JACK**THRUN**

INDUSTRIAL DESIGN 2015

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INDUSTRIAL DESIGN

CONTACT

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School Adress:
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EDUCATION

University of Cincinnati (DAAP)
Industrial Design
Class of 2019 (BS)

GPA: 3.788
Dean's List

Mount Olive High School
Flanders, New Jersey
Class of 2014

GPA: 3.7
Honor Role
Scholar-Athlete

WORK EXPERIENCE

Weis Markets
Flanders, NJ
Grocery Sales Associate, 2013 - 2014

Loaded and unloaded trucks
Responsible for store displays

Habitat for Humanity Restore
Dover, NJ
Volunteer, 2013

Unloaded donation trucks
Organized items for resale

SKILLS

Software
Photoshop, Illustrator, InDesign, Alias, SolidWorks, Keyshot, Inventor, Premier Pro, FinalCut Pro, HTML + CSS, Word, Excell, PowerPoint, Outlook

Hands On
Foam modeling, pattern making, casting, marker rendering, brainstorming, sketching, wood shop, metal shop

ACHIEVEMENTS

Art
Mary Gill Trustee's Award and Scholarship
Morris Museum, NJ
Fresh Perspectives Art Exhibition
Morris Museum, NJ
One of 50 pieces in NJ chosen
Mount Olive High School Art Show
First Place: Painting
First Place: Graphic Design
Best of Show: Drawing
Mount Olive, NJ Invitational
First Place: Sculpture
Vernon, NJ Invitational
First Place/Scholarship: Painting
Mount Olive High School Exhibition
Sculpture

Athletics
NJ Rockets Hockey Club, AAA Ice Hockey
2010 - 2014
Captain: One Year
Mount Olive High School Ice Hockey
2010 - 2014
Captain: Senior Year
HAAS Cup Champions: Senior Year
Four Year Varsity Letter
Bridgewater Bears Hockey Club, Ice Hockey
2001 - 2010
Captain: Three Years

ACTIVITIES

IDSA (UC Student Chapter)
DFA - Design for America
Habitat for Humanity
Greater Cincinnati, OH
Taos, New Mexico
Morris County, NJ
DAAP Bowling League
FIRST Robotics: MORT Team 11
Design Team Member
Ice Hockey
Golf

INTERESTS

Ice Hockey
Abstract Expressionist Movement
Raymond Loewy
Film Making
Outdoor Exploration

Opulent Peril

Luxurious chess set focused on family of form

INSPIRATION

Opulent Peril is inspired by a luxurious yet edgy and bad-ass aesthetic very similar to steam punk.

DESIGN GOALS

The aesthetic is achieved by combining machinery with the satisfaction and luxurious feeling of brass.

Family of form will be achieved by utilizing the **fibonacci percentages**.

The feeling of **luxury** will come from the satisfaction of brass.

Tight tolerance machining using the engine lathe and mill.

RESEARCH

Having little knowledge of the game, I decided to focus my research on the different moves each piece is allowed to make.

KING

One square in **any direction**.

QUEEN

Any direction as far as possible.

BISHOP

Diagonally as far as it wants.

KNIGHT

Two squares in one direction and then one more move at a **90 degree angle.**

ROOK

Any **perpendicular** direction.

PAWN

Forward but attack diagonally.

IDEATION

With a solid direction in mind, I began to explore forms that best express the theme.

DEVELOPMENT

Each crown's pattern directly correlates to the moves that that piece can make. This aids in distinguishing each piece from each other.

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“FIGURING IT OUT”

Being my first time using the engine lathe and mill, I wanted to make sure I had every step of the process figured out before I got started. These are visuals of the discussions I had with my professor.

PROCESS_001

In fear of having to change my design, I was relieved when my professor, Gerry, saved the day by showing up with his rotary table that he keeps in his office!

PROCESS_002

The aluminum taper was cut longer than needed and then slowly faced until a perfect fit was matched with the brass crowns.

PROCESS_003

Using the rotary table, patterns were milled into the crowns. I then sanded and polished the pieces and used epoxy to hold them together.

Tequila

FIBONACCI PERCENTAGES

Focusing on family of form, I used the fibonacci percentages to maintain proper proportion within each piece regarding height, width, and cut depth.

Each crown measures **23.6%** of the piece's total height.

The narrowest width of the piece is **50%** of the total width.

The cut depth of each piece measures **38.2%** of the crown.

FIBONACCI PERCENTAGES

Fibonacci percentages were also used to provide proper proportion to the set as a whole focusing on overall height and base diameter.

The height of the pawn is **50%** of the king's height.

The pawn's base is **61.8%** of the king's base.

TO BE CONTINUED . . .

Currently in the process of making the opposing pieces which will then be anodized black.

Bedmate

Lofted bed shelf for college dorm rooms

WHAT THEY WANT

CHRIS D.
RUTGERS UNIVERSITY

*"It would be nice to watch movies in bed without having to worry about my **laptop** crashing to the floor when I fall asleep mid movie."*

MICHAEL J.
VIRGINIA TECH

*"I need a place to charge my **phone** and put my **alarm clock**...Oh and **food!**"*

KATIE B.
CLEMSON UNIVERSITY

*"I love to read. It would be nice to have a space to place my **books** when I get tired. They usually end up falling to the ground in the middle of the night... Then I end up loosing my place!"*

JESSIE F.
WAKE FOREST

*"I actually use one of the bunk shelves that are already on the market but I **can't fit much** on them at all. Plus I'm a little **skeptical** about putting too much weight on them. They don't seem **sturdy**."*

CURRENT MARKET

flimsy
little support holds limited weight

crowded
no room for laptop and books

limiting
a simple hook does not fit a variety of beds

DESIGN GOALS

In order to support a laptop and heavy books, the design needs to be **strong**.

The design needs to have a **large surface area** to fit a laptop, books, and other necessities.

With a variety of head board thicknesses, the design needs to be **universal**.

INSPIRATION

By adding a bit of color to the design philosophies of Dieter Rams, high quality design can be introduced into college dorm rooms.

WHERE IT ALL BEGAN

During lunch one day in the school's dining hall, I had some ideas for the clamping mechanism.

IDEATION

Starting with basic forms, I then continued to explore the engineering further. Different handle forms were also explored as well as special features.

CONCEPT DEVELOPMENT

Version one provides **two cord holes** to accommodate both sides of the room.

Version two simplifies the two cord holes into **one central hole**.

Version three places the cord holes on the lip to **avoid holes in the tray**.

ORTHOGRAPHIC

THE BUILD_001

PREPPING MATERIAL

BENDING ACRYLIC

DRILLING ACRYLIC IS SCARY!

THE BUILD_002

CLAMPING BRACKETS PREP

GLUE UP

FINISHING

MATERIALS

Attaches to the head of **any bed**.

Unobtrusive clamp slides into body of shelf.

Easy access **cord slot** for electronic necessities.

FRIENDS

MAKE IT YOURS!

Whether it be personal style or school colors, the Bedmate has multiple options for customization. To simplify manufacturing and shipping processes, the brackets, acting as an accent color, are available in only white or black.

bedmate

NO STRINGS ATTACHED

Staple Hammer

Arrow Fastener staple hammer redesign

WHAT ARE WE WORKING WITH HERE?

Staple Insert

Hard Plastic Handle

Signature Chrome Head

Staple Exit

TASK ANALYSIS

SPEED

Staple hammers are generally used for hanging roofing felt and putting up tyvek. These are scenarios where **speed** is important, and **accuracy** is not.

POINT OF CONTACT

The hammer makes contact with the surface at an **angle** because of the **natural motion** of the swing and the user's **concern** of smashing their fingers.

MOTION

Because of the handle's short length, the user has a tendency to use their **wrist** instead of taking advantage of their whole arm.

COMFORT

An instinct to grab the staple hammer further back than its handle allows results in **discomfort** in the palm of the user's hand.

IDEATION

Upon completion of the task analysis, I began to ideate forms that address the apparent problems.

DETAILS_001

The handle was elongated to reduce wrist strain and increase comfort. The subtle elevated angle of the handle creates breathing room between the user's hand and the point of contact.

DETAILS_002

In order to see how the mechanism works, the staple hammer was taken apart and modeled in SolidWorks. I was then able to make decisions such as the ream of staples being fed at an angle while remaining perpendicular to the point of contact.

ARROW

HOW IT ALL COMES TOGETHER

Floral Pruners

Using gears to solve an ergonomic issue

"If we understand what the **extremes** are,
the middle will take care of itself."

Dan Formosa
Smart Design

Source: *Objectified*, Documentary

USERS

Barbara and Kristen represent the extremes regarding usage, age, and time constraints.

Barbara
Retired School Teacher

"I love gardening in my spare time but I can't seem to get my hand around the bloody things anymore; ***they're too wide for me to hold on to****. A good pair of pruners that are easy on my hands would make all the difference."*

Kristen
Florist at Norman Florist

"Being a florist, I use my pruners the most out of any other tool. Often times, the shop gets so busy! In order to be efficient I ***have to work quickly****, but after a while my fingers get tired from the constant opening and closing of my hand."*

THREE MAIN PRUNERS

FLORAL PRUNER
flowers, plants, & herbs

MEDIUM DUTY PRUNER
branches & stems

HEAVY DUTY PRUNER
branches & stems

PROBLEM

Constant pressure on the thumb trying to hold pruners in hand
Force is not as important as with heavy duty pruners
Handle opens **wider than necessary** for required force

IDEATION

Once a final concept was reached, I quickly jumped into 3D modeling. The use of SolidWorks and laser cutting allowed for rapid iterations.

Version one is a test to make sure the **mechanism** works properly.

Version two develops the **ergonomics** and **aesthetics** by offsetting each plane.

Version three explores the idea of a smaller top handle **just for the thumb.**

SECTION VIEW

The odd gear ratio is a result of the diameter that the gear needed to be in order to properly fit the overall ergonomic-driven dimensions and the aesthetic. The longer top handle was chosen to maximize the force.

SECTION VIEW

A big to small gear ratio allows the blades to open full width while the handle only needs to travel half the normal distance. This ratio makes the pruners very quick as well, which is ideal for florists.

FINAL PROTOTYPE

THANK YOU!

See more work and full resolution portfolio
at **jackthrun.com**

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