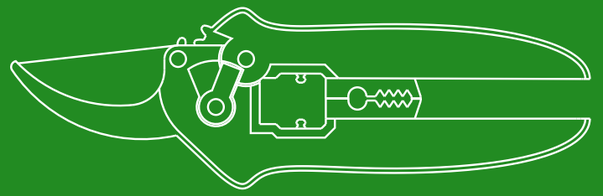
Floral Pruners

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

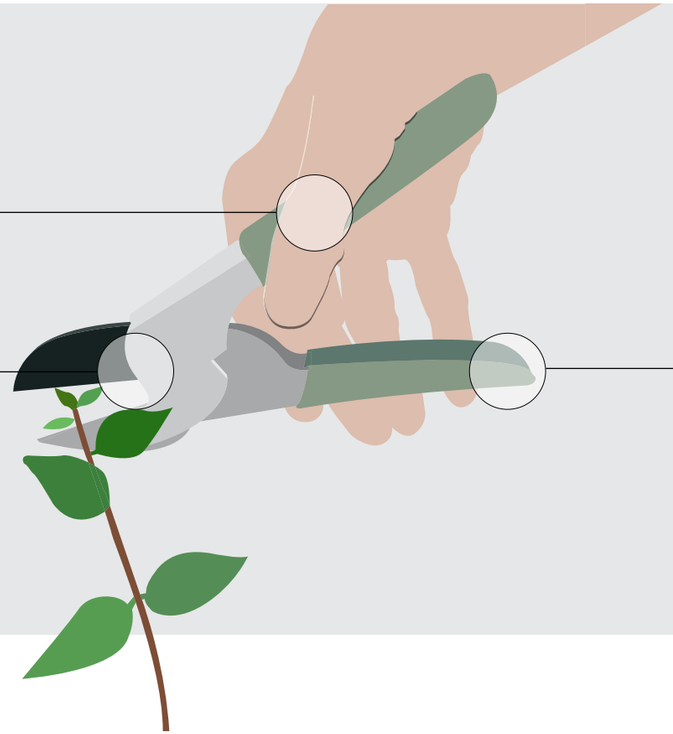
MEDIUM DUTY PRUNER
branches & stems

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



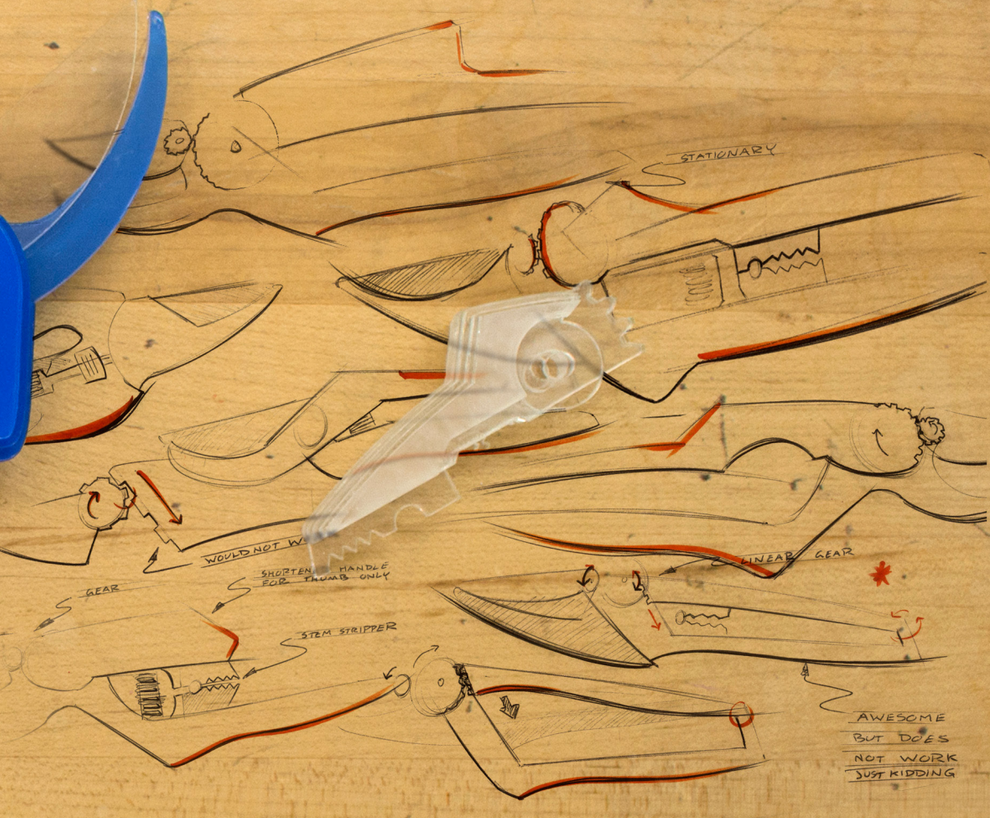
Handle opens **wider than necessary** for required force

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.

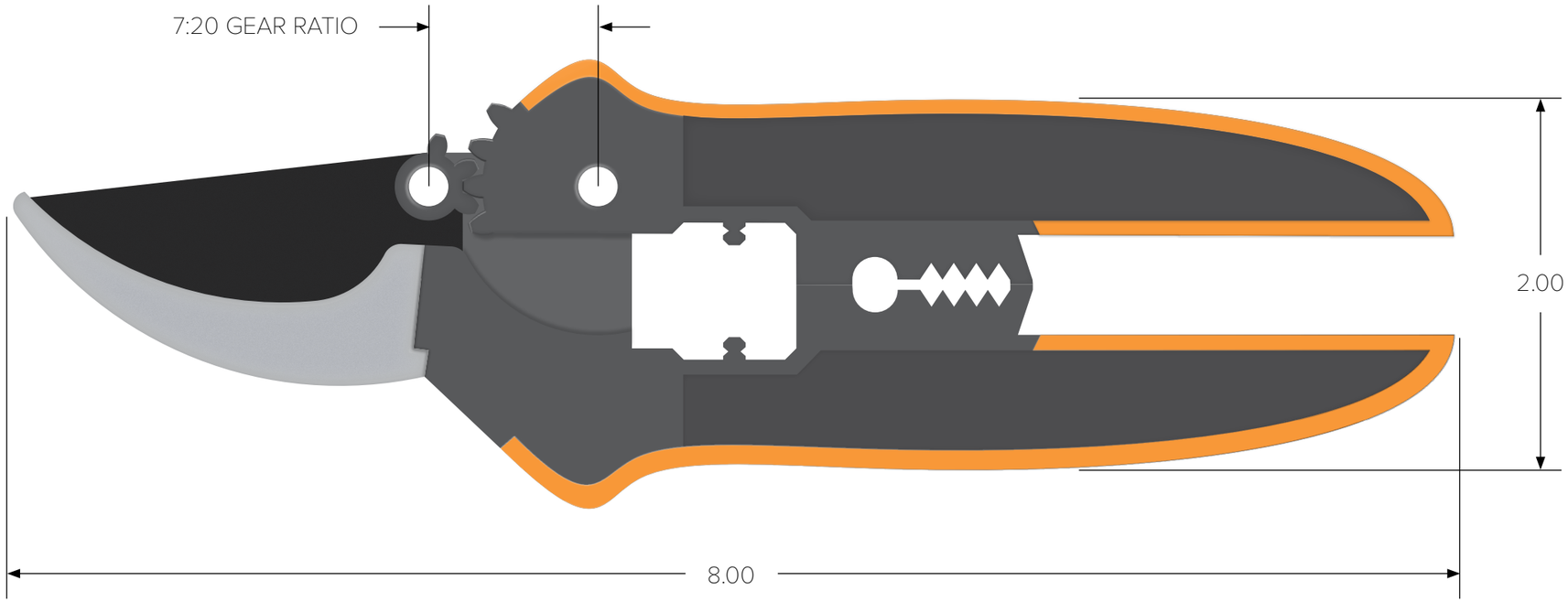
Version two develops the **ergonomics** and **aesthetics** by offsetting each plane.



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

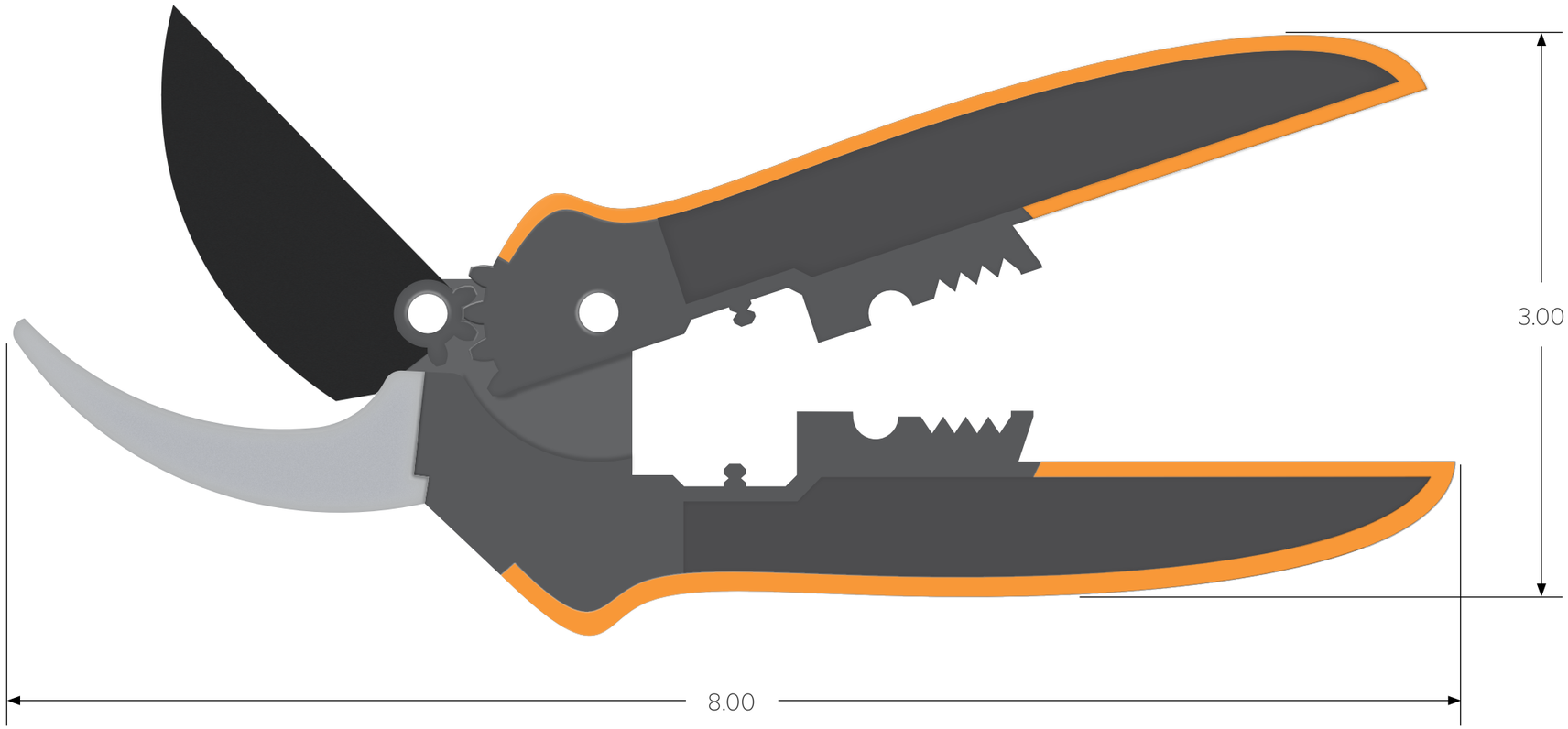
SECTION VIEW

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