

Hwa Chong Institution

Project Work

Category 3 Inventions Log Book

Title of Project: DRIP-NO-MORE

Group Name:
DRIP-NO-MORE

Group Members:

- 1)Ryan Lee
- 2)Zha Wence
- 3)Isaac Chew
- 4)Zachary Seow

1. Problem Finding

1 A.Document a list of problems you have identified. Your documentation should show clearly how your group came up with the problems.

Wet floors when hanging clothes.

Tiring to stand in lines

Lack of camping tools in the market

Overbrewing of tea

Trouble sleeping

1B.You should have selected a problem based on some considerations. Identify and justify these considerations.

Saw an old lady struggling to walk in her house when I was doing CIP. This was because she could not afford driers and had to hang her clothes when they were still relatively wet.(Ryan)

We interviewed Zach's grandmother on her opinion and needs , translating into the criteria that we based our product construction. We were going to design a product that holds the water, is durable and easy to move around.

1 C. After going through an evaluation grid, we decided on combating water dripping on the ground by making a clothes hanger that can collect the water easily.

refer to fig 1(problem evaluation grid)

2. Your BIG IDEA[#]

2 A.Extent of problem (Research and discuss the problem and write down the problem statement)

About 50% of people say that their clothes drip water on the floor in a survey with 81 responses. This shows that normal people, not just the poor faces the problem of clothes dripping water on the ground. Our group wanted to help these people find a simple solution to the problem thus we came out with our product idea

2 B.Compare and contrast the existing or similar solutions.

Most clothes hanger these days do not have boards installed under the clothes this causes the water to drip on the floor,becoming a slip hazard.Our product also has a water collection system as well as a mosquito net which prevents mosquitoes from breeding. Some existing solutions is putting pails under it. It is ineffective as it is circular and cannot catch all the water. Water will also splash out of the pail since the water is dripping from a higher height. The pails might also allow mosquitoes to breed as they might not be frequently emptied and do not have mosquito nets. Another existing solution is wringing of clothes. However, the clothes require great amounts of strength to wring dry and the elderly may not have enough strength.

3. Your big idea

3 A.Describe your proposed invention.

Our product is similar to an ordinary clothes hanger. We intend to use metal poles so the structure would be sturdy. Water will drip from the clothes into a board which will be placed under the clothes. Water will drip into a hole that will be connected to a container so water will flow into the container. Water can be easily disposed by the elderly by simply screwing it off the board. We also intend to put wheels at the bottom of the structure so it can be easily moved by the elderly. We intend to make it space saving by allowing it to be folded up so it can be easily stored.

3 B.Explain the purpose of your proposed invention and the potential benefits to users.

The problem we identified was a slipping hazard from the water that dripped on the ground from clothes. Our invention is a clothes hanger with a board that collects the water. There is a small recycled peel fresh bottle to help the elderly collect water and they can easily unscrew the bottle and empty it. This is more convenient since it removes the tripping hazard and collects the water as well as stops the breeding of mosquitoes.

3 C.In what ways would your proposed invention be different and/or better than existing solutions, if any?

Our product is cheaper, lighter and is a more durable clothes hanger with a board that helps the elderly collect water as well as prevent mosquitoes from breeding. As compared to other existing solutions, our product drains away water and collects all of it unlike the pail which is circular and does not fit the exact area of the dripping clothes. Additionally, water may splash out of the bucket when drips from a higher place.

3 D.What are some problems you expect in the course of your proposed invention?

It would be hard to get a board with suitable materials as well as find and resize the board to fit the exact area of the dripping clothes. It had to be waterproof, flexible, cheap as well as strong and durable. Another problem we expected to face was finding an effective way to drain away the water. We tried many different ways, one which was draining the water with a pipe and container (fig 4) it was extremely bulky and inefficient. Eventually, we found a way to collect the water by screwing on a peel fresh bottle which can be easily unscrewed and emptied. (fig 6)

3 E.What and when are the major milestone (project timeline) in your invention?

In February, we did brainstorming and proposal. In March, we did data collection and the slides. After the proposal evaluation, we started gathering materials to start making our prototype. We finished our first product in early June and continued modifying it until we got our second prototype completed in late June. After mid-term in July, we changed the materials to more durable metal poles and had our final-term in August.

4. Construction or Modelling Process*

4 A.Explain how and why the materials were chosen for the prototype/ product of your invention

We choose materials based on the following criteria: price, durability, size and weight. We chose the metal poles as they were relatively cheap as it was in bulk and it was hollow in the middle. Thus, it was lightweight. The board was a normal piece of waterproof cloth and it was cheap and light weight. The wheels were cheap and could be fitted through the hollow tube. Thus, the wheel could be tightly stuck into the metal pole.

4 B.Explore these considerations that may guide the construction of your prototype/ product.

We aim to make the product as lightweight, cheap, compact and mobile as possible. It will be affordable for the elderly and they can move it about or keep it very easily. It is not difficult to set up or dismantle.

4 C.Document the prototype/ product development stages. You may use drawings, photographs or videos.

This was our first prototype. It was bad because the board (Raincoat) was very flimsy.

refer to figure 2(first prototype)

This is our second prototype. It is cheap, light and easy to dismantle. It can be moved about easily. However, the board dripped water at parts and the water flow could not be controlled easily.

refer to figure 3(second prototype)

This is our modified second prototype. The control of the water flow is better now and there is a pipe leading to a container which collects the water. However the pipe and container causes the product to be bulky and unrepresentable as well as flimsy.

refer to figure 4(mid-term evaluation prototype)

5. Modification and Evaluation

5 A.Write down your prototype/ product test criteria and check against it if it works. Identify areas of weakness for modification. Indicate the test iteration and date of test.

Test Iteration:	Tick(o)			Remarks
Test Date: 3 Aug	Pass	Fail	Potential Failure	
weight			o	It's a bit heavy due to the metal
strength	o			Can hold many different things like bedsheet
Flow of water selection	o			There are holes for water to easily flow through
stability			o	It is tilting a bit to the side as there are more poles on one side to another

6. References

Read <http://www.bibme.org/citation-guide/apa/> on how to cite references.

6 A.Cite the references you have used for your project work. Your source of reference should come from different types (eg books, magazine, websites, journal articles, interview, photographs, product brochure, reviews etc.)

Figure 2f from: Irimia R, Gottschling M (2016) Taxonomic revision of Rochefortia Sw. (Ehretiaceae, Boraginales). Biodiversity Data Journal 4: E7720. <https://doi.org/10.3897/BDJ.4.e7720>. (n.d.). doi:10.3897/bdj.4.e7720.figure2f

Appendix

Fig 1

Problem Evaluation Grid

*add more columns and rows where necessary

Considerations for Selection	Problems		
	Sunlight cooker	Sitting poles	Clothes hanger with board
Size of the market	1	1	3
Usefulness	2	2	3
Scale of issue	1	2	3
Total Score	4	5	9

This is our new product. It is made up of metal poles and it is done through drilling and screwing. Its approximate price is \$37.50. There is a board that can be easily removed and it is connected to a container through modification of a cap. There are also wheels as mentioned earlier that helps it to be moved easily. (refer to figure 7)

Fig 2



Fig 3



Fig 4



Fig 5



Fig 6

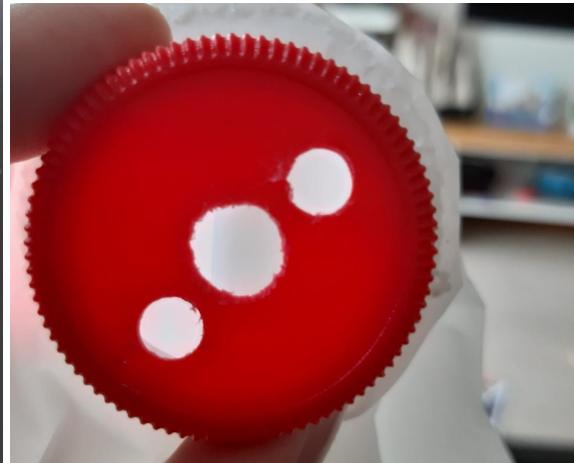


Fig 7

