



GOMESA PHASE II PROJECT FUNDING

Request for Funding FY2026

Submission ID: #202601301388

PROJECT SUMMARY

1. Title of Project

The Bloom Array: Implementation of Autonomous Mineral Prospecting & Coastal Infrastructure Resilience

2. Location of Project

Copy: Gulfport, Harrison County, and Mississippi Sound Coastal Waters

3. Requesting Organization:

Planetary Ocean Defense Systems Corp (PODS)

4. Requesting Agency Representative

a. Name:

Jason P Sonnier

b. Phone:

2285747144

d. Email:

calyxocean@gmail.com

c. Address:

1740 Courthouse Road

Gulfport Mississippi

5. Funding Requested:

\$400000

6. Have any other State or Federal funding sources been identified for the project?

No

7. If yes, enter amount and source of additional funds:

\$

Source of Additional Funds:

8. Total Project Funds

\$400000



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9. Provide Brief Project Description/Overview:

The Bloom Array project deploys a fleet of autonomous 'Calyx' drones and 'CCS' seismic sensors to modernize Mississippi's subsea infrastructure management. Utilizing a patented, bio-mimetic G-Chitocore resin, the system's electronics are fully encapsulated ('potted') to eliminate toxic metal pressure vessels, allowing the units to function as artificial reef substrates for oyster and coral growth. The fleet features the 'Ocular Pearl', a proprietary transient-optic sensor housing made of purified chitosan and silk fibroin that provides high-clarity data transmission but biodegrades via enzymatic hydrolysis at the end of its lifecycle. This 'Smart-Skin' system monitors pipelines for leaks and corrosion while mapping 'Blue Carbon' sites, ensuring a 100% zero-trace footprint that actively restores the benthic habitat.

10. LIST Project Goals/Objectives:

- Objective 1 (Fabrication): Establish a local manufacturing partnership (utilizing Gulfport-based composites facilities) to fabricate the initial "Alpha Fleet" of 5 Calyx autonomous drones and 2 CCS seismic sensor nodes using the patented G-Chitocore resin.
- Objective 2 (Infrastructure Validation): Conduct a 6-month field trial in the Mississippi Sound to validate the "Smart-Skin" capability, demonstrating the system's ability to detect structural anomalies (corrosion, stress fractures) in subsea pipelines.
- Objective 3 (Zero-Trace Prospecting): Prove the efficacy of the "Pulse-Laser" extraction method to harvest critical mineral samples without creating sediment plumes or disturbing the benthic ecosystem.
- Objective 4 (Data Delivery): Provide the Department of Marine Resources with a high-resolution "Blue Carbon" map of the pilot zone, identifying areas of high sequestration potential to support state coastal restoration planning.

11. Which of the following authorized uses set forth in the GOMESA Act does this project fall under? Explain SPECIFICALLY and in detail how the project meets the required criteria. Check all that apply - At least one must be checked.

(A) Projects and activities for the purposes of coastal protection, including conservation, coastal restoration, hurricane protection, and infrastructure directly affected by coastal wetland losses

This project directly addresses the protection of "infrastructure directly affected by coastal wetland losses." As Mississippi's coastal wetlands erode, subsea pipelines become increasingly exposed to strong currents, storm surges, and anchor strikes, creating a high risk of environmental disaster. The Bloom Array project mitigates this risk by deploying a "Smart-Skin" monitoring system that strengthens existing infrastructure against corrosion and physical impact. By preventing pipeline failures, we protect the surrounding coastal marshes and fisheries from toxic contamination. Additionally, the drone fleet actively monitors coastal erosion rates in real-time, providing data essential for targeted restoration efforts.

(B) Mitigation of damage to fish, wildlife, or natural resources.

Traditional subsea infrastructure maintenance and resource extraction often rely on heavy dredging and physical intervention, which create sediment plumes that suffocate benthic habitats and disrupt local fisheries. The Bloom Array mitigates this damage by utilizing a "Zero-Trace" precision methodology. Our "Pulse-Laser" technology allows for mineral



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sampling and infrastructure repair without physical contact with the seafloor, preserving the integrity of seagrass beds and coral zones. Additionally, the fleet is equipped with eDNA sensors that actively monitor biological diversity, allowing the Department of Marine Resources to detect environmental stressors—such as hypoxic zones or invasive species—in real-time, preventing potential fish kills before they occur.

(C) Implementation of a federally-approved marine, coastal, or conservation management plan

This project directly supports the implementation of the Gulf of Mexico Alliance (GOMA) Governors' Action Plan IV, specifically addressing the 'Water Resources' and 'Habitat Resources' priority areas. The Bloom Array provides high-frequency, autonomous monitoring of water quality parameters (temperature, pH, dissolved oxygen) and benthic habitat conditions that are critical to the plan's success. Furthermore, the project aligns with the NOAA Blue Carbon Strategy by identifying and monitoring submerged aquatic vegetation (SAV) and seagrass beds. The data collected will be formatted to integrate directly with federal conservation databases, filling critical gaps in current management plans for the Mississippi Sound.

(D) Mitigation of the impact of Outer Continental Shelf activities through funding of onshore infrastructure projects.

This project deploys "Dual-Use" infrastructure that functions simultaneously as a monitoring network and an artificial reef system. Unlike traditional steel subsea equipment which degrades and pollutes, the Bloom Array utilizes a bio-mimetic G-Chitocore resin structure. This material is chemically designed to recruit oyster spat and support coral polyp attachment, effectively turning every deployed sensor node and pipeline sleeve into a micro-habitat. This approach mitigates the impact of industrial presence by actively restoring the benthic surface area and providing shelter for juvenile fish species, offsetting



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the habitat loss caused by dredging and erosion.

12. Project Timetable/Milestones:

Phase 1: Procurement & Design (Months 1-2)

Finalize schematics and procure raw Chitin/Graphene materials. Establish Joint Production Agreement with Seemann Composites for mold tooling.

Phase 2: Fabrication & Assembly (Months 3-4)

Vacuum-infusion (SCRIMP) of the G-Chitocore hulls and "potting" of sensor cores. Assembly of 5 Calyx Units and 2 CCS Nodes.

Phase 3: Integration & Testing (Month 5)

Dry-lab testing of Pulse-Laser safety parameters and calibration of eDNA arrays.

Phase 4: Field Pilot (Month 6)

Deployment in Mississippi Sound. Live-fire test of non-invasive sampling and "Blue Carbon" data collection.

Phase 5: Final Reporting (Month 7)

Submission of performance data and environmental impact report to MDMR.

13. Project Timing

Short-term (3 year or less)



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APPLICATION SUMMARY QUESTIONNAIRE

14. Current status of architectural/engineering plans & specifications for this project (if applicable):

Group 1:

Group 2:

In Progress

Funds not budgeted

15. In what way does this project meet the goals and objectives of the Department of Marine Resources, which includes enhancing, protecting and conserving the marine interest of Mississippi for present and future generations.?

This project directly supports the MDMR's mission to 'enhance, protect, and conserve' by introducing a 'Zero-Trace' technology that balances economic growth with strict environmental stewardship. Unlike traditional industrial methods that degrade the coast, the Bloom Array enhances the Blue Economy by creating high-tech manufacturing jobs in Gulfport. It protects marine interests by deploying 'Smart-Skin' sensors that prevent pipeline leaks and toxic spills. Finally, it conserves natural resources by utilizing a biodegradable, reef-building drone design that actively restores oyster habitats for future generations.

16. Estimated number of years to completion:

1

17. Estimated Completion Date:

12/31/2026

18. Prioritize if your agency has submitted multiple projects:

1 of 1



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BUDGET

Category	Total
Salaries	47000.00
Travel	8000
Architecture & Engineering	182000.00
Legal	8000.00
Consulting	27000.00
Construction	0.00
Site Work	0.00
Equipment	128000.00
Indirects	
Other	
Total	400000

Attachments

1. calyximage.pdf
2. calyximageex.pdf
3. podsimage.pdf

I hereby certify under penalty of perjury that all information contained in this application packet is true and correct. I have not knowingly or intentionally provided any false information. I understand that a false statement on this application may be grounds for rejection of my application or termination of the award. In addition, a false statement may be punishable under applicable state or federal laws, which may also result in a fine and/or imprisonment.

I certify that the above referenced agency / entity has given me the authority to submit this application.

Name

Phone

Date

Jason P Sonnier

(228) 574-7144

01/30/2026

01/30

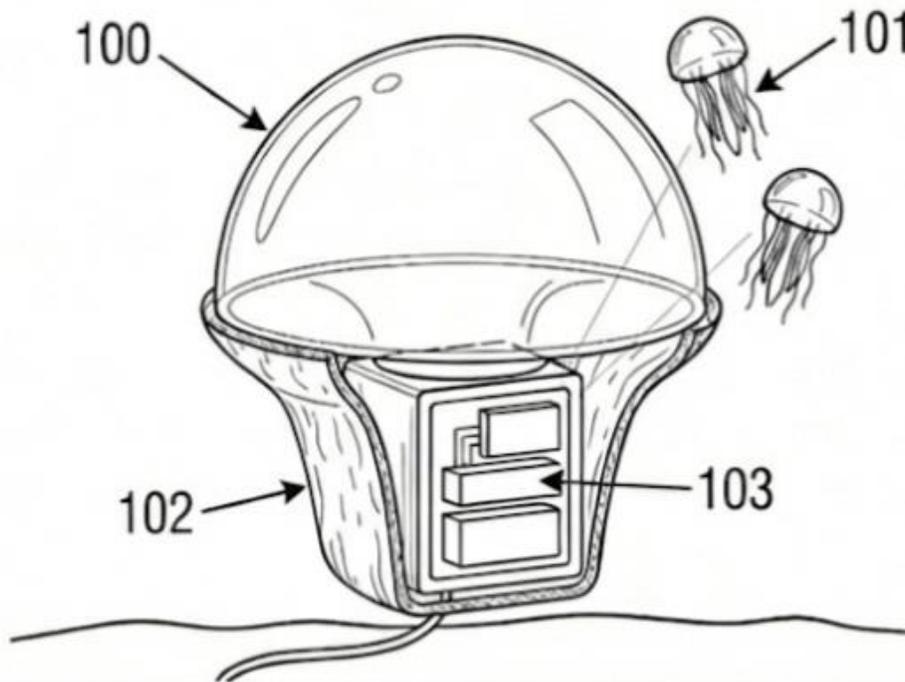


FIG. 01.

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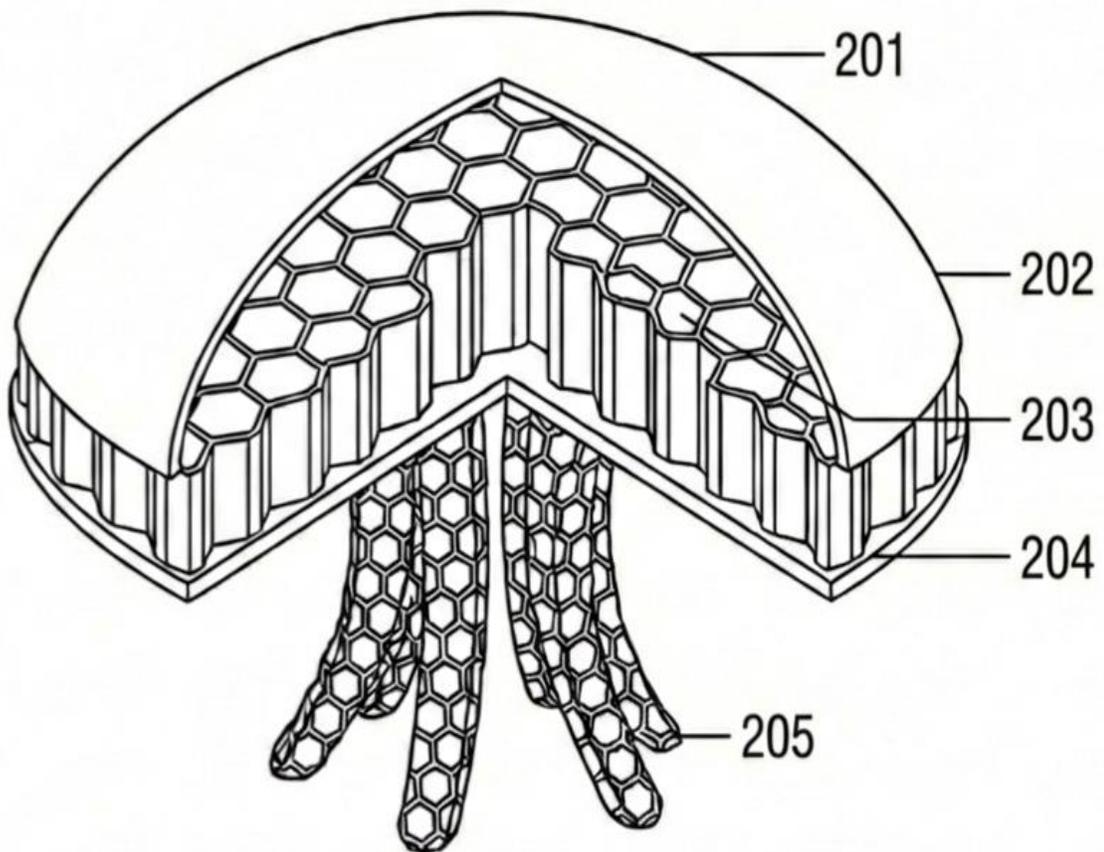


Fig. 02.

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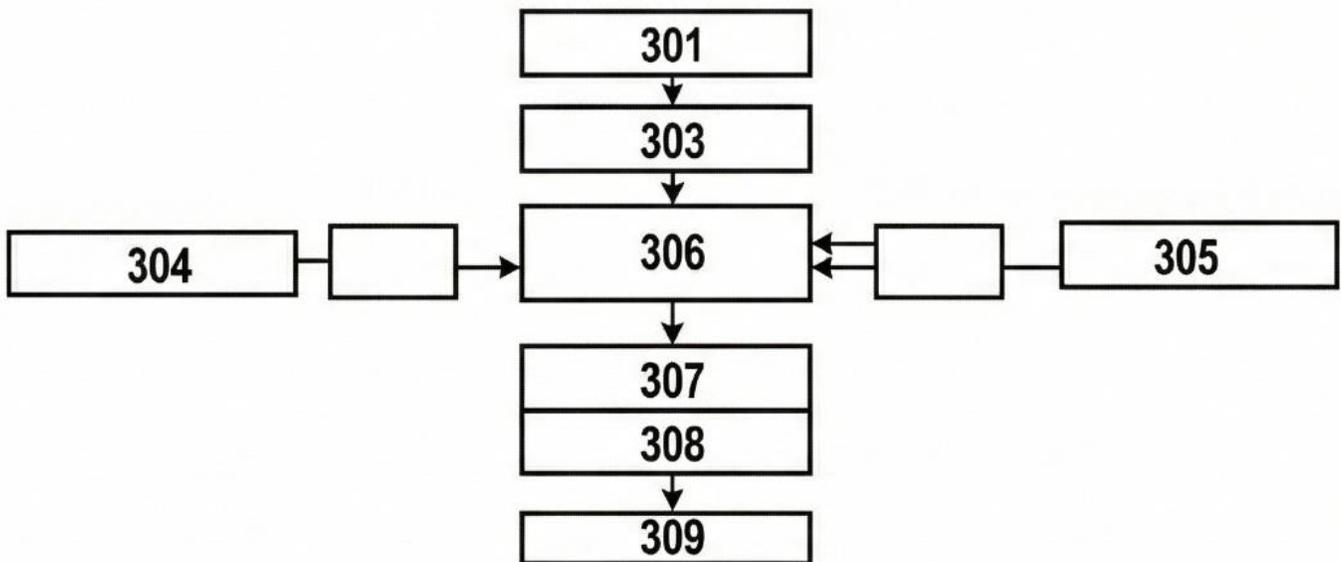


FIG. 03.

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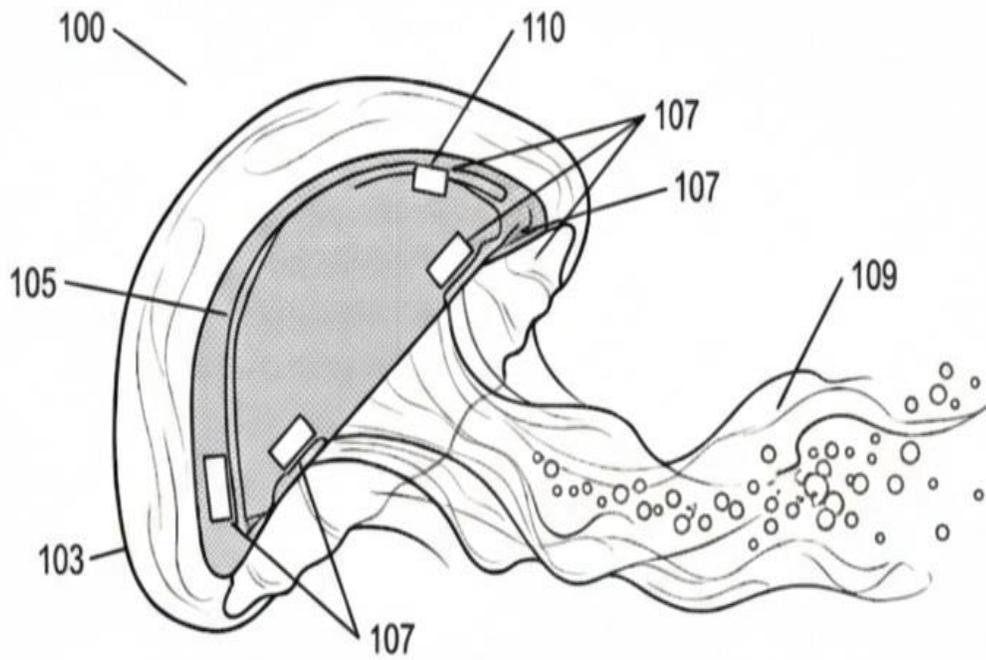


FIG. 04.

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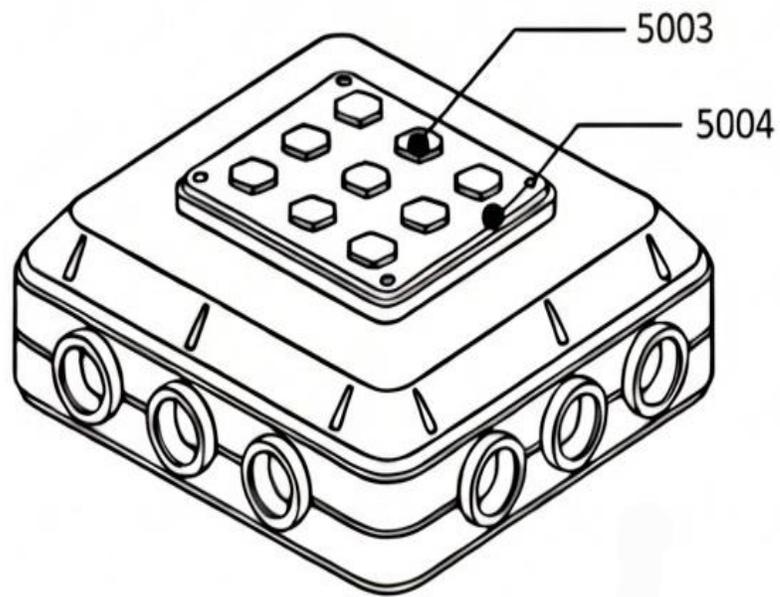


FIG. 05.

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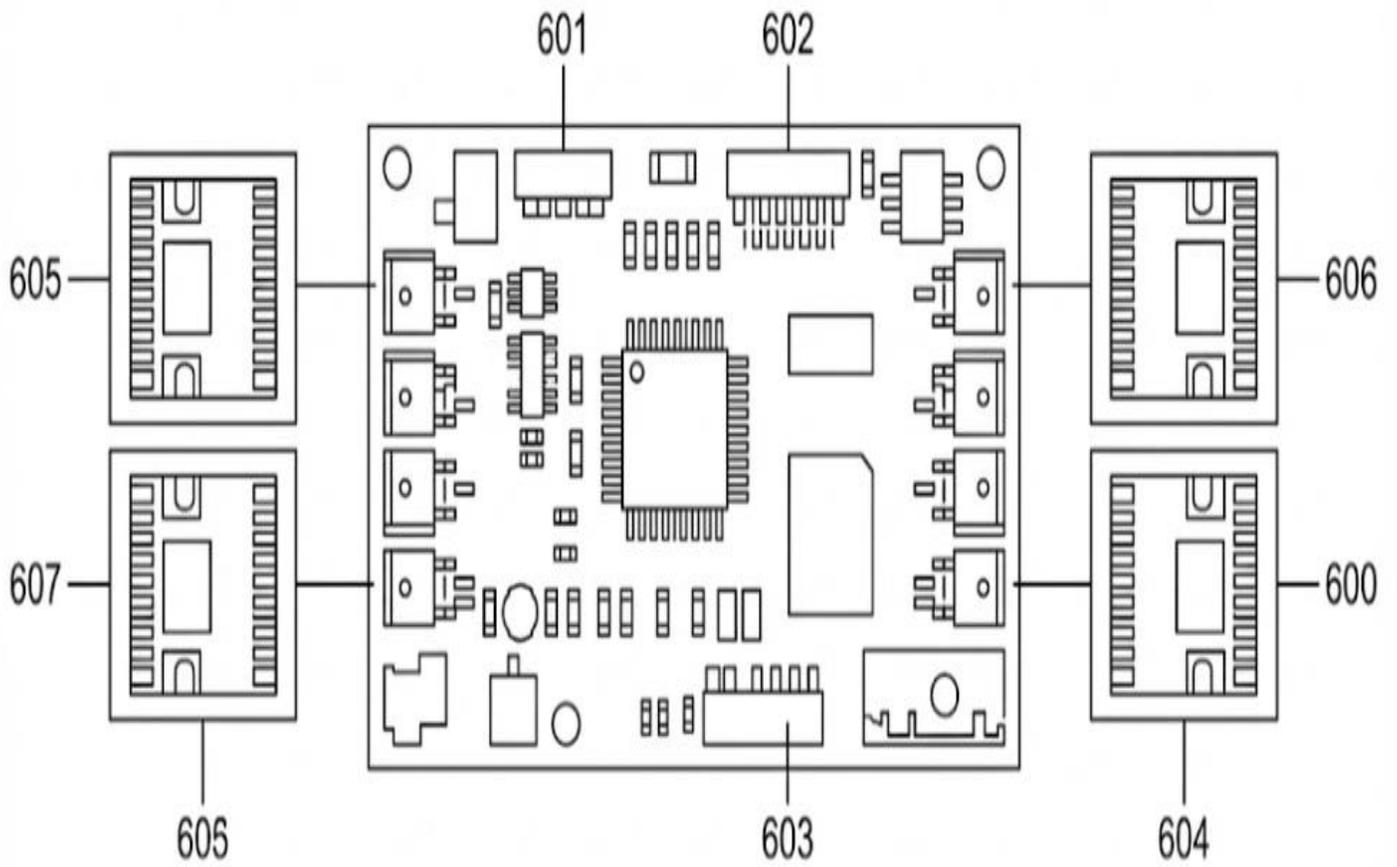


FIG. 06.

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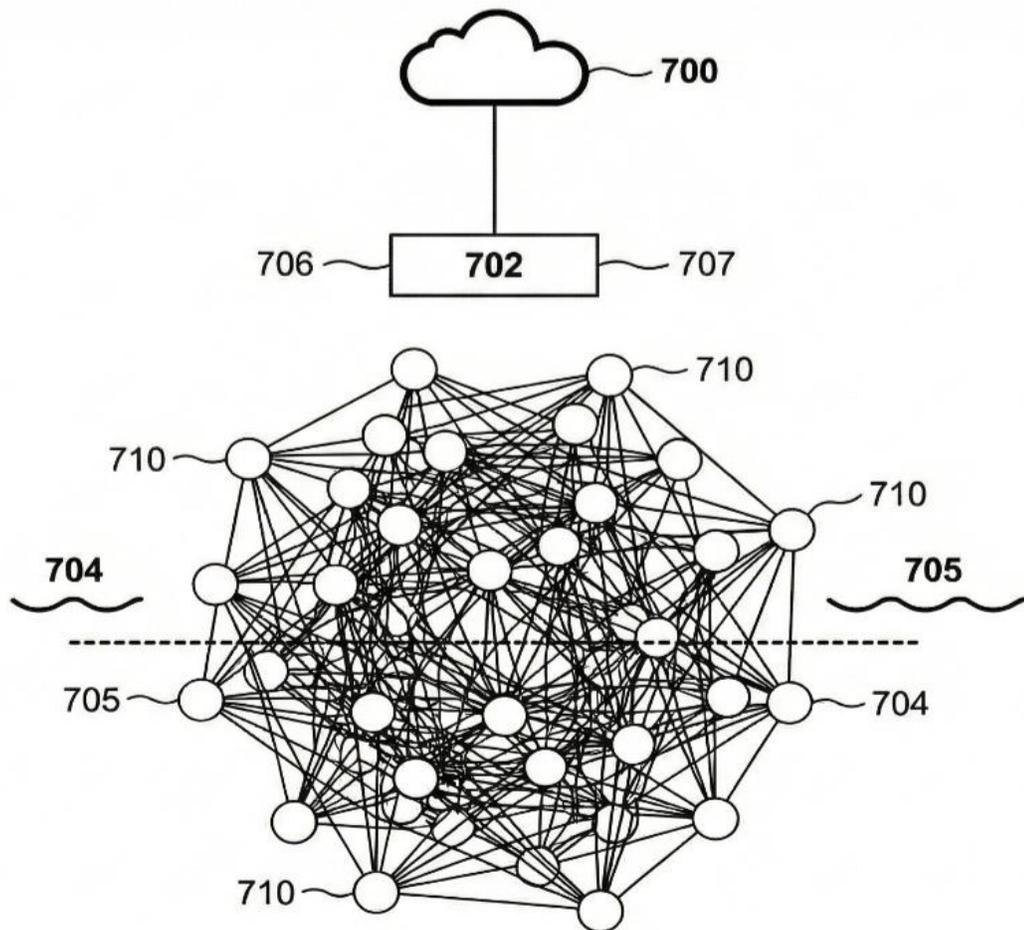


FIG. 07.

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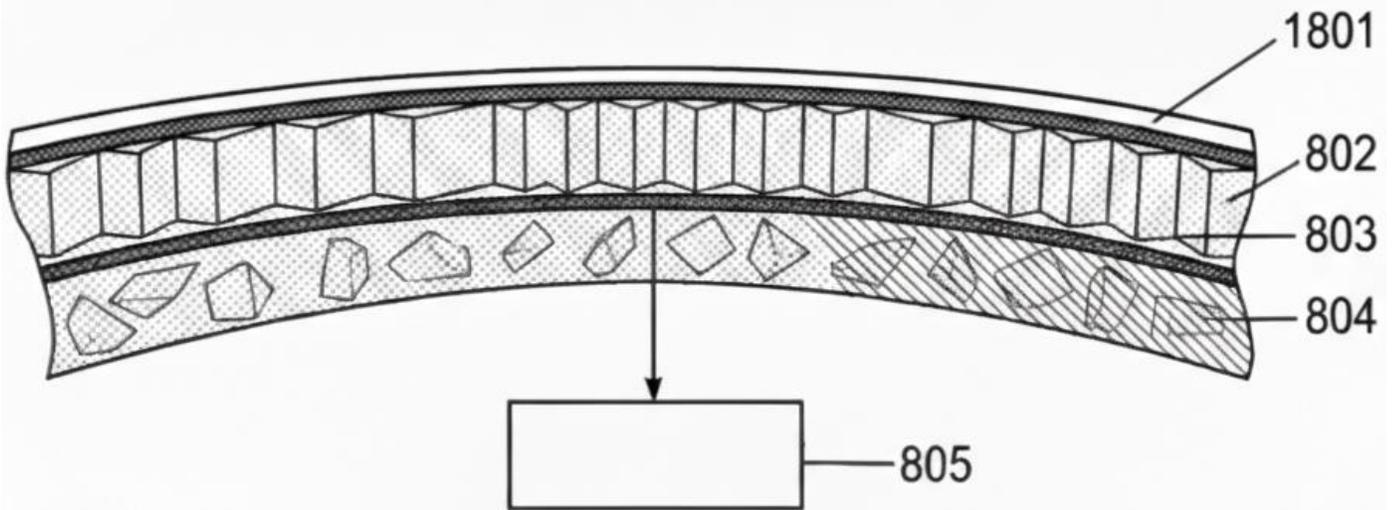


FIG. 08.

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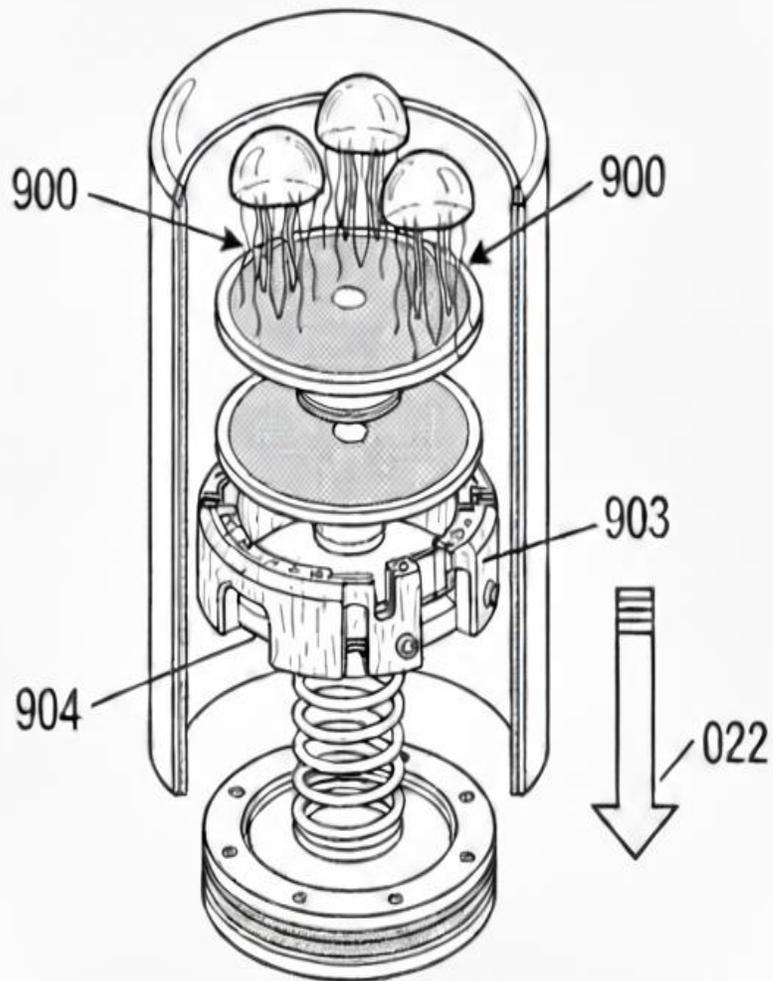


FIG. 09.

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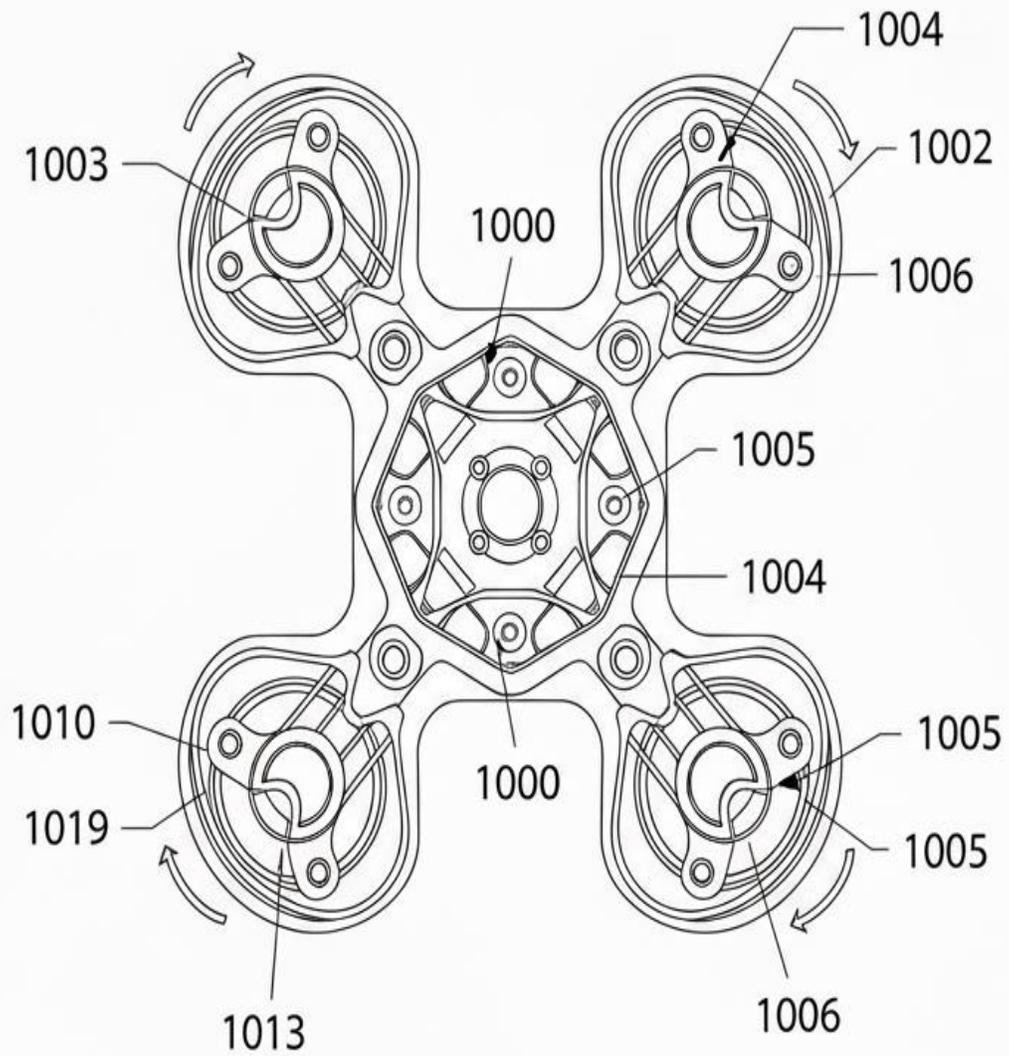


FIG. 10.

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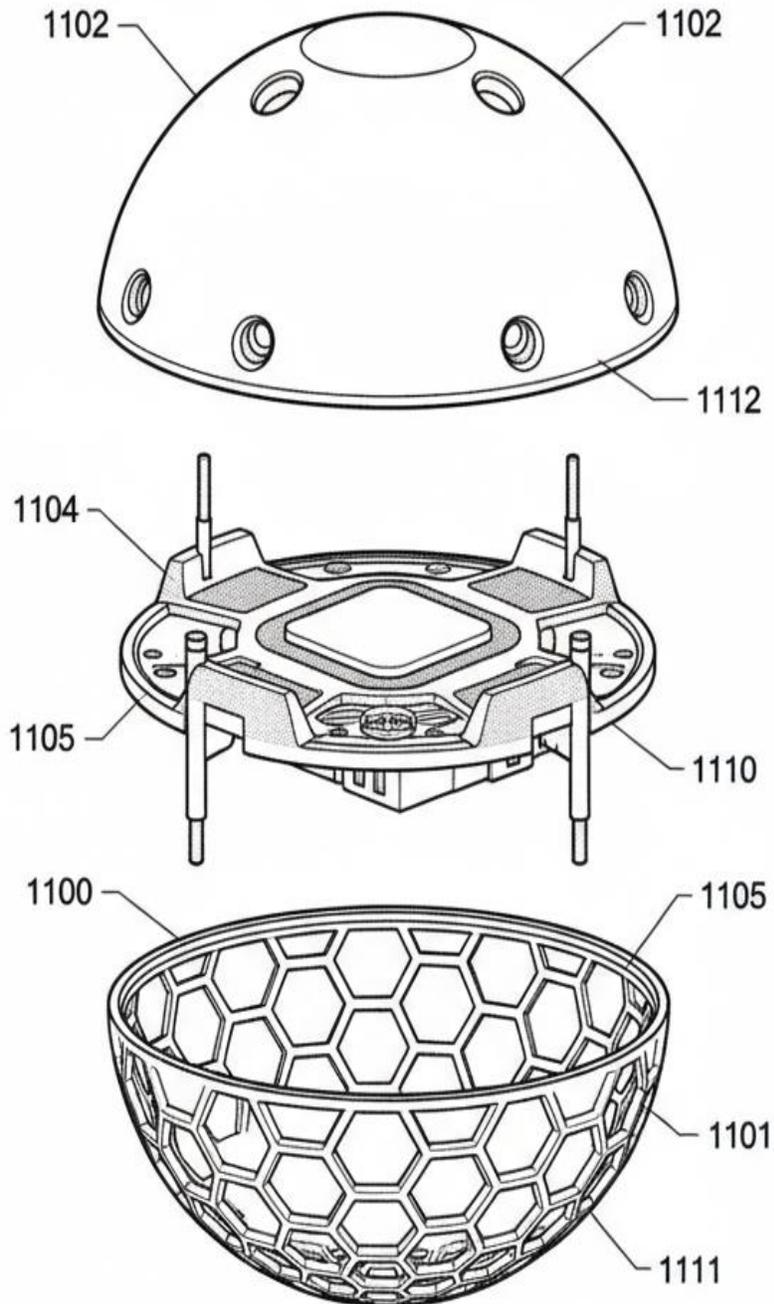


FIG. 11.

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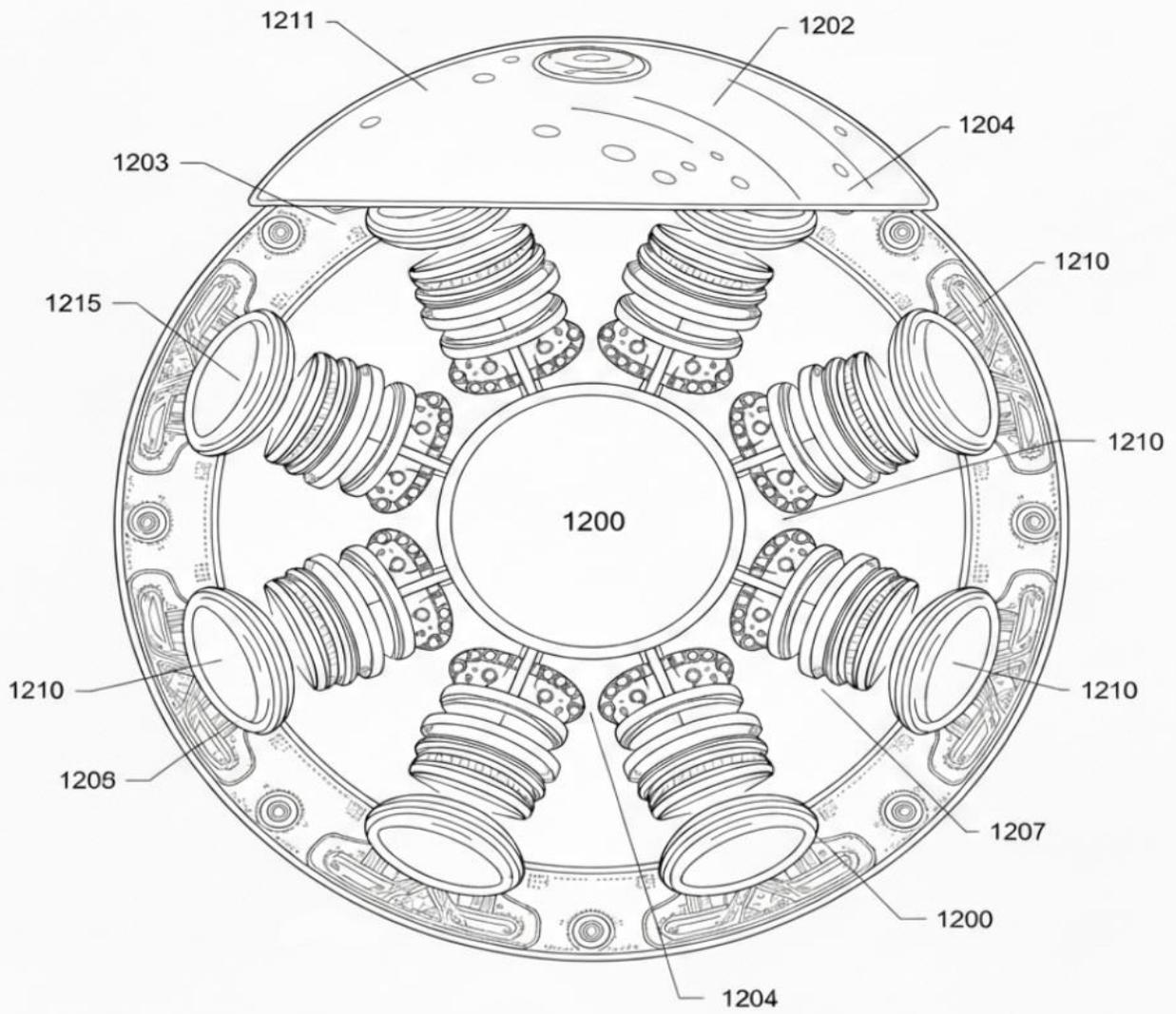


FIG. 12.

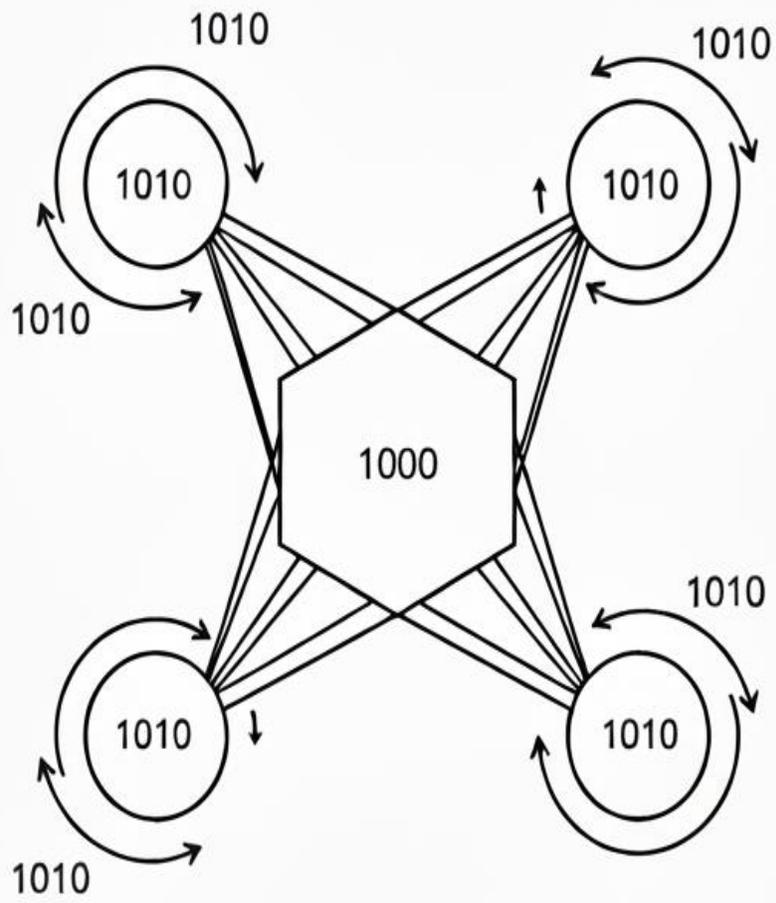


FIG. 13.

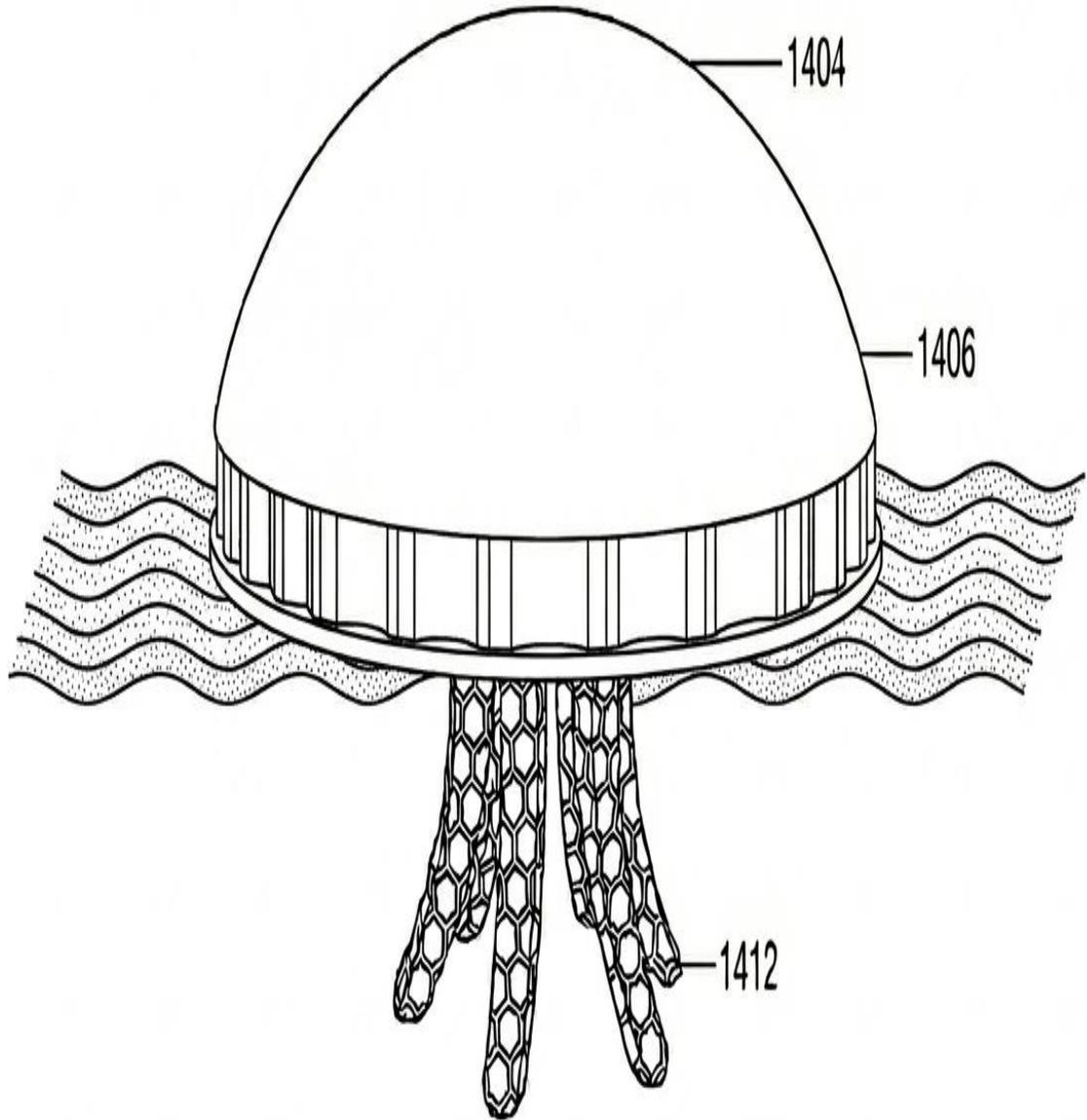


FIG. 14.

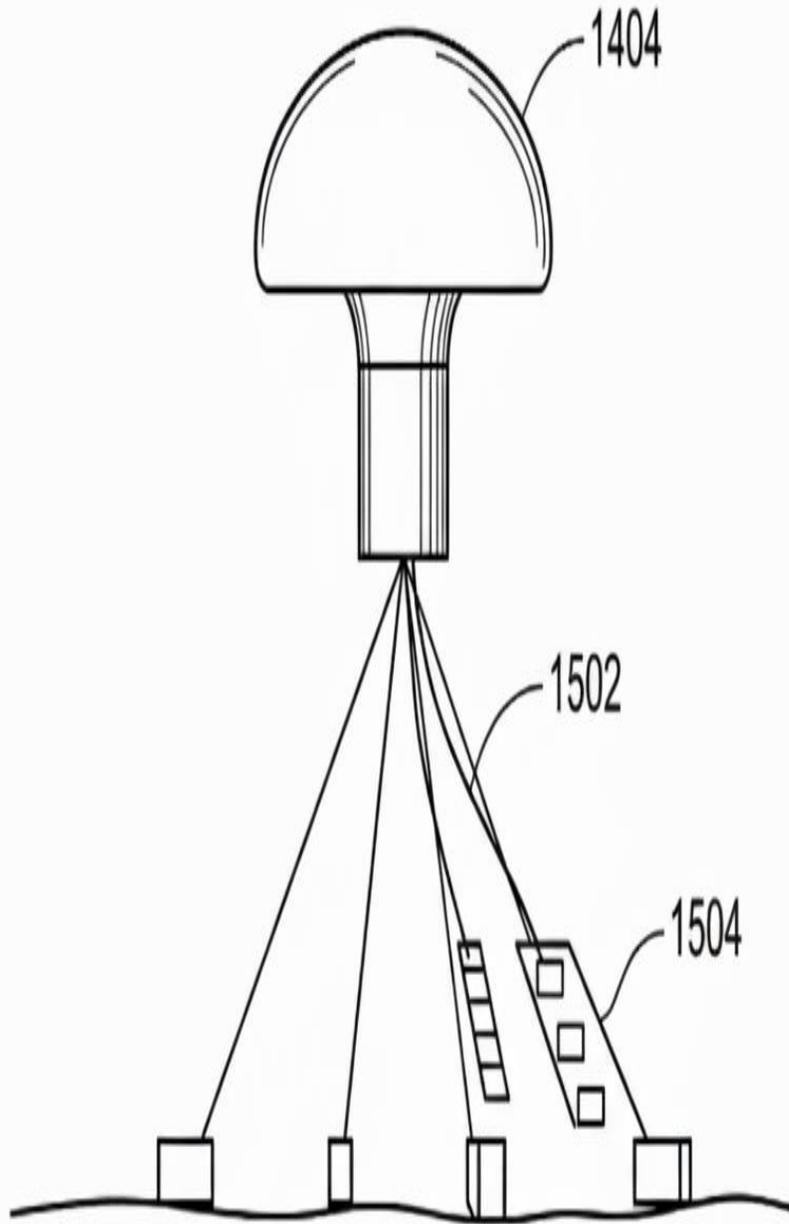


FIG. 15.

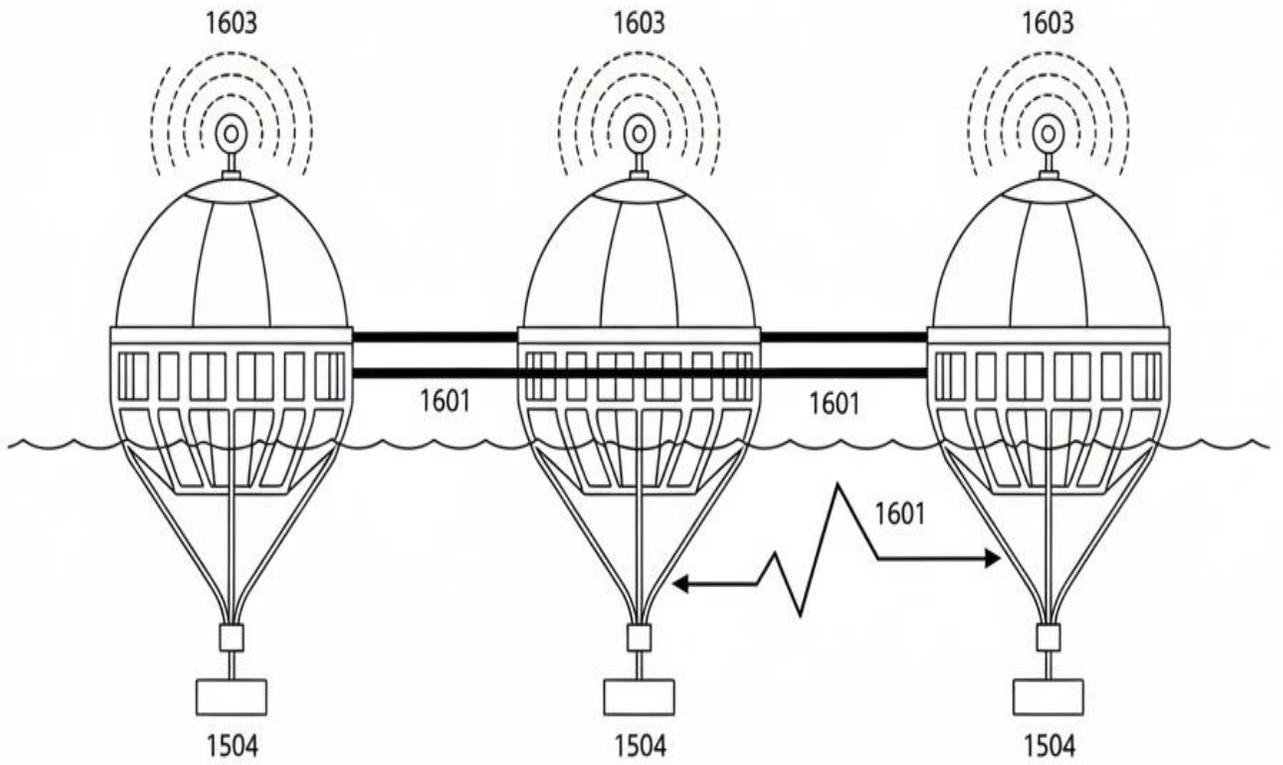
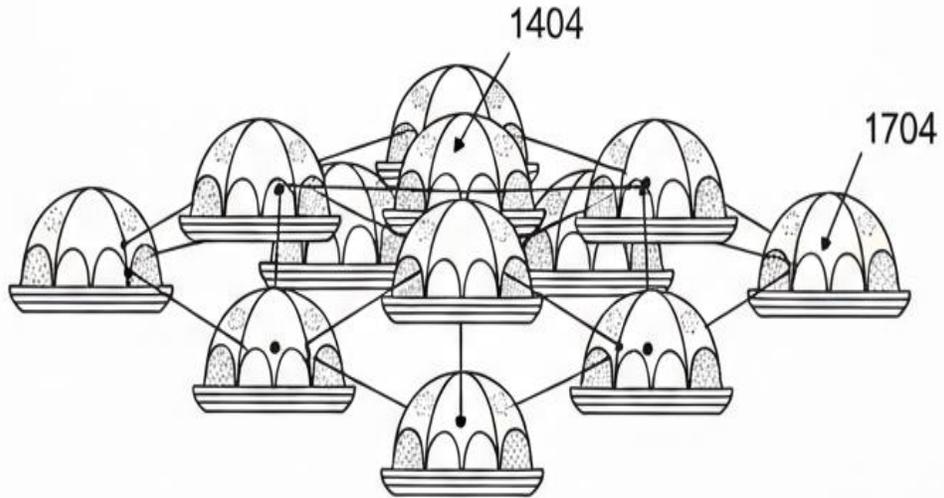


FIG. 16.

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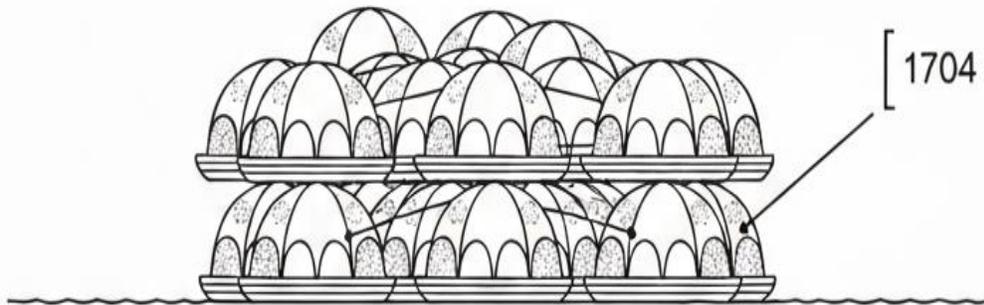


FIG. 17.

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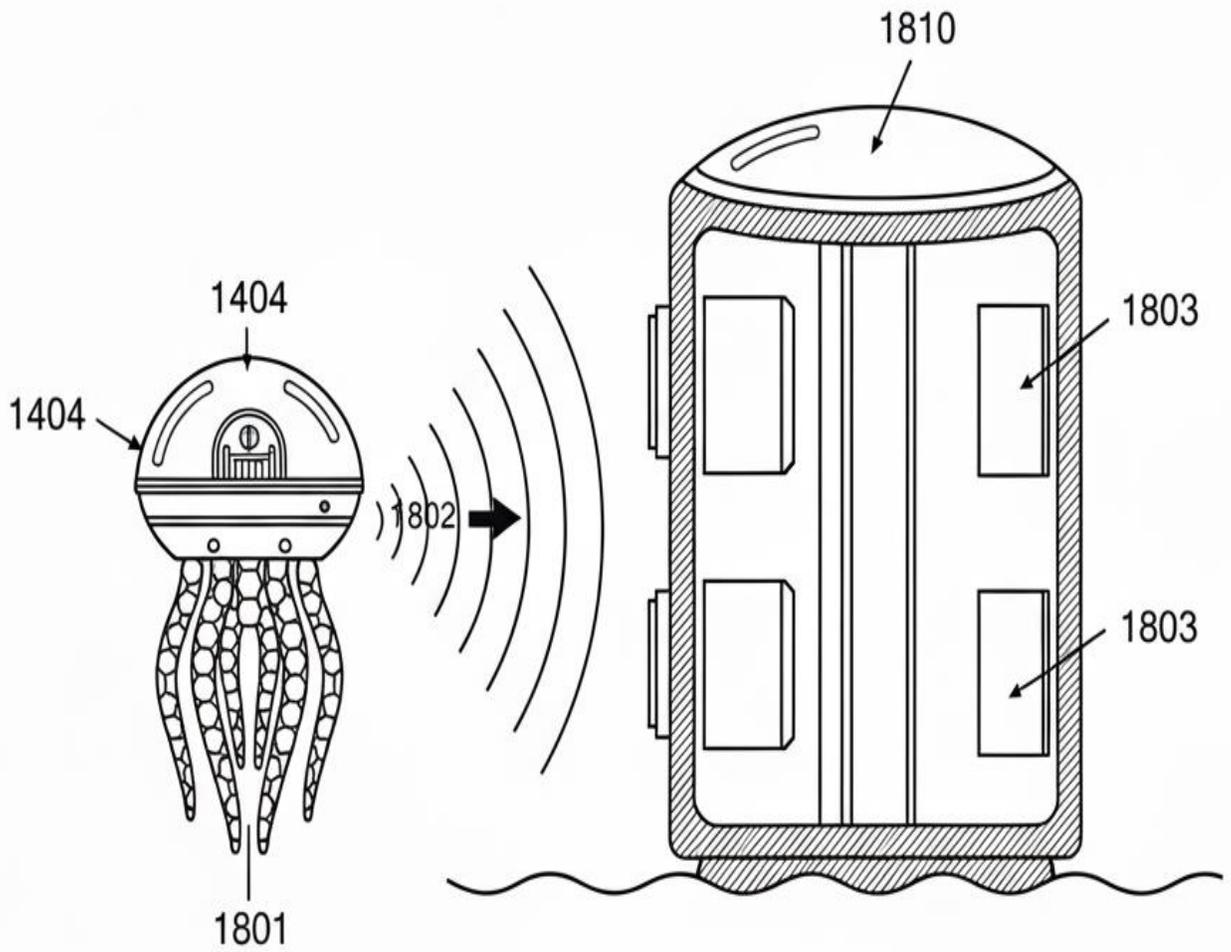


FIG. 18.

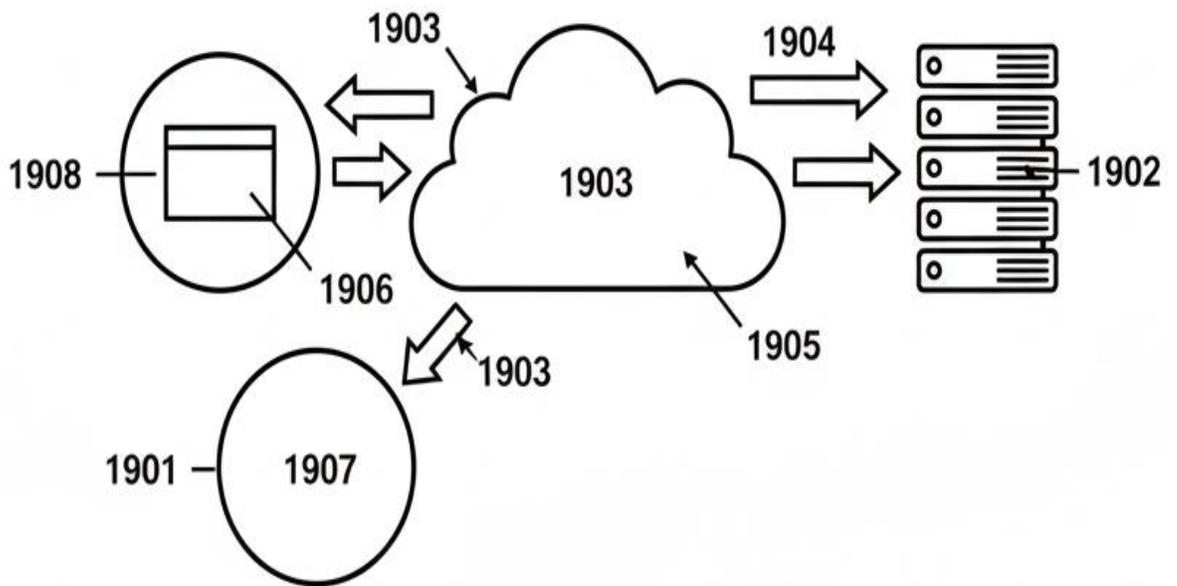


FIG. 19.

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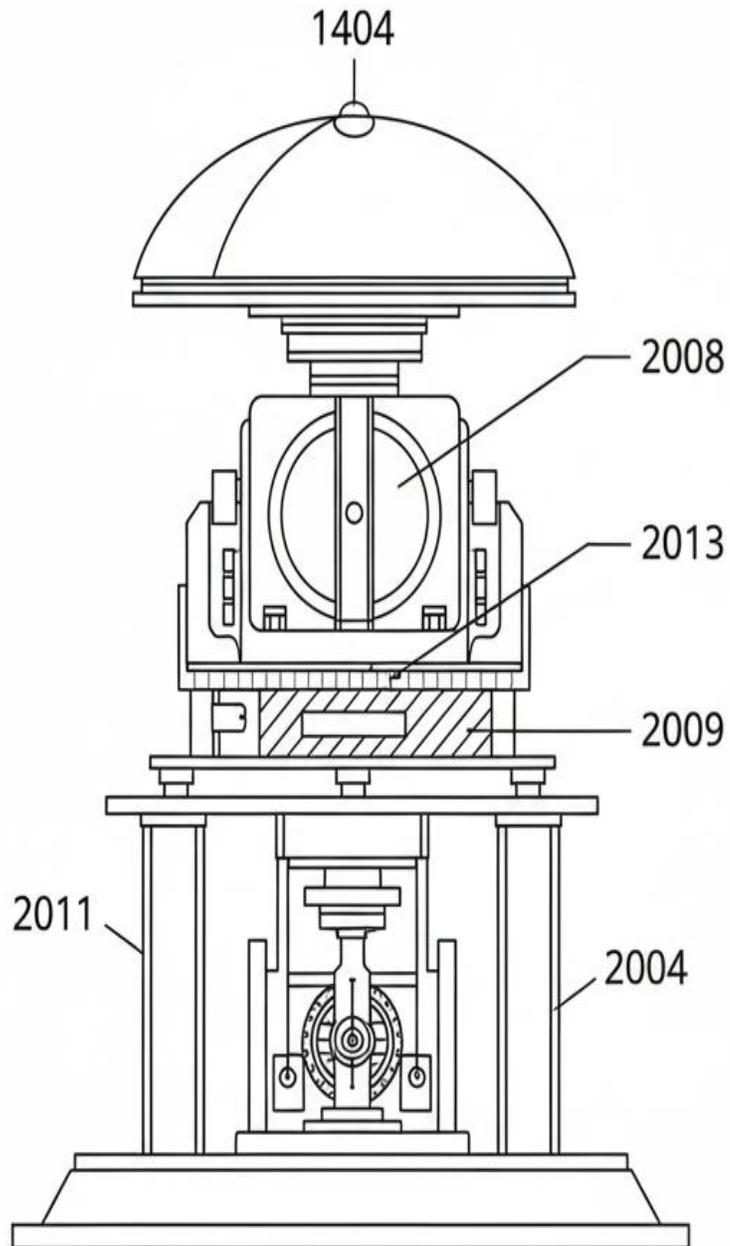


FIG. 20.

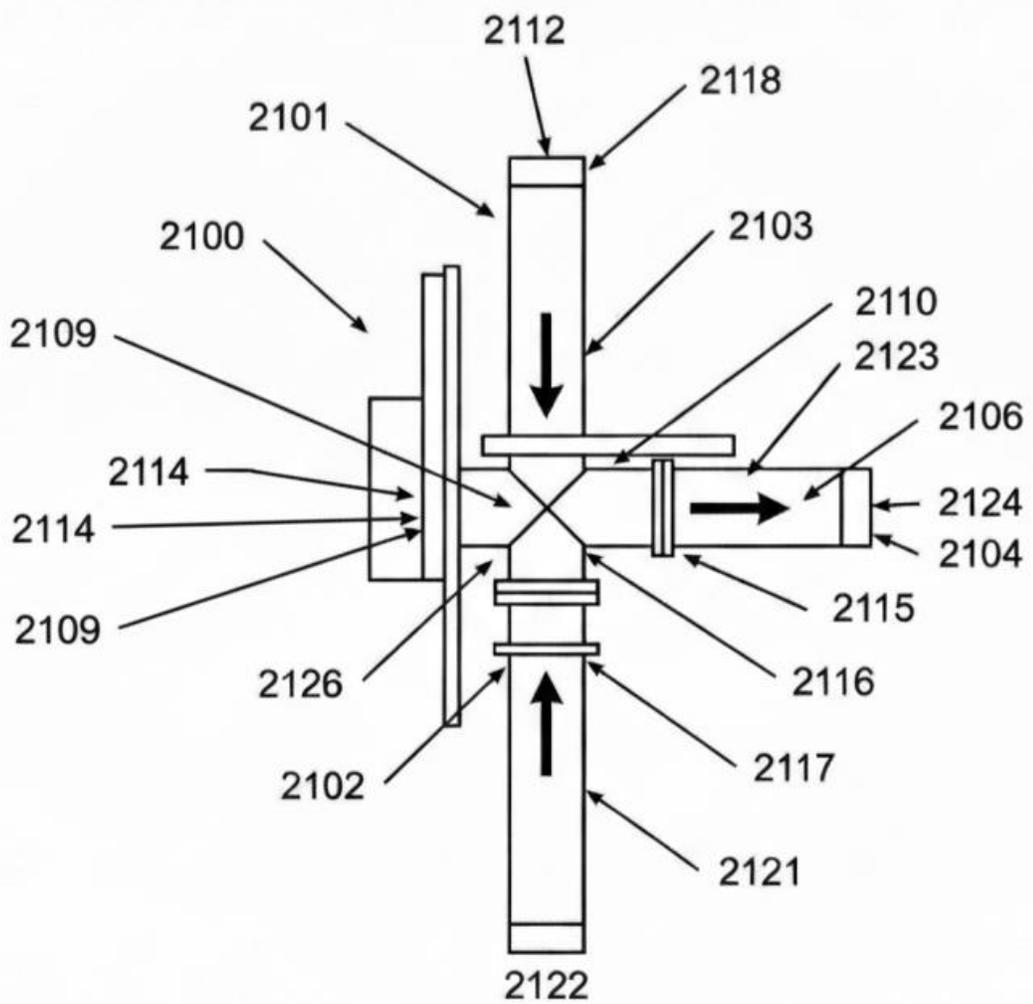


FIG. 21.

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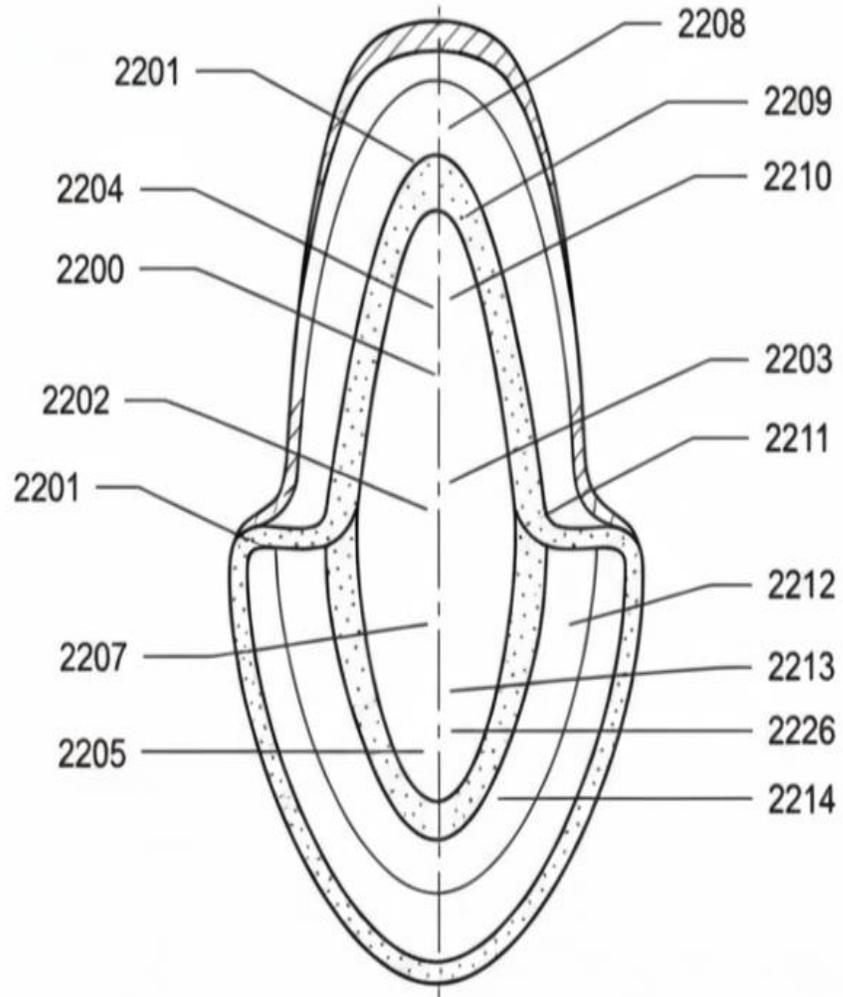


FIG. 22.

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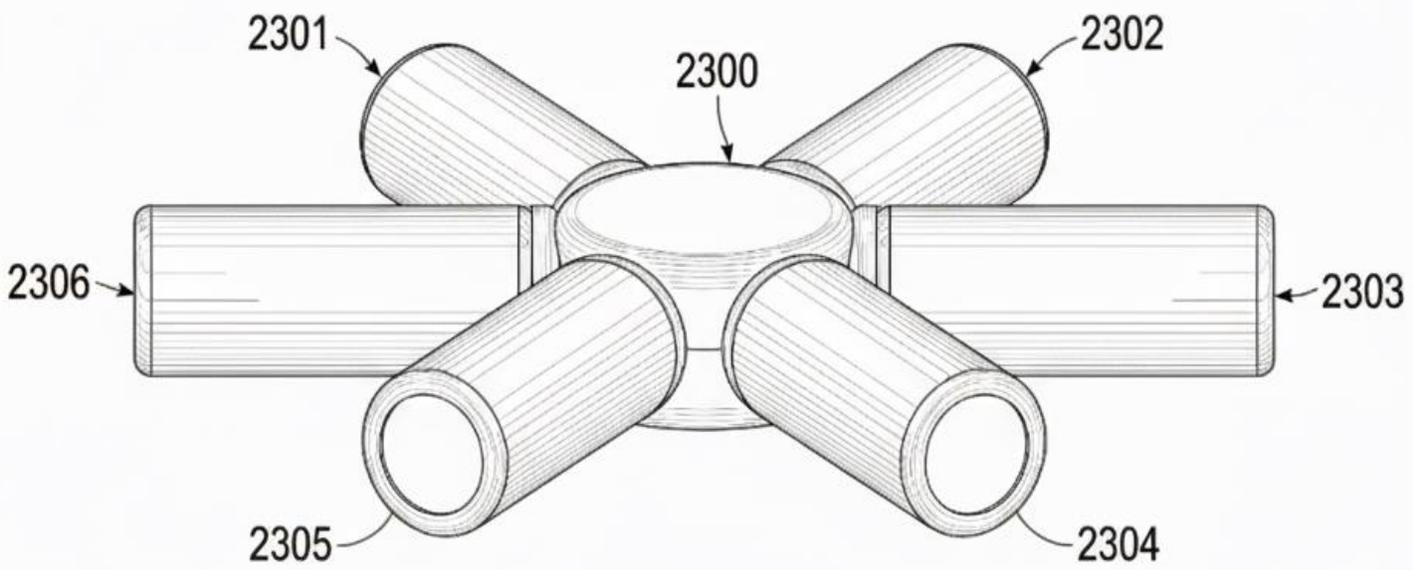


FIG. 23.

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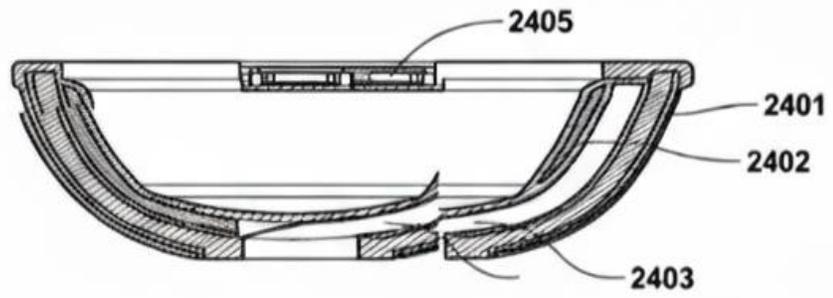


FIG. 24.

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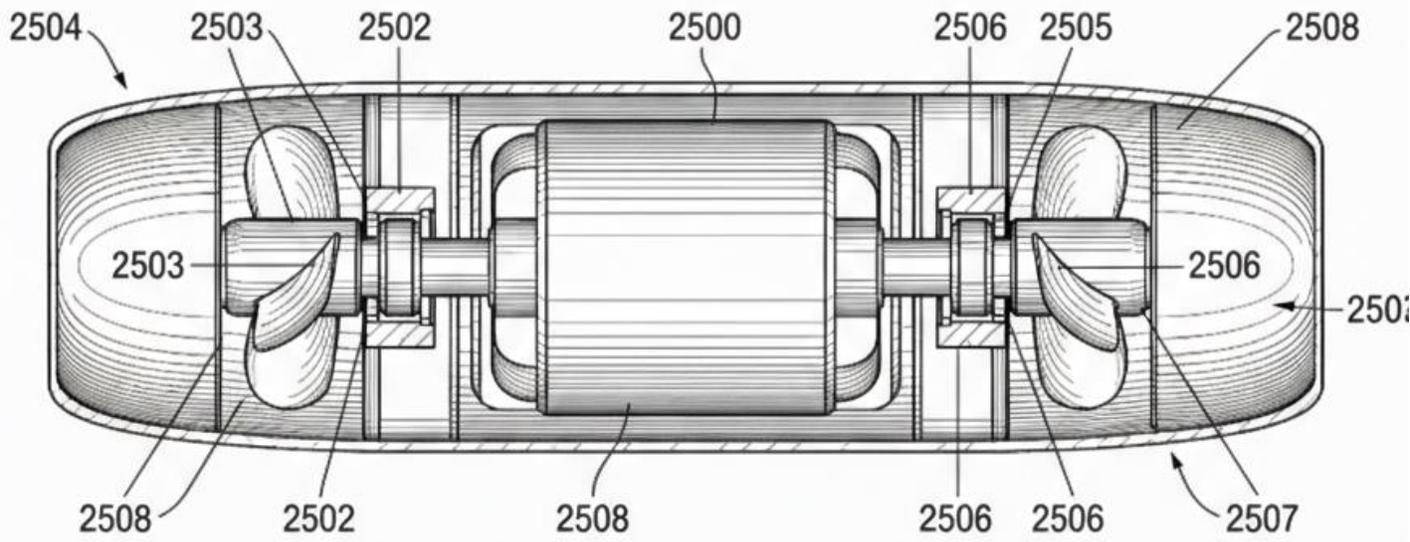


FIG. 25.

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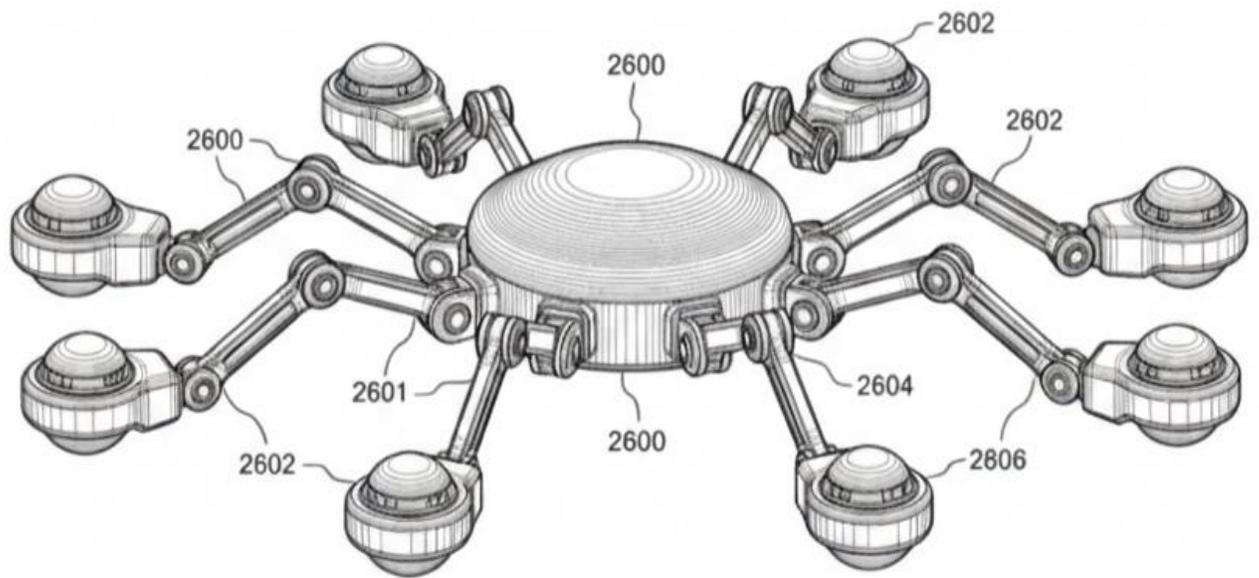


FIG. 26.

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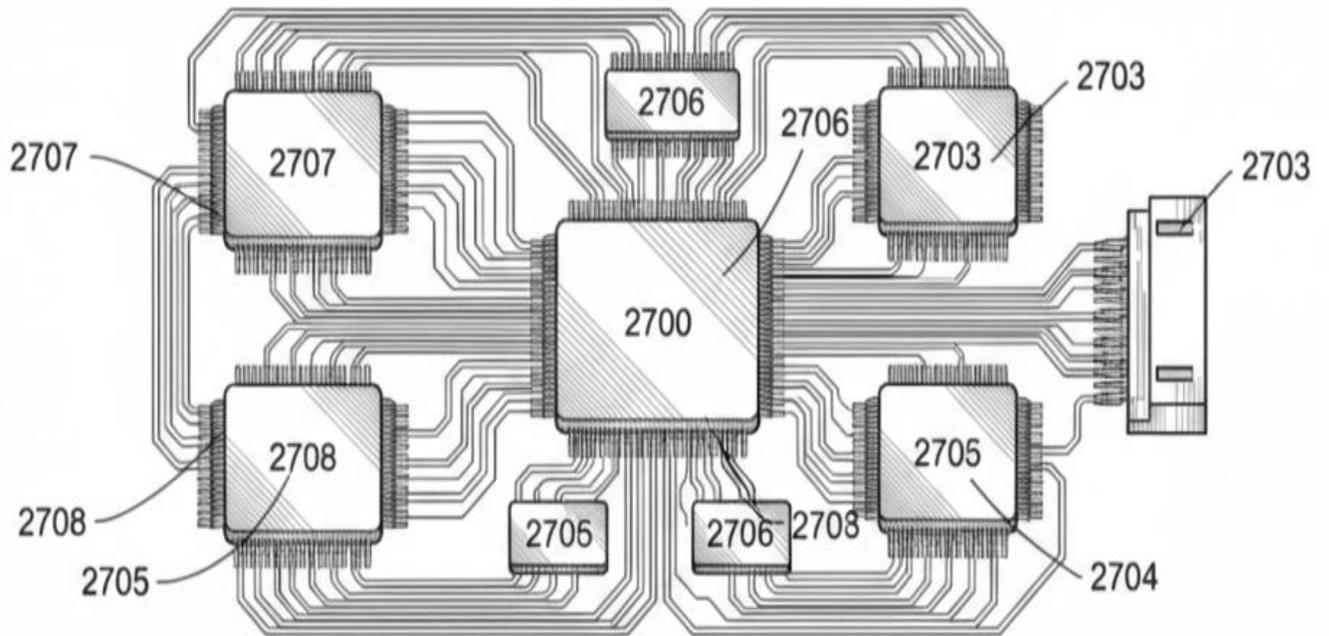


FIG. 27.

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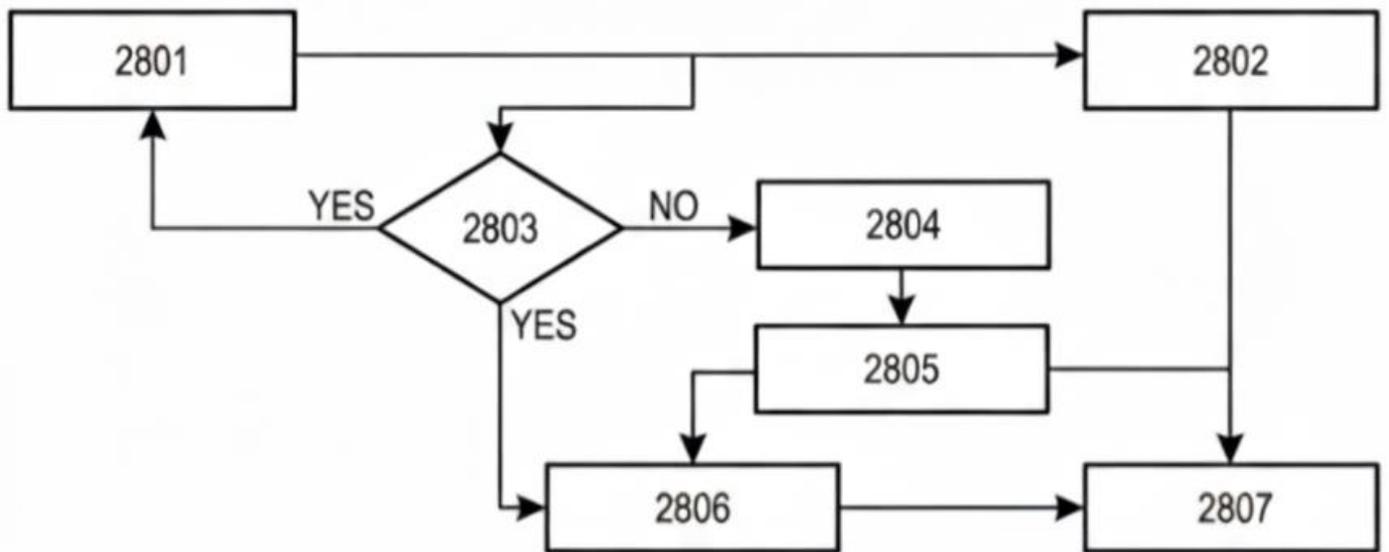


FIG. 28.

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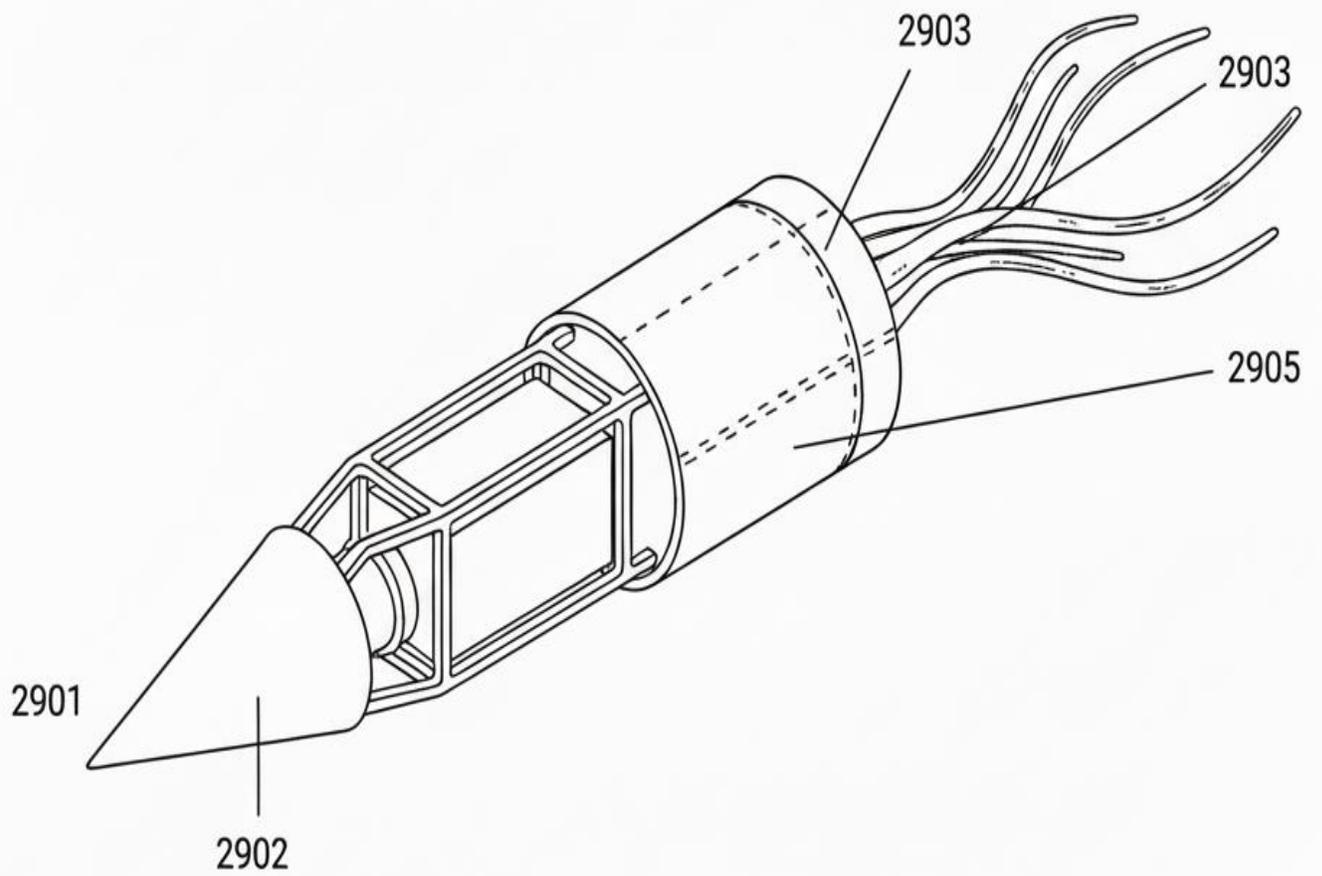


FIG 29.

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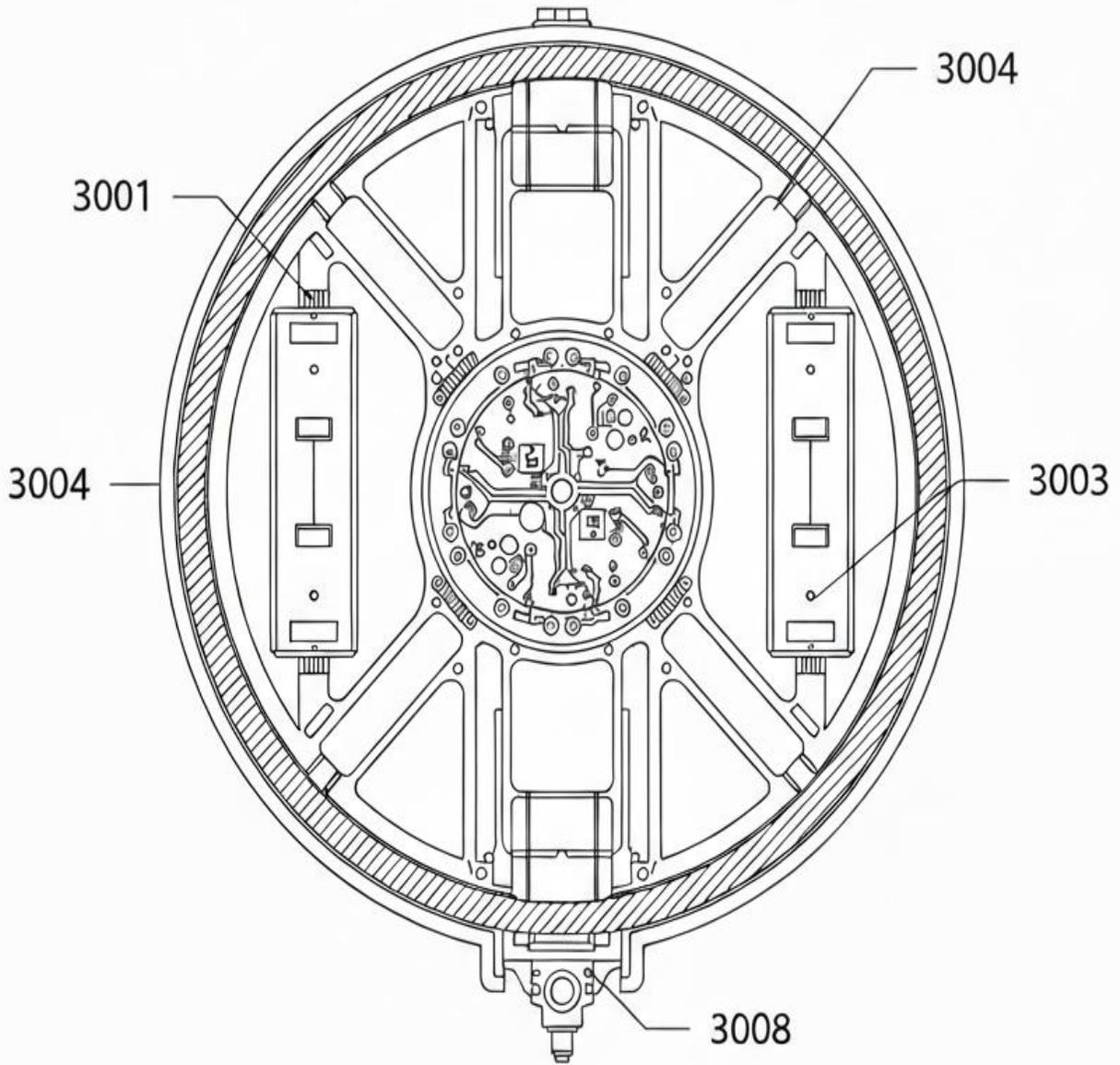


FIG. 30.

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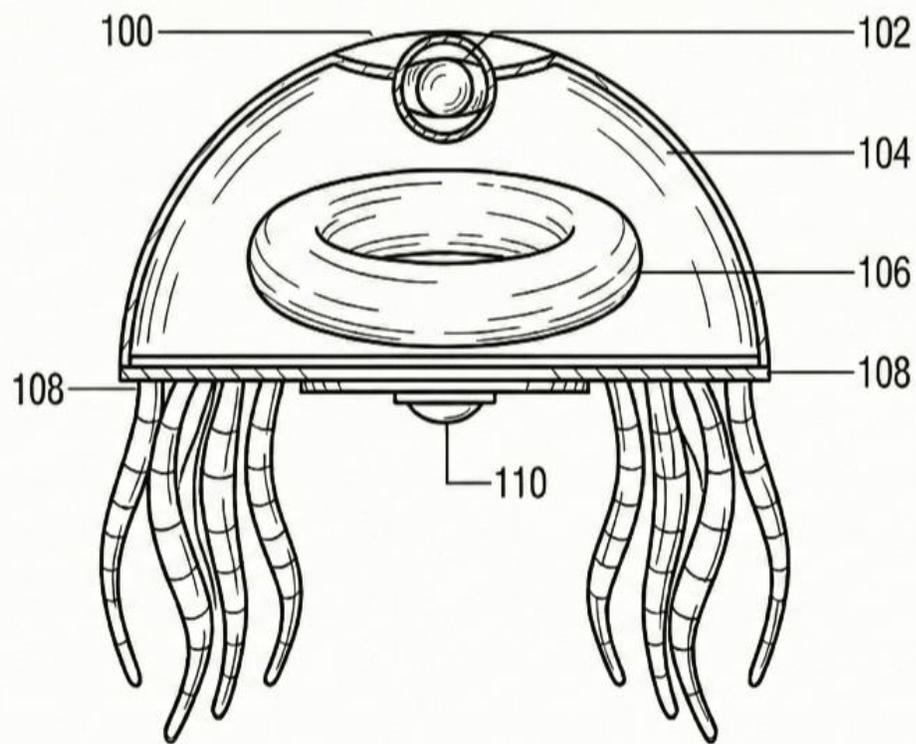


FIG. 01.

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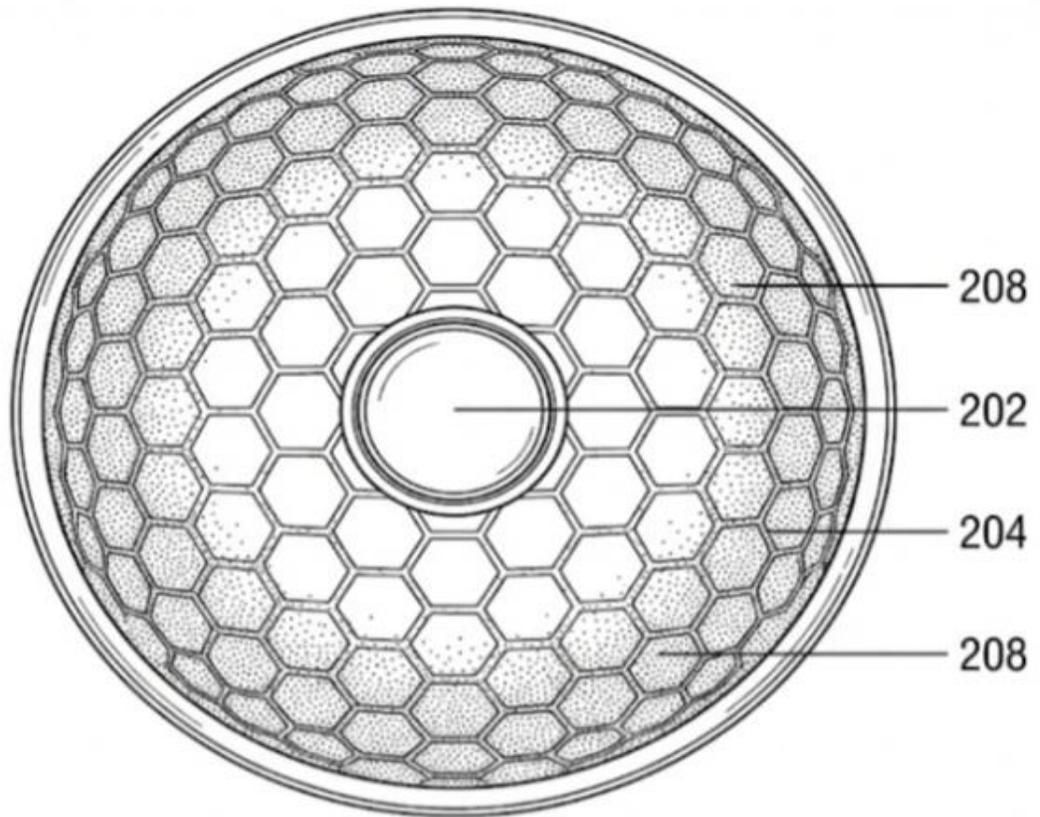


FIG. 02.

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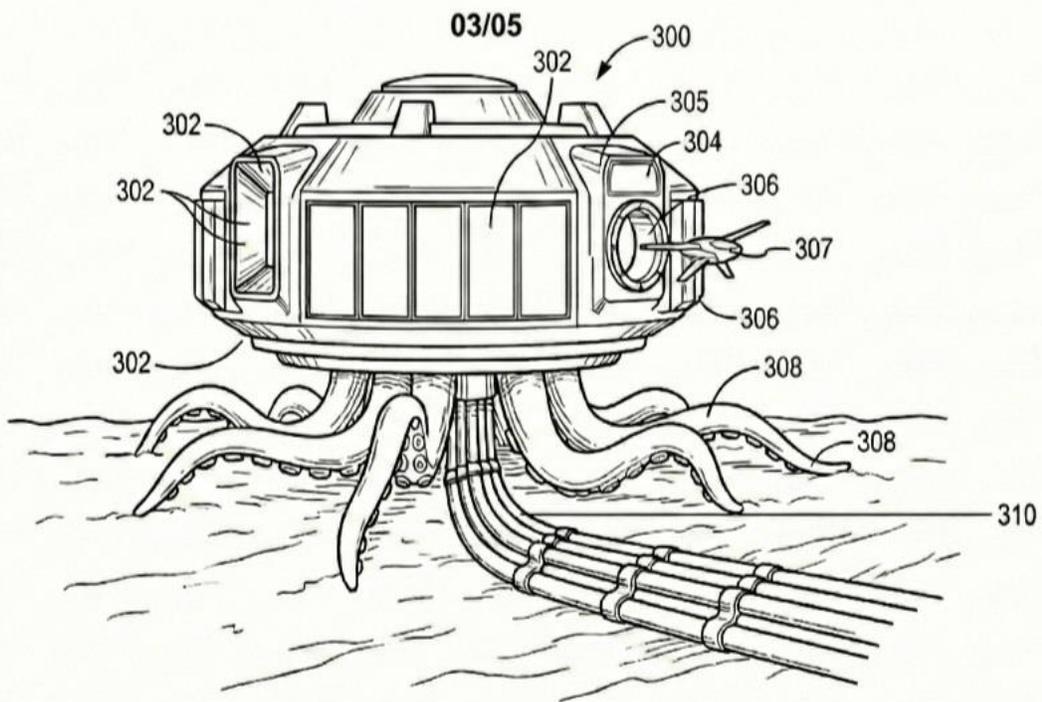


FIG. 03.

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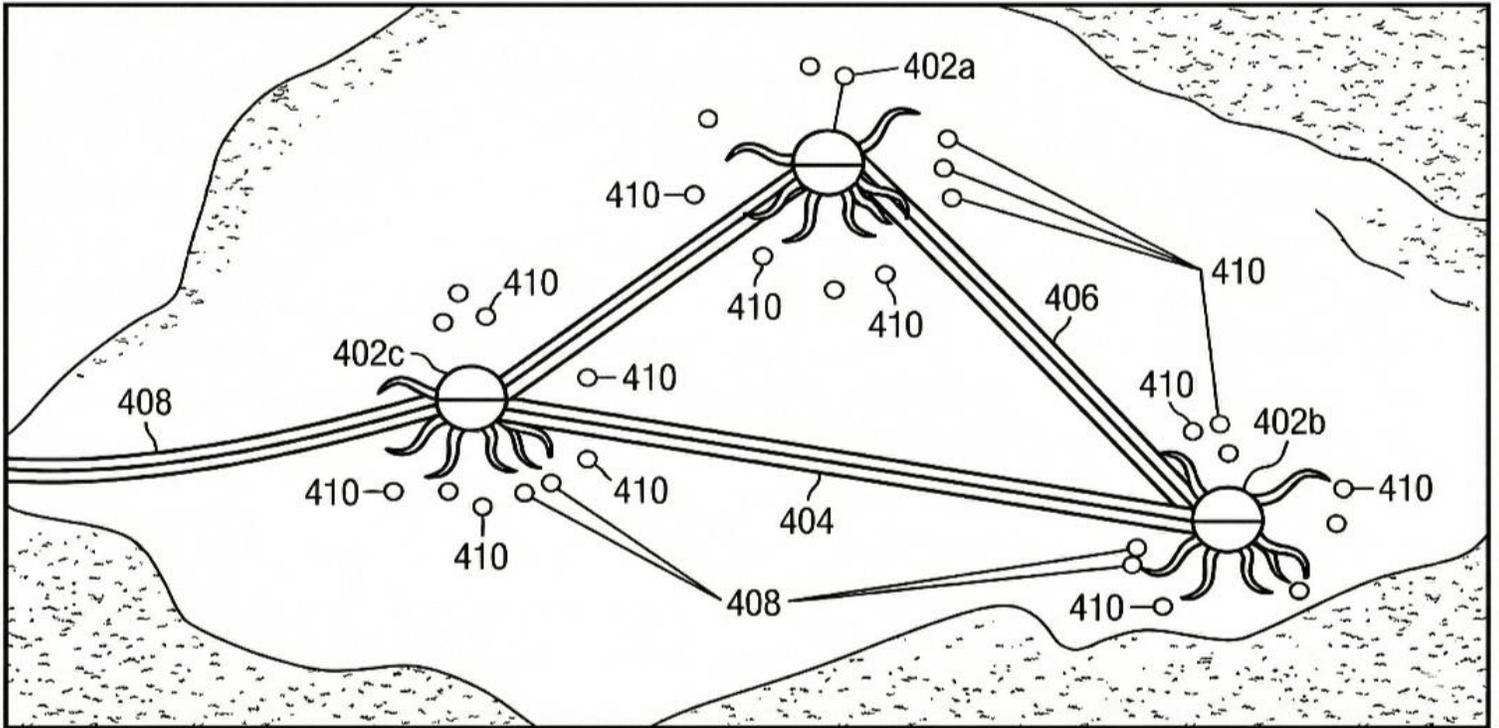


FIG. 04.

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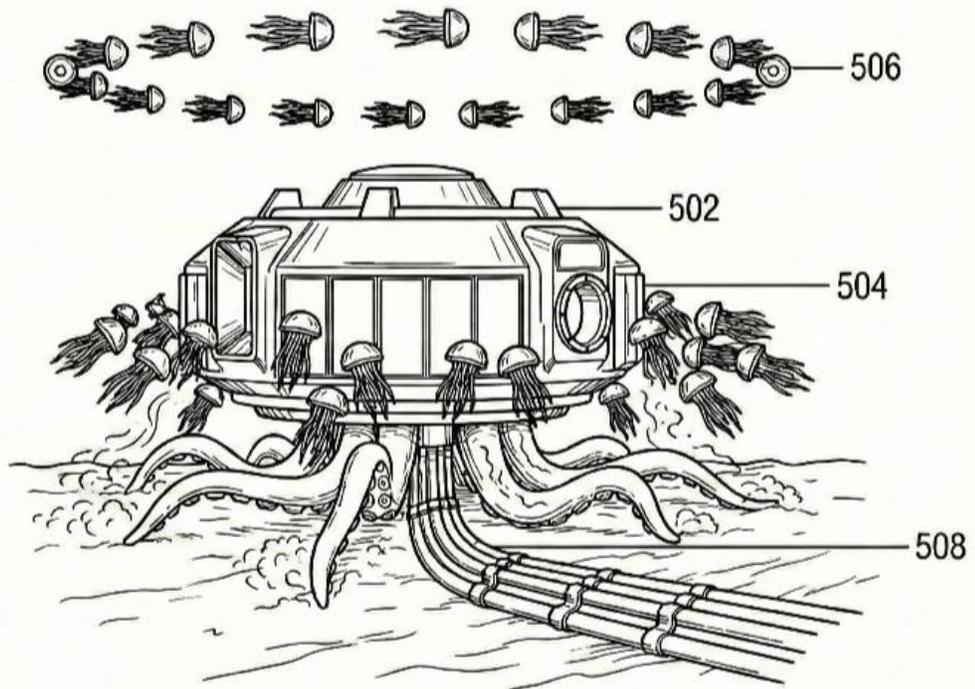


FIG. 05.