



**Highly Commended**

# **Models & Inventions**

## **Year 7-8**

**KAITLIN MOHAIS**

**Mitcham Girls High School**

## How to Use:

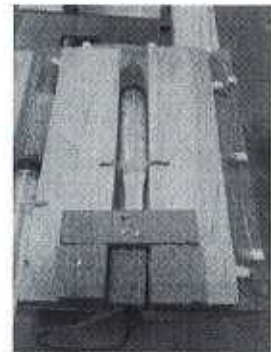
Note: (Even though the arm moves, it has limited reach so, you need to make an effort to line things up)

1. Place metal nut on the edge of the small couch inside the pulley system box using the outlined area.
2. Stand to the side and pull the blue rope attached to the pulley system gently and evenly. By doing this, the box will be hoisted. If it gets a little bit stuck with the diagonal supporting beam, just lightly guide it straight with your hand. Be gentle so that the nut does not fall out.
3. There is a stop sign protruding to let you know when to stop pulling. Try to even out the height of the box as much as possible.
4. Then securely twist the rope into a figure 8 on the side hook.
5. Move to the other side of the invention. On the control panel, push in the turning syringe to align the head of the arm with the nut. Then carefully, but firmly push the extension syringe to reach the nut inside the box.
6. Press the red switch to activate the magnet. This will make the bolt pick up the nut.
7. Now pull out the extension syringe. There is a rope underneath the lifting syringe that has a locking device attached to it. This will be used to push in the lifting syringe since there is a lot of pressure on it.
8. Sometimes it may pop up, but all you need to do is push it in a little further forward and try to secure it down. If need be, hold down with one hand the locking device to ensure that it doesn't pop back up.
9. Now push the turning syringe to align the nut with the white, target tube.
10. Press the red switch to release the nut. Your goal is to get the nut to fall exactly into the tube. Once completed, return the arm to its original position using the control panel.  
**Please make sure that the magnet is off to not waste the battery.**

Red switch up: OFF

Red switch down: ON

If you want to be extra sure, you can carefully unclip the alligator clips from the battery wires.



# How to Fix Problems:

Some minor problems may occur when operating my invention, so here are solutions to these.

## 1. The arm does not reach the nut

You need to make sure that you have aligned everything. This includes the pulley system. It doesn't matter if one of the pulleys seem to be loose, don't attempt to tighten it. It will not tighten and does not need to be tightened. You just have to make sure that it is aligned with the wooden beam at the top.

## 2. The pink extension syringe gets stuck

The syringe may feel stuck at the start, but this is because the arm is heavy. Don't be afraid to put some pressure on it to get things started. Carefully, but firmly, push the syringe in whilst supporting the wooden frame.

## 3. Lifting syringe locking device pops back up

Sometimes you may notice that the locking device for the lifting syringe is popping up. This is simply because of the amount of pressure on the syringe. All you need to do it to push the device forward a bit more to try to get it to stay in place. If it is still popping up or not feeling firm, you can simply hold down the flat piece of the locking block whilst you are using the other syringes.

## 4. Electromagnet does not work

If the electromagnet does not work, reclip the alligator clips to ensure a good connection. Check that the red button is up. This means that the electrical circuit is closed and there is no magnetic field being generated. Another thing that could be happening is that the nut is not close enough to the electromagnet on the arm. You would have to adjust the positioning of the nut on the little platform or adjust using the pulley system. If you have tried all of those things and it still doesn't work, it means that the battery is dead. This should not be the case as I have just put a new battery in.

## 5. Nut falls off pulley system

If the nut falls off the pulley system, the box is probably not flat. You will have to try your best to keep it flat and steady on the journey up. Be gentle when hoisting it. The nut may shift a little, but the arm should still be able to be manipulated using the control panel to reach it.

## 6. The pulley box gets stuck

If the pulley box gets stuck under the diagonal supporting beam, you need to make sure that they are aligned carefully. If it is still giving problems, you can lightly guide it with your hand.

## How to Set Up:

Identification  
Number:  
0380-003

1. Wheel the invention into the desired area and then press down locks on wheels using your foot. (When releasing, carefully use your hand to pull it up)
2. Place pulley box in so that the sticking out small platform for the nut is on the side nearest to the arm.
3. Remove all kinks before weaving rope through pulleys
4. Place nut on the platform inside the pulley box
5. Place the battery into the battery slot in the control panel as shown in the picture.
6. Carefully attach the alligator clips to the metal springs on the battery.
7. Make sure that the red switch is up so that the battery isn't wasted.
8. Check to make sure that the syringes aren't pushed in.

