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(54) **CUSTOMIZABLE SPORTING EQUIPMENT COVER AND METHOD OF MANUFACTURE**

(52) **U.S. Cl. 150/154; 700/119; 206/315.1**

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(57) **ABSTRACT**

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A sporting equipment cover consisting of a custom three-dimensional printed figurehead attached to a cover portion. The printed figurehead is fabricated from a three-dimensional scanned image of an individual using a three-dimensional ink jet printing process. The printed figurehead can be coated with one or more layers of a clear protective coating to increase the longevity of the printed figurehead. A mounting flange is formed about a mounting edge of the three-dimensional printed figurehead. The mounting flange is attached to the cover portion using a mounting bracket, a mechanical fastener, or other fastening interface. The cover portion can be designed to cover any sporting equipment, including golf clubs, racquets, etc. Alternatively, the printed figurehead can be a complete head and attached using a bobble head styled interface.

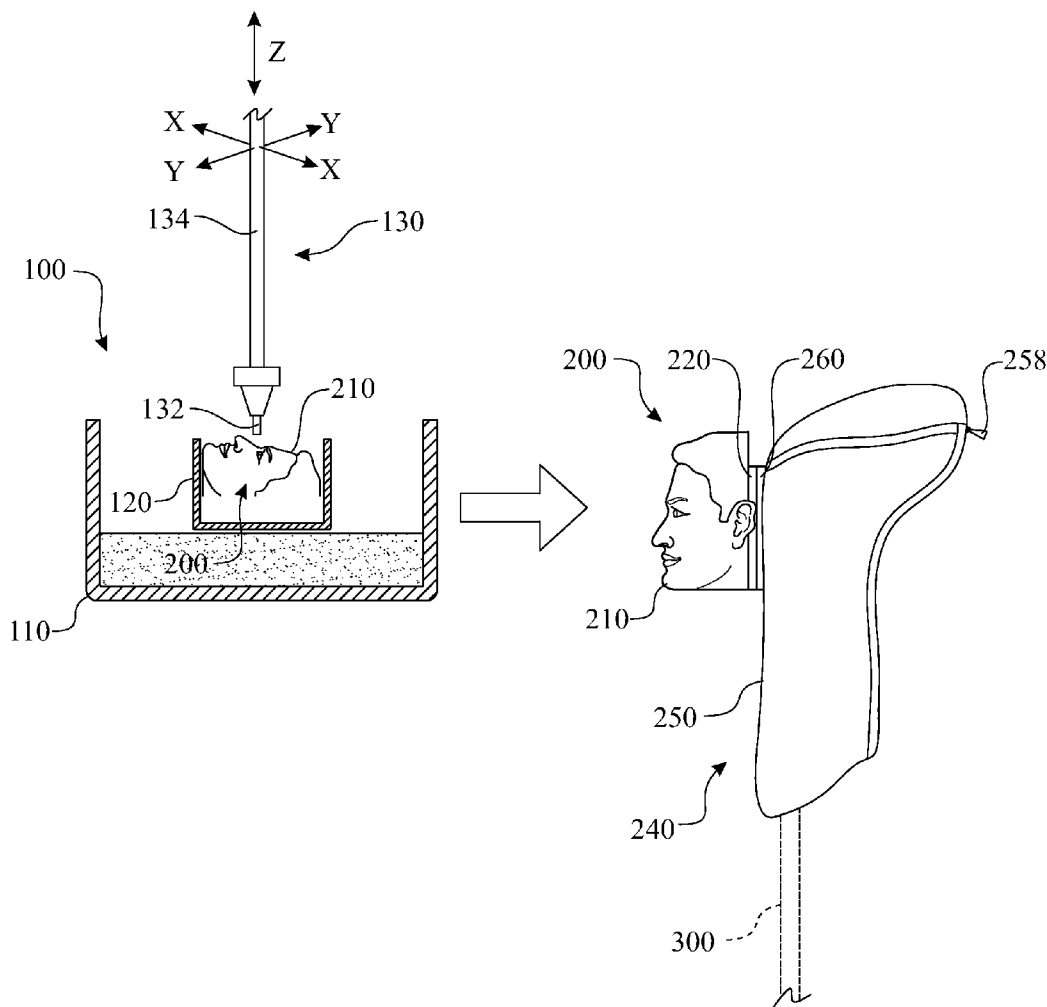
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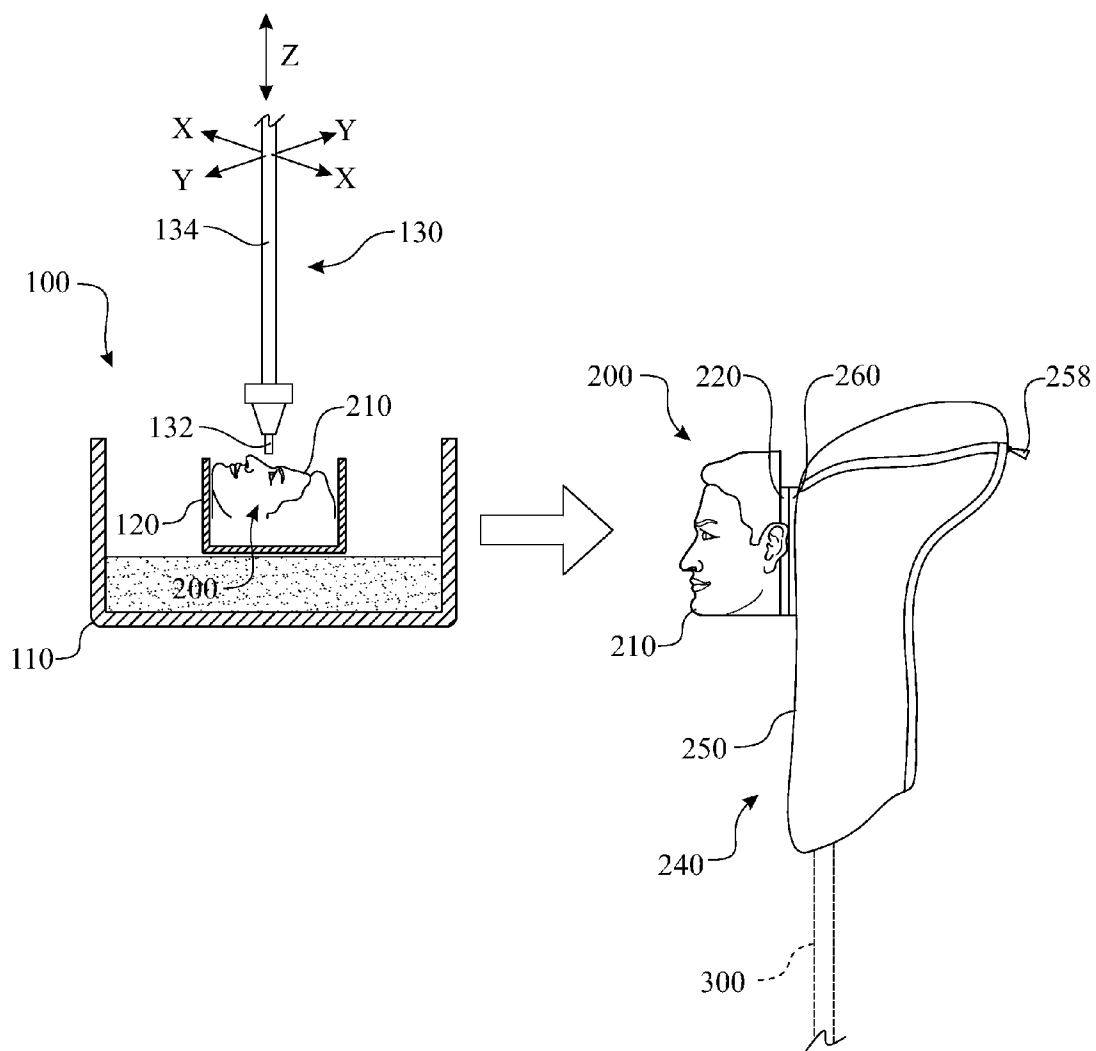


FIG. 1

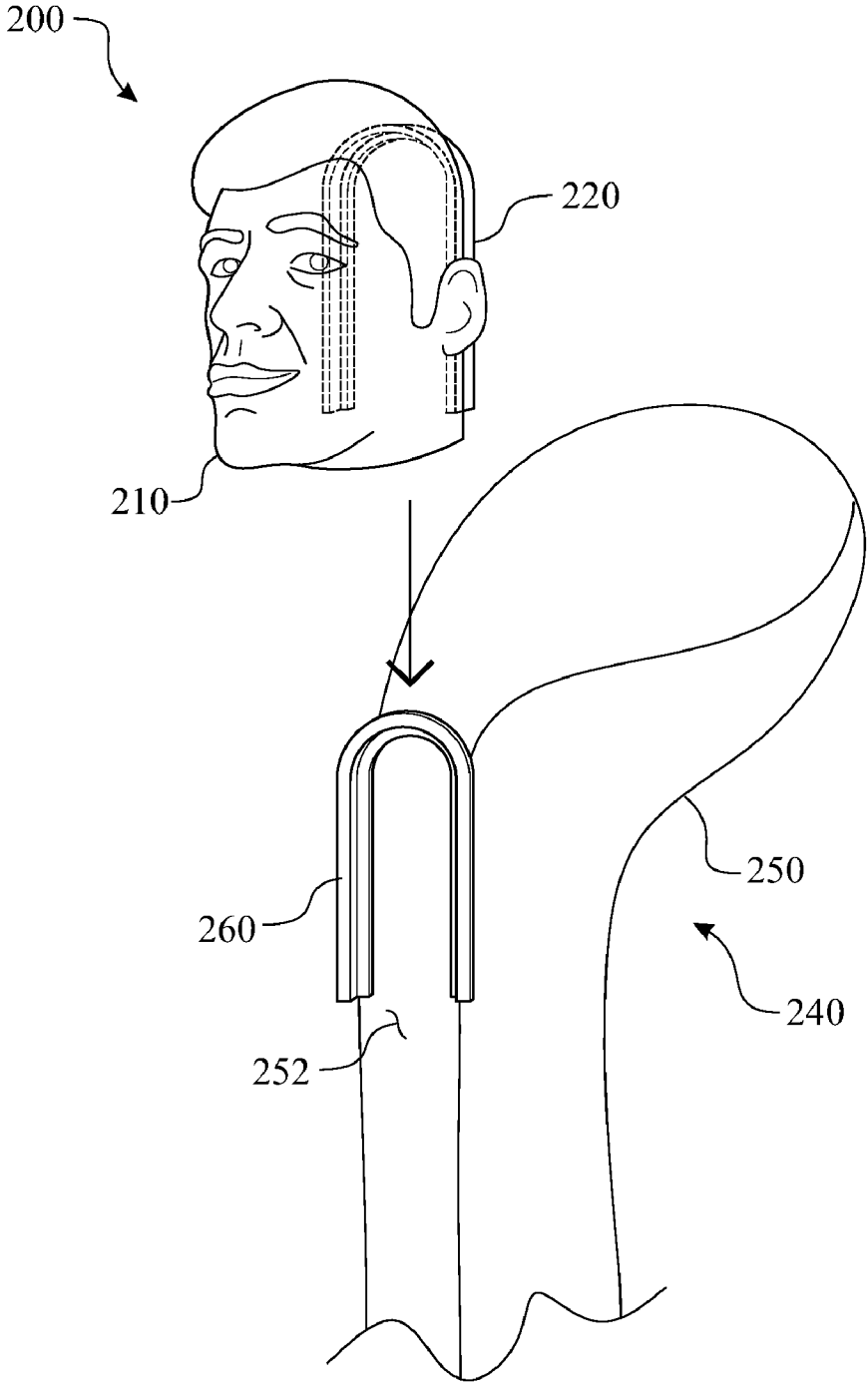


FIG. 2

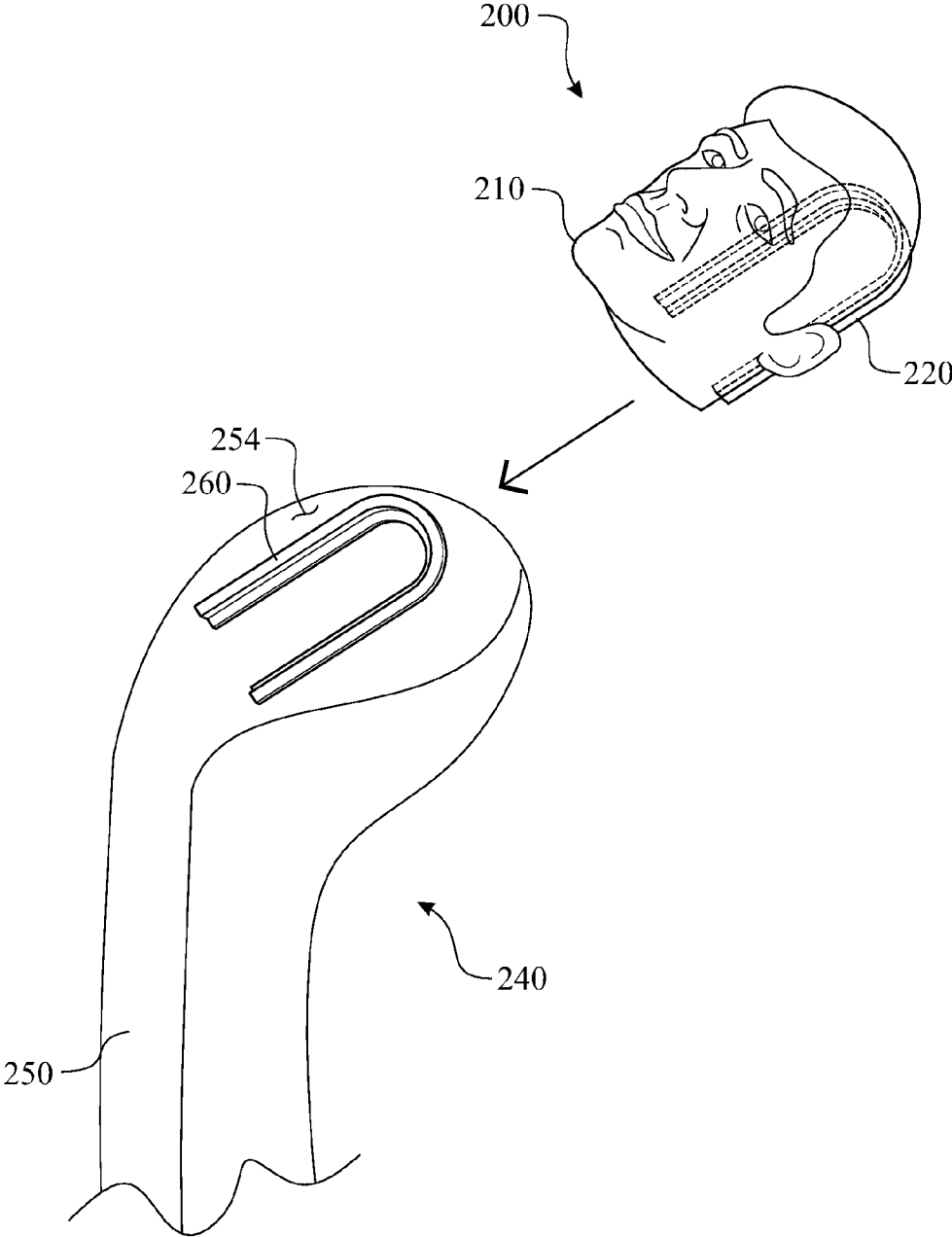


FIG. 3

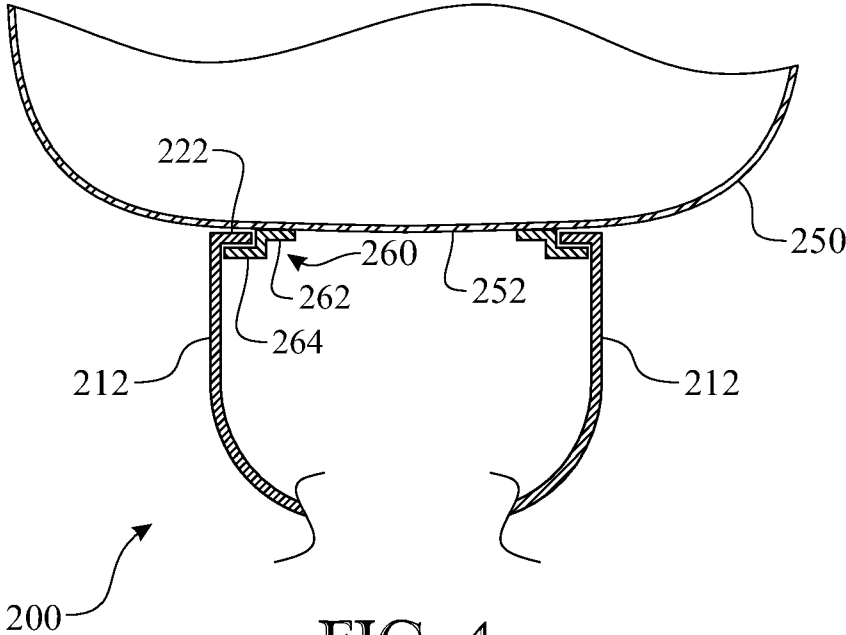


FIG. 4

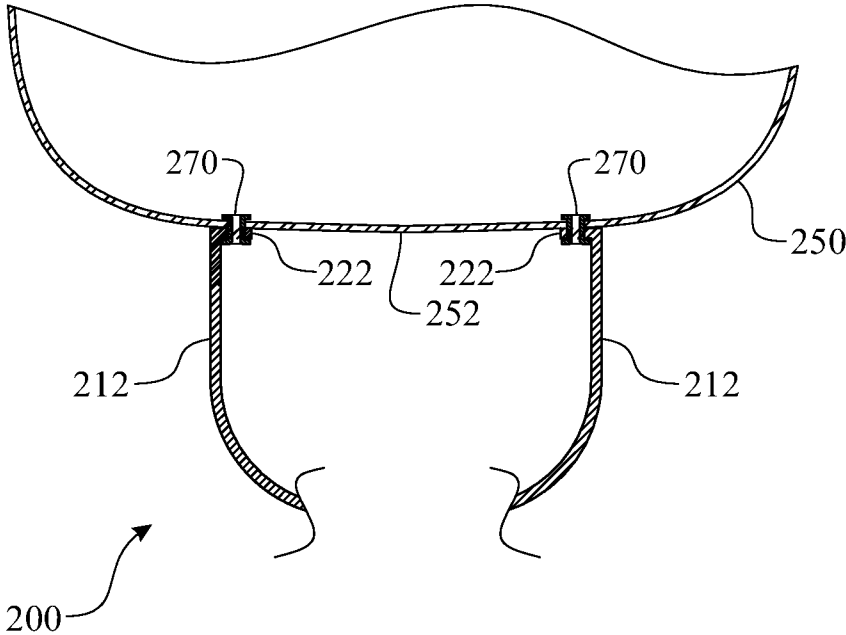


FIG. 5

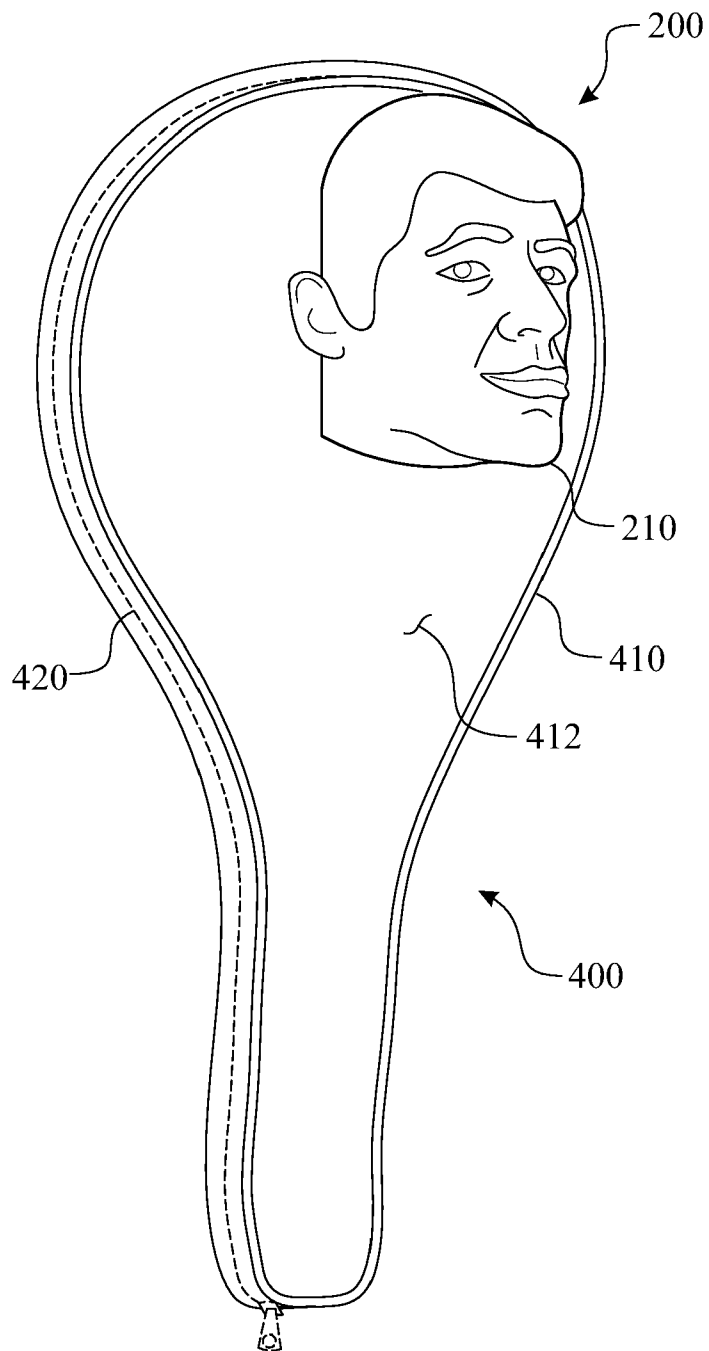


FIG. 6

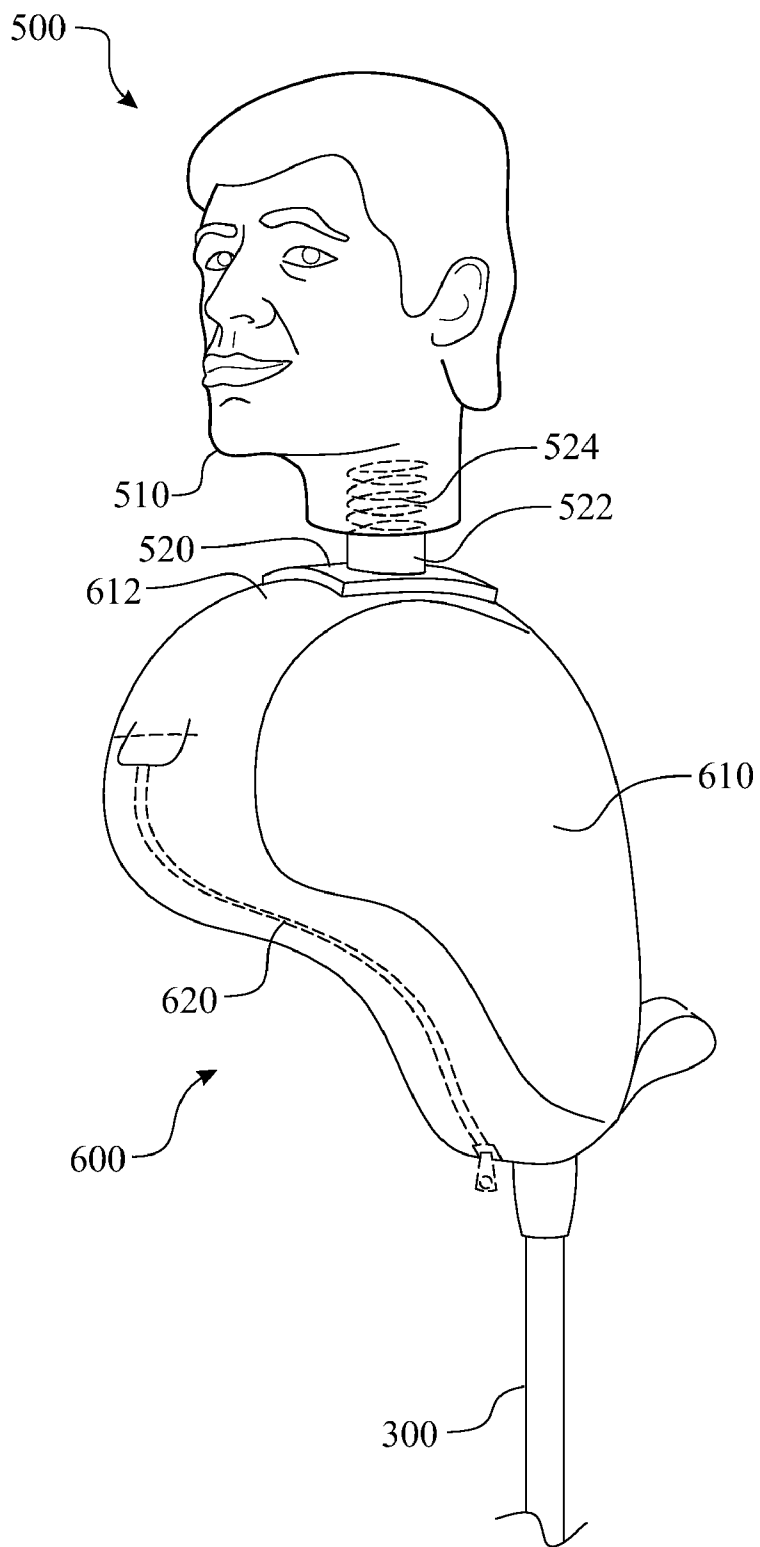


FIG. 7

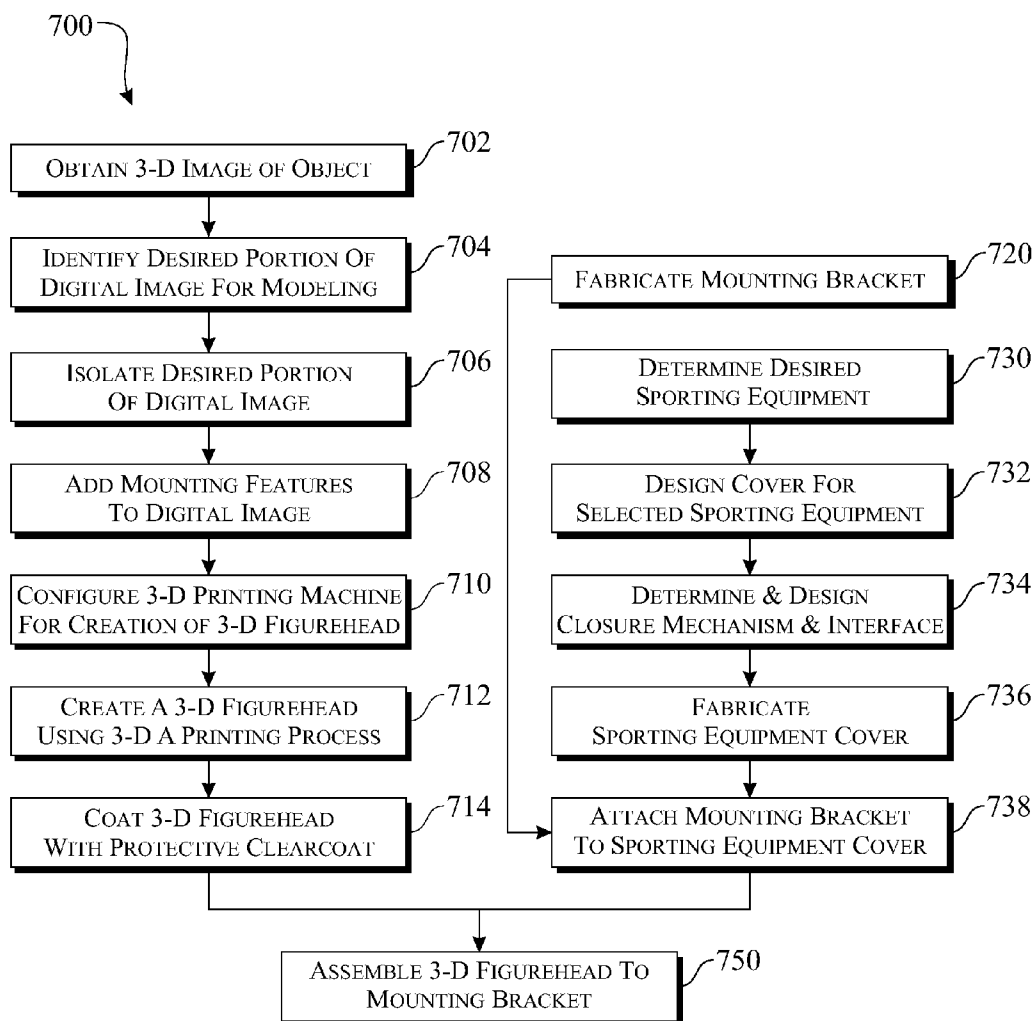


FIG. 8

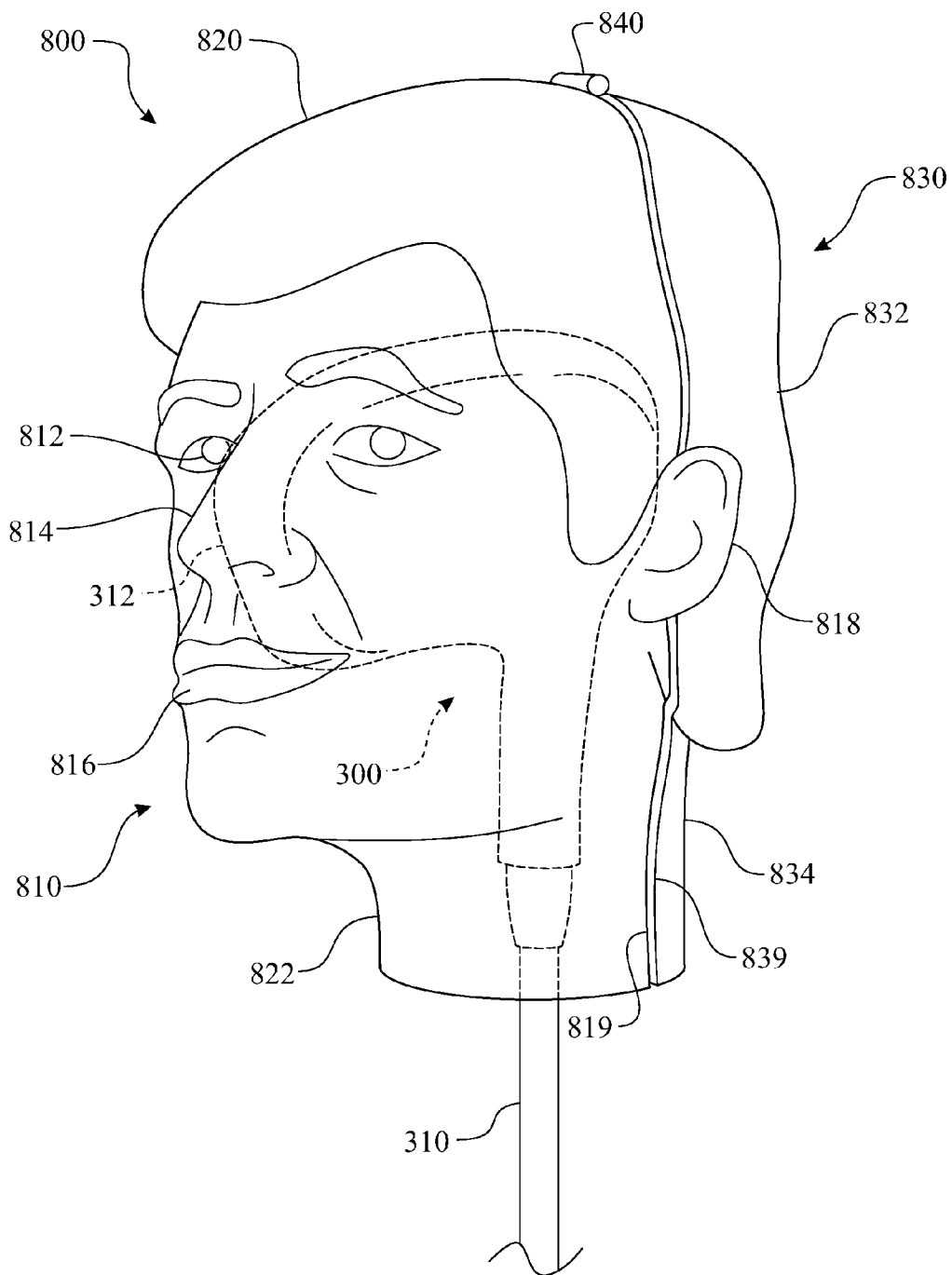


FIG. 9

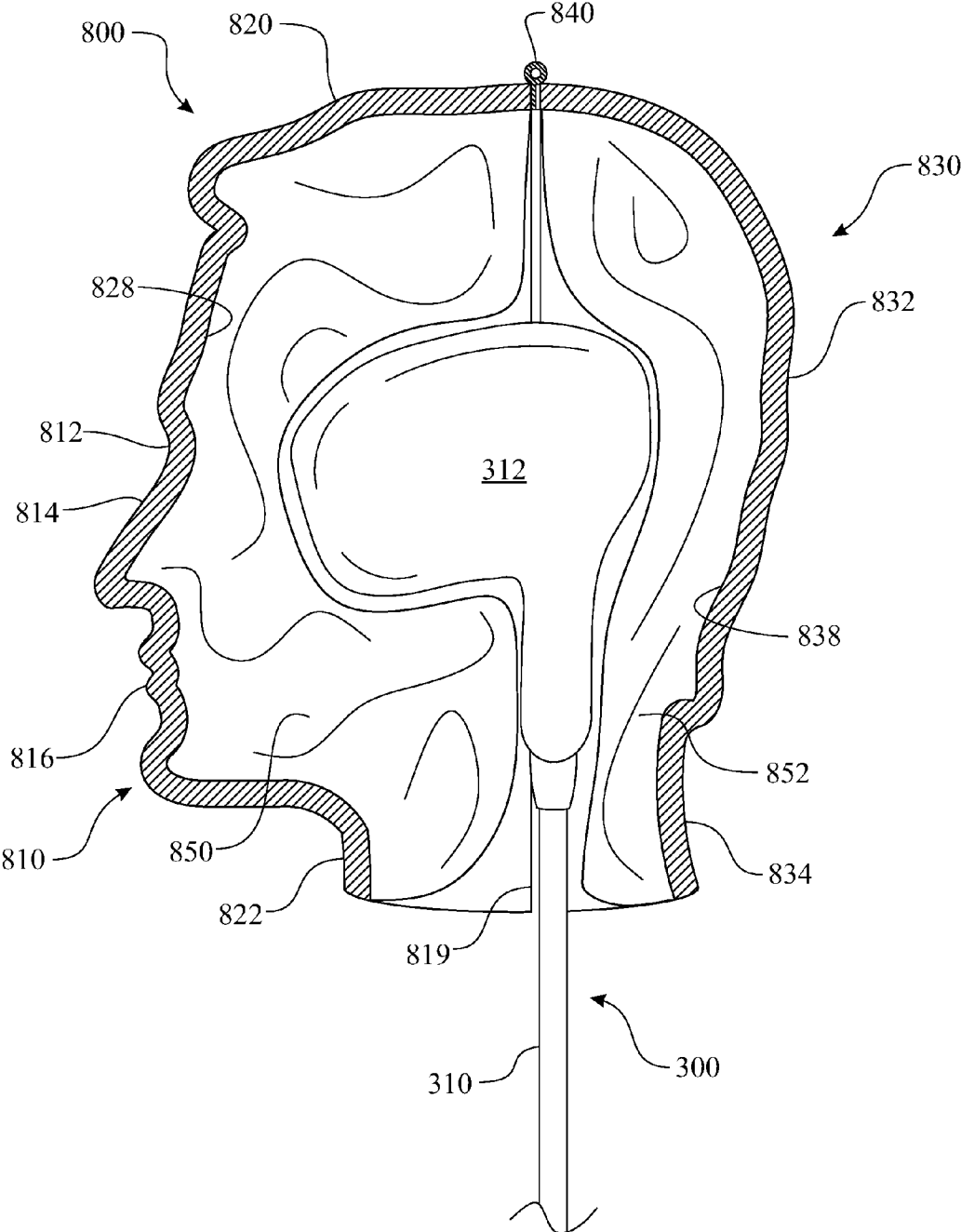


FIG. 10

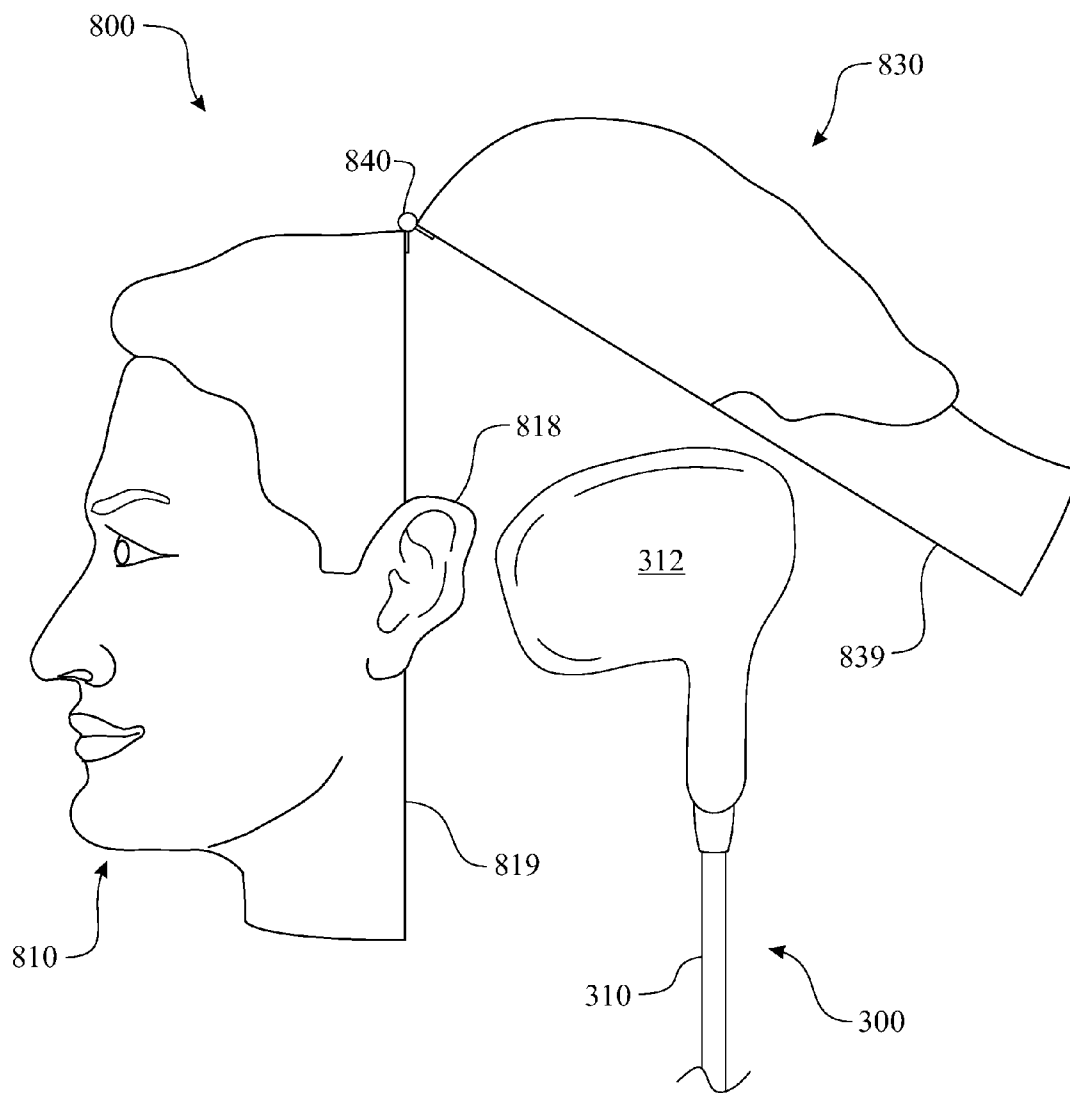


FIG. 11

CUSTOMIZABLE SPORTING EQUIPMENT COVER AND METHOD OF MANUFACTURE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This Non-Provisional Utility application claims the benefit of co-pending U.S. Provisional Patent Application Ser. No. 61/474,533, filed on Apr. 12, 2011, which is incorporated herein in its entirety.

FIELD OF THE INVENTION

[0002] The present disclosure generally relates to a sporting goods cover having a customized figurehead attached thereto and a method of manufacturing the apparatus. More specifically, the figurehead is fabricated replicating an individual or animal using a three-dimensional printing machine and attaching the custom fabricated figurehead to a sporting goods cover.

BACKGROUND OF THE INVENTION

[0003] Sporting equipment is commonly protected by a cover when not in use. Several examples include covers for golf club heads, tennis racquets, and the like. The covers are offered for sale to consumers in a variety of designs, colors, and materials to distinguish the covers from other available covers. The covers are fabricated of a material, such as fabric, vinyl, leather, a knit, plastic, a composite, and the like.

[0004] Sportspersons have a tendency to personalize their equipment. This includes locating a cover or series of covers that compliment the personality of the sportsperson. The sporting equipment covers currently offered are manufactured using common production techniques resulting in a potential for two sportspeople having the same covers.

[0005] An exemplary method of personalizing a sporting equipment cover is to monogram the covers.

[0006] Therefore, a manufacturing process and resulting sporting equipment covers that are unique and personalized is highly desired.

SUMMARY OF THE INVENTION

[0007] The present disclosure is generally directed to adorned covers for sports equipment, including but not limited to golf club covers, tennis racquet covers, and the like.

[0008] A first aspect of the present invention provides a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head, the sports equipment cover assembly comprising:

[0009] a flexible first covering constructed for being snugly fitted over an end portion of said sports equipment;

[0010] a unitary three-dimensional article comprised of a plurality of successively joined particles of material creating a front facial portion contoured to match said facial features and contours of said corresponding preselected actual human or animal head, via a three-dimensional digital file representative of said preselected actual human or animal head and respective three-dimensional printing process; and

[0011] a mechanical attachment interface for attaching said unitary three-dimensional article to said flexible first covering, in a manner wherein said unitary three-dimensional article is prominently displayed when said sports equipment cover assembly is disposed upon said end portion of said sports equipment.

[0012] In a second aspect, the custom three-dimensional figurehead is fabricated using anythree-dimensional rapid prototyping machine to provide a custom three-dimensional figurehead representative of the three-dimensional object. The three-dimensional object can be scanned, computer generated, and the like.

[0013] In another aspect, the custom three-dimensional figurehead is fabricated using an inkjet three-dimensional printing machine to provide a custom three-dimensional figurehead having a color pattern matching the scanned three-dimensional object.

[0014] In another aspect, the custom three-dimensional figurehead can be fabricated replicating a facial portion of an individual.

[0015] In another aspect, the custom three-dimensional figurehead can be fabricated replicating a facial portion of an animal.

[0016] In another aspect, the attachment interface utilizes a plurality of mechanical fasteners. It is understood that any mechanical fastener can be utilized. The mechanical fasteners can be selected from an exemplary group of mechanical fasteners; the exemplary mechanical fasteners group comprising grommets, rivets, dense hook and loop tape, adhesive, and ultrasonic welding.

[0017] In another aspect, the attachment interface can utilize a mechanical coupling interface such as a mounting flange and a respective mounting bracket.

[0018] In another aspect, the mechanical coupling interface can be provided having an inverted "U" shape.

[0019] In another aspect, the mounting flange can be integrated into a unitary construction of the custom three-dimensional printed figurehead.

[0020] In another aspect, the custom three-dimensional figurehead can be fabricated replicating a complete head of an individual.

[0021] In another aspect, the custom three-dimensional figurehead can be fabricated replicating a complete head of an animal.

[0022] In another aspect, the custom three-dimensional figurehead can be attached to the cover portion using a spring resembling a bobble head.

[0023] In another aspect, the lifespan of the custom three-dimensional figurehead can be enhanced by applying one or more coatings of a protective material thereon. The preferred embodiment would be a clear coating.

[0024] In another aspect, the protective coating can be applied using a spray application, a dipping application, a brushed application, or the like.

[0025] In another aspect, the figurehead can comprise a complete hollow head, including a facial portion, a rear portion, and a cavity therein for receiving a golf club or other sports equipment.

[0026] In another aspect, the facial portion and the rear portion can be hingeably attached.

[0027] In another aspect, the facial portion and the rear portion can be two separate components that are detachably latched together via a mechanical interface.

[0028] In another aspect, a filler material is disposed within an interior of the complete hollow head. The filler material can be shaped to receive a specifically shaped golf club head (or other sporting equipment device) or be fabricated of a pliant material capable of conforming to the subject equipment.

[0029] In another aspect, the figurehead can be shaped and colored using any shaping and coloring processes. Examples of methods include: hand carving and hand painting, machine carving, three-dimensional printing, and the like. The customer would submit one or more color images of a desired head. The figurehead would be shaped and colored in a likeness of the submitted images. The figurehead would be adapted to act as a protective and/or decorative portion of a sporting goods equipment cover.

[0030] These and other features, aspects, and advantages of the invention will be further understood and appreciated by those skilled in the art by reference to the following written specification, claims and appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] The invention will now be described, by way of example, with reference to the accompanying drawings, where like numerals denote like elements and in which:

[0032] FIG. 1 presents an exemplary block diagram representing a manufacturing process for fabricating a sports equipment cover having a custom three-dimensional printed figurehead;

[0033] FIG. 2 presents an isometric view detailing an exemplary assembly process for assembling the custom three-dimensional printed figurehead to a first exemplary location upon the sports equipment cover portion;

[0034] FIG. 3 presents an isometric view detailing an exemplary assembly process for assembling the custom three-dimensional printed figurehead to an alternative exemplary location upon the sports equipment cover portion;

[0035] FIG. 4 presents a sectioned top view detailing a first exemplary assembly interface for assembling the custom three-dimensional printed figurehead to the sports equipment cover portion;

[0036] FIG. 5 presents a sectioned top view detailing a second exemplary assembly interface for assembling the custom three-dimensional printed figurehead to the sports equipment cover portion;

[0037] FIG. 6 presents an isometric view of an alternate exemplary sports equipment cover having the custom three-dimensional printed figurehead carried thereon;

[0038] FIG. 7 presents an isometric view detailing an exemplary assembly interface for assembling the custom three-dimensional printed figurehead to the sports equipment cover portion utilizing a bobble head interface;

[0039] FIG. 8 presents a flow diagram representing an exemplary manufacturing process;

[0040] FIG. 9 presents an isometric view of another exemplary sports equipment cover utilizing a complete figurehead, the figurehead being sectioned into a facial section and a rear section;

[0041] FIG. 10 presents a side sectioned view of the sports equipment cover introduced in FIG. 9; and

[0042] FIG. 11 presents a side view of the sports equipment cover introduced in FIG. 9, the illustration demonstrating one exemplary opening element.

[0043] Like reference numerals refer to like parts throughout the various views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

[0044] The following detailed description is merely exemplary in nature and is not intended to limit the described embodiments or the application and uses of the described

embodiments. As used herein, the word “exemplary” or “illustrative” means “serving as an example, instance, or illustration.” Any implementation described herein as “exemplary” or “illustrative” is not necessarily to be construed as preferred or advantageous over other implementations. All of the implementations described below are exemplary implementations provided to enable persons skilled in the art to make or use the embodiments of the disclosure and are not intended to limit the scope of the disclosure, which is defined by the claims. For purposes of description herein, the terms “upper,” “lower,” “left,” “rear,” “right,” “front,” “vertical,” “horizontal,” and derivatives thereof shall relate to the invention as oriented in FIG. 1. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, brief summary or the following detailed description. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification, are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

[0045] A golf club cover assembly 240 or any other sporting equipment cover can be ornated by the attachment of a custom three-dimensional printed figurehead 200. The exemplary custom three-dimensional printed figurehead 200 is fabricated using a three-dimensional printed figurehead shaped and colored replicating an individual’s face. The custom three-dimensional printed figurehead 200 would include common facial features, including a pair of eyes, a nose, a mouth, a chin, cheeks, a forehead, a lower jaw line, eyebrows, hair, and optionally a pair of ears, depending on the desired percentage of the face to be modeled.

[0046] The fabrication process of the custom three-dimensional printed figurehead 200 is detailed in the exemplary custom three-dimensional figurehead adorned sporting equipment cover flow diagram 700 presented in FIG. 8. The fabrication process is additionally illustrated in the exemplary block diagram presented in FIG. 1. The fabrication process initiates with a step of obtaining a three-dimensional digital image of an individual’s face or head (block 702). The data can be obtained using any three-dimensional scanner or by converting one or more pictures into a three-dimensional digital format. The pictures can be scanned or entered in any other manner into a system, where software receives the images, digitizes the images, and utilizes the digitized information to generate a database representative of a three-dimensional object. The designer determines the desired portion of the three-dimensional digital object that is to be modeled and affixed to a golf club cover 250 of a golf club cover assembly 240 (block 704). The database for the three-dimensional digital object is digitally modified to isolate the desired portion of the three-dimensional digital object to be modeled (block 706). The three-dimensional digital object can be modeled as a solid object or hollowed where the contour of the object is formed upon a shell. The wall thickness of the shell can be adjusted for longevity and reliability considerations. The modified three-dimensional digital object is then perfected for assembly to the golf club cover 250 by adding a figurehead mounting feature 220 to a mounting edge of the modified three-dimensional digital object (block 708). The perfected three-dimensional digital object is

configured into a print directing digital format and transferred to a three-dimensional printing machine **100** (block **710**).

[0047] The three-dimensional printing machine **100** creates the custom three-dimensional printed figurehead **200** using a three-dimensional printing process (block **712**), such as via a three-dimensional inkjet printer. Although other three-dimensional printing processes can be employed, inkjet printing offers some additional benefits and is therefore presented herein as an exemplary embodiment. Ink jet printing was developed utilizing printer and plotter technique involves shooting tiny droplets of ink on paper to produce graphic images. Rapid prototyping ink jet techniques utilize ink jet technology to shoot droplets of liquid-to-solid compound and form a layer of a rapid prototyping model. Several common ink jet printing techniques include Sanders ModelMaker™, Multi-Jet Modeling™, Z402 Ink Jet System™, and Three-Dimensional Printing. The created custom three-dimensional printed figurehead **200** is then coated with a protective layer or a plurality of layers of a protectant (block **714**). The protectant can be any coating that is compatible with the material and coloring inks of the printed custom three-dimensional printed figurehead **200**. The preferred embodiment would apply at least one layer of a clear protectant. The coating may be applied using a spray on process, a dipping process, a brush on process, or the like.

[0048] The three-dimensional printing machine **100** includes a print head assembly **130**. The print head assembly **130** includes a print head **132** carried by a print head controller **134**. The print head controller **134** is programmably positioned along an X-axis and a Y-axis by any reasonable positioning system. The print head controller **134** can be programmably positioned along a Z-axis when necessary for creating the custom three-dimensional printed figurehead **200**. A work piece support tray **120** is placed upon or within a printing machine base **110**. The print head **132** shoots droplets of a liquid-to-solid compound into material contained within the work piece support tray **120**. The droplets of a liquid-to-solid compound combine with the powder contained within a work piece support tray **120** to build up and form the custom three-dimensional printed figurehead **200**. The process includes and injects a coloring medium during the printing process, allowing the generation of a colored three-dimensional likeness of the scanned individual's face or head. The fabrication process creates various printed figurehead facial features **210** upon the custom three-dimensional printed figurehead **200**. The design and fabrication process additionally integrates a figurehead mounting feature **220** with the custom three-dimensional printed figurehead **200**. In the exemplary embodiment, the figurehead mounting feature **220** is formed in a shaped of a mounting flange **222**. It is understood that the three-dimensional printing machine **100** can include a plurality of print head assemblies **130** and respective work piece support trays **120** for fabricating a respective plurality of custom three-dimensional printed figureheads **200**. The print head assemblies **130** can be controlled individually or in unison to replicate a plurality of the same design or create a series of unique designs simultaneously.

[0049] Alternative three-dimensional rapid prototyping processes can be utilized to create the custom three-dimensional printed figurehead **200**. These can include stereolithography (SLA), selective laser sintering (SLS), fused deposition modeling (FDM), laminated object manufacturing (LOM), and electron beam melting (EBM). It is understood that each

of these processes has advantages and disadvantages that would be considered when determining the actual process used. An example of an available machine for accomplished the manufacturing task for fabricating the custom three-dimensional printed figurehead **200** is the Designjet 3D. The Designjet 3D is based on Stratasys's Fused Deposition Modeling (FDM) technology, which turns three-dimensional CAD drawings into tangible prototypes by extruding partially molten ABS plastic in extremely fine layers one atop the other, forming the entire 3-D model in a single piece from the ground up. The equipment is offered in a standard model, which prints in ivory-colored plastic and a color version, which is capable of printing single-color parts in up to eight different colors.

[0050] A golf club cover assembly **240** is fabricated during a separate process (blocks **730**, **732**, **734**, **736**, **738**). The golf club cover assembly **240** comprises a mounting bracket **260** attached to a golf club cover **250**. Initially, the manufacturing company determines the sporting equipment that the manufacturer will be offering golf club cover assemblies **240** for (block **730**). The golf club cover assemblies **240** are designed respective to the selected sporting equipment (block **730**). The designer considers the shapes; sizes, colors, materials, and the like for the golf club cover assembly **240**. The designer considers a form factor and integration design for a closure **258** (block **734**). In the exemplary illustration, the closure **258** is a zipper. Those practiced in the art will understand that any closure **258** can be utilized, including a dense hook and loop tape interface, a frog and loop closure, a hook and eye closure, a tie, a button and buttonhole, and the like.

[0051] Upon conclusion of the design phase of the golf club cover assembly **240**, the manufacturer fabricates the golf club cover assembly **240** accordingly (block **736**). Any manufacturing process suited for the design can be utilized to fabricate the golf club cover assembly **240**. This includes sewing, adhesive, molding, riveting, grommets, ultrasonic welding, and the like, and any combination thereof.

[0052] The mounting bracket **260** is designed to mate with the figurehead mounting feature **220**. The mating between the figurehead mounting feature **220** and mounting bracket **260** can be permanent or removable allowing the consumer the ability to change the custom three-dimensional printed figurehead **200** as desired. The mounting bracket **260** is fabricated in accordance with any manufacturing means capable of creating mounting bracket **260** that is suited to mate with the figurehead mounting feature **220** (block **720**). In the exemplary embodiment, the mounting bracket **260** is shaped to engage with the mounting flange **222**. The mounting bracket **260** is preferably fabricated using a plastic injection molding process. Those practiced in the art can appreciate the mounting bracket **260** can be fabricated of any reasonable material and respective manufacturing process. The completed mounting bracket **260** are generally fabricated in bulk and transferred to a location for assembly to the golf club cover **250**. The mounting bracket **260** can be attached to the golf club cover **250** using any attachment mechanism, including adhesive, stitching, grommets, rivets, and the like. The attachment mechanism is selected based upon comfort to the user, cost, ease of assembly, compatibility with the interface between the figurehead mounting feature **220** and the mounting bracket **260**, and the like.

[0053] The finished custom three-dimensional printed figurehead **200** is attached to the finished golf club cover **250** by engaging the figurehead mounting feature **220** and the mount-

ing bracket **260** together. The interface between the figurehead mounting feature **220** and the mounting bracket **260** can be made permanent with the inclusion of an adhesive, a mechanical fastener, and the like. Alternatively, the figurehead mounting feature **220** can be removably attached from the mounting bracket **260** with the inclusion of a temporary restraining feature such as a detent, a biased latch, and the like.

[0054] Details of the present invention and design alternatives are presented in FIGS. **1** through **7**. The custom three-dimensional printed figurehead **200** can be assembled to any reasonable location on the golf club cover **250**. A first exemplary location is a vertical planar surface **252** of the golf club cover **250** as illustrated in FIG. **2**. A second exemplary location is an upper planar surface **254** of the golf club cover **250** as illustrated in FIG. **3**.

[0055] The assembly of the custom three-dimensional printed figurehead **200** to the golf club cover **250** can be accomplished using any reasonable assembly interface. A mounting flange **222** is integrated into the shape of the custom three-dimensional printed figurehead **200**, wherein the exemplary mounting flange **222** extends inward from a mounting edge of a figurehead sidewall **212** of the custom three-dimensional printed figurehead **200**. In a first exemplary assembly interface, the mounting flange **222** is secured to the golf club cover **250** using the mounting bracket **260** as illustrated in FIG. **4**. The exemplary mounting bracket **260** is formed in a modified “Z” shape, including a mounting bracket cover attachment flange **262** for attachment to the attachment surface **252** and a mounting bracket figurehead attachment flange **264** for engagement with the mounting flange **222**. Although the exemplary mounting bracket **260** is illustrated in an inverted “U” shape, the mounting bracket **260** can be provided in any continuous shape or provided in a plurality of segmented sections suitable for receiving the mounting flange **222**.

[0056] It is understood that the custom three-dimensional printed figurehead **200** can be any reasonable size respective to the golf club cover **250**. The custom three-dimensional printed figurehead **200** can be shaped to optimize form, fit, function, and flow with the golf club cover **250**.

[0057] An alternative to the engaging mechanical interface would be an attachment fastener as presented in the exemplary illustration shown in FIG. **5**. An attachment fastener **270** can be inserted through the golf club cover **250** and an aperture provided through the mounting flange **222** to permanently attach the custom three-dimensional printed figurehead **200** to the attachment surface **252**. Although the exemplary attachment fastener **270** is a grommet, it is understood that the attachment fastener **270** can be any reasonable mechanical interface, including rivets, adhesive, dense hook and loop tape interface, and the like.

[0058] The initial illustrations present a golf club cover assembly **240** for use with a golf club **300**. The present invention can be adapted to a cover design for use with any sporting equipment having a surface suited for receiving the custom three-dimensional printed figurehead **200**. A second exemplary embodiment is a racquet cover assembly **400**, illustrated in FIG. **6**. The racquet cover assembly **400** includes a racquet cover **410** having an attachment surface **412**. A cover closure **420** is integrated into the racquet cover **410** providing a means for adapting the racquet cover assembly **400** for insertion of at least a portion of the sporting equipment therein, and subsequently securing the racquet cover assembly **400** thereto. In

the exemplary illustration, the cover closure **420** is a zipper. Those practiced in the art will understand that any closure **420** can be utilized, including a dense hook and loop tape interface, a frog and loop closure, a hook and eye closure, a tie, a button and buttonhole, and the like. The custom three-dimensional printed figurehead **200** is attached to the attachment surface **412** using any of the attachment interfaces presented in the golf club cover embodiment previously described herein.

[0059] The above presented embodiments present a custom three-dimensional printed figurehead **200** being rigidly fixed to the cover **250**, **410**. In an alternative embodiment, a custom three-dimensional printed figurehead **500** can be moveably attached to a golf club head cover **610** using a spring **524** as illustrated in FIG. **7**. Since the mounting interface extends from a base section of the head, the custom three-dimensional printed figurehead **500** is fabricated replicating an entire head, including printed figurehead facial features **510** representative of the individual’s face, and preferably including a portion of the individual’s neck. Although it is preferred to use a replication of an entire head, it is understood that the custom three-dimensional printed figurehead **500** can be fabricated including any reasonable portion thereof.

[0060] The golf club head cover assembly **600** is fabricated including a cover closure **620** integrated into a golf club head cover **610**, similarly to the golf club cover assembly **240** previously presented. The golf club head cover **610** includes a figurehead attachment surface **612** for attachment of the custom three-dimensional printed figurehead **500**. A spring mount base **520** includes a spring attachment feature **522**. The spring mount base **520** is attached to the figurehead attachment surface **612** using any reasonable attachment means, including adhesive, mechanical fasteners, and the like. A spring **524** provides a moveable assembly interface between the custom three-dimensional printed figurehead **500** and the spring attachment feature **522** creating a bobble head effect.

[0061] Another exemplary embodiment is referred to as an encapsulating figurehead club cover **800**, which is shown in an isometric view of a storage configuration in FIG. **9**, a side sectioned view of a stored configuration in FIG. **10**, and a side view of an opened configuration in FIG. **11**.

[0062] The encapsulating figurehead club cover **800** is fabricated having a figurehead facial portion **810** and a figurehead rear portion **830**. The figurehead facial portion **810** and figurehead rear portion **830** are shaped using the three-dimensional printing machine **100** as described above or any other known custom shaping process. The shaping process would create common facial features onto the figurehead facial portion **810**, including a pair of figurehead eyes **812**, a figurehead nose **714**, figurehead lips **816**, and a pair of figurehead ear **818**. A frontal neck section **822** is preferably incorporated into the design, wherein the frontal neck section **822** extends downward providing an extension for partially covering portions of the golf club shaft **310** of the golf club **300**. This can provide additional support to the encapsulating figurehead club cover **800** and protection to the golf club **300**. Additional features, such as cheeks, a chin, a forehead, and the like would also be shaped onto the figurehead facial portion **810** accordingly. Figurehead hair **820**, including facial hair, would be included in the process. It is noted that the software may generate a fabrication routine based upon the facial features **812**, **814**, **816**, **818** and hair **820** using separate routines. The

figurehead rear portion **830** would be shaped in a similar manner, including figurehead rear hair **832** and a rear neck section **834**.

[0063] The figurehead facial portion **810** and the figurehead rear portion **830** can be shaped as a unitary structure and subsequently separated to provide unity between the two sections. The figurehead facial portion **810** and figurehead rear portion **830** would include a front portion mating edge **819** and a rear portion mating edge **839** respectively, wherein the figurehead facial portion **810** and the figurehead rear portion **830** mate along the front portion mating edge **819** and the rear portion mating edge **839**. The front portion mating edge **819** and rear portion mating edge **839** can be separately joined in any manner known by those skilled in the art. In one exemplary joining configuration, the figurehead facial portion **810** and figurehead rear portion **830** can be pivotally attached by a connecting hinge **840** as shown. In the pivotal configuration, the connecting hinge **840** can be located at any reasonable location, wherein the exemplary embodiment locates the connecting hinge **840** along an upper mating edge. Another joining configuration can secure the front portion mating edge **819** and the rear portion mating edge **839** to one another using snap tabs. Yet another joining configuration can secure the front portion mating edge **819** and the rear portion mating edge **839** to one another using a section of a magnetized material and a mating section of magnetic material. Yet another joining configuration can secure the front portion mating edge **819** and the rear portion mating edge **839** to one another using a section of strapping material such as a ribbon comprising a dense hook and loop tape.

[0064] The figurehead facial portion **810** and figurehead rear portion **830** are fabricated having a hollowed interior volume for receiving and encasing a golf club head **312**. The hollowed interior volume of the figurehead facial portion **810** is defined by a figurehead facial portion interior surface **828**. The hollowed interior volume of the figurehead rear portion **830** is defined by a figurehead rear portion interior surface **838**. A frontal portion filler material **850** can be inserted within the hollowed interior volume of the figurehead facial portion **810**. Similarly, a rear portion filler material **852** can be inserted within the hollowed interior volume of the figurehead rear portion **830**. The filler material **850**, **852** can be provided in any of a variety of materials and shapes to support and protect the golf club head **312**. In one embodiment, the filler material **850**, **852** can be formed to contour to an exterior shape of the golf club head **312**. In one embodiment, the filler material **850**, **852** can be fabricated of a pliant material enabling the filler material **850**, **852** to conform to the exterior shape of the golf club head **312**. The filler material **850**, **852** can be fabricated of foam, spun material (such as spun polyester), pliant plastic, formed plastic or nylon, and the like. It is understood that the filler material **850**, **852** can include a spring, creating a bobble head effect upon the golf club head **312**.

[0065] It is understood that alternate embodiments of the figurehead rear portion **830** can be utilized; wherein the figurehead rear portion **830** can be any shape and material suitable for partially or completely enclosing a rear portion of the encapsulating figurehead club cover **800**. The rear portion can provide access to the interior void by any reasonable closure, including a zipper, a dense hook and loop tape, a magnetic closure, standard hook and loops, buttons and buttonholes, a tie closure, and the like. The figurehead rear portion **830** would be designed to optimize the ease of entry and removal

of the golf club head **312** from the interior of the encapsulating figurehead club cover **800**.

[0066] The exterior surface of the figurehead facial portion **810** and figurehead rear portion **830** are finished adding color to reflect the likeness of the individual. Any additional features may be added to the encapsulating figurehead club cover **800** as desired. One example would be an addition of actual or artificial hair.

[0067] The concept of the present invention provides a custom apparatus tailored towards an individual. The custom three-dimensional printed figurehead **200**, **500**, **800** can be of the individual, a family member, a friend, a pet or other animal, or the like. The three-dimensional ink jet printing process provides a manufacturing method, which replicates an object in a three-dimension model, including color. The process can create a one-off unique design to distinguish the sporting equipment cover **240**, **400**, **600** from any others. The fabrication of the custom three-dimensional printed figurehead **200**, **500**, **800** can be completed at retail locations such as kiosks.

[0068] Those practiced in the art will understand that the custom three-dimensional printed figurehead **200**, **500**, **800** can also be attached to any other object, including hand mirrors, hair brushes, key chains, school backpacks, hats, and the like. The custom three-dimensional printed figurehead **200**, **500**, **800** would be attached to the respective object in a manner suited for each individual application.

[0069] Those skilled in the art can appreciate that the three-dimensional figurehead **200**, **500**, **800** can be fabricated using other custom fabrication techniques. The three-dimensional figurehead **200**, **500**, **800** can be fabricated using automated machining or carving techniques, hand carving, and the like to replicate a three dimensional shape based upon an image or series of images. The interior space can be created by any known process to remove unwanted material from a mass of material. Alternatively, the three-dimensional figurehead **200**, **500**, **800** can incorporate the interior space during the fabrication steps.

[0070] Since many modifications, variations, and changes in detail can be made to the described preferred embodiments of the invention, it is intended that all matters in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense. Thus, the scope of the invention should be determined by the appended claims and their legal equivalence.

What is claimed is:

1. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head, the sports equipment cover assembly comprising:

- a flexible first covering constructed for being snugly fitted over an end portion of said sports equipment;
- a unitary three-dimensional article comprised of a plurality of successively joined particles of material creating a front facial portion contoured to match said facial features and contours of said corresponding preselected actual human or animal head, via a three-dimensional digital file representative of said preselected actual human or animal head and respective three-dimensional printing process; and
- a mechanical attachment interface for attaching said unitary three-dimensional article to said flexible first covering, in a manner wherein said unitary three-dimen-

sional article is prominently displayed when said sports equipment cover assembly is disposed upon said end portion of said sports equipment.

2. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, the mechanical attachment interface further comprising:

an interface subassembly including a first interface subassembly portion fixedly attached to said exterior surface of said flexible first covering, and a second interface subassembly integrated with said three-dimensional article, wherein said first and second interface subassemblies can be selectively engaged with one another to attached said three-dimensional article to said flexible first covering, and can be selectively disengaged to remove said three-dimensional article therefrom.

3. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, the mechanical attachment interface further comprising at least one mechanical fastener.

4. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, the mechanical attachment interface further comprising a spring.

5. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, wherein said plurality of successively joined particles of material are colored in accordance with a color layout of said preselected actual human or animal head during said joining process to provide a colored three-dimensional article, wherein said coloring more clearly defines facial and head features of said unitary three-dimensional article.

6. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, said three-dimensional article further comprises a hollowed out interior forming an interior void.

7. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 1, said three-dimensional article further comprises at least one layer of clear protectant applied to an exterior surface thereof.

8. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head, the sports equipment cover assembly comprising:

a unitary three-dimensional article comprised of a plurality of successively joined particles of material creating a front facial portion contoured to match said facial features and contours of said corresponding preselected actual human or animal head, via a three-dimensional digital file representative of said preselected actual human or animal head and respective three-dimensional printing process

said unitary three-dimensional article having an exterior surface contour conforming to said contour of said pre-

selected actual head, and said article having an interior surface defining an interior cavity conforming to an exterior surface of said exposed end of said sports equipment such that said article fits snugly upon said exposed sports equipment end when said cover assembly is attached thereto.

9. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 8, said unitary three-dimensional article is sectioned into a figurehead facial portion and a figurehead rear portion, said figurehead facial portion comprising a front portion mating edge and said figurehead rear portion comprising a rear portion mating edge, wherein said front portion mating edge and said rear portion mating edge engage can be selectively engaged with one another to attached said three-dimensional article to said flexible first covering, and can be selectively disengaged to remove said three-dimensional article therefrom.

10. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 9, said unitary three-dimensional article further comprising a hinge provided between said front portion mating edge and said rear portion mating edge.

11. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 8, said unitary three-dimensional article further comprising a pliant material disposed within said article interior surface, wherein said pliant material is shaped conforming to an exterior surface of said exposed end of said sports equipment.

12. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 8, wherein said plurality of successively joined particles of material are colored in accordance with a color layout of said preselected actual human or animal head during said joining process to provide a colored three-dimensional article, wherein said coloring more clearly defines facial and head features of said unitary three-dimensional article.

13. A sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim 8, said three-dimensional article further comprises at least one layer of clear protectant applied to an exterior surface thereof.

14. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head, the method comprising steps of:

obtaining an image of one of a corresponding preselected actual human or animal head;

creating unitary three-dimensional article having a front facial portion contoured to match said facial features and contours of said corresponding preselected actual human or animal head;

defining a volumetric void for removable attachment of said unitary three-dimensional article to an end portion of said sports equipment; and

combining said unitary three-dimensional article and said volumetric void in a manner wherein said unitary three-dimensional article is prominently displayed when said end portion of said sports equipment is inserted into said volumetric void.

15. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **14**, the method comprising additional steps of:

forming a hollowed interior section of said unitary three-dimensional article, wherein said hollowed interior section defines an interior cavity that conforms to an exterior surface of said exposed end of said sports equipment such that said article fits snugly upon said exposed sports equipment end when said cover assembly is attached thereto.

16. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **14**, the method comprising additional steps of:

programming a three-dimensional printing device; and creating said unitary three-dimensional article using said three-dimensional printing device by successively joining particles of a material.

17. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **16**, the method comprising additional step of:

introducing color to said unitary three-dimensional article by applying color to said particles of a material during said step of successively joining particles of a material.

18. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional

head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **14**, the method comprising additional step of:

sectioning said unitary three-dimensional article into a figurehead facial portion and a figurehead rear portion, said figurehead facial portion comprising a front portion mating edge and said figurehead rear portion comprising a rear portion mating edge, wherein said front portion mating edge and said rear portion mating edge engage can be selectively engaged with one another to attached said three-dimensional article to said flexible first covering, and can be selectively disengaged to remove said three-dimensional article therefrom.

19. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **18**, the method comprising additional step of:

integrating an attachment interface between said front portion mating edge and said rear portion mating edge, wherein said attachment interface enables engagement and disengagement between said front portion mating edge and said rear portion mating edge.

20. A method of fabricating a sports equipment cover assembly displaying at least a portion of a three-dimensional head bearing striking similarity to one of a corresponding preselected actual human or animal head as recited in claim **14**, the method comprising additional steps of:

obtaining a sports equipment cover comprising said volumetric void; and

attaching said unitary three-dimensional article to said sports equipment cover in a manner wherein said unitary three-dimensional article is prominently displayed when said sports equipment cover assembly is disposed upon said end portion of said sports equipment.

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