



YOU HAVE BEEN CHOSEN
DO YOU ACCEPT THE CHALLENGE?

Proposal

Luminescent Industries has chosen you and your team to bid on the flashlight so it has an adjustable light beam. They need this flashlight to have a really large beam of light at 1m away and a really small beam of light at 1m away. This creation will be attached to their already existing flashlight.



WHAT YOUR TEAM NEEDS TO DO

Research and Design teams spend countless hours organizing information, drawing out plans, building prototypes and writing summary documents.

Real life example: How many years did you think it took Mr. Dyson to create his vacuum?

15 years

How many redesigns did he have to do?

5 127 times!

How much is his company worth?

13.6 Billion Dollars



THE MATERIALS YOU HAVE AT YOUR DISPOSAL?

Flashlight

Foam cup

Paper cup

Sheet of tinfoil

Paper

Duct tape

Regular tape

White paper

Straws

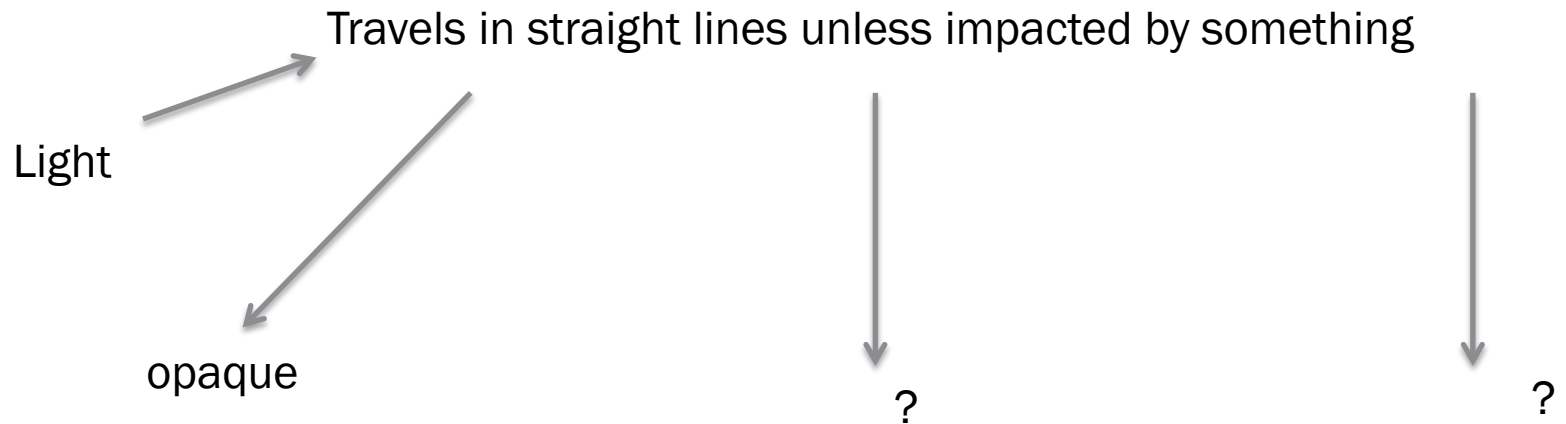
(Additional materials from home)

YOUR FIRST STEP: BRAINSTORM

Write down all scientific concepts you know about how light travels and can be manipulated (changed).



IDEAS THAT WILL NEED MORE INFORMATION



- Creates a strong shadow
- Creates a reflection
- More reflection if shiny surface

Example from our materials:

Reflection also creates a refraction meaning...

RUBRIC FOR BRAINSTORMING

4

Brainstorming makes sense to people outside your group. Scientific vocabulary is used throughout to explain ideas. Wide variety of facts about light was generated.

3

Brainstorm has areas of understanding, while some needs decoding by the reader. The group had good connections between concept and planning.

2

Brainstorming has connections to concepts, however decoding is needed throughout by the reader. The planning stayed on topic.

1

The planning did not make sense to the reader and multiple concepts did not connect to the concept being discussed.

YOUR SECOND STEP: 3 DESIGNS

Now, with all your concepts recorded. It is time to begin designing attachments to the flashlight that can both enlarge and concentrate the light. You need to design three different prototypes using the concepts you know.



No. 617,592.

D. MISELL.
ELECTRIC DEVICE.
Application filed Mar. 12, 1898.

Patented Jan. 10, 1899.

Fig. 1.

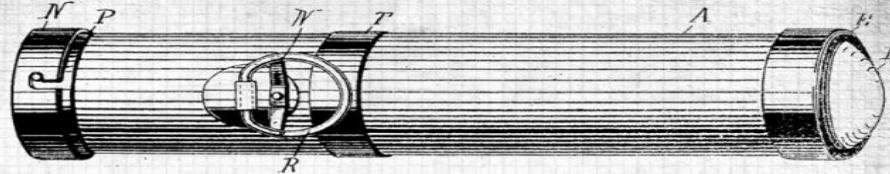
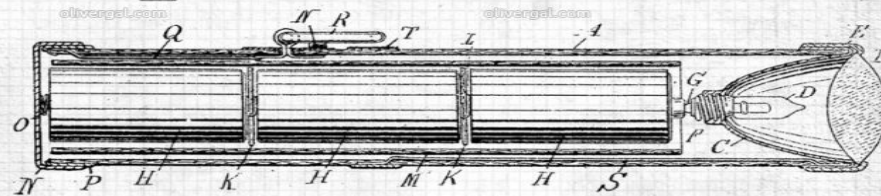


Fig. 2.

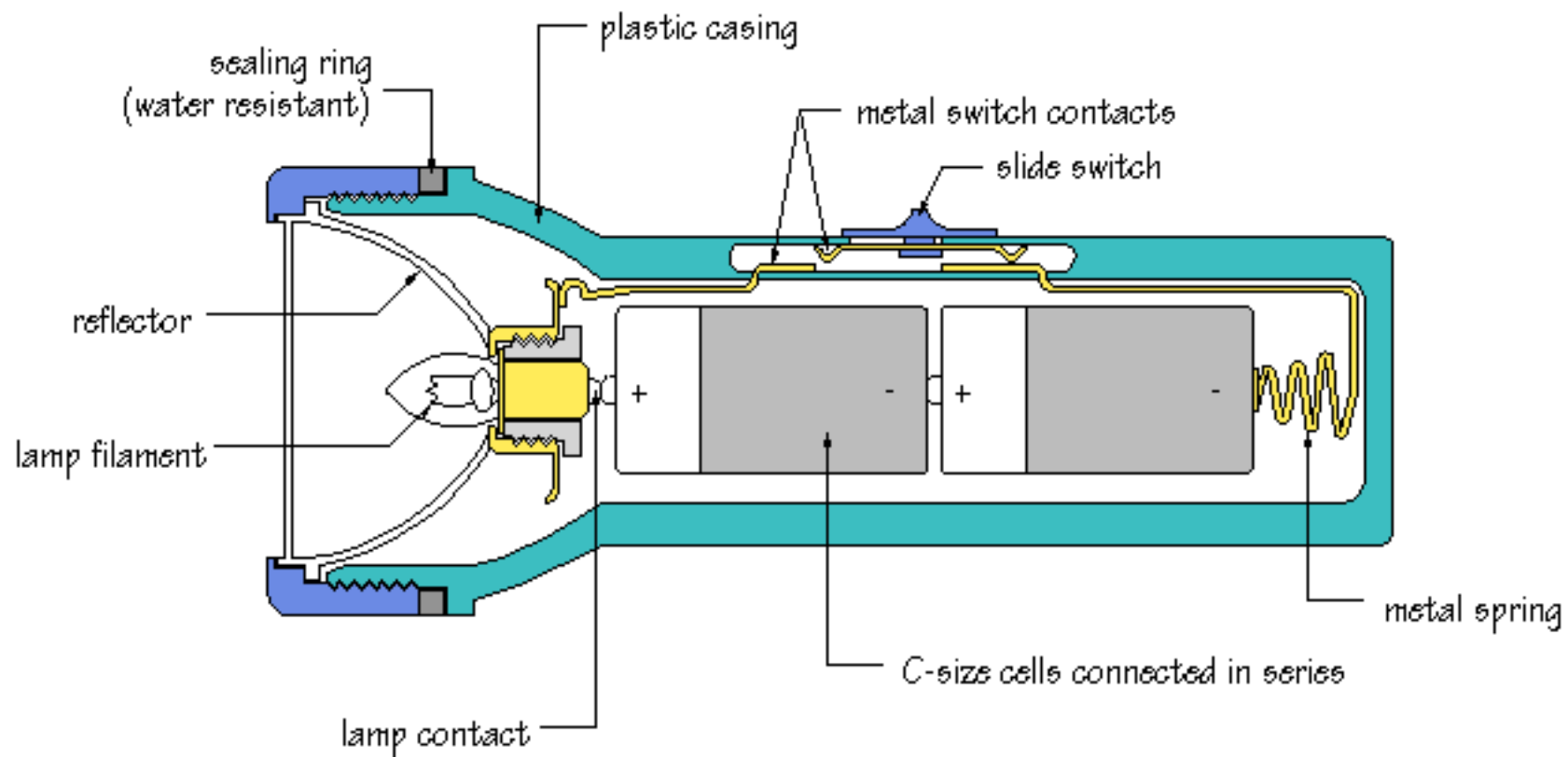


Witnesses:

Samuel W. Balch
Conrad Hubert

Inventor,
David Misell,

by *Thomas Swinford*,
Attorney



Aug. 2, 1927.

C. OSEAN
FLASH LIGHT
Filed Dec. 26, 1923



Inventor:

Charles Osean
By *Charles Osean*
Attorney

RUBRIC FOR THE PLANNING

4

The designs are very different from one another and connect directly to the brainstorming session done by the group. The materials were used creatively and high

3

The designs look different with only a few similarities. There are multiple connections to concepts in the brainstorming session.

2

The designs look similar with minimal changes between them. There are still connections to the brainstorm session, however not all of the ideas are used.

1

Three designs were not completed or they look too similar to tell the difference. No of the concepts were used when drawing the designs.