# Improved Vise for Contouring to Irregularly Shaped Components

# ID# 2017-PSSHE-26





Mechanism of Clamping on a Hitch Ball

# **Technology Summary**

The disclosed invention describes a vice or work holding technology that uses an array of pins to shape to parts with high complexity. The design is meant to mimic the operation of pin art toys, creating a custom fit around and within the part features. A pair of plates resting on a mounting plate form a frame in which the array of pins are held. An adjustable insert sits atop the pins and beneath the top of the frame. A force is applied to the insert to clamp down on the pins. The pins are configured to be held by compressive force and the resulting friction created by their intimate contact. Pins of different lengths, thickness, and shapes can be exchanged through a simple process.

# Application & Market Utility

- -Replaces the costly, timely process of casting a jaw to fit a specific design
- -Pins are quickly reset to fit a regularly changing design
- -Pins can act as a loading surface for elevating a part orf holding flat parts at a desired angle
- -Found to be more resistant to an applied torque on a spherical part than flat jaws or V-blocks
- -Acts as a cost-effective mold for replicating parts where surface detail is negligible  $\frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) \left( \frac{$
- -Alternative method for filling volume in the shipping and packaging industry  $% \left( 1\right) =\left( 1\right) \left( 1\right) \left($

# **Next Steps**

Prototype verified; seeking licensing opportunities.

# **TECHNOLOGY READINESS LEVEL**

4-7

## Seeking

Investment | Licensing | Research

### **Keywords**

- vise
- packing industry
- milling industry
- work holding
- mold

## Researchers

**Mark Andrew Atwater** 

Associate Professor
Online Bio

#### **Andrew Ha**

Student Researcher

### **Originating College**

Millersville

## Office of Technology Management Contact

Swope, Bradley bas101@psu.edu 814-863-5987



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.