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Patent: Universal Centrifugal Casting Machine

About Innovation

The present invention relates to centrifugal casting method which enables the user to make casting at any position between 0° to 90° for example horizontal, vertical and intermediate positions. Which will reduce the initial investment cost for different centrifugal casting machines for example horizontal and vertical centrifugal casting machines separately.

Highlighted below are the novel features of our invention:

- **Process Flexibility and Cost Saving:** Our framework is primarily designed to offer both process flexibility and cost-saving benefits.
- **Conversion Flexibility:** With its adaptable design, our setup seamlessly transitions between horizontal and vertical centrifugal casting processes, ensuring operational versatility.
- **Integrated Functionality:** Eliminating the need for separate machines, our setup accommodates various axes of rotation within a single system, enhancing efficiency and resource utilization.
- **Universal Casting Capability:** The Universal Centrifugal casting setup facilitates casting at any position ranging from 0° to 90°, providing unparalleled flexibility in manufacturing.
- **Elimination of Length-to-Diameter Ratio Limitations:** Our setup breaks free from the constraints of length-to-diameter ratios. Whether for vertical or horizontal centrifugal casting, it delivers consistent performance regardless of the ratio.
- **Single Motor and Shaft Operation:** Utilizing a single motor and shaft, our setup caters to all positions from 0° to 90°, including horizontal, vertical, and intermediate orientations, streamlining operations and reducing complexity.
- **Direct Power Transfer:** By eliminating the need for belts in power transmission, our setup minimizes power loss and ensures efficient rotation directly transferred to the mold, optimizing energy utilization.

- **Vibration-Free Operation:** Through meticulous optimization, our design mitigates vibrations, ensuring smooth and stable operation, enhancing overall performance and reliability.

Capability of the Innovation/Setup

- The present invention offers a streamlined design that enables users to achieve different axes of rotation for mold within a single setup. This versatile capability allows for optimal utilization of rotational positions, effectively minimizing drawbacks and maximizing advantages.
- Furthermore, the setup is tailored to meet the economic needs of small-scale industries, providing a cost-effective solution without compromising on performance.
- One key feature of this setup is its ability to eliminate the need for belts in power transmission from the motor to the mold across a range of positions from 0° to 90°. This enhances operational efficiency and reliability by eliminating potential failure points.
- Moreover, the setup overcomes traditional limitations imposed by the length-to-diameter ratio, accommodating both horizontal and vertical centrifugal casting processes without constraint.
- Another notable capability is its ability to optimize industrial space utilization. By housing all necessary axes of rotation within a single setup, it promotes efficient use of space and enhances productivity in industrial environments.
- Ultimately, the setup ensures uninterrupted operation and safety by preventing belt failures during power transmission, contributing to seamless and reliable manufacturing processes.