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(54) **PATHWAY PUZZLE**

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Publication Classification

(51) **Int. Cl.**
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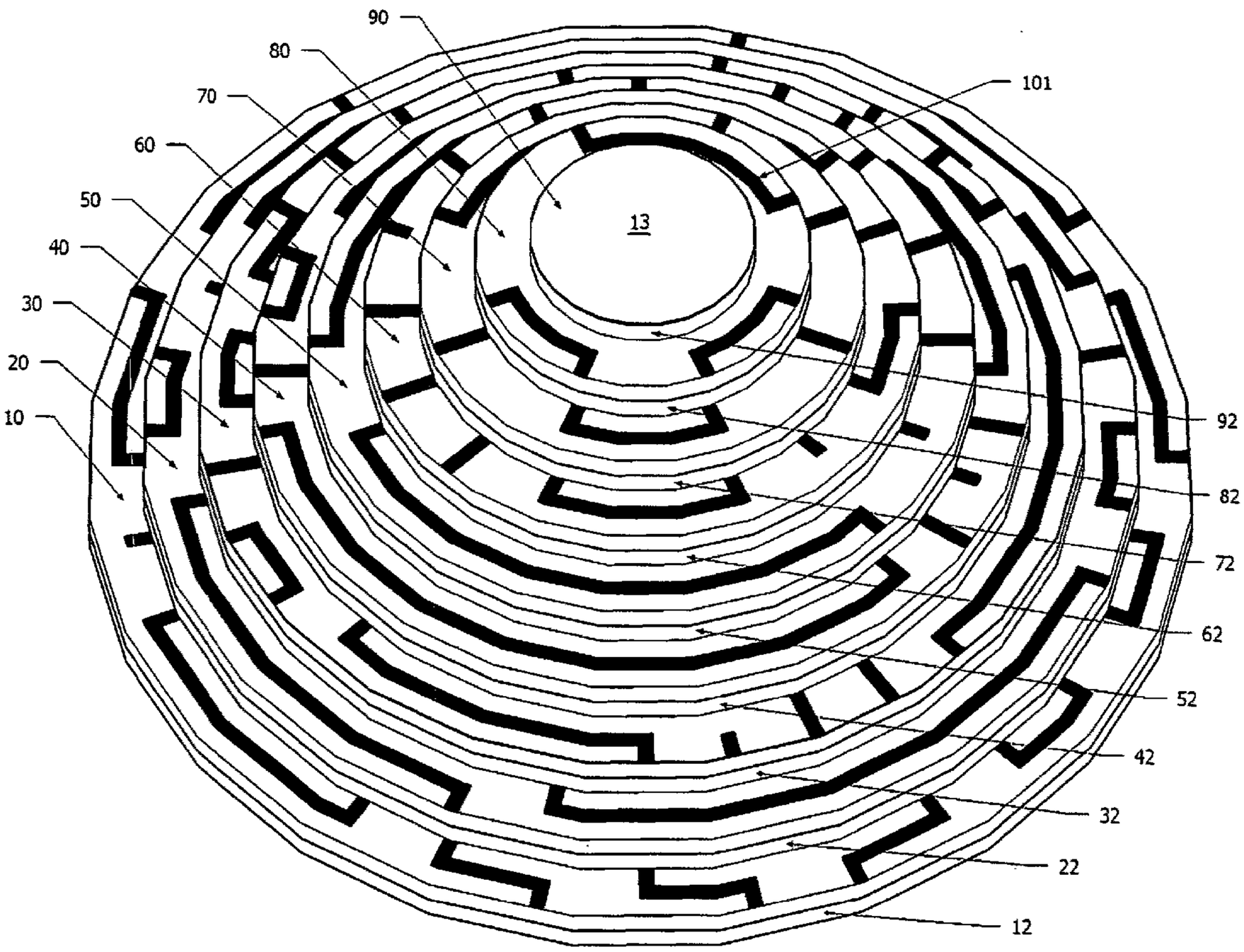
(52) **U.S. Cl.** ..... **273/153 R**

(57) **ABSTRACT**

A puzzle game comprising of a series of paths on a defined number of coaxial circles, such that the number of coaxial circles are two or greater, wherein rotations of the circles cause different pathways on adjacent circles to align, thereby extending the pathways across the circles. Pathways are defined in such a way that a given player will be able to rotate the circles in such a way wherein a path from the outer edge of the outermost circle will be able to be followed through paths in adjacent circles continuing through the centermost circle whereupon the path when continued will be taken back through adjacent circles until thereby reaching the outer edge of the outermost circle, constituting a winning scenario. Puzzles may have an arbitrary number of winning scenarios, but certain more difficult puzzles will include a single pathway that satisfies the winning condition.



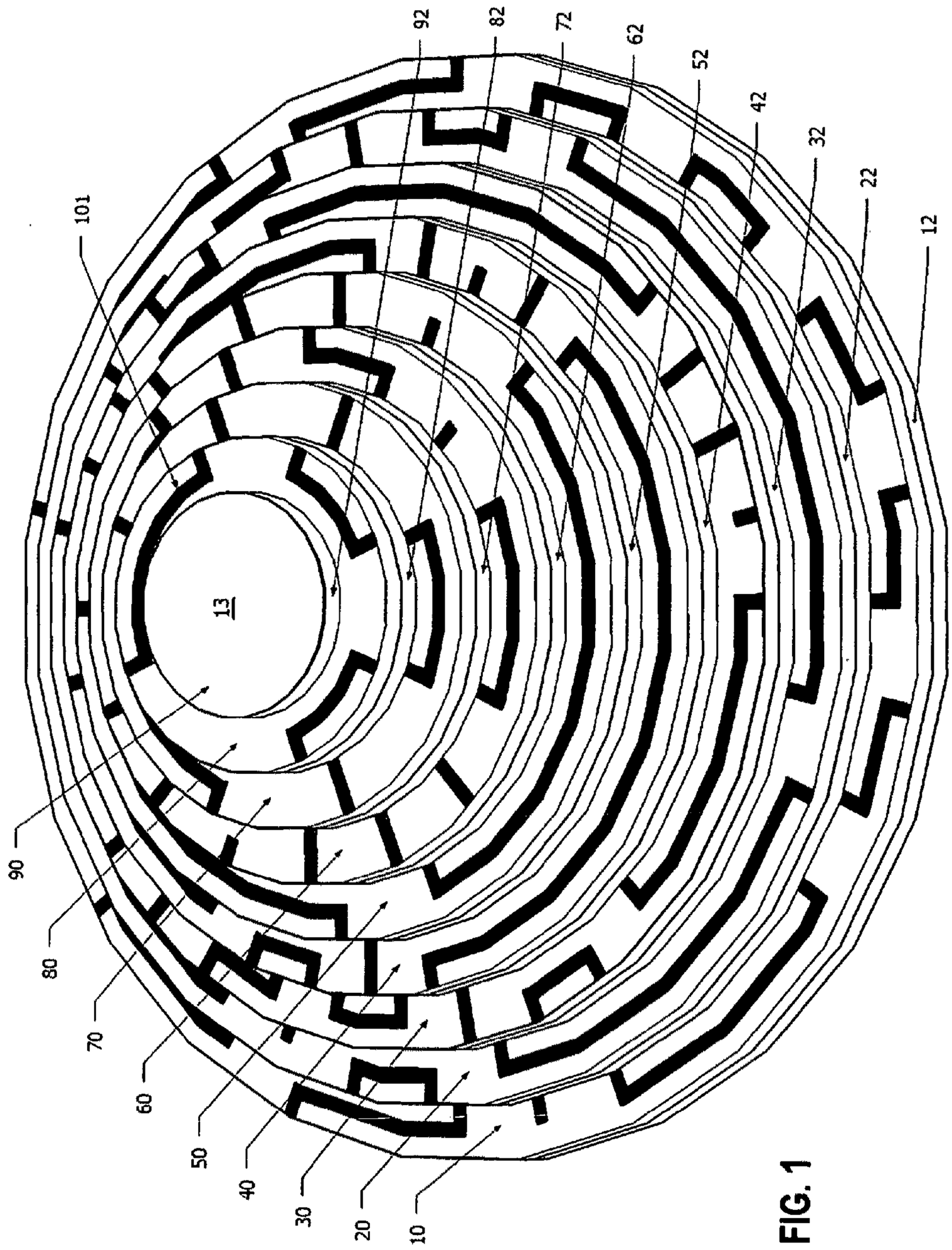


FIG. 1

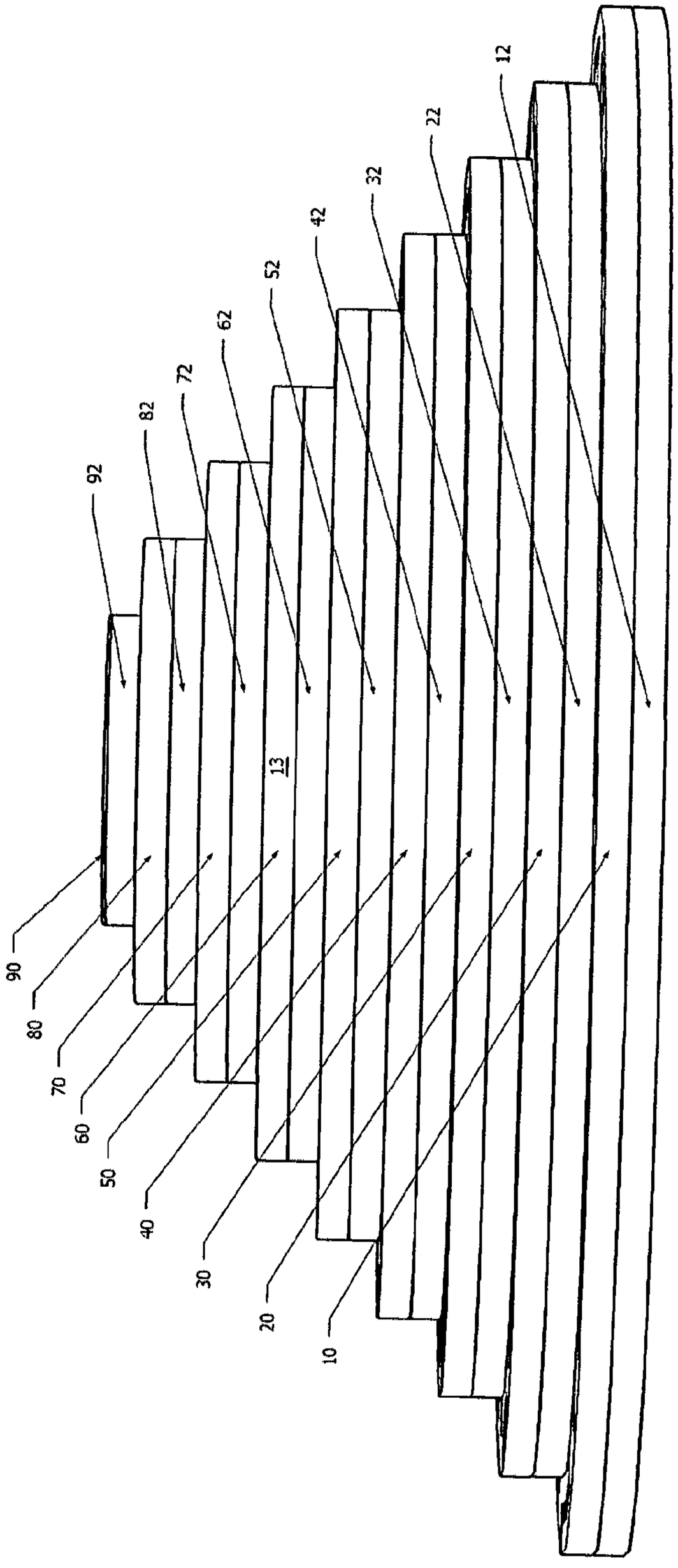


FIG. 2

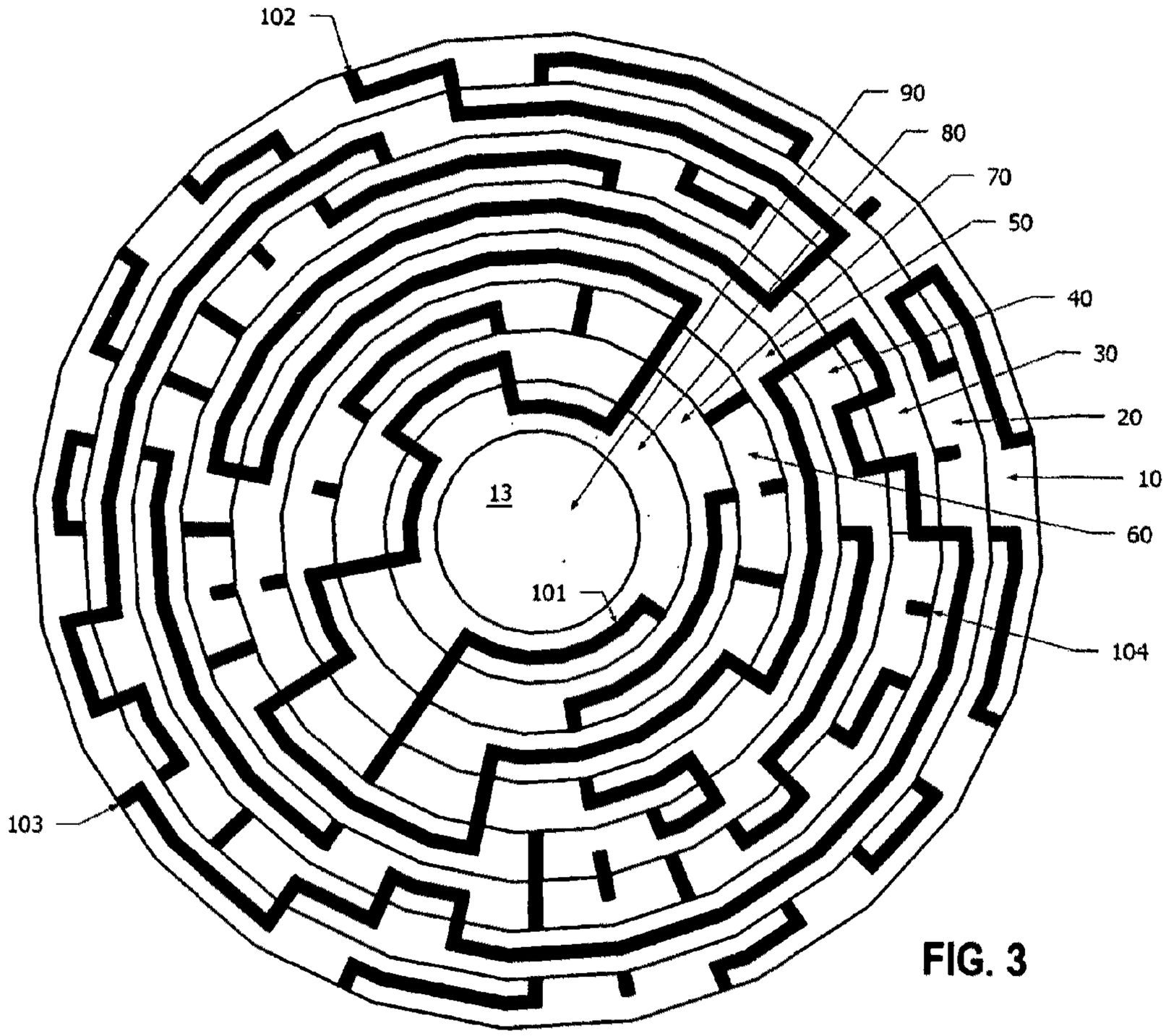


FIG. 3

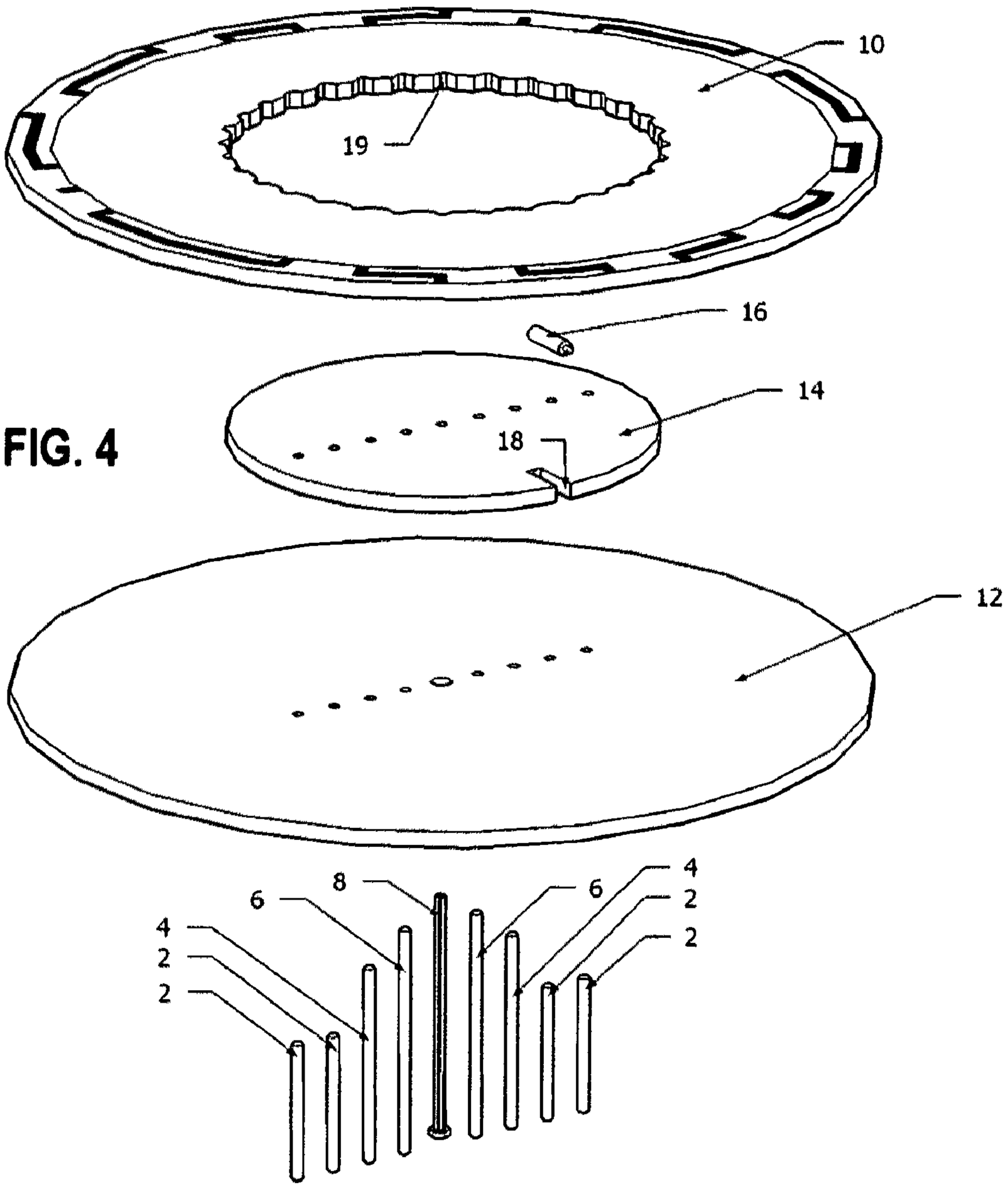


FIG. 4

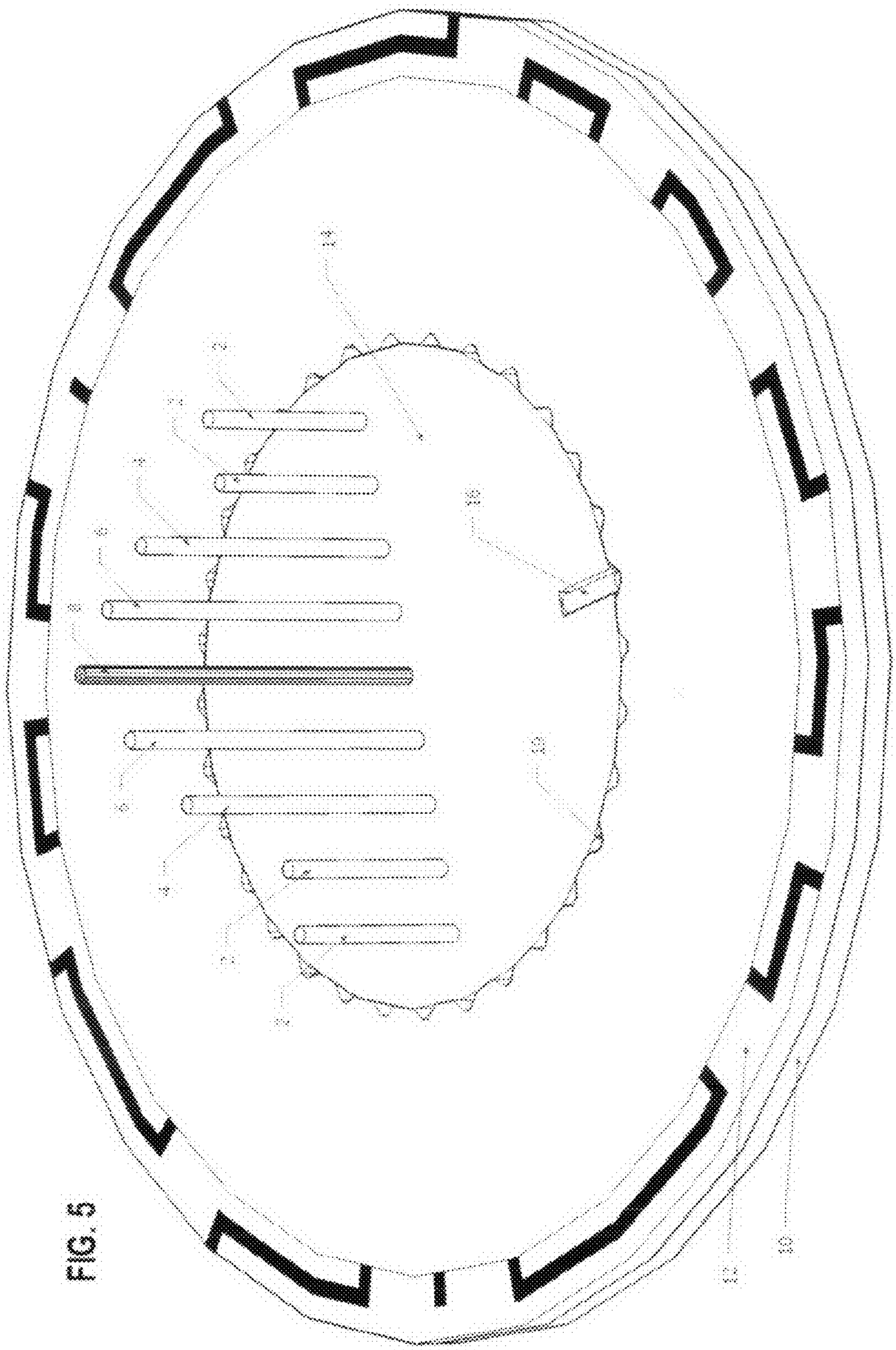
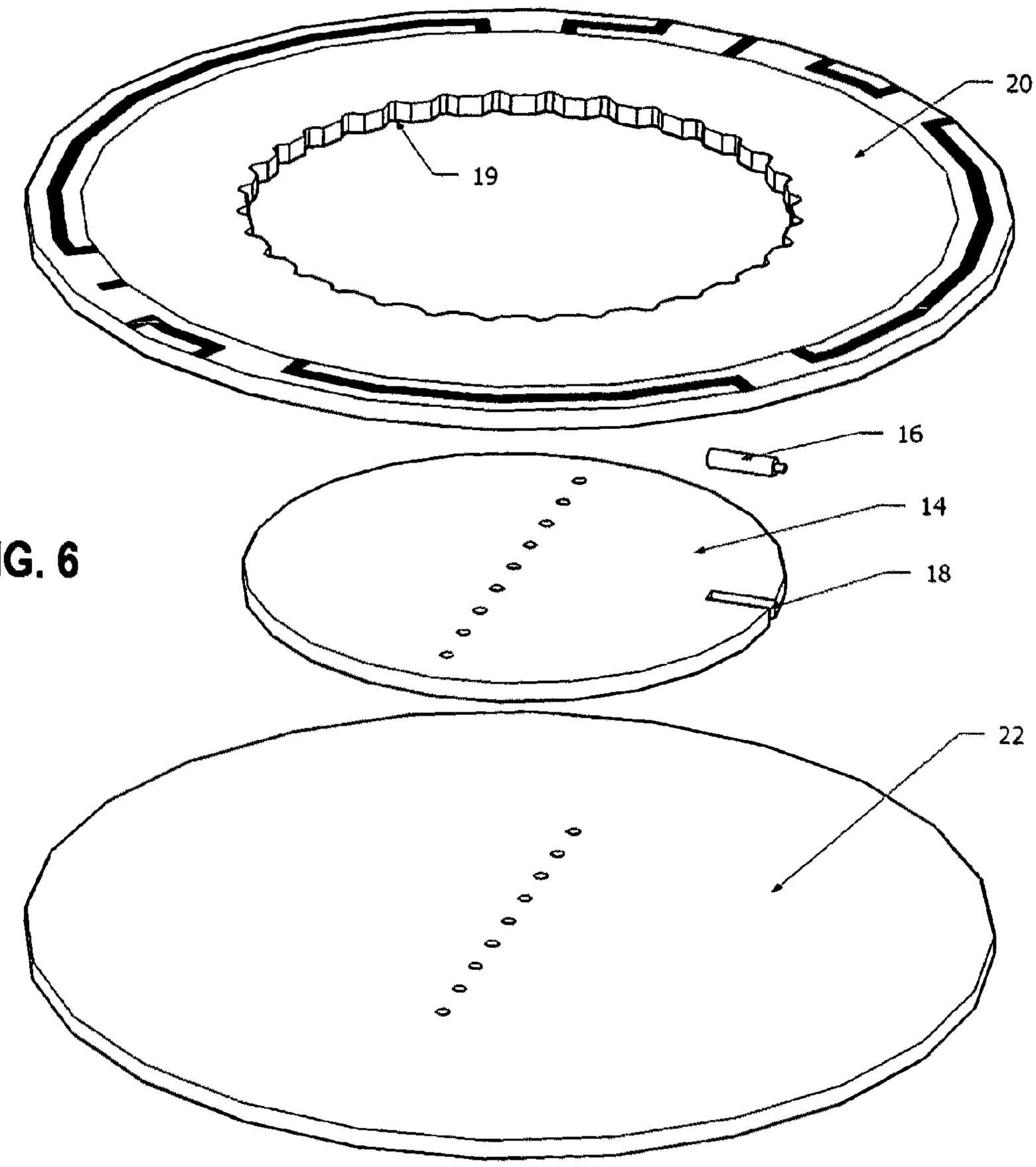


FIG. 5

FIG. 6



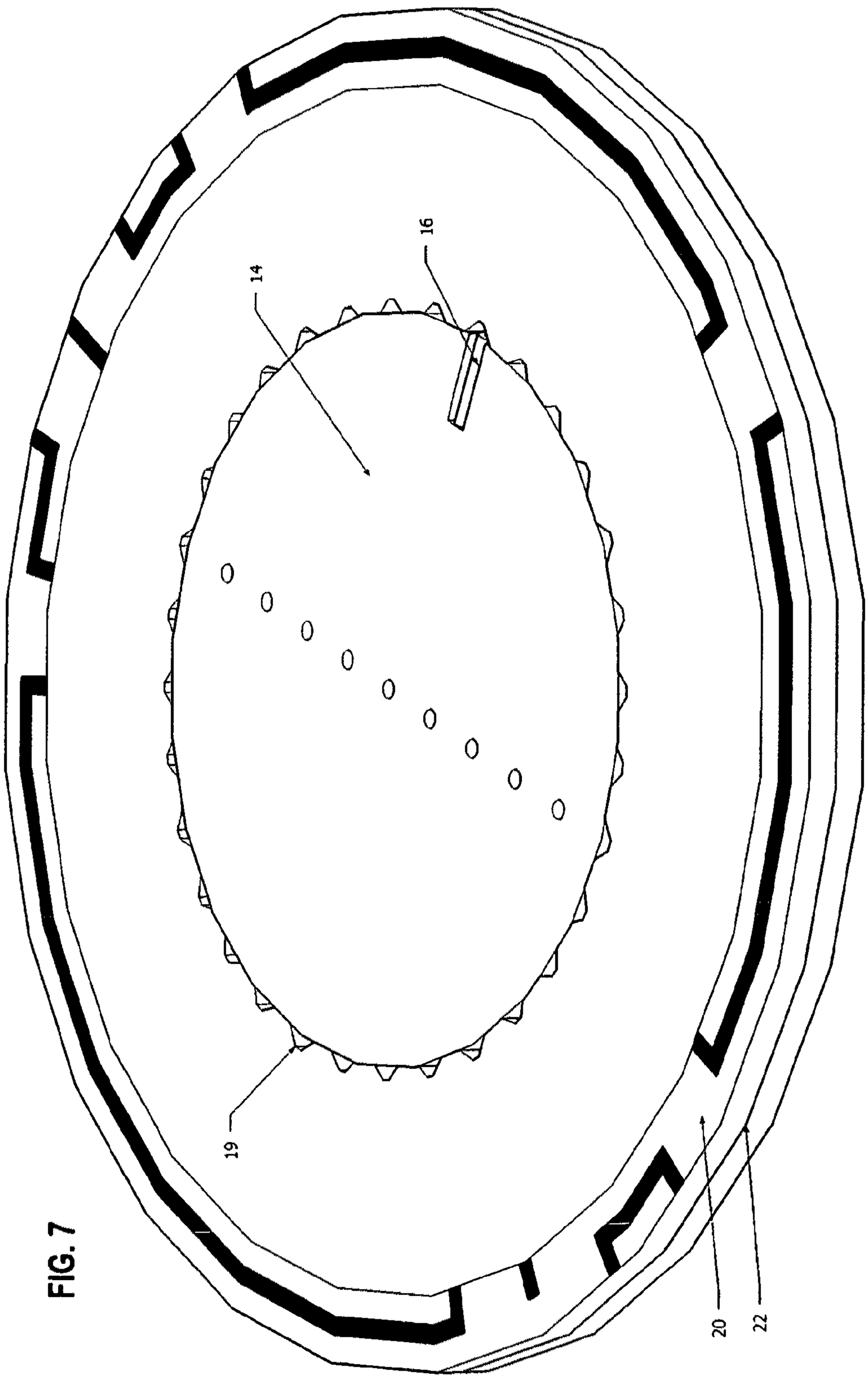


FIG. 7

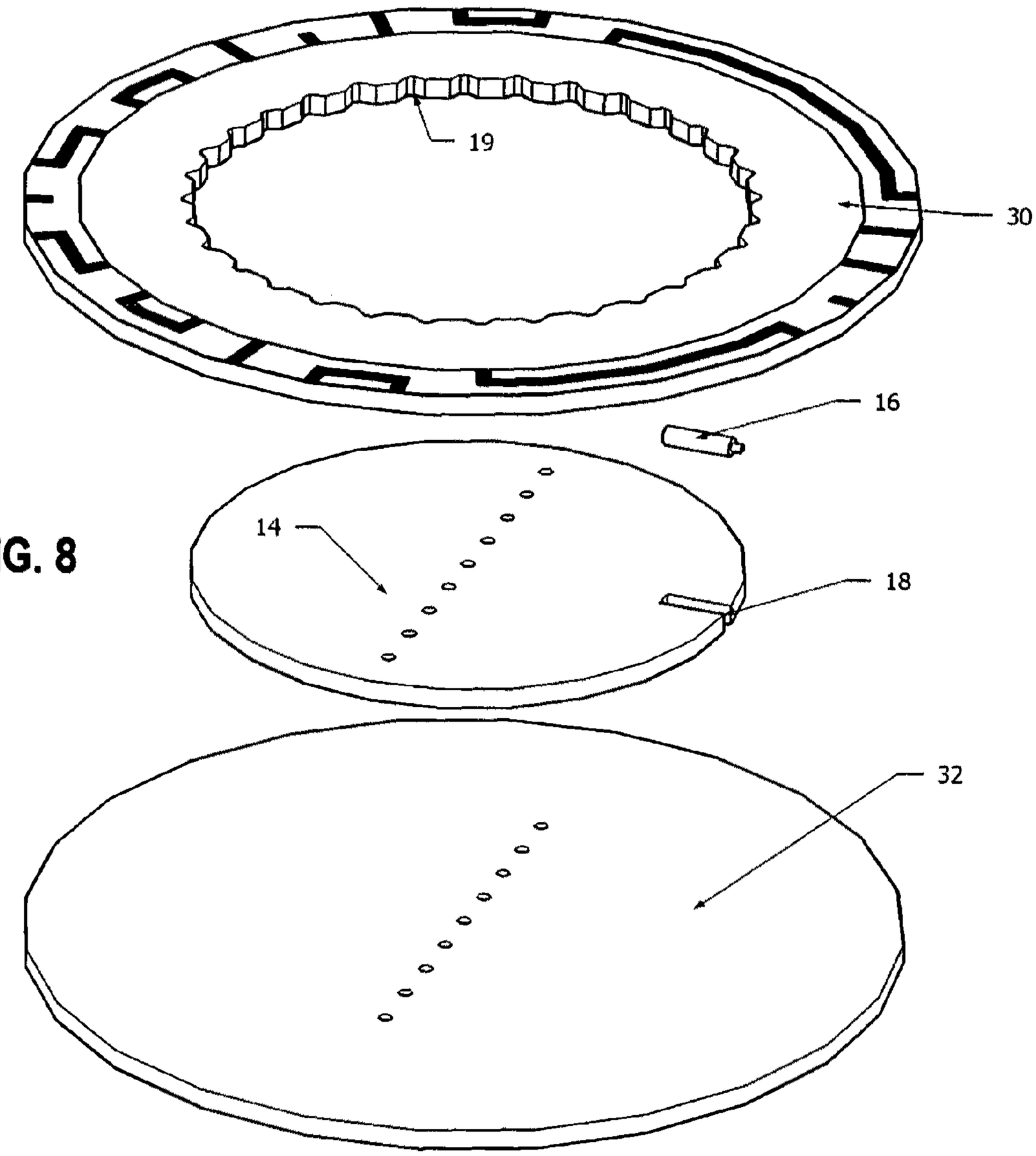


FIG. 8

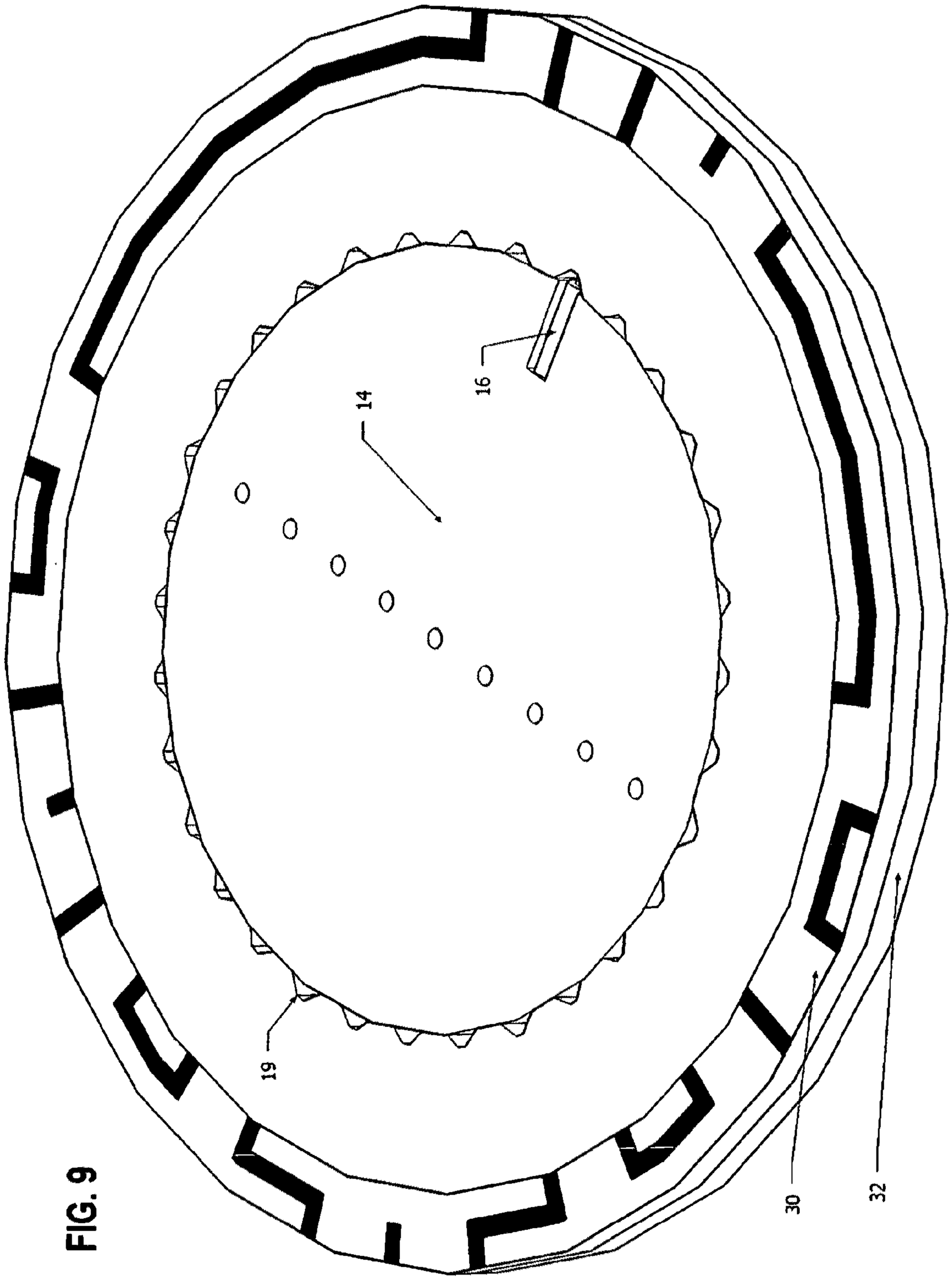


FIG. 9

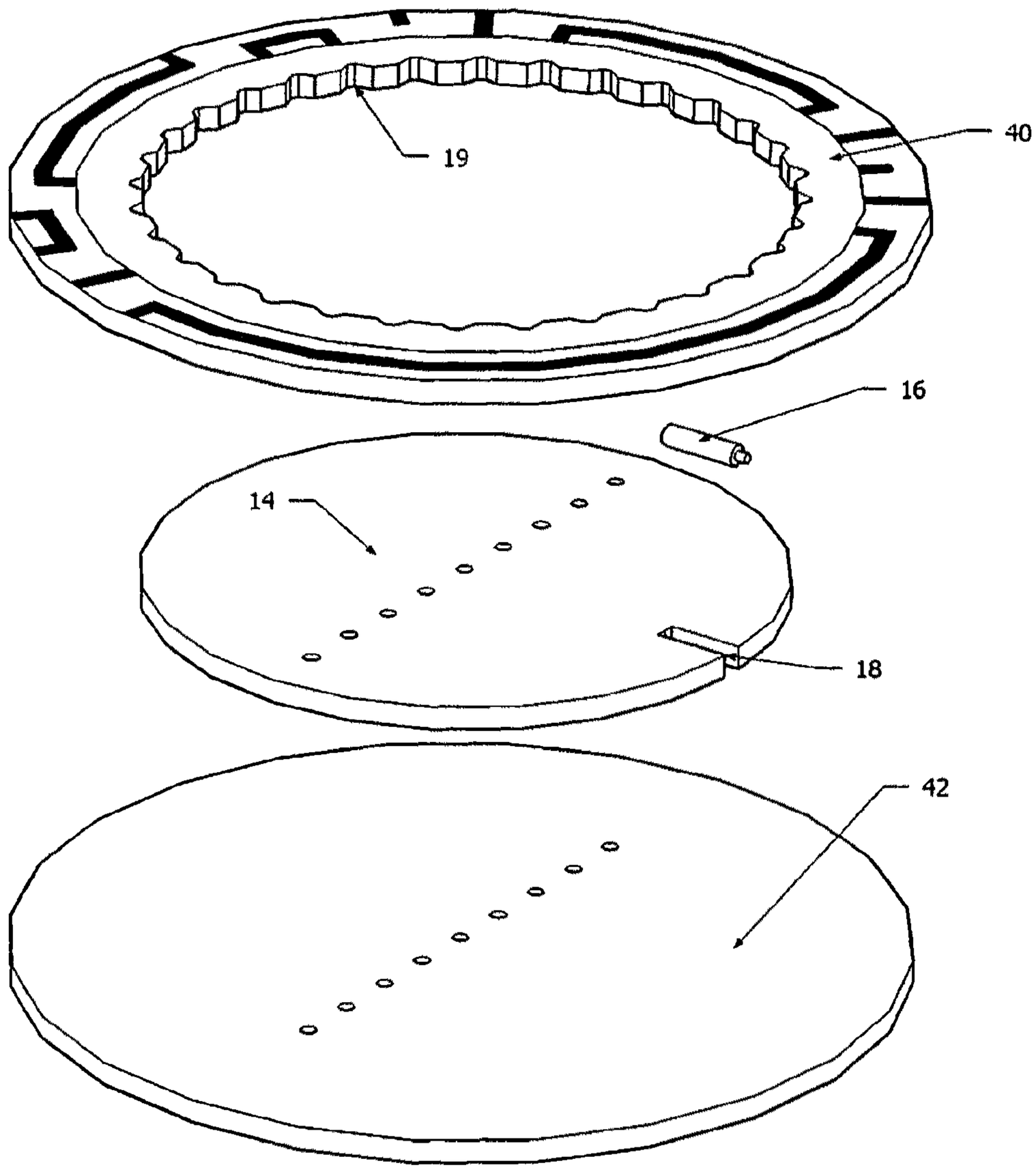
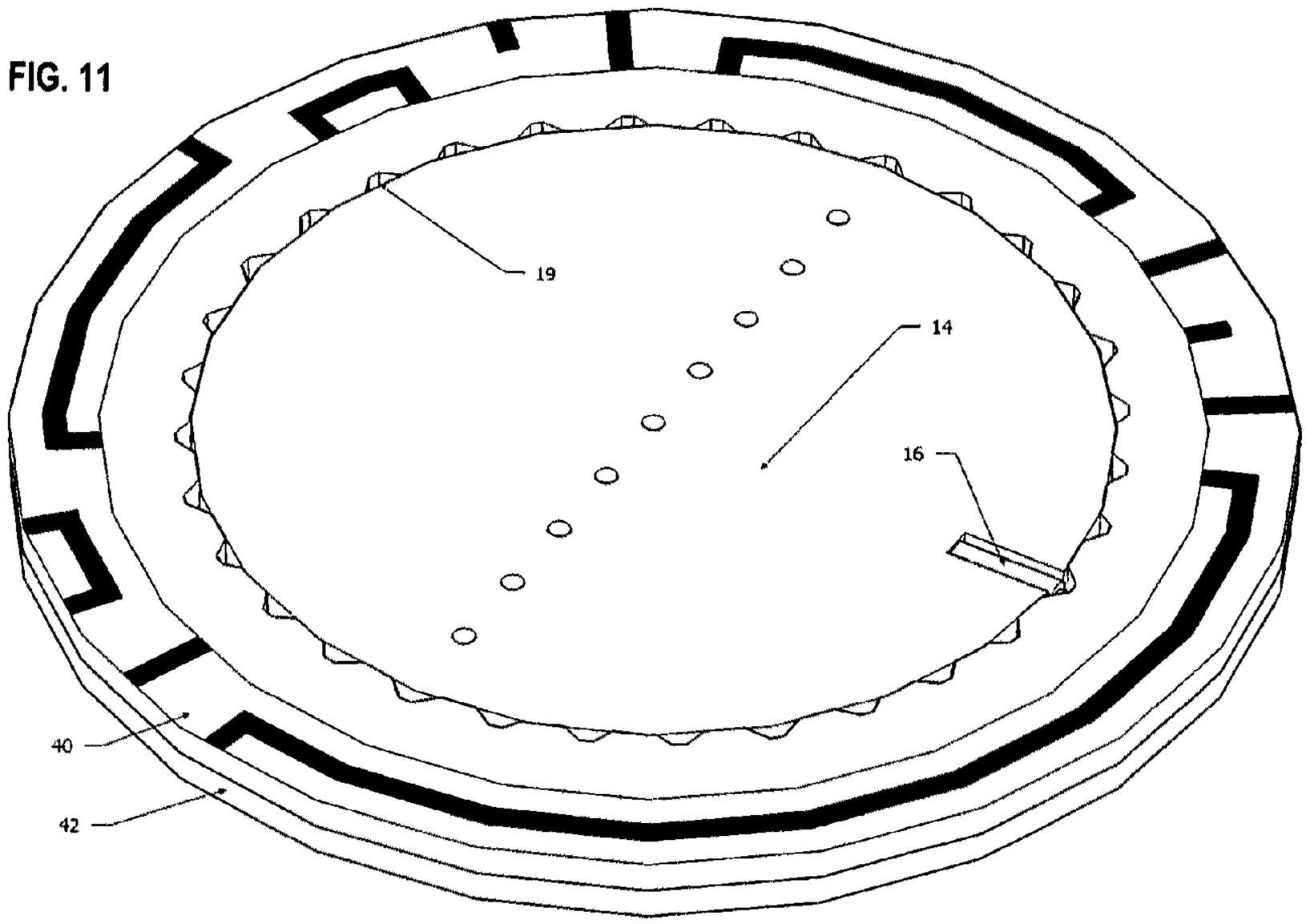


FIG. 10

FIG. 11



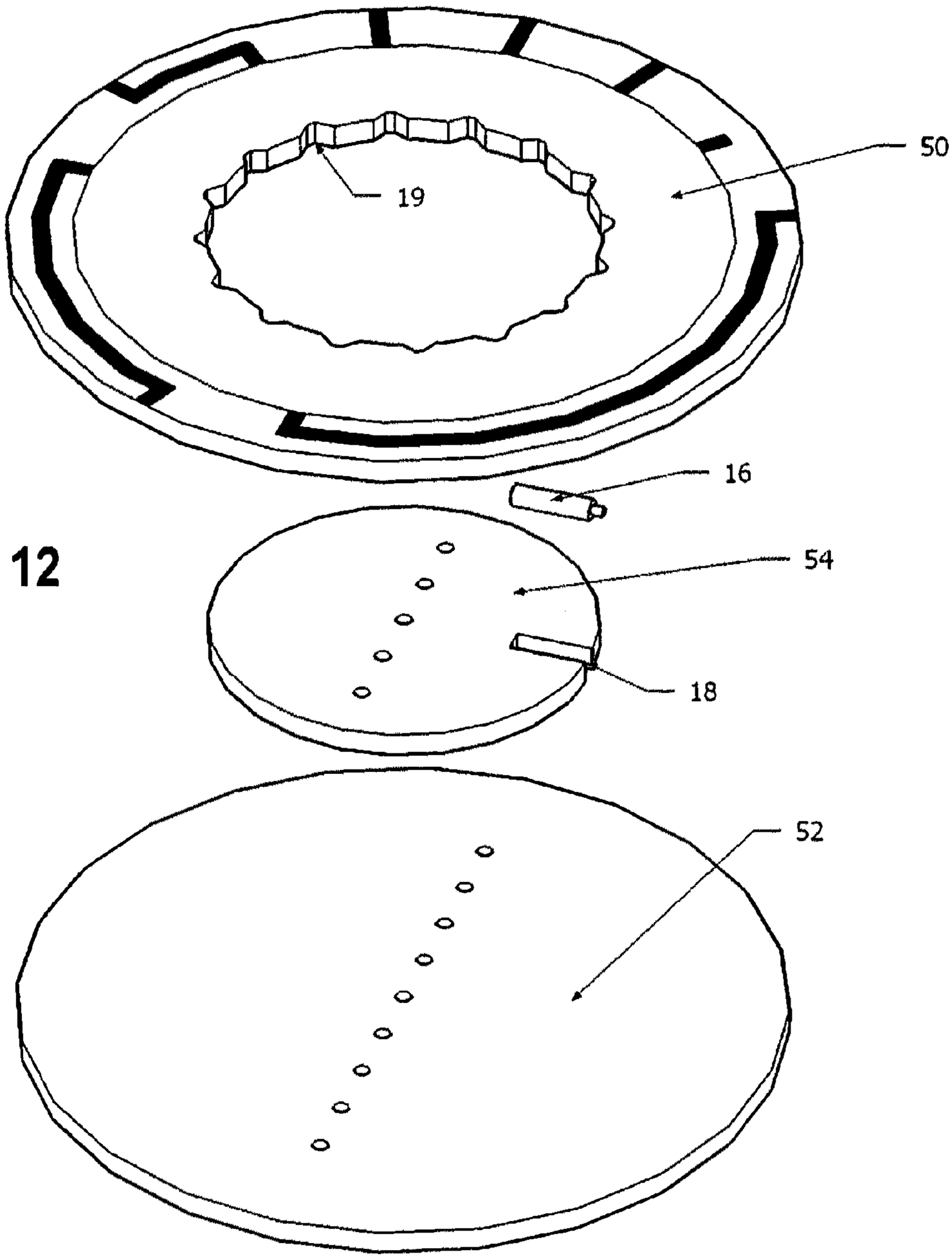
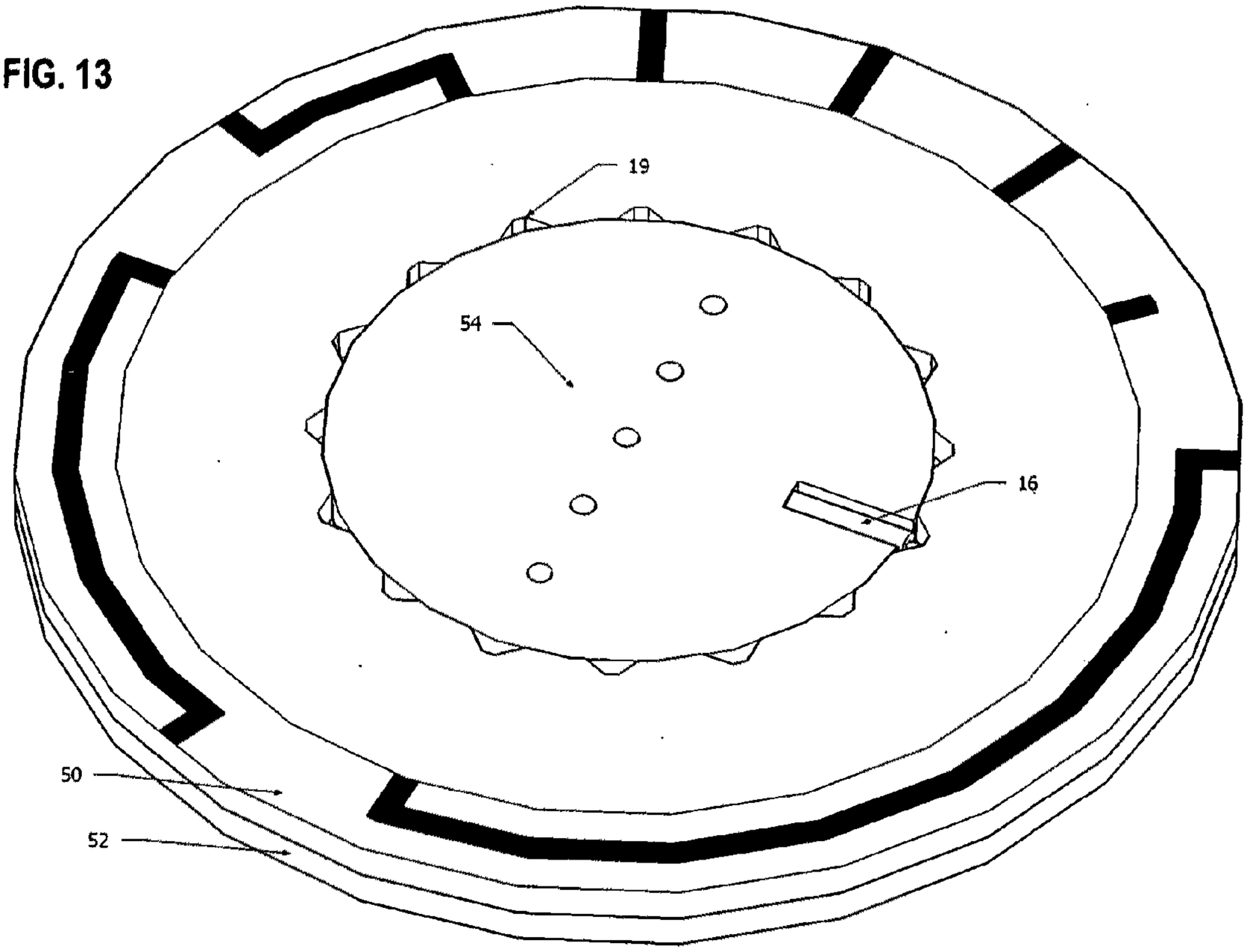


FIG. 12

FIG. 13



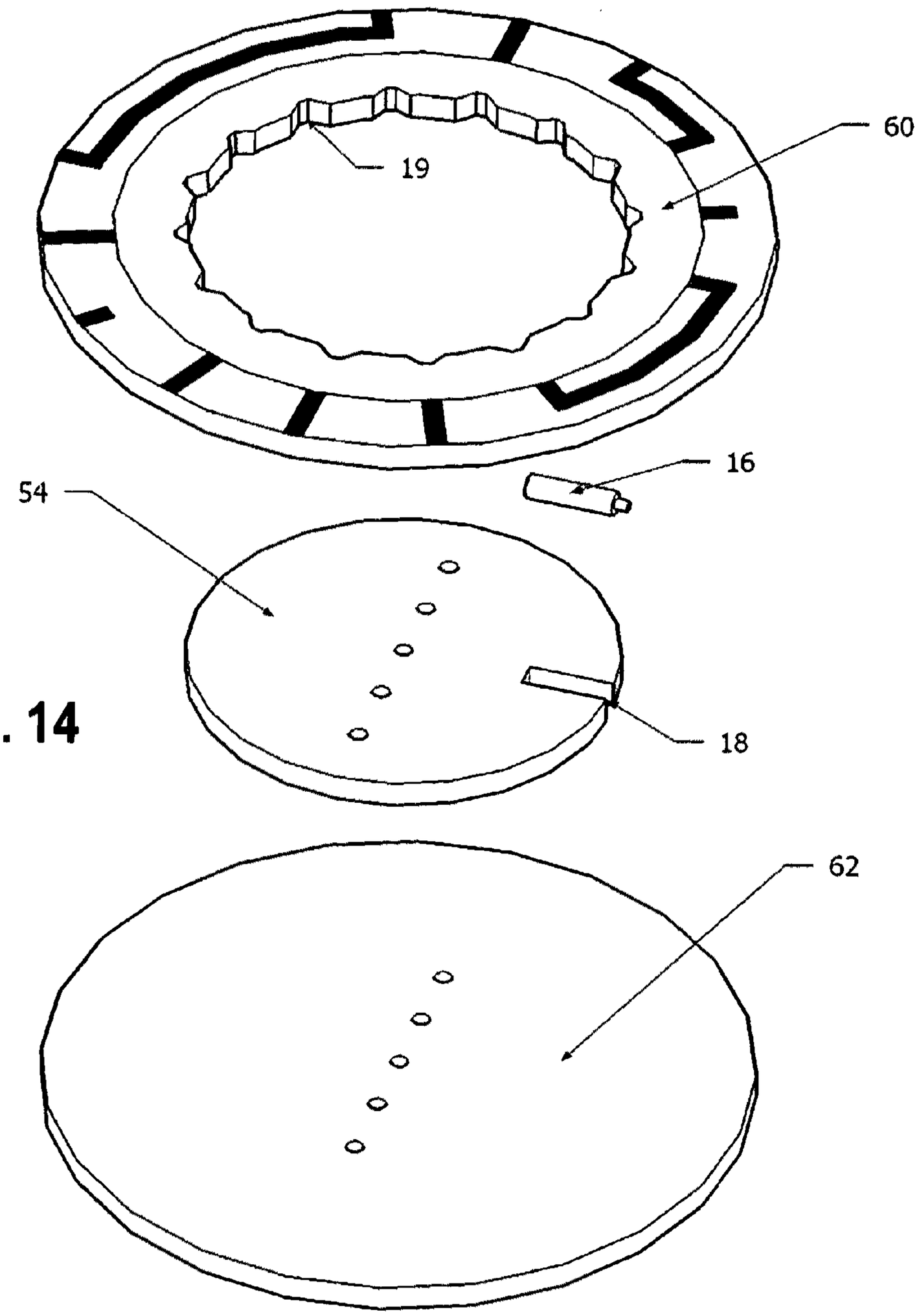
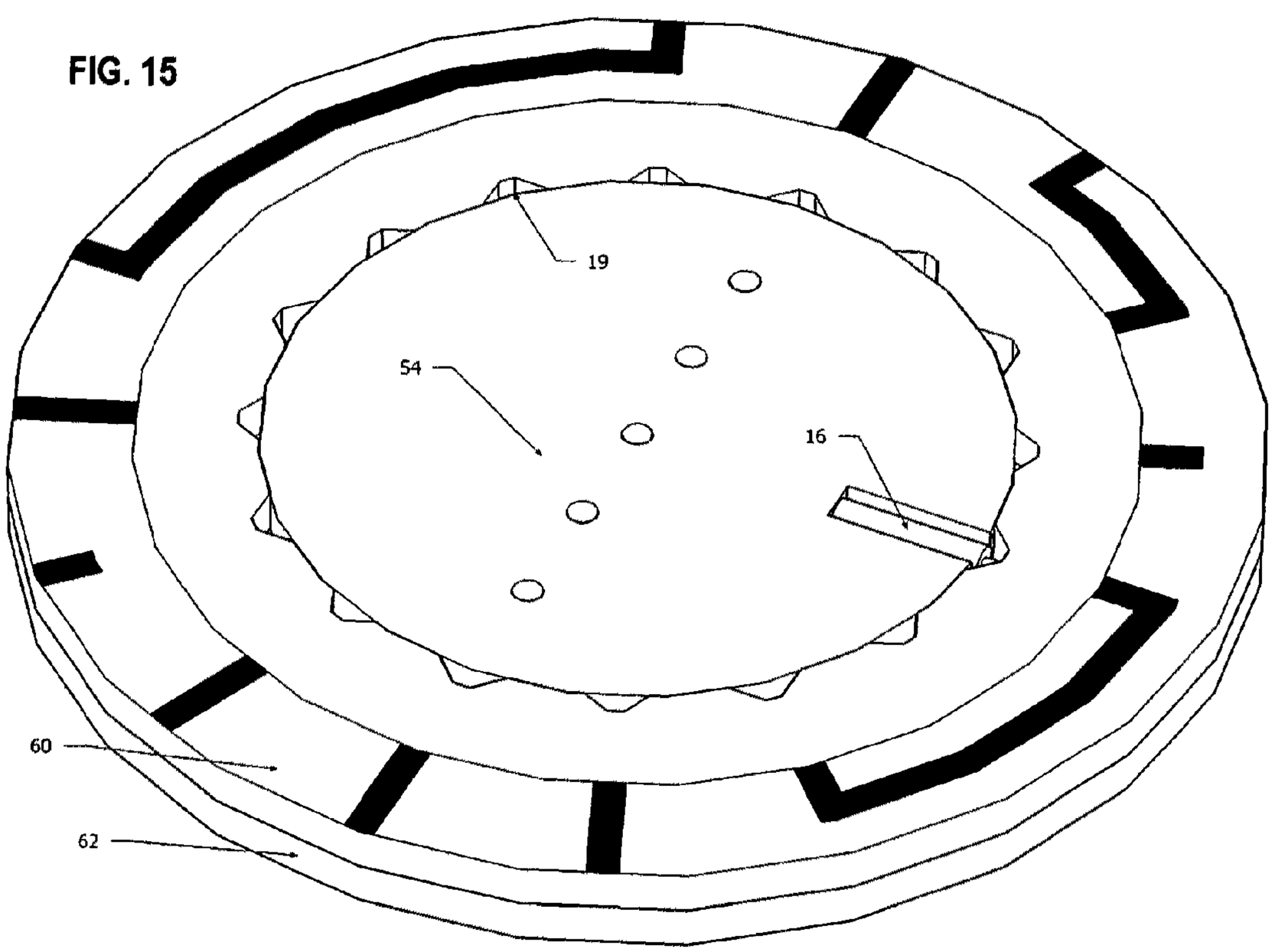


FIG. 14

FIG. 15



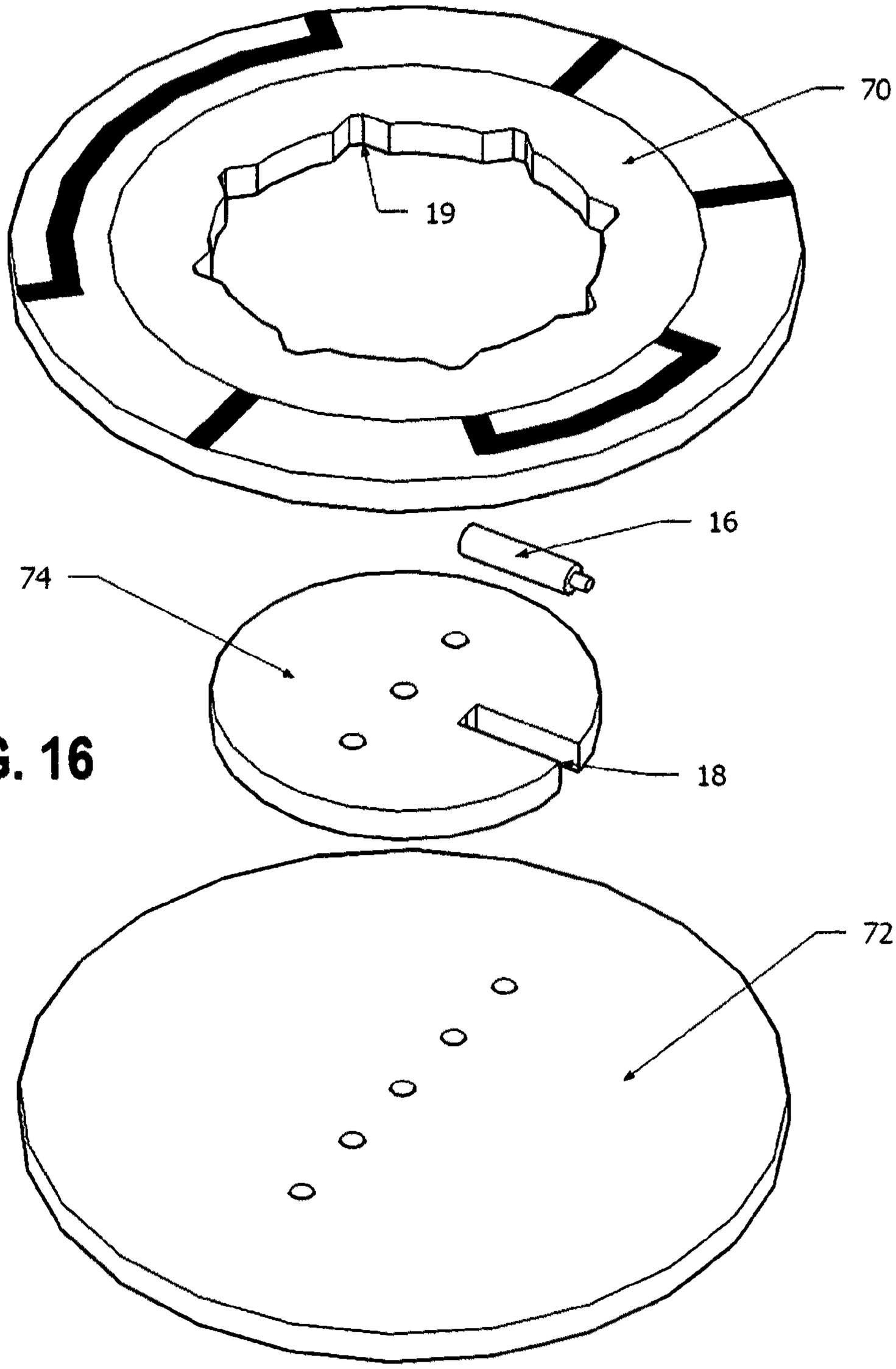


FIG. 16

FIG. 17

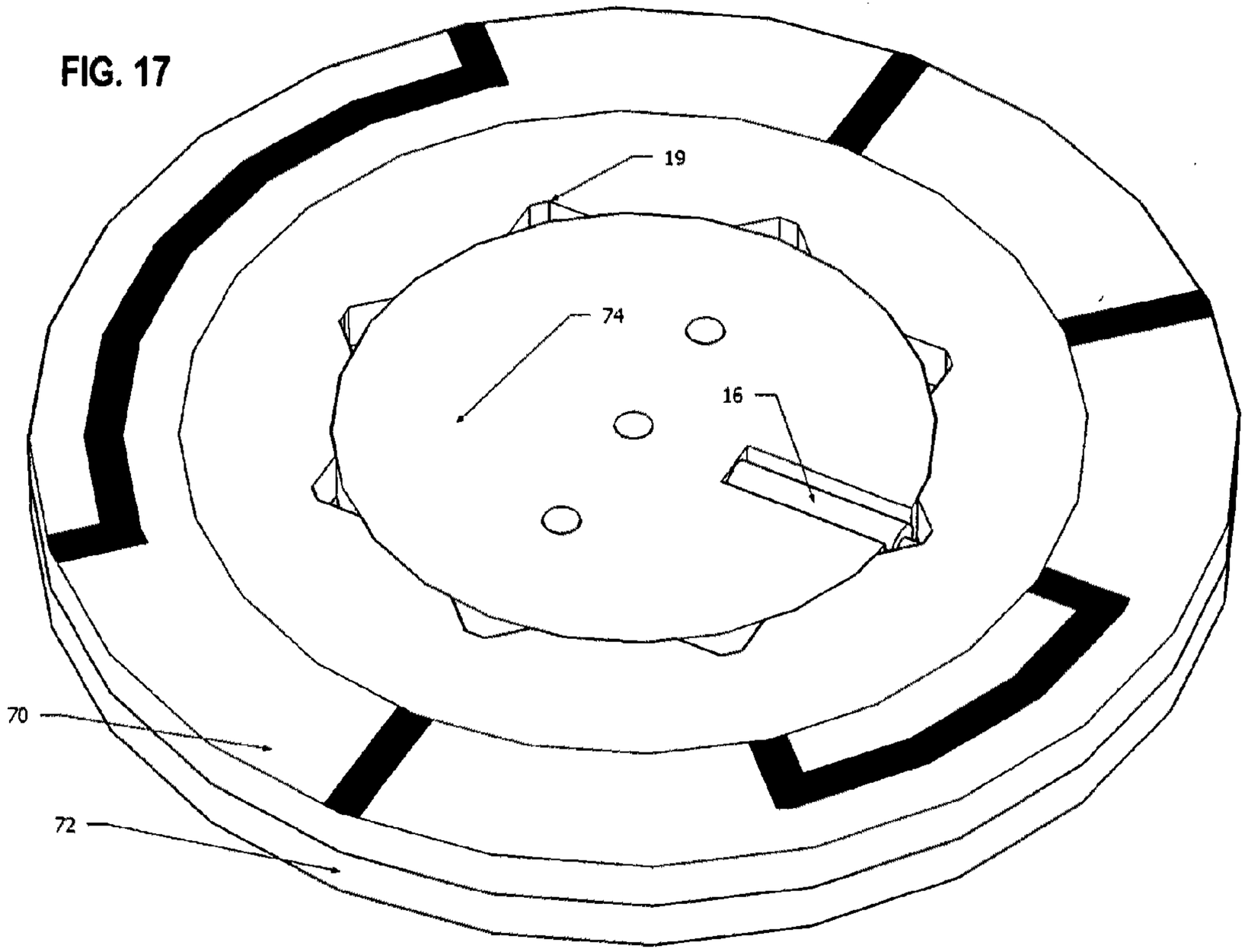


FIG. 18

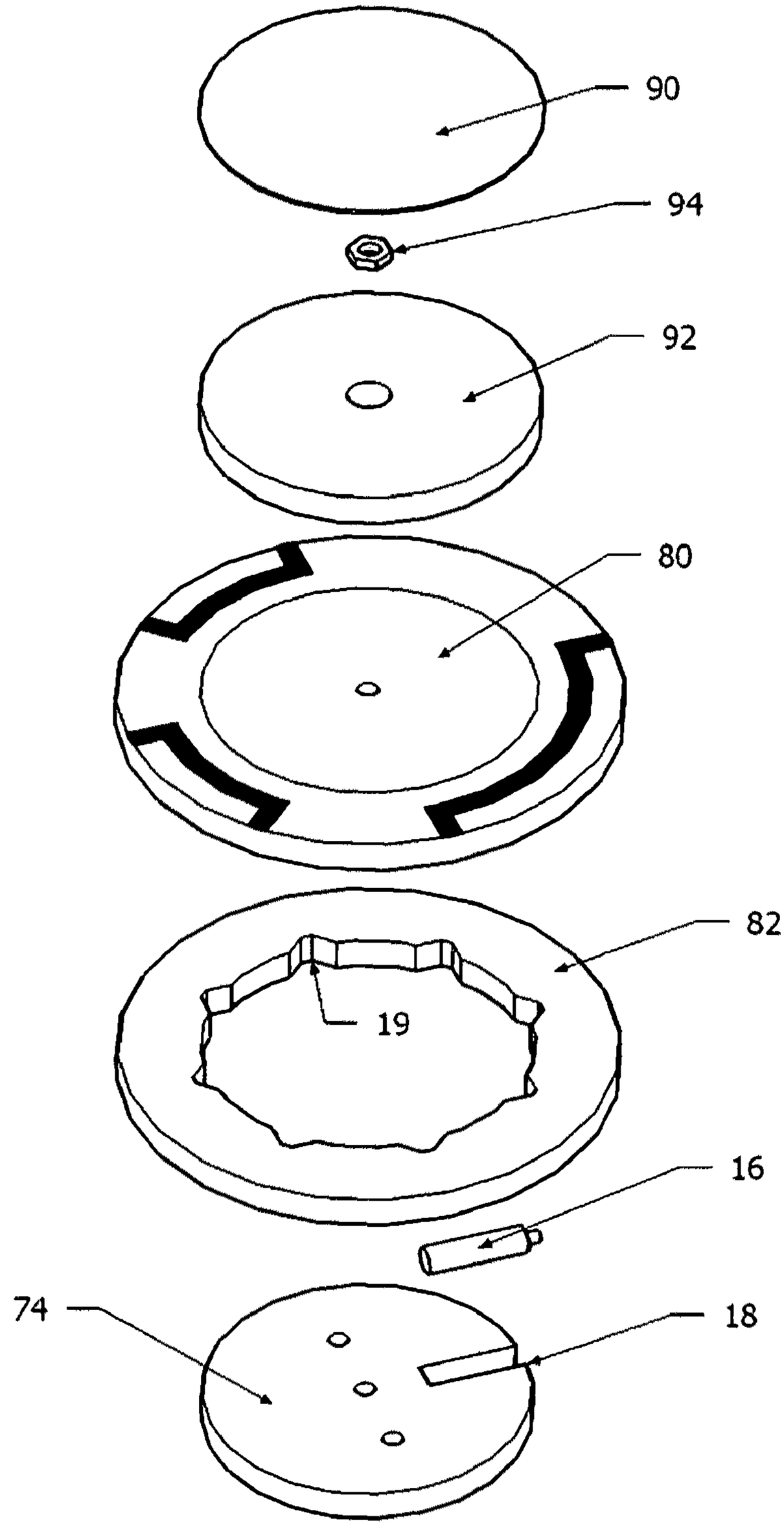
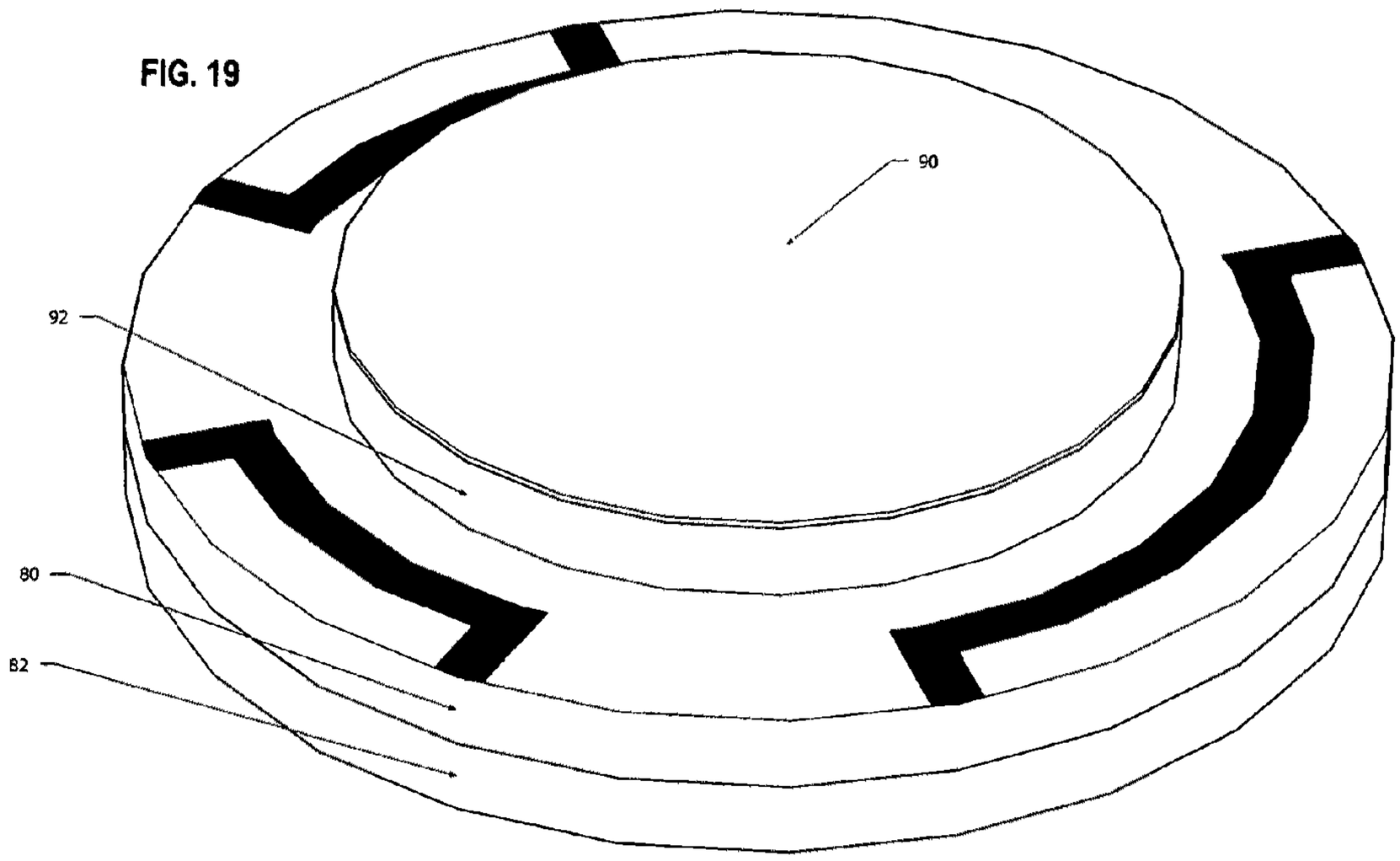


FIG. 19



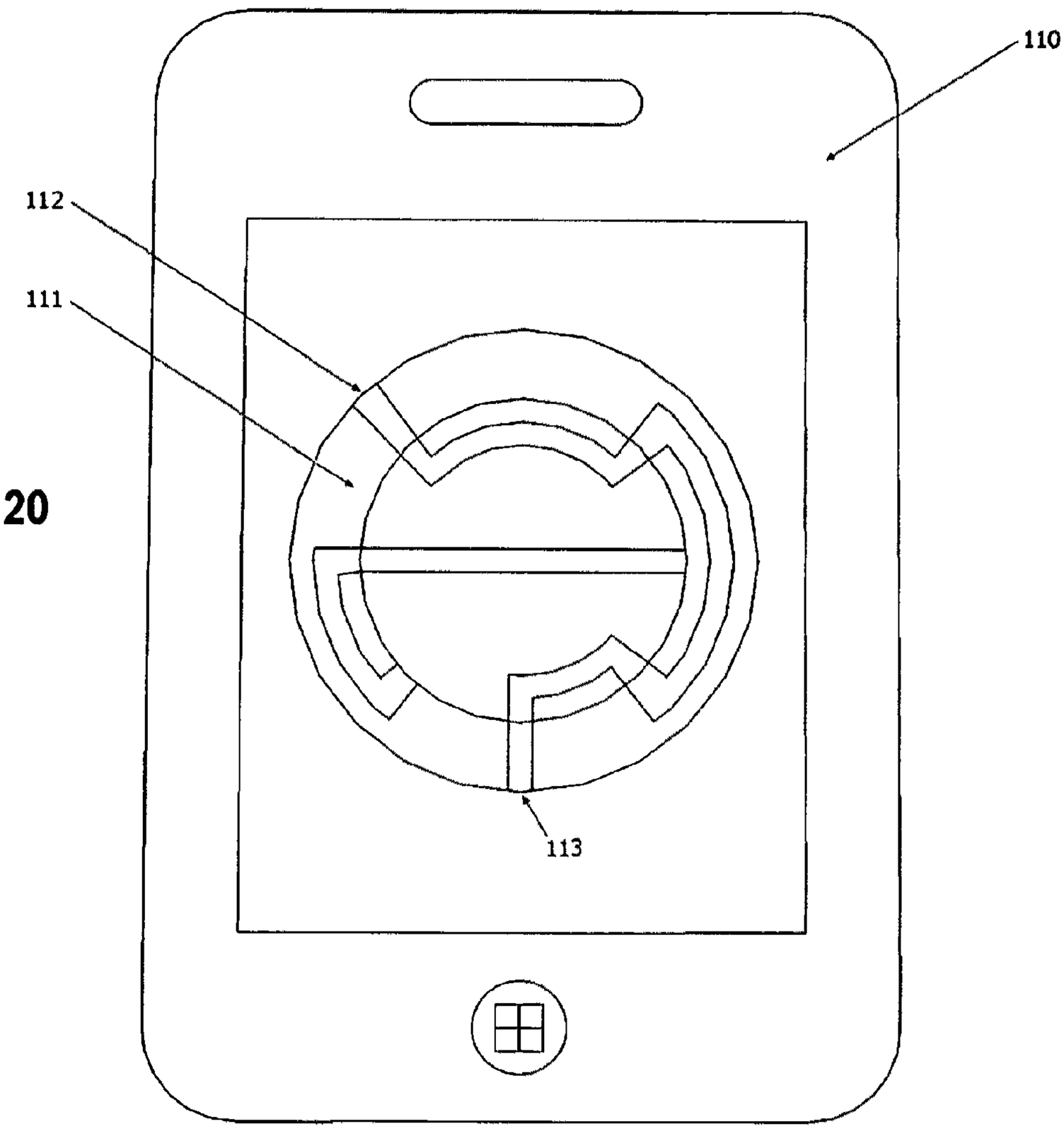


FIG. 20

PATHWAY PUZZLE

SEQUENCE LISTING

[0001] Not applicable.

CROSS REFERENCE TO RELATED APPLICATIONS

[0002] Not applicable.

STATEMENT OF FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

[0003] Not applicable.

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

[0004] Not applicable.

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

[0005] Not applicable.

BACKGROUND OF THE INVENTION

[0006] (1) Field of the Invention

[0007] The present invention relates to game apparatuses and methods having individually rotatable coaxial polygons, such as circles, which, when manipulated and stopped in a specific and correct way generates an unbroken solution path that is navigable from the outside edge of the exterior polygon, through the center polygon, and returning again to the outside edge of the exterior polygon.

[0008] (2) Description of the Related Art

[0009] The following prior art discloses game apparatus having circular discs which may or may not be rotatable, whose indicia do indeed contain navigable pathways, however the game apparatus involves navigation of a movable member such as a pin or a token or a ball or a labyrinth traversing element through those pathways:

[0010] U.S. Pat. No. 598,889, to Young, entitled "Puzzle";

[0011] U.S. Pat. No. 766,118, to Saunders, entitled "Puzzle";

[0012] U.S. Pat. No. 4,570,935, to Stefanini, entitled "Multiple Maze Game";

[0013] U.S. Pat. No. 4,667,960, to Stefanini, entitled "Multiple Maze Game";

[0014] U.S. Pat. No. 4,685,679, to Ben-Gal, et al., entitled "Labyrinth Puzzle";

[0015] U.S. Pat. No. 887,464, to Creasey, entitled "Game Apparatus";

[0016] The following prior art discloses apparatus having rotatable circular discs, and whose indicia do contain navigable pathways, however the rotatable circular discs modify the viewable set of indicia for the sole purpose of creation of individual unique labyrinths, whereas applicant's puzzle uses the rotatable polygons to simply relocate the fixed set of indicia in order to derive a solution pathway for a given game scenario:

[0017] U.S. Pat. No. 928,833, to Zschokke, entitled "Puzzle";

[0018] The following prior art discloses apparatus having circular rotatable circular discs, and whose indicia can contain navigable pathways through claims **4**, **9**, and **10**, however unlike applicant's puzzle, this apparatus does not claim a puzzle that is constructed such that it contains an unbroken pathway from the outermost edge to the center and back out again.

[0019] U.S. Pat. No. 4,452,455, to Bergstrom, et al., entitled "Puzzle Game";

BRIEF SUMMARY OF THE INVENTION

[0020] The present invention is that of a puzzle game. The game itself is comprised of a set of coaxial polygons, such as circles, which are individually axially rotatable. Each polygon has maze-like pathway indicia on it. Some pathways continue forward from an adjacent outer polygon to an adjacent inner polygon. Some pathways will loop back from an adjacent outer polygon back to that same outer polygon. Some pathways will loop back from an adjacent inner polygon back to that same inner polygon. And, some pathways will simply terminate in dead-ends.

[0021] It is the object of the puzzle to amuse a player with a challenge, which is to rotate the polygons axially, until they reach a special solution configuration. This special configuration will be achieved when an unbroken pathway exists that enters from the outside edge of the outermost polygon, through adjacent polygons (if the number of polygons is greater than two) in such a way that it reaches the center polygon and then continues back through adjacent polygons (if the number of polygons is greater than two) where it will then terminate at the outside edge of the outermost polygon.

[0022] The difficulty of finding such a solution configuration can be of many varying levels based on amount of polygons, amount of available paths per polygon, number of solution paths available given a set of pathways and polygons and design of pathway indicia. In the most difficult scenario, there will be a single solution pathway that is nontrivial, while in other configurations there will be many trivial pathways designed that appear that they would complete the circuit, yet fail within the just one or two polygons from the solution path, adding to a player's challenge.

[0023] Further scope of applicability, novel features, objectives, and advantages will be shown via the detailed description to follow, and additionally with their accompanying drawings such that those skilled in the art of examination shall be able to understand those additional elements.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0024] The accompanying drawings, which are incorporated herein and form a part of the specification, illustrate the present invention and, together with the description, further serve to explain the principles of the invention and to enable a person skilled in examination of the relevant art to make and use the invention.

[0025] FIG. **1** is a perspective view of the preferred apparatus of the invention;

[0026] FIG. **2** is a side view of the preferred apparatus of the invention;

[0027] FIG. **3** is a top view of the preferred apparatus of the invention;

[0028] FIG. **4** is an exploded assembly view of the bottommost base, support rods, and inner screw whereupon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the first notched ring with pathways.

[0029] FIG. **5** is a perspective view of the assembled FIG. **4**.
[0030] FIG. **6** is an exploded assembly view of the second base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the second notched ring with pathways.
[0031] FIG. **7** is a perspective view of the assembled FIG. **6**.
[0032] FIG. **8** is an exploded assembly view of the third base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the third notched ring with pathways.
[0033] FIG. **9** is a perspective view of the assembled FIG. **8**.
[0034] FIG. **10** is an exploded assembly view of the fourth base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the fourth notched ring with pathways.
[0035] FIG. **11** is a perspective view of the assembled FIG. **10**.
[0036] FIG. **12** is an exploded assembly view of the fifth base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the fifth notched ring with pathways.
[0037] FIG. **13** is a perspective view of the assembled FIG. **12**.
[0038] FIG. **14** is an exploded assembly view of the sixth base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the sixth notched ring with pathways.
[0039] FIG. **15** is a perspective view of the assembled FIG. **14**.
[0040] FIG. **16** is an exploded assembly view of the seventh base, upon which is mounted an immobile core that houses a spring-plunger apparatus, circumferenced by the seventh notched ring with pathways.
[0041] FIG. **17** is a perspective view of the assembled FIG. **16**.
[0042] FIG. **18** is an exploded assembly view of an immobile core that houses a spring-plunger apparatus, circumferenced by the eighth notched ring that is attached to a final topmost ring with pathways, whereupon a disc is mounted which includes a compartment for the nut and upon which a sticker is mounted for logo identification.
[0043] FIG. **19** is a perspective view of the assembled FIG. **18**.
[0044] FIG. **20** is a top view of a programmable electronic device featuring a software-based version of the preferred embodiment.
[0045] The following reference numerals are used throughout the Figures:
[0046] **2**. Short support rod
[0047] **4**. Medium support rod
[0048] **6**. Long support rod
[0049] **8**. Screw
[0050] **10**. First ring with pathways
[0051] **12**. First base
[0052] **13**. Pathway puzzle
[0053] **14**. First core
[0054] **16**. Spring plunger
[0055] **18**. Spring plunger holding space
[0056] **19**. Braking notch
[0057] **20**. Second ring with pathways
[0058] **22**. Second base
[0059] **30**. Third ring with pathways
[0060] **32**. Third base
[0061] **40**. Fourth ring with pathways
[0062] **42**. Fourth base
[0063] **50**. Fifth ring with pathways
[0064] **52**. Fifth base
[0065] **54**. Second core
[0066] **60**. Sixth ring with pathways
[0067] **62**. Sixth base
[0068] **70**. Seventh ring with pathways
[0069] **72**. Seventh base
[0070] **74**. Third core
[0071] **80**. Topmost disc with pathways
[0072] **82**. Eighth ring
[0073] **90**. Sticker cap for logo
[0074] **92**. Disc with compartment for nut
[0075] **94**. Nut
[0076] **101**. Maze-like pathway indicia
[0077] **102**. Maze-like pathway indicia that is entrance/exit of solution path for larger puzzle
[0078] **103**. Maze-like pathway indicia that is entrance/exit of solution path for larger puzzle
[0079] **104**. Dead-end maze-like pathway indicia
[0080] **110**. Programmable electronic device
[0081] **111**. Movable ring rendered through software
[0082] **112**. Maze-like pathway indicia that is entrance/exit of solution path for smaller puzzle
[0083] **113**. Maze-like pathway indicia that is entrance/exit of solution path for smaller puzzle

DETAILED DESCRIPTION OF THE INVENTION

[0084] Referring now in more detail to the drawings, in FIGS. **1**, **2**, and **3** there is shown a pathway puzzle **13** having a base **12** in which there are set a plurality of rotatable coaxial rings **10**, **20**, **30**, **40**, **50**, **60** and **70**, and a special center rotating member **80**.
[0085] Generally, each ring with the exception of the topmost is mounted on its own subsequent base.
[0086] Ring **10** is axially rotatable around a core **14** atop immobile base **12**.
[0087] Ring **20** is axially rotatable around a core **14** atop immobile base **22**.
[0088] Ring **30** is axially rotatable around a core **14** atop immobile base **32**.
[0089] Ring **40** is axially rotatable around a core **14** atop immobile base **42**.
[0090] Ring **50** is axially rotatable around a core **54** atop immobile base **52**.
[0091] Ring **60** is axially rotatable around a core **54** atop immobile base **62**.
[0092] Ring **70** is axially rotatable around a core **74** atop immobile base **72**.
[0093] Disc **80** is mounted on movable ring **82**, and covered with special disc **92** which is covered by a sticker or other type of covering, **90**. **80**, **82**, **90**, and **92** are axially rotatable as a singular piece around a core **74**. Generally, covering piece **90** has two functions, which are first and foremost, to camouflage the screw **8** and nut **94** that holds the topmost ring parts **80**, **82**, and **92** to the base while still allowing for rotation, and secondarily, cosmetically to allow for placement of a company logo or artwork, such as a mountain climber.
[0094] The rotatable members feature maze-like indicia, such as **101**, which is an example of a singular pathway. In FIG. **3**, maze-like indicia **102** and **103** indicate the ends of a maze-like pathway that when the rings are uniquely positioned create a singular pathway that will continue from the outside edge of ring **10** to ring **80** and back out to the outside

edge of ring **10** without any breaks. Pathway **104** indicates a dead-end path that only reaches halfway through a ring.

[0095] In operation, a player can choose to rotate any of the rotatable rings, which according to the preferred embodiment, will snap into place at certain intervals. In the preferred embodiment, these intervals are fixed at 8 locations every 45 degrees for the top two rings, 16 locations every 22.5 degrees for the next two rings, and 32 locations every 11.25 degrees for the bottom four rings. However, some embodiments may have differing intervals or lack a braking mechanism entirely.

[0096] When all of the rings are in a certain configuration which shall hereafter be referred to as a winning configuration, there will be an unbroken pathway that continues from the outside edge of ring **10** through ring **80** and back out to the outside edge of ring **10**. In FIG. **3**, such entrances and exits are represented by maze-like indicia **102** and **103**. Since all rings rotate coaxially, there is potential for multiple solutions along the same path, simply by rotating all rings of a solved puzzle together to a new angle, such as 45 degrees. These additional solutions are generally considered to just be rotated derivations of the same solution.

[0097] With regards to FIGS. **4** and **5**, they show the physical construction of the bottom rotatable ring and base assembly. Four representations of short support rod **2** joined with two medium support rods **4**, two long support rods **6** and a single screw **8** are threaded through first base **12**. Support rods **2**, **4**, and **6** have a primary function of adding additional stability to first core **14**. Inside this first core **14** is an extra space **18** for placement of a spring plunger **16**. The spring plunger **16** may be mounted to core **14** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **10** circumferences upon core **14**, which results in spring plunger **16** pushing against notch **19**. For the first ring **10**, there are 32 notches, allowing for axial rotation of the first ring **10** to create 32 valid positions for the game.

[0098] It is undesired behavior to have the first core **14** have any angular movement upon the base **12** when ring **10** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0099] Additionally, the screw **8** is meant as a means of disconnecting the entire assembly, but is not considered an axis for rotation. Screw **8** has a general function of keeping the topmost disc **80** in place using nut **94**. Screw **8** and nut **94** can be replaced with many different options of utility bolt or other fastening mechanism to ensure the assembled parts stay together.

[0100] With regards to FIGS. **6** and **7**, they show the physical construction of the second rotatable ring. The four short support rods **2**, two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through second base **22**. An additional core **14** is then placed on the rods **2**, **4**, and **6**, and screw **8**. Inside this core **14** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **14** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **20** circumferences upon core **14**, which results in spring plunger **16** pushing against notch **19**. For the second ring **20**, there are **32** notches, allowing for axial rotation of the second ring **20** to create **32** valid positions for the game.

[0101] It is undesired behavior to have the first core **14** have any angular movement upon the base **22** when ring **20** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0102] With regards to FIGS. **8** and **9**, they show the physical construction of the third rotatable ring. The four short support rods **2**, two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through third base **32**. An additional core **14** is then placed on the rods **2**, **4**, and **6**, and screw **8**. Inside this core **14** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **14** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **30** circumferences upon core **14**, which results in spring plunger **16** pushing against notch **19**. For the third ring **30**, there are 32 notches, allowing for axial rotation of the third ring **30** to create 32 valid positions for the game.

[0103] It is undesired behavior to have the first core **14** have any angular movement upon the base **32** when ring **30** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0104] With regards to FIGS. **10** and **11**, they show the physical construction of the fourth rotatable ring. The four short support rods **2**, two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through fourth base **42**. An additional core **14** is then placed on the rods **2**, **4**, and **6**, and screw **8**. Inside this core **14** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **14** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **40** circumferences upon core **14**, which results in spring plunger **16** pushing against notch **19**. For the fourth ring **40**, there are 32 notches, allowing for axial rotation of the fourth ring **40** to create 32 valid positions for the game.

[0105] It is undesired behavior to have the first core **14** have any angular movement upon the base **42** when ring **40** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0106] With regards to FIGS. **12** and **13**, they show the physical construction of the fifth rotatable ring. The four short support rods **2**, two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through fifth base **52**. At this point, the four short support rods **2** will terminate inside base **52**, since the core placed on base **52** is smaller in diameter and therefore does not have space to house such rods. However, both medium rods **4**, both long support rods **6**, and single screw **8** from FIGS. **4** and **5** will continue through core **54**. Core **54** is placed on the rods **4** and **6**, and screw **8**. Inside this core **54** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **54** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **50** circumferences upon core **54**, which results in spring plunger **16** pushing against

notch **19**. For the fifth ring **50**, there are **16** notches, allowing for axial rotation of the fifth ring **50** to create **16** valid positions for the game.

[0107] It is undesired behavior to have the second core **54** have any angular movement upon the base **52** when ring **50** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0108] With regards to FIGS. **14** and **15**, they show the physical construction of the sixth rotatable ring. The two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through sixth base **62**. An additional core **54** is then placed on the rods **4** and **6**, and screw **8**. Inside this core **54** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **14** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **60** circumferences upon core **54**, which results in spring plunger **16** pushing against notch **19**. For the sixth ring **60**, there are 16 notches, allowing for axial rotation of the sixth ring **60** to create 16 valid positions for the game.

[0109] It is undesired behavior to have the second core **54** have any angular movement upon the base **62** when ring **60** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0110] With regards to FIGS. **16** and **17**, they show the physical construction of the seventh rotatable ring. The two medium support rods **4**, two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through seventh base **72**. At this point, the two medium support rods **4** will terminate inside base **72**, since the core placed on base **72** is smaller in diameter, and therefore does not have space to house such rods. However, both long support rods **6** and single screw **8** from FIGS. **4** and **5** will continue through core **74**. Core **74** is placed on the rods **6** and screw **8**. Inside this core **74** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **74** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. Ring **70** circumferences upon core **74**, which results in spring plunger **16** pushing against notch **19**. For the seventh ring **70**, there are 8 notches, allowing for axial rotation of the seventh ring **70** to create 8 valid positions for the game.

[0111] It is undesired behavior to have the third core **74** have any angular movement upon the base **72** when ring **70** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0112] With regards to FIGS. **18** and **19**, they show the physical construction of the eighth and final rotatable ring. Initially, disc **80** is fastened to ring **82**, either through adhesive or some other method. Disc **92** will be fastened to disc **80**, thereby creating a fixed assembly of parts **92**, **80**, and **82**. The two long support rods **6** and a single screw **8** from FIGS. **4** and **5** are threaded through another core **74**. At this point, the two long support rods **6** will terminate inside core **74**, since the assembly of ring **82**, disc **80**, and disc **92** that is placed on core **74** must be freely rotatable. Because of this, single screw **8** from FIGS. **4** and **5** will continue through core **74**. Inside this core **74** is an extra space **18** for placement of another spring plunger **16**. The spring plunger **16** may be mounted to core **74** using adhesive or it may remain unattached if so desired, although for stability purposes mounting is recommended. With regard to the pre-assembled ring **82**, disc **80**, and disc **92**, the ring **82** circumferences upon core **74**, resulting in spring plunger **16** pushing against notch **19**. For the eighth ring **82**, there are 8 notches, allowing for axial rotation of the eighth ring **82** to create 8 valid positions for the game. The assembly of ring **82**, disc **80**, and disc **92** to the apparatus is performed by insertion of nut **92** into disc **92**, whereupon it shall be fastened to the single screw **8** from FIGS. **4** and **5**. Finally, sticker **90** is placed atop disc **92**, which will camouflage the appearance of nut **94**, and allow for logo placement if desired.

[0113] When connecting base **74** from FIGS. **16** and **17** to the base **74** in FIGS. **18** and **19**, it is recommended to rotate one of the core pieces **74** by 180 degrees such that the two long support rods **6** from FIGS. **4** and **5** will still be able to thread through both core pieces **74**, but thereby limit interference from the 2 spring plungers **16**. Additionally, it is undesired behavior to have the third core **74** from FIGS. **16** and **17** have any angular movement upon the core **74** from FIGS. **18** and **19** when the assembly consisting of ring **82**, disc **80**, and disc **90** is rotated. Such conditions could create unintentionally unwinnable scenarios wherein the rings can be stopped at incorrect angles, thereby causing indicia to fail to align with adjacent rings.

[0114] With regards to FIG. **20**, it shows an interactive software-based version of the preferred embodiment of the puzzle. The device **110** has a puzzle **111** on its display. The puzzle therein is a two-ring puzzle compared to the eight-ring puzzle that is presented in the preferred embodiment. The current puzzle is in its winning configuration, such that a path exists from the outside edge, through the center ring, and back out again without breaks. Manipulation of the image can be done through multiple interfaces, including but not limited to mice, keyboards, touch-screens, and stylus interaction. In this manifestation, many different levels are created, with multiple indicia, rings, difficulties, and notch configurations.

[0115] The design of the pathways in the preferred embodiment in FIGS. **1** to **19** is a representation of a puzzle that has a non-obvious and uniquely singular solution. The same is true of the pathways of the smaller puzzle in FIG. **20**. The design of the maze on the preferred embodiment is not limited to the single maze as drawn, but can be inclusive of alternate derivations, that may or may not include unique solutions.

[0116] While the invention has been shown and described in detail with reference to a preferred embodiment thereof, it will be appreciated and understood to those skilled in the art to which this invention pertains that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. A puzzle consisting of a plurality of coaxial shapes of increasing circumference that contain pathway indicia, wherein the shapes when rotated in a certain fixed position will generate an unbroken pathway visible through the indicia from the outermost edge of the outermost shape or a given start point, into the center or other predetermined shape, and back out through the outermost edge of the outermost shape or to a given end point.

2. The apparatus of claim **1** wherein the indicia in claim **1** is represented by etching, stickers, tooling, drawing, painting, color, mounting, wires, and light sources.

3. The apparatus of claim **1** wherein the coaxial shapes use three-dimensional pathway indicia that continue from a polygonal shape's face to its outside edge.

4. The apparatus of claim **1** wherein the shapes as specified are mounted on a single base with a rigid centermost member used as the axis of rotation for the coaxial shapes.

5. The apparatus of claim **4** wherein the centermost member contains a plurality of slots that contain spring-like mechanisms for braking.

6. The apparatus of claim **5** wherein the plurality of shapes that are mounted around the centermost member contain detents that cooperate with indicated spring-like braking mechanisms.

7. The apparatus of claim **6** wherein the detents for braking align with specific positions of a shape's pathway indicia.

8. The apparatus of claim **4** wherein the assembly can be easily disassembled in order to reconfigure the apparatus with different coaxial shapes that have different pathway indicia.

9. The apparatus of claim **1** wherein the shapes as specified are mounted on a multiple individual bases, that contain a plurality of rigid centermost members used as the axis of rotation for the coaxial shapes.

10. The apparatus of claim **9** wherein the centermost members contains a plurality of slots that contain spring-like mechanisms for braking.

11. The apparatus of claim **10** wherein the plurality of shapes that are mounted around the centermost member contain detents that cooperate with indicated spring-like braking mechanisms.

12. The apparatus of claim **11** wherein the detents for braking align with specific positions of a shape's pathway indicia.

13. The apparatus of claim **9** wherein the assembled unit can be easily disassembled in order to reconfigure the apparatus with different coaxial shapes that have different pathway indicia.

14. The apparatus of claim **9** wherein the assembled unit contains specialized structural inserts to prevent base pieces from rotating axially when rotatable pieces are turned.

15. The apparatus of claim **1** wherein the rotatable polygonal shapes instead of having flat surfaces are angled or rounded.

16. The apparatus of claim **1** wherein the pathways on the coaxial shapes will only generate a singular unique pathway solution as defined in claim **1**.

17. The apparatus of claim **1** wherein the pathways on the coaxial rotatable polygons will only generate a multiple pathway solutions as defined in claim **1**.

18. The apparatus of claim **1** wherein the pathways mathematically generate numerous incorrect solutions that are one shape away from the correct solution.

19. The apparatus of claim **4** wherein the plurality of shapes that are mounted around the centermost member contain a plurality of slots that contain spring-like mechanisms for braking.

20. The apparatus of claim **19** wherein the centermost member contains detents that cooperate with indicated spring-like braking mechanisms.

21. The apparatus of claim **20** wherein the detents for braking align with specific positions of a shape's pathway indicia.

22. The apparatus of claim **9** wherein the plurality of shapes that are mounted around the centermost members contain a plurality of slots that contain spring-like mechanisms for braking.

23. The apparatus of claim **22** wherein the centermost members contain detents that cooperate with indicated spring-like braking mechanisms.

24. The apparatus of claim **23** wherein the detents for braking align with specific positions of a shape's pathway indicia.

25. Software that executes on electronic devices that comprises of functionality as indicated in claim **1**.

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