

WILL CLEMENCY
PORTFOLIO

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“

A big definition of who you are as a designer is the way you look at the world.

”

-Jonathan Ive, Senior VP
Industrial Design at Apple

WILL CLEMENCY PORTFOLIO

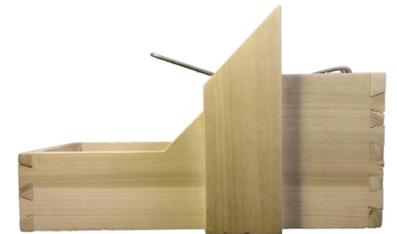
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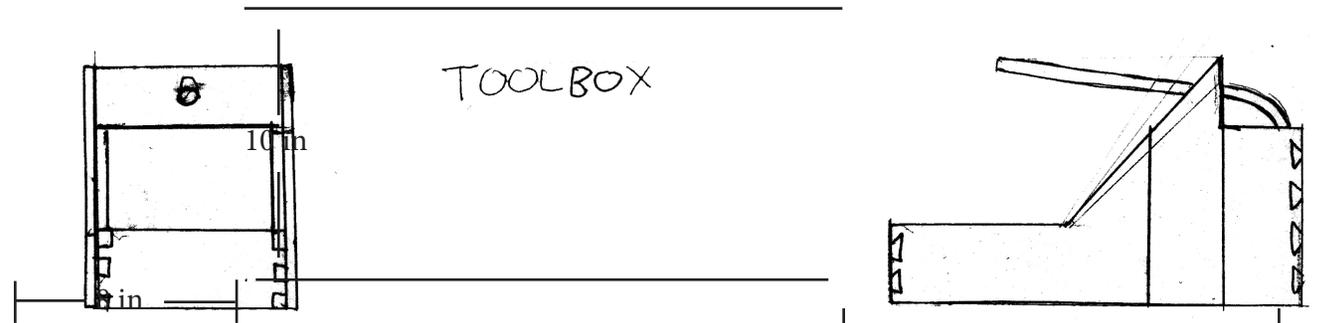
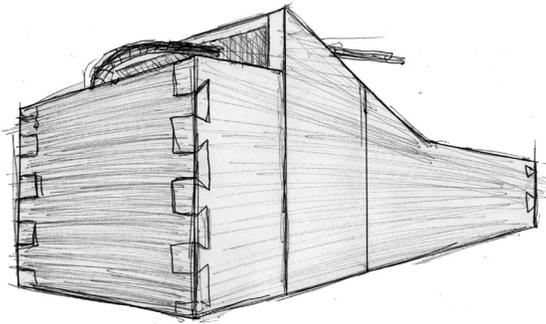
TOOLBOX

The toolbox was a project where the parameters were simple: the dimensions should be at least 20"x 6"x 6", it has to be made of wood, it can't have a lid, and it must include dovetails. As you can see, the final product ended up with a lot of architectural elements to it. This is owing to the fact that I wanted the final product to contain a lot of eye-flowing angles.

Some of the elements of this box carry a lot of purpose, for example, the piece of wood that goes across the top, or "the bridge," holds several. It acts as a brace to keep the handle from getting too wobbly and loose, it provides a small amount of shelter and protection for the tools inside, and, finally, any tools currently in use but not in hand can simply lean on it.

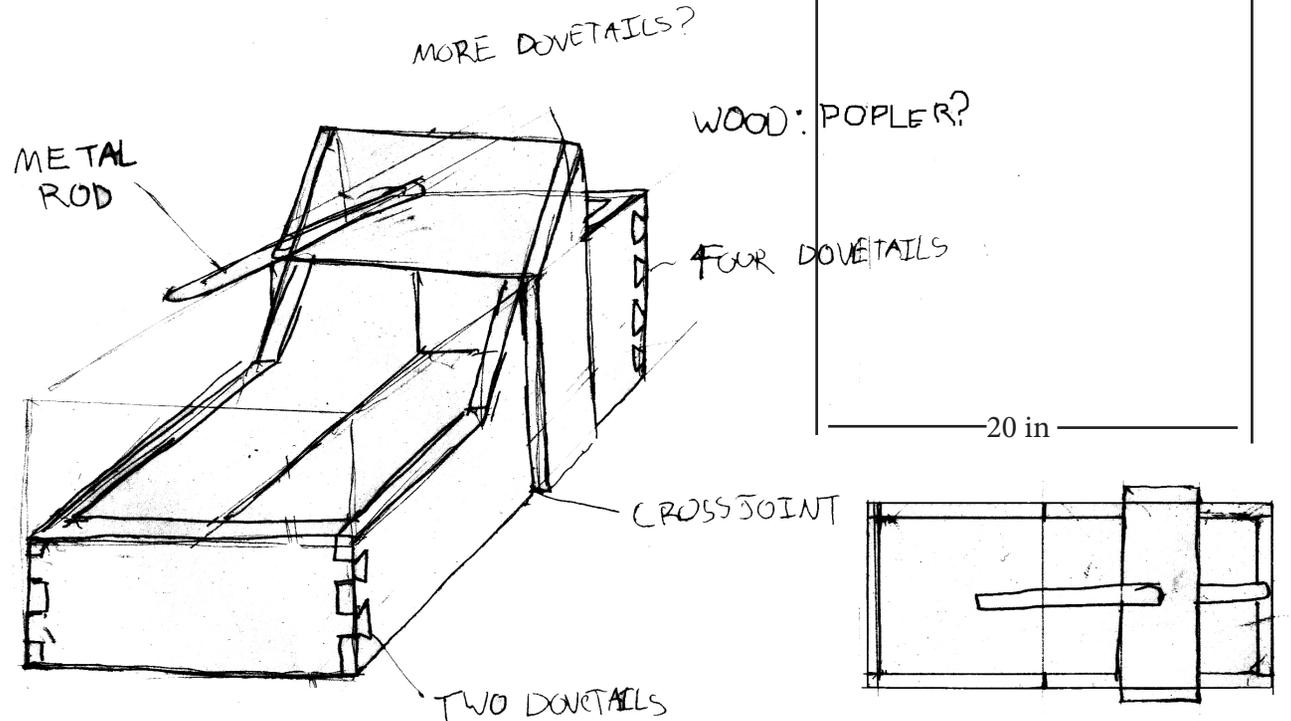


ORTHOGRAPHICS



TOOLBOX

The body of the toolbox is meant to be a little large, but this simply so the craftsman is capable of carrying around more tools. Because of its size, it needed to be made of a wood that was light, durable, and affordable, so I went with poplar. As for the handle, it needed to be a metal that was lightweight, yet malleable for construction purposes, so I went with aluminum. Finally, the logo on the bridge is made out of a lasercut piece of luan plywood, which is both a cheap and attractive looking wood.



MORE DOVETAILS?

WOOD: POPLER?

FOUR DOVETAILS

20 in

CROSS JOINT

TWO DOVETAILS

PROTOTYPING AND DOVETAILS

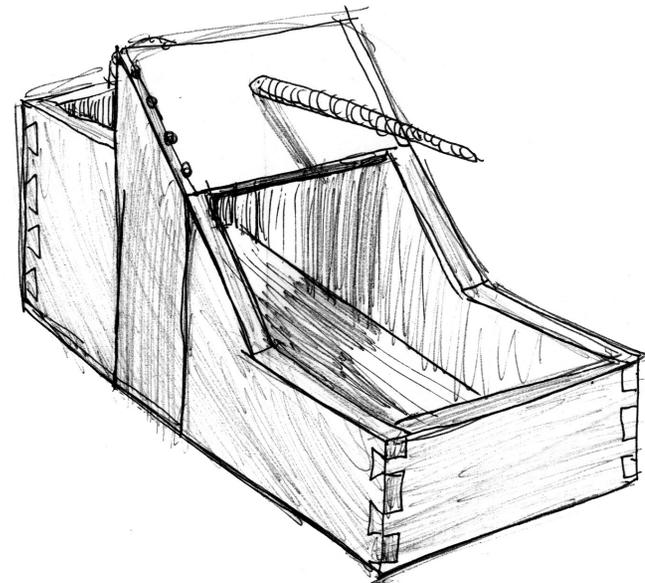
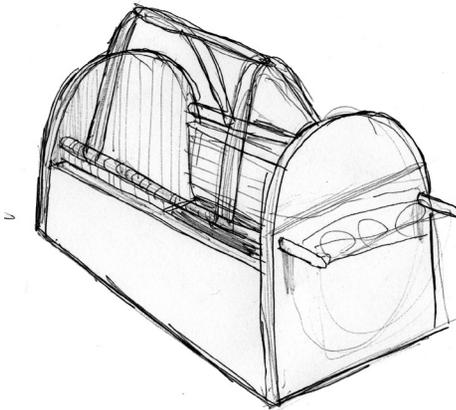
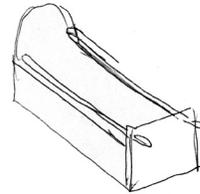
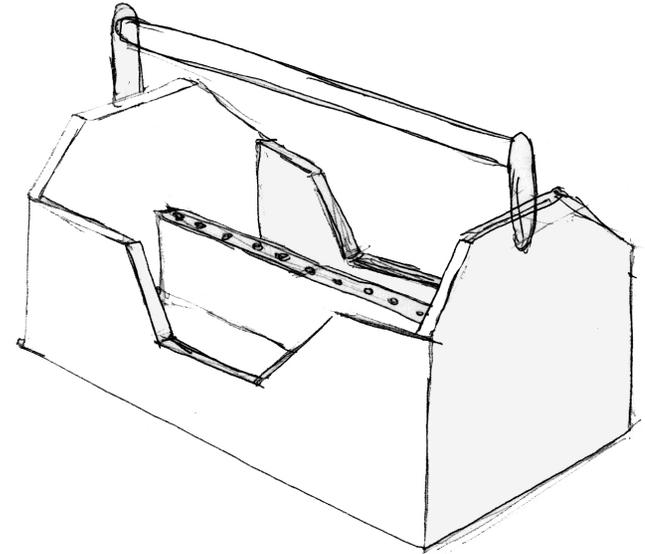
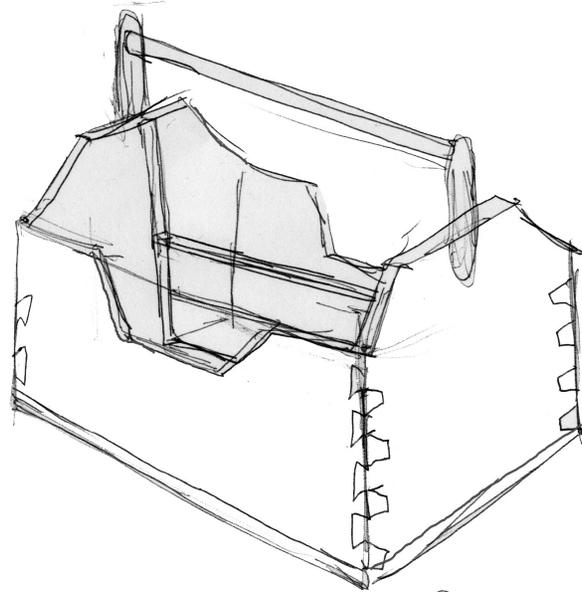
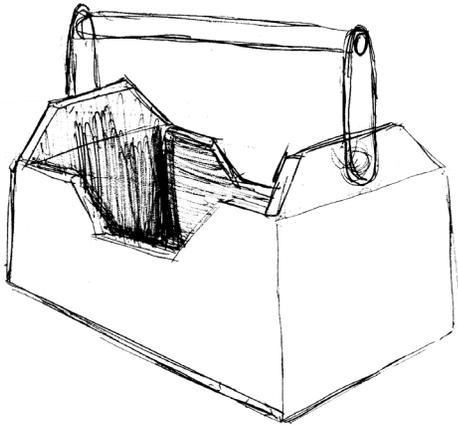


After sketching the orthographics it was time to pursue the prototyping page. prototype I used posterboard, scotch tape, purple foam, green foam, and a long twig to create a 1-to-1 scale model of the design I wanted to use. I needed to make utterly sure that sizes I drew were the sizes I wanted. Once it was clear that these were the dimensions I wanted to use I immediately got to work carving out the dovetails for each of the corners.

As you can see a dovetail joint is a joinery technique in woodworking. The advantage of using a dovetail joint is that it has the highest tensile strength of almost any wood joint, making it ideal for this project. Usually using a dovetail joint in a project can be very difficult and time consuming, due to the delicate movements and precise measurements required when crafting. However, because I was using a softwood like poplar, it made the carving a little easier.



SKETCHES AND RENDERINGS



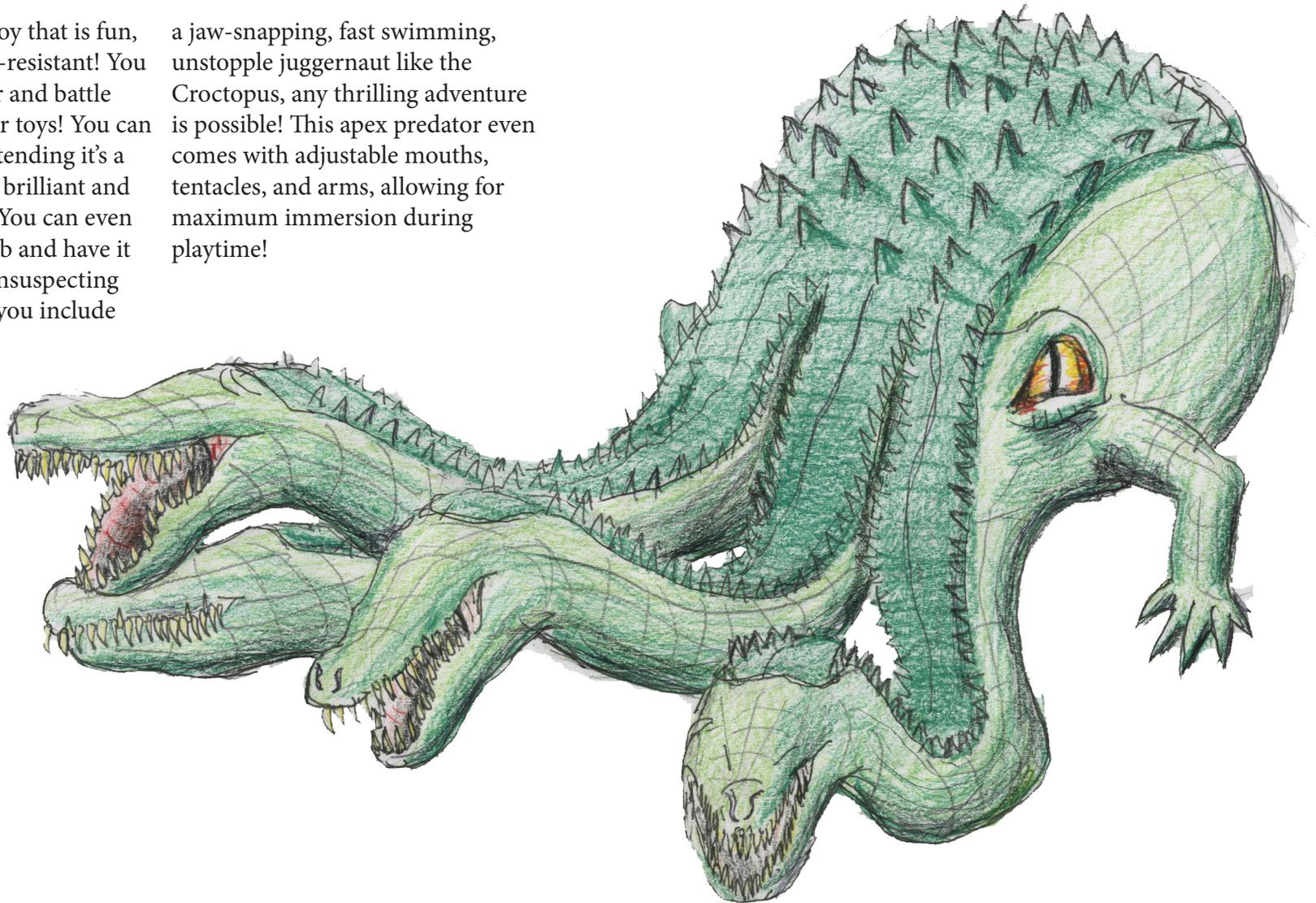
I went through a bit of iteration with the design of this toolbox. At first I wanted to do something innovative with the design, like “design a toolbox that Leonardo Divinci would use!” I wanted to give moving parts; I wanted it to transform; I wanted to give it a purpose besides a transportable storage unit. However, time was a resource that I was short on, so I had to settle with an architectural sort of design.

I’m sure if I were to return to this project, I would add a lot more interesting features. Something like designing it so the box could also double as a makeshift drafting board if flipped over or something. I also thought there was a lot of potential to find an extra use of the handle, like making a ruler or a straightedge if necessary.

THE CROCTOPUS

The Croctopus is a toy that is fun, engaging, and water-resistant! You can use this monster and battle against all your other toys! You can lock it in a cage, pretending it's a mad scientist's most brilliant and deadly experiment! You can even play with it in the tub and have it sneak up on poor, unsuspecting fishing boat! When you include

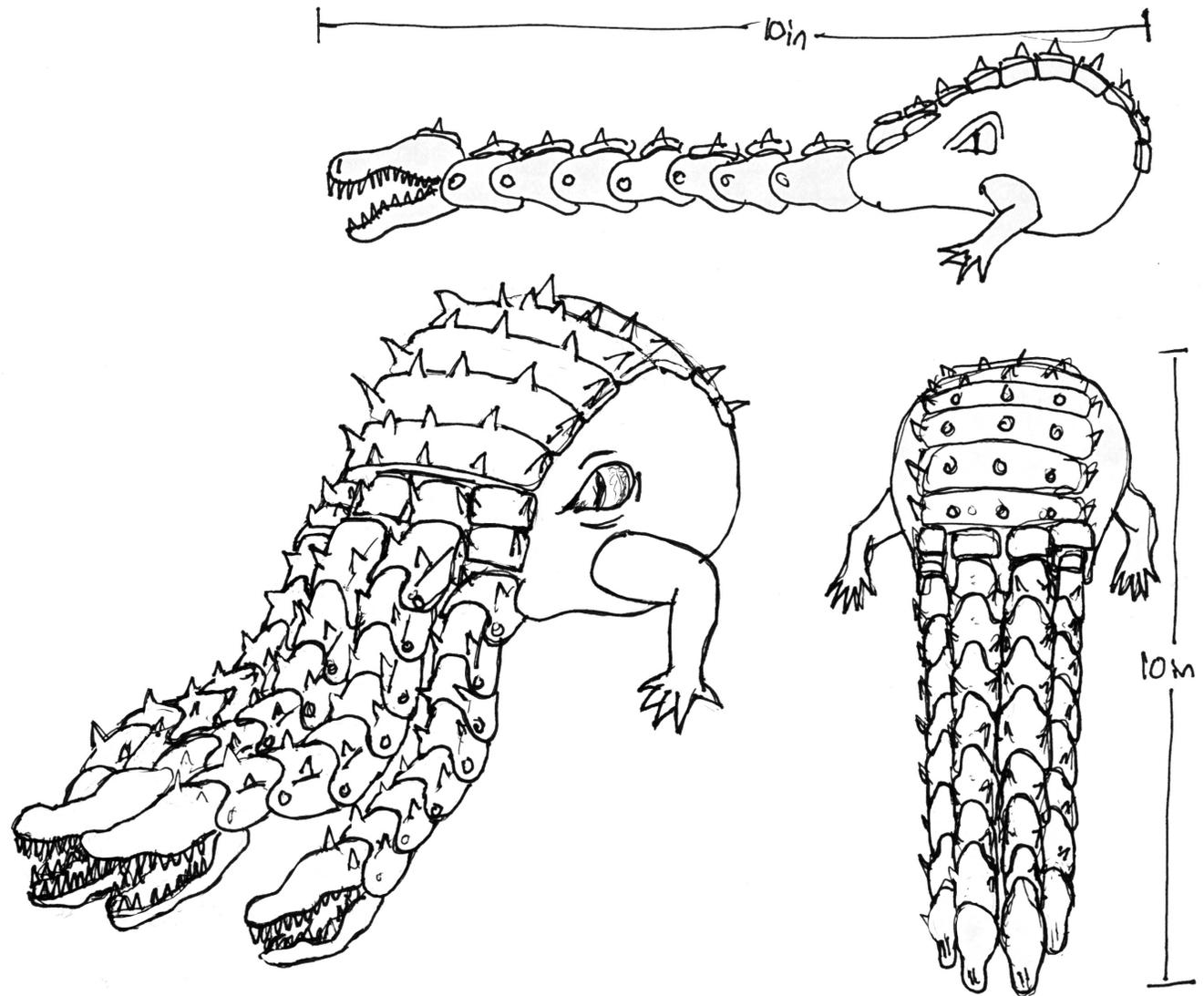
a jaw-snapping, fast swimming, unstoppable juggernaut like the Croctopus, any thrilling adventure is possible! This apex predator even comes with adjustable mouths, tentacles, and arms, allowing for maximum immersion during playtime!



OTHROGRAPHICS

When designing the Croctopus, I wanted it to be large and imposing compared other toys you might see on the shelves. Since most action figures and resin-cast figurines you might see are only 4-8 inches tall, I wanted the Croctopus seem like an opposing threat, so I designed it to be 10 inches long! Most of the plastic, as the next page will explain, is made of a highly durable, water-resistant, and chemically safe thermoplastic called lubricomp.

The head is roughly $3\frac{1}{2}$ inches, each of the arm segments are $\frac{3}{4}$ inches, and each of the mouths are about $1\frac{1}{4}$ inches, all adding up to a total of 10 inches! Such size would be intimidating for even a GI Joe!



HEAD

The head is made out of two separate parts that would be combined during assembly of the toy. It is made of a durable lubricomp polymer and is created using rotomolding.

ARMS

The arms, like the head, would be made out of a durable lubricomp polymer and is created using rotomolding.

ARM HUB

The arm hub is a nexus where all the arm segments will connect. During assembly, before overmolding occurs, it be enclosed in the head. It, like most of this toy, is made of a durable lubricomp polymer and is created using rotomolding.

ARM SEGMENTS

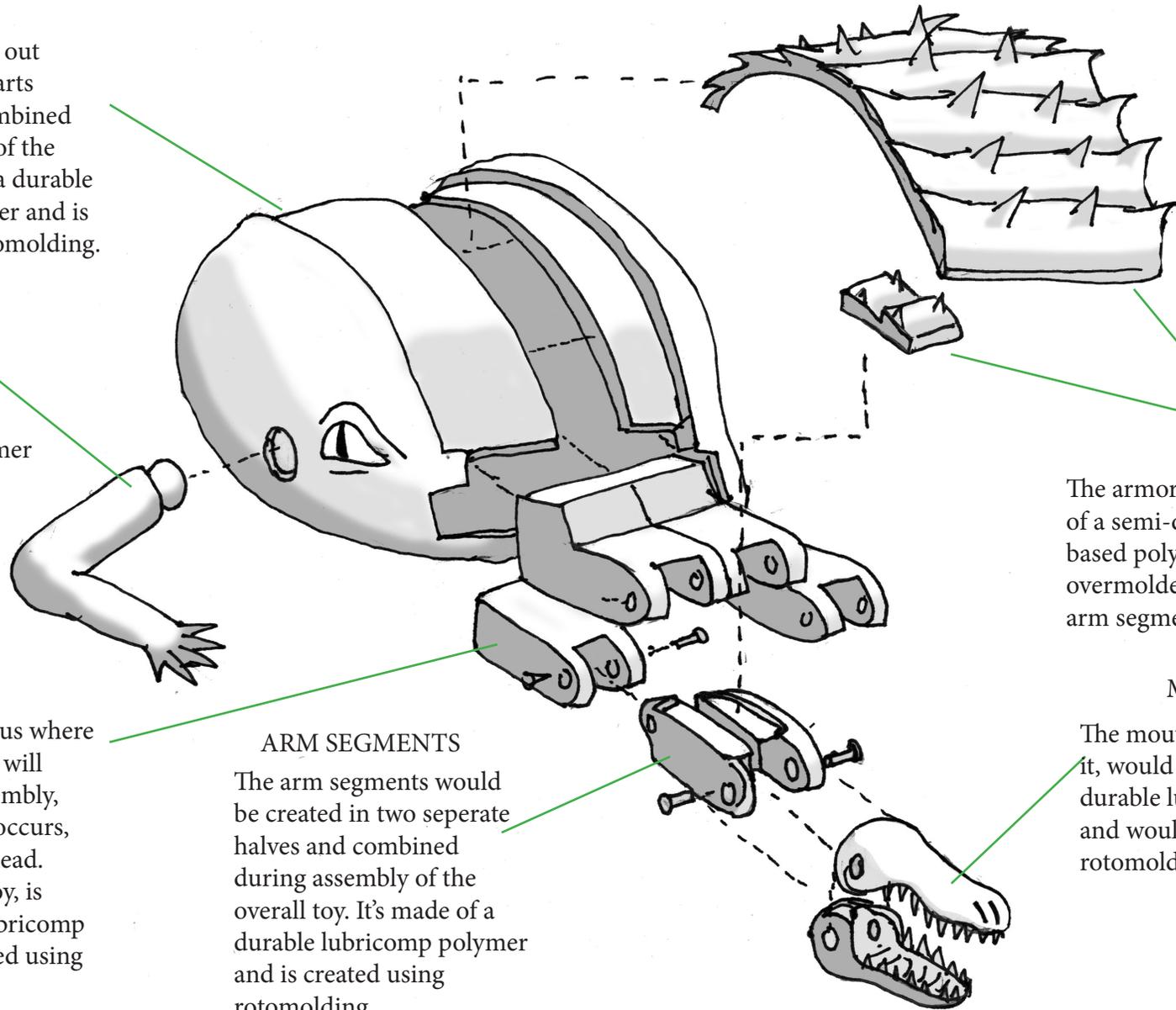
The arm segments would be created in two separate halves and combined during assembly of the overall toy. It's made of a durable lubricomp polymer and is created using rotomolding.

ARMOR

The armor would be made of a semi-durable silicone based polymer that would be overmolded onto the head and arm segments.

MOUTHS

The mouths, like most of it, would be made using a durable lubricomp polymer and would be fabricated via rotomolding.



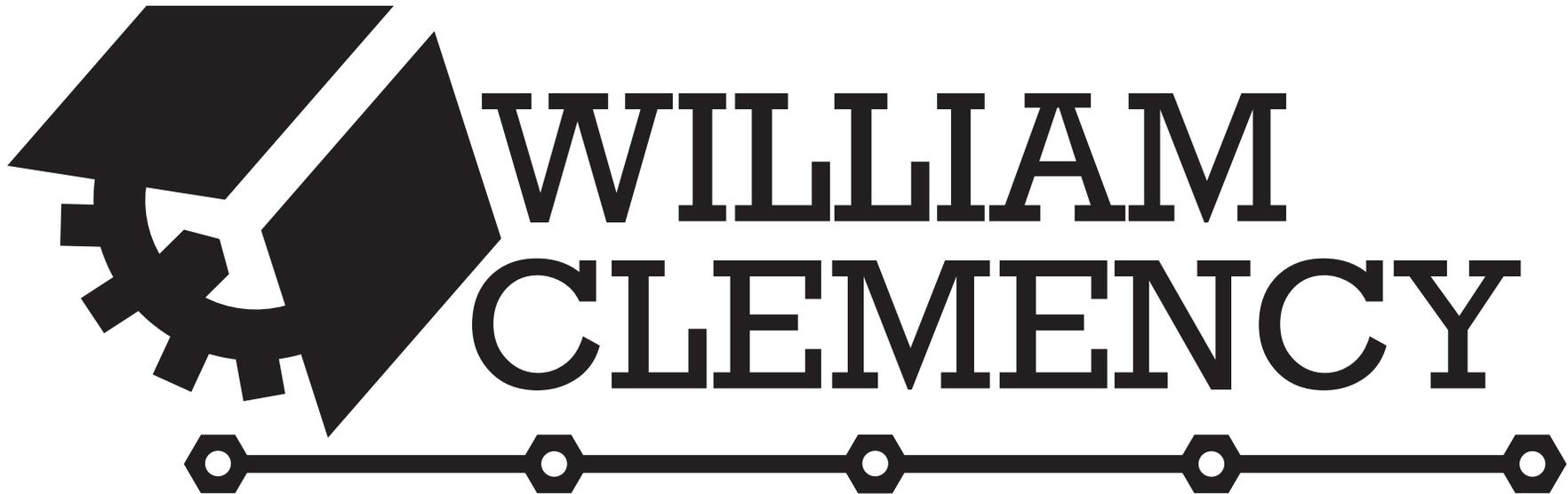
SKETCHES AND RENDERINGS



When this project was introduced, I had a million ideas come at once. This was by far the most free-thinking, expressive, and creative projects we'd been assigned yet. The only thing harder than getting every idea, story, and material down on paper was deciding which direction I wanted to end up going. In the end, I decided to end up focusing on a creature design. I developed man-animal-hybrids, deep-sea predators,

and mutant zombies. Eventually I started saying the word "croctopus" in my head over and over and figured "lets see where this goes." I was not disappointed with how it turned out. It also got me thinking about a line of toy animal hybrids, with animals like "Sharkion," (Shark + Scorpion) or "Penguana," (Penguin + Iguana).

MY LOGO



When designing my logo there was a lot of iteration before I found a design that I liked. I wanted to create a symbol that would incorporate everything I that's important about Industrial Design. The three biggest symbols you can find in the iconography of this logo is a book, a gear, and wrench. The book is meant to symbolize the importance of research when it comes to analyzing a problem.

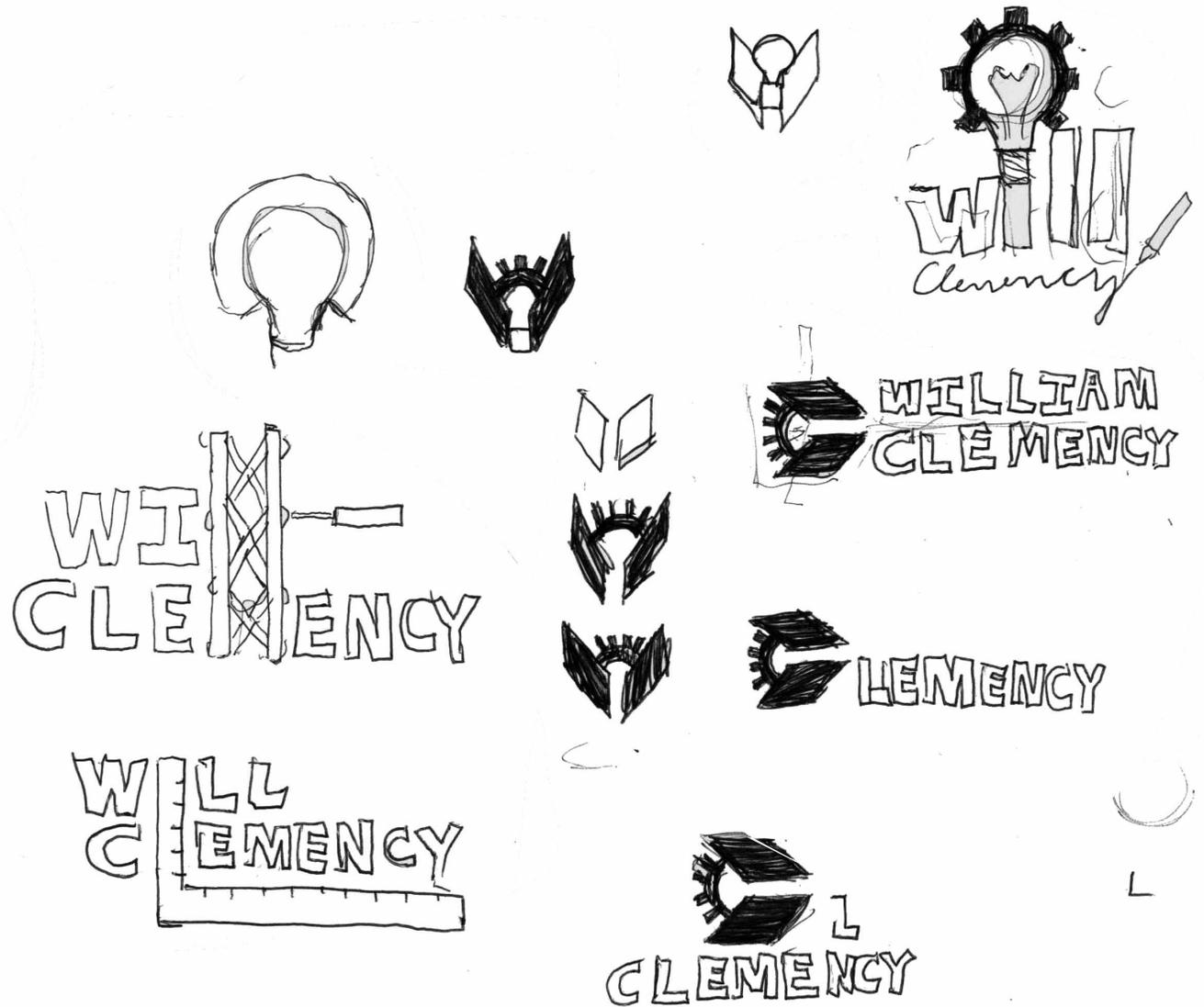
The wrench is meant to symbolize the construction involved during ideation, prototyping, and experimenting. Finally, the gear is meant to symbolize the intense thinking that's involved when it comes to problem solving in Industrial design, sort of a "get your gears turning," sort of metaphor. Another aspect of this logo that I'm really proud of is it's potential as a monogram. If you were to tilt your head

to the left, you could sort of make out the letter "W," and if you tilt their head to the right, you can sort of make out the letter "C." Finally, another fun visual effect you might not have noticed (assuming you were cocking your head back and forth as you read the text) is that as you tilting your head were you were also turning the wrench.

SKETCHES AND RENDERINGS

As I mentioned before, I had a lot of iteration when it came to ideas. The biggest frustration came from trying to incorporate my name into the logo without making it look tacky or forced. I tried using rulers, tools, lightbulbs, and metal for the iconography, but none of them accurately described the important aspects of being an industrial designer. Eventually I just started drawing shapes out of frustration, hoping to find something out of a free association exercise.

The minute I drew 2 trapezoids faced each other did I start to feel pleased. It reminded me of an open book. I then started to build upon it. This was the point where I started gaining momentum. The next thing I did was make a gear look like it was popping out the page, adding a nice mechanical aspect to the design. The design was good, but I noticed I still had some negative space to play with. The first I tried to put inside it was a lightbulb, but that didn't look very good. Then I thought "what if something was *turning* the gear," and that's when I added the wrench. After seeing the finished design and decided what



“ It is not enough that we build products that function, that are understandable and usable, we also need to build products that bring joy and excitement, pleasure and fun, and, yes, beauty to people’s lives. ”

–Don Norman,
Computer Science Researcher and
Industrial Designer



THANKS FOR READING!