

Manually Powered Laboratory Mixing Device

Inconsistent power sources compromise laboratory efficacy

Intermittent power failures and/or insufficient capacity caused by unreliable power grids can interrupt or delay mixing or separating solutions in laboratories, compromising the efficacy of some procedures. Uninterruptible power sources, such as an internal battery, can be integrated into laboratory devices, yet this approach adds to device complexity, size, and cost.

Reliable solution for manually mixing and separating solutions

This manually operated laboratory device mixes and separates components in a solution, performs at levels comparable to existing powered vortexes and centrifuges, and does not rely on electric grids or uninterruptible power sources. It is powered by a helix inside a manual paddle that when pressed by a user rotates a series of gears and pulleys to achieve operational speeds. Hence, the manual linear force of the user pressing on an actuator translates into rotational force and is magnified by the gears to perform at the same specifications as electrically powered devices.

Different mountings allow the device to be used as a vortex or a centrifuge as well as to accommodate sample tubes and containers of differing sizes. Other accessories facilitate mixing complex samples and at higher speeds. This innovation offers labs without access to consistent electrical infrastructure a reliable solution to mixing and separating solution components.

Summary Bullets

- This manually operated laboratory device mixes and separates solution components at performance levels comparable to existing powered vortexes and centrifuges.
- The device operates with no external power source, providing labs without access to consistent electrical infrastructure a reliable solution to mixing and separating solution components.
- This multiuse device is compatible with containers and sample tubes of various sizes and solution amounts.

Solution Advantages

- **Manually powered:** Mixes and separates solution components without the use of an external power source
- **Effective:** Provides results that are equal to those achieved with powered vortexes and centrifuges
- **Multiuse:** Combines vortex and centrifuge capabilities into a single device
- **Flexible:** Compatible with containers and sample tubes of various sizes and solution amounts

Potential Commercial Applications

This innovative laboratory tool is useful for mixing and separating solution components in laboratories that do not have access to reliable energy sources, including field-based laboratories deployed after natural disasters, laboratories in developing countries, and more.

Inventors

- Dr. Wendell Wilson
Professor of Practice - Georgia Tech School of Industrial Design
- Constance Squirrell
- Mixuan Li
PhD Candidate - Georgia Tech School of Computing

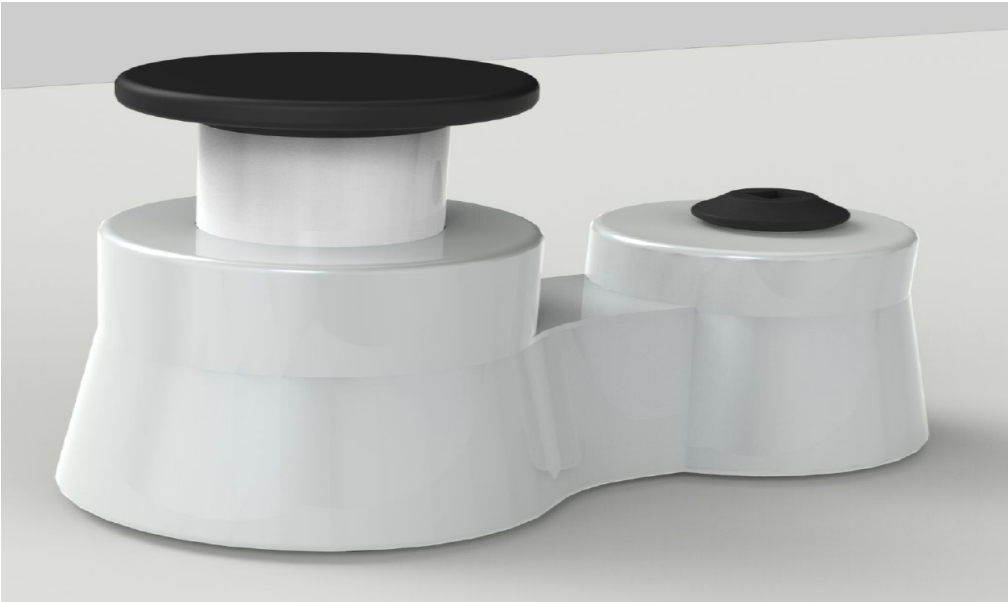
IP Status

<p>Patent application has been filed</p>: US18/111301

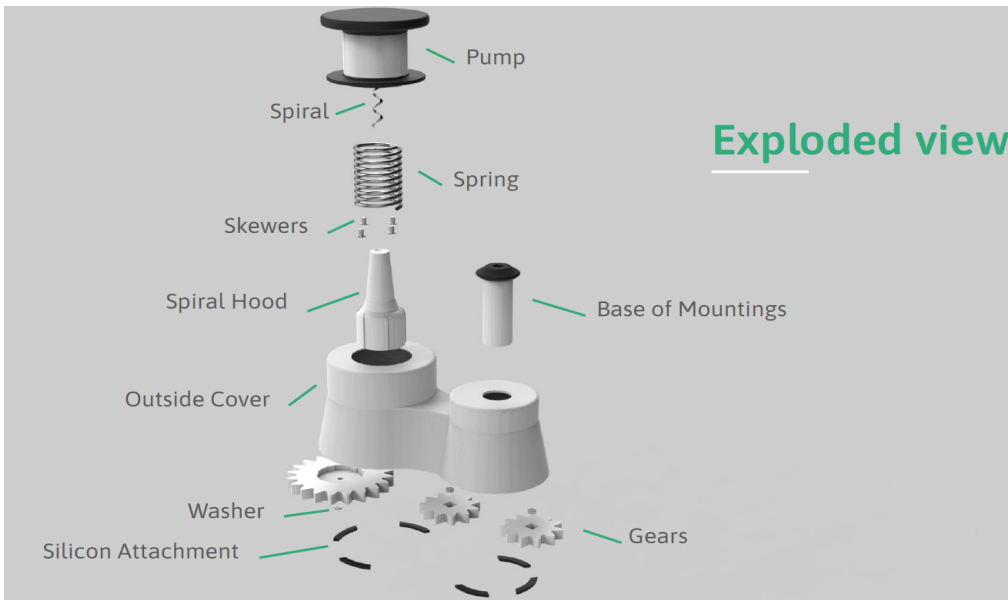
Publications

[Manually Powered Laboratory Mixing Device \(9096\): Vortex mounting](#), YouTube -

Images



Prototype of the manually powered device



Component view of the manually powered device prototype

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