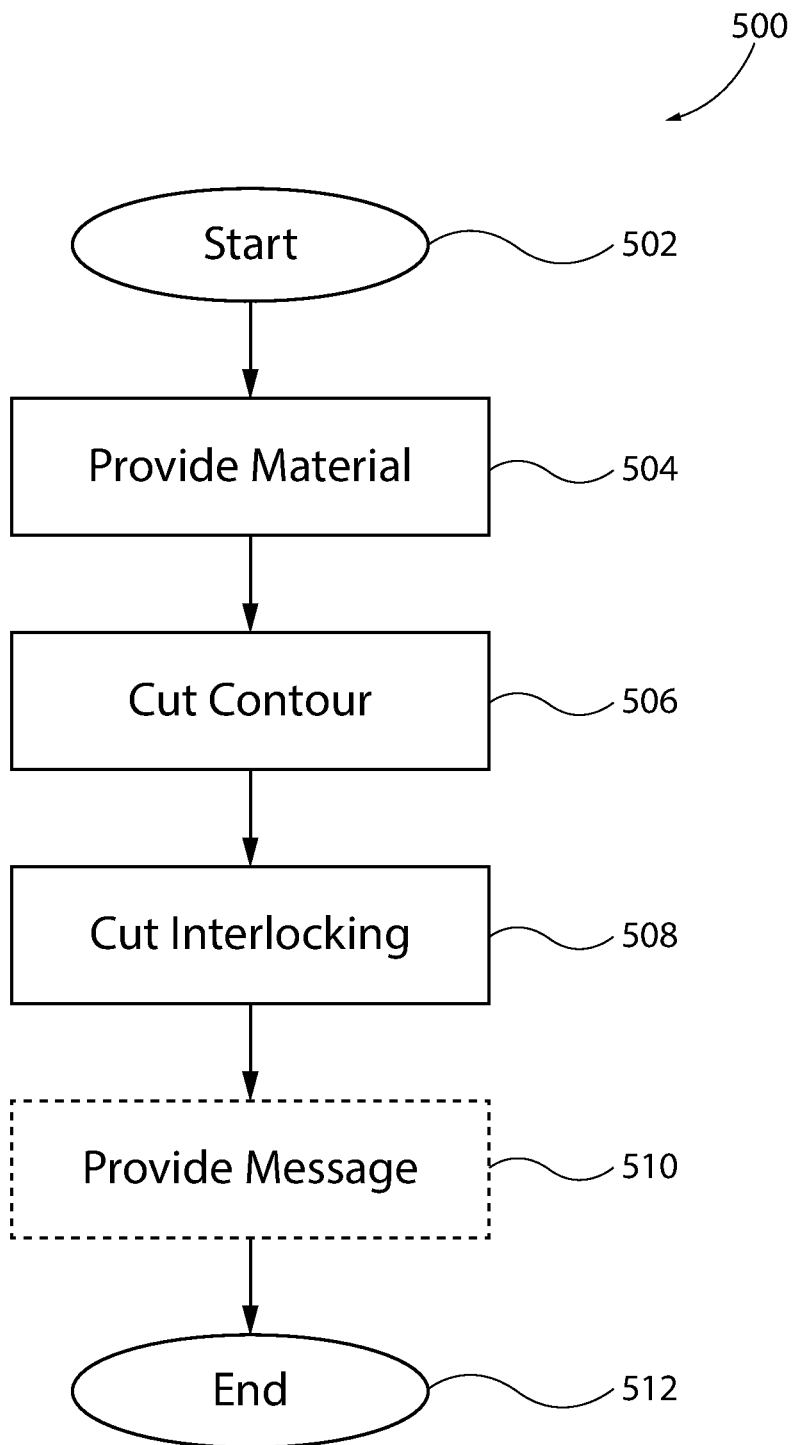


FIG. 5

PUZZLE MESSAGE

TECHNICAL FIELD

[0001] The invention disclosed generally relates to multi-part messages, and more specifically relates to messages having a mating pieces.

BACKGROUND

[0002] There are many ways to deliver personal messages to others. Electronic technology has increased the ease of communicating over distance but in many instances products made of materials which can be easily handled and displayed by a recipient remain preferable. While various cards and other products exist, giving options to message senders, many still desire increased personalization and interactivity in their communications.

SUMMARY

[0003] In an embodiment puzzle messages and techniques for making the same are disclosed. A puzzle message has a message direction at a lengthwise orientation and a contour. The puzzle message includes at least a first puzzle message piece having a first piece first end and a first piece second end along the lengthwise orientation, a second puzzle message piece having a second piece first end and a second piece second end along the lengthwise orientation. The first piece second end is defined by a matched interface and the second piece first end defined by a complementary interface mating with the matched interface, and the first piece and the second piece define a continuous portion of the contour when mated.

[0004] In a further embodiment a puzzle message has a contour. The puzzle message is defined at least by a coordinate system, and the puzzle message has a message direction at a lengthwise orientation substantially aligned with an x-axis of the coordinate system. The puzzle message includes a plurality of interlocking puzzle message pieces defined by two or more outer contour sides and one or more complementary sides. The two or more outer contour sides of immediately adjacent pieces define a continuous portion of the contour, and the one or more complementary sides mate with immediately adjacent pieces. The complementary sides are arranged according to an interlocking interface through the contour along at least ay-axis of the coordinate system.

[0005] In another embodiment a method is provided for producing a puzzle message. The method includes cutting a contour from a message material to produce a puzzle message defined by at least a two dimensional coordinate system. The puzzle message has a message direction at a lengthwise orientation substantially aligned with an x-axis of the coordinate system. The method further includes cutting a mating interface through the puzzle message to define two or more puzzle message pieces of the puzzle message. The interlocking interface is arranged through the contour along at least ay-axis of the coordinate system. In particular embodiments, the method can also include providing a message onto the puzzle message oriented along the message direction.

[0006] These and other embodiments are described in greater detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The invention may take physical form in certain parts and arrangements of parts, an embodiment of which will be described in detail in the specification and illustrated in the accompanying drawings which form a part hereof, and wherein:

[0008] FIGS. 1A and 1B illustrate a puzzle message disclosed herein;

[0009] FIG. 2 illustrates a puzzle message disclosed herein;

[0010] FIG. 3 illustrates a puzzle message disclosed herein;

[0011] FIGS. 4A to 4F illustrate embodiments of a puzzle message disclosed herein; and

[0012] FIG. 5 illustrates a methodology for making a puzzle message disclosed herein.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0013] The disclosures herein generally relate to a puzzle message organized as a series of pieces which can be separated and reassembled. The puzzle message can have a message direction on which the message is written, and can be arranged as a banner, pennant, ribbon, et cetera having an orientation facilitating providing messages in a substantially linear manner. In some embodiments, this banner or ribbon arrangement provides for one "layer" of pieces, e.g., the pieces only connect along the message direction (e.g., left to right) to complete the puzzle message and express the continuous contour (e.g., no up to down piece connections).

[0014] In general, puzzle messages include plural puzzle pieces that are joined by matching, interlocking, or otherwise assembling them based on the shape or pattern of each piece to form a completed shape or assembled form. The assembled form may be any shape and is limited only by the imagination of the puzzle creator. As will be described more completely below, the assembled form may carry a message, which may include text, pictures, symbols or combinations thereof. The pieces of the puzzle message are formed to interlock in a directional manner to form the message when the joined to create the assembled form. The directional manner may be specific to the message, the language used or other factors, but generally conforms to a common axis. For example, for English language messages, a left to right direction could be used. For other languages, a right to left direction may be used. Other directions including top to bottom, bottom to top, or diagonal may be suitable as well. The examples described below, therefore, should not be considered limiting.

[0015] Each piece within the puzzle has at least one puzzle interface. The puzzle interface forms an edge or contour of the piece that joins to another piece of the puzzle. Adjacent pieces generally have complementary interfaces that interact with each other to join the pieces together. In some examples, the interface of adjacent pieces is not completely or independently complementary and a third piece is used to complete the physical or visual connection between pieces. End pieces may have a single interface while middle pieces may have interfaces at opposite ends of the piece. For example, a left end piece would have a puzzle interface on its right edge and a right end piece would have a puzzle interface on its left edge. If an intermediate or middle piece is used between the left and right end pieces, it would have

interfaces on both the left and right edge to connect to the left and right ends. Other such aspects will be appreciated in view of the embodiments described hereafter.

[0016] In the specification and claims, reference will be made to a number of terms that have the following meanings. The singular forms “a,” “an” and “the” include plural referents unless the context clearly dictates otherwise. Approximating language, as used herein throughout the specification and claims, may be applied to modify a quantitative representation that could permissibly vary without resulting in a change in the basic function to which it is related. Accordingly, a value modified by a term such as “about” is not to be limited to the precise value specified. In some instances, the approximating language may correspond to the precision of an instrument for measuring the value. Moreover, unless specifically stated otherwise, a use of the terms “first,” “second,” etc., does not denote an order or importance, but rather the terms “first,” “second,” etc., are used to distinguish one element from another. This applies with regard to “subsequent” pieces as well, as this term is used to indicate at most adjacency and at least distinction between elements rather than order or importance.

[0017] As used herein, the terms “may” and “may be” indicate a possibility of an occurrence within a set of circumstances; a possession of a specified property, characteristic or function; and/or qualify another verb by expressing one or more of an ability, capability, or possibility associated with the qualified verb. Accordingly, usage of “may” and “may be” indicates that a modified term is apparently appropriate, capable, or suitable for an indicated capacity, function, or usage, while taking into account that in some circumstances the modified term may sometimes not be appropriate, capable, or suitable. For example, in some circumstances an event or capacity can be expected, while in other circumstances the event or capacity cannot occur—this distinction is captured by the terms “may” and “may be.”

[0018] Unless otherwise indicated, broken lines in the figures are intended to display variable elements not required in all embodiments or representative of aspects not committed to a particular form (e.g., the text of a message provided for writing or written by a user or purchaser) or aspects of the invention(s). In the figures, like numbers will refer to like components in the various depicted examples. It will be understood that components from the various examples may be interchanged and the figures are not limiting in terms of the combinations of components disclosed therein.

[0019] FIGS. 1A and 1B illustrate an example embodiment of a puzzle message **100**. FIG. 1A shows puzzle message **100** in an assembled form (e.g., “mated” or “interlocked”), while FIG. 1B illustrates puzzle message **100** with its respective pieces separated.

[0020] Puzzle message **100** can optionally include a message **104** printed or written along a message direction **102** having a lengthwise orientation substantially aligned with, e.g., the x-axis of the coordinate system illustrated. The puzzle message **100** is defined by a contour **112** around the edges. In embodiments, the contour can have curved portions, linear portions, and/or combinations thereof. Puzzle message **100** is predominantly curved along contour **112** including at second end **110**, but includes linear portions near first end **108**.

[0021] Puzzle message **100** is made of a material, which can include (but is not limited to) paper, cardboard, plastic, metal, rubber, glass et cetera. Different pieces (described below) of puzzle message **100** can be made of two or more materials or different materials from other pieces. The material can have a uniform or varying thickness **106**. For example, in FIG. 1B, fourth puzzle message piece **160** has a thickness **106** while third puzzle message piece **150** is shown with thickness **106'**. Thickness **106** and thickness **106'** can be equal or unequal in various embodiments, and in embodiments may from the edges of adjacent pieces define a thickness gradient as this dimension of puzzle message **100** widens or narrows.

[0022] The pieces of puzzle message **100** may include first puzzle message piece **130**, second puzzle message piece **140**, third puzzle message piece **150**, and fourth puzzle message piece **160**. The pieces are defined in a widthwise direction, e.g., they-axis as illustrated, by contour **112**. First puzzle message piece **130** is defined in the lengthwise direction by first piece first end **132** and first piece second end **134**. Second puzzle message piece **140** is defined in the lengthwise direction by second piece first end **142** and second piece second end **144**. Third puzzle message piece **150** is defined in the lengthwise direction by third piece first end **152** and third piece second end **154**. Finally, fourth puzzle message piece **160** is defined in the lengthwise direction by fourth piece first end **162** and fourth piece second end **164**. The number of pieces shown is just one example and is not limiting. A puzzle may have at least two pieces. A two piece puzzle may be used for a shorter or appropriately-structured message and more complex puzzles may be created by increasing the number of pieces.

[0023] First puzzle message piece **130** interlocks with second puzzle message piece **140**, second puzzle message piece **140** interlocks with third puzzle message piece **150**, and third puzzle message piece **150** interlocks with fourth puzzle message piece **160**. In this regard, first piece second end **134** is defined by matched interface **136** while second piece first end **142** is defined by complementary interface **148**. Similarly, second piece second end **144** is defined by matched interface **146** while third piece first end **152** is defined by complementary interface **158**. Lastly, in the embodiment illustrated, third piece second end **154** is defined by matched interface **156** while fourth piece first end **162** is defined by complementary interface **168**. Matched interfaces **136**, **146**, **156** and complementary interfaces **138**, **148**, **158** can be partially linear, curved, multi-directional, et cetera. In embodiments, matched interfaces **136**, **146**, **156** and complementary interfaces **138**, **148**, **158** are not uninterrupted linear cuts, e.g., do not define a single straight line across entire contour **112**. In embodiments, matched interfaces **136**, **146**, **156** and complementary interfaces **138**, **148**, **158** can be cut to resist separation along lengthwise or widthwise directions, defined by shapes which must be arranged between one another through movement in a depthwise direction (e.g., the z-axis as illustrated). However, in embodiments (such as that illustrated in FIGS. 1A and 1B) the interlocking nature of matched interfaces **136**, **146**, **156** and complementary interfaces **138**, **148**, **158** can be provided to assist with identifying the positioning of each of first puzzle message piece **130**, second puzzle message piece **140**, third puzzle message piece **150**, and fourth puzzle message piece **160** within assembled puzzle message **100**,

but do not connectingly secure these pieces (as is the case in the embodiment of, e.g., FIG. 3).

[0024] When the matched interfaces 136, 146, 156 are substantially interlocked and/or in contact with complementary interfaces 138, 148, 158, immediately adjacent pieces (e.g., the first piece and the second piece; the second piece and the third piece; and so forth) define contour 112. As illustrated, the edges of immediately adjacent pieces therefore define a smooth and continuous portion of the contour when interlocked. However, in embodiments, other shapes having stepped changes or discontinuities (e.g., in one or more dimensions) are possible at matched interfaces 136, 146, 156 and complementary interfaces 138, 148, 158 or any place therebetween.

[0025] As shown in FIGS. 1A, 1B, and others, first puzzle message piece 130, second puzzle message piece 140, third puzzle message piece 150, and fourth puzzle message piece 160 can have different shapes. In alternative or complementary embodiments, one or more pieces can have substantially identical shapes (see, e.g., FIG. 3).

[0026] Embodiments FIGS. 1A and 1B (and/or others) may be described as a “banner” or “ribbon” puzzle message given the arrangement.

[0027] FIG. 2 illustrates an alternative embodiment of puzzle message 200 having message direction 202 having a lengthwise orientation substantially aligned with, e.g., the x-axis of the coordinate system illustrated. The puzzle message 200 is defined by a contour 212 around the edges. Puzzle message 200 is predominantly curved along contour 212 and second end 210 but linear in the vicinity of first end 208.

[0028] Puzzle message 200 includes first puzzle message piece 230 defined by contour 212, first piece first end 232, and first piece second end 234; second puzzle message piece 240 defined by contour 212, second piece first end 242, and second piece second end 244; third puzzle message piece 250 defined by contour 212, third piece first end 252, and third piece second end 254; fourth puzzle message piece 260 defined by contour 212, fourth piece first end 262, and fourth piece second end 264; and fifth puzzle message piece 270 defined by contour 212, fifth piece first end 272, and fifth piece second end 274. These pieces meet and interlock at matched interfaces 236, 246, 256, 266 and complementary interfaces 238, 248, 258, 268.

[0029] Puzzle message 200 includes, e.g., first inner piece 280, second inner piece 290, and third inner piece 296. First inner piece 280 fits between or within (e.g., interlocks with) second puzzle message piece 240 and third puzzle message piece 250 defining a portion of matched interface 246 and complementary interface 258, and second inner piece 290 fits between or within fourth puzzle message piece 260 and fifth puzzle message piece 270. Put another way, inner pieces are defined by discontinuities in the material of the puzzle message 200. First inner piece 280 is bounded by second piece inner cutout 282 and third piece inner cutout 284; and second inner piece 290 is bounded by fourth piece inner cutout 292 and fifth piece inner cutout 294. In this regard, two or more pieces can include cutout portions to define an inner piece, and will interact with or modify interlocking and/or complementary interfaces at the interfaces between immediately adjacent pieces. In an alternative or complementary embodiment, an inner piece can be bounded by inner cutouts in three, four, or more pieces, crossing or defining a portion of two or more interlocking or

complementary interfaces. Any inner piece may act as a bridge to maintain directionality in a puzzle by joining adjacent pieces or may be employed to add variety to the puzzle shape, emphasize a portion of the message, or be for an ornamental purpose.

[0030] With reference to FIG. 2, at least a portion of an inner cutout can coincide with one of an interlocking or complementary interface, thereby contacting or immediately adjacent to two pieces without being between or within both (e.g., only “inside” one piece). In still further embodiments, puzzle message 200 includes third inner piece 296 bounded by fifth piece cutout 298. Third inner piece 296 is bounded completely by fifth piece 270 as opposed to two immediately adjacent pieces.

[0031] FIG. 3 illustrates an alternative embodiment of puzzle message 300 having message direction 302 having a lengthwise orientation substantially aligned with, e.g., the x-axis of the coordinate system illustrated. The puzzle message 300 is defined by a contour 312 around the edges. Puzzle message 300 is predominantly linear along contour 312 and at first end 308 and second end 310.

[0032] Puzzle message 300 includes first puzzle message piece 330 defined by contour 312, first piece first end 332, and first piece second end 334; second puzzle message piece 340 defined by contour 312, second piece first end 342, and second piece second end 344; third puzzle message piece 350 defined by contour 312, third piece first end 352, and third piece second end 354; fourth puzzle message piece 360 defined by contour 312, fourth piece first end 362, and fourth piece second end 364; and fifth puzzle message piece 370 defined by contour 312, fifth piece first end 372, and fifth piece second end 374. These pieces meet and interlock at interlocking interfaces 336, 346, 356, 366 and complementary interfaces 338, 348, 358, 368.

[0033] Interlocking interfaces 336, 346, 356, 366 and complementary interfaces 338, 348, 358, 368 are not only matched for mating but interlock through the shapes provided. By interlocking, immediately adjacent pieces resist separation in at least two dimensions, e.g., along the x-axis or y-axis. In alternative embodiments, mating pieces which do not interlock can be combined with mating pieces which do interlock.

[0034] Puzzle message 300 also shows substantially identical pieces. Second puzzle message piece 340 and fourth puzzle message piece 360 can be substantially identical in embodiments. Further, other pieces (e.g., first puzzle message piece 330 and fifth puzzle message piece 370) can be substantially mirrored arrangements.

[0035] FIGS. 4A to 4F illustrate alternative embodiments of example contours contemplated under the disclosures herein. Such embodiments are intended to be illustrative, rather than limiting, and provide details as to breadth of alternatives and themes which are embraced by the disclosures herein.

[0036] Turning to FIG. 5, illustrated is a methodology 500 for making a puzzle message. Methodology 500 begins at 502 and proceeds to 504 where a puzzle message material is provided. In embodiments, the puzzle message material may be a single unitary piece large enough to cut the entire puzzle message. In alternative embodiments, the puzzle message material may be two or more pieces of material, the discontinuities between which are utilized in the puzzle message.

[0037] At 506, a contour is cut from the puzzle message. The contour, in one or more pieces depending on the original

material arrangement, defines the total puzzle message. The puzzle message has a message direction oriented lengthwise (e.g., substantially aligned with an x-axis shown in embodiments herein) in accordance with the puzzle message/contour.

[0038] At **508**, a mating interface is cut through the puzzle message (e.g., across the entire contour) to define two or more puzzle message pieces of the puzzle message. The mating interface can be arranged through the contour along at least a y-axis of the coordinate system as shown in embodiments above. In embodiments, the mating interface includes a matched interface and a complementary on respective edges of two immediately adjacent pieces. In various embodiments, multiple interfaces can be cut at **508** and such interfaces can differ, as can the pieces which the interfaces partially define.

[0039] Further, **508** can also include cutting at least one inner puzzle message piece mating with one or more immediately adjacent (e.g., surrounding) pieces. The cutouts around inner pieces can define a portion of mating interfaces or exist exclusively within a single piece in embodiments.

[0040] Optionally, at **510**, a message may be provided on the puzzle message. This may be written, printed, stamped, imprinted, et cetera, in alignment with the message direction. Where a message is provided, the message may be formatted, indented, arranged, or modified to conform to the message direction and contour. Thereafter, or earlier if no message is provided, at **512** methodology **500** ends.

[0041] While methodology **500** is shown according to a particular embodiment, it is understood that the order, sequence, and arrangement of aspects described in methodology **500** or other embodiments of methods disclosed herein can vary. Further, aspects or steps not depicted may be included, and aspects or steps depicted may be excluded, without departing from the scope or spirit of the innovation.

[0042] This written description uses examples to disclose the invention, including the best mode, and also to enable one of ordinary skill in the art to practice the invention, including making and using devices or systems and performing incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to one of ordinary skill in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differentiate from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal language of the claims.

1. An apparatus, comprising:

- a puzzle message having a message direction at a lengthwise orientation, the puzzle message having a contour, the puzzle message including at least
- a first puzzle message piece having a first piece first end and a first piece second end along the lengthwise orientation, and
- a second puzzle message piece having a second piece first end and a second piece second end along the lengthwise orientation,

the first piece second end defined by an matched interface and the second piece first end defined by a complementary interface mating with the matched interface, the matched interface and the complementary interface oriented in a common direction indicating the message direction,

the first piece and the second piece defining a continuous portion of the contour when mated.

2. The apparatus of claim 1, further comprising:

- a third puzzle message piece having a third piece first end and a third piece second end,
- the third piece first end defined by a subsequent matched interface and the second piece second end defined by a subsequent complementary interface interlocking with the subsequent matched interface,
- the matched interface and complementary interface are different from the subsequent matched interface and the subsequent complementary interface.

3. The apparatus of claim 1, further comprising a first inner puzzle message piece, the first inner puzzle message piece having a first inner puzzle message shape interlocking with at least one of the first puzzle message piece and the second puzzle message piece.

4. The apparatus of claim 3, further comprising a second inner puzzle message piece,

the first inner puzzle message piece defining at least a portion of the matched interface and the complementary interface, and

the second inner puzzle message piece defining an inner portion of one of the first puzzle message piece or the second puzzle message piece.

5. The apparatus of claim 1, the contour includes at least one curved portion and one linear portion.

6. The apparatus of claim 1, the contour defines a complex shape representing at least one of a cocktail glass, a cake, a cupcake, a present with bow, or a musical note.

7. An apparatus, comprising:

- a puzzle message having a contour, the puzzle message defined at least by a coordinate system, the puzzle message having a message direction at a lengthwise orientation substantially aligned with an x-axis of the coordinate system, the puzzle message including a plurality of interlocking puzzle message pieces defined by two or more outer contour sides and one or more complementary sides, the two or more outer contour sides of immediately adjacent pieces defining a continuous portion of the contour, the one or more complementary sides mating with immediately adjacent pieces, the complementary sides arranged according to an interlocking interface through the contour along at least a y-axis of the coordinate system.

8. The apparatus of claim 7, the puzzle message having a first thickness at a first point and a second thickness not equal to the second thickness at a second point.

9. The apparatus of claim 8, the first thickness and the second thickness define a thickness gradient.

10. The apparatus of claim 7, further comprising one or more inner puzzle message pieces, the inner puzzle message pieces having an inner puzzle message shape interlocking with at least one of the plurality of interlocking puzzle message pieces.

11. The apparatus of claim 10, the one or more inner puzzle message pieces defining at least a portion of the interlocking interface.

12. The apparatus of claim 7, the contour includes at least one curved portion and at least one linear portion.

13. A method for making a puzzle message, comprising:
cutting a contour from a message material to produce a puzzle message defined by at least a two dimensional coordinate system, the puzzle message having a mes-

sage direction at a lengthwise orientation substantially aligned with an x-axis of the coordinate system;
cutting a mating interface through the puzzle message to define two or more puzzle message pieces of the puzzle message, the mating interface arranged through the contour along at least a y-axis of the coordinate system, the mating interface indicative of the message direction; and

providing a message onto the puzzle message oriented along the message direction.

14. The method of claim **13**, further comprising cutting one or more subsequent mating interfaces through the puzzle message to define additional pieces of the puzzle message, the one or more subsequent mating interfaces arranged through the contour along at least the y-axis of the coordinate system.

15. The method of claim **14**, the one or more subsequent mating interfaces different from the mating interface.

16. The method of claim **13**, further comprising cutting an inner puzzle message piece, the inner puzzle message piece having an inner puzzle message shape mating with at least one of the two or more puzzle message pieces.

17. The method of claim **16**, the inner puzzle message piece defining at least a portion of the mating interface.

18. The method of claim **13**, the contour including at least one curved portion and at least one linear portion.

19. The method of claim **13**, the two or more puzzle message pieces including two or more different-shaped pieces and two or more substantially identical pieces.

20. The method of claim **13**, further comprising providing a message substantially aligned with the message direction.

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