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(54) **BOOK CONTAINING MODEL COMPONENTS  
COMBINABLE TO FORM A MODEL**

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(57) **ABSTRACT**

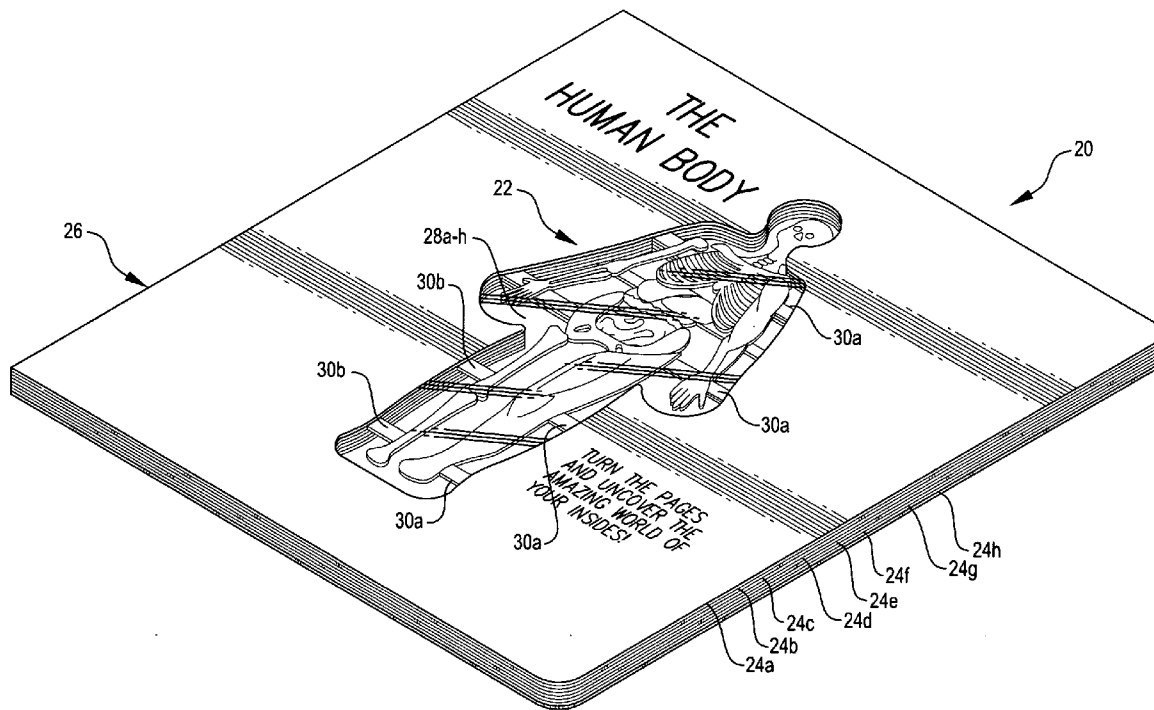
A book includes a model assembly made from a plurality of model components attached to respective pages. The model can be a human body or anything desired. When the book is closed, the model components combine to form a completely assembled model assembly. When the book is open, and as a reader turns each page, the model components attached to the respective page separate from the model assembly revealing other components that remain combined to form a partially assembled model assembly. The components can be fixedly or hingedly attached to respective pages with connectors. If hingedly attached, the model components can be separated from the model assembly without turning a respective page.

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**Related U.S. Application Data**

(60) Provisional application No. 61/204,970, filed on Jan. 13, 2009.



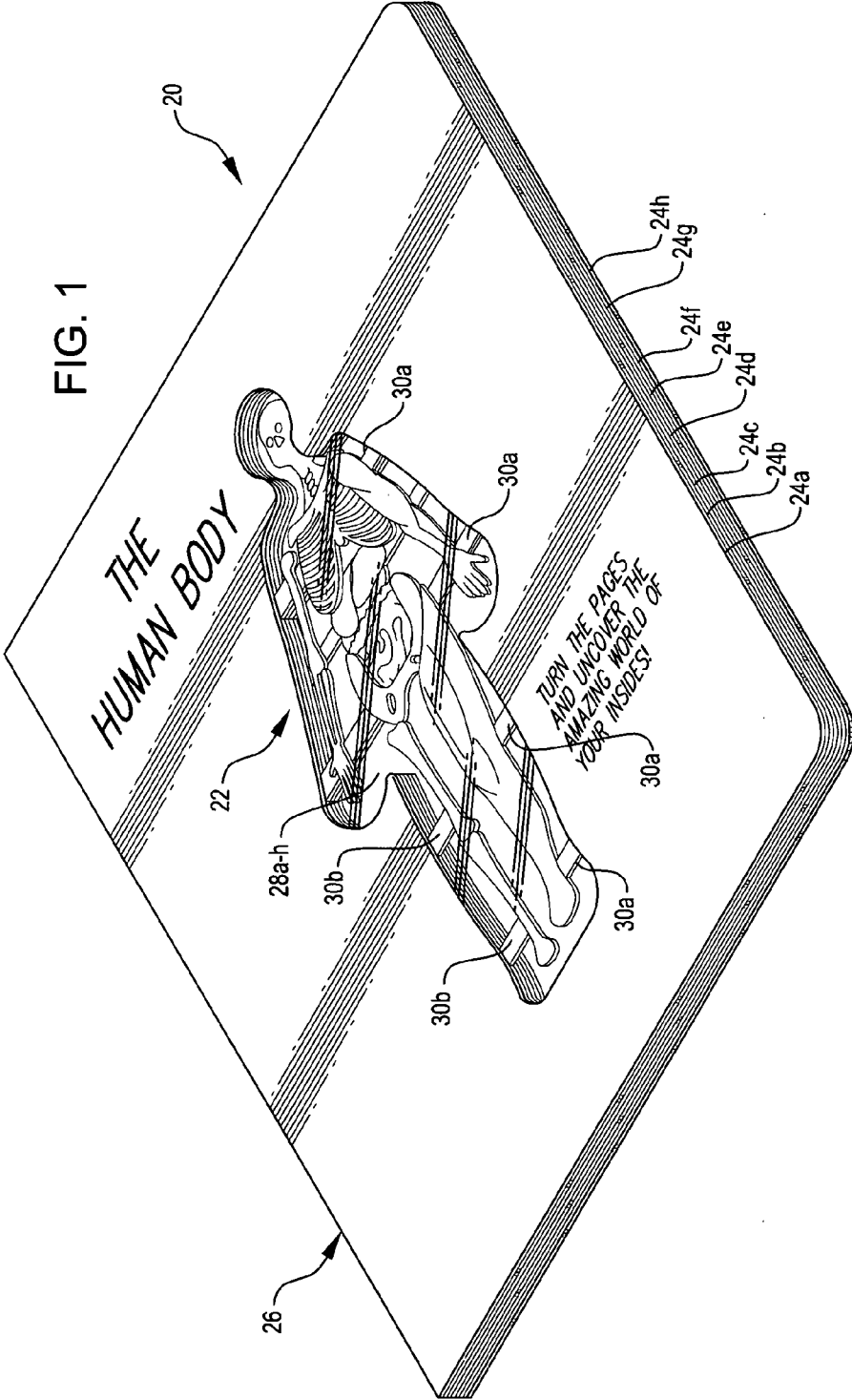
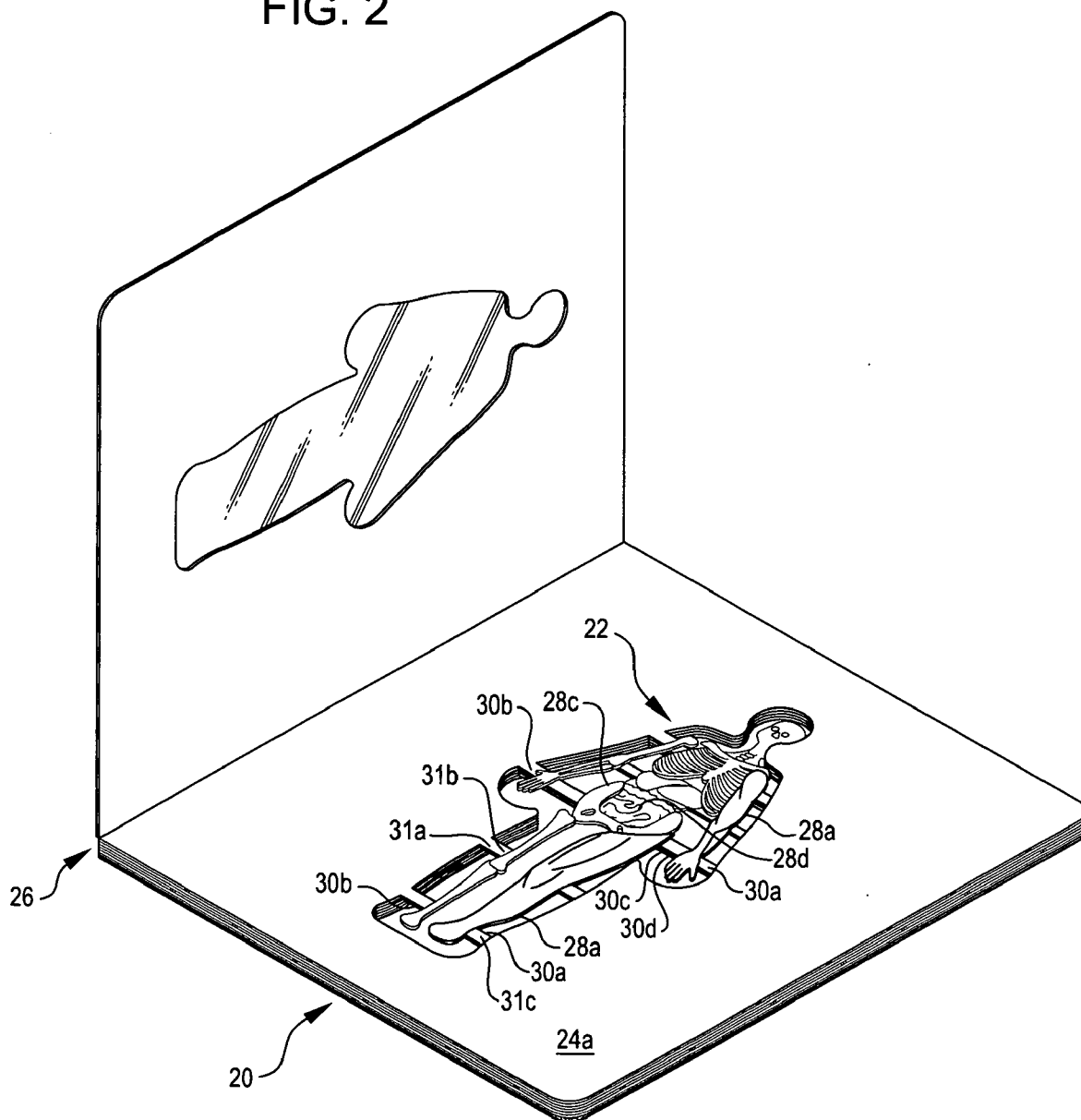


FIG. 2



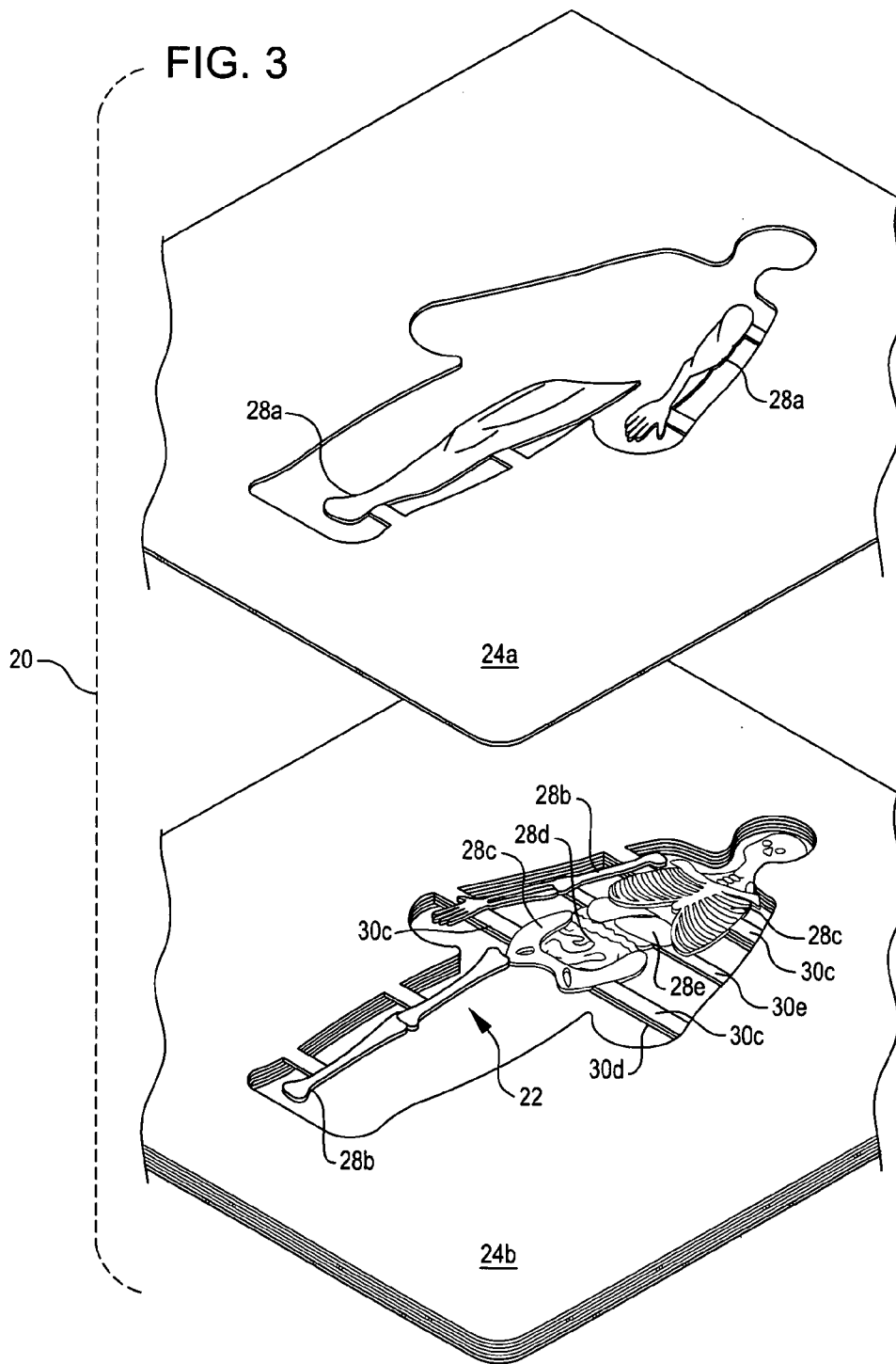
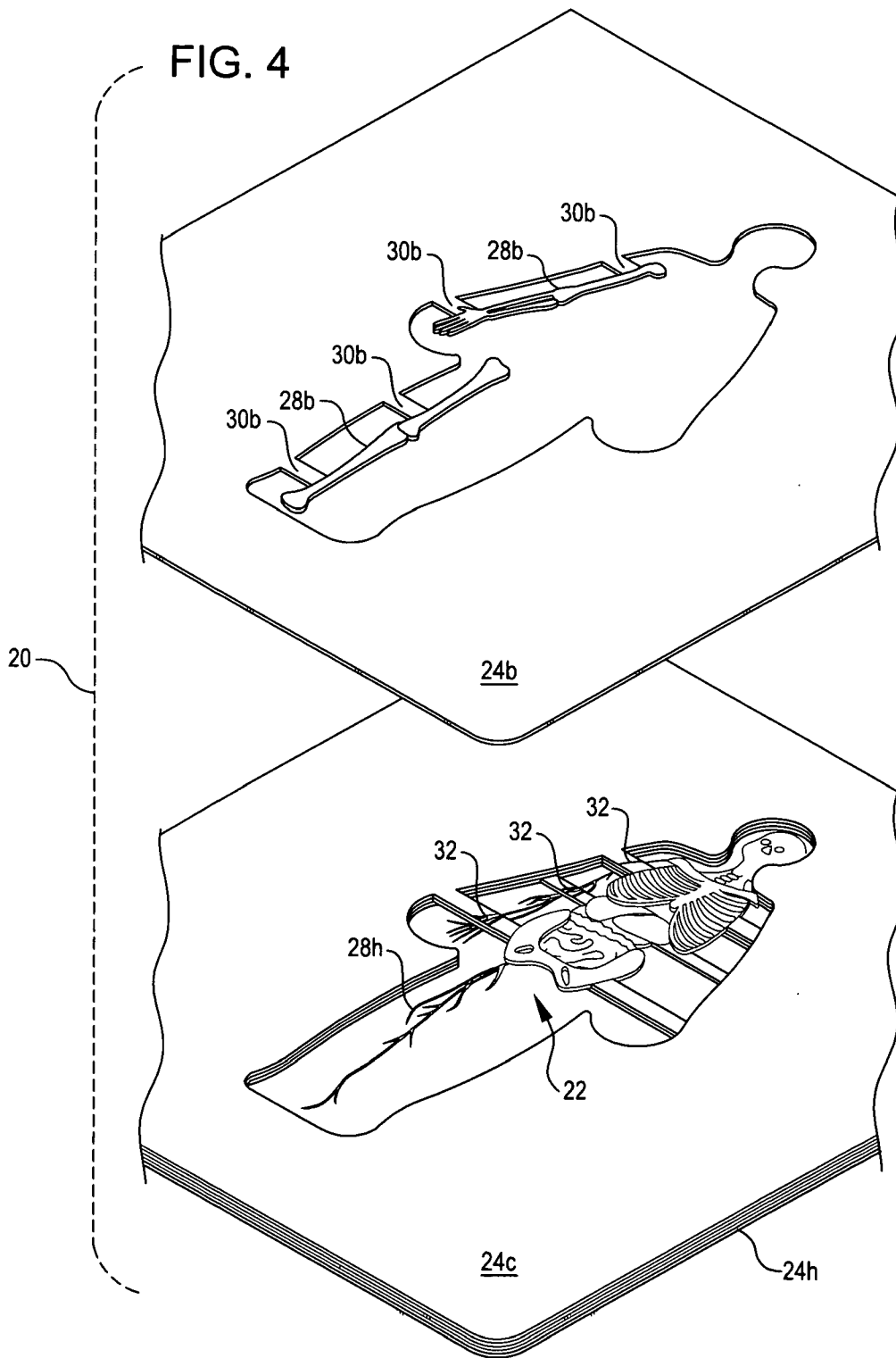
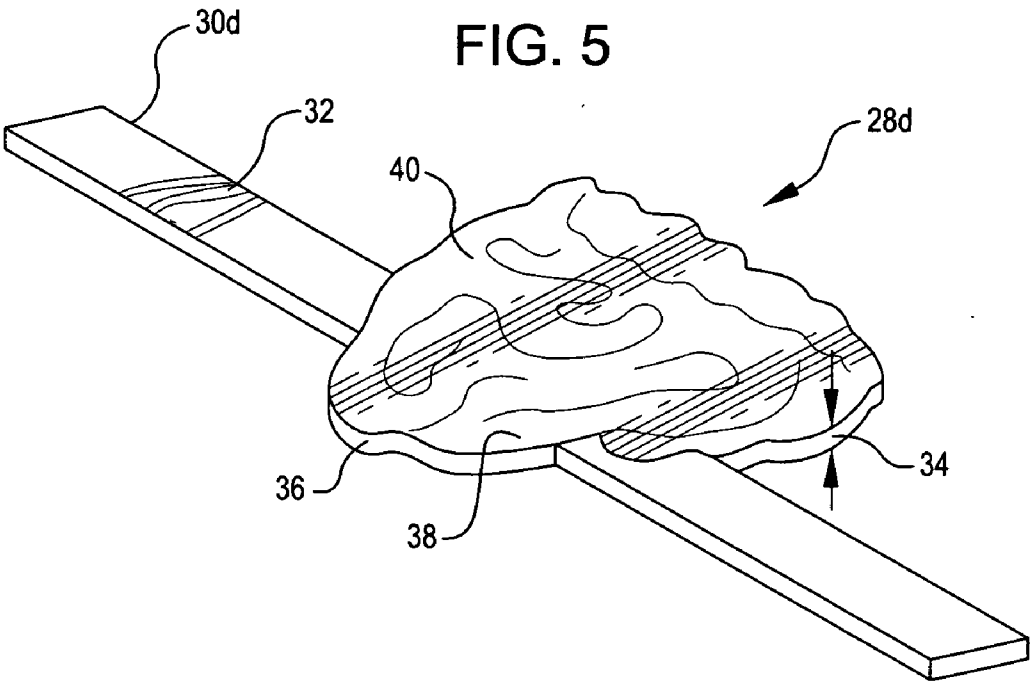
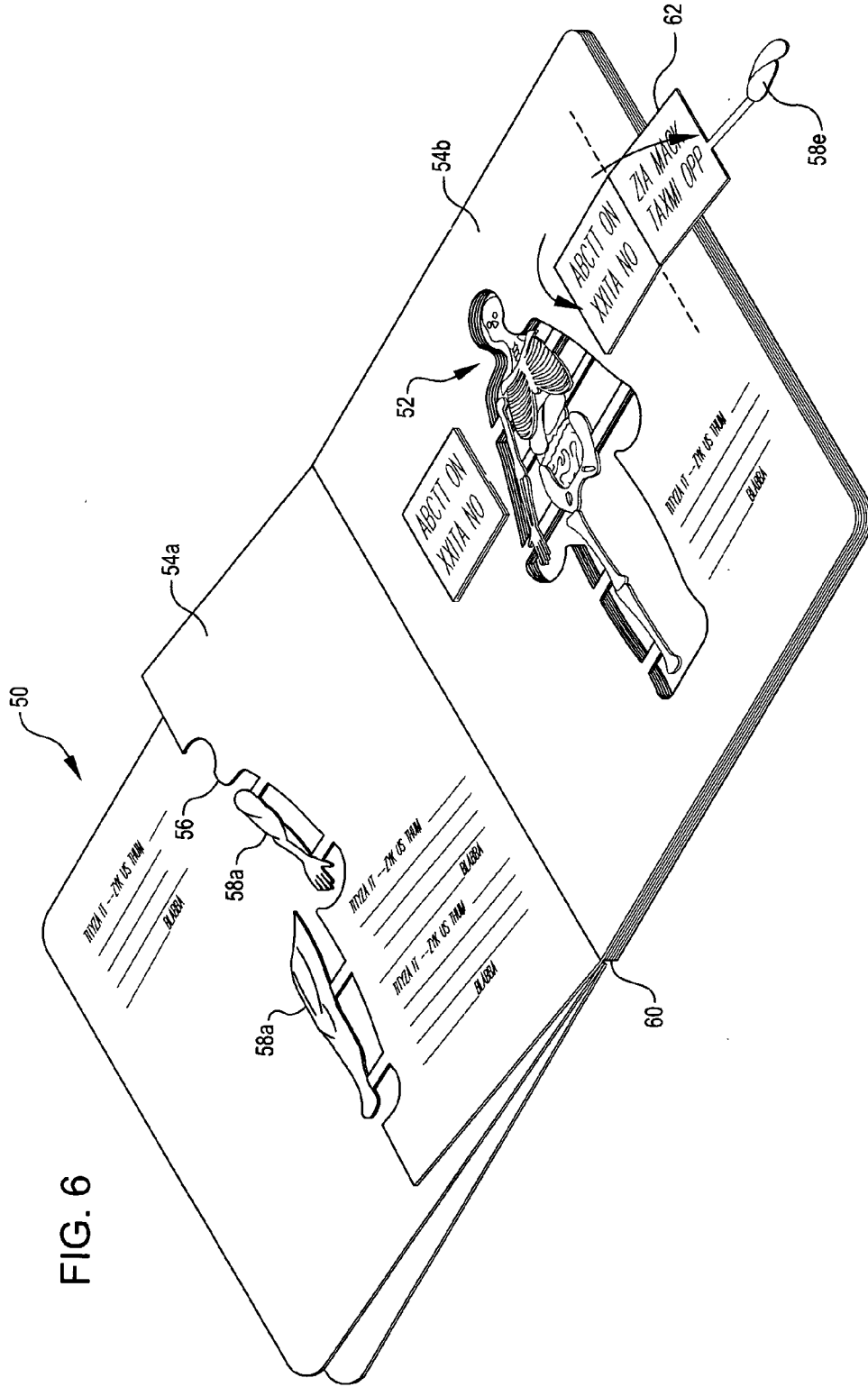


FIG. 4







**BOOK CONTAINING MODEL COMPONENTS  
COMBINABLE TO FORM A MODEL**

CROSS REFERENCE TO RELATED  
APPLICATION AND CLAIM OF PRIORITY

**[0001]** This application claims priority from commonly owned U.S. Provisional Patent Application 61/204,970, filed 13 Jan. 2009, and titled “Book Containing Display Layers Combinable to Form a Model”, presently pending, which is incorporated by reference.

BACKGROUND

**[0002]** A model is worth a thousand words. A person typically learns more, quicker, when he/she can observe, touch, study the parts of a model in two or three dimensions. With a quick study of model parts, a person gains information that typically requires paragraphs if not pages of text to develop and explain. For example, a model of the parts of a human body can quickly convey to a person the numbers and shapes of bones in the arms, legs, hands, and fingers, as well as the proportional sizes of the arms to the legs, the hands to the feet, the fingers to the toes, and the hands to body. To receive this same information from text, a reader typically has to read one or more pages. In addition, studying a model typically increases a person’s attention and thus increases the person’s comprehension. When combined with text to convey information, a model becomes even more powerful.

**[0003]** There are books that include multi-part models within a book; however many of these books contain models that are thicker than the book. Thus, a portion of the model protrudes through the front cover or back cover or both. This can be expensive to a manufacturer when he/she ships the book to a vendor because to secure the books within a box, special packing inserts or packing material must be placed between each book. A model protruding from one or both of the covers of a book can also be frustrating to a vendor or purchaser of the book because the book can not be stacked with other books and will not fit neatly on a shelf. Thus, a book containing a multi-part model that does not protrude from the front cover, back cover or both is very desirable.

**[0004]** In addition, many of the books include components that are not attached to other components of the model or any page in the book but rather are stored in one or more pockets in one or more pages. To assemble the model, the reader must first find and retrieve the loose component and then combine it with another component using written instructions provided on a page. Unfortunately, these books suffer three drawbacks. First, the reader may inadvertently combine the components of the model incorrectly by misunderstanding the written instructions, and thus, misunderstand some of the information conveyed by the components and assembled model. Second, the reader typically has to hold the components in their proper location and thus can not typically assemble more than two components together. Finally, in these books, the components can be easily lost depriving subsequent readers of the informational value of the lost component as well as the assembled model.

**[0005]** Therefore there is need for a book that contains a model that does not protrude from the front or back cover. There is also a need for a book that contains model components attached to pages of the book and that can be combined together to assemble the model or can be separated from the model. Such a book would allow the reader to study the

individual model components as well as how the components combine to make the model. This allows the user to better understand and fully comprehend the information the model and the model components convey.

SUMMARY

**[0006]** In one aspect of the invention, a book includes a plurality of pages bound together, and a plurality of model components that, when the book is closed, combine to form a model assembly that represents a subject of the book. The plurality of model components includes a first flat model component attached to one of the pages, wherein the first model component represents an element of the book’s subject and has a two-dimensional shape similar to the shape of the element that the first model component represents. The plurality of model components also includes a second flat model component attached to another of the pages, wherein the second model component represents another element of the book’s subject and has a two-dimensional shape similar to the shape of the element that the second model component represents. The model assembly has a thickness less than or equal to the sum of the page thicknesses, thus, allowing the book to lie substantially flat on a surface when either the cover or back of the book contacts the surface. In addition, the book can be shipped, displayed and stored much easier and more efficiently than a book having a portion of its model protruding from one of its covers. When the book is opened, the model assembly is partially unassembled and, by turning successive pages, the model assembly becomes increasingly disassembled. This allows a reader to maintain interest in the subject matter and also provides the reader with information that is typically difficult to comprehend without seeing how the components combine.

**[0007]** In another aspect of the invention, the book includes a plurality of connectors, each attaching a respective one of the plurality of model components to a respective one of the plurality of pages. The plurality of connectors includes a first connector that attaches the first model component to the first model component’s respective page. The plurality of connectors also includes a second connector that attaches the second model component to the second model component’s respective page, and is disposed underneath the first connector, when the book is closed. Because the second connector lies underneath the first connector, a reader of the book is more likely to not be distracted by the connectors and thus more easily focus on the model and the model components of the book.

BRIEF DESCRIPTION OF THE FIGURES

**[0008]** FIG. 1 is a perspective view of a book that includes a model, according to an embodiment of the invention.

**[0009]** FIG. 2 is a perspective view of the book in FIG. 1 opened to the book’s first page, according to an embodiment of the invention.

**[0010]** FIGS. 3 and 4 are partial, perspective views of a respective page of the book in FIGS. 1 and 2, and the remaining, subsequent pages of the book, according to an embodiment of the invention.

**[0011]** FIG. 5 is a perspective view of a component of the model shown in FIGS. 1-4, according to an embodiment of the invention.

**[0012]** FIG. 6 is a perspective view of another book that includes a model, according to another embodiment of the invention.



## DETAILED DESCRIPTION

[0013] FIG. 1 is a perspective view of a book 20 according to an embodiment of the invention. The book 20 includes a model assembly 22 that represents a subject of the book 20, and a plurality of pages 24a-24h that are bound together to form a spine 26. The model assembly 22 includes a plurality of model components 28a-28h (discussed in greater detail in conjunction with FIGS. 2-5) that represent an element of the book's subject. For example, in this and certain other embodiments, the subject of the book 22 includes anatomy of the human body, and elements of the subject include muscles, bones, the circulatory system and the intestines. Thus, in this embodiment of the book 20, the model assembly 22 represents anatomy of the human body, and one of the plurality of model components 28a-28h represents the anterior muscles of a human leg. The book 22 also includes a plurality of connectors 30a-30g (only 30a and 30b shown in FIG. 1 for clarity) to attach a respective one of the model components 28a-28h to a respective one of the pages 24a-24h.

[0014] When the book 20 is closed as shown in FIG. 1, the model components combine to form the model assembly 22, and the model assembly 22 is completely contained within the book 20. More particularly, the book 20 can lie flat on either its front cover or back, respectively. This allows one to ship, display and store the book much easier and more efficiently than a book that includes a model protruding from one of the book's covers. When the book 20 is opened as shown in FIGS. 2-6, one or more model components 28a-28h are separated from the model assembly 22, while the other model components 28b-28h remain combined to form the model in a partially assembled state. As a reader turns the pages 24a-24h, one or more model components 28a-28h are separated from the model assembly 22 to reveal the model assembly in partially assembled states that progressively include fewer and fewer combined model components. Thus, as the reader turns each page 24a-24h, the reader is able to study the one or more model components 28a-28h attached to the turned page 24a-24h, the remaining partially assembled model, and the differences between the partially assembled model before and after turning each page 24a-24h. This increases the reader's attention to and comprehension of the information conveyed in the book.

[0015] The model assembly 22 can represent any desired subject. For example, the model assembly can represent any desired machine, organism, structure or system. In this and certain other embodiments, the model assembly 22 represents a human body, and each of the model components 28a-28h (discussed in greater detail in conjunction with the FIG. 7) represents an element of the human body. In other embodiments, the model assembly can represent a race car, and the model components can represent, respectively, the body, engine, wheels, chassis and any other desired part of a race car. Or, the model assembly can represent an internal combustion engine, and the model components can represent, respectively, the cam shaft, the head, the valves, the springs, the crankshaft, the carburetor and any other desired part of an engine. In still other embodiments, the book can include two or more model assemblies, for example, one model assembly can represent a car and another model assembly can represent the engine of the car, or one model assembly can represent one car and another model assembly can represent a different car.

[0016] Still referring to FIG. 1, in this and certain other embodiments, the pages 24a-24h include text (not shown) and are hingedly bound together to form the spine 26 using conventional binding techniques. For example, the pages 24a-24h can be stitched together, glued together, stitched or

glued to an additional backing material (not shown), hole punched and inserted into binder rings or a spiral, or bound together in any desired manner that allows a reader to turn one or more pages 24a-24h at time. Each of the pages 24a-24h also has a page thickness that is the same or approximately the same as the other pages 24a-24h of the book 20. In other embodiments each page's thickness can vary relative to another page's thickness. The pages 24a-24h can be made from any conventional material such as cardboard, paper, laminated paper and foam, plastic, fabric or any other desired material. The text can convey information relating to one or more of the model components 28a-28h, to the model assembly 22, or any other desired information.

[0017] FIG. 2 is a perspective view of the book 20 in FIG. 1 opened to the first page 24a. In this and certain other embodiments, when the book 20 is opened to the first page 24a, each of the model components 28a-28h remain combined to form the model assembly 22. The connectors 30a-30h each attach a respective one of the model components 28a-28h to a respective one of the pages 24a-24h.

[0018] Each of the connectors 30a-30g includes a first end 31a attached to a respective one of the pages 24a-24g, and a second end 31b attached to one or more of the components 28a-28g. In addition, each of the connectors 30a-30g may be located anywhere desired relative to the other connectors 30a-30g. For example, the connectors 30a-30g may be located to allow respective model components 28a-28h to combine with other model components 28a-28h when the book 20 is closed and to allow respective model components 28a-28g to be separated from the model assembly 22 as a reader turns the pages 24a-24g.

[0019] In this and certain other embodiments, connectors 30a, 30c and 30d each attach a respective model component 28a, 28c and 28d to a respective page 24a, 24c and 24d, and are vertically aligned relative to each other. Vertical alignment here means that as one views the first page 24a of the book 20, one sees the connector 30a that attaches the model component 28a to the first page 24a. The connectors 30c and 30d attached to the subsequent, respective pages are located behind the connector 30a, and are thus substantially hidden from the reader. Likewise, connectors 30e-30g (not shown in FIG. 2, but 30e is shown in FIG. 3) each attach a respective model component 28e-28g to a respective page 24e-24g, and are vertically aligned relative to each other. The vertical alignment allows the reader to more easily focus on the model components 28a-28h, and the remaining partially assembled model. That is, the connectors 30a-30g are located to minimize attention to them as the reader studies one or more model components 28a-28h and/or the model 22 or a portion of the model.

[0020] In addition, each of the connectors 30a-30g has a surface 31c that may include any desired image. For example, the surface 31c may be colored to reduce the probability that a reader's attention will be attracted to the connector, and thus away from the model component that the connector attaches to the page. Or, the surface 31c may include text (not shown) to compliment the model component that the connector attaches to the page or to compliment information provided elsewhere in the book 20. Or, the surface may include a graphic (not shown here but shown in FIGS. 4 and 5) to compliment the model component that the connector attaches to the page or to compliment information provided elsewhere in the book 20.

[0021] In this and certain other embodiments, the connector 30c includes a graphic 32 (shown in FIGS. 4 and 5) that compliments the model component 28h on another, subsequent page 24h. This may be desirable when a model com-

ponent **28h** is viewable before the reader reaches the page **24h** that the model component **28h** is attached to, and the connector **30c** of the model component **28c** that is connected to the currently exposed page **24c** obstructs a portion of the model component **28h**. For example, as shown in FIGS. 4 and 5, in this and certain other embodiments, the connector **30c** that attaches the pelvis **28c** to page **24c** includes a graphic of a portion of the circulatory system **28h**.

[0022] In this and certain other embodiments, each of the connectors **30a-30g** include cardboard, and are made by stamping a sheet of cardboard with a die appropriately profiled to leave the connector and respective model component extending from the page. In other embodiments, one or more connectors **30a-30g** can be made from any conventional material such as metal wire or rod, resilient rubber or plastic, or any other desired material strong enough to support one or more model components that the connectors attach to a respective page. Furthermore, in other embodiments, one or more of the connectors **30a-30g** and/or respective model components **28a-28h** may be attached to the page and connector, respectively, by any desired conventional technique, such as gluing with an adhesive.

[0023] FIGS. 3 and 4 are partial, perspective views of a respective one of the book's pages (**24a** in FIG. 3, and **24b** in FIG. 4) and the remaining, subsequent pages of the book **20** in FIGS. 1 and 2, according to an embodiment of the invention. FIG. 3 shows the first page **24a** of the book **20** following the cover, while FIG. 4 shows the second page **24b**.

[0024] As discussed elsewhere herein, each of the model components **28a-28h** are attached to respective pages **24a-24h** so that as a reader turns succeeding pages **24a-24h**, the model assembly **22** is disassembled in layers. For example, in this and certain other embodiments, the model assembly **22** represents the human body and as the reader turns succeeding pages **24a-24h**, the human body is revealed in layers progressing from the portion of the model assembly **22** that represents the human anterior to the portion of the model assembly **22** that represents the human posterior. Starting with page **24a**, the first model component **28a** separated from the model assembly **22** is the component that represents anterior muscles of a left arm and anterior muscles of a left leg. Then, as the reader turns the next page **24b**, the next model component **28b** separated from the model assembly **22** is the component that represents bones of the right arm and bones of the right leg.

[0025] Each of the model components **28a-28h** represents either a whole element of the book's subject or a portion of an element. For example, in this and certain other embodiments, the model component **28a** represents a portion of the human muscular system. Specifically, the model component **28a** represents the anterior muscles of the left arm and left leg. In this specific embodiment, none of the other model components **28b-28h** represent another portion of the human muscular system. The model component **28b**, however, represents a portion of the human skeletal system, and the model component **28c** represents other portions of the skeletal system. Specifically, the model component **28b** represents bones of the right arm and right leg, the model component **28c** represents bones of the pelvis and rib cage. The model component **28d** represents human intestines.

[0026] FIG. 5 is a perspective view of a component of the model assembly **22** shown in FIGS. 1-4, according to an embodiment of the invention.

[0027] Each of the model components **28a-28h** may have any desired shape. For example, one or more of the components **28a-28h** may be flat and shaped in two dimensions to resemble the element of the book's subject that the model

component represents. In this and certain other embodiments, each of the model components **28a-28g** has a thickness **34** that is the same thickness as the respective page **24a-24g** that they are attached to, and a periphery **36** that defines the two-dimensional shape of the respective model components **28a-28g**. More specifically, the model component **28d** has a periphery **36** that is similar to the periphery of human intestines as disposed in a human body. Likewise, the model components **28a**, **28b**, and **28c** (FIGS. 3 and 4) each has a periphery that is similar to the periphery of the respective human anatomy that each represents. In addition, other embodiments of the model components **28a-28g** may be thicker and/or thinner than the respective page **24a-24g** that they are attached to.

[0028] By having a two-dimensional shape that is similar to the shape of the respective element of the book **20**, the identity of the element represented by each model component **28a-28h** can be more easily recognized by a reader. Furthermore, the spatial relationship of each element relative to other elements of the book's subject is more easily conveyed to the reader, and thus implied and/or inferred information from the relative spatial relationships are also easily conveyed to the reader.

[0029] Still referring to FIG. 5, each of the model components may include any desired image. For example, one or more of the model components **28a-28h** may have a surface that includes a graphic to further identify the element of the book's subject that the one or more model components **28a-28h** represent. In this and certain other embodiments, each of the model components **28a-28g** has a surface that includes a graphic. More specifically, the model component **28d** has a surface **38** that includes a graphic **40** that is an image of human intestines. Likewise, the model components **28a**, **28b**, and **28c** (FIGS. 3 and 4) each has a surface that includes a graphic that is an image of the respective human anatomy that each of the components **28a**, **28b**, and **28c** represents.

[0030] Still referring to FIG. 5 each of the model components **28a-28h** may include any desired material. For example, in this and certain other embodiments, each of the model components **28a-28h** include cardboard. In other embodiments the model components **28a-28h** may include conventional plastic, metal or fabric and can be formed using conventional molding techniques.

[0031] FIG. 6 is a perspective view of another book **50** that includes a model assembly **52**, according to another embodiment of the invention. In this and certain other embodiments, the book **50** may include a page **54a** that includes a profiled edge **56** defining a cut-out that lies adjacent to a model component **58a** but does not surround the component. For example, a page may have a surface area that is approximately half of the surface area of a subsequent page **54b**. Furthermore, in this and certain other embodiments, one or more of the model components, one of which is referred to in FIG. 6 as **58e** can be hingedly attached to a respective one of the pages **54a-54h** via a flap **62**.

[0032] Still other embodiments are possible. For example, the book **50** may include a page (not shown) that is not bound to the other pages at the spine **60**, but rather, is bound to respective one or more other pages at a binding axis (not shown) that is not at the spine **60**. For example, a page and another page may be hingedly attached to each other to form a binding axis that is substantially perpendicular to the spine **60**. In another example, the binding axis (not shown) can be oriented relative to the spine **60** at any desired angle other than 90 degrees. In yet another example, one or more of the model components may be hingedly attached directly to a respective one of the pages **54a-54h**.

What is claimed is:

- 1. A book, comprising:
  - a plurality of pages bound together; and
  - a plurality of model components that, when the book is closed, combine to form a model assembly that represents a subject of the book, the plurality of model components includes:
    - a first flat model component attached to one of the pages, wherein the first model component represents an element of the book's subject and has a two-dimensional shape similar to the shape of the element that the first model component represents, and
    - a second flat model component attached to another of the pages, wherein the second model component represents another element of the book's subject and has a two-dimensional shape similar to the shape of the element that the second model component represents.
- 2. The book of claim 1 wherein the subject of the book includes human anatomy.
- 3. The book of claim 1 wherein the subject of the book includes human anatomy and the elements of the book's subject include the intestines and the circulatory system.
- 4. The book of claim 1 wherein the subject of the book includes human anatomy and the elements of the book's subject include a portion of the muscular system and a portion of the skeletal system.
- 5. The book of claim 1 wherein:
  - the first model component represents muscles in the right arm and the right leg of a human; and
  - the second model component represents bones in the left arm and the left leg of a human.
- 6. The book of claim 1 wherein the first model component's two-dimensional shape is defined by the first model component's periphery.
- 7. The book of claim 1 wherein each of the plurality of model components represents a respective element of the book's subject, and has a two-dimensional shape similar to the shape of the respective element that the model component represents.
- 8. The book of claim 1 wherein the first model component includes a graphic that represents the element of the book's subject that the first model component represents.
- 9. The book of claim 1 wherein, when the book is closed, each of the plurality of model components is disposed above and/or below the immediately adjacent model component.
- 10. The book of claim 1 further comprising a connector that attaches the first model component to the component's respective page.
- 11. The book of claim 1 further comprising a connector that attaches the first model component to the component's respective page, and that includes a graphic for obscuring the appearance of the connector.
- 12. The book of claim 1 further comprising a connector that attaches the first model component to the component's respective page, and that includes a black surface for obscuring the appearance of the connector.
- 13. The book of claim 1 further comprising a connector that attaches the first model component to the component's respective page, and that includes a graphic for complimenting another of the plurality of model components.
- 14. The book of claim 1:
  - further comprising a connector that attaches the first model component to the component's respective page, and that includes a graphic; and

wherein:

- the first model component represents intestines of a human
- the second model component represents a portion of the circulatory system of a human, and
- the graphic represents a portion of the portion of the circulatory system represented by the second model component.
- 15. The book of claim 1 wherein at least one of the model components is hingedly attached to the component's respective page.
- 16. The book of claim 1 wherein at least one of the plurality of pages includes a profiled edge located such that, when the book is closed, the profiled edge is adjacent the model assembly.
- 17. The book of claim 1 further comprising:
  - a flap hingedly attached to one of the pages, and
  - a connector that attaches the first model component to the flap.
- 18. A book, comprising:
  - a plurality of pages bound together;
  - a plurality of model components that, when the book is closed, combine to form a model assembly that represents a subject of the book, the plurality of model components includes:
    - a first model component that is flat and is attached to one of the plurality of pages, wherein the first model component represents an element of the book's subject and has a two-dimensional shape similar to the shape of the element that the first model component represents, and
    - a second model component that is flat and is attached to another of the plurality of pages, wherein the second model component represents another element of the book's subject and has a two-dimensional shape similar to the shape of the element that the second model component represents; and
  - a plurality of connectors, each attaching a respective one of the plurality of model components to a respective one of the plurality of pages, the plurality of connectors includes:
    - a first connector that attaches the first model component to the first model component's respective page, and
    - a second connector that attaches the second model component to the second model component's respective page, and is disposed underneath the first connector, when the book is closed.
- 19. The book of claim 18, wherein, the first connector covers more than half of the second connector.
- 20. The book of claim 18, wherein, the first connector covers all of the second connector.
- 21. The book of claim 18, wherein:
  - the plurality of model components includes a third model component, and
  - the first connector includes a graphic that compliments the third model component.
- 22. The book of claim 18, wherein:
  - the plurality of model components includes a third model component, and
  - the first connector includes text that compliments the third model component.

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