



# Technical analysis and diagramming exercises



1<sup>st</sup> year of the second cycle



Name: \_\_\_\_\_

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in collaboration with the

Centre de développement pédagogique

## Rules of diagramming

Complete the sentences using the words below:

proportion - elements - colour - links - view - simple lines - parts - symbols - forces - movement

- 1- Choosing the best \_\_\_\_\_ to represent the object.
- 2- Represent the object by \_\_\_\_\_.
- 3- Name the various \_\_\_\_\_ of the object.
- 4- Use \_\_\_\_\_ to represent the operating principles.
- 5- Represent the \_\_\_\_\_ using arrows.
- 6- Represent the \_\_\_\_\_ and the guidance.
- 7- Use \_\_\_\_\_ to represent the various parts of the object.
- 8- Represent the \_\_\_\_\_ of the parts using appropriate symbols.
- 9- Indicate the critical \_\_\_\_\_.
- 10- Retain a certain \_\_\_\_\_ between the various parts.

**Technological analysis of the staple remover**

**Global function of the object:**

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**Analysis of the object**

**Observe the object and answer the following questions:**

1. What type of lever is used in this object?

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2. How is the pivot built? Give the characteristics of the link.

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3. Why are the levers so short? (Distance between the pivot and the points.)

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4. What materials make up this object? What is the advantage of each of them in the use of the object?

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5. Is there another simple machine besides the lever in the object?

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**Complete the principles diagram of the staple remover**

- 1- Carry out the principles diagram of the staple remover using the elements in the inset.
- 2- Connect the parts of the object to the elements on the diagram.

Upper branch

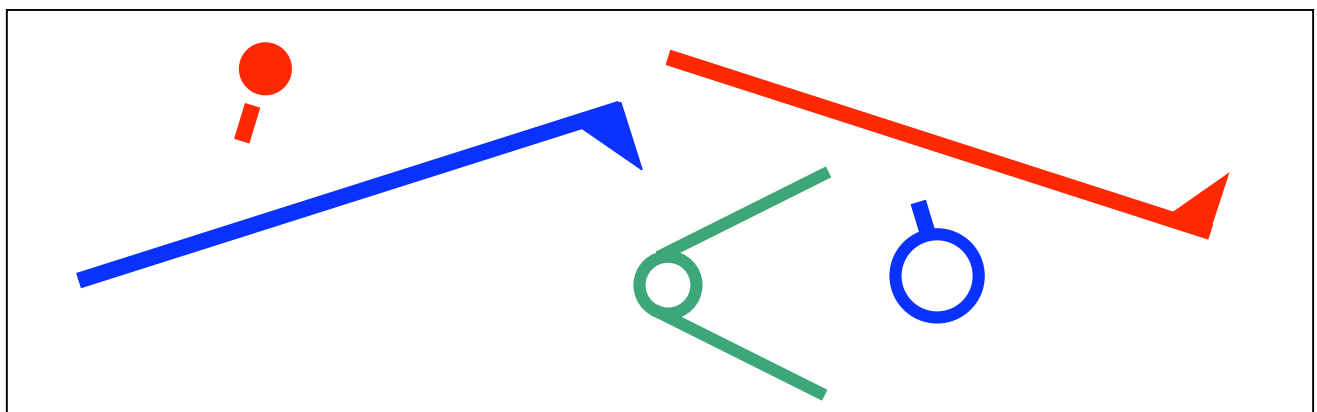
Angular tension spring

Hook

Pivot link

Lower branch

Staple remover in **OPEN** position  
(at rest)



**PRINCIPLES DIAGRAM**

**Technological analysis of the hand beater**

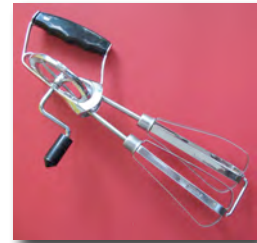
**Global function of the object:**

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**Analysis of the object**

**Observe the object and answer the following questions:**

1- Which is the drive gear in this object?

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2- Which are the driven gears in this object?

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3- Which of these gears turns more quickly?

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4- Does this transmission of movement mechanism allow for the increase or decrease in the rotation speed?

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5- What is the rotation ratio of the hand in relation to the beaters?

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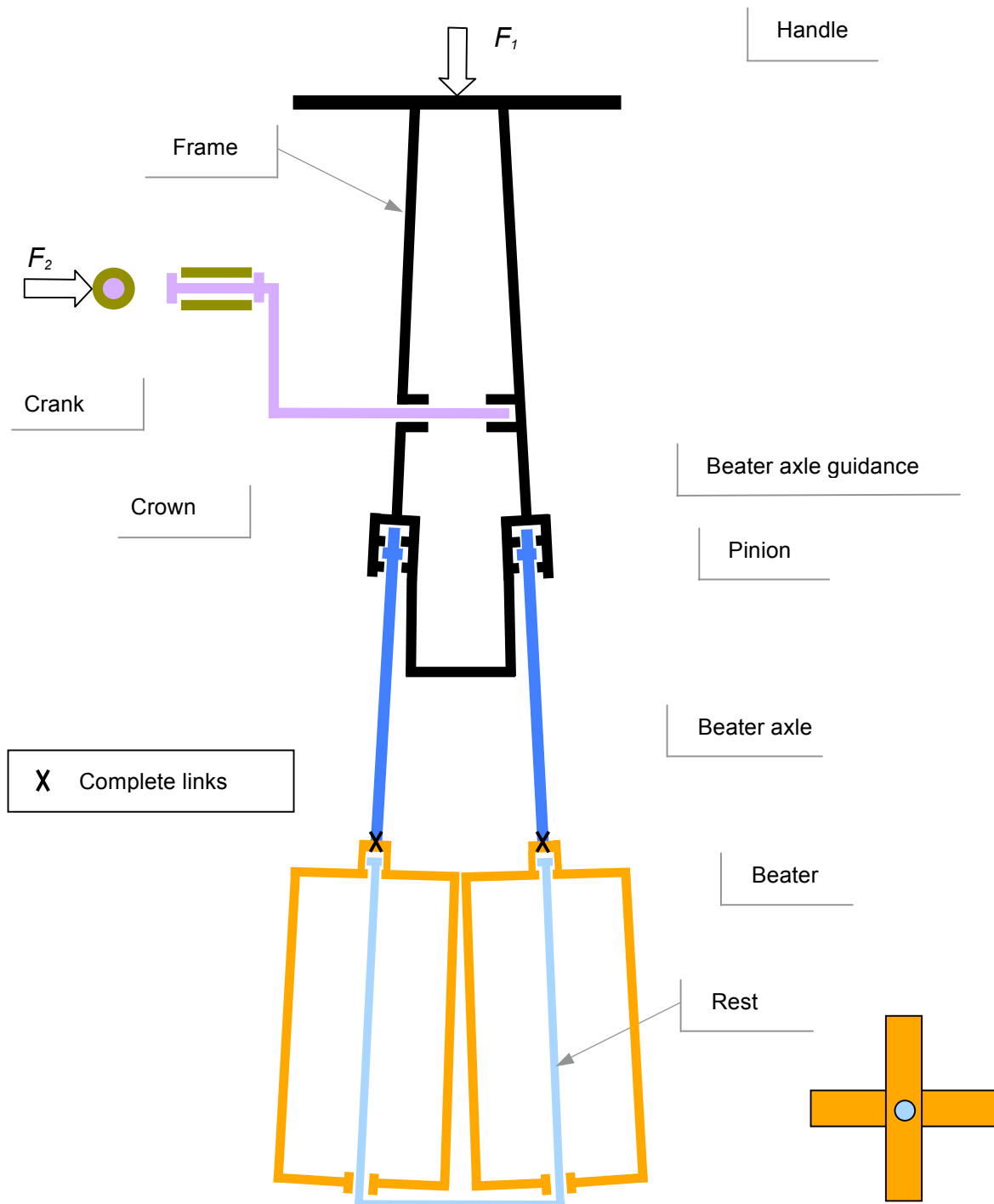
6- In which direction do the beaters turn?

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**Complete the principles diagram of the hand beater**

- 1- Complete the principles diagram by drawing the gears.
- 2- Connect the parts of the object to the elements in the diagram.



**Technological analysis of the dynamometer**

**Global function of the object:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Analysis of the object**

**Observe the object and answer the following questions:**

1- What is the purpose of the upper ring?

\_\_\_\_\_  
\_\_\_\_\_

2- What is the purpose of the hook at the bottom?

\_\_\_\_\_  
\_\_\_\_\_

3- Why is there a spring in this object? What is its purpose?

\_\_\_\_\_  
\_\_\_\_\_

4- What is the purpose of the gradation shown on the cylinder? \_\_\_\_\_

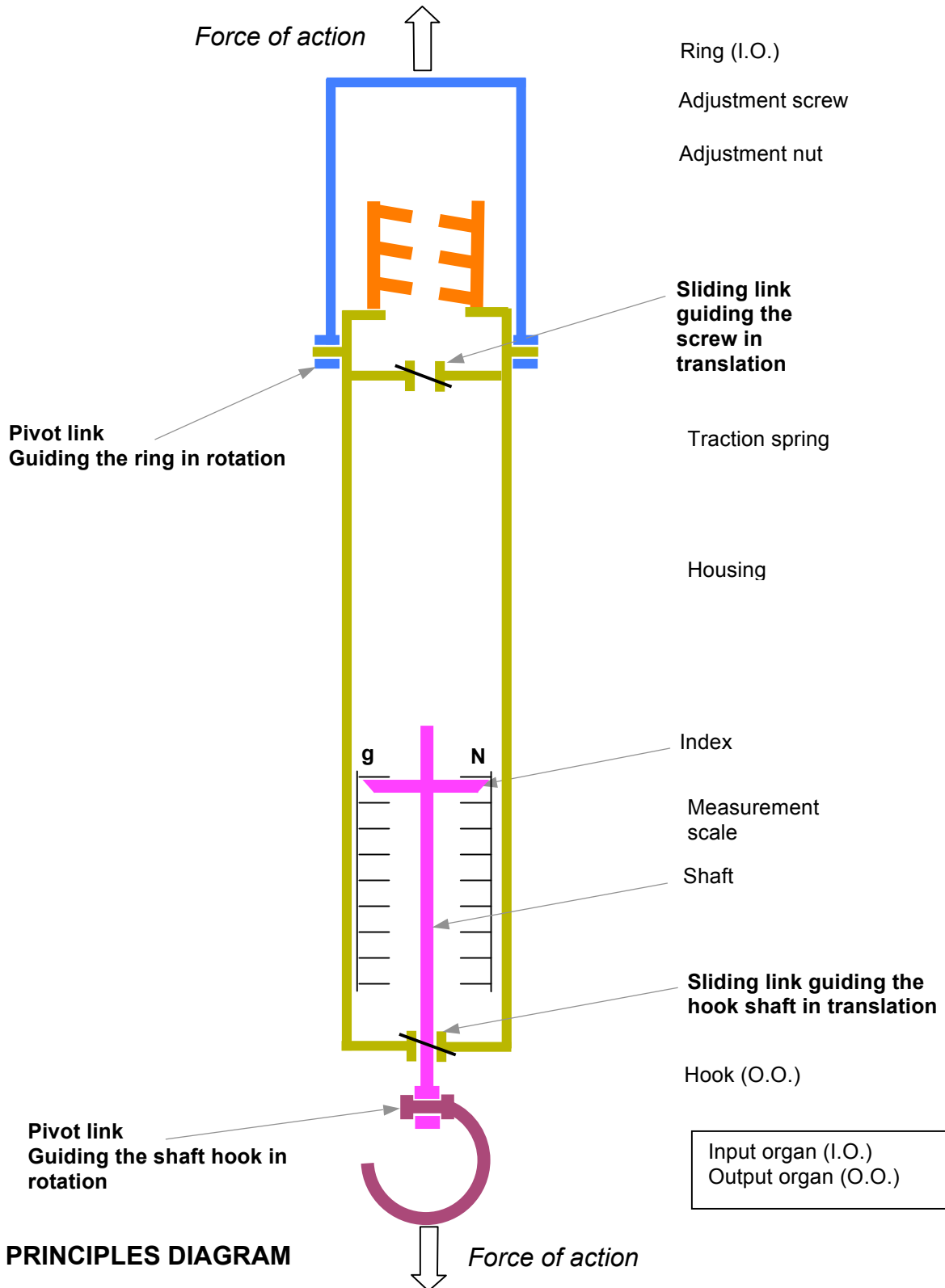
\_\_\_\_\_  
\_\_\_\_\_

5- How does the adjustment system of the dynamometer work?

\_\_\_\_\_  
\_\_\_\_\_

**Complete the principles diagram of the dynamometer**

- 1- Draw the missing elements on the principles diagram.
- 2- Connect the parts of the object to the elements in the diagram.



**PRINCIPLES DIAGRAM**



**Technological analysis of the ice cream scoop**

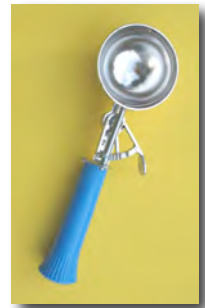
**Global function of the object:**

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**Analysis of the object**

**Observe the object and answer the following questions:**

1- Describe how this object functions.

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2- What is the purpose of the knife?

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3- What role does the recall spring play?

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4- How many teeth are on the rack? On the pinion?

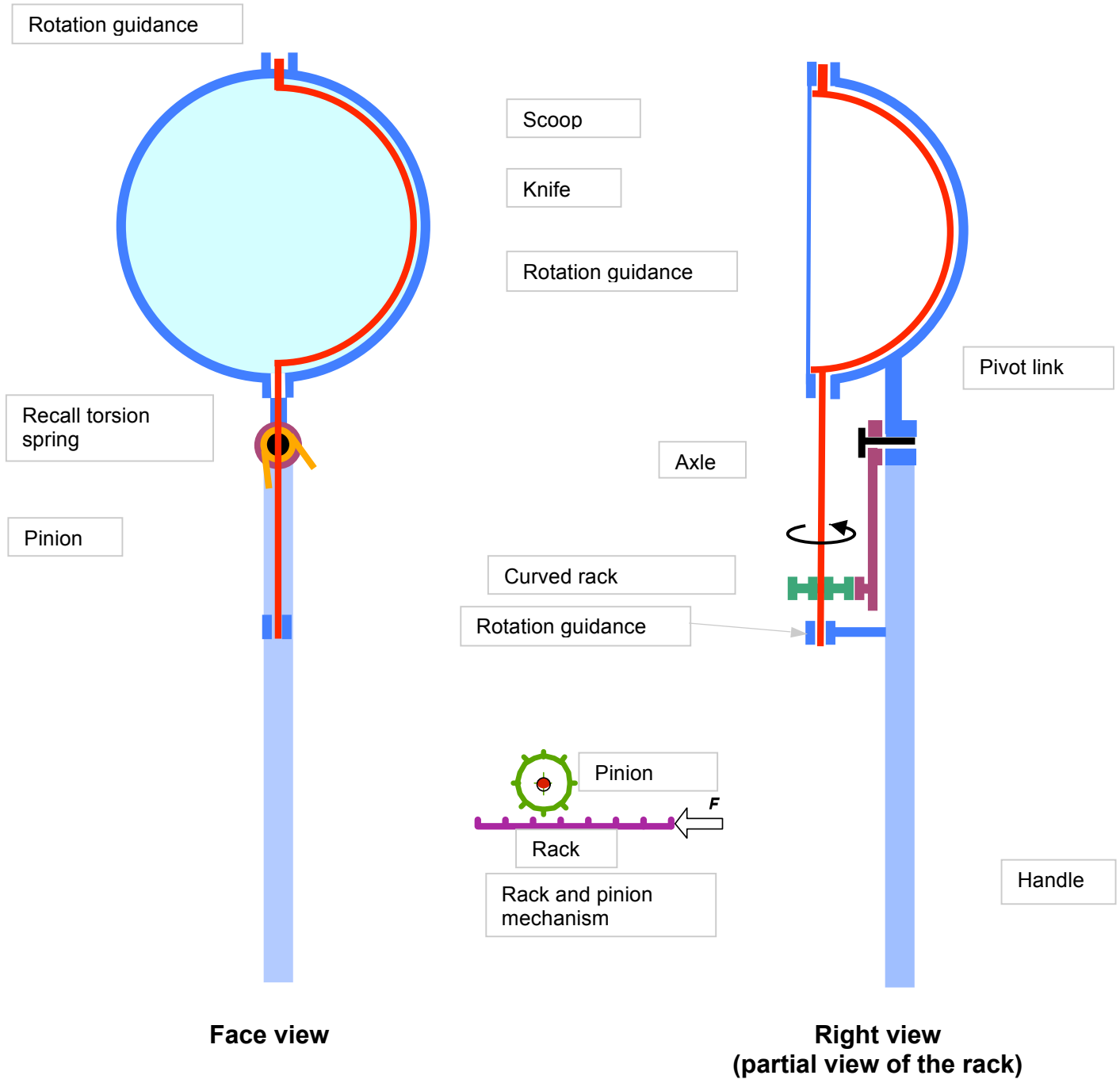
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5- What is the amplitude of movement (in degrees) of the knife?

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**Complete the principles diagram of the ice cream scoop**

- 1- Complete the principles diagram in face view.
- 2- Connect the parts of the object to the elements in the diagram.



**PRINCIPLES DIAGRAM**

**Technological analysis of the cutter compass**

**Global function of the object:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Analysis of the object**

**Observe the object and answer the following questions:**

1- What is the movement that allows the knife to move on the slider?  
\_\_\_\_\_

2- How are the drypoint and the knife affixed to the object?  
\_\_\_\_\_

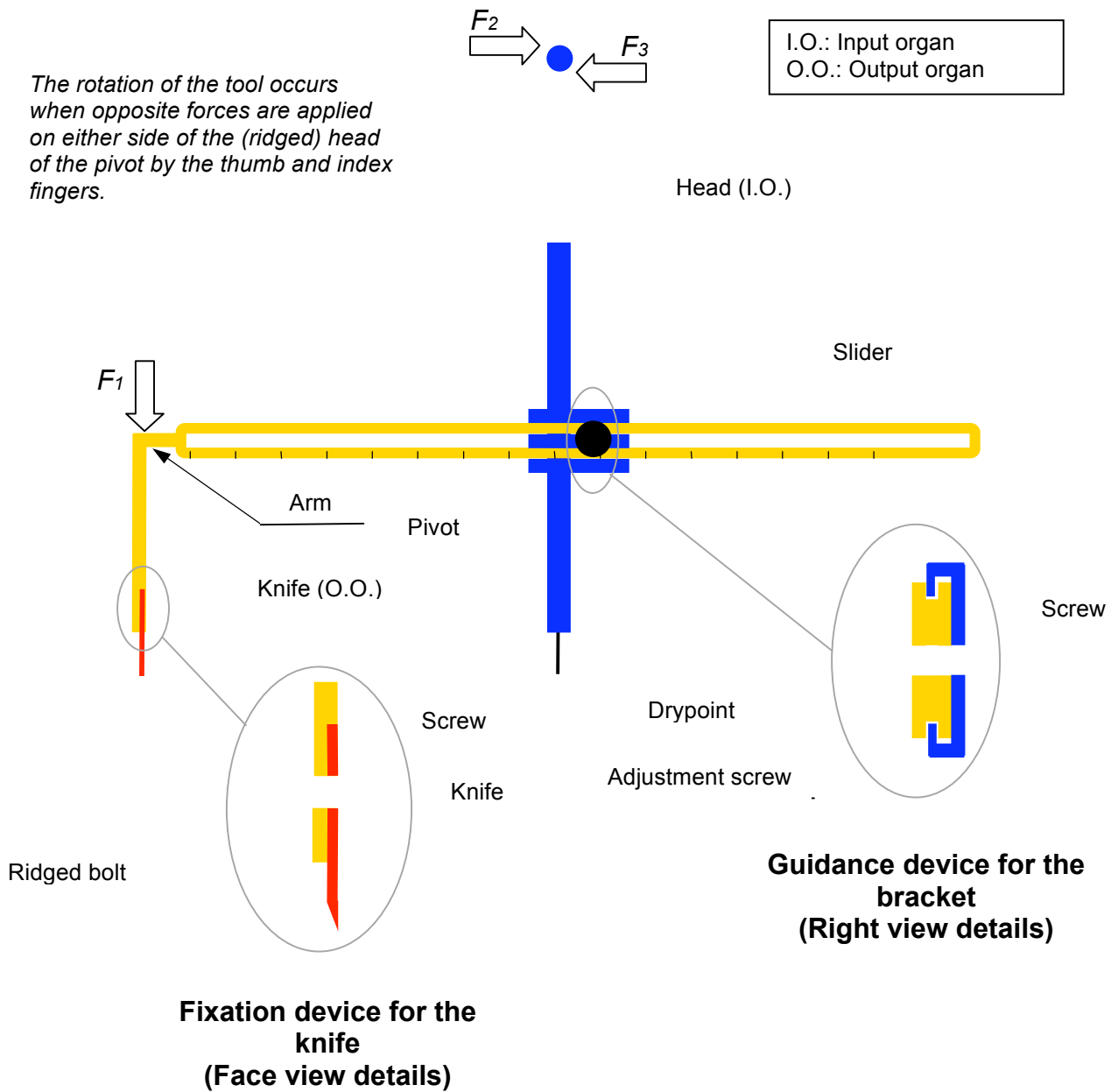
3- What is the purpose of the drypoint?  
\_\_\_\_\_  
\_\_\_\_\_

4- Where is the force of action applied to operate this object?  
\_\_\_\_\_

5- What type of movement is carried out by the screw when it is inserted into the nut?  
\_\_\_\_\_

**Complete the principles diagram of the cutter compass**

- 1- Represent the movements associated to the parts.
- 2- Draw the screw-nut systems of the drypoint and of the knife.
- 3- Connect the parts of the object to the elements in the diagram.



**PRINCIPLES DIAGRAM**

**Technological analysis of the tripod**

**Global function of the object:**

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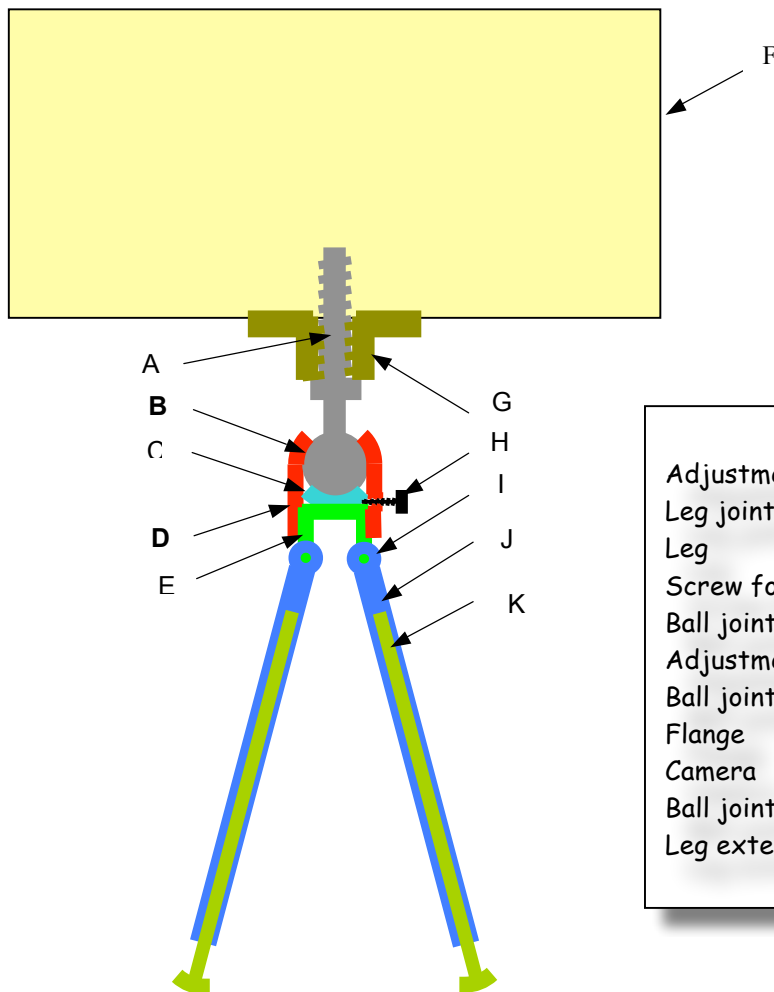


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**Analysis of the object**

Associate the letter to the correct part.

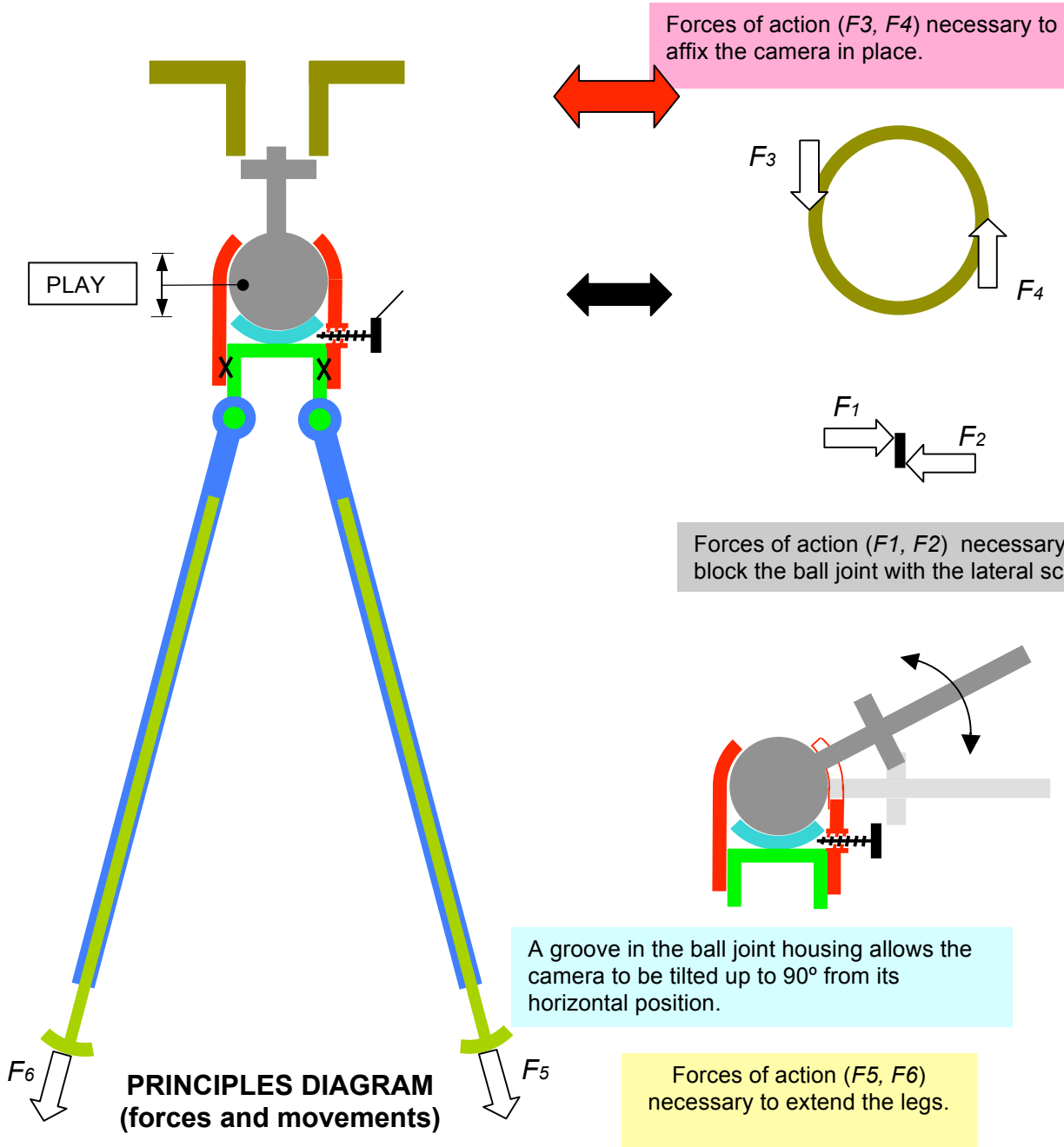


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|-----------------------------|-------|
| Adjustment bolt             | _____ |
| Leg joint                   | _____ |
| Leg                         | _____ |
| Screw for camera            | _____ |
| Ball joint                  | _____ |
| Adjustment shim             | _____ |
| Ball joint housing          | _____ |
| Flange                      | _____ |
| Camera                      | _____ |
| Ball joint adjustment screw | _____ |
| Leg extension               | _____ |

**Complete the principles diagram of the tripod**

1- Place the movement symbols on the diagram.

2- Draw the missing screw-nut system.



**Technological analysis of the articulated toy**

**Global function of the object:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Analysis of the object**

**Observe the object and answer the following questions:**

1- Which element in the object allows the dinosaur head to lift when the trigger is released?

\_\_\_\_\_

2- What type of movement is associated to the string when we pull the trigger?

\_\_\_\_\_

3- Where is the torsion spring affixed?

\_\_\_\_\_

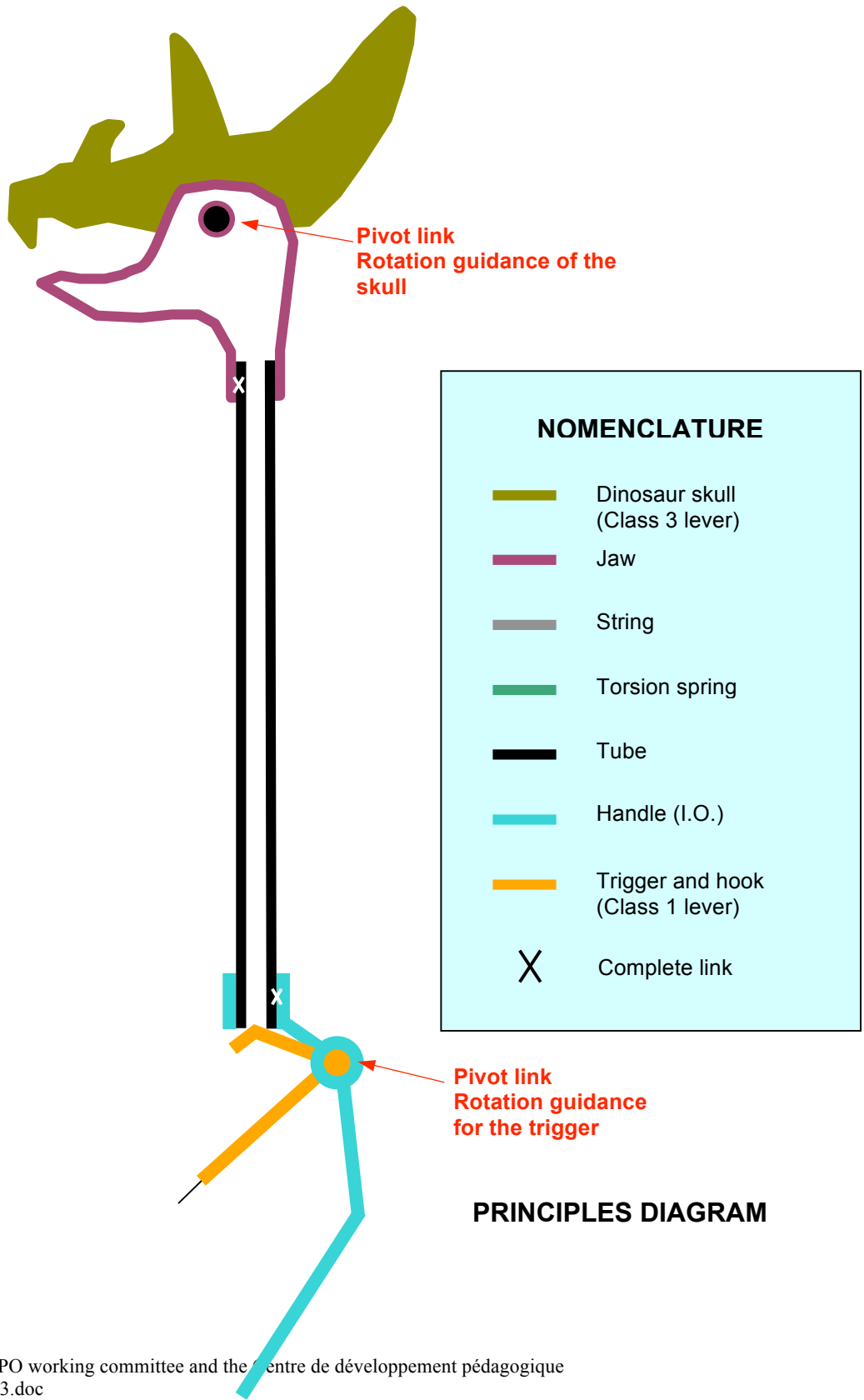
4- Which part of the dinosaur head is mobile? Which is fixed?

\_\_\_\_\_

5- Explain the operating principle of the object.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Complete the principles diagram of the articulated toy**  
1- Complete the principles diagram.





**Technological analysis of the meat grinder**

**Global function of the object:**

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**Analysis of the object**

**Observe the object and answer the following questions:**

1- How many teeth are in the drive gear contained in this object?

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2- How many teeth are in the driven gear contained in this object?

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3- What is the purpose of this gear?

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4- While observing the worm drive in the grinder, you will notice that it contains a "decreasing step". Explain what a "decreasing step" is and emit an hypothesis as to its purpose in the meat grinder.

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5- What is the purpose of the grooves in the conduit?

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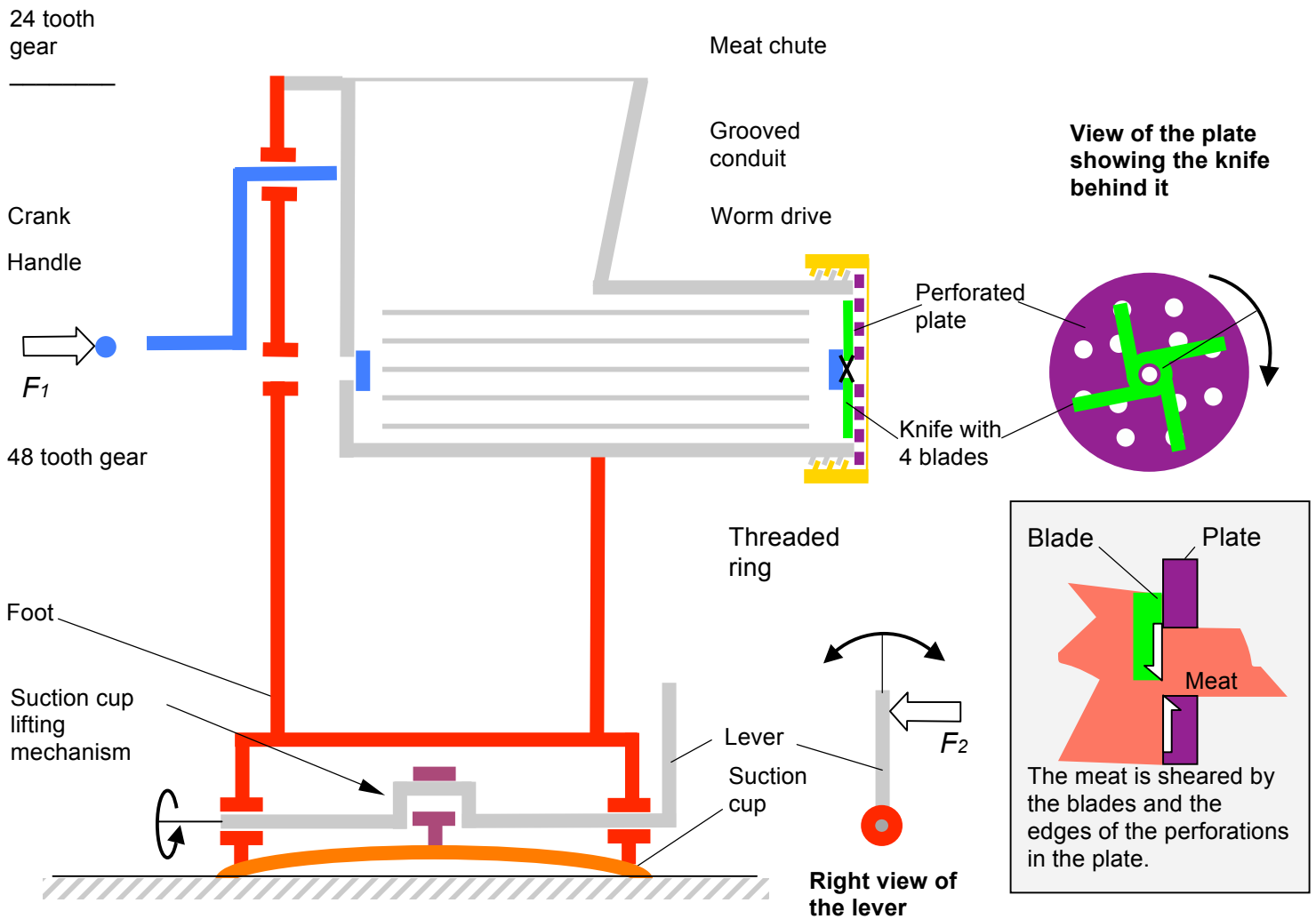
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6- How is the grinder affixed to the work surface?

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**Complete the principles diagram of the meat grinder**

- 1- Represent the gears.
- 2- Represent the worm drive.
- 3- Connect the parts of the object to the elements in the diagram.



**Technological analysis of the salad spinner**

**Global function of the object:**

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**Analysis of the object**

**Observe the object and answer the following questions:**

1- Describe the operation of the transmission of movement mechanism in this object.

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2- How is the water extracted from the lettuce leaves?

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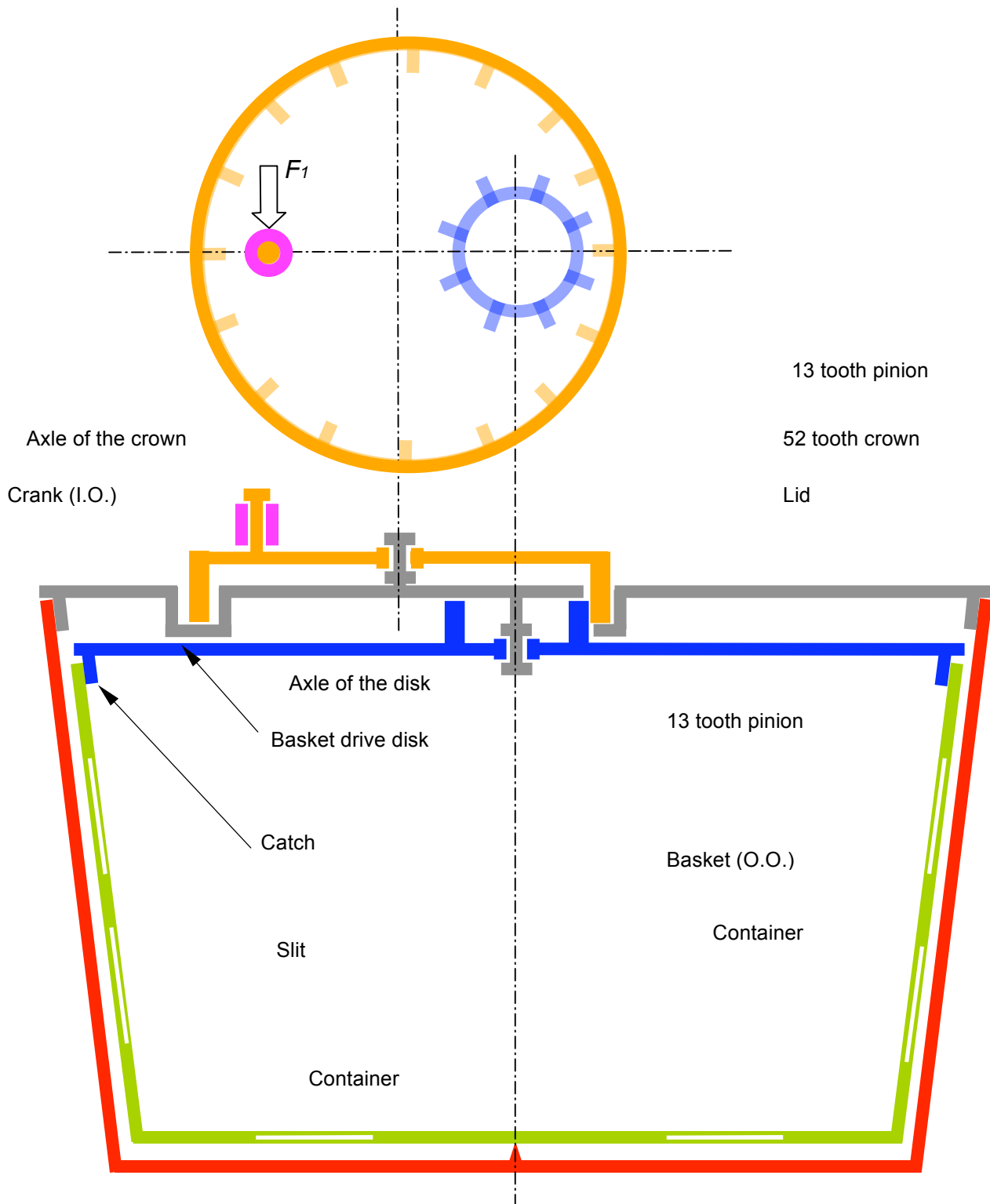
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Complete the principles diagram of the salad spinner

1- Connect the parts of the object to the elements in the diagram.



**Technological analysis of the glue stick**

**Global function of the object:** \_\_\_\_\_

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**Analysis of the object:**

**Observe and disassemble the glue stick**

1- Specify where and how the seal on the glue stick is ensured.

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2- Describe the mechanism that allows the basket to lift in the tube.

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3- What is the shape of the glue reservoir?

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4- What element of the reservoir guides the glue when it is pushed upwards?

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Complete the principles diagram of the glue stick

1- Complete the principles diagram.

Closed (glue inside)

Open (glue out)

