

# Reverse Engineering: Olde Thompson Black Pepper Adjustable Grinder



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# Visual Analysis



## Top View

Rough texture on the top cap part.

Black and white color, high saturation.

Radial symmetric if you straightly see it

Curved lines.



## Side View

Rough texture on top grinder part, and smooth on bottle part.

Black and clear color, high saturation.

Symmetric by the red line except the words.

Vertical and curved lines.

Mechanical shape.



## Bottom View

Clear color and red text.

Smooth texture.

The bottom part is radial except the red words.

Curved line.

# Functional Analysis

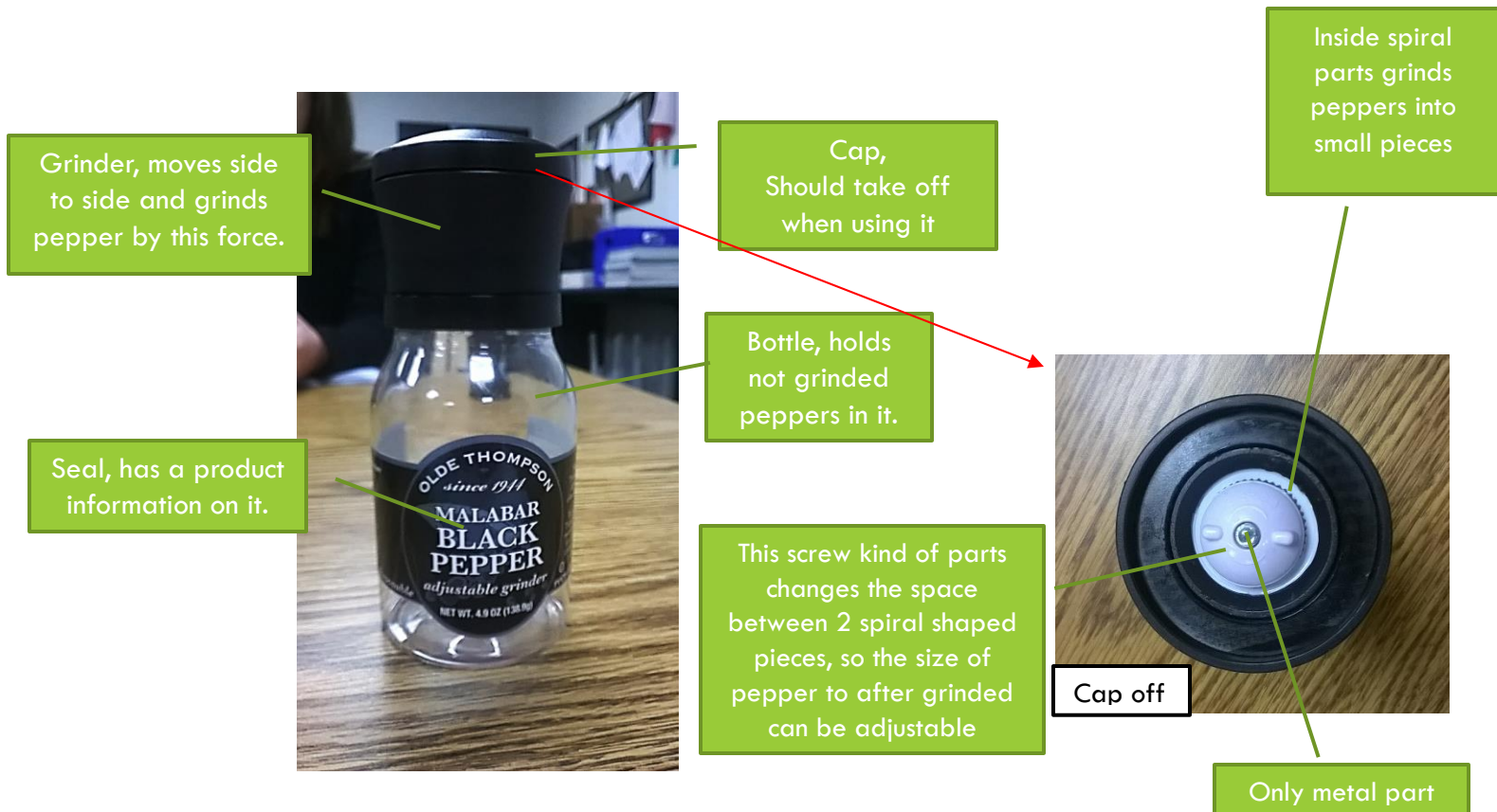
Manufacturer: Olde Thompson

Price: \$9.00, with pepper (Malabar Pepper, 2010)

Function: When the force is applied to this product for turning the top black part, the inside spiral shape parts collides and smashes the pepper into small pieces.

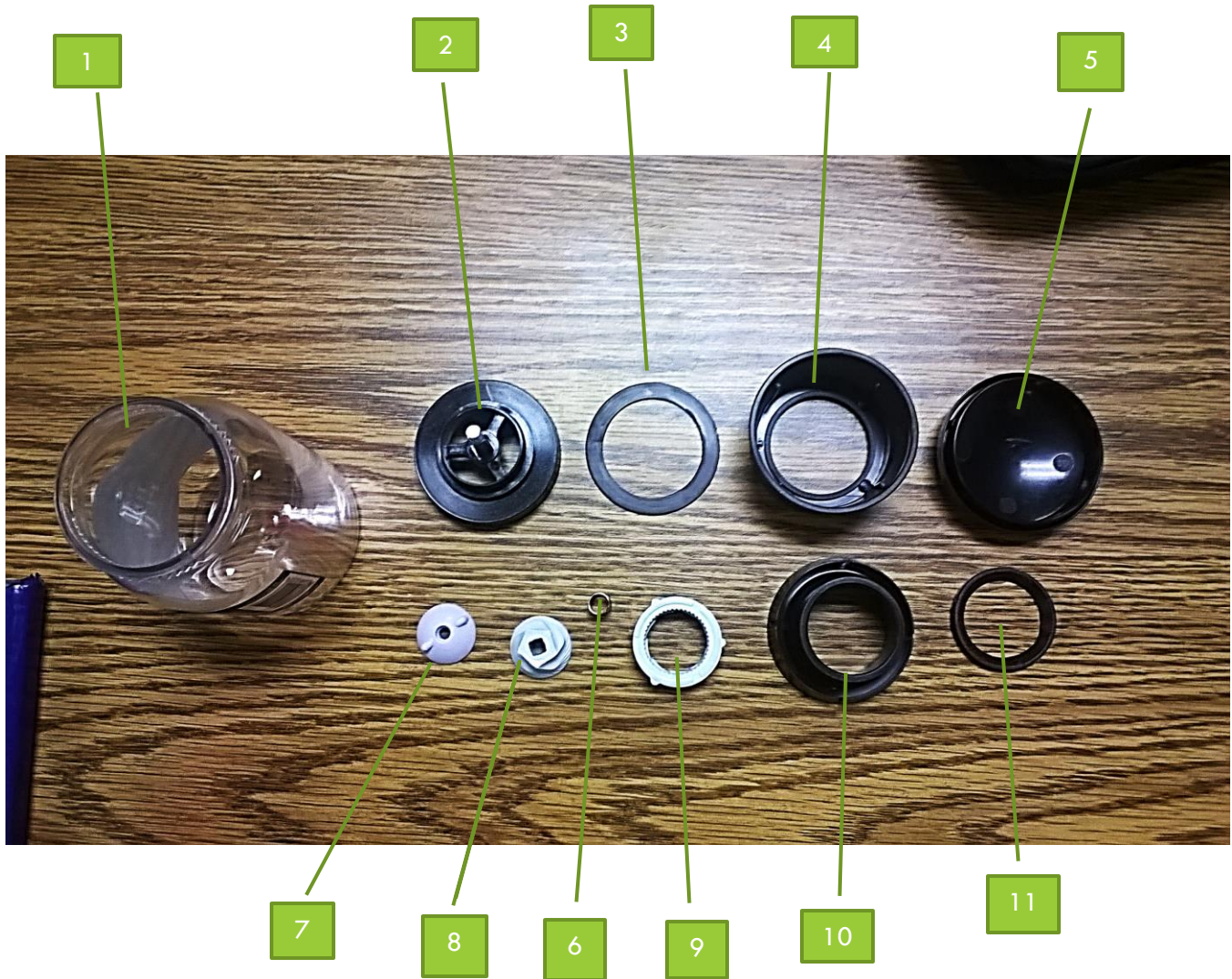
Inputs	Product Function	Output
Black pepper Power - twist	Grinds pepper	Grinded pepper Sound

Exterior components:



# Structural Analysis

Part number	Part name	Qty	Functions	Material	Interaction with others
1	Bottle	1	Holds pepper.	plastic	Attaches with middle part only.
2	Middle part	1	Main part, do not turn.	Plastic/ metal	Other parts are built around this part.
3	Ring 1	1	Prevents middle part and outer frame to scratch.	plastic	Between middle parts, and outer frame parts.
4	Outer frame	1	Holds the grinder inside, most outer part of the product.	plastic	Holds parts inside.
5	Cap	1	To prevent bags and other harmful staff to come in	plastic	Cap, attaches with outer frame.
6	Spring	1	Holds inner spiral up.	plastic	Fits between middle parts and inner spiral parts.
7	Adjusting part	1	Changes the space between inner and outer spiral parts.	plastic	Works with the screw attached to middle parts.
8	Inner spiral	1	Grinds pepper by colliding with outer spiral parts.	plastic	Grinds pepper with outer spiral parts.
9	Outer spiral	1	Collides and smashes peppers with inner spiral.	plastic	Grinds pepper with inner spiral.
10	Inner frame	1	Attaches with outer frame and work as one locked parts.	plastic	Attaches with outer frame.
11	Ring 2	1	Holds parts together.	plastic	Attaches with inner frame, holds parts together.



## Material analysis

### 1. Grinder

Material: plastic

Color: white

Function: grinds pepper down to small pieces by colliding with the other parts surrounding it.

### 2. Bottle

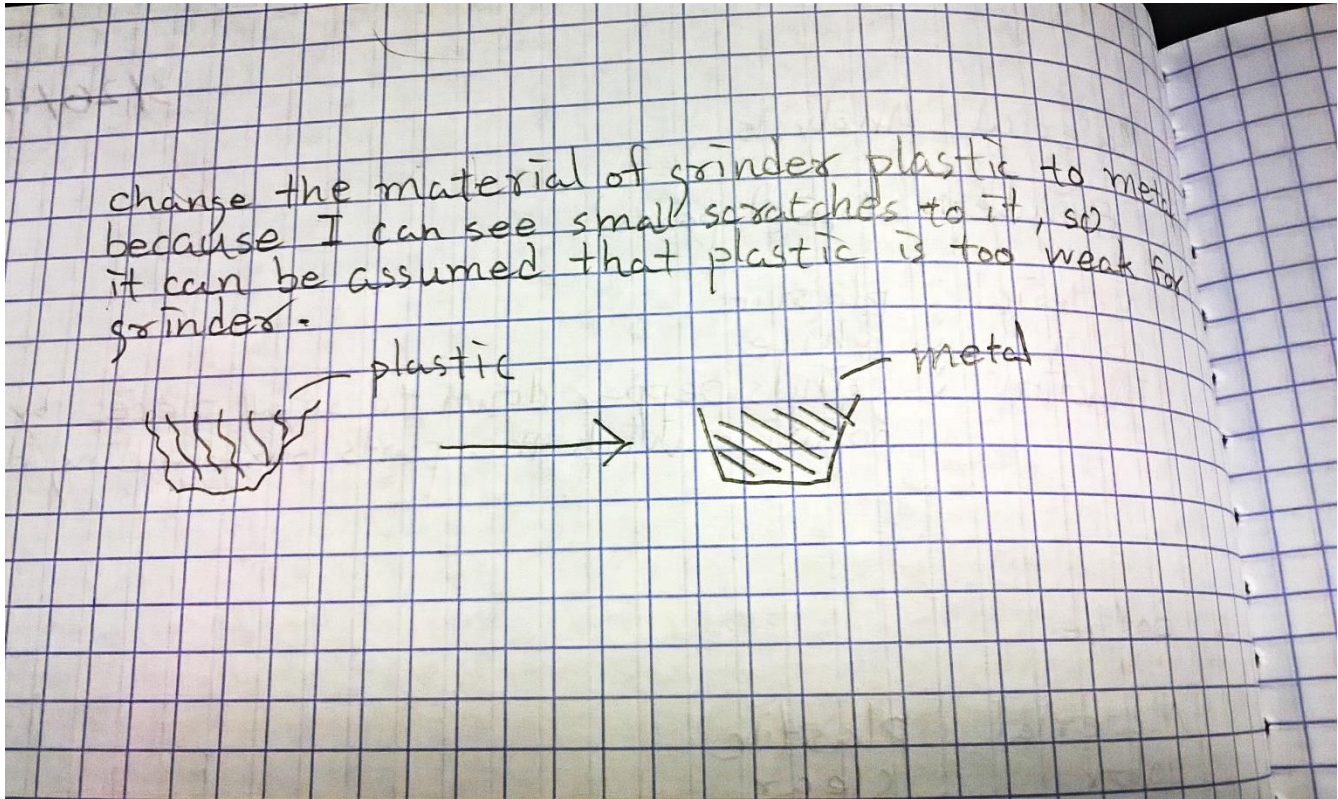
Material: plastic

Color: clear

Function: keeping peppers in it so the pepper will not make a mess.

## Product improvement

To improve this product, the material for the grinder should be changed to steel instead of plastic. Because small scratches can be seen on the grinder, it can be assumed that plastic is too weak for the part that grinds the pepper. From this, it should be made by stronger material like steel.



## REFERENCES

*Malabar Pepper*. (2010). (Olde Thompson Inc.) Retrieved 4 2, 2015, from  
<https://www.oldethompson.com/product-details.aspx?ProductID=533&PageID=23>