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(54) Title: HEATER COVERS AND METHODS OF USING THE SAME

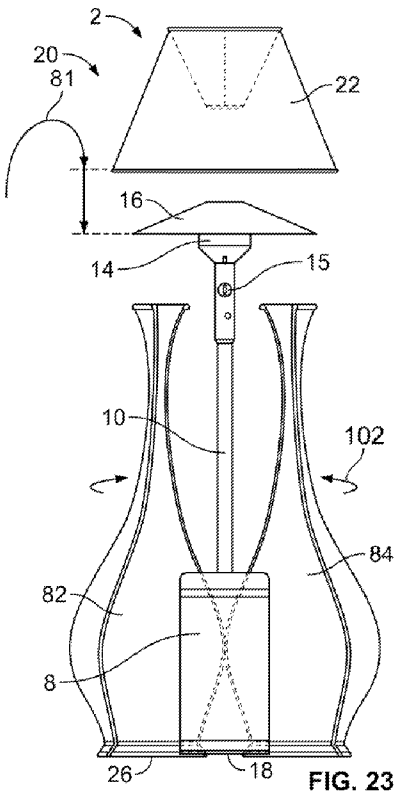


FIG. 23

(57) Abstract: Heater covers and methods of using the same are disclosed. The covers can be used on stand-type movable or fixed patio heaters or table top heaters. The covers can be removably attached to the heaters. The covers can have body covers separate or attached to head covers. The covers can be resilient or rigid. The rigid covers can have hinges and can clamshell or telescope around the heaters.

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TITLE OF THE INVENTION

HEATER COVERS AND METHODS OF USING THE SAME

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CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Application No. 60/968,019, filed 24 August 2007, which is herein incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] This invention relates to covers for heaters, such as stand-type gas or electric heaters, and methods of using the same. The heater can be, for example, a movable or fixed patio heater or table-top heater.

2. Description of Related Art

[0003] Typical tower heaters, such as those used for outdoor and patio use, have an appearance that is considered "industrial" and sterile by many. Some newer designs for tower heaters obstruct the typical "industrial" design, for example, providing the tower heater with the configuration of a palm tree, or other design. These alternate designs are permanently fixed to the heater. However, it is often desired to change the design of the heater without having to have separate heaters for each design or without having to incur the expense to purchase a new standup heater to change the design.

[0004] Tower heaters (e.g., patio heaters) are often used in public, residential, and commercial locales. For example, tower heaters are often located in outdoor seating areas at restaurants, in plazas, and outdoor malls; or by event planners or rental companies for functions or parties. These locations make the heaters optimum sites for advertising. However, the towers are often too thin and the heat shields of the heaters are too steep of an angle and its surface too hot to reasonably display advertising. The base is also well below eye level, so posting advertising on the base would be generally out of sight.

[0005] Therefore, replaceable and/or removable outer configuration for tower heaters is desired. Furthermore, a configuration of a heater and accompanying method for reasonably attaching a display to a tower heater is desired.

SUMMARY OF THE INVENTION

[0006] A device for camouflaging the mechanical structure of a tower (e.g., patio, outdoor) heater is disclosed. The device can be a cover or shell. The cover can have an assembly of, for example, two to four panels or "skins" or cover sections. The cover sections can be rigid or flexible. The cover sections can be rotatably attached to each other, for example via one or more rotatable hinges. The cover sections can be attached to the underlying mechanical structure of the tower heater in a "clamshell" fashion.

[0007] The cover can be constructed from one or more elements that extend longitudinally along the entire cover, or horizontally with the split occurring somewhere around the base and tower, or the cover can be made from a body cover and/or separate head cover. The body cover can have a tower cover and a separate base cover. The head cover can be a decorative "shade" or shield around the existing parabolic heat deflector (i.e., heat shield or heater head) at the top of the heater structure.

[0008] The head cover can have a cylindrical or a conical, square, polygonal, elliptical, hemispherical configuration or a partial configuration of any of the aforementioned configurations, or a combination of any of the configurations thereof. If the head cover has a conical or partial conical configuration, the angle of the cone with respect to the longitudinal axis of the heater can be from about 0° to about 45° +/- in either direction, more narrowly from about 0° to about 25° in either direction.

[0009] One or more displays can be attached to the heater head, tower, body, base, head cover, tower cover, base cover, body cover, or combinations thereof. The displays can have a flat or curved surface. The displays can form an angle with the longitudinal axis of the heater from about 0° to about 45° +/- in either direction, more narrowly from about 0° to about 25° in either direction.

[0010] The cover can be made from one or more rigid or semi rigid materials, for example thermoplastics (e.g., Polyethylene terephthalate (PET), Polyethylene (PE), Polypropylene (PP)), polycarbonates, or silicon or vinyl-base materials or EVA copolymers which may, for example, be blow, injection, or rotational molded, fiberglass reinforced polymers ("FRP" or fiberglass), resins, stamped or spun sheet metal, urethane over a formed metal structure, heat resistant fabrics stretched around a metal frame, or combinations thereof in smooth or textured finish. The material can be opaque, translucent or transparent. The cover can be made from materials that can be lightweight, suited for outdoor use, long

lasting, and have a durable finish in multiple colors. The cover can be made by being molded, for example roto-molded.

[0011] The cover sections can be attached to and detached from each other with mechanical hardware, such as one or more fasteners including quick release fasteners 70, one or more piece of hook and loop tape (e.g., Velcro); one or more piece of interlocking stem and head tape (e.g., Dual Lock from 3M Corporation of Minneapolis, MN), magnets, latches, clips, ties, hooks, locking pins, the ports and flanges to which they are to attach, and combinations thereof, for example applied on overlapping flanges (e.g., tongue-and-groove, guide-pins, grooves) or into ports of adjacent cover sections. The fasteners 70 can be locked, hooked, pressed, snapped or otherwise joined together into place.

[0012] The cover sections can be hinged together, for example in a clamshell fashion.

[0013] The cover sections can have horizontal seams. The horizontal seams can divide the cover sections into two or more section that can telescope or separate when moved relative to each other in a vertical direction. For example, a lower section can slide upwards, and may temporarily come to rest on the under structure of the patio heater column to gain access, for example, to the propane tank area, for example to service the propane tank area or replace the propane tank. The cover sections can be simply and repeatedly assembled, disassembled, and easily transported between locations, or stored by nesting the cover sections together.

[0014] The covers can have fluting or grooves, textures, appliqués, self-adhesive tape, and combinations thereof. For example, these features (e.g., fluting / grooves, textures, decorative rings, etc.) can hide joints between the cover sections while providing aesthetic design alternatives.

[0015] The head cover sections can be punctured, louvered, folded, made of metal mesh, or otherwise treated, for example to dissipate and/or collect and/or direct heat and/or to provide alternate aesthetics.

[0016] The head cover sections can be attached to and detached from the tower, head and base of the heater. The head cover sections can have or be attached to straps or spokes. For example, two to four or three to six straps or spokes can radially extend from the center of the heater. The straps or spokes can attach to the cover section (e.g., the head cover or the body cover). Mechanical quick-release fasteners 70 can attach the cover sections to the heater head or body (e.g., tower or base). The fasteners 70 can thermally insulate the cover sections from the heater head or body. The thermal insulators can be spacers and/or a layer of thermal insulating material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Figure 1 illustrates a variation of a stand-type tower propane heater, not the invention.

[0018] Figure 2 illustrates a variation of the heater cover.

[0019] Figure 3 is a partial see-through view of the heater cover of Figure 2 attached to the heater of Figure 1.

[0020] Figures 4a through 4p illustrate the heater with variations of the heater cover.

[0021] Figure 4p' illustrates a close-up view of the head of the heater of Figure 4p.

[0022] Figure 4q illustrates the heater with a variation of the heater cover.

[0023] Figure 4q' illustrates a close-up view of the head of the heater of Figure 4q.

[0024] Figure 4r illustrates the heater with a variation of the heater cover.

[0025] Figure 4r' illustrates a close-up view of the head of the heater of Figure 4r.

[0026] Figures 5a through 5c and 6 illustrate the heater with variations of the heater cover that can be articulated.

[0027] Figures 7, 8a and 8b illustrate variations of the heater with multiple heater heads and variations of the heater cover.

[0028] Figures 9a through 9d illustrate variations of signage on the heater with a variation of the heater cover.

[0029] Figures 10a, 10b and 10c illustrate front, front three-quarters, and side views, respectively, of the heater with a variation of the heater cover having variations of signage.

[0030] Figures 11 through 14 and 15a illustrate variations of the heater cover having variations of signage.

[0031] Figures 15b and 15c illustrate variations of the heater cover of Figure 15a with one or more signs.

[0032] Figure 16 illustrates a variation of an uncovered tower heater, not the invention.

[0033] Figure 17 illustrates a variation of the heater cover.

[0034] Figure 18 illustrates the heater cover of Figure 17 attached to the heater of Figure 16 with the body cover shown as a sectional view for illustrative purposes.

[0035] Figure 19 is a top view of a variation of attaching the body cover to the base and tower.

[0036] Figure 20 is a top view of a variation of the head cover on the heater head.

[0037] Figure 21 illustrates a variation of an uncovered tower heater, not the invention.

[0038] Figure 22 illustrates a variation of the heater cover in an opened configuration.

[0039] Figure 23 illustrates a variation of a method for attaching the heater cover of Figure 22 attached to the heater of Figure 21.

[0040] Figure 24 is a top view of a variation of opening the body cover.

[0041] Figure 25 is a top view of a variation of attaching the body cover to the body.

[0042] Figures 26 and 27 illustrate variations of the cover hinge.

[0043] Figure 28 illustrates a variation of the heater cover.

[0044] Figure 29 illustrates a variation of cross-section A-A of Figure 28.

[0045] Figure 30 illustrates the heater cover in the cross-section A-A of Figure 29 in a disassembled configuration.

[0046] Figure 31 illustrates a close-up of a portion of the cover in the cross-section A-A of Figure 30.

[0047] Figure 32a is a side view of a variation of the heater cover in a closed configuration on the heater.

[0048] Figure 32b is a variation of close-up view B-B of Figure 32a.

[0049] Figure 32c is a see-through schematic view of a variation of the heater cover and heater of Figure 32a.

[0050] Figure 32d is a variation of close-up view C-C of Figure 32c.

[0051] Figure 33a is a side view of a variation of the heater cover in an open configuration on the heater.

[0052] Figure 33b is a see-through schematic view of a variation of the heater cover and heater of Figure 33a.

[0053] Figure 33c is a variation of close-up view D-D of Figure 33a.

[0054] Figure 34 illustrates a variation of a fastener in an unfastened configuration.

[0055] Figure 35 illustrates a variation of a method for using the fastener of Figure 34.

[0056] Figures 36 and 37 illustrate variations of a fastener.

[0057] Figure 38 illustrates a variation of a method for using the fastener of Figure 36.

[0058] Figure 39 illustrates a variation of a fastener.

[0059] Figure 40 illustrates a variation of a fastener second element.

[0060] Figure 41 illustrates a variation of a method for using a fastener.

[0061] Figure 42 illustrates a portion of a variation of the body cover showing a fluted surface that can visually obscure or disguise one or more seams.

[0062] Figure 43 illustrates a variation of a method for using a fastener.

[0063] Figure 44 illustrates a variation of a method for using a fastener.

[0064] Figure 45 illustrates a portion of a variation of the body cover closed using the fasteners of Figure 44.

[0065] Figures 46 and 47 illustrate a variation of a method for using a fastener.

[0066] Figure 48 illustrates a perspective view of a variation of Figure 47.

[0067] Figures 49 and 50 are top and side views, respectively, of a variation of a method of using a fastener.

[0068] Figures 51 and 52 are top and side views, respectively, of a variation of a method of using a fastener.

[0069] Figures 53 and 54 are top and side views, respectively, of a variation of a method of using a fastener.

[0070] Figures 55 through 59 each illustrate variations of methods using variations of the fastener.

[0071] Figures 60 and 61 are top and side views, respectively, of a variation of a method of using a fastener.

[0072] Figures 62 and 63 are top and side views, respectively, of a variation of a method of using a fastener.

DETAILED DESCRIPTION

[0073] Figure 1 illustrates that a patio or other outdoor tower heater **2** can have a body **4** and a heater head **6**. The body **4** can have a base **8** and a tower **10**. The base **8** can hold or otherwise be connected to a fuel source, such as a propane tank or a hose and connection to a natural gas outlet, or a generator (e.g., solar, gas) or electrical outlet (e.g., for an electrical heater). The tower **10** can extend from the base **8** vertically along a longitudinal axis **12**. The heater **2** can have a heat emitter **14**, for example at the top of the tower **10**. The heater **2** can have one or more controls **15**, for example, to alter the quantity of heat emitted from the heat emitter **14** and to turn the heat emitter **14** on and off.

[0074] The heater **2** can have a heater head **6**. The heater head **6** can be attached to or integral with the top of the tower **10**. The heater head **6** can have a heat shield **16**. The heat shield **16** can extend radially from the longitudinal axis **12**. The heat shield **16** can slope downward. The heat emitter **14** can be in the heater head **6** or the body **4**, depending on the configuration of the particular heater **2**. The heat shield **16** can partially or completely overlap the heat emitter **14** in the longitudinal direction.

[0075] The base **8** can have a base ground plate **18** on the bottom of the base **8**. The base ground plate **18** can be a stable foundation against the ground. The base **8** can have

wheels (not shown), for example to adjust or otherwise alter the location of the heater **2**. Figure 1 is not the invention. The base **8** can house and/or be a propane, butane, methane or other fuel tank. The fuel tank can be connected to a conduit connected, for example through the tower **10,** to the heat emitter **14**.

[0076] Figure 2 illustrates that a heater cover **20** can have a head cover **22** and a body cover **24**. The head cover **22** can be attached or detached from the body cover **24**. The head cover **22** can be directly attached or detached from the heater head **6** and/or heat shield **16** and/or heat emitter **14**. The head cover **22** can partially or completely obscure the head **6** and/or heat shield **16** and/or heat emitter **14** from view of bystanders at various distances and angles to the heater. The head cover **22** can have a completely or partially conical configuration (e.g., a cone with the top cut-off and no base **2**). The cover can have a cover ground plate **26** on the bottom of the body cover **24**. The cover can have a port in the bottom of the body cover **24** to allow the base **8** and/or base ground plate **18** to exit the body cover **24** and rest on the ground, floor, or other foundation platform.

[0077] Figure 3 illustrates that the heater cover **20** can substantially cover or otherwise surround the heater **2**. The head cover **22** can partially or completely surround the heat shield **16**. The head cover **22** can be attached to the heater head **6**, the heat shield **16**, the tower **10**, the body cover **24**, or combinations thereof.

[0078] The body cover **24** can partially or completely surround the heater body, for example the tower **10** and/or the base **8**.

[0079] The bottom of the head cover **22** can be lower than the bottom of the heat emitter **14** by a heater cover overhang **28**. The heater cover overhang **28** can be from about 15 (–6 in.) (e.g., when the bottom of the head cover **22**\is higher than the bottom of the heat emitter **14**) to about 30 cm (12 in.), for example about 5 cm (2 in.), or 10 cm (4 in.), or 15 cm (6 in.).

[0080] A cover gap **30** can be between the bottom of the head cover **22** and the top of the body cover **24**. The cover gap **30** can be from about 30 cm (–12 in.) (e.g., cover overlap) to about 61 cm (24 in.), more narrowly from about 0 cm (0 in.) to about 41 cm (16 in.), for example about 10 cm (4 in.).

[0081] The head cover **22** can have a head cover slope **32** angle with respect to the longitudinal axis **12**. The head cover slope **32** angle can be from -60° to about 75°, for example about 30° or about 0°. In some variations, the head cover slope **32** angle can be from about -60° to about -10°, more narrowly from about -45° to about -15°, for example

about 30°. In other variations, the head cover slope **32** can be from about 0° to about 75°, more narrowly from about 15° to about 60°, for example about 45°.

[0082] Figure 4a illustrates that the base cover **34** can be fixedly or removably attached to the tower cover **36** at a joint **38**. The base cover **34** can be longitudinally asymmetrical and bulbous. The tower cover **36** can be elongated. The base cover **34** can be configured to slide upwards at joint 38 telescoping onto tower cover 36, temporarily made to rest on the under structure of tower **10**, for example in order to provide servicing access, for example, to the propane tank of the base **8**. For shipping and storage, the cover 36 can slide into the cover 34 in order to reduce the combined volume. The joint 38 can be located higher or lower than shown, for example about 24" to about 37" from the ground. The covers 34 and 36 can each be made in one, two, or more pieces permanently or semi-permanently joined to form each lower or upper cover. The heater cover **20** can be opaque, translucent, transparent, or combinations thereof.

[0083] Figure 4b illustrates that the base cover **34** can be integral with the tower cover **36**. The base cover **34** can be substantially spherical.

[0084] Figure 4c illustrates that the body cover **24** can be configured with a substantially uniform slope with respect to the longitudinal axis **12** from the base **8** to the top of the body cover **24**. The head cover **22** can be substantially cylindrical. The cover gap **30** can be zero or negative (e.g., overlap).

[0085] Figure 4d illustrates that the head cover **22** can have a cylindrical configuration. The head cover **22** can be partially opaque (e.g., at the "linked square" design, as shown) and partially translucent (e.g., at the remainder). The body cover **24** can have a pinched neck **40** configuration in the tower cover **36**. The pinched neck **40** can serve as a handle to carry or move the heater **2**. The pinched neck **40** can be structurally reinforced.

[0086] Figure 4e illustrates that the head cover **22** can have a solid backing **41** and links **42**. The links **42** can descend below (e.g., hang from) the bottom of the backing **41**.

[0087] Figure 4f illustrates that the base cover **34** and/or the head cover **22** can be made from numerous beams **44** or rods having a substantially longitudinal alignment. The beams **44** of the body cover **24** can be attached or integral to the cover ground plate **26** or one or more circular reinforcements.

[0088] Figures 4f and 4g illustrate the head cover **22** can have a rounded dome or substantially hem-spherical or hemi-ovaloid configuration. The top of the head cover **22** can be opened or closed.

[0089] Figures 4e, 4g, 4h and 4j illustrate that the body cover can have a substantially conical configuration.

[0090] Figure 4i illustrates that the heater cover **20** can have a platform or counter **46**, for example, positioned along the tower cover **36**, between the tower cover **36** and the base cover **34**, along the base cover **34**, or on the tower cover **36**. The heater cover **20** can have one or more platforms or counters **46**. The body cover **24** and/or head cover **22** can have a seam **48** extending partially or completely along the length of the respective body cover **24** and/or head cover **22** in the direction of the longitudinal axis **12**.

[0091] 4j illustrates that the head cover **22** and/or body cover **24** can one or more holes, such as circular, square, rectangular, triangular or oval holes, or combinations thereof. The holes can face substantially radially outward from the longitudinal axis **12**.

[0092] Figure 4k illustrates that the heater cover **20** can have a domed head cover **22**. The body cover **24** can have a bulbous conical configuration.

[0093] Figure 4l illustrates that one or more radial bulbs **50** can extend from the tower cover **36**. The counter **46** can have a rounded top surface and may or may not prove useful to rest loose items on without the loose items rolling off the counter **46**. The counter **46** can be a bulb **50**, as shown.

[0094] Figures 4l, 4n and 4o illustrate head covers **22** with various translucencies. Figure 4m illustrates a body cover **24** that can have numerous bulbs **50** and a cylindrical head cover **22**.

[0095] Figures 4p and 4p' illustrates that the head cover **22** or body cover **24** (not shown) can have a chandelier configuration. The head cover **22** can have one or more head cover supports **52**, such as circular rigid loops. The head cover **22** can have one or more lines **54** of the same or different lengths hanging from the head cover supports **52**. The lines **54** can be thin nylon or metal wires. The lines **54** can each have one or more volumetric elements **58**, such as discs **56** or other items, securely attached thereto. The volumetric elements **58** can be metal (e.g., steel or aluminum, wherein the metal can have a raw finish or be powder coated) or plastic, glass, crystal, or combinations thereof. The volumetric elements **58** can cylindrical, circular, pyramidal, spherical, a diamond cut configuration, or combinations thereof.

[0096] The tower cover **36** and the base cover **34** can be cylindrical with constant radii along the longitudinal axis **12**. The respective radii of the tower cover **36** and the base cover **34** can be equal or different. For example, the tower cover **36** can have a larger or smaller (as shown) radius than the body cover **24**.

[0097] Figures 4q and 4q' illustrate that the head cover **22** or body cover **24** (not shown) can have a curtain configuration. The head cover **22** can have lines **54** hanging from the radial periphery of the head cover **22**. The lines **54** can be of the same or different lengths. The lines **54** can have volumetric elements **58**, such as discs **56**, beads and charms, attached thereto. The lines **54** can be made from the volumetric elements **58** being directly connected to each other (e.g., no wire need be used along the entire length of the line **54**) or hanging from wires or nylon threads.

[0098] Figures 4r and 4r' illustrate that the head cover **22** and/or body cover **24** can have a tree configuration. The head cover **22** can have leaves **60** extending radially from the longitudinal axis **12**. The leaves **60** can be square, circular, rectangular, triangular, oval, or combinations thereof. The leaves **60** can extend directly from the heater head **6** of the heater **2**, and/or rigid or resilient branches (obscured in the illustrations by the leaves **60**) can extend from the heater head **6** and the leaves **60** can attach to or be integral with the branches.

[0099] The top of the base cover **34** can be a counter **46** or platform. The base cover **34**, and/or tower cover **36**, and/or head cover **22** can be covered with or otherwise attached to fabric or plastic (shown only on the base cover in Figure 4r). For example, the base cover **34** can be fixedly or removably attached to a fabric or plastic tablecloth. The base cover **34** can have slots **61** or grooves and/or the "slots" **61** can be folds in fabric (e.g., the tablecloth) hanging off the side off the counter **46**.

[0100] Figures 5a through 5c illustrate that the tower **10** can be articulatable. The tower **10** can have more than one tower linkage **62**. The tower linkages **62** can be cantilever beams extending from the tower **10**. For example, the heater head **6**, optionally with the head cover **22**, can be placed over the center of a table, chair or other furniture or location with the tower **10** beside the table, chair, other furniture or location.

[0101] Adjacent tower linkages **62** can be attached at fixedly rotatable hinges **64**. Adjacent hinges **64** and/or adjacent tower linkages **62** can be attached by tensile cables **66**. The tensile cables **66** and/or friction in the hinges **64** can fix the tower **10** in a configuration when the tower **10** is not being adjusted by a user. The heater head **6** can have a thermally insulated and/or removably attached head handle **68**.

[0102] A flexible fuel or electrical conduit can be inside of the tower linkages **62**. The flexible fuel conduit can transport fuel or electricity from the base **8** to the heat emitter **14** in the heater head **6**.

[0103] Figures 5b and 5c illustrate that the tower linkages 62 can be swiveled or otherwise rotated, as shown by arrows, with respect to each other and/or the base 8 and/or the heater head **6**, for example to control the position and angle of the heater head 6 and/or radiative direction of the heat. The position of the heater head **6** can be manipulated vertically (i.e., up and down) and/or horizontally (i.e., side to side), and/or the angular orientation of the heater head **6** can be manipulated.

[0104] Figures 5a, 5b, 5c and 6 illustrate that the tower **10** can be attached to or integral with the top of the heater head **6**. Figure 6 illustrates that the tower **10** can have a hooked, curved, rounded, arcuate, or "J" configuration. The tower **10** can be rigid or deformable. The tower **10** can be attached to the radial center of the base **8** with respect to the longitudinal axis **12** of the base **8** or to a radial side of the base **8**, such as on the radial perimeter of the base **8**, as shown.

[0105] Figure 7 illustrates that the heater can have two or more heater heads **6a** and **6b**. Each heater heads can have an individual heat emitter **14**. Each heater head **6** can be attached to its own tower linkage **64**, or a tower linkage **64** shared with other heater heads **68**. The heater heads **6** can be moved individually or in combination with each other.

[0106] Figures 8a and 8b illustrate that the heater can have three heater heads **6a**, **6b** and **6c**. The heater heads **6a**, **6b** and **6c** can each have an individual heat emitter **14**.

[0107] Figure 9a illustrates that the body cover **24** can have a cut-off (as shown) or complete pyramid configuration. The head cover **24** can be translucent. The head cover **22** can be corrugated. The head cover **22** can have a square cross section transverse to the longitudinal axis. The head cover **22** can have a uniform transverse cross section with respect to the longitudinal axis **12**.

[0108] Figures 9b, 9c and 9d illustrate that the heater **2** can have one or more signs **72** fixedly or removably attached to or integral with the body cover **24** and/or head cover **22**. The signs **72** can be fastened to the heater **2** or heater cover **20** using glue, adhesive, any of the other fasteners **70** disclosed herein, or combinations thereof.

[0109] The signs **72** can have a surface with one or more visible graphics comprising text and/or images. The graphics can be black and white or color printed, engraved, embossed, or combinations thereof. The sign **72** can have a static (e.g., fixed print and/or embossing) and/or a dynamic display (e.g., changing or variable print and/or embossing). For example, the dynamic display can have a light emitting monitor (e.g., CRT display, plasma display, LCD display, LED display), a rotating or scrolling fabric or paper strip, attached to one

roller on each side of the strip, a series of timed rotating elements (e.g., ActionMaster by Mobile Master Manufacturing, LLC, Nashville, TN), or combinations thereof.

[0110] The sign **72** can be larger than a branding label for the heater **2**, for example, the sign **72** can be taller than 5 cm (2 in.) and wider than 5 cm (2 in.), or taller than 10 cm (4 in.) and wider than 10 cm (4 in.), or taller than 15 cm (6 in.) and wider than 15 cm (6 in.), or taller than 30 cm (12 in.) and wider than 30 cm (12 in.), or taller than 61 cm (24 in.) and wider than 61 cm (24 in.).

[0111] Figure 9b illustrates that the body cover **24** can have a sign **72** attached to each of one to four sides of the body cover **24**. The body cover **24** and/or sign **72** can have a fastener 70 that can removably attach the body cover **24** to the sign **72**, or vice versa, or the body cover **24** and the sign **72** to the fastener **70**.

[0112] Figure 9b illustrates that the sign **72** can be narrower than the body cover **24** at the height at which the sign **72** is attached to the body cover **24**. The sign **72** can be in a frame. Figure 7c illustrates that the sign **72** can be wider than the body cover **24** at the height at which the sign **72** is attached to the body cover **24**. Figure 7d illustrates that the sign **72** can be retractably or extendably rolled or folded when not in use.

[0113] Figures 10a, 10b and 10c illustrate that a sign **72** can be attached to or printed on the head cover **22**. The body cover **24** can be attached to one, two or more signs **72**. The signs **72** can be wider than that body cover **24** and/or wider than the head cover **22**.

[0114] The top of the body cover **24** can have a sloped angle (as shown in Figure 8c) that can hold the signs **72** at a sign slope angle **74** with respect to the longitudinal axis **12**. The sign slope angle **74** can be from about -60° to about 90° (e.g., the sign **72** can form a counter **46**). For example, the sign slope angle **74** can be from about -60° to about 0°, more narrowly from about -45° to about -15°, for example about -30°. The sign slope angle **74** can be from about 0° to about 90°, more narrowly from about 5° to about 60°, for example about 15°.

[0115] Figure 11 illustrates that the sign **72** can be mounted on a frame attached to body cover **24**. The frame can extend away from the body cover **24**, for example holding the sign **72** away from the body cover **24**.

[0116] Figure 12 illustrates that the sign **72** can be attached to the head cover **22**. The sign **72** can be removably attachable from the head cover **22**. For example, the sign **72** can be made from a flexible magnet. The sign **72** can be attached to the head cover **22** by a fastener described herein. The sign **72** can be integral with the head cover **22**. For example, the sign **72** can be etched into or painted or coated onto the head cover **22**.

[0117] Figure 13 illustrates that the sign **72** can be attached to the body cover **24**. The sign **72** can be removably attachable from the body cover **24**. For example, the sign **72** can be made from a flexible magnet. The sign **72** can be attached to the body cover **24** by a fastener described herein. The sign **72** can be integral with the body cover **24**. For example, the sign **72** can be etched into or painted or coated onto the body cover **24**. The cover 24 or head cover 22 may also be completely covered or wrapped in vinyl material conforming to the cover 24 shape for the purpose of advertising or decoration (such as wrapping of vehicles for use as mobile billboards).

[0118] The heater **2** can have speakers and/or lighting in, behind, adjacent to the signs **72**, and/or anywhere on the heater **2**, for example in or on the body cover and/or head cover and/or tower cover. Any or all of the covers can be translucent, transparent, opaque, or combinations thereof. The speakers and/or wires can be connected to data sources wired and/or wirelessly. Music and/or spoken word (e.g., commercial information) can be broadcast through the speakers. The data and/or power for the speakers and/or lighting can be internal to the heater **2**, and/or external to the heater **2**.

[0119] Figure 14 illustrates that any variation of the heater cover **20** can have one or more signs **72**. For example, the heater cover **20** can have a head cover **22** that can have holes. The head cover **22** can be similar to the head cover **22** of the variation of Figure 4j.

[0120] Figure 15a illustrates that the heater cover **20** can have a head cover **22** with a head cover slope **32** less than 0°. The head cover slope **32** can be tilted downward (i.e., having a head cover slope **32** less than 0°), as shown.

[0121] Figure 15b illustrates that the heater cover **20** can have a sign **72** on the body cover **24** (e.g., on the tower cover **36** or the base cover **34**) and have a head cover **22** with a head cover slope **32** less than 0°.

[0122] Figure 15c illustrates that the heater **2** can have a sign **72** on the body cover **24** (e.g., on the tower cover **36** or the base cover **34**) and/or have a sign **72** on the head cover **22**. The head cover **22** can have a head cover slope **32** less than 0°. The sign **72** on the head cover **22** can be tilted downward, upward, or perpendicular to the ground. The sign **72** on the body cover **24** can be tilted downward, upward, or perpendicular to the ground.

[0123] Figure 16 illustrates the heater **2** similar to the heater **2** of Figure 1. Figure 17 illustrates that the body cover **24** can have a seam **48**. The body cover **24** can have one or more fasteners **70**. The fasteners **70** can hold the seam **48** together.

[0124] Figure 18 illustrates that the body cover **24** can be elastic or otherwise resilient. The fasteners **70** can be unfastened. As shown in Figures 18 and 20, the body cover **24** can

be stretched open at the seam **48**, as shown by arrows **75**, and translated **76**, as shown by arrow in Figure 19, and wrapped around the body **4**. The base cover **34** can be wrapped around the base **8**. The tower cover **36** can be wrapped around the tower **10**.

[0125] As shown in Figures 19 and 20, the heater head **6** can have a rigid, internal head frame **78** and a head connector **80**. The head connector **80** can be configured to attach to the heat shield **16** and/or top of the tower **10** or heat emitter **14**. The head connector **80** can have one or more fasteners **70**. The heat shield **16** and/or top of the tower **10** or heat emitter **14** can have one or more fasteners **70**. The head cover **22** can be lowered onto the heat shield **16** or top of the tower **10**, as shown by arrows **81**.

[0126] Corresponding fasteners **70** on the heater cover **20** and, where applicable, the uncovered heater **2** can be fastened after the heater cover **20** is positioned on and/or around the uncovered heater **2**.

[0127] Figure 21 illustrates the heater **2** similar to the heater **2** of Figures 1 and 16. Figure 22 illustrates that the heat cover heater cover **20** (heater not shown) and/or body cover **24** can have a cover first section **82** and a cover second section **84**. The cover first section **82** can be rotatably attached to the cover second section **84**, for example at a body cover hinge **86**. The cover sections can be rigid.

[0128] Figure 24 illustrates that the cover can be opened by first unfastening the fasteners **70**, if applicable. Then the cover first section **82** can be rotated, as shown by arrows **101**, about the hinge **64** away from the cover second section **84**.

[0129] Figures 23 and 25 illustrate that the opened body cover **24** can be translated, as shown by arrow **87**, around the base **8** and tower **10**. Once the body cover **24** is in place around the body **4**, the cover first section **82** can be rotated, as shown by arrows **102**, with respect to the hinge **64** toward the cover second section **84**. The fasteners **70** can then be attached to each other.

[0130] The cover first section **82** can be completely separate (e.g., not attached at a hinge **64**) from the cover second section **84** before use. The cover first section **82** and cover second section **84** can be translated in a position to together surround the body **4**. Fasteners **70** on the cover first section **82** can then be attached to fasteners **70** on the cover second section **84**.

[0131] Figure 26 illustrates that the cover hinge **86** or the fastener **70** can have a first hinge panel **90** and a second hinge panel **92**. The hinge panels can be secured to the respective cover sections through hinge panel holes **94** (e.g., with screws, nails, rivets, glue). The first hinge panel **90** can be rotatably attached to the second hinge panel **92** by a hinge pin **96**.

The hinge pin **96** can telescope. The second hinge pin **96** can slidably translate **76**, as shown by arrows, along the hinge pin **96**.

[0132] Figure 27 illustrates that the first **90** and/or second hinge panels **92** can have hinge panel slots **98** in a perpendicular direction to the hinge pin **96**. The hinge panel slots **98** can allow the first **90** and/or second hinge panel **92** to have a first translation, as shown by arrows **100**. The first hinge panel **90** can rotate, as shown by arrows **103**, with respect to the second hinge panel **92**. The second hinge panel **92** can move in a second translational direction, as shown by arrows **104**, along the hinge pin **96**.

[0133] Figures 28 and 29 illustrate that the heater cover **20** can have a tower cover **36** that can be fixedly or removably attached to the body cover **24** at a seam **48**. The tower cover **36** can snap to the body cover **24**. The tower cover **36** can be attached to the body cover 24 by fasteners, for example as described herein.

[0134] Any or all parts of the heater cover **20** can have horizontal and/or vertical ridges **210**, ribs or grooves. The ridges **210** on the body cover **24** can align to the ridges **210** on the tower cover **36**.

[0135] Figures 30 and 31 illustrate that the body cover **24** and the tower cover **36** can be detached from each other. The tower cover **36** can telescope into the body cover **24**. The tower cover **36** can have an interfacing surface **214** and, for example, an abutment **212**. The interfacing surface **214** can be thinned compared to the wall on the other side of the abutment **212** from the interfacing surface **214**. The abutment **212** can lay flat or flush against the body cover when the tower cover **36** is attached to the body cover **24**.

[0136] During assembling and attaching of the tower cover **36** to the body cover **24**, the tower cover **36** can be snap-fitted, glued (or other adhesive, epoxy), attached via one or more pieces of hook and loop tape (e.g., Velcro); one or more pieces of interlocking stem and head tape (e.g., Dual Lock from 3M Corporation of Minneapolis, MN), attached via a pressure collar, or used with any fastener listed herein or combinations thereof to or from the body cover **24**. Once assembled, the seam **48** can be substantially horizontal.

[0137] For example, a propane or other liquid or gas fuel tank and/or electrical power supply and controls can be stored inside the body cover **24**. For example, to access (e.g., for service or replacement) the propane tank and/or power supply and controls, the body cover **24** can be detached from the tower cover **36** and the body cover **24** can then be lifted above the propane tank and/or power supply and controls for rapid access. The tower cover **36** can be permanently or semi-permanently attached to the heater column **10** or removed during the accessing, for example, of the propane tank under the cover **24**.

[0138] Figures 32a through 32d illustrate a variation similar to that shown in Figure 4a. The base cover **34** can be attached to the tower cover **36** by a joint **38**. The joint **38** can have one or more joiners, such as seals, rings, straps, clamps, or combinations thereof. The joiners can removably or fixedly attach the base cover **34** to the tower cover **36**. The joiners **302** can clip, snap, clamp, or combinations thereof to the base cover **34** and/or the tower cover **36**.

[0139] The tower cover **36** can be fixed or separably attached to the tower **10**. For example, the tower cover **36** can be attached to the tower **10** via brackets, clamps, hooks, or combinations thereof internal to the tower cover **36**. The base cover **34** can be separate and unattached from the tower cover **36** and the tower **10**. The base cover **34** can be attached or unattached from the base and/or tower. A joiner, such as a ring, can have serve merely to hide or obscure the seam **48** between the base cover **34** and the tower cover **36** and not to join the tower cover **36** to the base cover **34**.

[0140] For example, the tower cover **36** and the base cover **34** can be made as a single unit, then cut above, below, or through the ring at the joint **38** to separate the tower cover **36** and the base cover **34**.

[0141] The inner diameter of the base cover **34** at the joint **38** can be larger than the outer diameter of the tower cover **36** at the joint **38**. The minimum inner diameter of the base cover **34** can be larger than the maximum outer diameter of the tower cover **36**.

[0142] The tower cover **36** can attach or be separate from the base cover **34**. If the tower cover **36** is separate from the base cover **34**, a cover gap **300** can be between the top of the most adjacent part of the top of the base cover **34** to the most adjacent bottom part of the tower cover **36**. The cover gap **300** can be about equal to or less than 1.25 in.

[0143] Figures 33a through 33c illustrate that the one or more joiners **302** can be detached from the tower cover **36** (as shown) and/or the base cover **34**, for example, separating the base cover **34** from the tower cover **36**. The base cover **34** can instead be separate and unattached from the tower cover **36**.

[0144] The base cover **34** can be raised, as shown by arrows, for example to expose the contents of the base **8**. For example, the base cover **34** can be slid or otherwise lifted at least partially vertically concurrent with the tower cover **36**. The base cover **34** can be radially inside or outside of the tower cover **36**. The base cover **34** can be lifted above the tower cover **36**. The base **8** can include a propane or other fuel tank or controls. The base cover **34** can be moved temporarily to a position around a part or all of the length of the tower cover **36**.

[0145] The contents of the base **8** can be accessed, for example, the fuel tank can be serviced or replaced. The base cover **34** can then be lowered to the position shown in Figures 32a through 32d. The base cover **34** can be reattached to the tower cover **36**, if desired and possible based on the design.

[0146] The tower cover **36** can be configured to be slidably or otherwise lowered at least partially vertically concurrent with the base cover **34**. The tower cover **36** can be lowered to the ground.

[0147] The base cover **34** can be configured to be not directly attached to the base. For example, the base cover **34** can be resting freely on or anchored to the ground and/or pressed down by or attached to the tower cover **36** when the base cover **34** is in a position encircling the base. The tower cover **36** can be configured to be not directly attached to the remainder of the tower. For example, the tower cover **36** can be resting freely on or attached to the base cover **34**.

[0148] The fasteners **70** can be snaps. The fasteners **70** can be a latch and the associated ports or catches.

[0149] Figures 34 through 63 illustrate variations of the fasteners **70** that can secure the body cover **24** to itself, one section of the body cover **24** to another section of the body cover **24**, or the head cover **22** to the uncovered heater **2** (e.g., at the heater head **6**). For illustrative clarity, the elements fastened by the fasteners **70** are referred to, infra, generically as a first panel **106** and a second panel **108**.

[0150] Variations of fasteners **70** can include one or more quick release fasteners **70**, for example, ¼-turn DZUS fasteners **70** with a retainer and a clip-on receptacle, and/or flat rivet-on receptacle, and/or ultrasonic receptacle (e.g., for thermoplastics), and/or a snap-in receptacle; cam locks (e.g., a "Z" lock), spring-loaded captive plungers and fasteners **70**, locking pins **110** with detents (e.g., DZUS), and nylatch 1 and 2-piece DZUS panel fasteners **70**, one or more latches (e.g., low profile latches), for example, rotary action draw latches, cam latches, spring-loaded self-adjusting latches, adjustable pull draw latches, rotary draw latches, flexible handle latches, soft-draw latches, over-center draw latches, pop-out knob latches, swell action latches, and flush compression latches; magnets, one or more snaps; one or more pieces of hook and loop tape (e.g., Velcro); one or more pieces of interlocking stem and head tape (e.g., Dual Lock from 3M Corporation of Minneapolis, MN) (i.e., wherein one piece of hook and loop or stem and head tape comprises at least two opposed sheets that are configured to interlock with one another); one or more taped joints (e.g., for closure and cosmetics); one or more self-locking implanted cotter ("SLIC") pins;

one or more ties, for example, nylatch cable clamps, tie straps, cable ties, and elastic ties; one or more clips, for example, fold clips; and trim retainers labels; one or more laces; one or more magnetic catches; one or more channel moldings; one or more removable hinges **64**; and combinations thereof.

[0151] Figure 34 illustrates that the fastener **70** can have a male cam lock **112** and a female cam lock **114**. The male cam lock **112** can have a shaft head **111** and shaft **116**. The male cam lock **112** can have a locking pin **110** traversing and extending substantially perpendicularly from the shaft **116**. The female cam lock **114** can be configured to receive the shaft **116**. The female cam lock **114** can have a bracket **118**. The female cam lock **114** can have a channel **120** configured to receive and removably attach to the locking pin **110**.

[0152] Figure 35 illustrates that the second panel **108** can be configured to have a raised or lowered lip **122** to fit the first panel **106**. The first panel **106** and the second panel **108**, for example in the lip **122**, can have a fastener port **124**. The fastener port **124** can align to form a single channel. The bracket **118** of the female cam lock **114** can be fixedly or removably attached to the end of the lip **122**. The shaft **116** can be inserted through the fastener port **124**. The shaft **116** can be inserted through a rubber washer **126** between the shaft head **111** and the first panel **106**. The shaft head **111** can be driven by a screwdriver or directly by hand. The shaft **116** can be rotated to slide the locking pin **110** through the locking pin channel **120**. The fastener **70** can releasably attach the first panel **106** to the second panel **108**.

[0153] Figure 36 illustrates that the fastener **70** can be a one-piece rivet. The rivet can have a shaft head **111**. The rivet can have resilient legs **128** extending longitudinally and radially from the shaft head **111**. The legs **128** can be integral to the other legs **128** and the shaft head **111**.

[0154] Figure 37 illustrates that the fastener **70** can be a two-piece clinch retainer. The shaft head **111** and shaft **116** can be slidably attached to the legs **128**. The legs **128** can be configured to radially expand when the shaft **116** is translated toward the legs **128**.

[0155] Figure 38 illustrates that the rivet can be inserted through the fastener port **124**. The legs **128** can radially expand on the opposite side of the panels from the shaft head **111**. The first **106** and/or second panel **108** can have a flange **130** to bracket the other panel.

[0156] Figure 39 illustrates that the fastener **70** can be a screw. For example, the fastener **70** can be a wood screw or similar to a wood screw. The fastener **70** can have a shaft head **111**, shaft **116** and thread **132**, a spring or resilient hoops, Christmas tree retainers **134**, or combinations thereof extending from the shaft **116**. The thread **132**, spring, or hoops can

have a larger radius than the fastener port **124**. The thread **132**, spring or hoops can be forced through the fastener port **124** and interference fit with the fastener port **124** when deployed to attach to the fastener port **124**. The fastener **70** can be made from stainless steel.

[0157] The shaft **116** of the variation of the fastener **70** of Figure 39 can be inserted through the first panel **106** and the second panel **108**. The shaft **116** can then be secured by a nut, nut insert, or clip (for example, similar to the fastener **70** shown in Figure 40, with a central channel through the fastener **70** of Figure 40 where the central channel is configured to receive the shaft **116** of the fastener **70** of Figure 39) on the opposite side of the panels **106** and **108** from the head **111**.

[0158] The shaft **116** can be inserted through ports in the first panel **106** and/or the second panel **108**, and/or the shaft **116** can bore through the first panel **106** and/or the second panel **108**. The shaft **116** can be oriented at a perpendicular, near perpendicular or slight perpendicular angle to the seam **48**.

[0159] In one variation, three fasteners **70** can be used on each side of the body cover **24** (i.e., six total fasteners), for example one near the top of the body cover **24**, one near the middle of the body cover **24**, and one near the bottom of the body cover **24**.

[0160] Figure 40 illustrates that the fastener **70** can have a shaft **116** extending from and integral with a bracket **118**. The bracket **118** can be attached to the second panel **108** and the shaft **116** can attach to the fastener port **124** on the first panel **106** (similar to as shown in Figure 35, but with the shaft **116** integral with the bracket **118**). The shaft **116** can have a flat end. The shaft **116** can have threads **132** or fins extending longitudinally (as shown) or helically along the shaft **116**. The threads **132** can interference or friction fit into the panel surrounding the fastener port **124** into which the shaft **116** is inserted.

[0161] Figures 41 and 42 illustrate that the first **106** and/or second panels **108** can have stepped grooves **136** or fluted. The first panel **106** can have a fastener port **124**. The second panel **108** can have a fastener port **124** or be absent any fastener ports **124**. The fastener **70** can removably attach a supplemental panel, flange **130**, or washer **126** to the first panel **106**. The supplemental panel **138** and the first panel **106** can friction fit (e.g., squeeze fit) around the second panel **108**. The supplemental panel **138** can be on the inside or outside of the cover. The grooves can obscure the joint or seam **48** or between the first panel **106** and the second panel **108**.

[0162] Figure 43 illustrates that the first **106** and/or second panel **108** can have one or more rounded grooves **142**. The fastener **70** can have a shaft **116** extending from the shaft head

111. A locking pin **110** can be inserted transversely through the shaft **116** on the opposite side of the panels from the shaft head **111**.

[0163] Figures 44 and 45 illustrate that one or more spacers **144** can be placed in the joint or seam **48** between the panels. The spacer **144** can have spacer brackets **146** configured to seat the ends of the panels. One or more rigid or flexible straps or ties **148** can be attached to both panels, for example, to hold the panels in tension. The ties **148** can be attached to the panels with a screw, brad or pin, for example having a shaft **116** extending from the shaft head **111**. A washer **126** can be attached to the end of the shaft **116** on the opposite side of the panel from the shaft head **111**. As shown in Figure 45, the tie **148** can be placed on the outside or the inside of the cover.

[0164] Figure 46 illustrates that the fastener port **124** can be substantially parallel to the outer or inner surface of the panels. The fastener **70** can have a shaft **116** having a threaded end **132**. Part or all of the length of the fastener port **124** can be threaded **132**. The fastener **70** can be inserted and screwed into the fastener port **124**.

[0165] Figure 47 illustrates a similar variation to Figure 44, but with a locking pin **110** inserted through the shaft **116**. The locking pin **110** can be inserted through a locking pin port **150** in the second panel **108**. The locking pin **110** can be inserted transversely through a port in the shaft **116**. A washer **126**, nut or lockwasher can be attached to the locking pin **110** on the opposite side of the shaft **116** from the locking pin head **152**. The locking pin head **152** can have a detent **154**. The shaft **116** can align the first panel **106** and the second panel **108**.

[0166] Figure 48 illustrates one end of a variation of the assembled fastener **70** of Figure 47. Figure 48 illustrates that the shaft **116** can be a flat plate. The shaft **116** can be substantially cylindrical.

[0167] Figure 49 illustrates that the fastener **70** can be a multi-piece cam fastener **70**. The cam fastener **70** can have a head element rotatably attached to a body element. The cam fastener **70** can be inserted **156** through the fastener port **124**. An internal cam (not shown for illustrative clarity) can cause the body **4** to radially expand, as shown by arrows **158** in Figure 49, when the shaft head **111** is rotated, as shown by arrows **159** in Figure 50, with respect to the to the shaft body **161**.

[0168] A retainer clip **160** can be attached to or integral with the shaft body **161** and/or placed between the first panel **106** and the second panel **108** and the fastener **70** can be inserted through the retainer clip **160**.

[0169] Figures 51 and 52 illustrate that a friction strip **162** and/or a retainer ring **164** can be between the first panel **106** and the second panel **108**. The friction strip **162** can minimize slipping between the first panel **106** and the second panel **108**.

[0170] The fastener **70** can have a handle **166** rotatably attached to the shaft head **111**. The handle **166** can be used to rotate and push and pull the fastener **70** directly by hand. The handle **166** can be rotated, as shown by arrows **167** in Figure 51, out for use and in for a low profile.

[0171] The shaft **116** can be attached to or integral with a spring **168**. The spring **168** can slidably rest against the side of the second panel **108**. The shaft **116** can have threads **132**. The shaft **116** can be threadably attached to the first panel **106**, and/or second panel **108**, and/or the retainer ring **164**. The shaft **116** can be rotated, for example, screwing the shaft **116** to increase compression of the spring **168** between the end of the shaft **116** and the second panel **108**. Figure 41 shows the handle **166** in a first configuration, and a second, phantom, configuration after rotation.

[0172] Figures 52 and 53 illustrate that the fastener **70** can be a rigid or flexible strap **170**, strip or clamp. The strap **170** can be attached to a pin **172** on each panel. The strap **170** can be wrapped around the pins **172**, as shown.

[0173] Figures 55 and 56 illustrate that the second panel **108** can be attached to or integral with a supplemental panel or retainer clip **160**. The retainer clip **160** can be metal (e.g., steel or aluminum, wherein the metal can have a raw finish or be powder coated) or resilient plastic. The retainer clip **160** can be biased toward a closed position. (Figure 44 illustrates the retainer clip **160** in a partially open position.) The retainer clip **160** can close onto, and friction and/or interference fit against the lip **122** of the first panel **106**. The second panel **108** can have a prod port **174**, for example to insert a prod, shaft **116** or other object, to bend the retainer clip **160** away from the first panel **106** and release the first panel **106** from the second panel **108**.

[0174] Figure 56 illustrates that second panel **108** can have a flange **130**. The flange **130** can have a tongue **176** extending therefrom. The tongue **176** can be attachably received by a groove **178** on the lip **122** of the first panel **106**.

[0175] Figure 57 illustrates that the fastener **70** can have a retainer clamp **180**. A base **8** or shaft head **111** with a shaft **116** can extend from the retainer clamp **180**. The base **8** and shaft **116** can be rotatably attached to the second panel **108**, for example through a fastener **70** port. The shaft **116** can have threads **132**. A clamp **180** or vice can be threadably attached to the shaft **116**. The handle **166** can be rotated, as shown by arrows **167**, causing

the clamp **180** to press down (or release upward), as shown by arrows **179**, toward (or away from) the base **8** on the first panel **106**. The clamp **180** can be seated in the first panel **106** in a clamp seat **182**. Figure 58 illustrates a variation similar to that of Figure 57, but with a friction strip **162**, skin, or molding between the first panel **106** and the second panel **108**.

[0176] Figure 59 illustrates that the shaft **116** can be inserted through the first panel **106** and the second panel **108**. A first friction strip **184** can be placed between the first panel **106** and the second panel **108**. A second friction strip **186**, lock washer, friction ring, or combinations thereof, can be placed between the base **8** or shaft head **111** and the second panel **108**. A clamp guide **188** can be integral with or attached to the first panel **106**.

[0177] Figures 60 and 61 illustrate that the fastener **70** can be a resilient clip **190**. The clip **190**, or any other fastener, can be made from metal (e.g., steel or aluminum, wherein the metal can have a raw finish or be powder coated), polymer (e.g., polyethylene (PE)), or a combination thereof. The fastener port **124** on the first panel **106** can be non-overlapping with the fastener port **124** on the second panel **108**. The clip **190** can have two clip legs **192**. Each clip leg **192** can be inserted through a fastener port **124**. The clip **190** can hold the first panel **106** and the second panel **108** together in tension. The one, two or more holds **194** can extend from the clip **190**. The holds **194** can be used, for example by grabbing with a fingernail, key or screwdriver, to assist in removal of the clip **190**. The clip **190** can have a clip face **196**. Information (e.g., branding, advertising, serialization information for the clip **190**) can be printed or attached to the clip face **196**.

[0178] Figures 62 and 63 illustrate that the fastener **70** can be a draw latch. The fastener **70** can have a pivot pin **198** fixedly attached to the shaft head **111** and handle **166** on one side of the first panel **106**, and to a latch plate **200** on the other side of the second panel **108**. When the handle **166** is rotated, as shown by arrows in Figure 52, the latch plate **200** rotates, as shown by arrows in Figure 63. The latch plate **200** can have a latch slot **202**. The outer edge of the latch slot **202** can have a decreasing radius with respect to the angle around the latch plate **200** as measured from the pivot pin **198**. The second panel **106** can be fixedly attached to a latch pin **204**. The latch pin **204** can be received by the latch slot **202**. With the latch pin **204** in the latch slot **202**, to six the first panel **106** to the second panel **108**, the latch plate **200** can be rotated so the latch pin **204** is frictionally fit to the edge of the latch slot **202**. To detach the latch pin **204** from the latch plate **200**, the direction of rotation of the latch plate **200** is reversed.

[0179] The body cover **24**, head cover **22**, fasteners **70**, or other elements described herein can be made from thermoplastics (e.g., Polyethylene terephthalate (PET), Polyethylene

(PE), Polypropylene (PP), including those used in rotational or blow molding) one or more fiber-reinforced polymers (e.g., FRP, fiberglass), resin, sheet metal (e.g., stamped sheet metal), urethane, heat resistant fabrics (e.g., stretched around a steel frame or other structure), or combinations thereof. Any metal used can be steel or aluminum. The metal can have a raw or brushed finish or be powder coated. The body cover **24**, head cover **22**, fasteners **70**, or combinations thereof can be formed by being rolled or molded, for example roto-molded.

[0180] The cover can have a smooth or textured finish. The cover can be lightweight, suited for indoor or outdoor use, long lasting, and have a durable finish. The outer surface of the cover can be anodized, polished, lacquered, powder coated (e.g., with electrostatic paint), or combinations thereof. The cover can be simply and repeatedly assembled and disassembled, and easily transported from location to location. Covers can be stored by nesting the covers together or telescoping each other. The covers can have fluting, appliqués, wrapped in vinyl, self-adhesive tape and combinations thereof, for example to obscure the appearance of joints **38** or seams **48** or for advertising.

[0181] The cover can be punctured, louvered, folded, or combinations thereof. The cover can have metal mesh. The cover can be treated to dissipate or be insulated from heat.

[0182] The head cover **22** can have, for example, 3 to 6 straps bridging the gap between the head cover **22** periphery and the center of the heater **2,** (e.g., like radial spokes) and attaching to where the heat shield joins the tower **10** or heater head **6**. Attachment of the head cover **22** to the heater head **6** or tower **10** can be accomplished with a mechanical quick-release fastener **70** to new or existing attachment points. The head cover **22** can be attached via a thermal insulator and/or height spacers **144**.

[0183] The heater cover can have one or more lights inside and/or outside of the heater cover.

[0184] It is apparent to one skilled in the art that various changes and modifications can be made to this disclosure, and equivalents employed, without departing from the spirit and scope of the invention. Elements and characteristics shown with any variation are exemplary for the specific variation and can be used in combination with elements or characteristics from other variations within this disclosure.

CLAIMS

I claim:

1. A heater comprising:

a heating element;

a tower;

a base;

a tower cover removably attached to the tower;

a base cover moveable from a first position substantially encircling the base to a second position vertically overlapping the tower cover.

2. The heater of Claim 1, further comprising a head cover removably attached to the head;

3. The heater of Claim 2, wherein the head cover substantially obscures the heating element from view.

4. The heater of Claim 1, further comprising a lighting element.

5. The heater of Claim 4, wherein the lighting element is radially inside the base cover.

6. The heater of Claim 4, wherein the lighting element is radially inside the tower cover.

7. The heater of Claim 4, wherein the lighting element is radially inside the head cover.

8. The heater of Claim 4, wherein the lighting element comprises an electric light.

9. The heater of Claim 1, further comprising an acoustic speaker.

10. The heater of Claim 1, further comprising a seam between the tower cover and the base cover when the base cover is in the first position.

11. A heater comprising:

a tower;

a head at the top of the tower; and

a body cover removably attached to the tower;

wherein the body cover comprises a body cover first section and a body cover second section, and wherein the body cover first section is rotatably attached to the body cover second section.

12. The heater of Claim 11, wherein the body cover first section is rigid.

13. The heater of Claim 12, wherein the body cover second section is rigid.

14. The heater of Claim 11, wherein the body cover comprises a hinge attached to the body cover first section and the body cover second section.

15. The heater of Claim 11, further comprising a head cover removably attachable to the head, and wherein the head cover comprises a head cover first section mechanically attached to a head cover second section.

16. The heater of Claim 11, further comprising an acoustic speaker.

17. The heater of Claim 11, wherein the body cover comprises a fastener first element, and wherein the head comprises a fastener second element, and wherein the fastener first element is configured to removably attach to the fastener second element.

18. The heater of Claim 17, wherein the fastener second element comprises a fastener port, and wherein the fastener port comprises a port in the cover.

19. A heater comprising:

a tower;

a head at the top of the tower;

a body cover removably attached to the tower, wherein the body cover has a seam; and

a fastener;

wherein the body cover is resilient and wherein the body cover substantially surrounds the tower, and wherein the fastener removably attaches a first side of the seam to a second side of the seam.

20. A heater comprising:

a tower;

a head at the top of the tower, wherein the head comprises a heat emitter; and

a sign comprising a surface with a visible graphic comprising text and/or images, and wherein the sign is taller than 5 cm (2 in.) and wider than 5 cm (2 in.).

21. The heater of Claim 20, wherein the sign is removably attached to the tower.

22. The heater of Claim 20, wherein the sign is removably attached to the head.

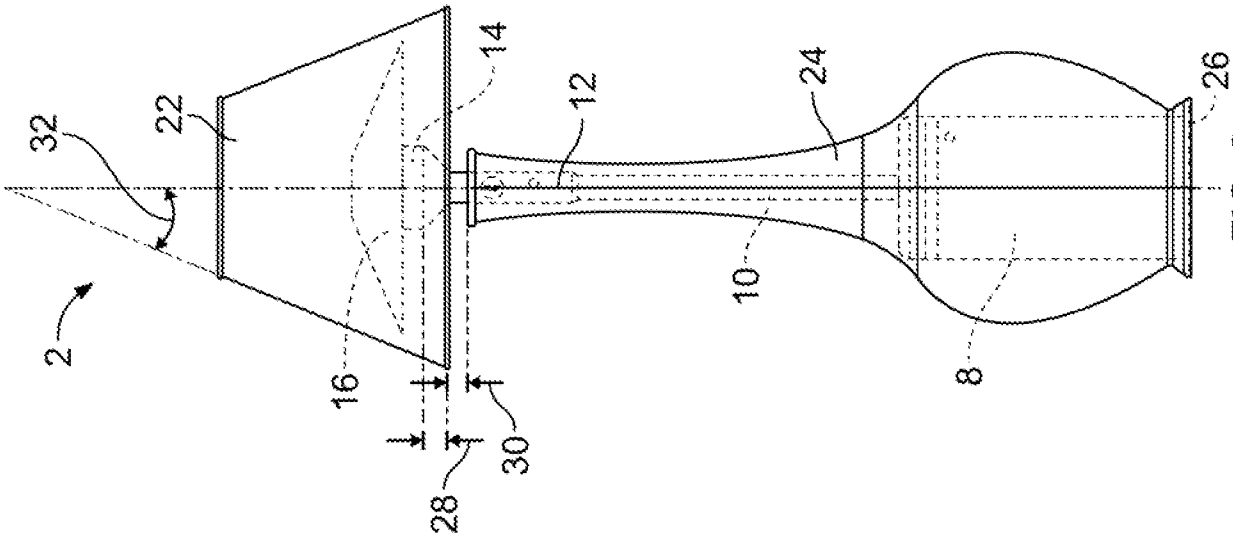


FIG. 3

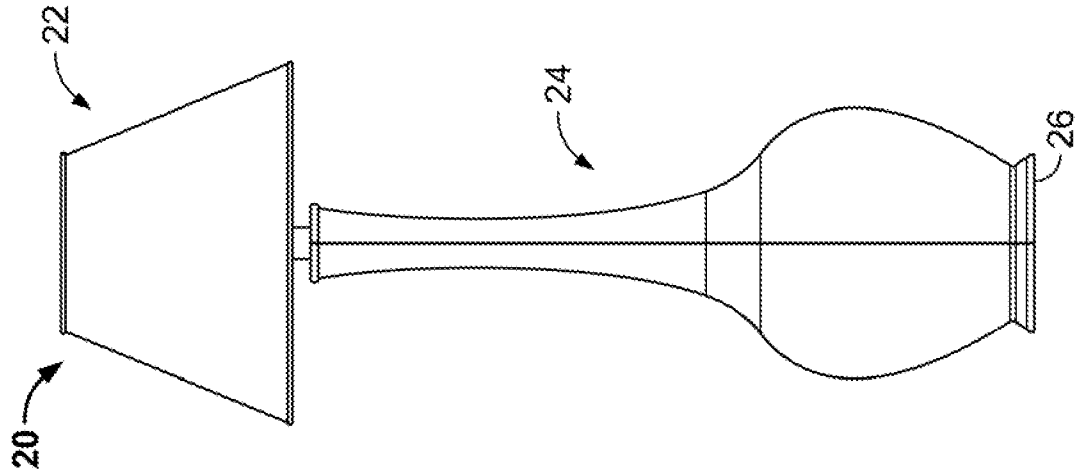


FIG. 2

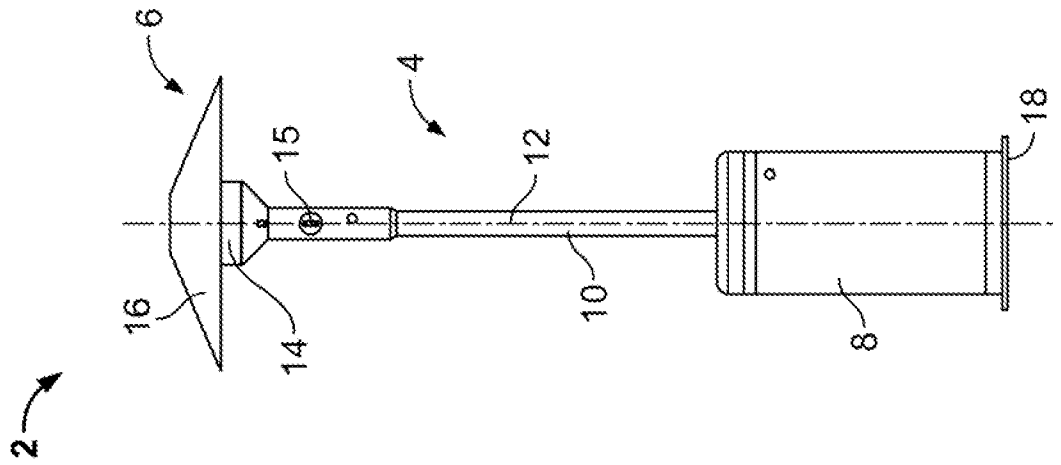


FIG. 1
NOT INVENTION

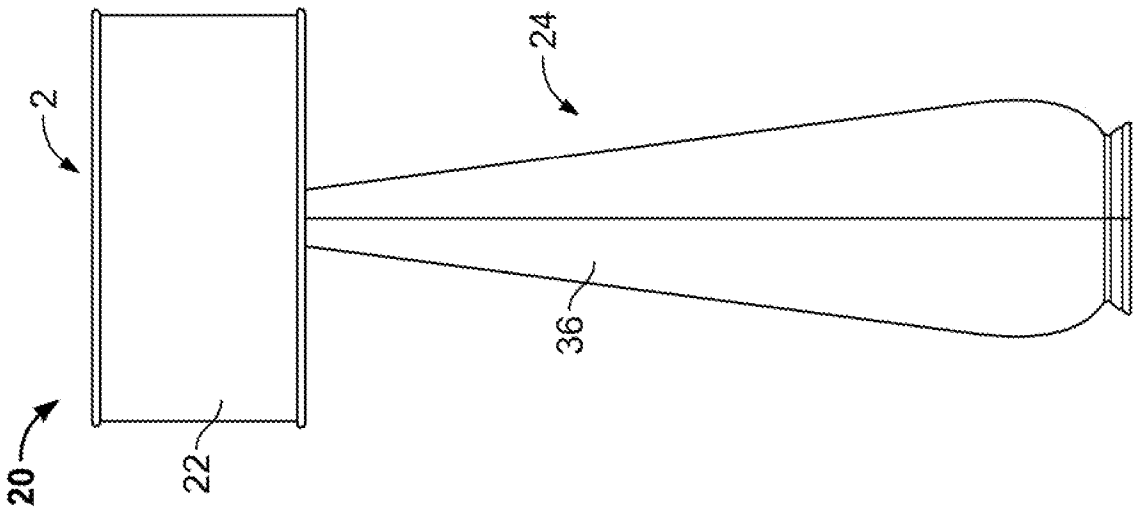


FIG. 4C

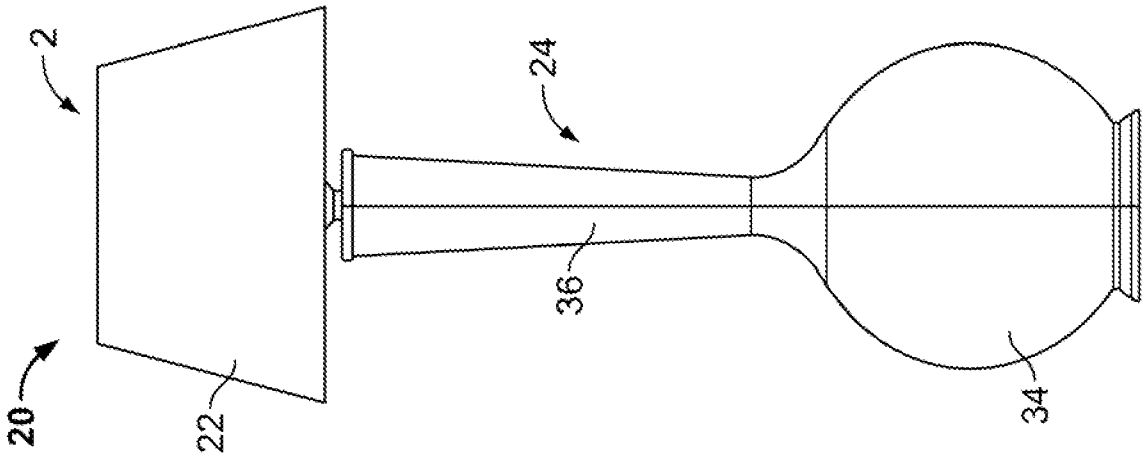


FIG. 4B

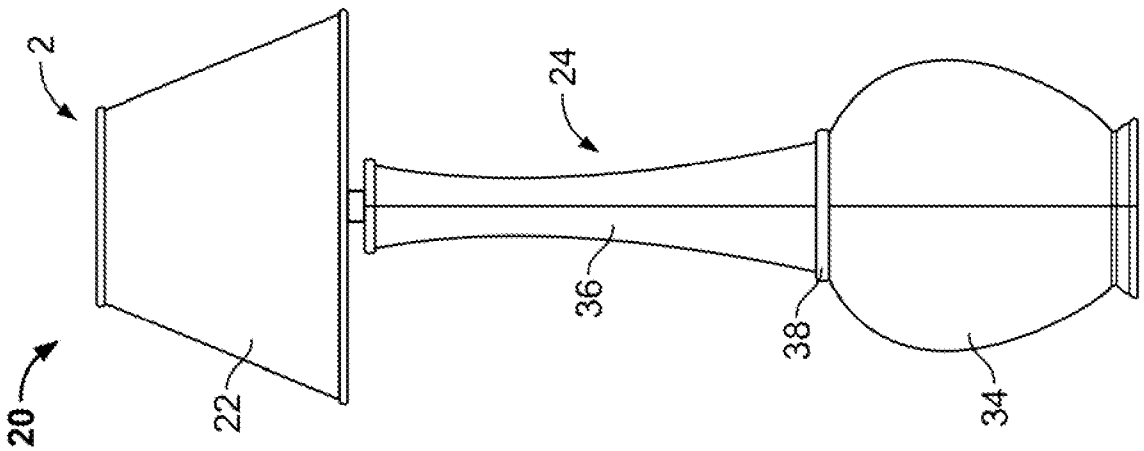


FIG. 4A

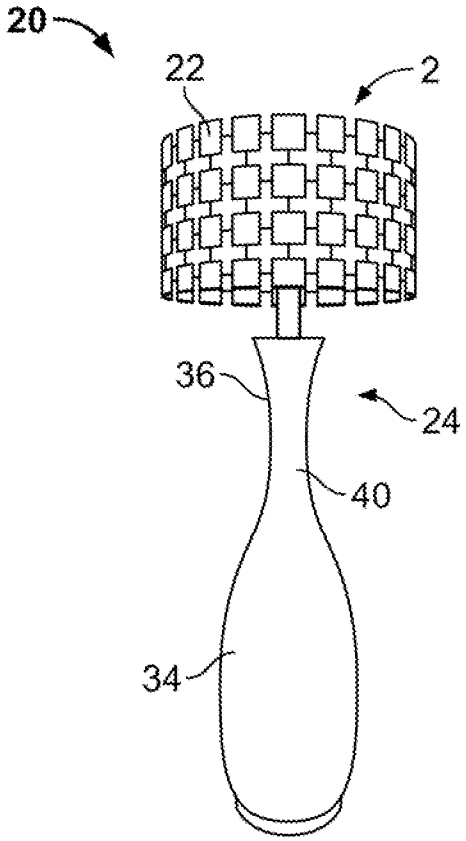


FIG. 4D

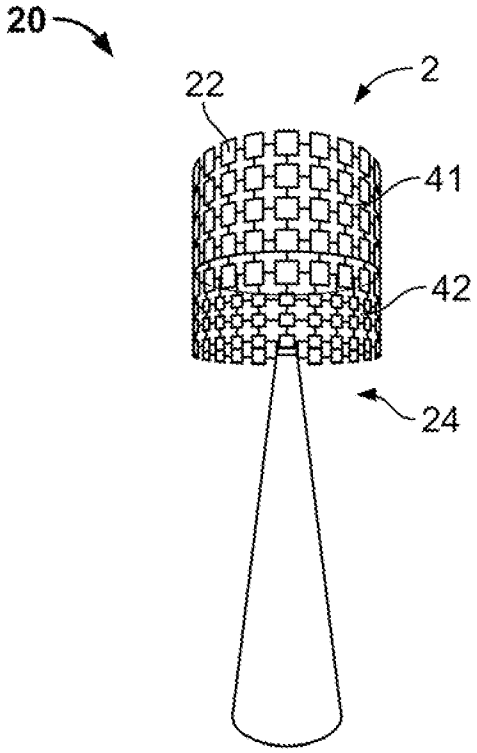


FIG. 4E

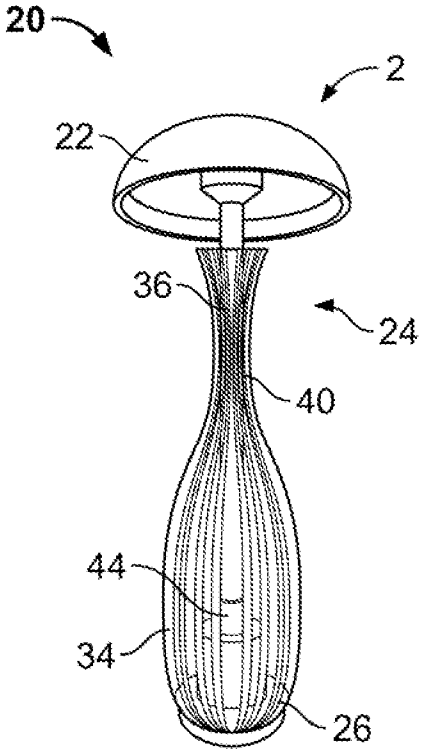


FIG. 4F

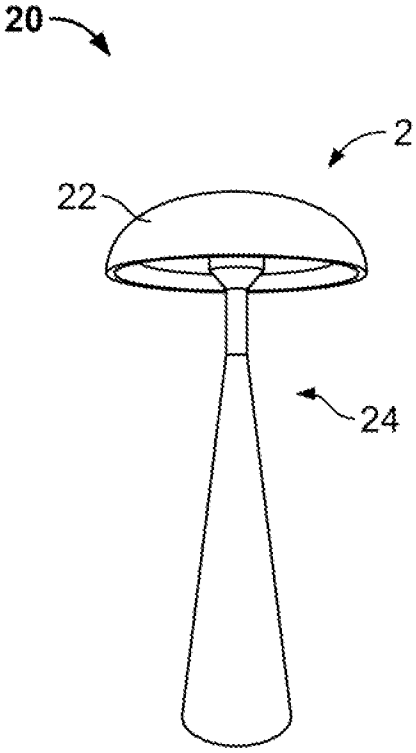


FIG. 4G

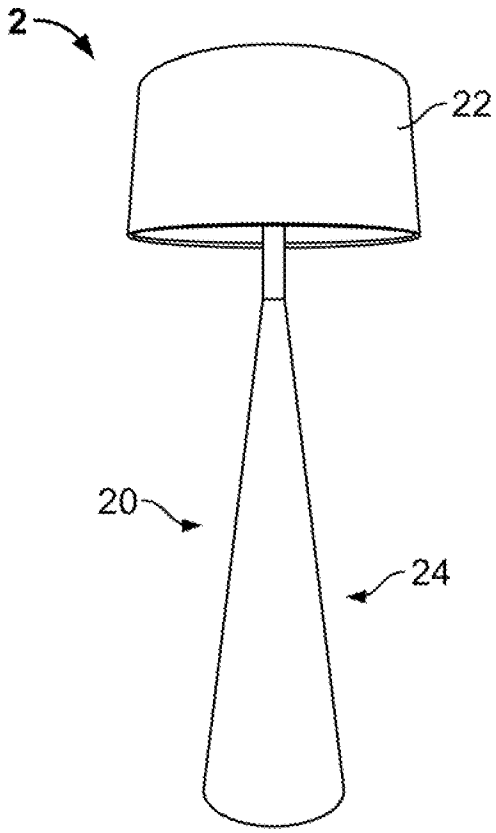


FIG. 4H

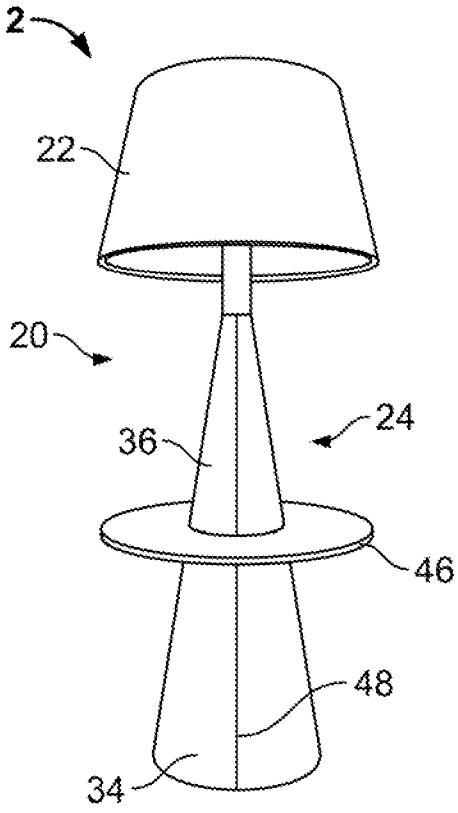


FIG. 4I

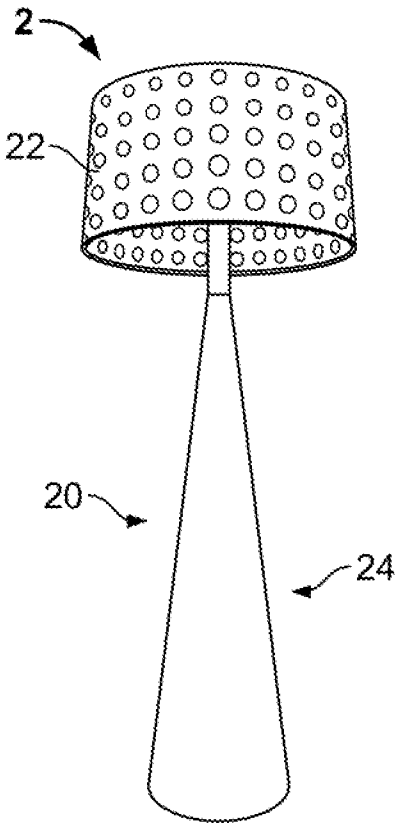


FIG. 4J

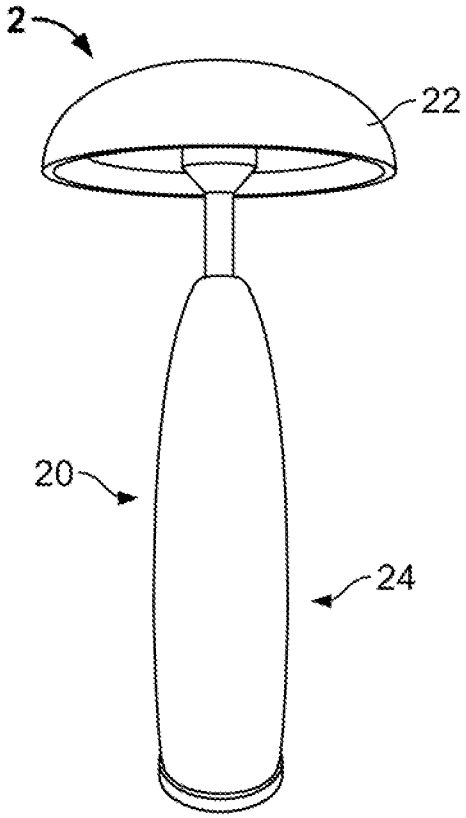


FIG. 4K

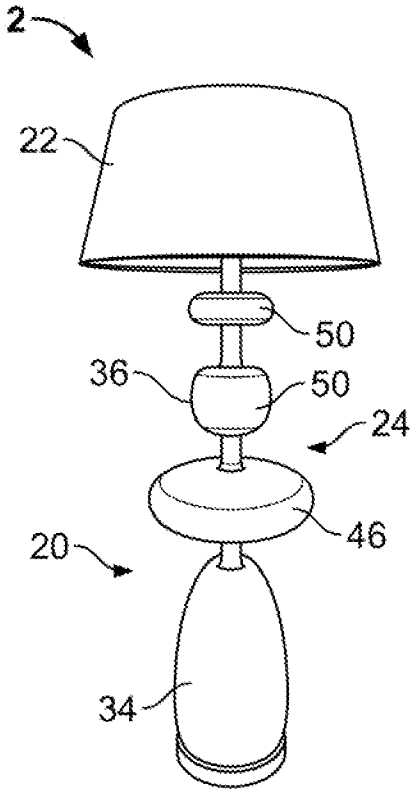


FIG. 4L

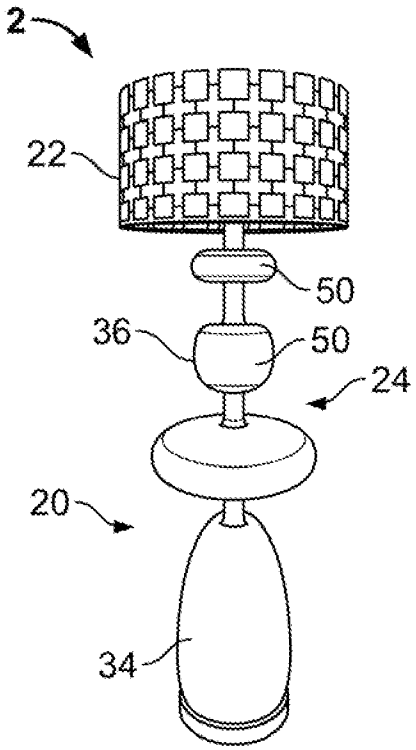


FIG. 4M

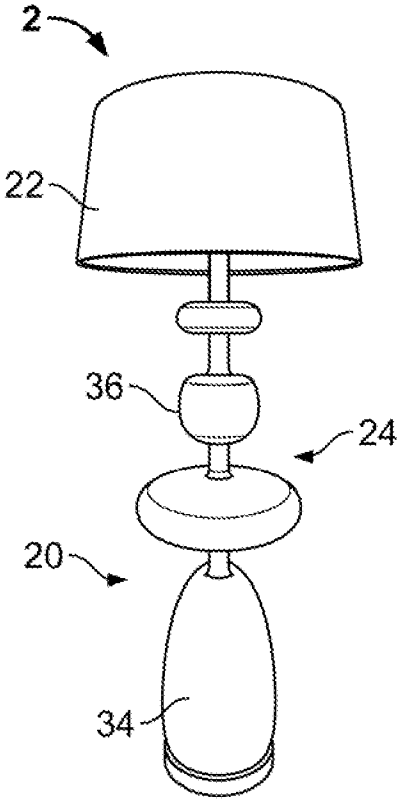


FIG. 4N

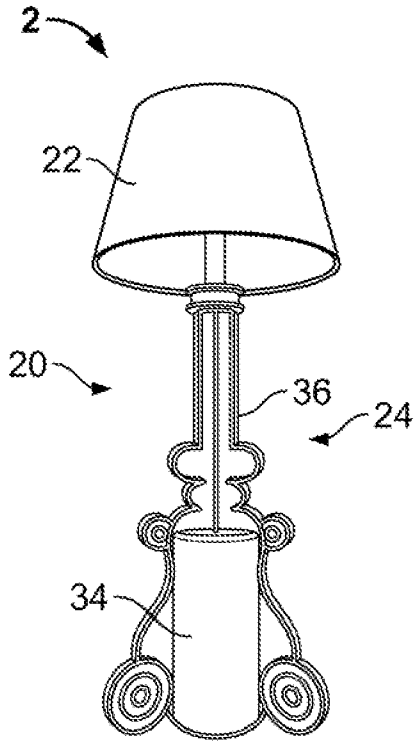


FIG. 4O

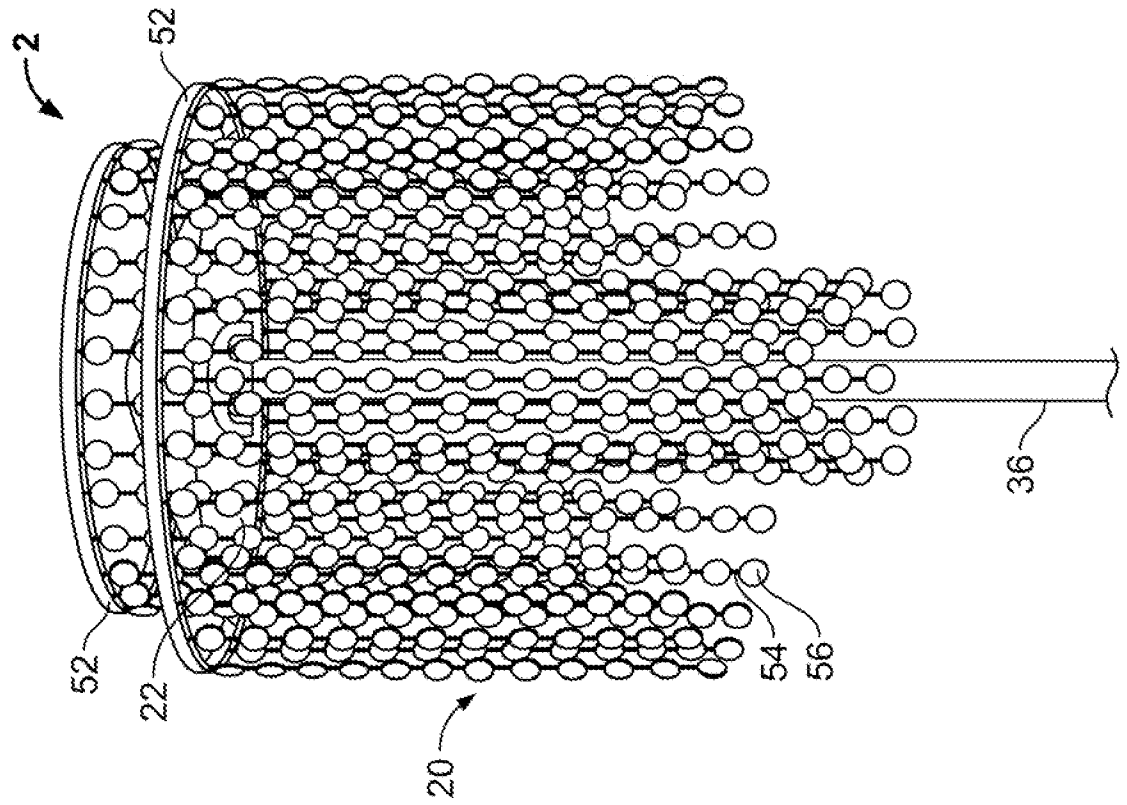


FIG. 4P'

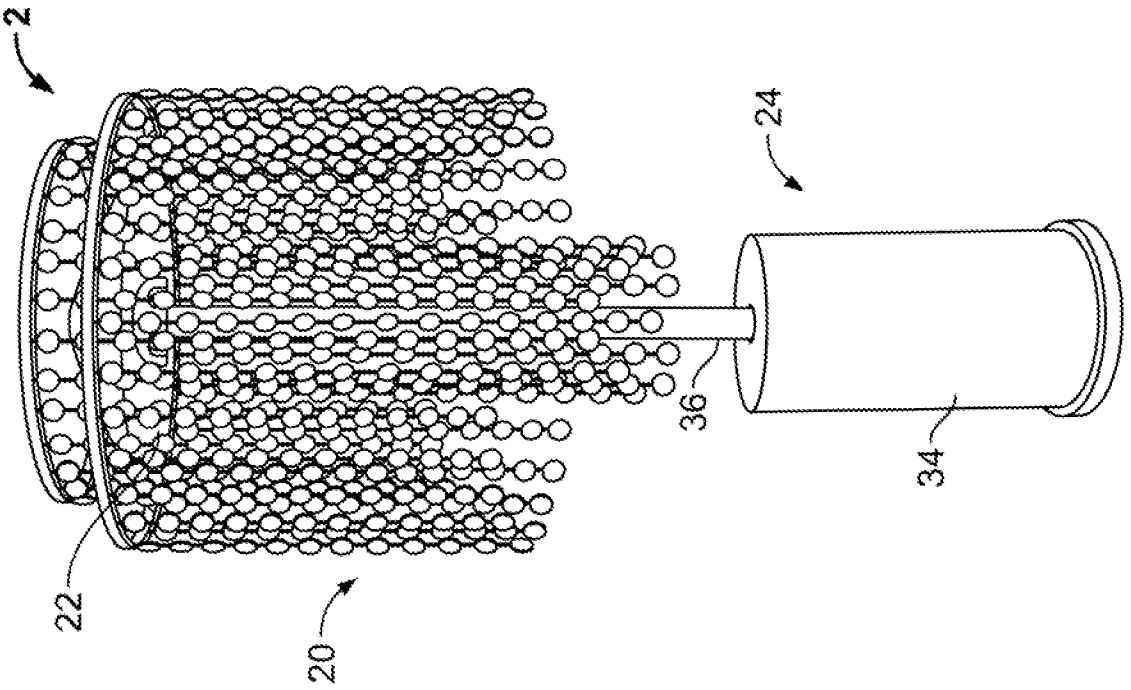


FIG. 4P

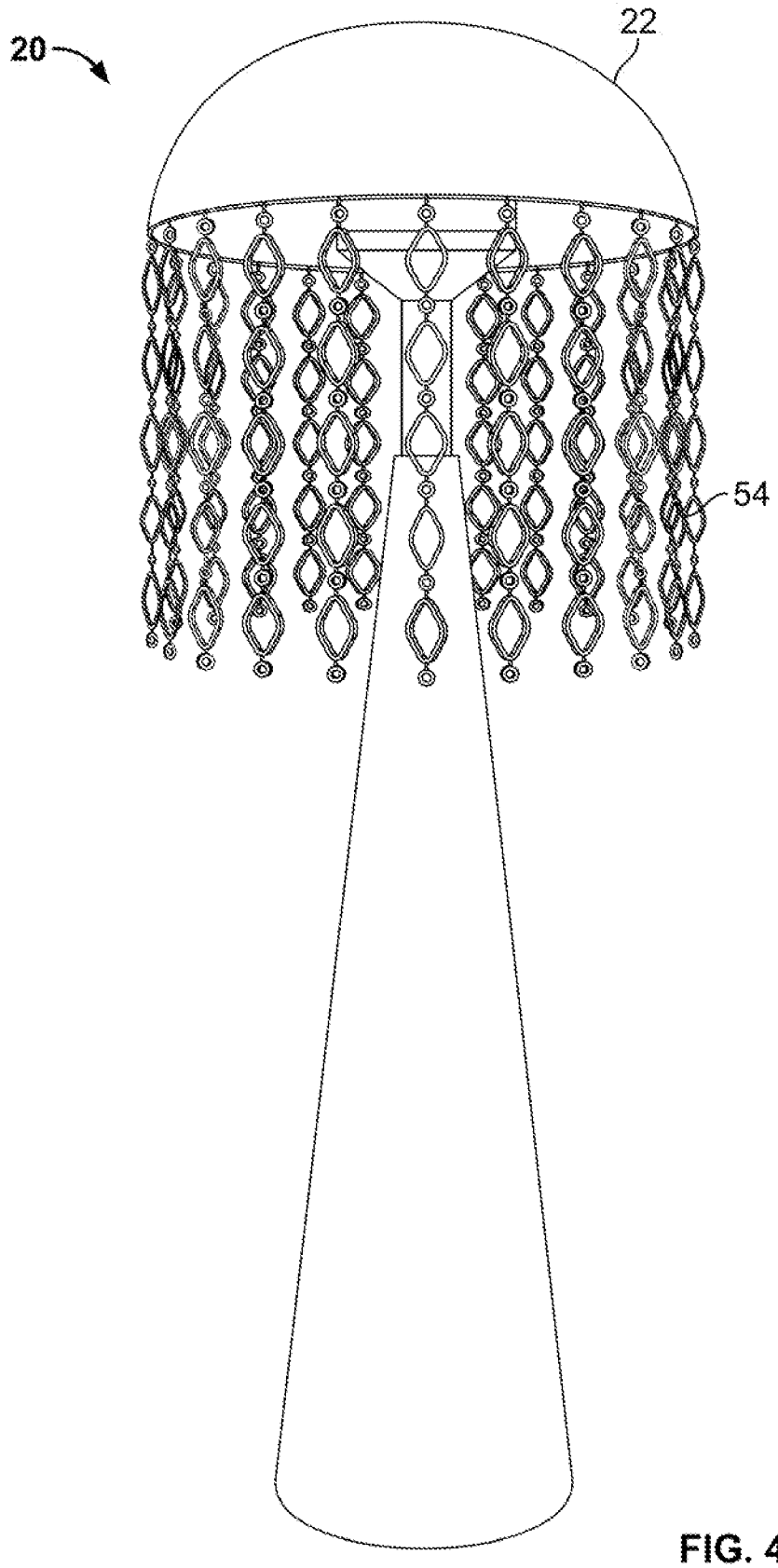


FIG. 4Q

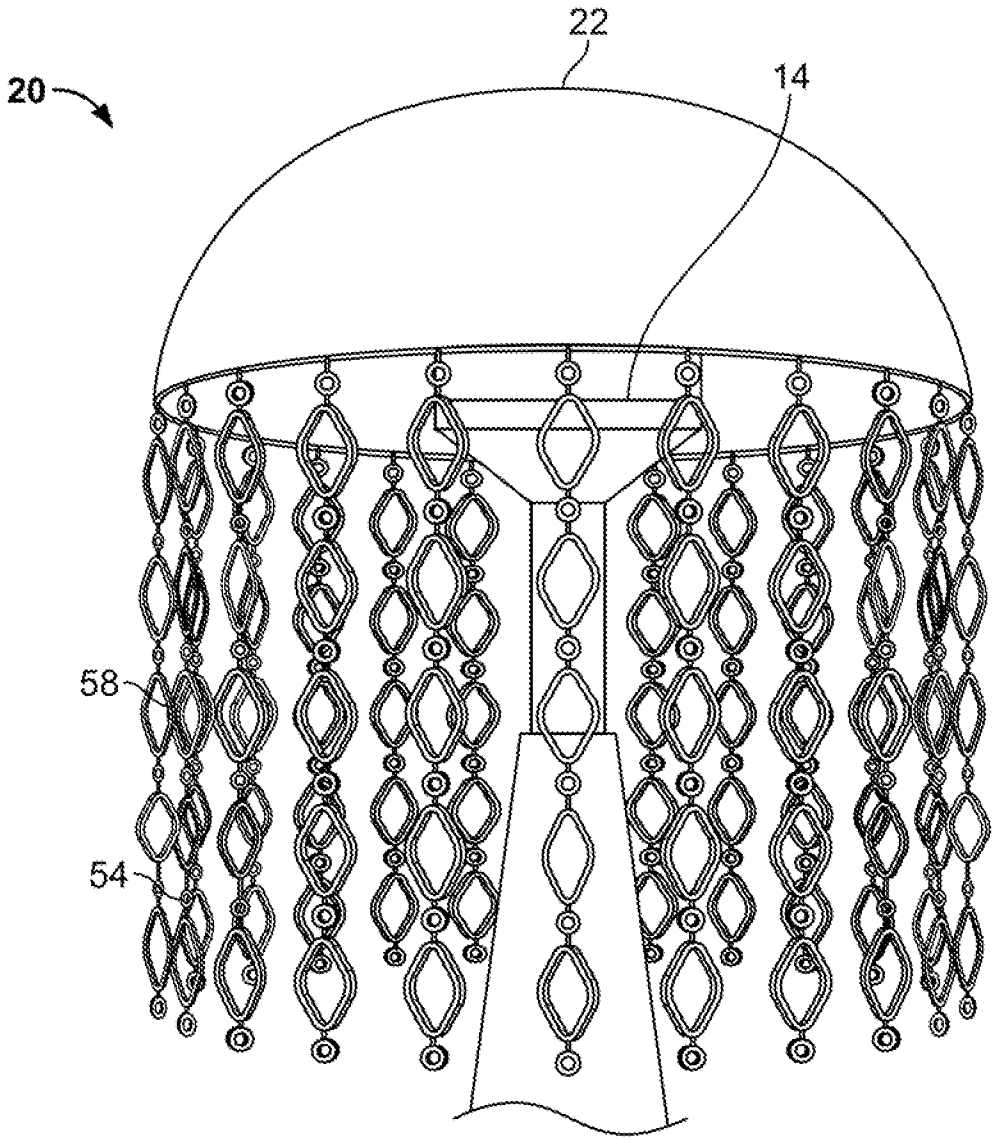


FIG. 4Q'

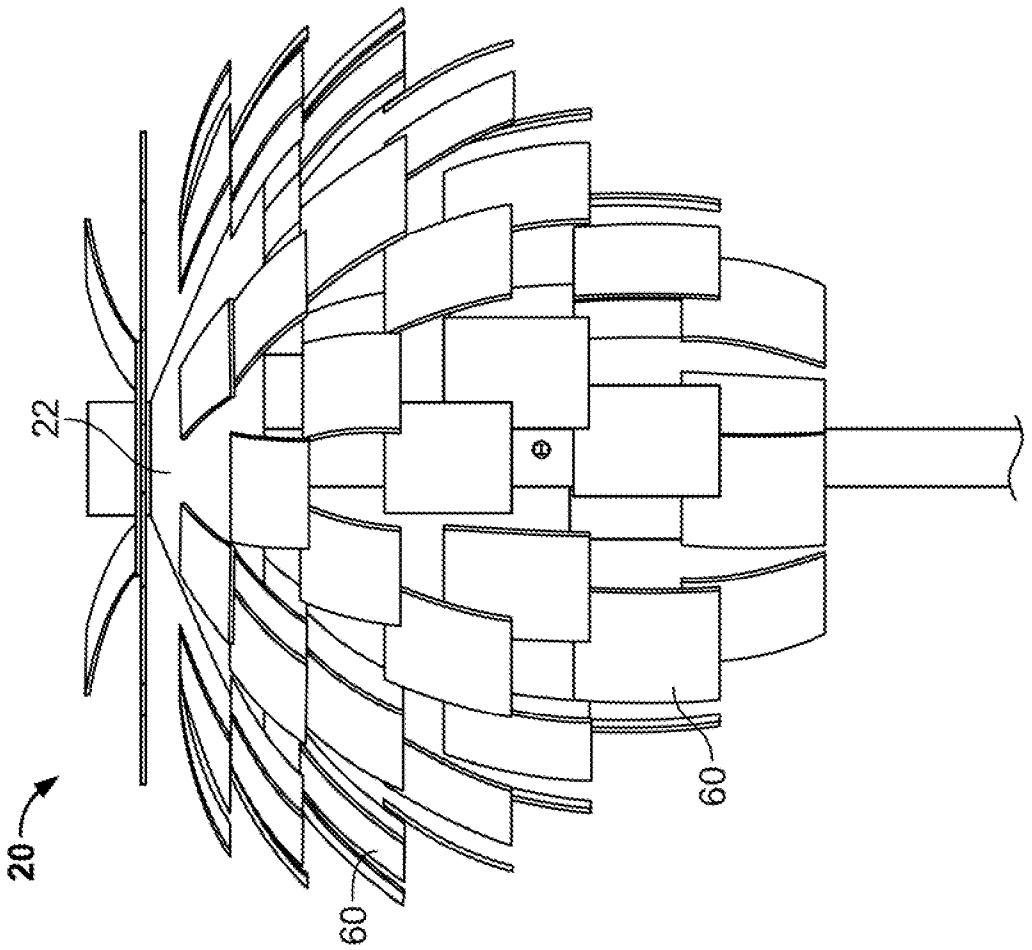


FIG. 4R'

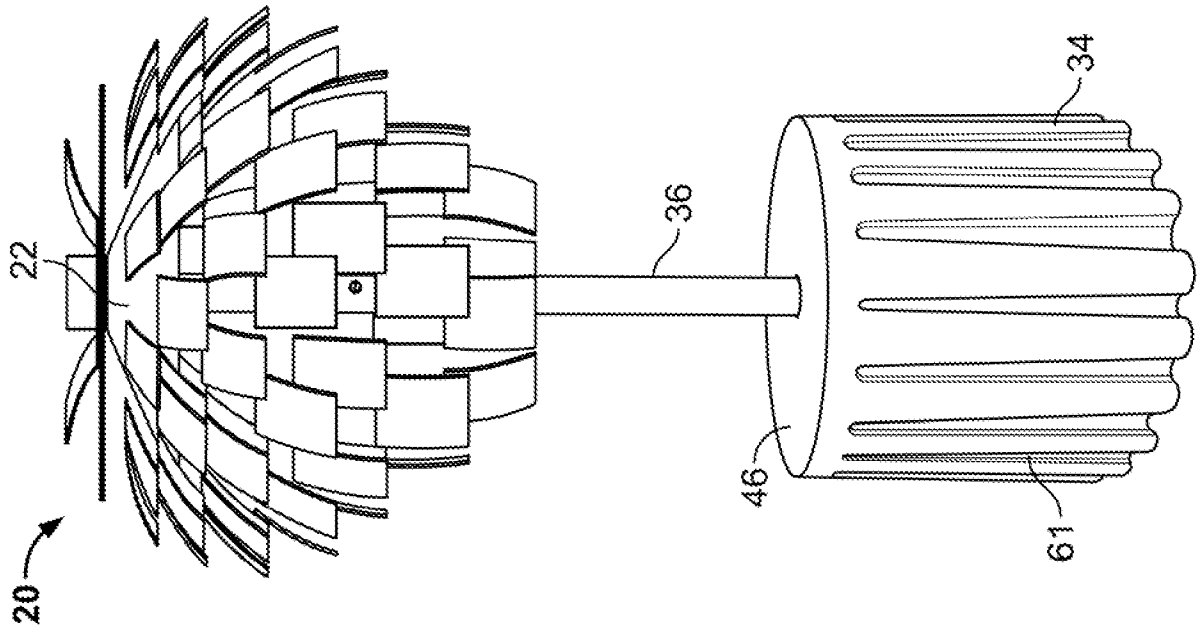


FIG. 4R

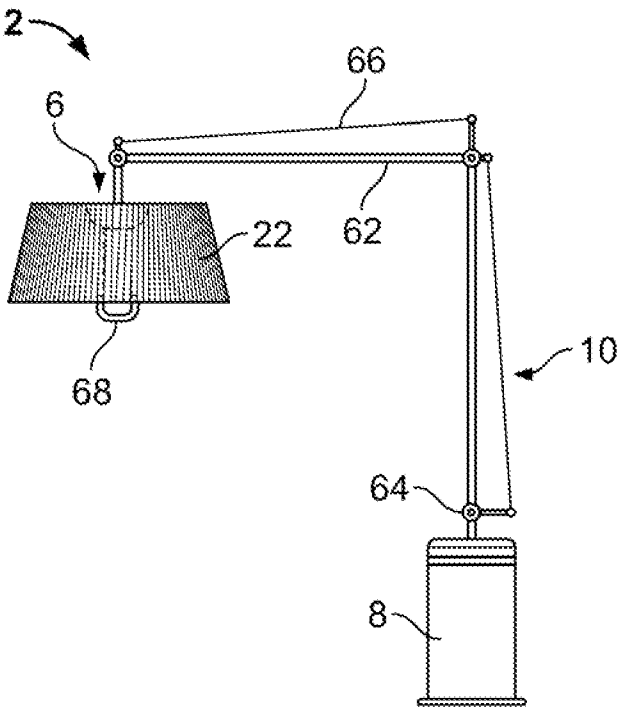


FIG. 5A

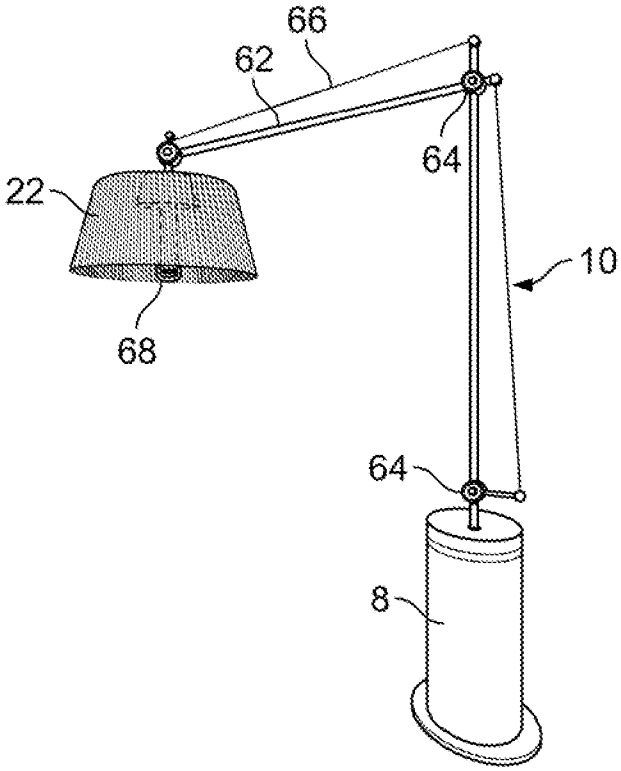


FIG. 5B

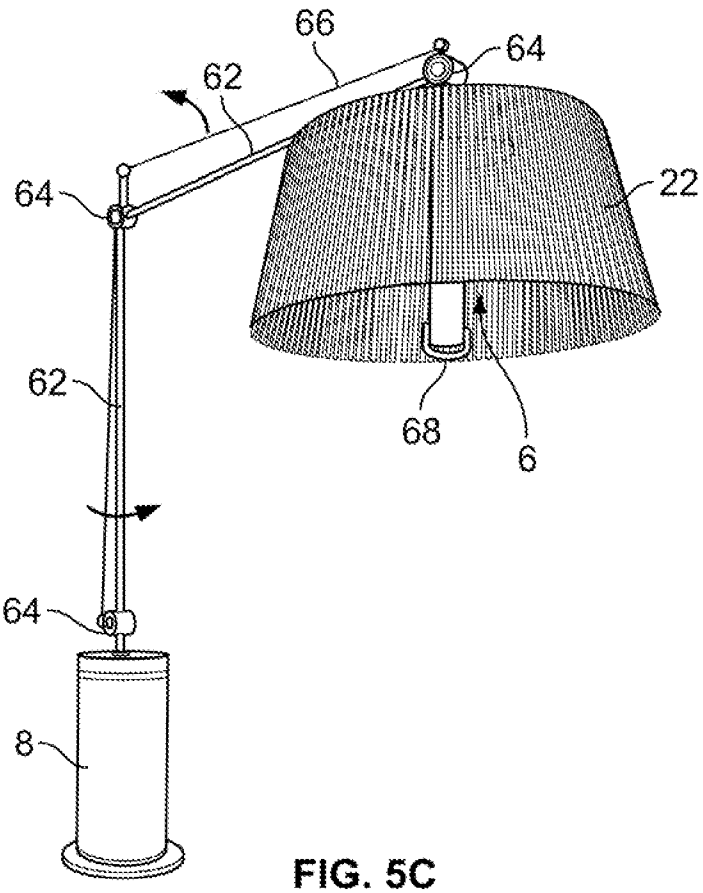


FIG. 5C

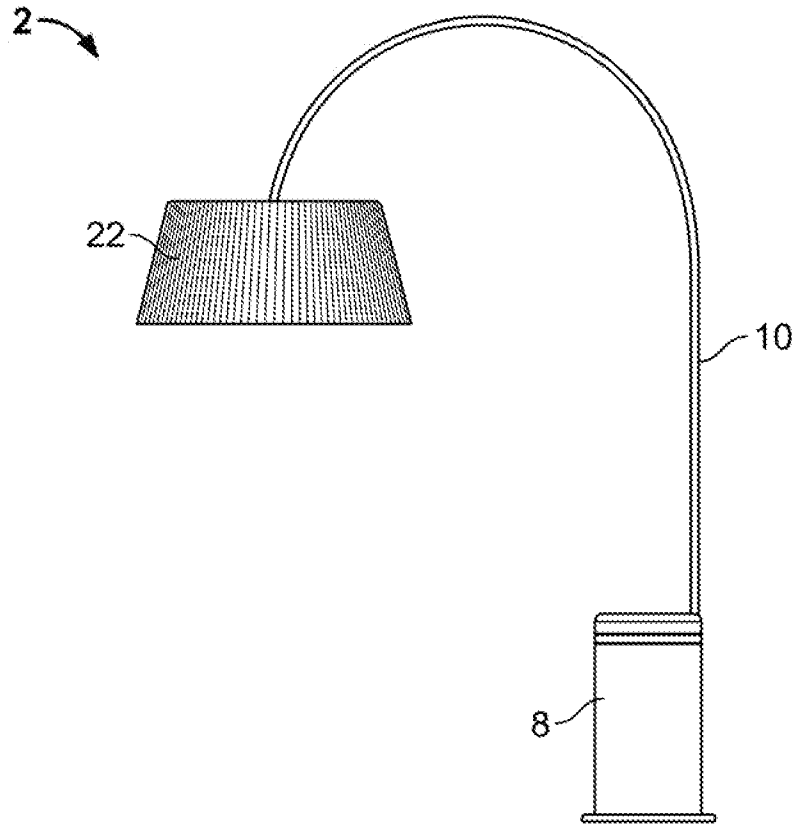


FIG. 6

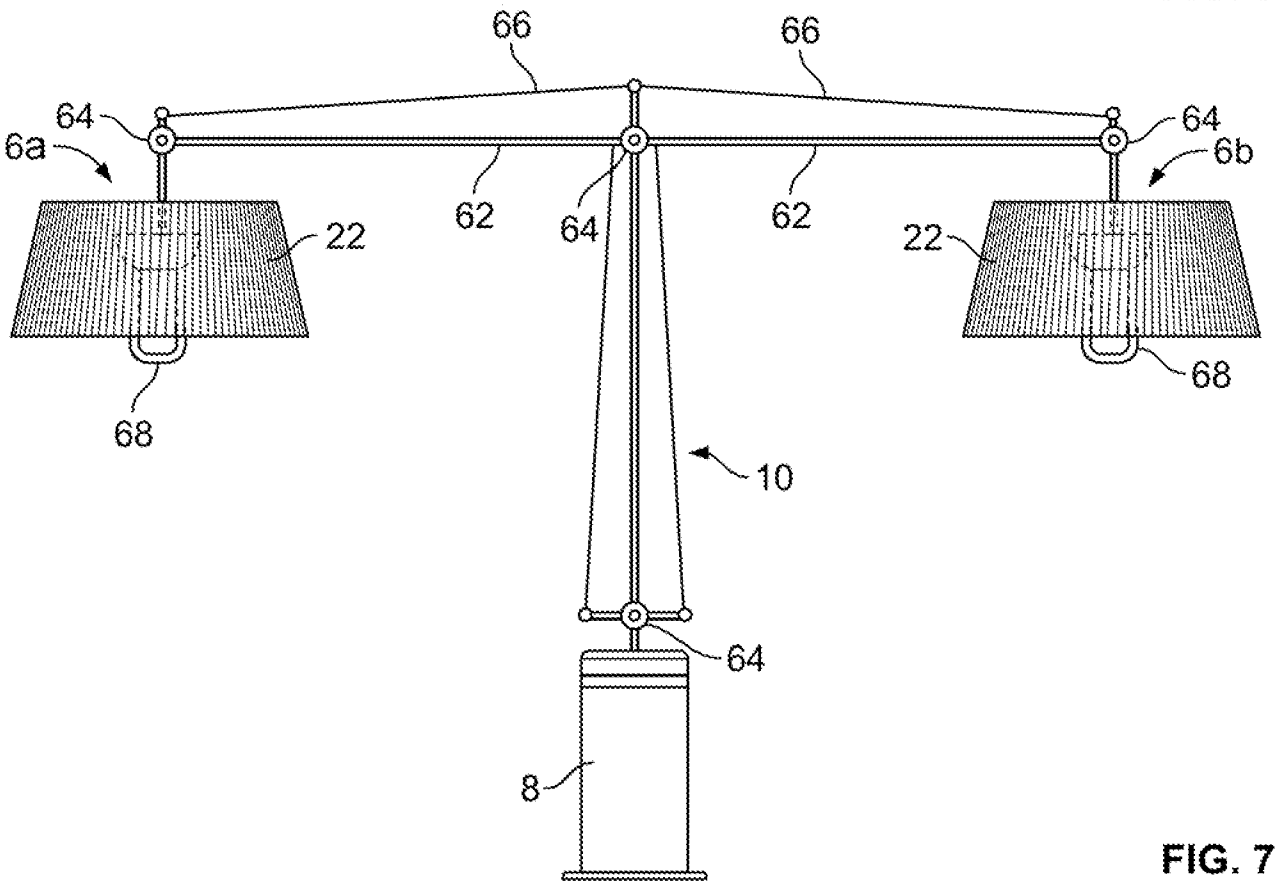


FIG. 7

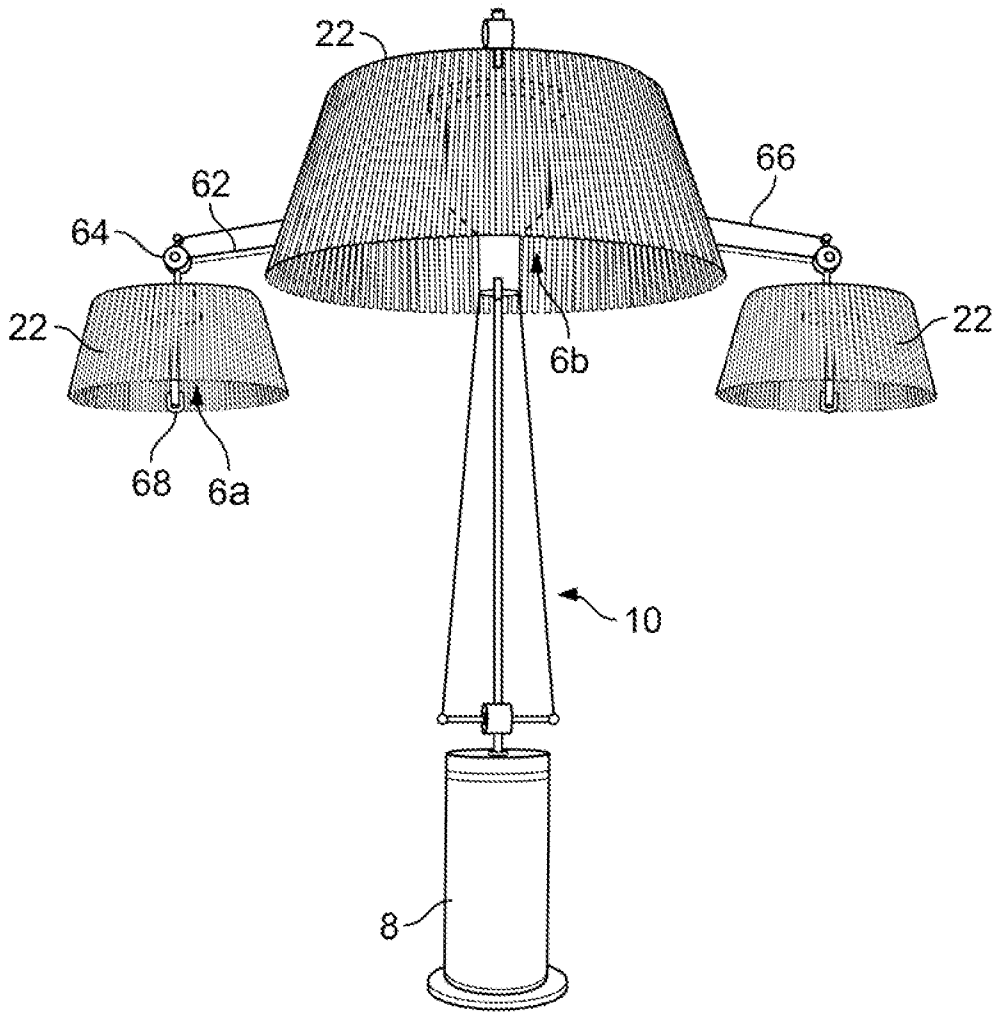


FIG. 8A

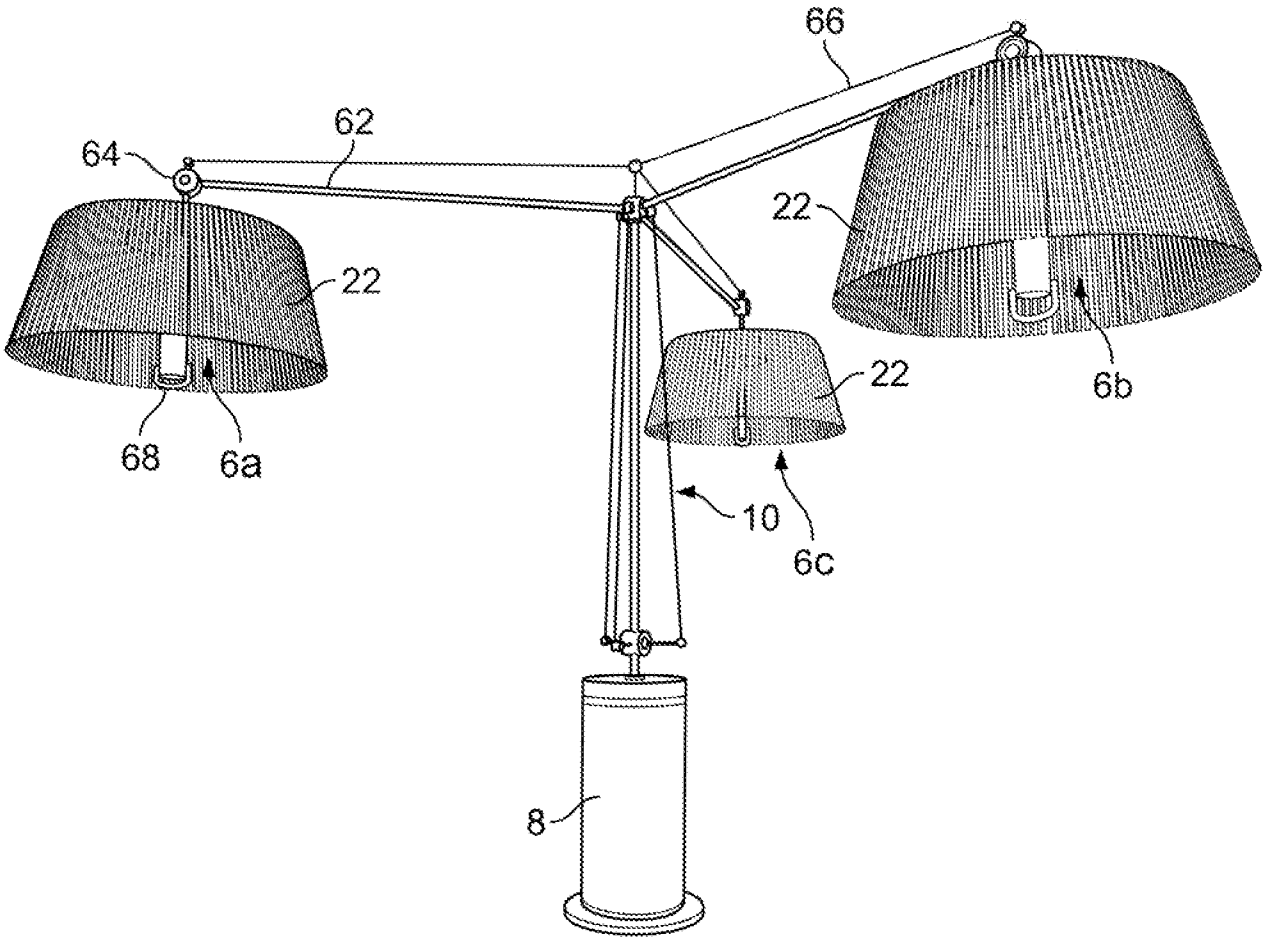


FIG. 8B

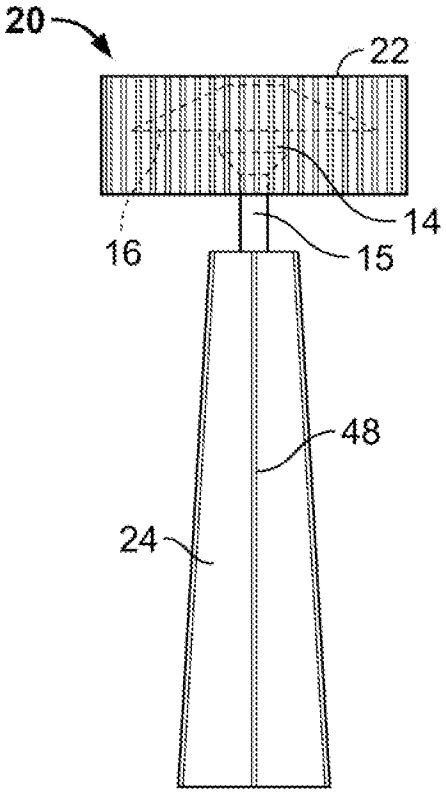


FIG. 9A

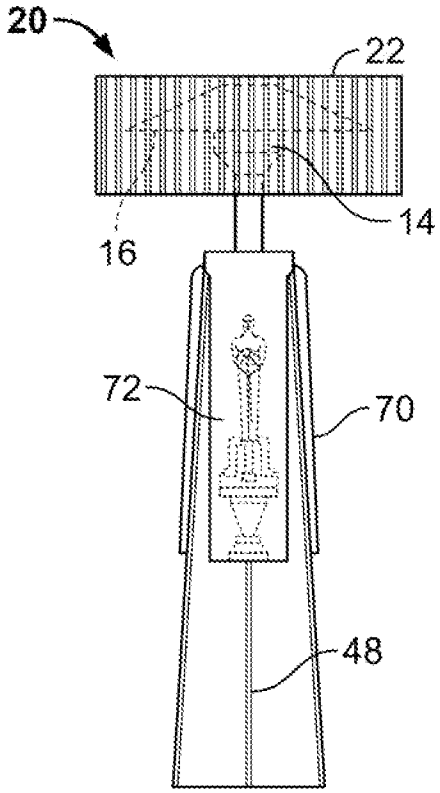


FIG. 9B

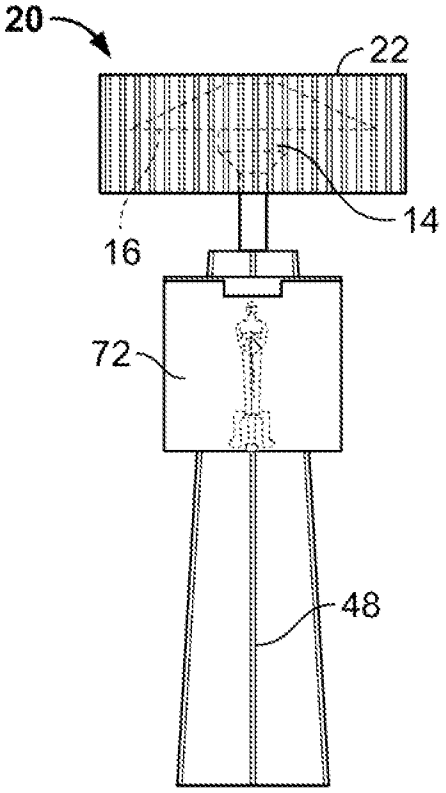


FIG. 9C

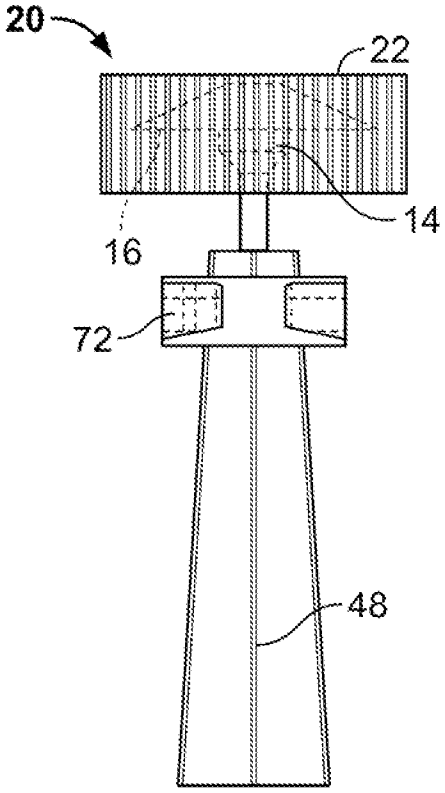


FIG. 9D

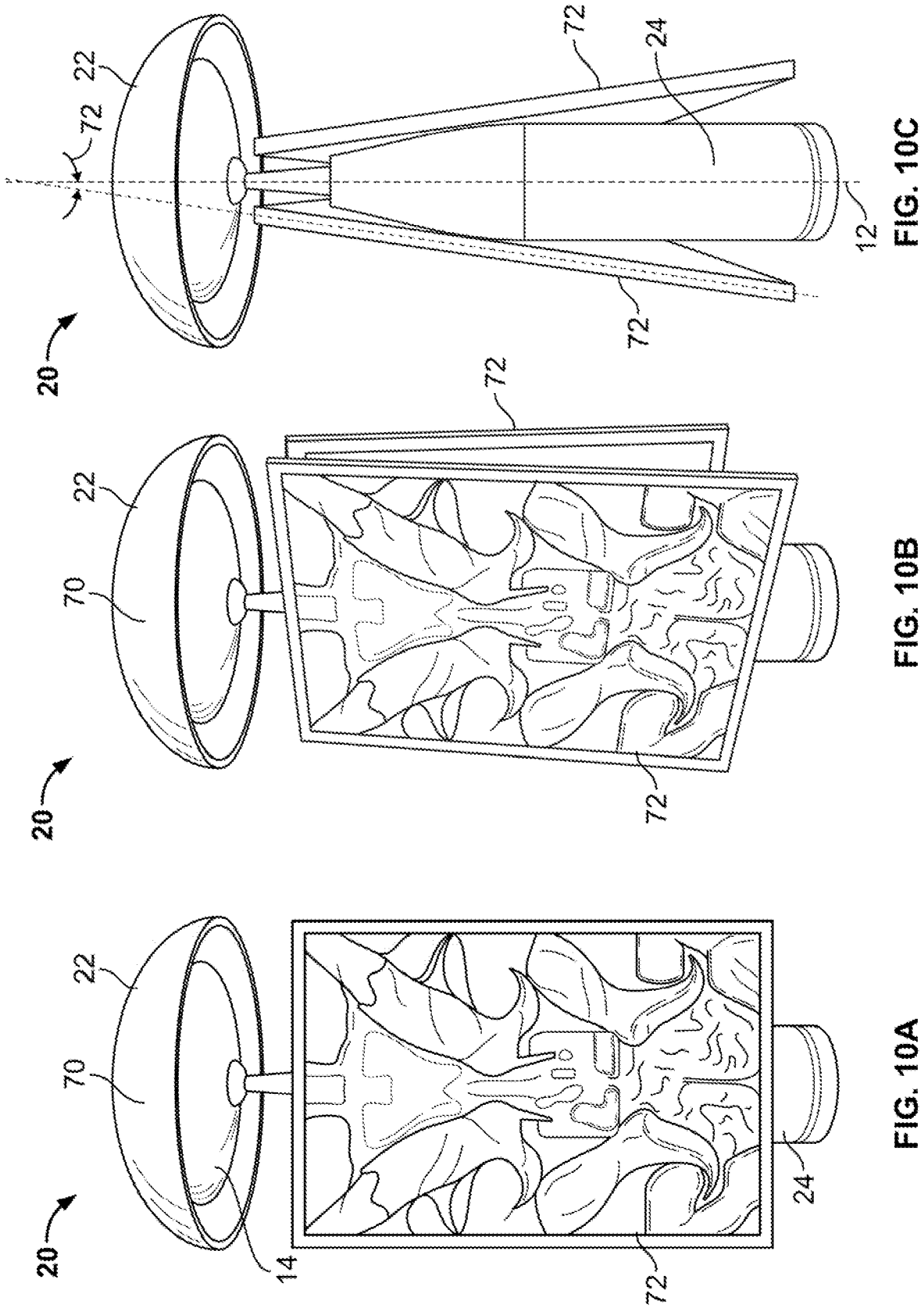


FIG. 10C

FIG. 10B

FIG. 10A

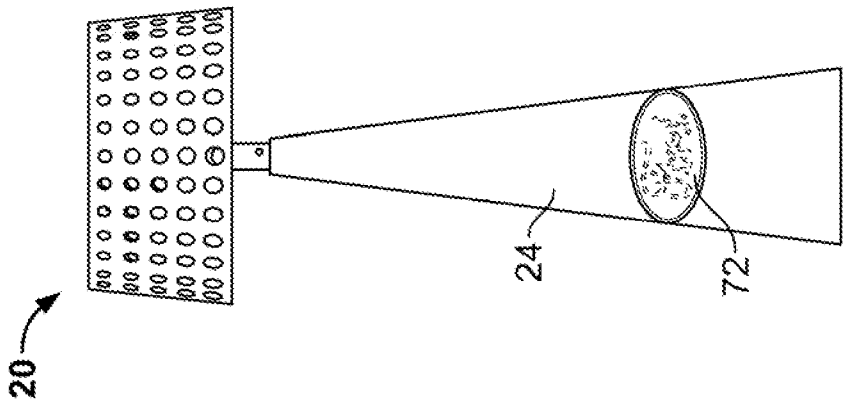


FIG. 13

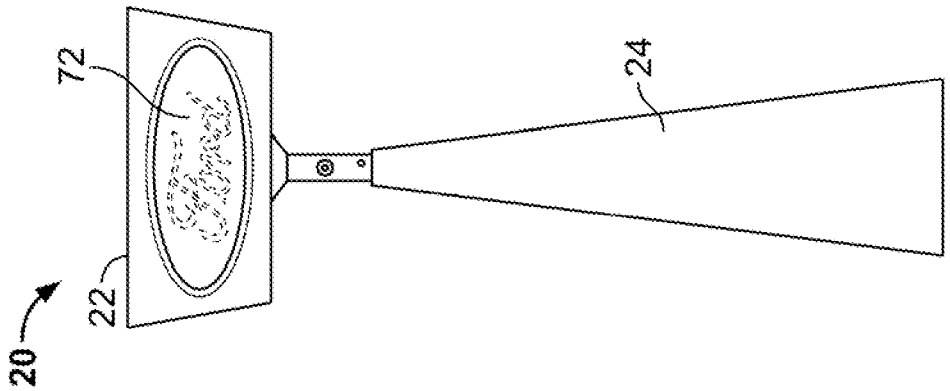


FIG. 12

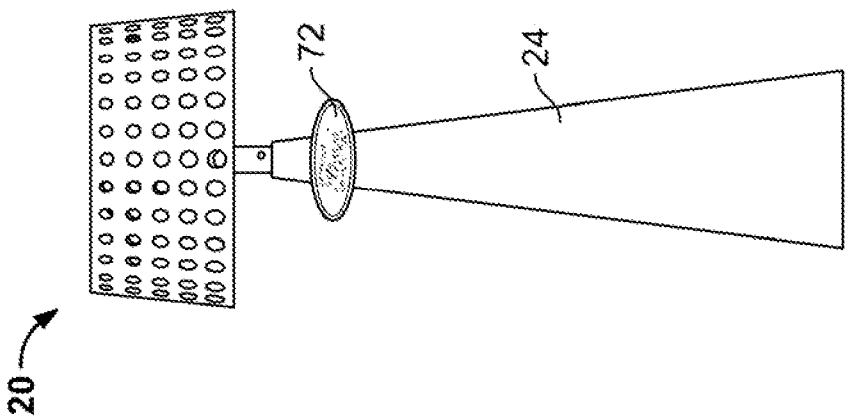


FIG. 11

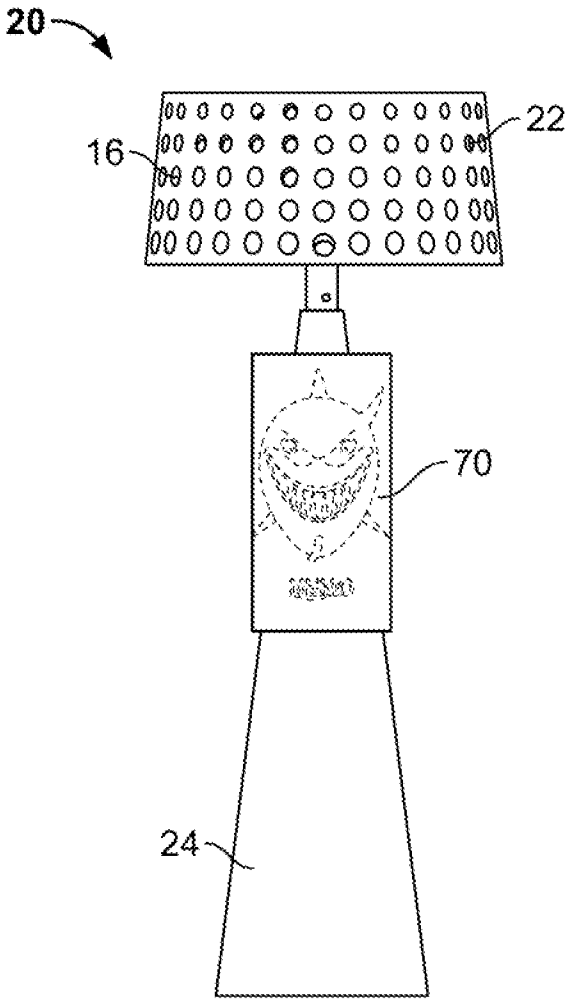


FIG. 14

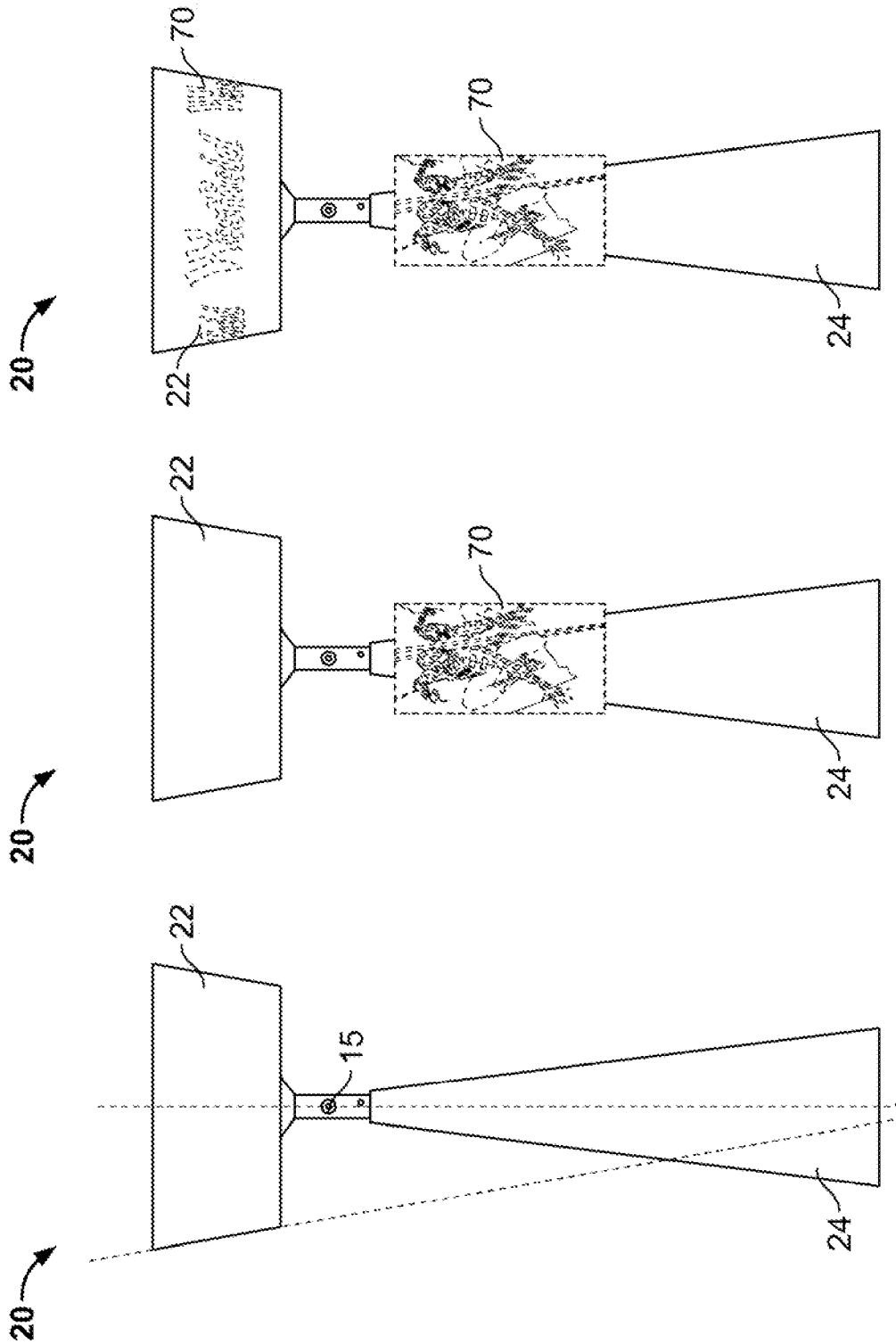


FIG. 15A

FIG. 15B

FIG. 15C

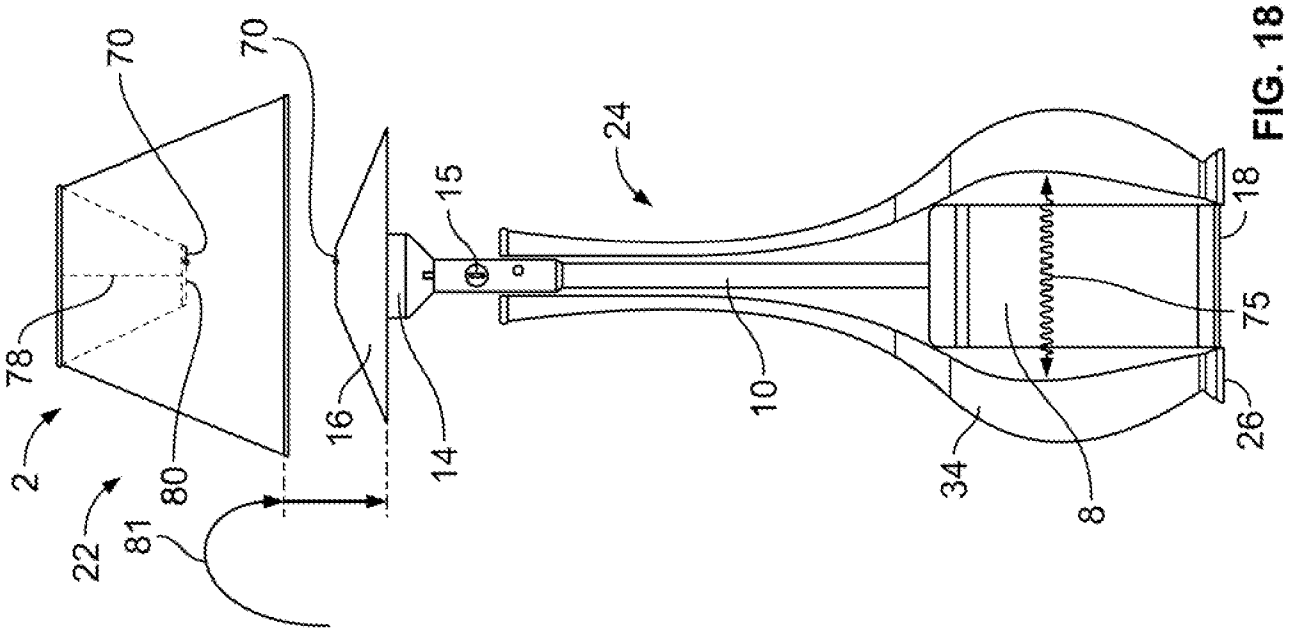


FIG. 18

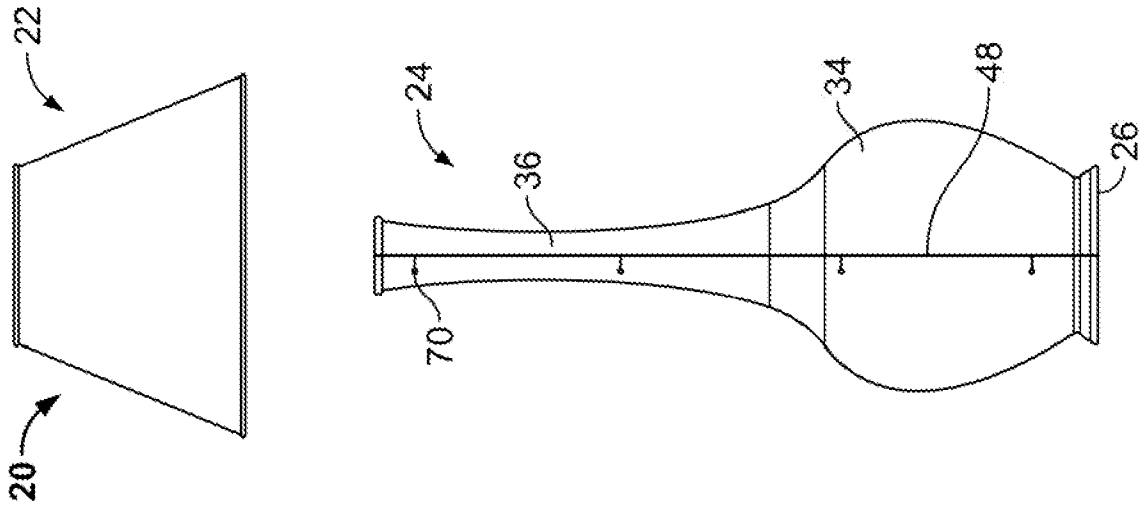


FIG. 17

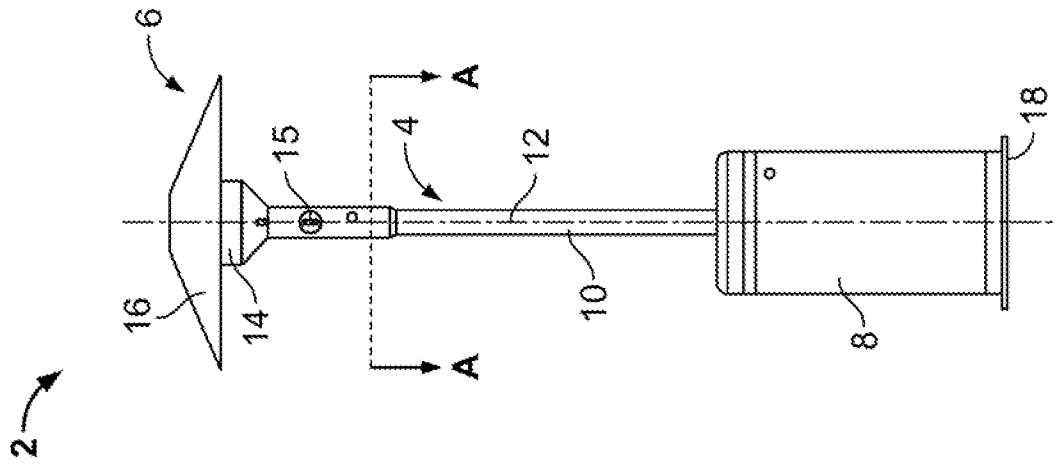


FIG. 16
NOT INVENTION

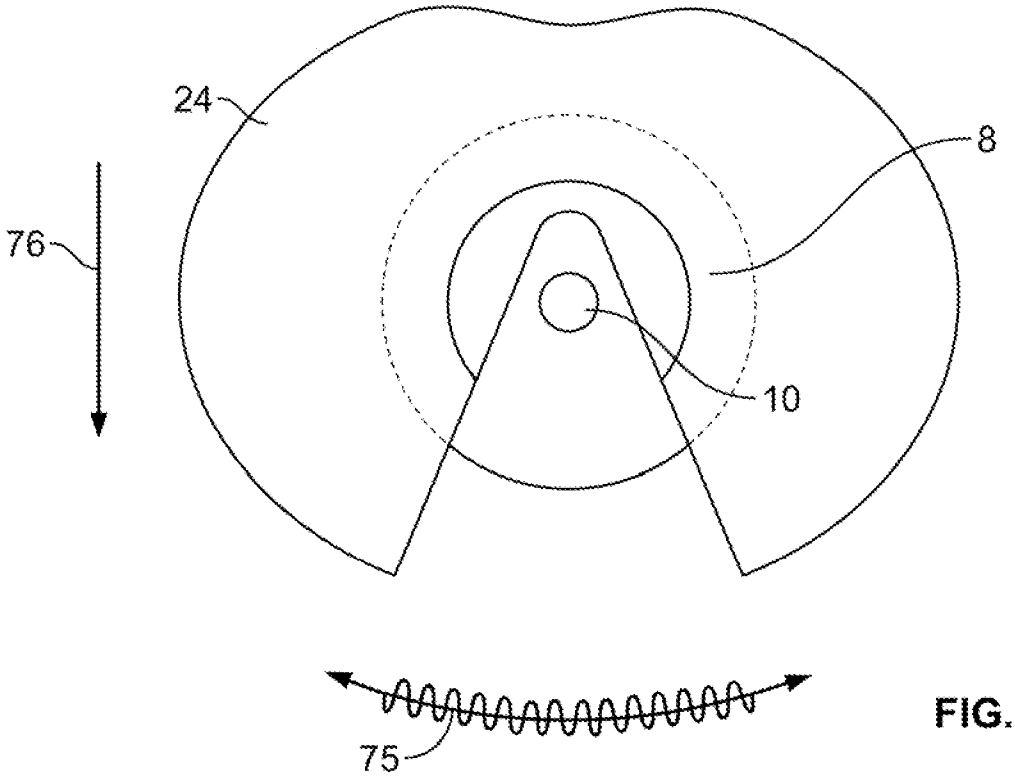


FIG. 19

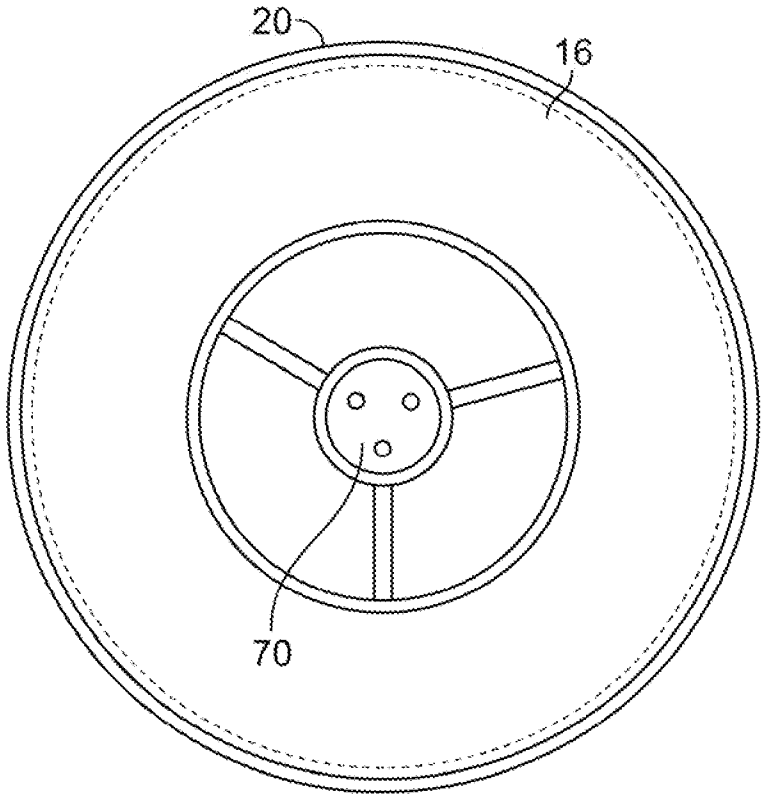


FIG. 20

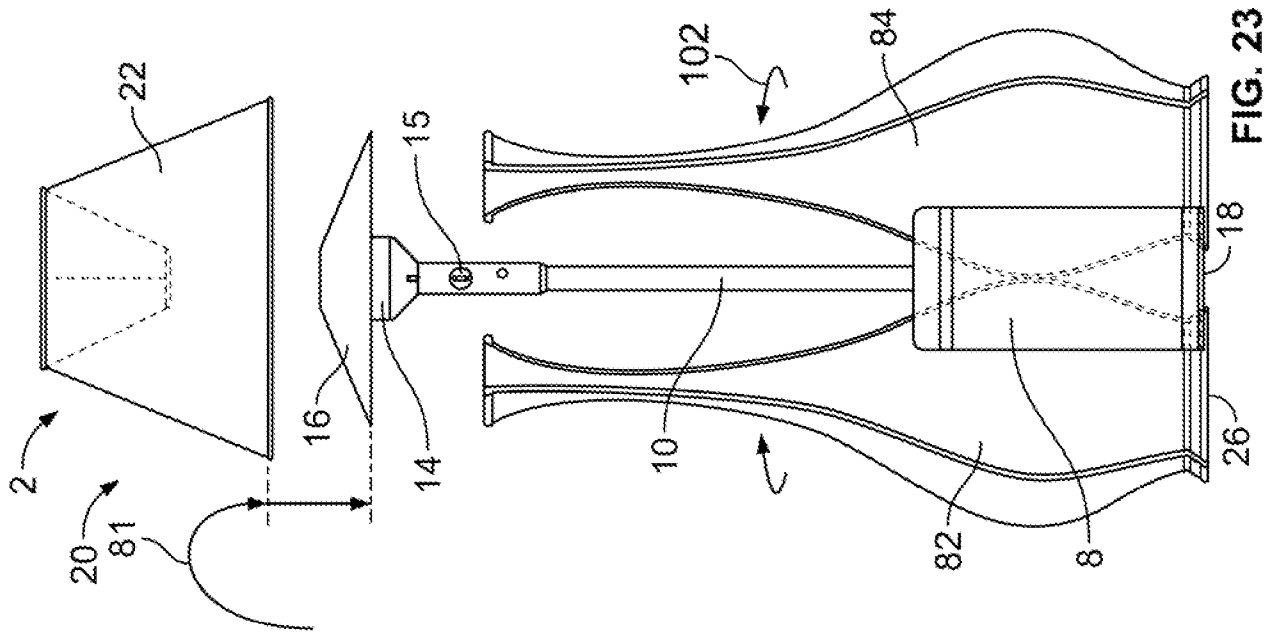


FIG. 23

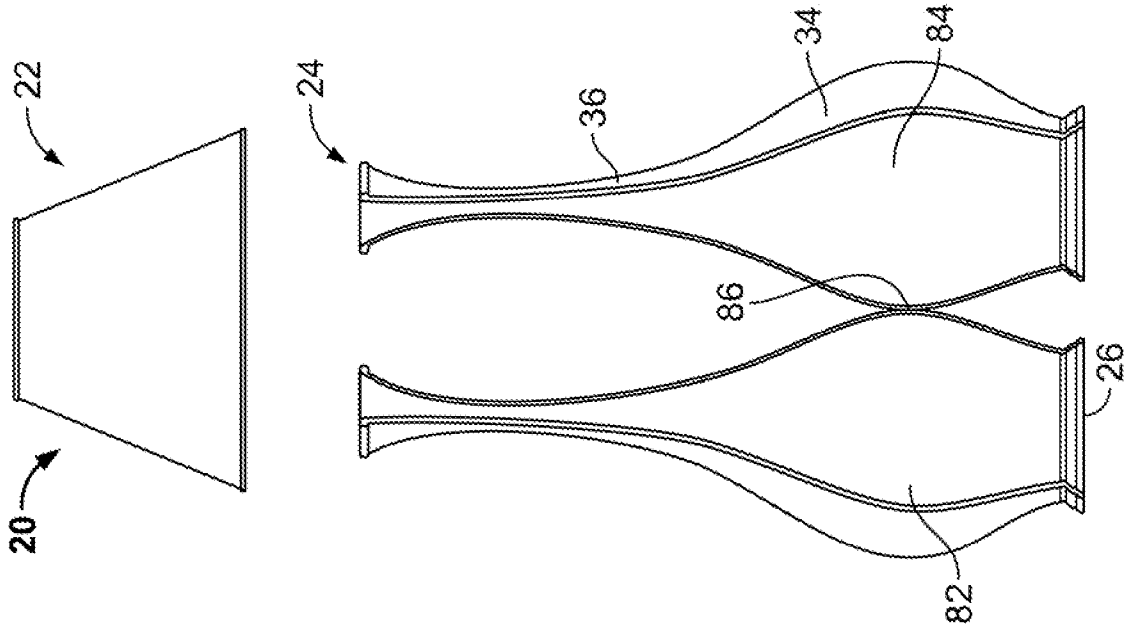


FIG. 22

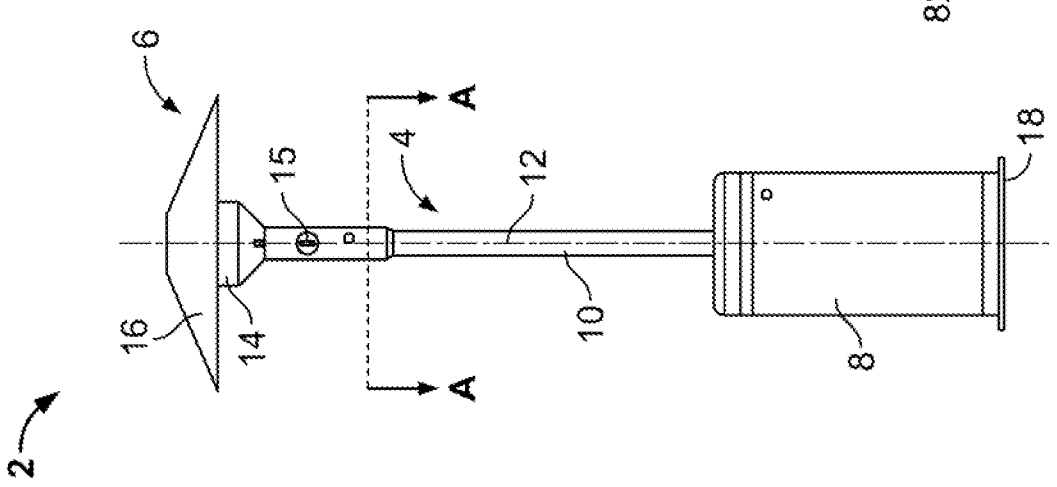


FIG. 21
NOT INVENTION

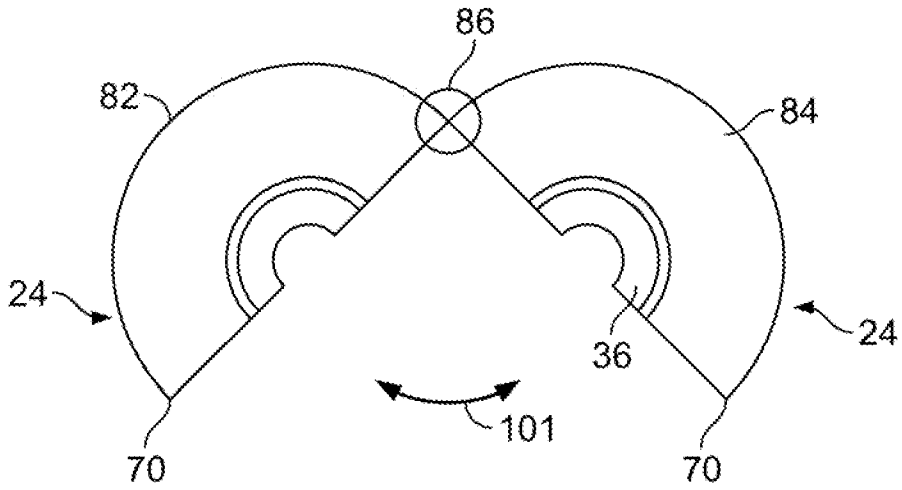


FIG. 24

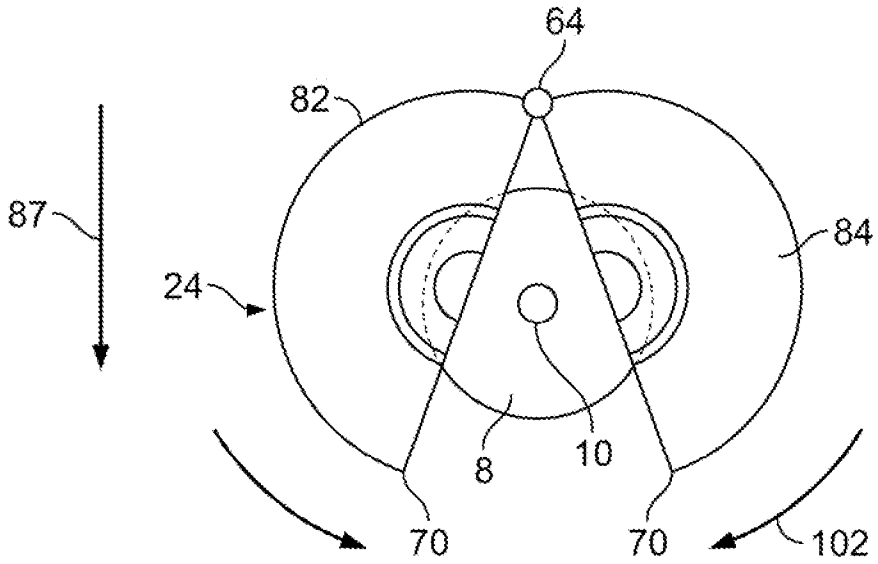


FIG. 25

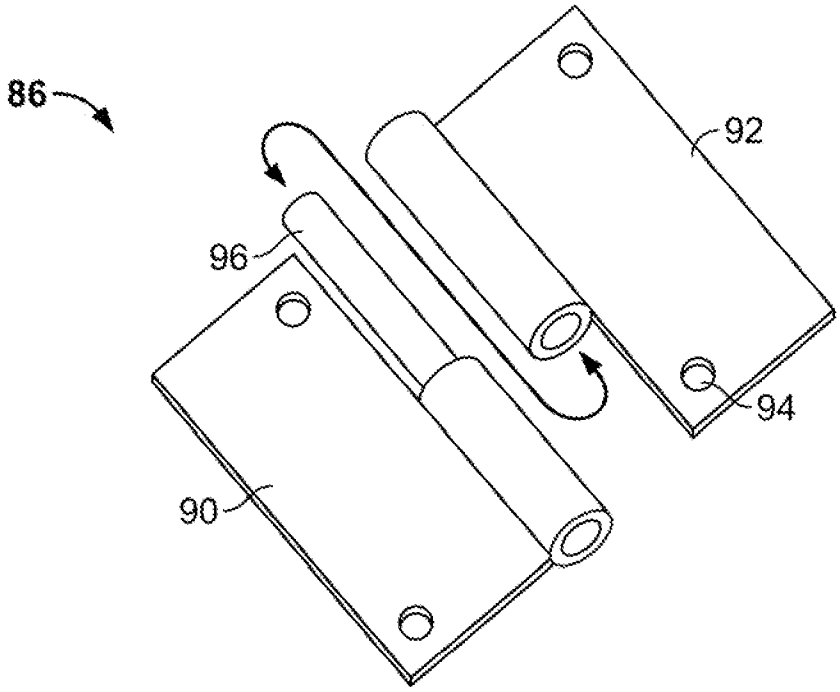


FIG. 26

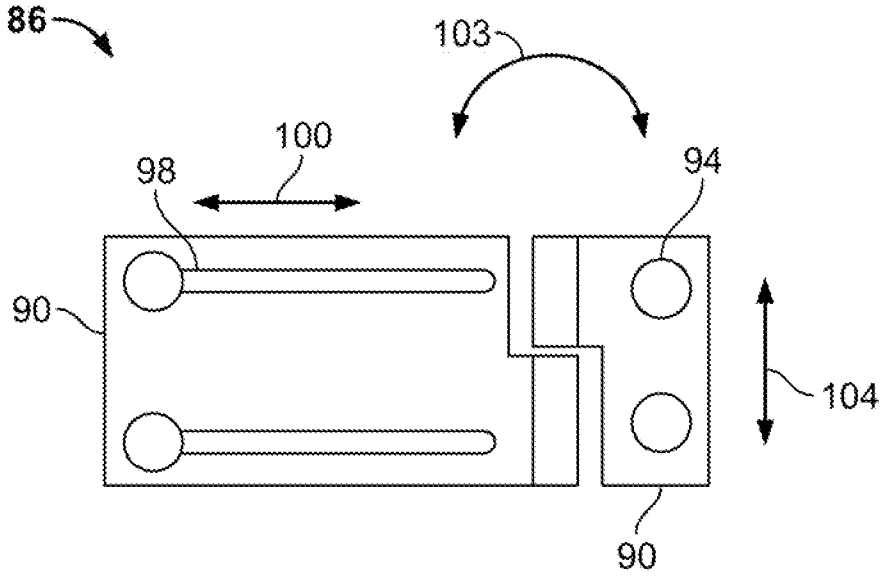


FIG. 27

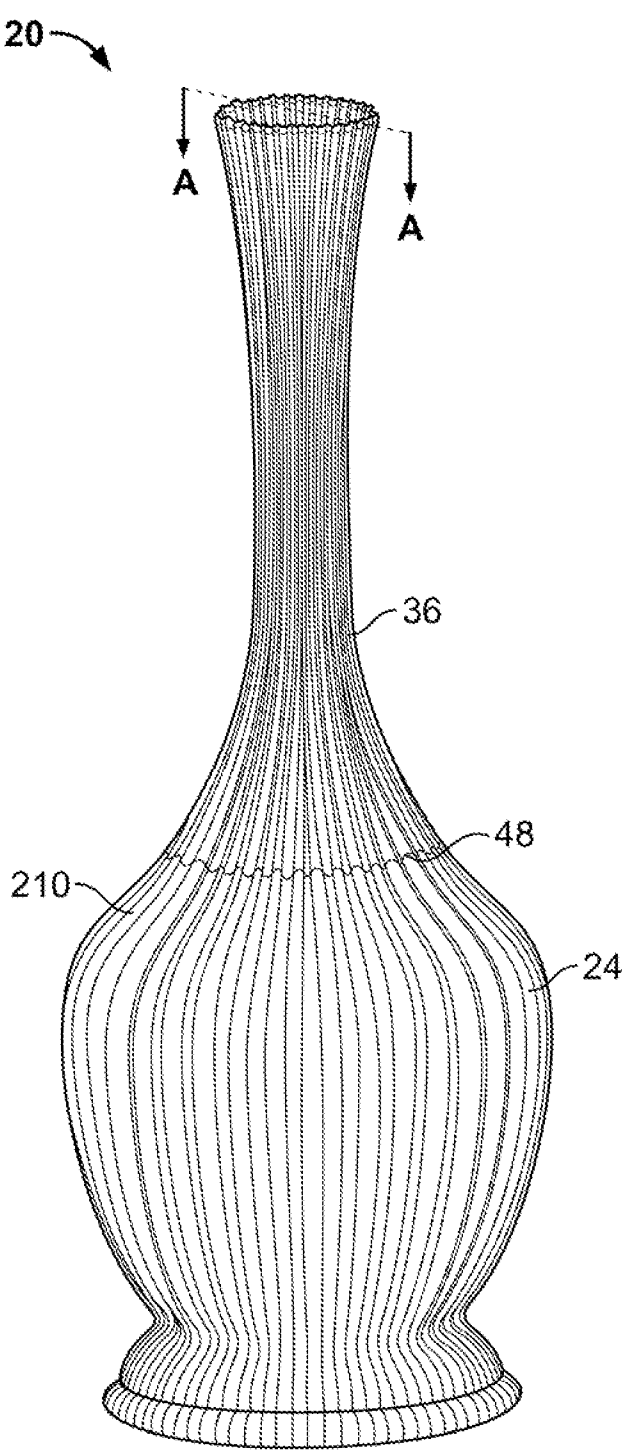


FIG. 28

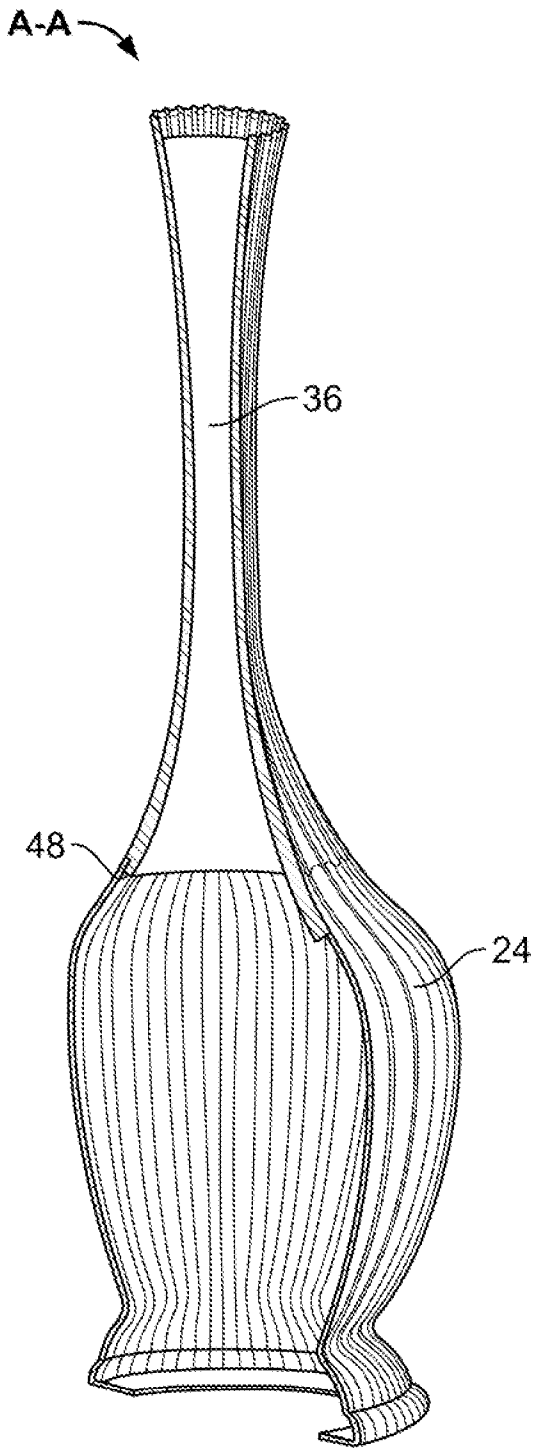


FIG. 29

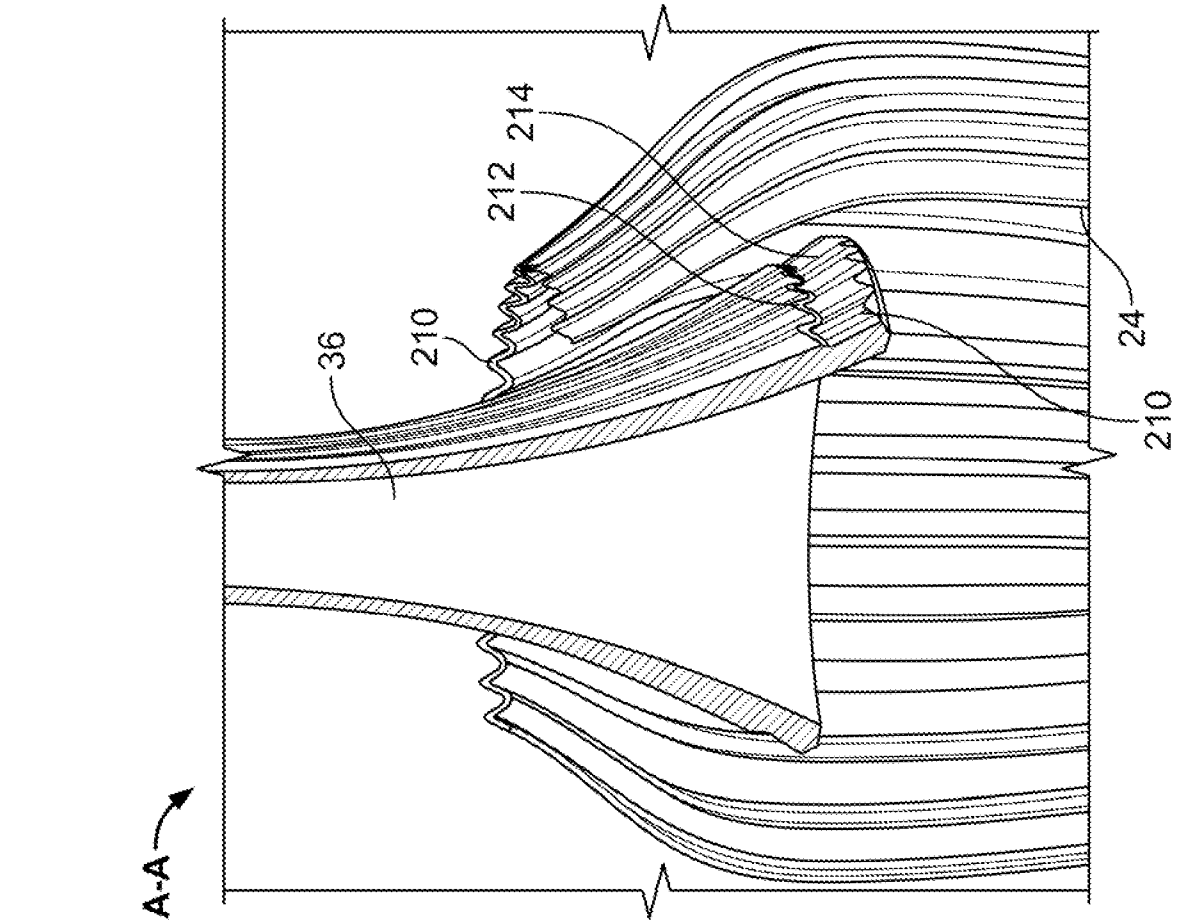


FIG. 31

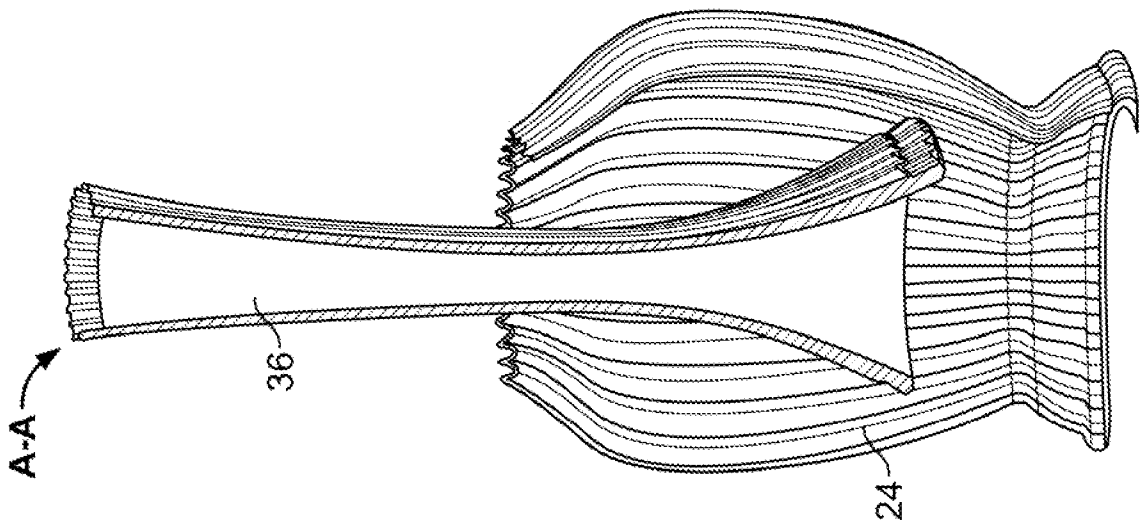


FIG. 30

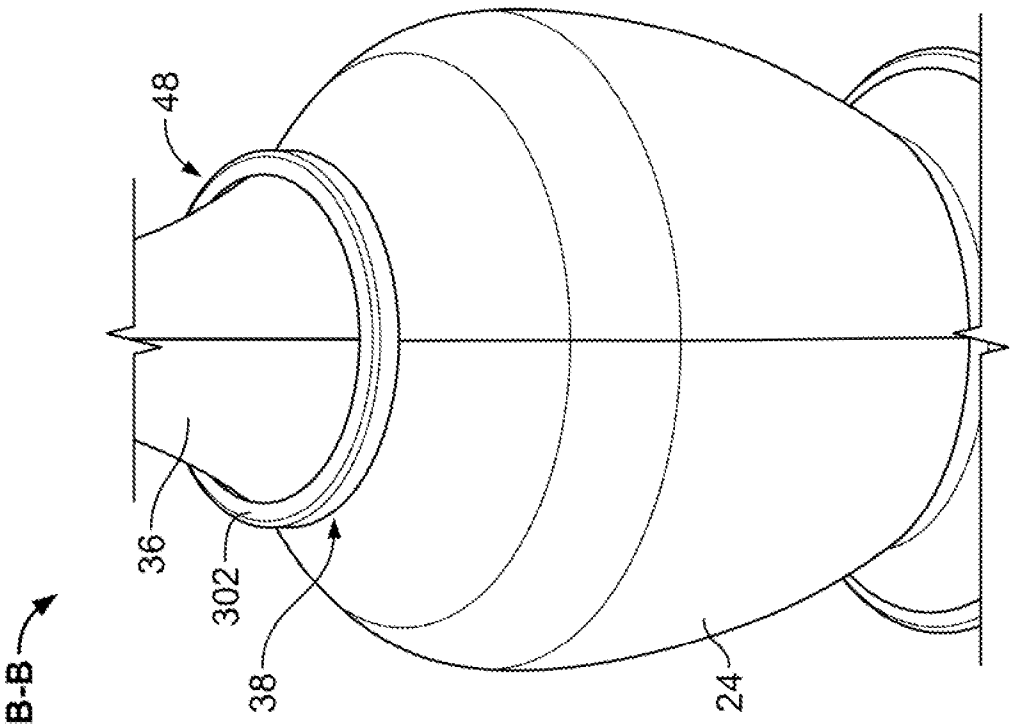


FIG. 32B

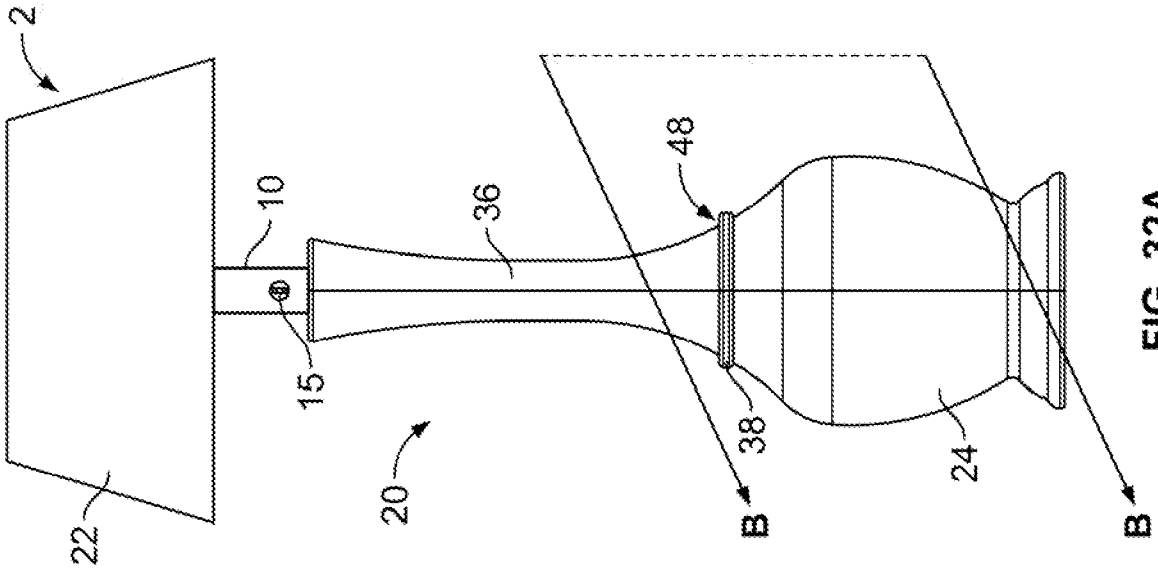


FIG. 32A

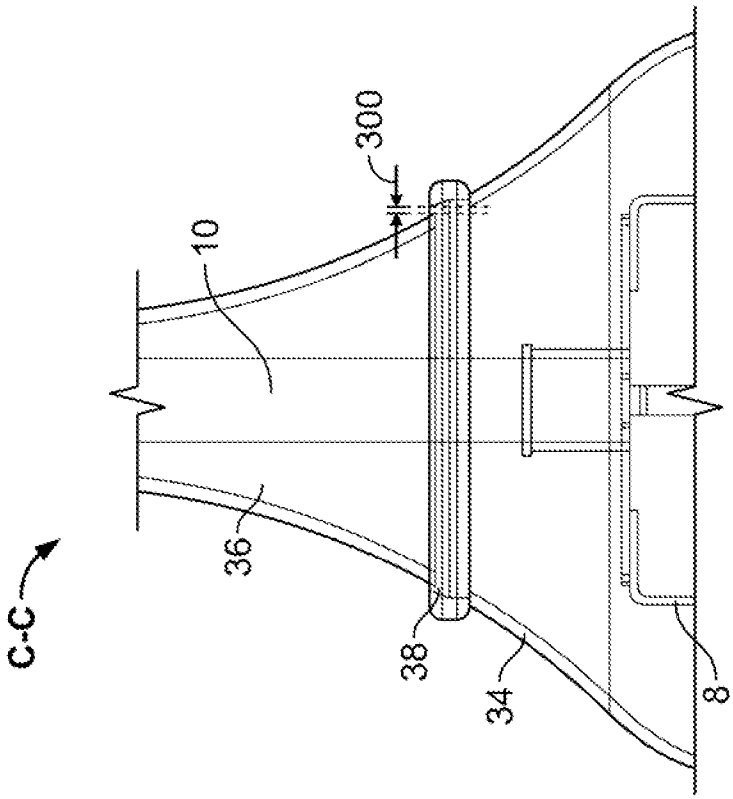


FIG. 32D

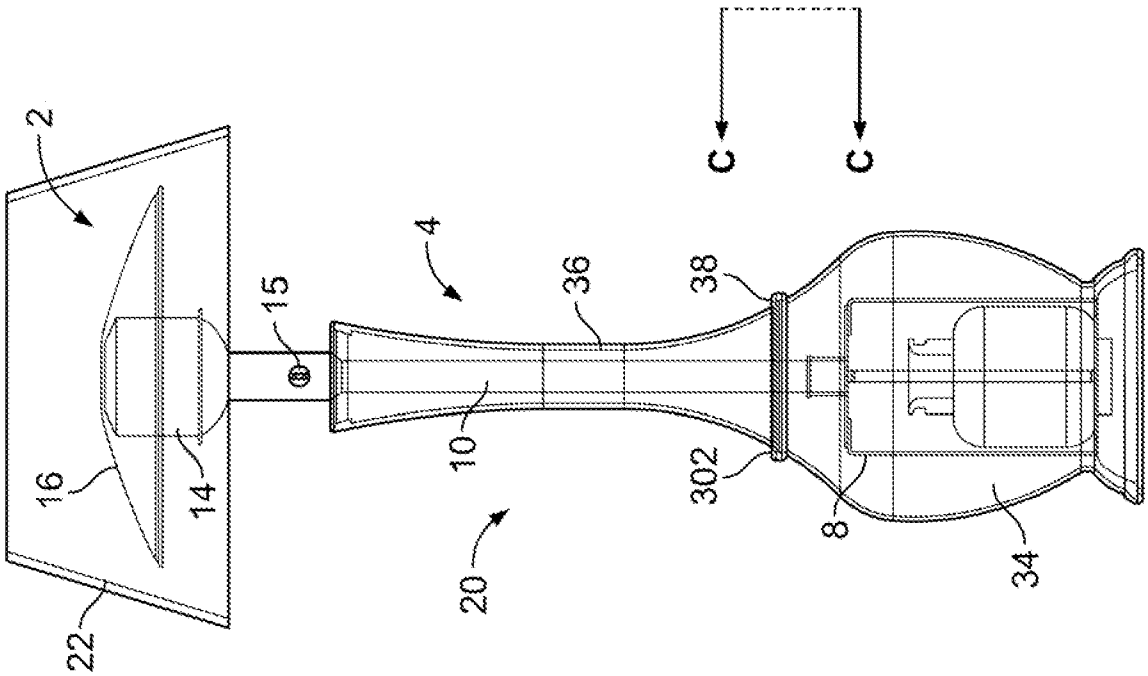


FIG. 32C

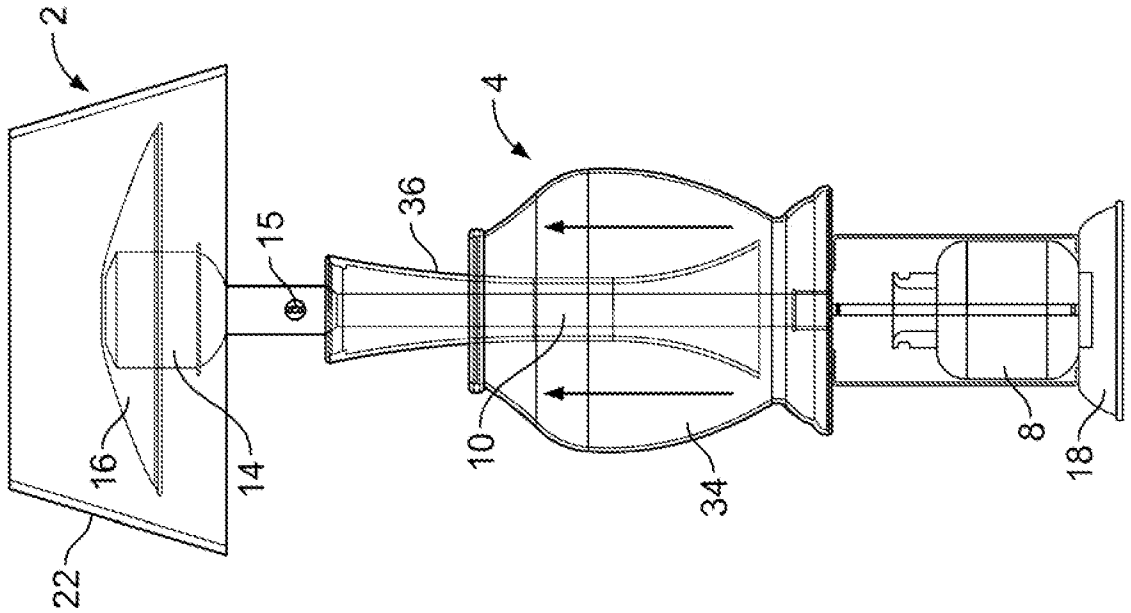


FIG. 33B

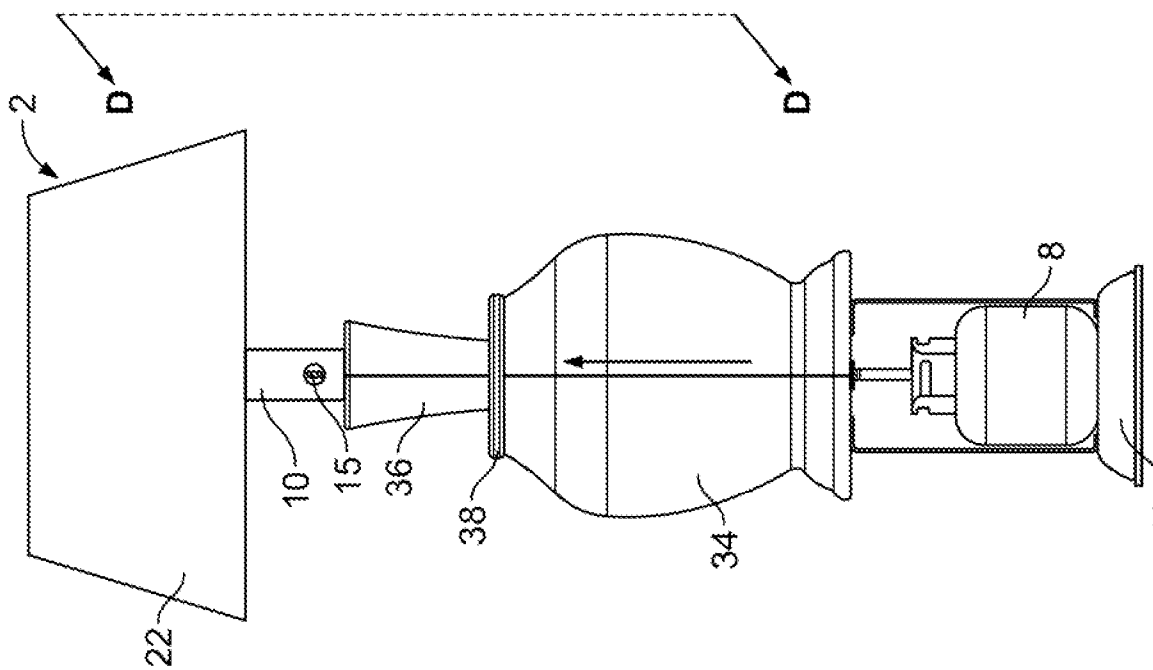


FIG. 33A

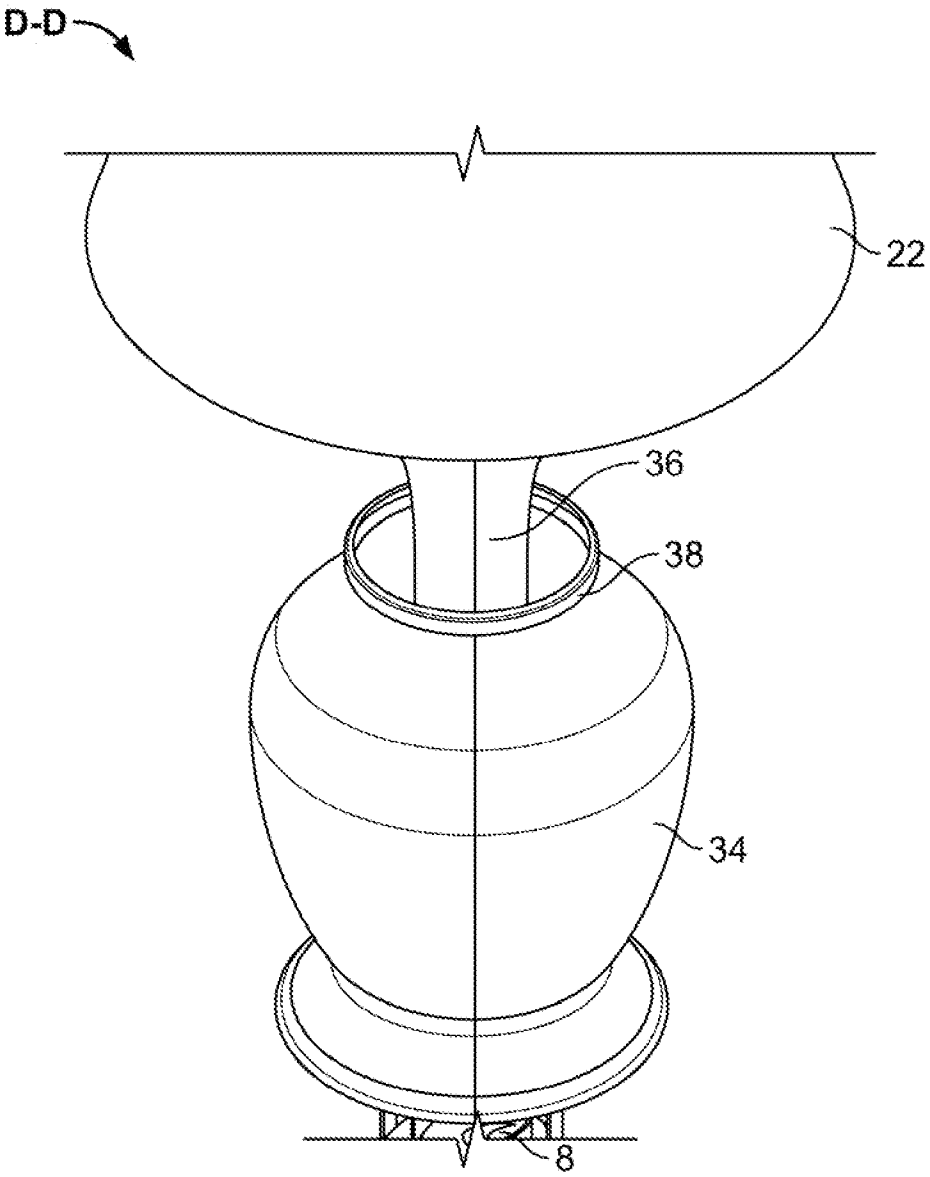


FIG. 33C

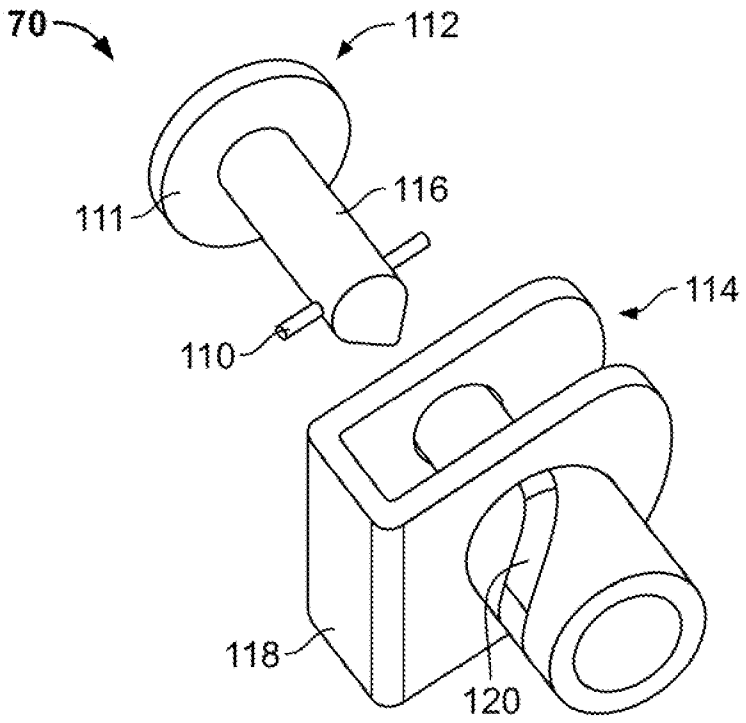

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FIG. 34

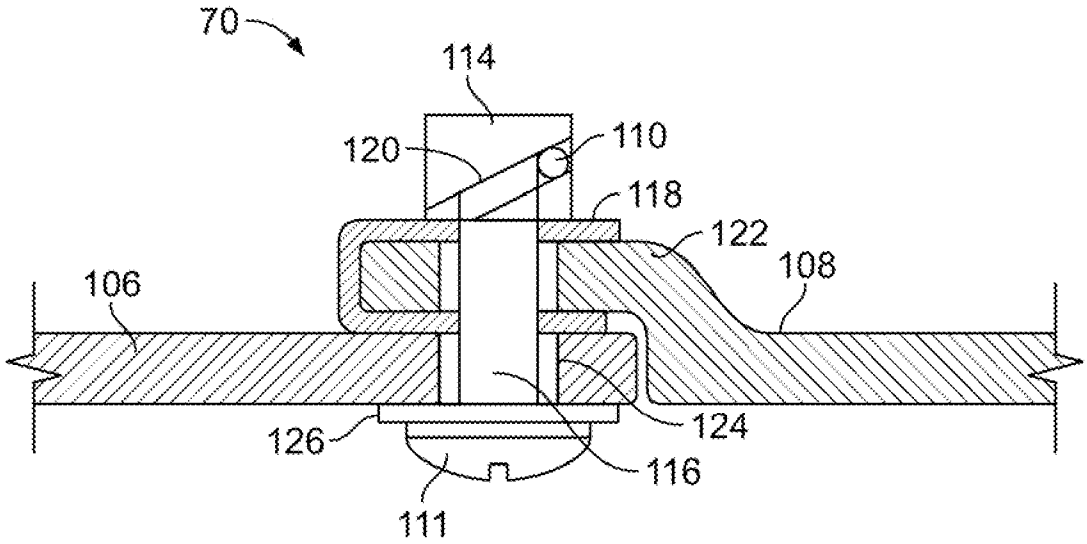

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FIG. 35

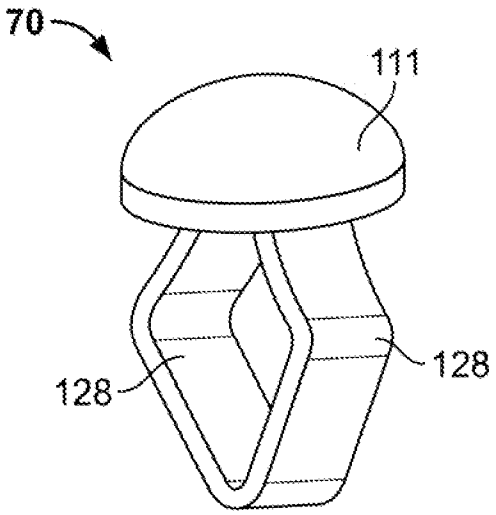


FIG. 36

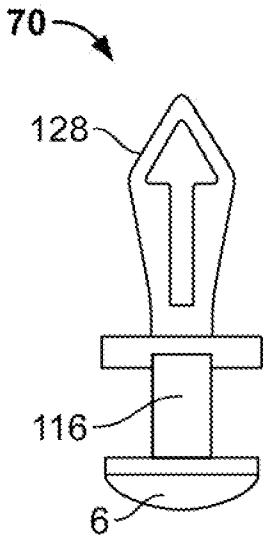


FIG. 37

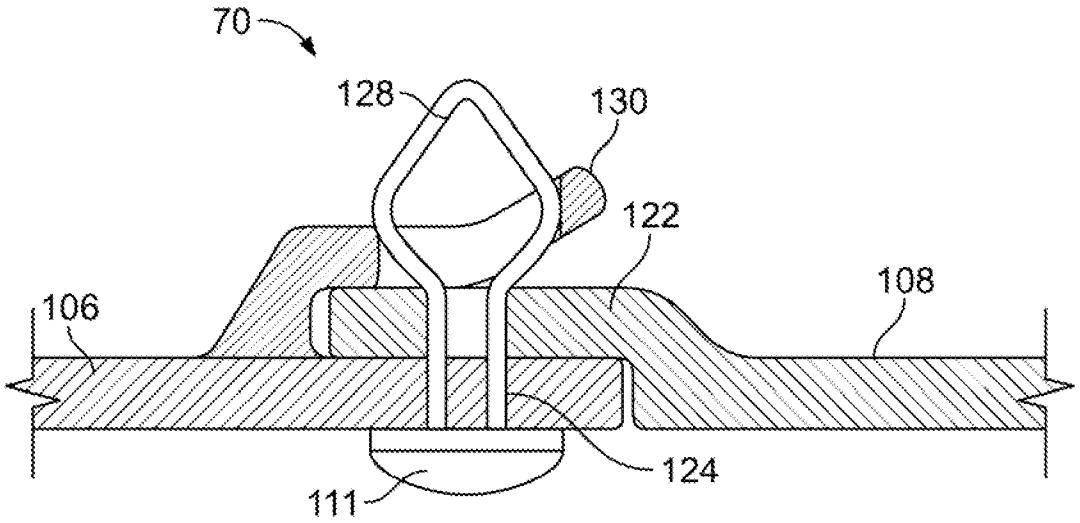


FIG. 38

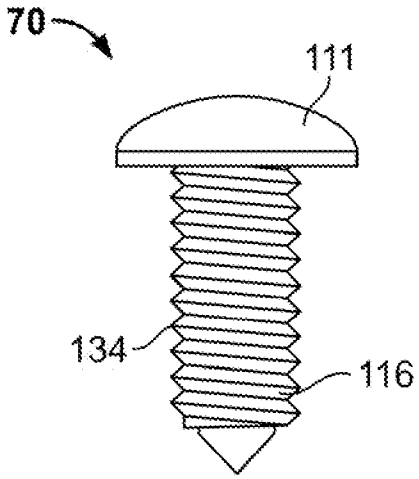


FIG. 39

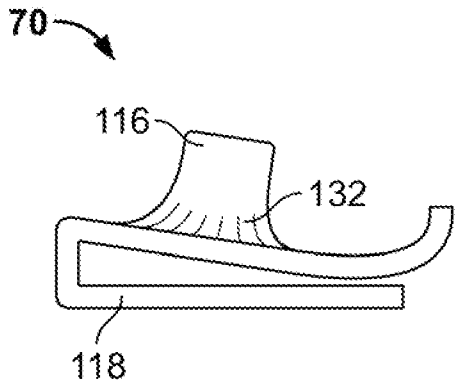


FIG. 40

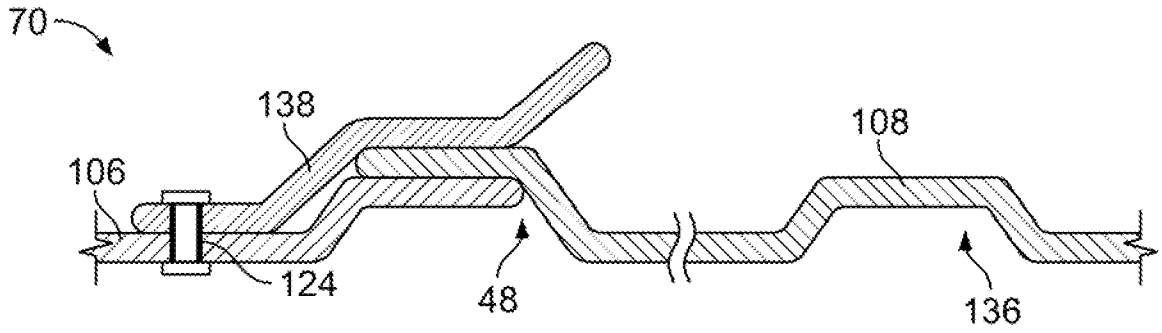


FIG. 41

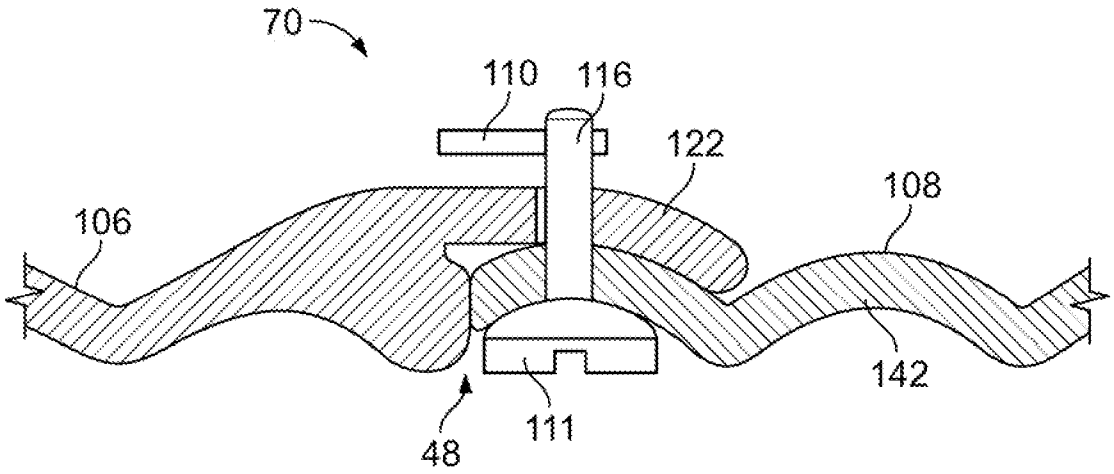


FIG. 43

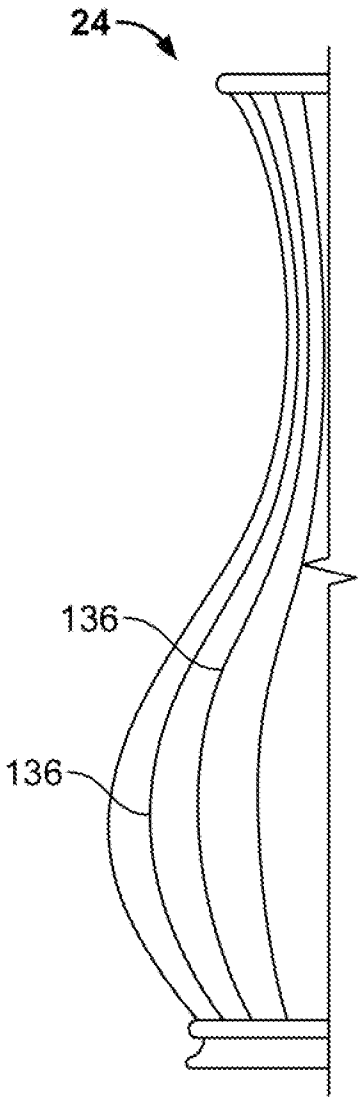


FIG. 42

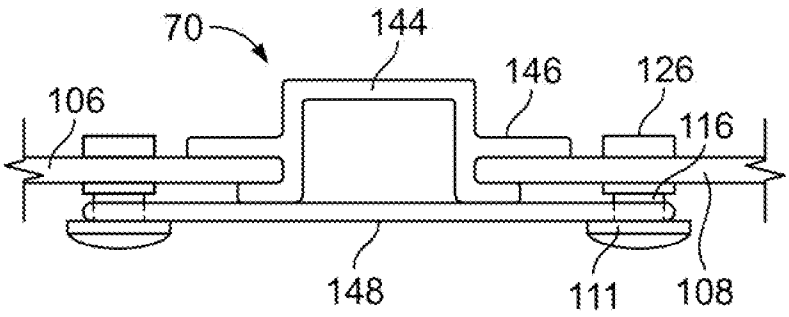


FIG. 44

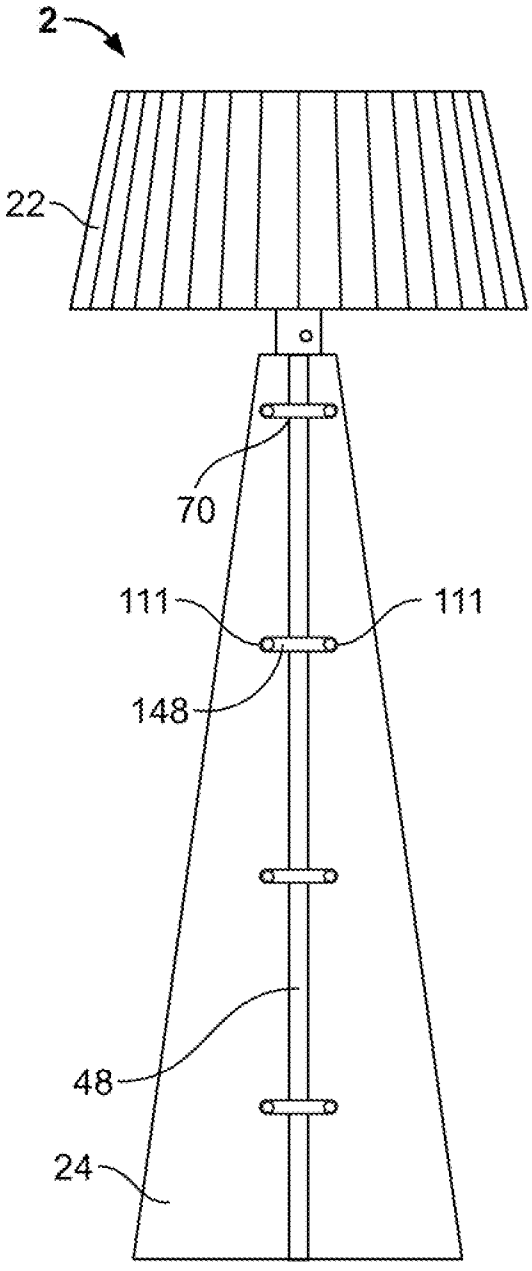


FIG. 45

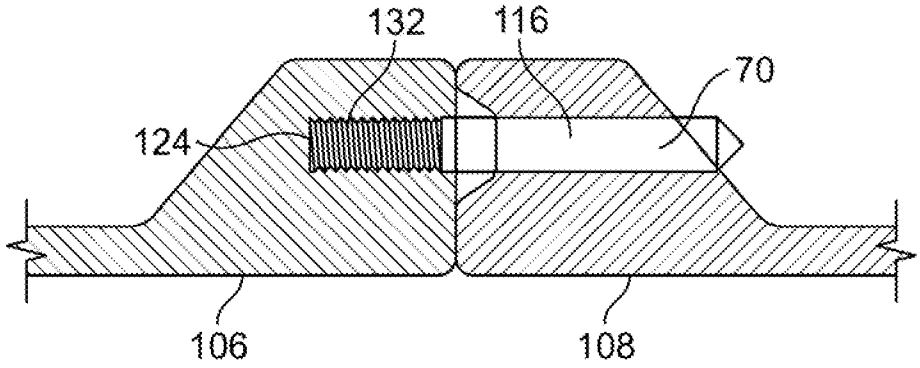


FIG. 46

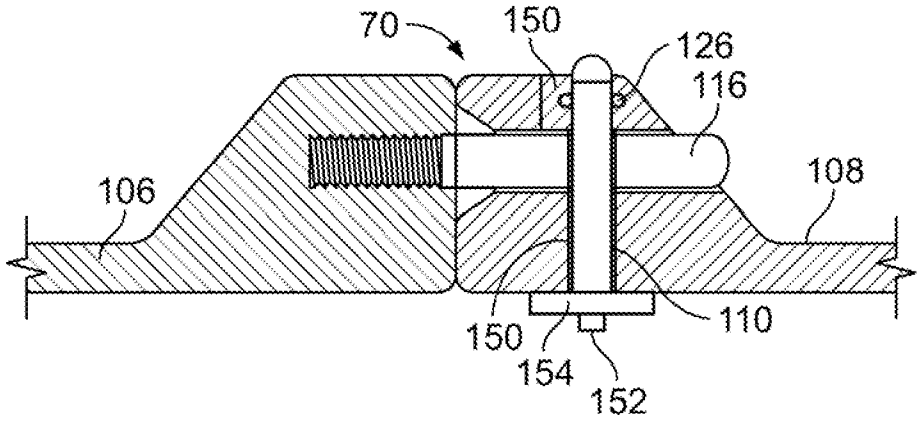


FIG. 47

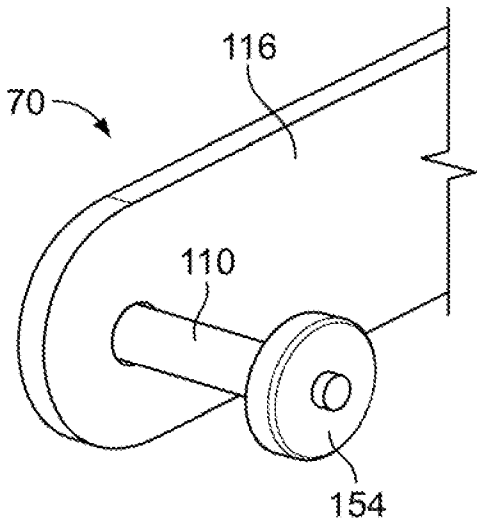


FIG. 48

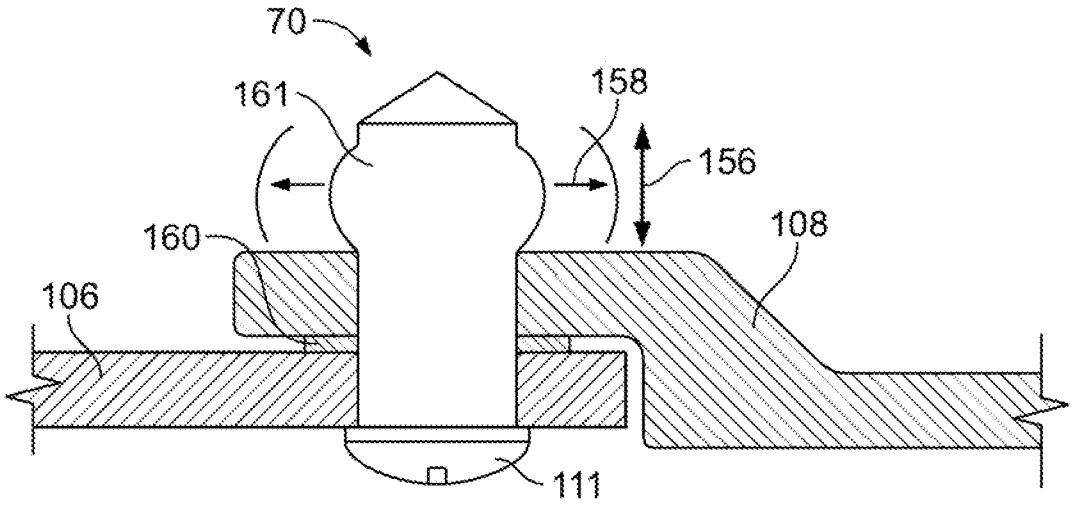


FIG. 49

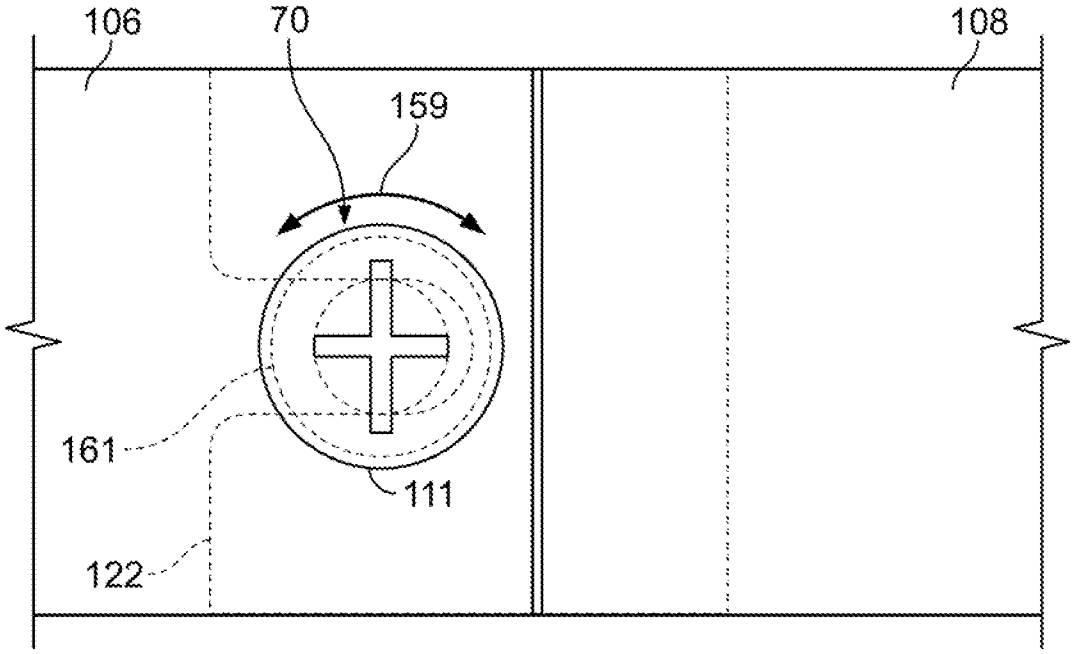


FIG. 50

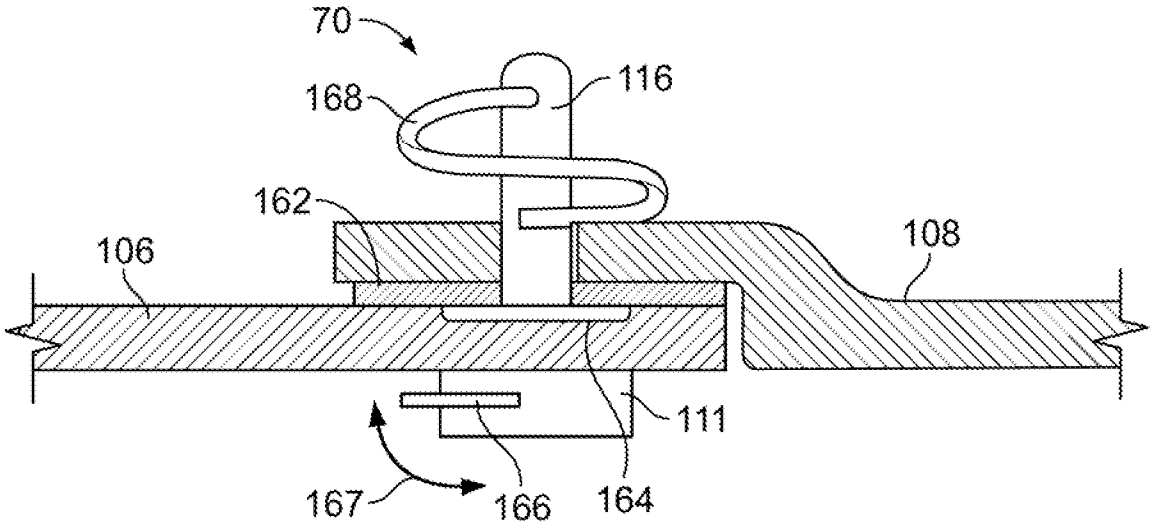


FIG. 51

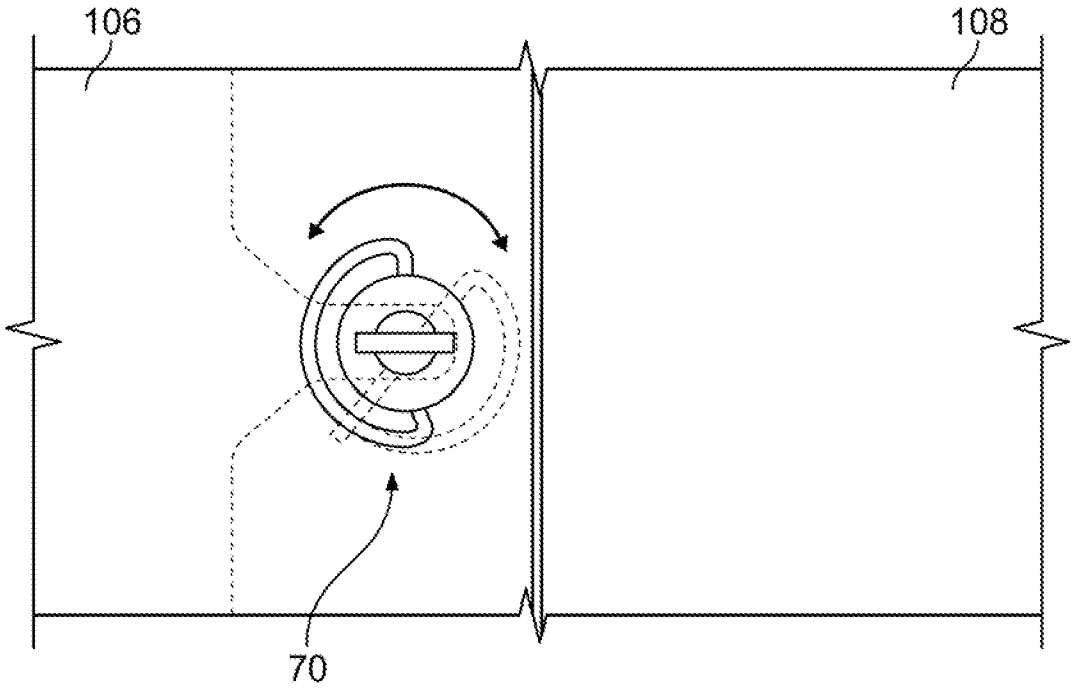


FIG. 52

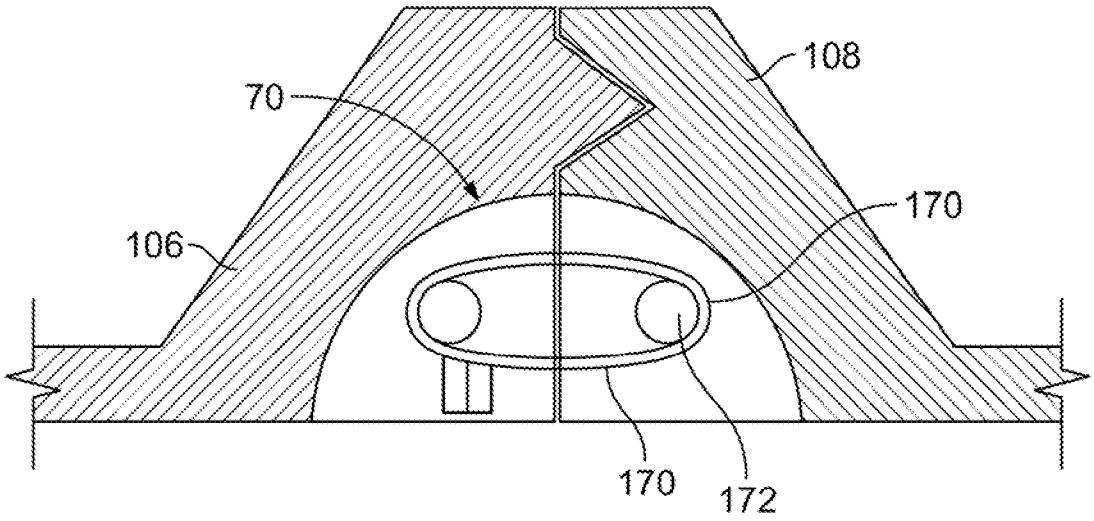


FIG. 53

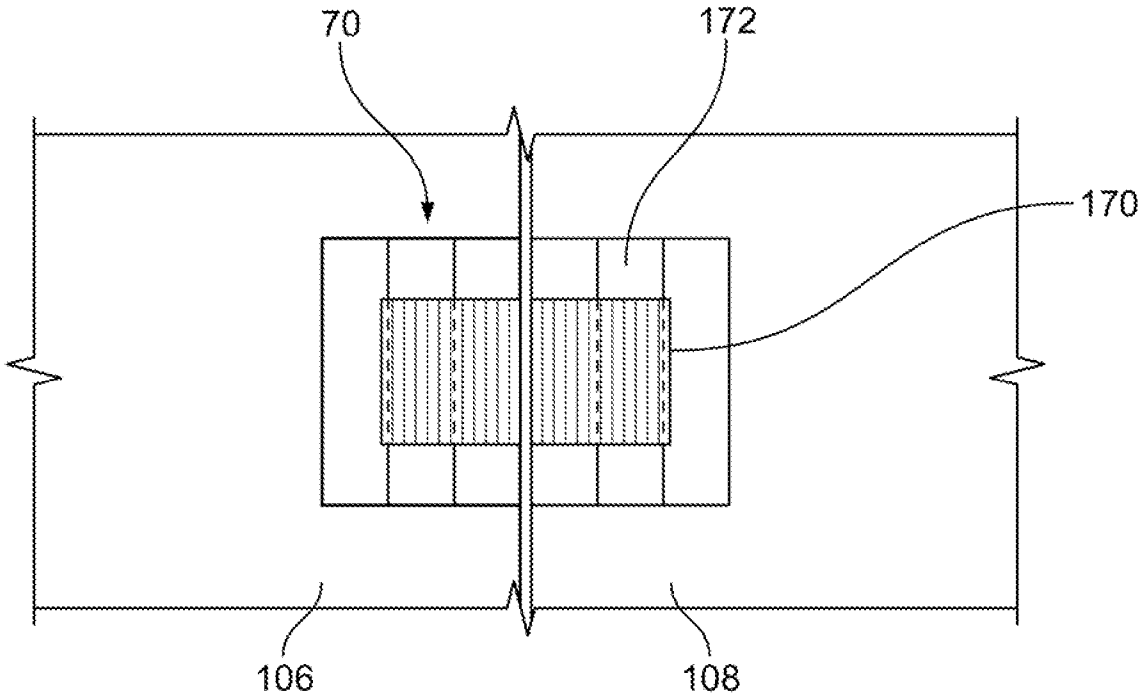


FIG. 54

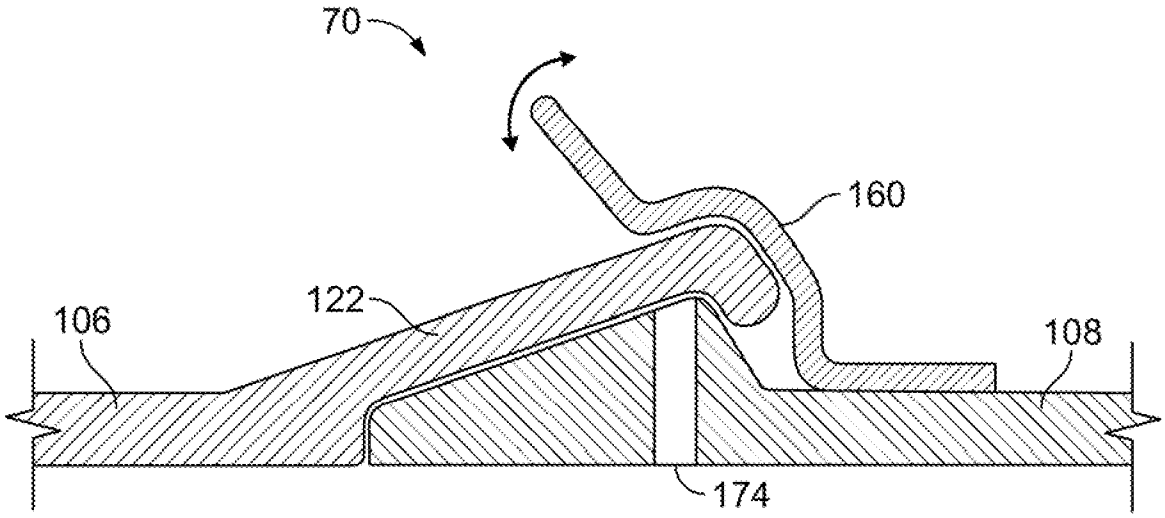


FIG. 55

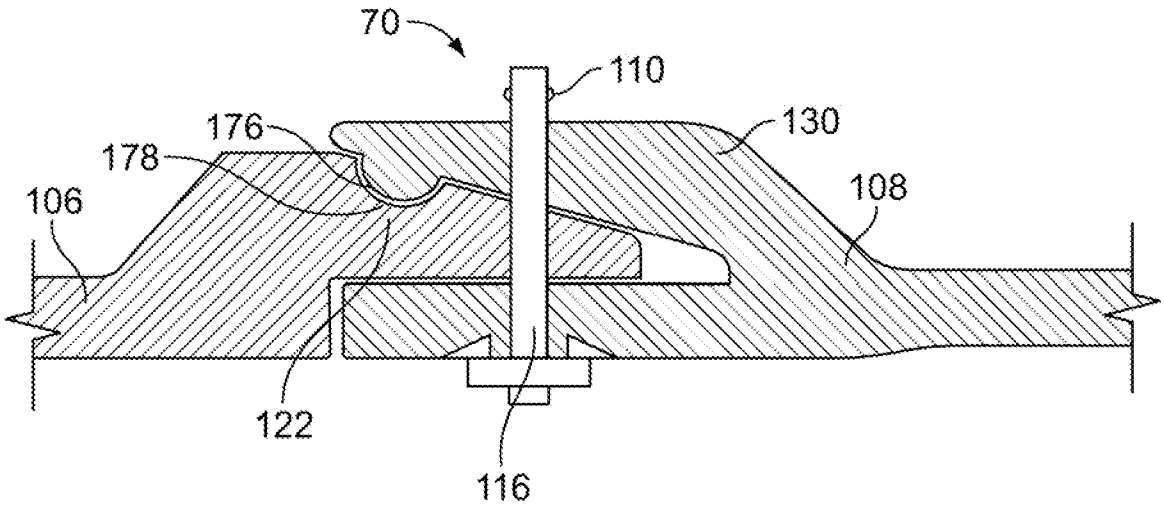


FIG. 56

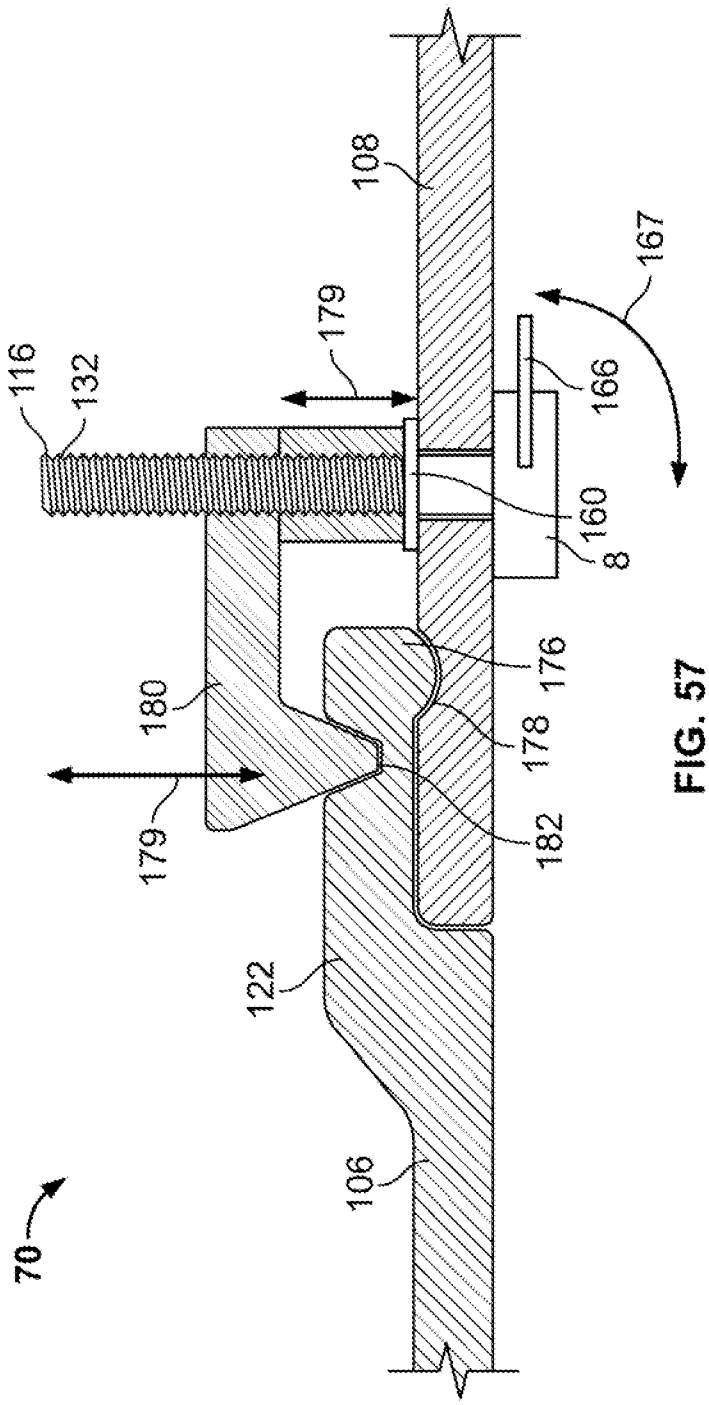


FIG. 57

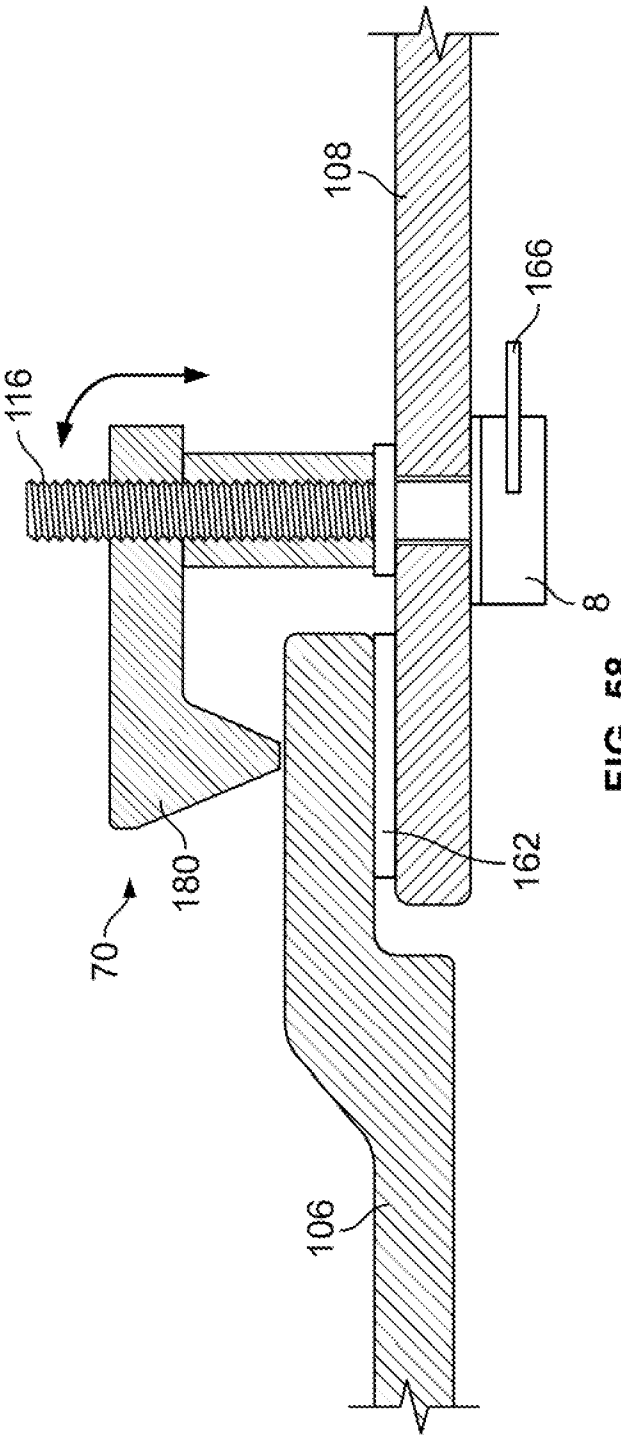

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FIG. 58

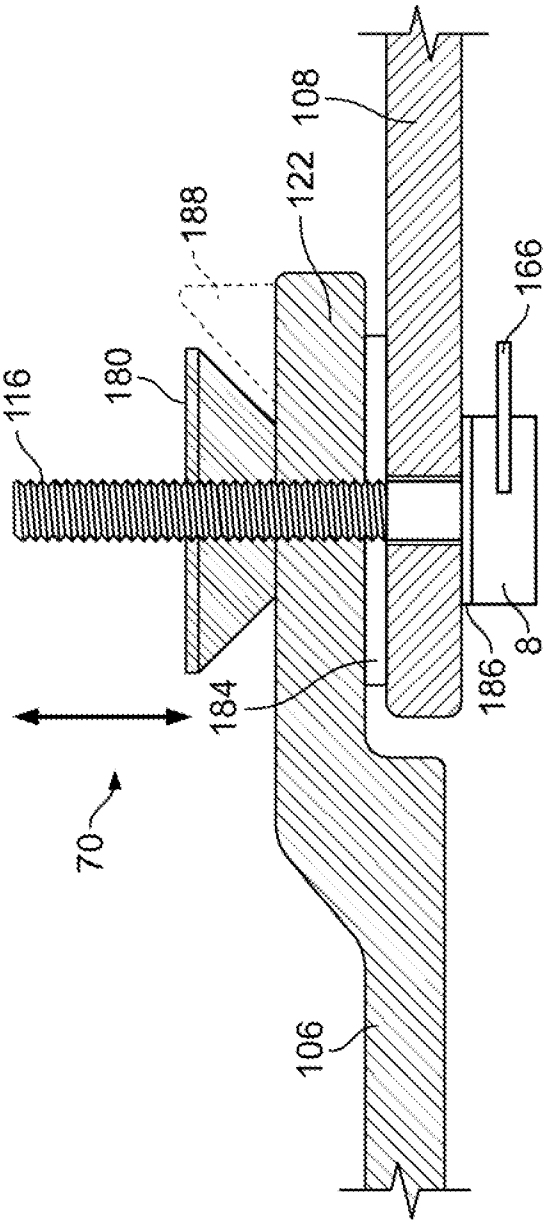

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FIG. 59

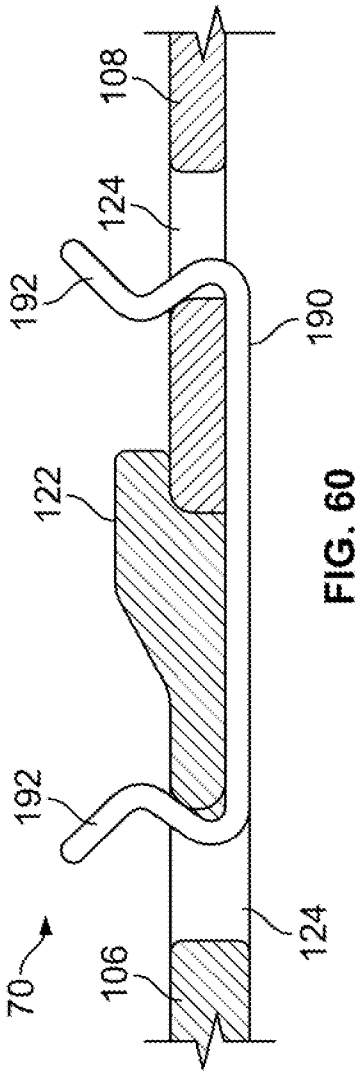

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FIG. 60

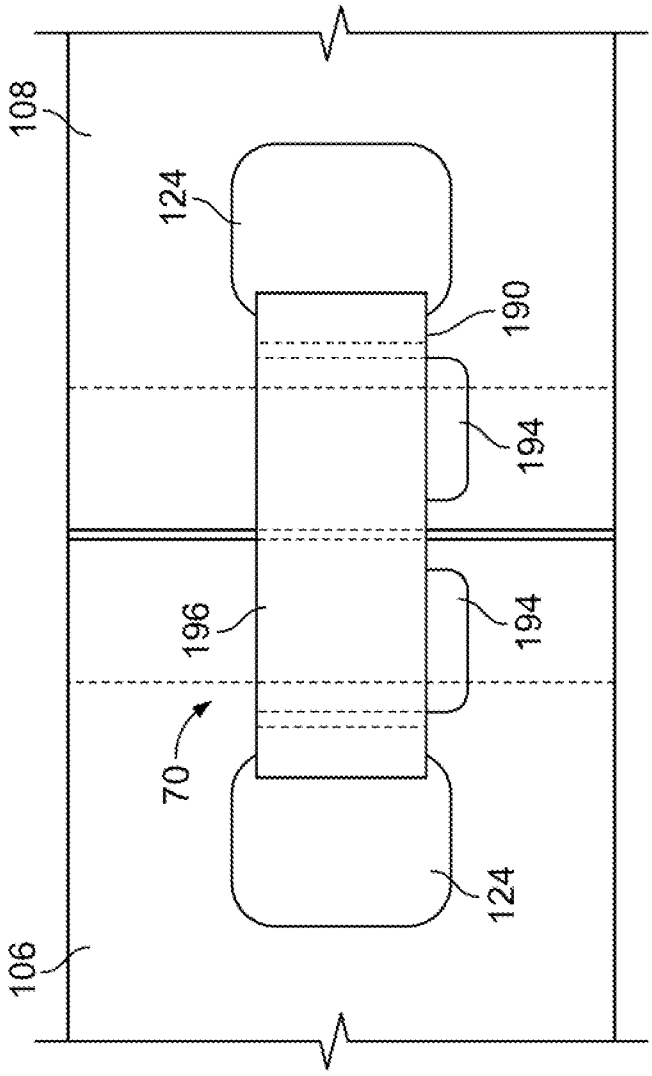

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FIG. 61

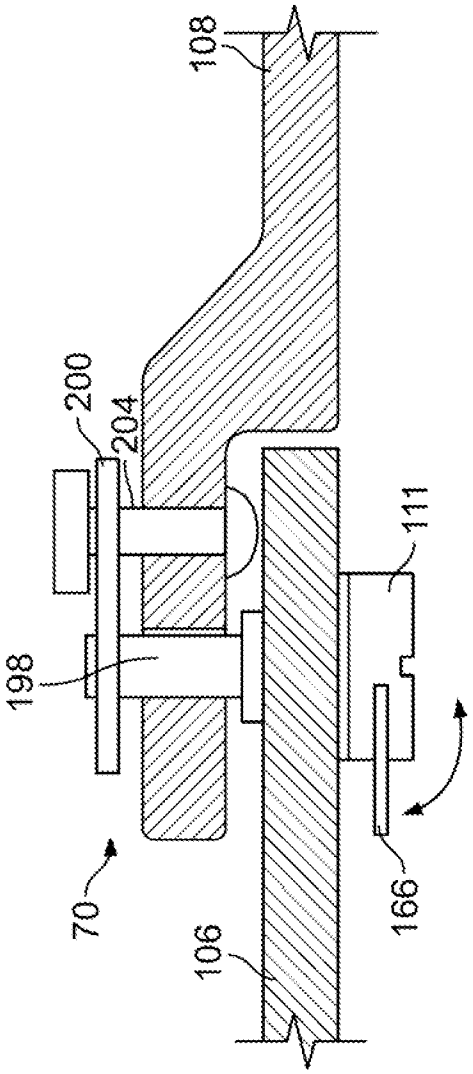


FIG. 62

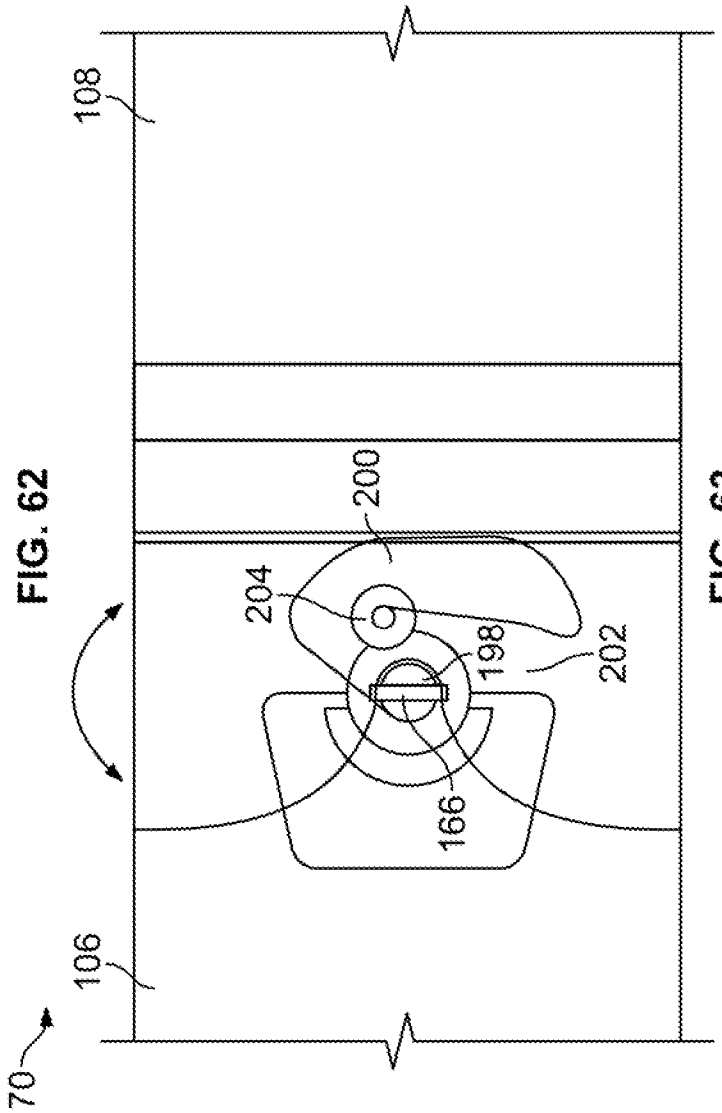


FIG. 63

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/74085

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - F24C 3/00 (2008.04)
USPC - 126/92R
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): F24C 3/00 (2008.04)
USPC: 126/92R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 126/92A, 92AC, 92C, 92B; 126/

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (USPT, PGPB, EPAB, JPAB); Google/Patents; Google/Web
Search Terms: heat, tower, stand, shaft, column, pillar, stem, canopy, umbrella, shade, reflector, cover, screen, shroud, panel, facade, wrap, lamp, light, illuminate, base, foundation, foot, bottom, pedestal, deck, patio, terrace, yard, backyard, nest, overlap

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0011346 A1 (SAKAI) 22 January 2004 (22.01.2004), para [0016], [0028], [0030], [0032]; Figs. 1 and 3	1-22
Y	US 6,651,647 B2 (WATERS) 25 November 2003 (25.11.2003), col 2, lns 24-31; col 4, lns 27-28; col 5, lns 35-38; Figs. 1 and 2	1-10
Y	US 6,217,199 B1 (LO et al.) 17 April 2001 (17.04.2001), col 5, lns 33-38; col 6, lns 1-2, 27-31; col 9, lns 48-51; Figs. 1, 8, and 10	11-19
Y	US 2006/0090784 A1 (MA) 4 May 2006 (04.05.2006), para [0003], [0032]; Fig. 1	20-22
Y	US 6,422,232 B1 (ASHTON et al.) 23 July 2002 (23.07.2002), col 2, lns 19-25; Figs. 1 and 1A	4-8
Y	WO/1993/000840 A1 (PERRIER et al.) 21 January 1993 (21.01.1993), Abstract; Fig. 1	9, 16
Y	US 6,745,759 B2 (BOSSLER) 08 June 2004 (08.06.2004), col 1, lns 56-58; col 3, lns 14-17; Fig 1	19

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 October 2008 (31.10.2008)	13 NOV 2008

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)