FISKARS®

ERGO TROWEL

THE VISUAL WALKTHROUGH

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DESIGN PROMPT

Design a garden hand tool for an existing brand.

Your user group is elderly (65+) master gardeners living in Providence with rheumatoid arthritis.

HOW MIGHT WE ...

Design a garden trowel that relieves tension from the wrists by allowing them to remain in a neutral position, to assist professional gardeners with rheumatoid arthritis?

BRAINSTORMING
&
THE “WHY”

LORRAINE WALLACE

About

- 67 years old
- Small business owner
- Providence, RI
- 30+ years gardening experience

Bio

Lorraine owns a locally renowned seasonal fresh produce shop that's been in business for 30+ years.

She's passionate about making a difference in her community. She has 2 children, but lives alone with her husband.

Motivation

This business allows her to stay connected to her neighbors. She feels like it has cemented her place in the community, and wants to leave her mark on the world. She also wants to prove to her husband that she can upkeep the garden.

Frustrations

- Late-onset moderate stage rheumatoid arthritis in her wrists
- Struggles to position her hand in a way that prevents her joints from seizing up
- Her husband keeps trying to convince her to close the business and retire with him

Goals

- Operate her garden as efficiently as she used to
- Maintain the quality of her fresh goods

"THIS BUSINESS WILL STAY OPEN UNTIL THE DAY I DIE."

USER JOURNEY MAP GARDENING

LORRAINE WALLACE

Lorraine's tomatoes are best sellers at her fresh produce shop. Her customers have been requesting more batches, but with August approaching, she must plant and harvest another set in time before winter.

Opportunities

- Require less force while digging into the soil
- Decrease wrist tension while watering tomatoes
- Encourage a healthier wrist position
- Lower pressure in wrist joint when pushing soil

SELECT

Lorraine chooses to grow a batch of cherry tomatoes before the end of the year. She picks out 3 cherry tomatoes from her last batch to prepare for seeding.

"I'm so excited to begin a new batch, my customers will be so pleased!"

PREPARE

Lorraine seeds the tomatoes with her fingers and places the seeds in a towel to dry them out. She fills small pots with clean soil for the initial planting, and then fills larger containers for transferring.

"Seeding was always my favorite!"

"This is hard on my fingers..."

"All this back and forth with the shovel is flaring up my arthritis!"

PLANT

Lorraine irrigates the pots of soil with a watering can and has to work it into the soil evenly. She digs 1/8 in. deep holes in each pot and places seeds in each pot. She covers the seeds with the soil and pats it down. She leaves the pots in a dark place.

"My wrist is killing me from all this digging."

"I'm wasting so much time sitting around and waiting for the pain to stop."

MAINTAIN

3-4 WEEKS

Lorraine waters the soil every 4-5 days. 1-2 weeks in, she carries the pots into direct sunlight. When leaves start to show, she transfers the plants to the larger containers, undigging and redigging. She inspects the plants and soil daily.

These pots are too heavy for me, I need to sit down.""

"I'm so tired of digging, I should just call it a day for now"

HARVEST

Lorraine plucks each tomato from its vine with her fingers, careful not to remove the calyx on the top to ensure proper ripening of the fruit.
She packages them in four sin boxes to be sold at her store.

"I wish I didn't have to strain my wrists to do all this finger picking."

"Finally, all that hard work paid off!"

BRAND RESEARCH

FISKARS®

Fiskars strives to “make everyday gardening extraordinary” by using a holistic design approach.

They create tools that serve as a **natural extension** of the body, with a focus on **ergonomics** and **reliability**.

They have unique product lines, such as QuikFit for interchangeable tool heads and PowerGear for leverage, proving their main goal to be **efficiency**.

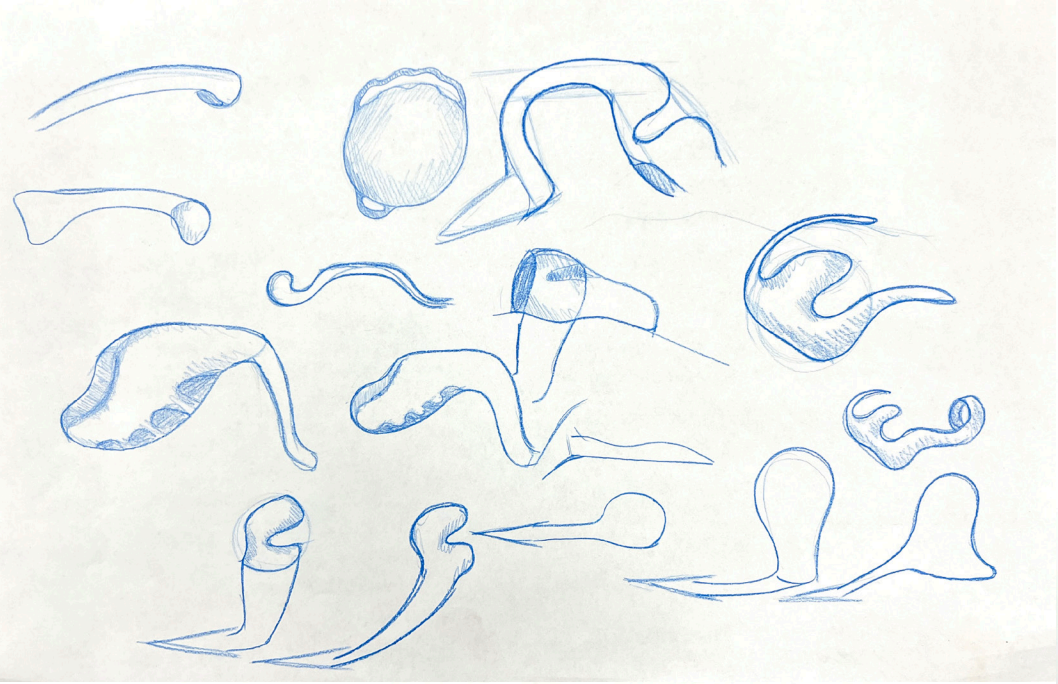
While many of their tools are commonly suggested for gardeners with arthritis, their holistic design approach encourages them to design for the average consumer.

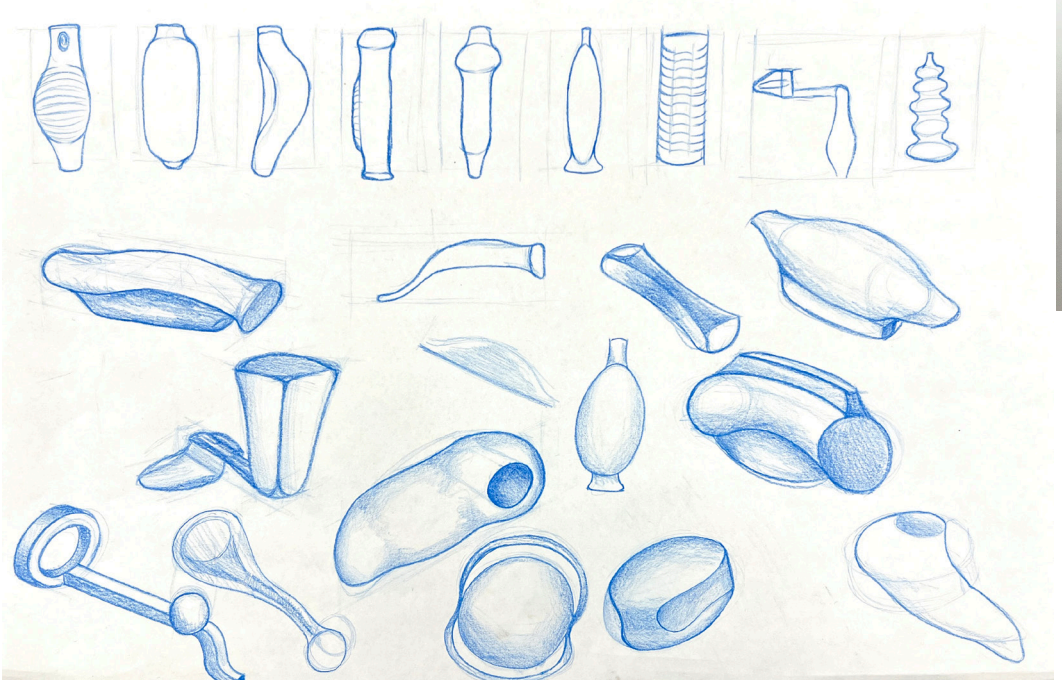
THE TAKEAWAY

Fiskars already has a dedicated customer base of people suffering from rheumatoid arthritis.

However, let’s imagine that they choose to dive deeper into this demographic.

How would Fiskars design a garden tool that targets a specific problem area in gardeners with rheumatoid arthritis?





INITIAL SKETCHES

With a focus on generating exotic shapes that are unfamiliar to the garden tool market.

MY TOP 7
AS CLAY MODELS

CLASSROOM FEEDBACK

Many considered these forms to be very abstract. While this was useful in generating ideas for the first set of models, it posed an issue for those trying to identify how the forms worked as a trowel.

Favorites were 5 and 7.

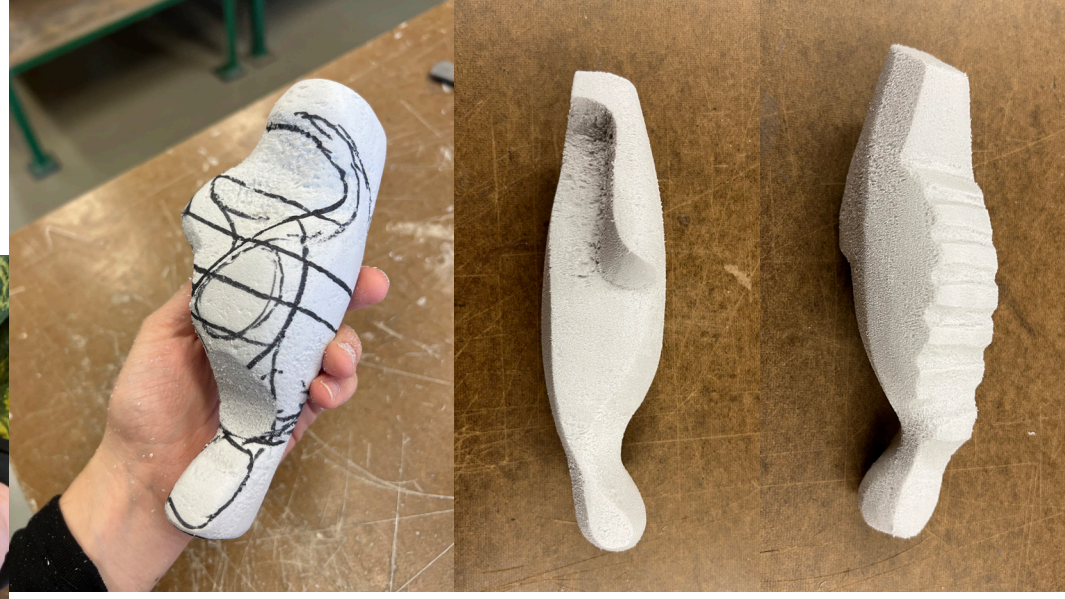
FOAM EXPLORATION

Using the feedback from classmates, I moved onto using foam as the medium for my low and mid-fidelity models.

Using a file, I shaped each one from a block of foam, lending special attention to diversifying the grips to ensure a wide testing set for the next stage of user feedback.

TESTING
& PROTOTYPING

PROTOTYPE TESTING



USER FEEDBACK: ROUND 1

"The angles are too sharp for the space between my fingers."

"I like how easy it is to slot my thumb into place."

"The curves are too strong, they don't really fit my hand."

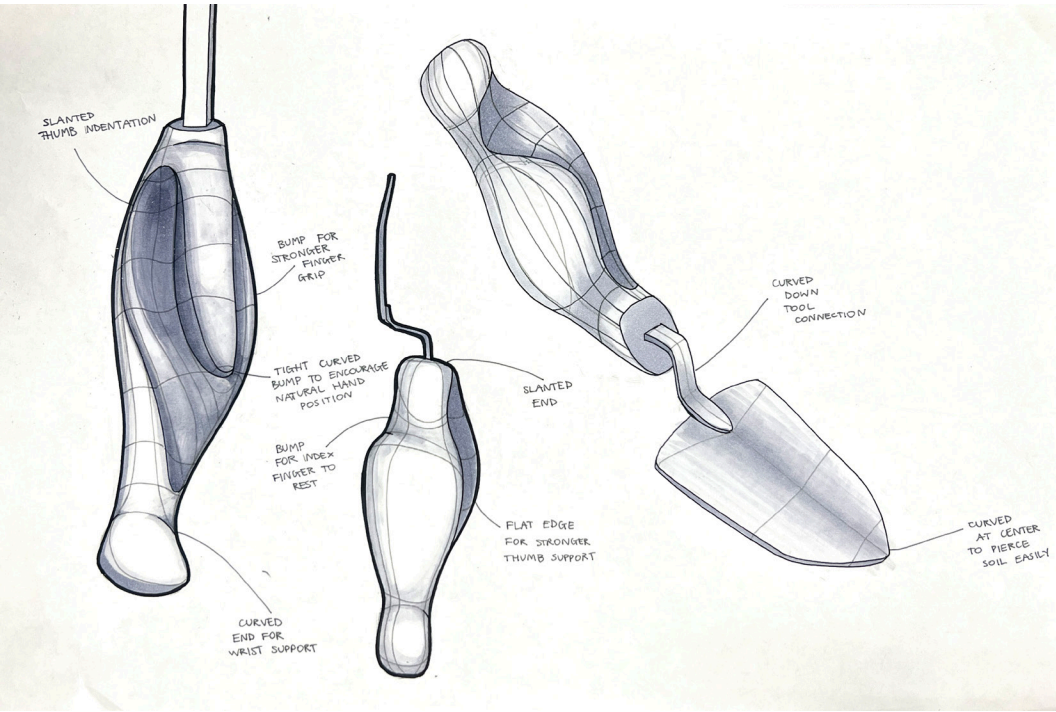
BUILDING THE MID-FIDELITY PROTOTYPE

I began by marking all of the problem areas noted in the user feedback session. From there, I filed and sanded down the foam until I reached 2500 grit paper.

Finally, it was smooth to the touch.

THE MID-FIDELITY PROTOTYPE

In this version, the head and connection are made out of acrylic sheet molded using a heat gun. This is slotted into the foam.



ORIGINAL RENDERING

RIGHT HAND FEMALE

LEFT HAND MALE

USER FEEDBACK: ROUND 2

"I feel supported, 'cause you can grip it well."

"This is quite a shape!"

"It's not so specific texturally, which could fit a wide range of hands."

"I'm left-handed, and this feels great!"

THE FINAL MODEL

DESIGNING THE LOOK

Based on the user feedback session, I felt confident in my trowel shape and chose to move directly to the final model.

I first marked out the color design on Photoshop, using the classic Fiskars orange as grip highlights.

BUILDING THE FINAL MODEL

Using Sculpey III, I carved out the handle shape. I then repeated the steps from the foam model, sanding the baked piece down until it resembled a plastic texture.

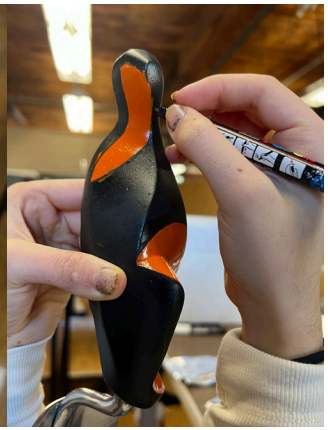
Next, I drilled a 1/4 in. hole into the top and inserted an acrylic dowel, which I would use as the connection this time. I bonded these pieces with quick epoxy resin. I then spray painted the entire body a base coat of black.

I then sanded the end of the dowel flat so that it would attach easily to the head.

Afterward, I coated the dowel air-dry clay to shape the connection, making sure to leave the sanded side clean to ensure a maximum strength bond to the head.

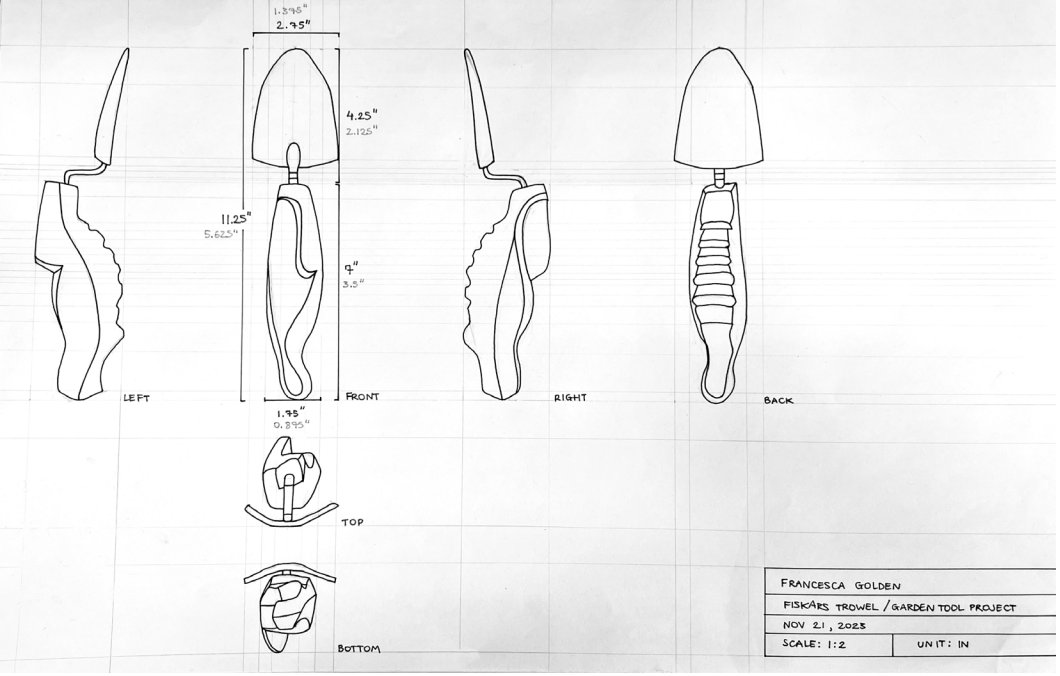
Next, I spray painted the body. Using masking tape and aluminum foil as a stencil, I switched back and forth between coats of orange and black, until there were no visible spray paint droplets.

I then went over the edges with a paint marker to clean up

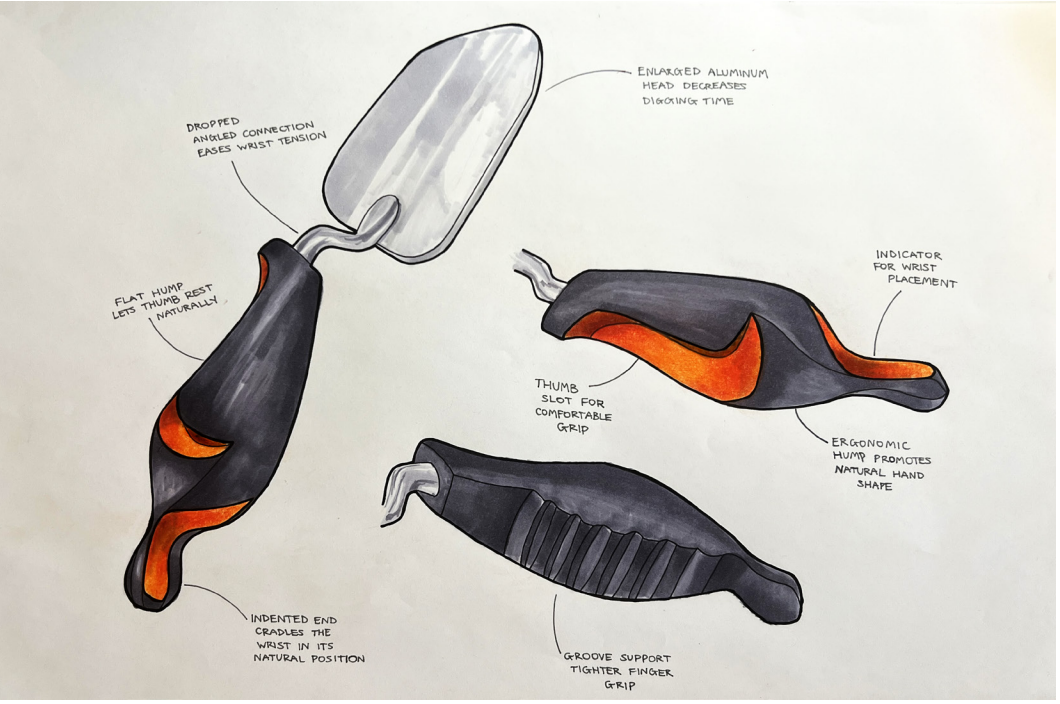


I repeated these steps on the acrylic head, which I laser cut and then bent with a heat gun. I made multiple in case of error.

Finally, I attached the head to the acrylic dowel using an acrylic bonding agent. I then gave the connection a final spray of silver for a clean finish.

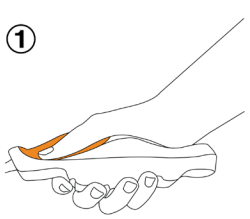


ORTHOGRAPHIC DRAWING

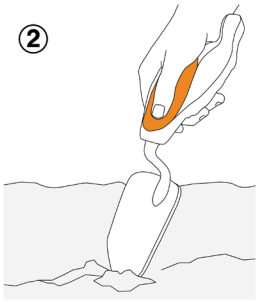


FINAL RENDERING

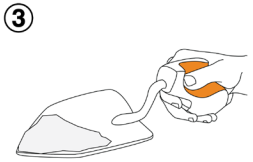
PRODUCT ADD-ONS



Grab the handle of your Ergo Trowel™, wrapping your fingers around the back grip and placing your thumb in the marked orange groove.



Pull your arm back to angle the tool downward. Keep your wrist parallel to the the tool. Use your shoulder to push the head into the soil.



Continue using your shoulder to push the soil outward. Always maintain a neutral position with your wrist.

THE ERGO-TROWEL