

MECHANISMS

**THERE ARE FOUR MAIN
USES OF MACHINES:**

- 1 — TRANSFORM ENERGY**
- 2 — TRANSFER ENERGY**
- 3 — MULTIPLY AND/OR
CHANGE**
- 4 — DIRECTION OF A FORCE
— MULTIPLY SPEED**

SIX SIMPLE MACHINES

1 — LEVERS

2 — PULLEYS

3 — WHEEL AND AXLE

4 — INCLINED PLANE AND WEDGES

5 — SCREWS

6 — GEARS

SIX SIMPLE MACHINES

1 — LEVERS

2 — PULLEYS

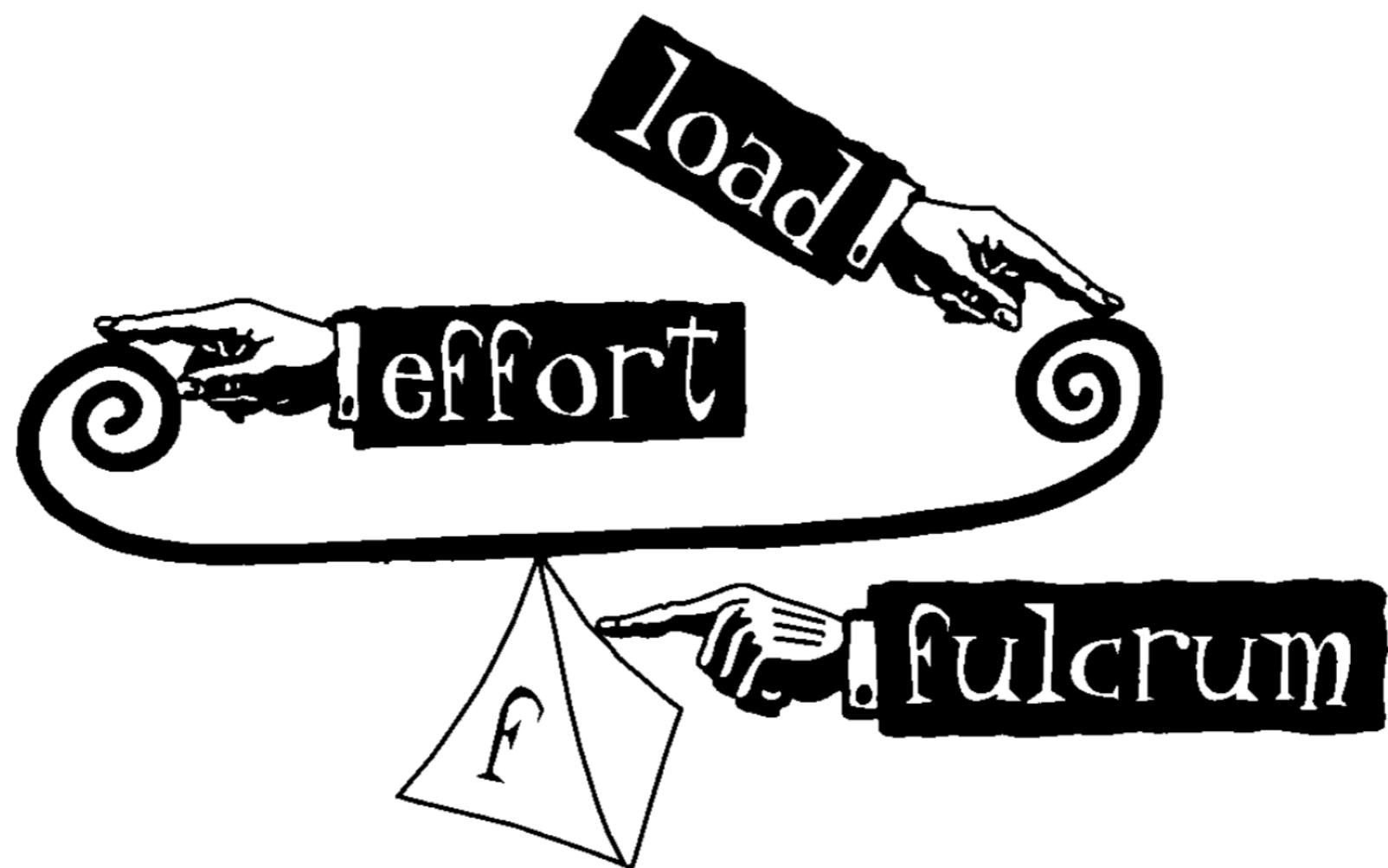
3 — WHEEL AND AXLE

4 — INCLINED PLANE AND WEDGES

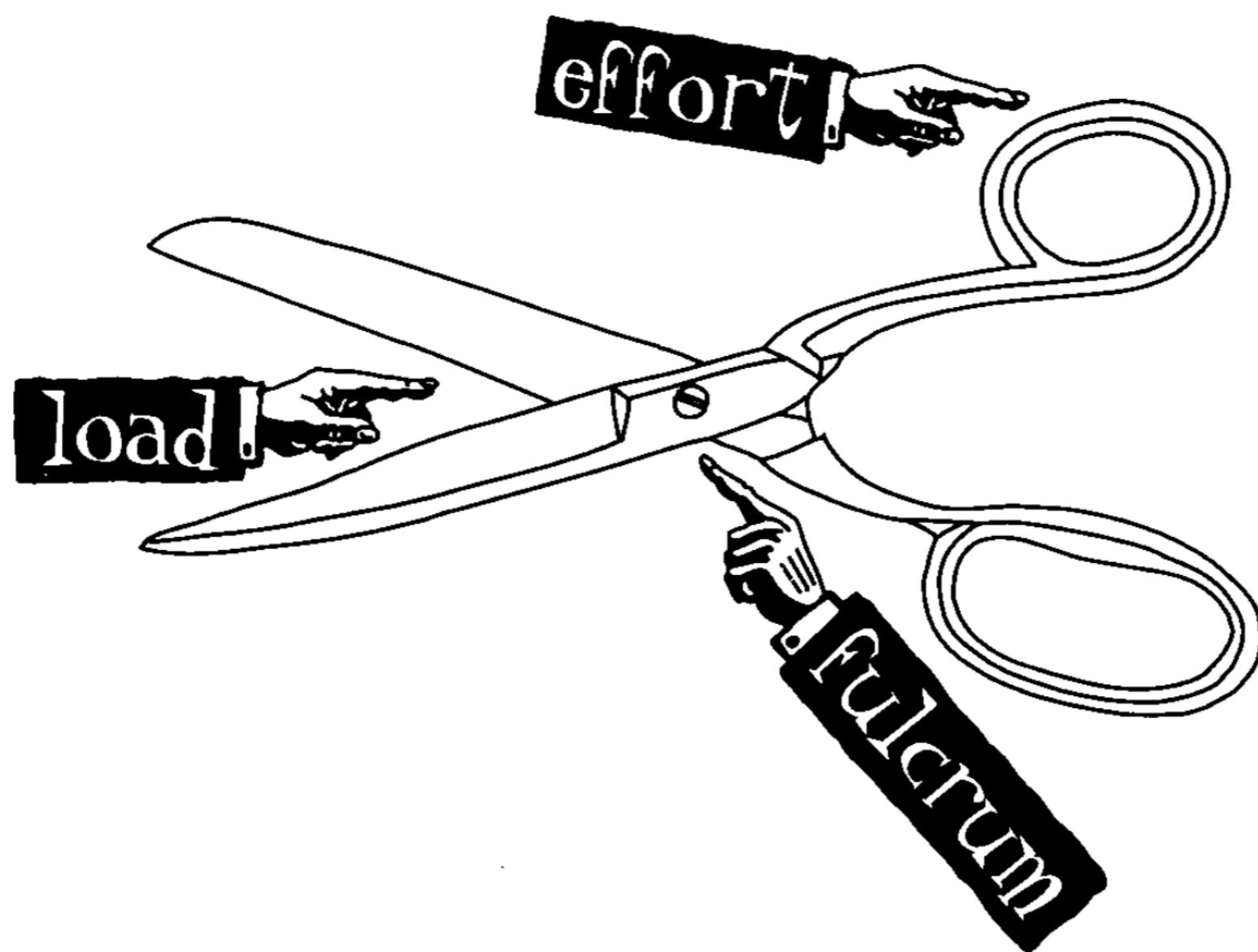
5 — SCREWS

6 — GEARS

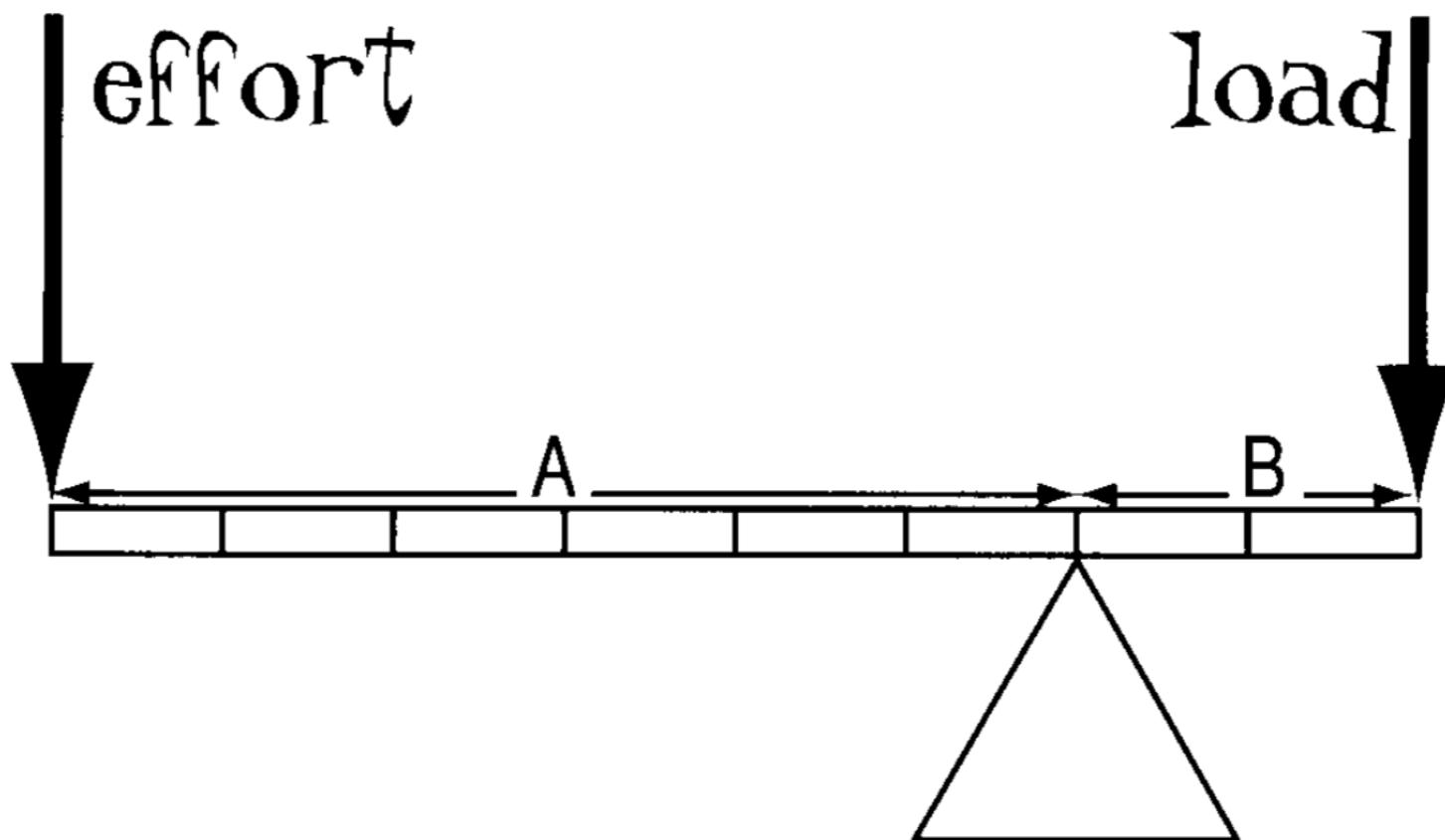
LEVER (First-Order)



LEVER (First-Order)



MECHANICAL ADVANTAGE

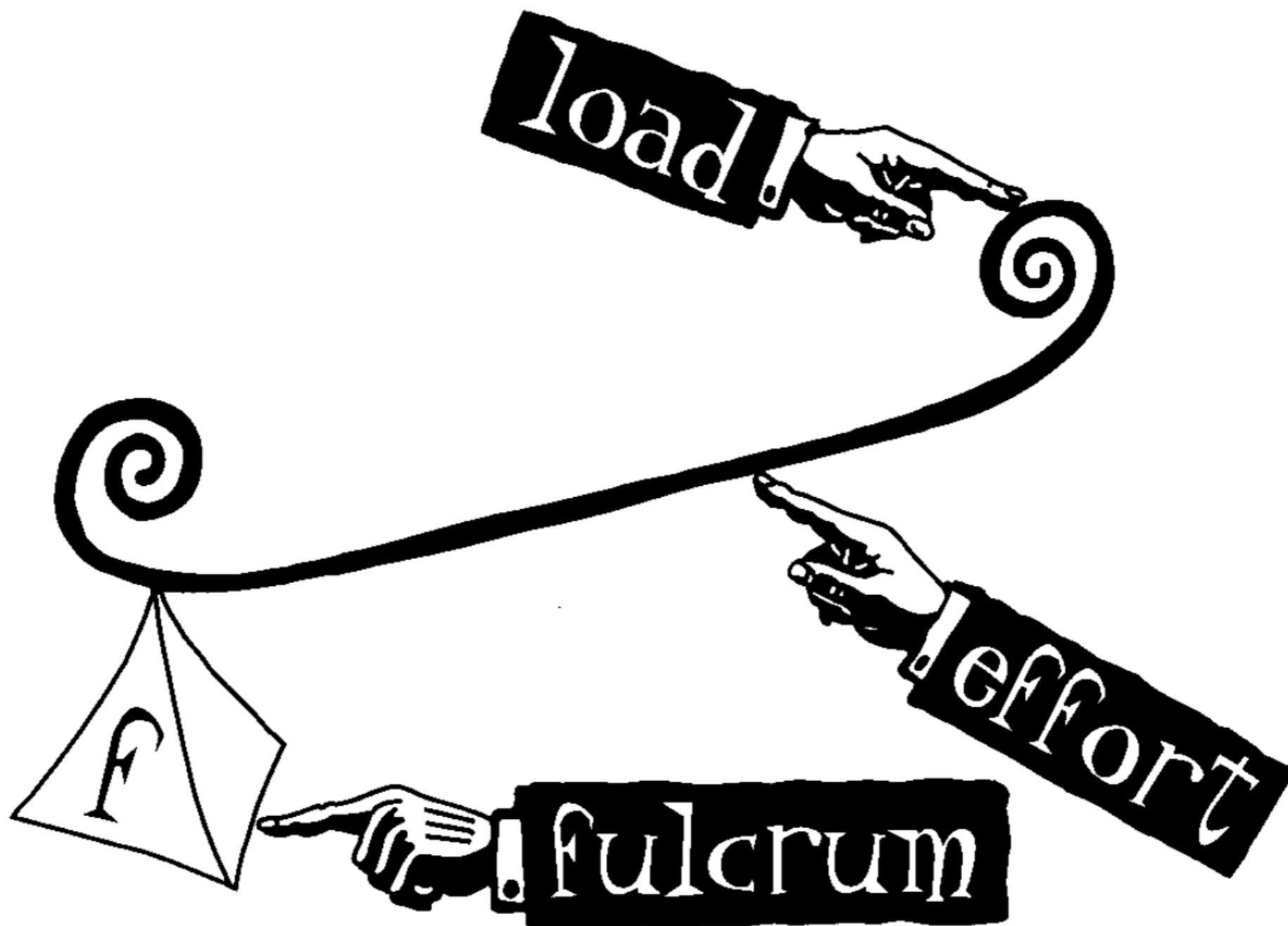


$$\text{MECHANICAL ADVANTAGE} = \frac{\text{LOAD}}{\text{EFFORT}}$$

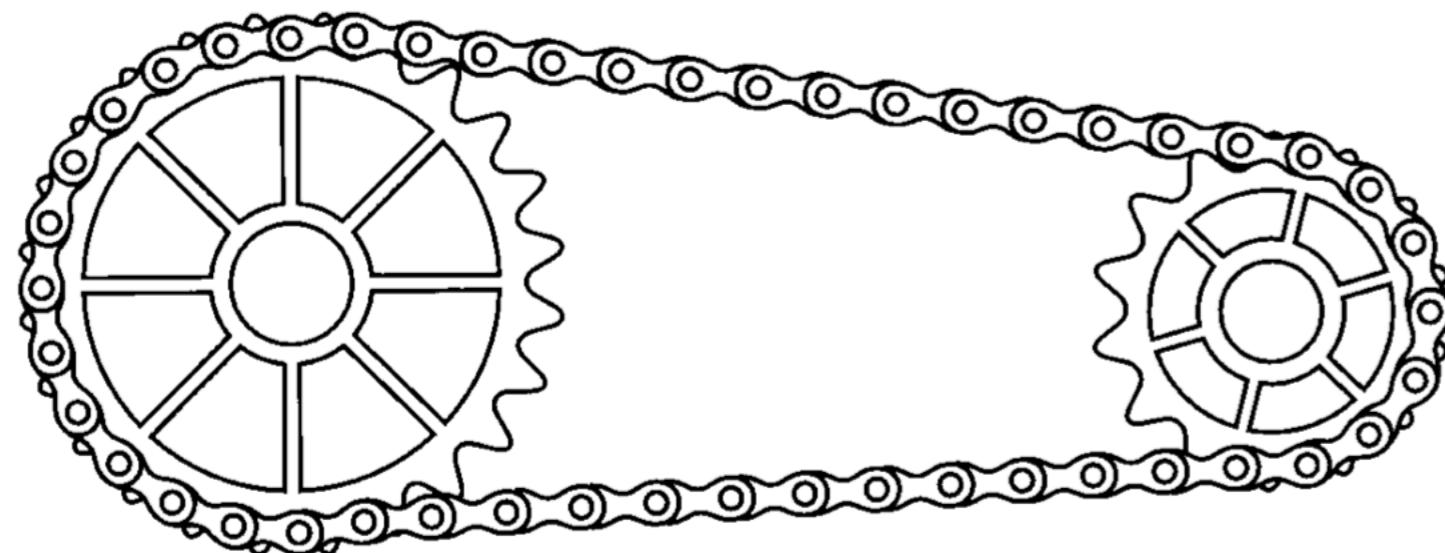
LEVER (Second-Order)



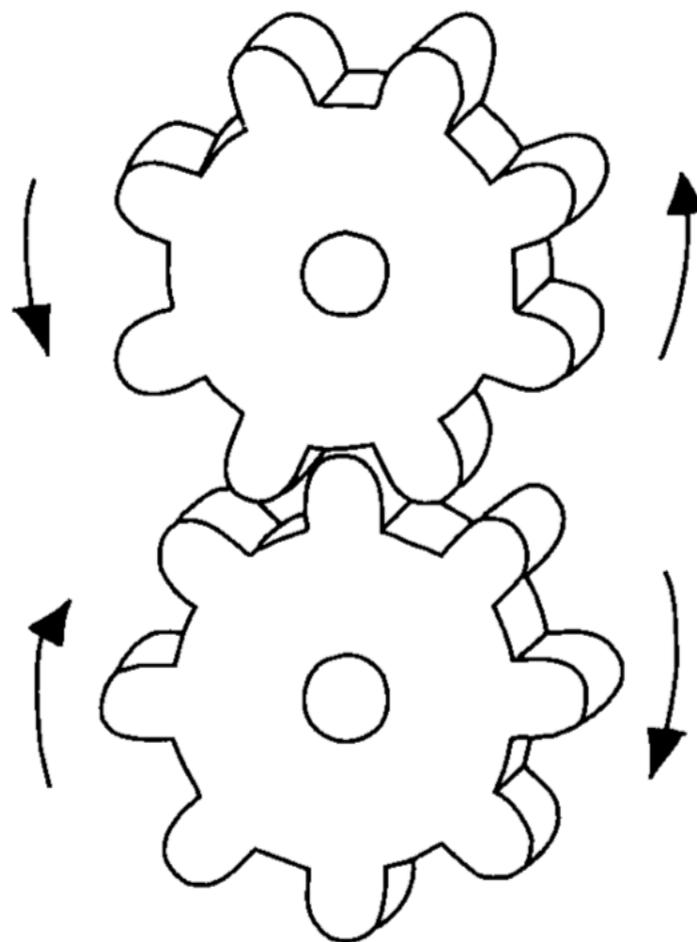
LEVER (Third-Order)



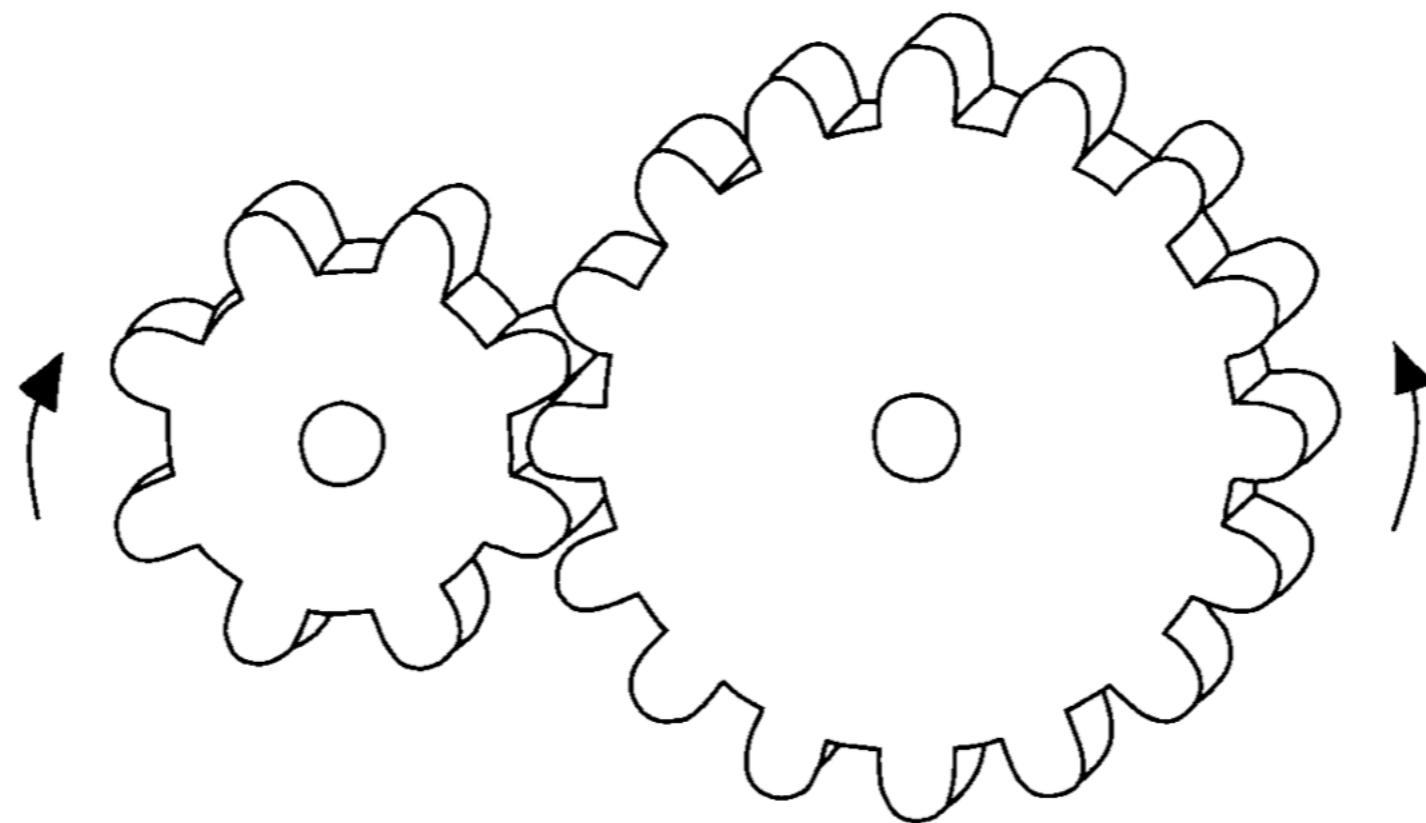
GEARS (Positive Drive)

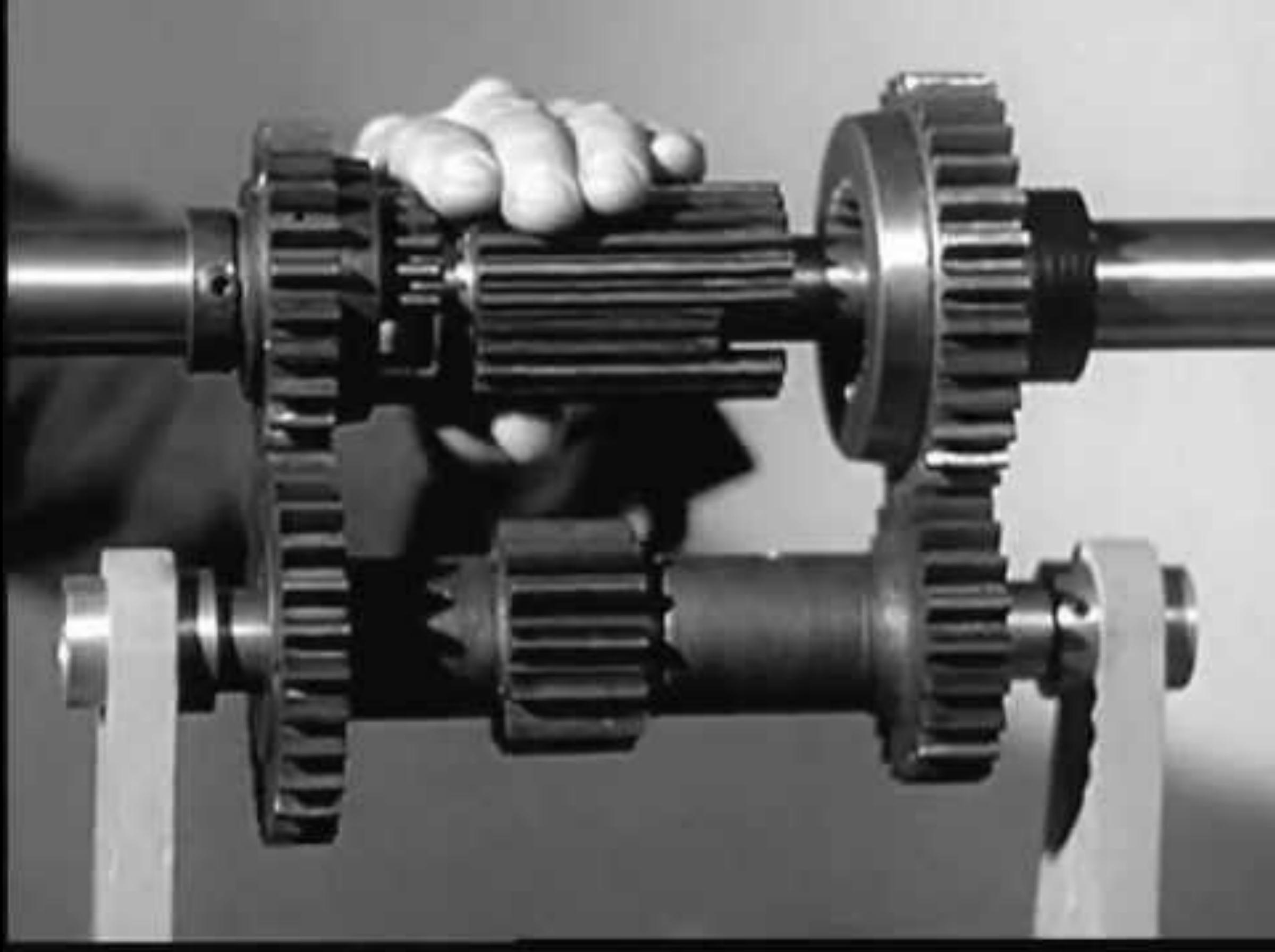


GEARS **(Spur)**



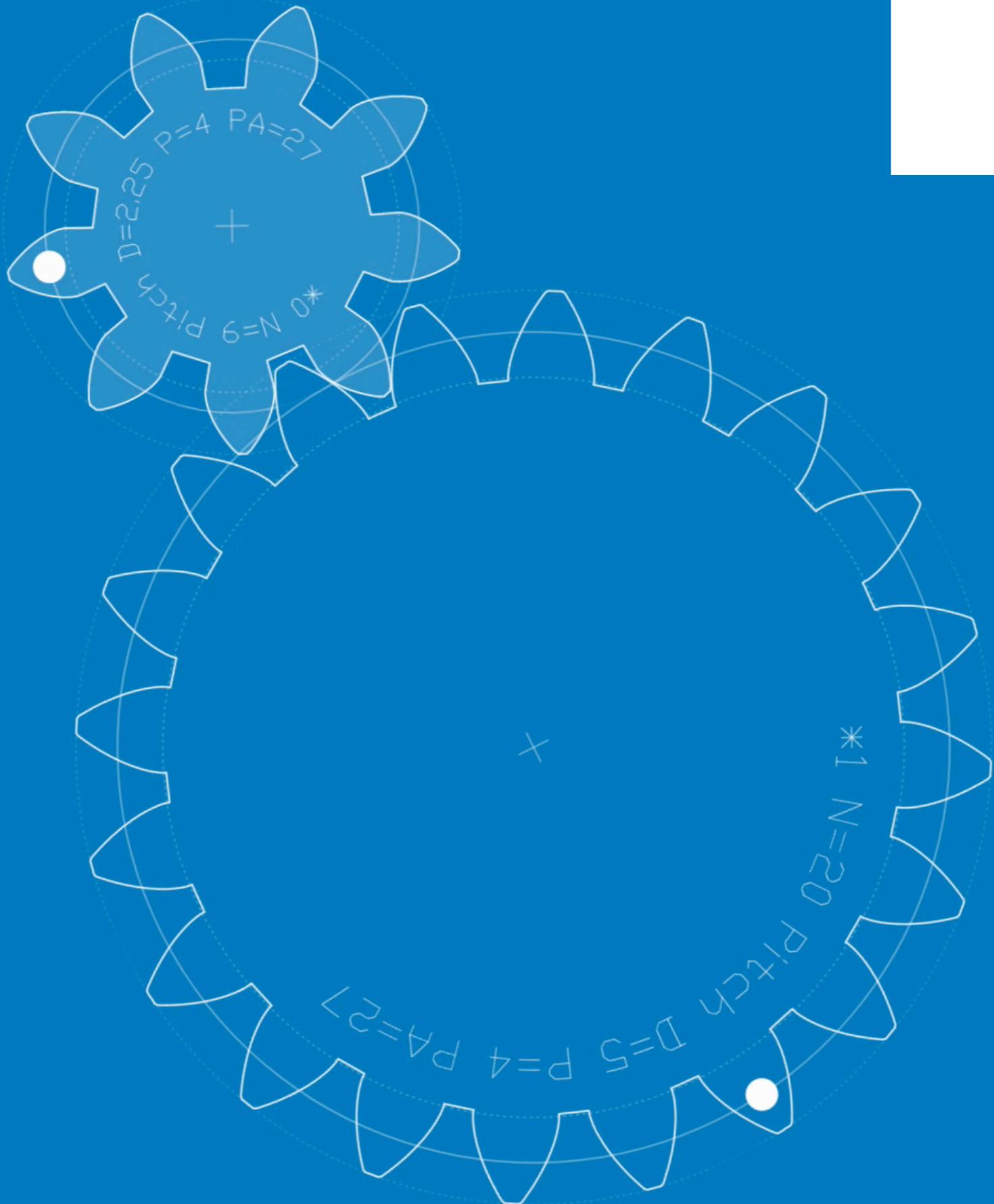
GEARS **(Spur)**





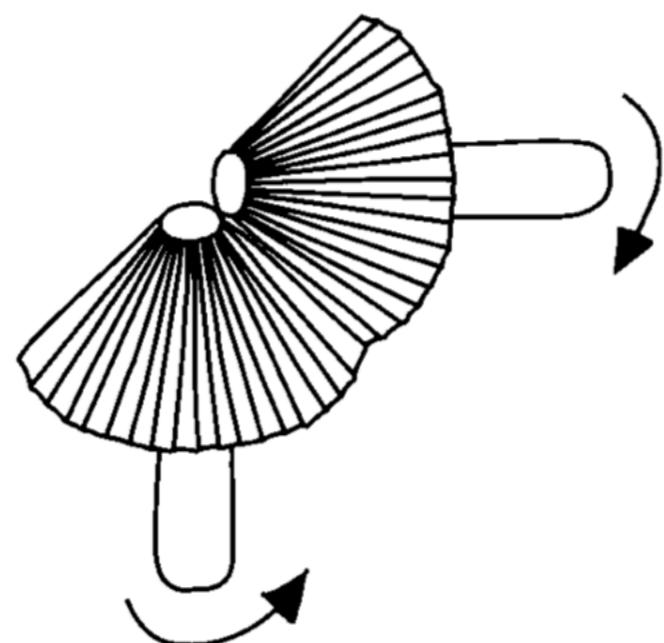
Spinning Levers
1936

GEARS (Spur)



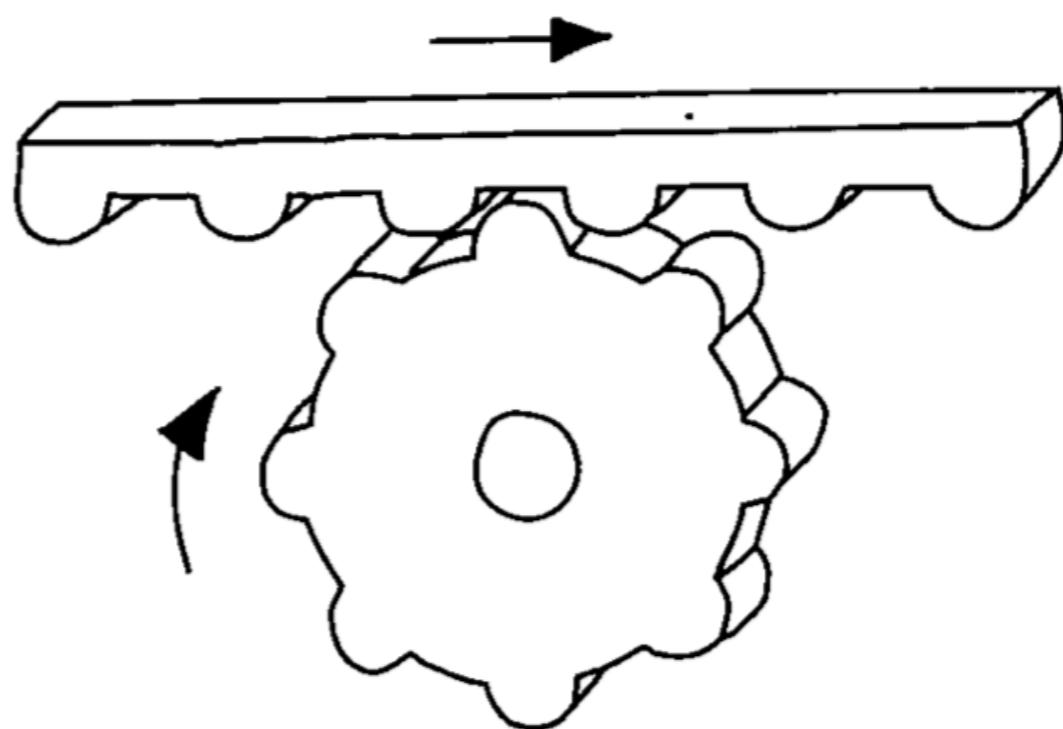
GEARS

(Bevel Gear)



GEARS

(Rack-and-Pinion)

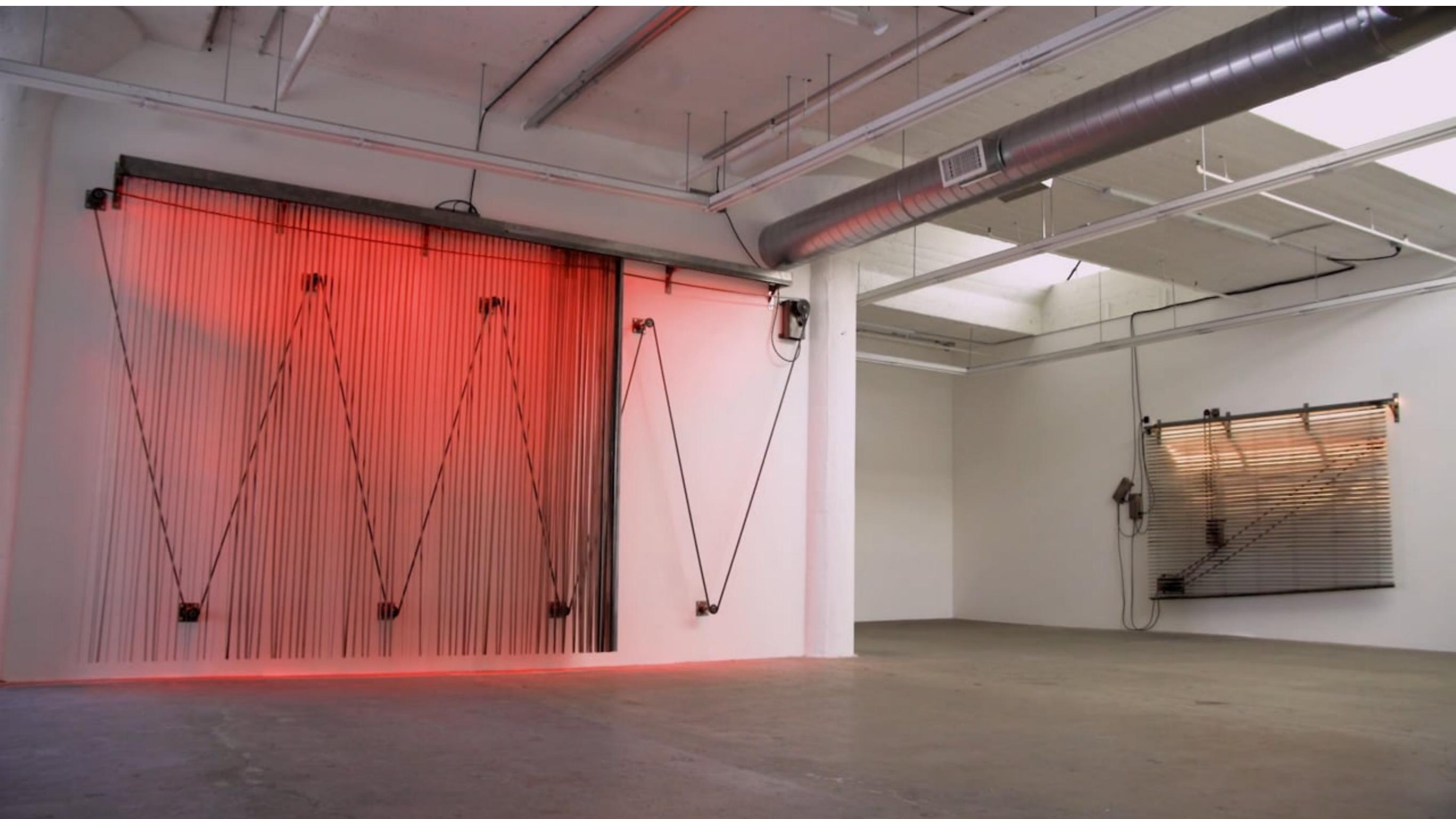




Machine with Concrete

Arthur Ganson

19??

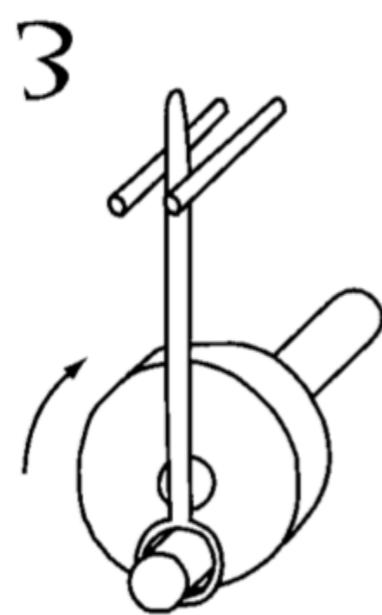
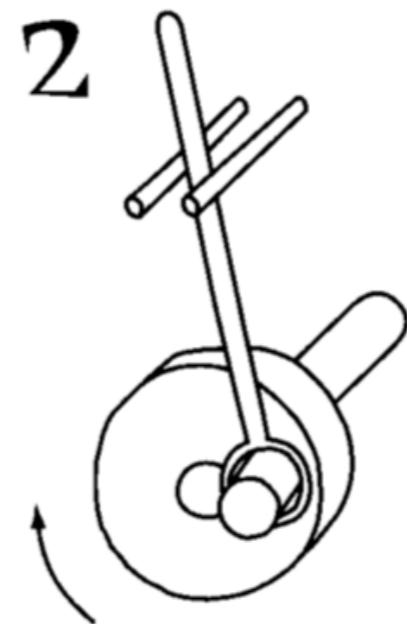
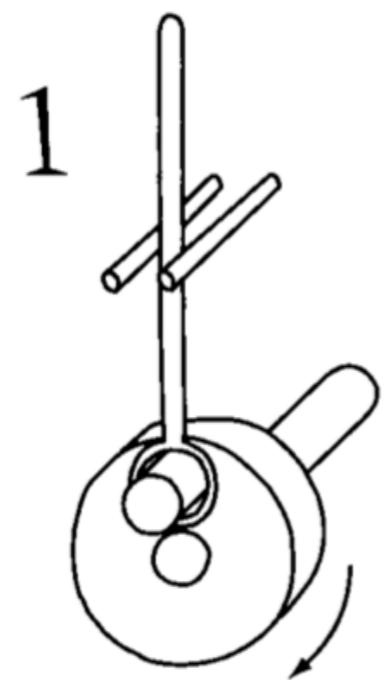


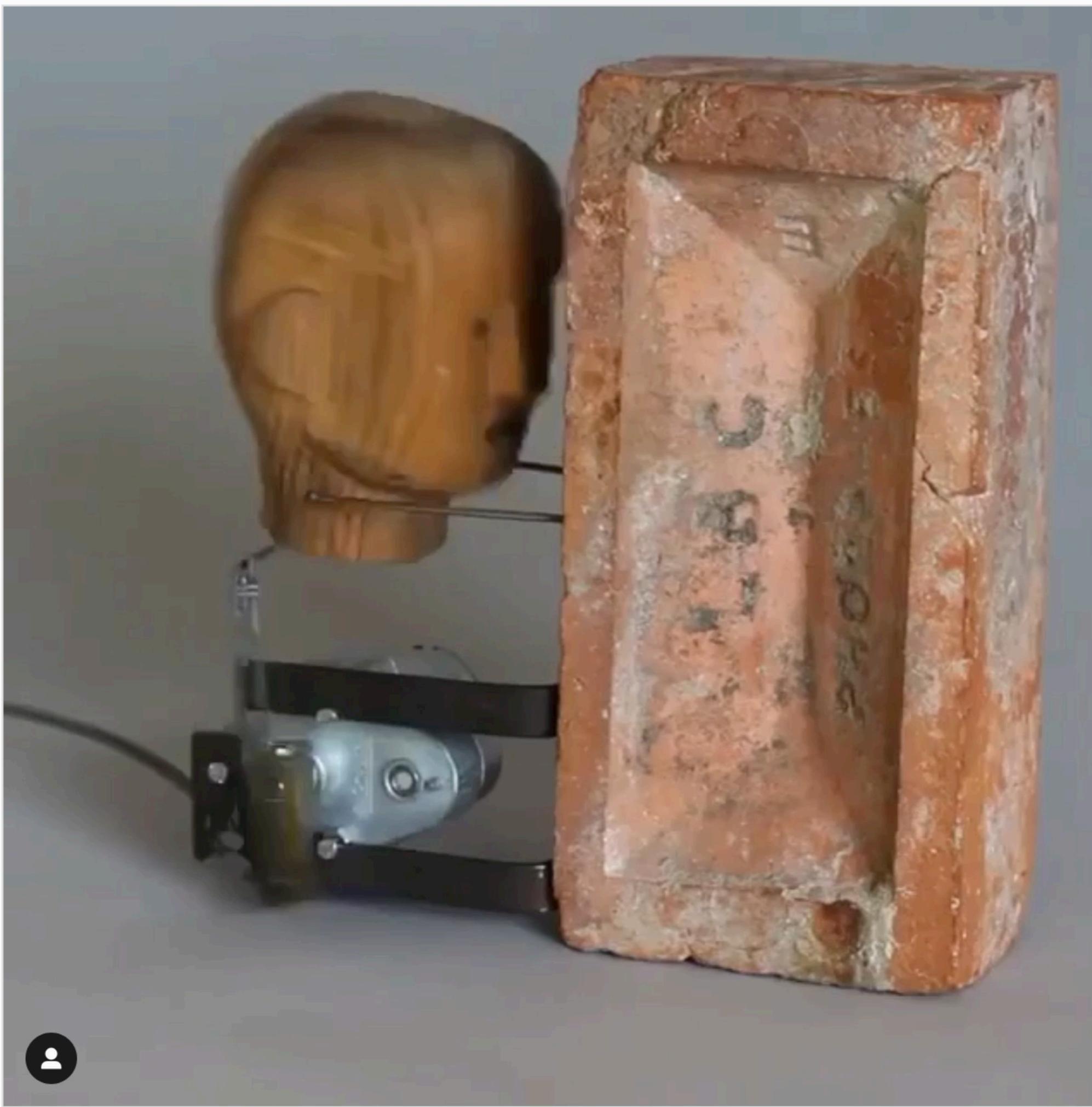
Five More Minutes Please

Stephen Neidich

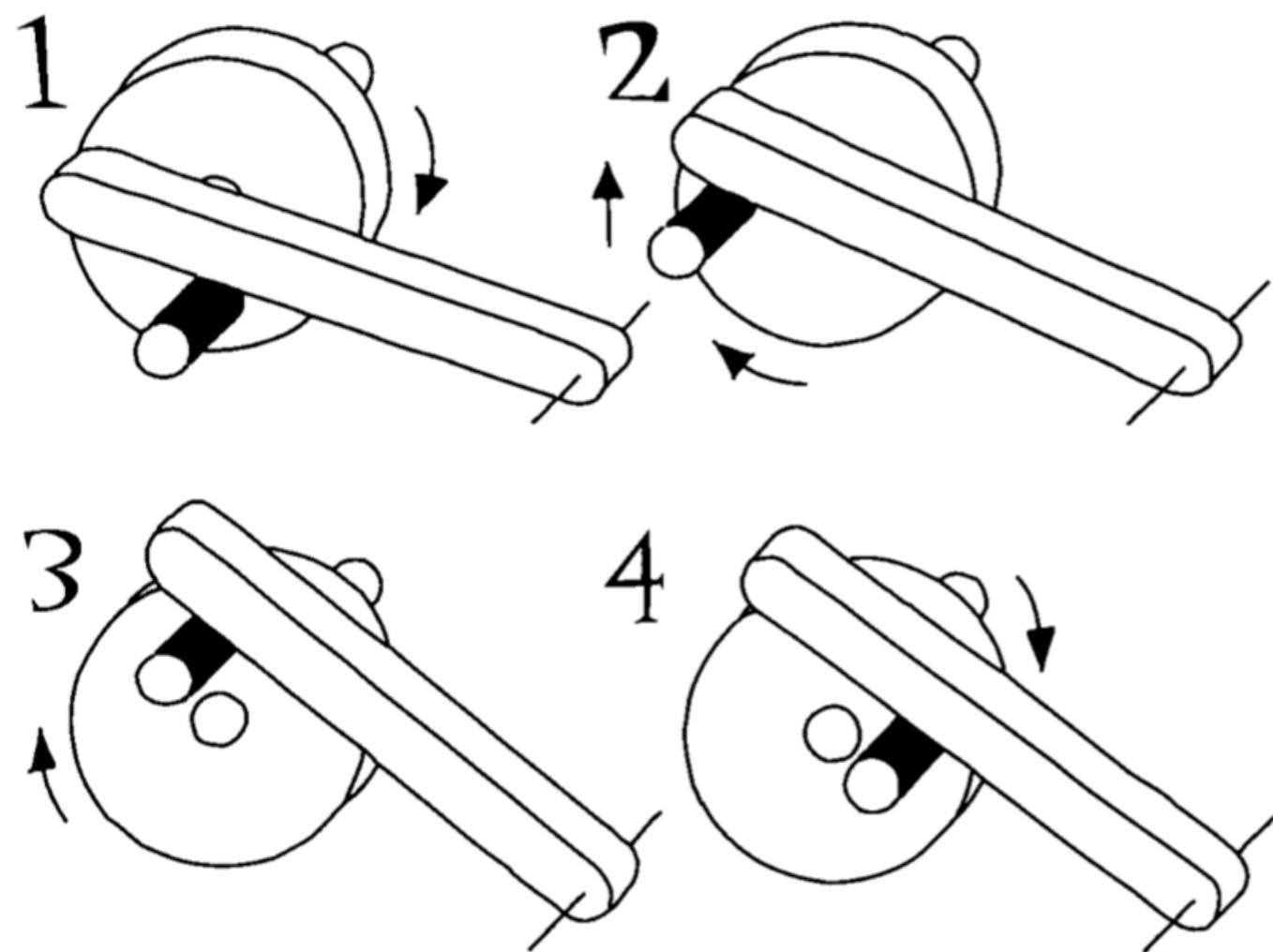
2021

CRANKS

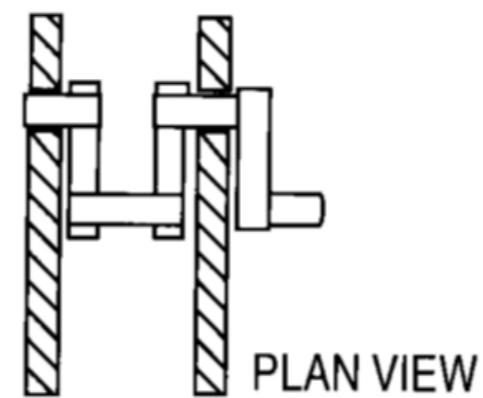
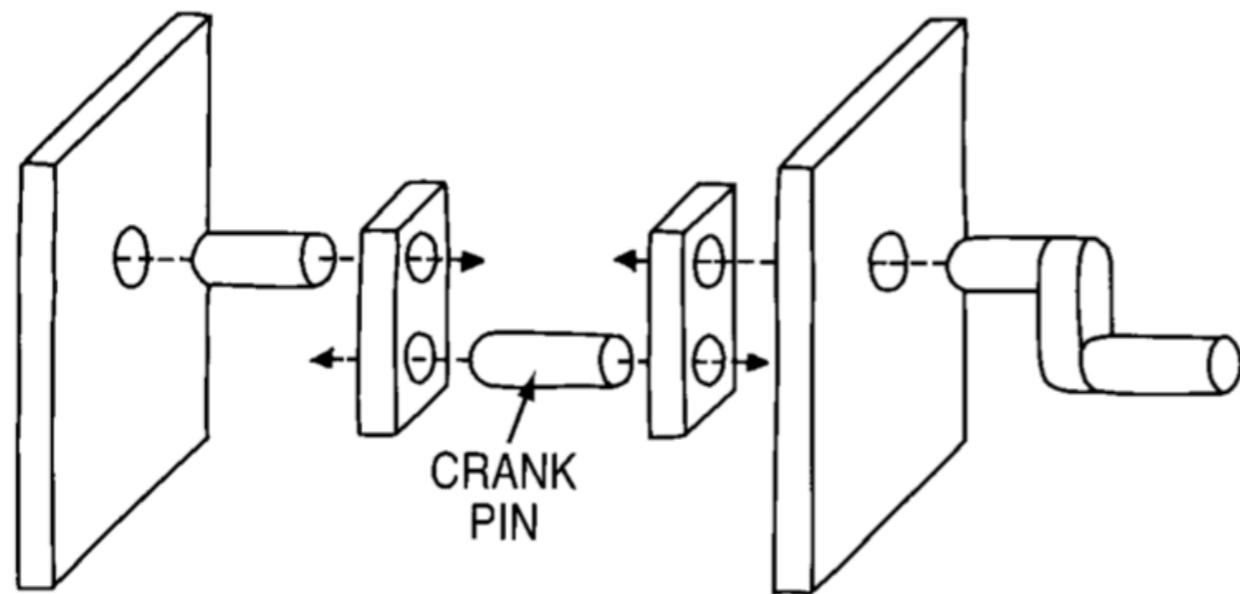




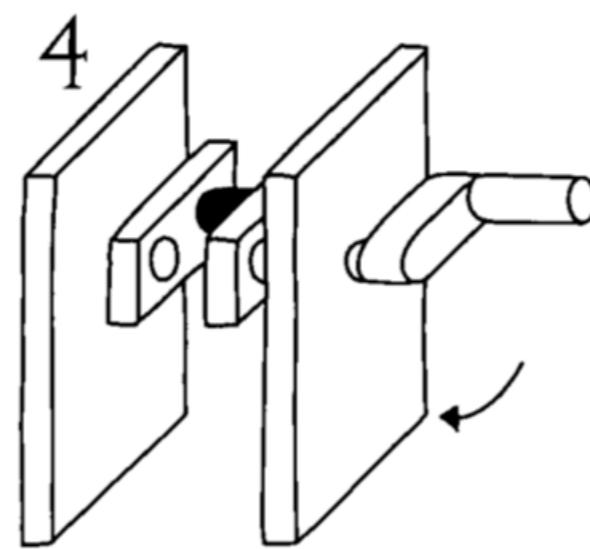
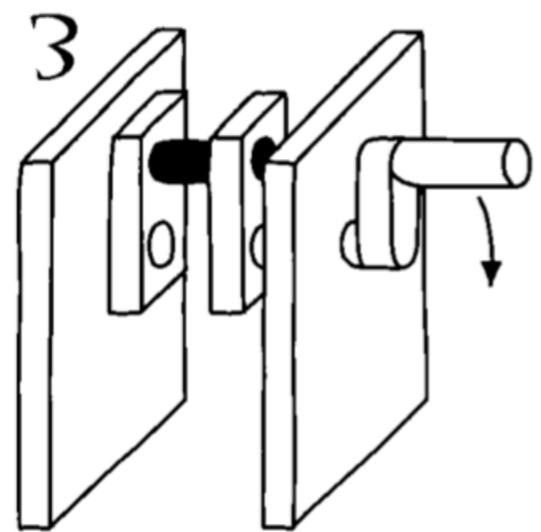
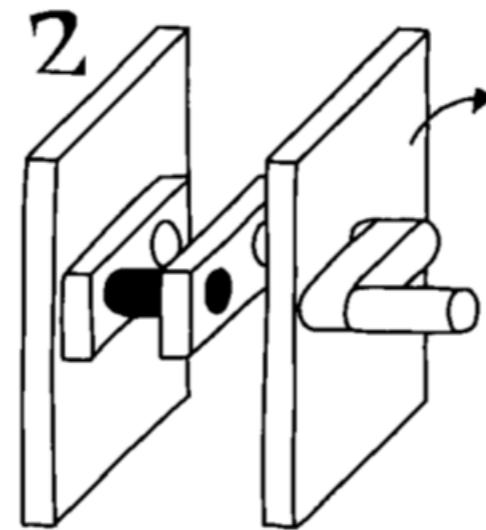
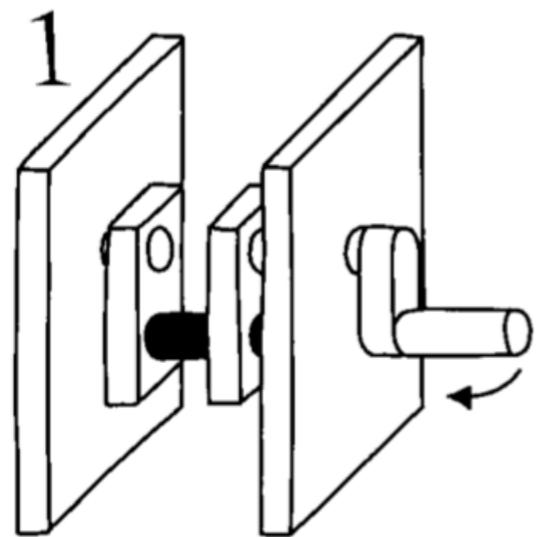
CRANKS



CRANKS



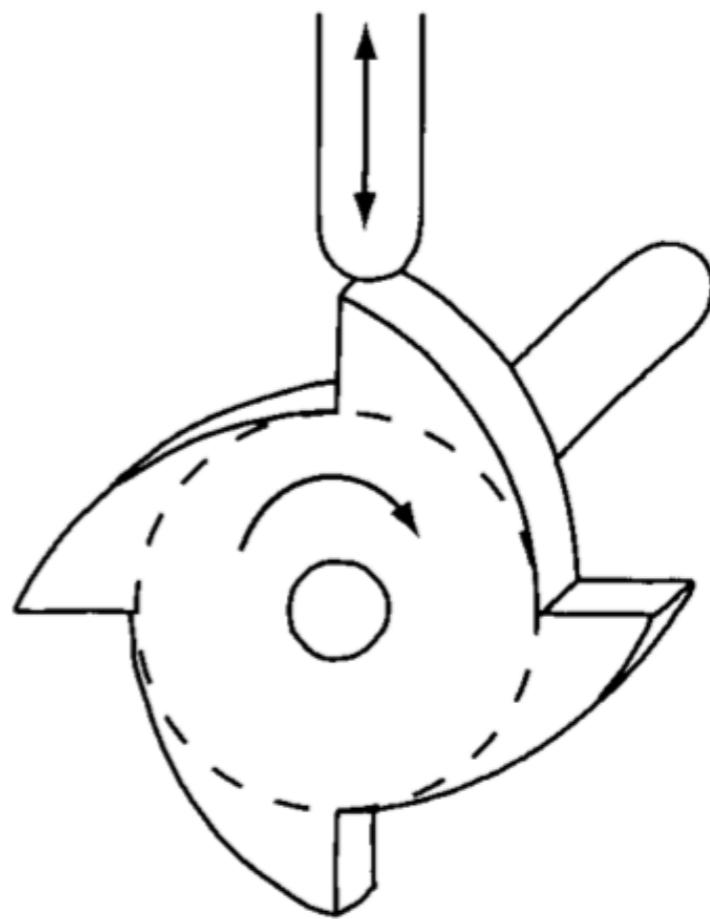
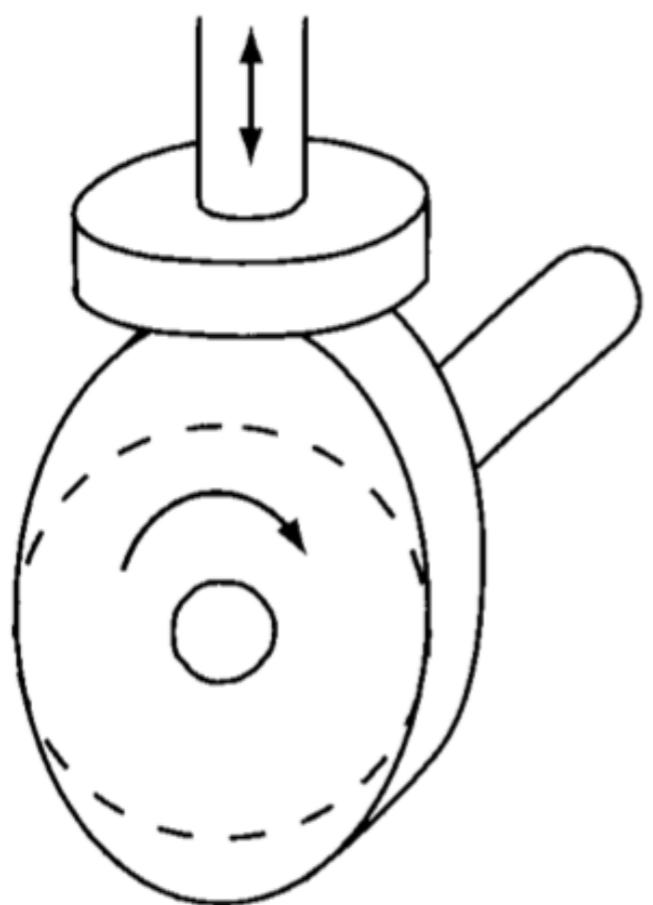
CRANKS



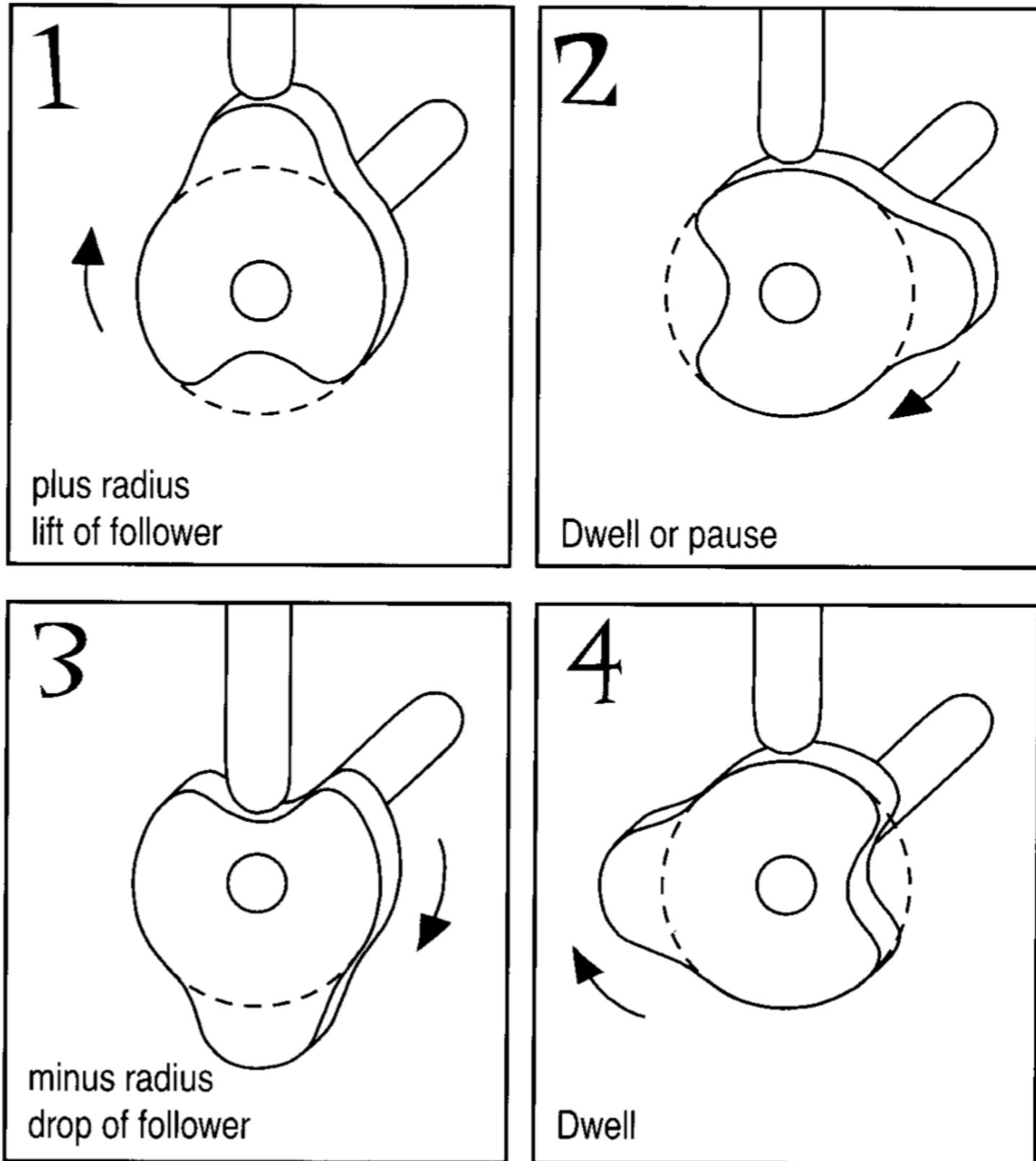


Mr. 808
Sonicrobots
2016

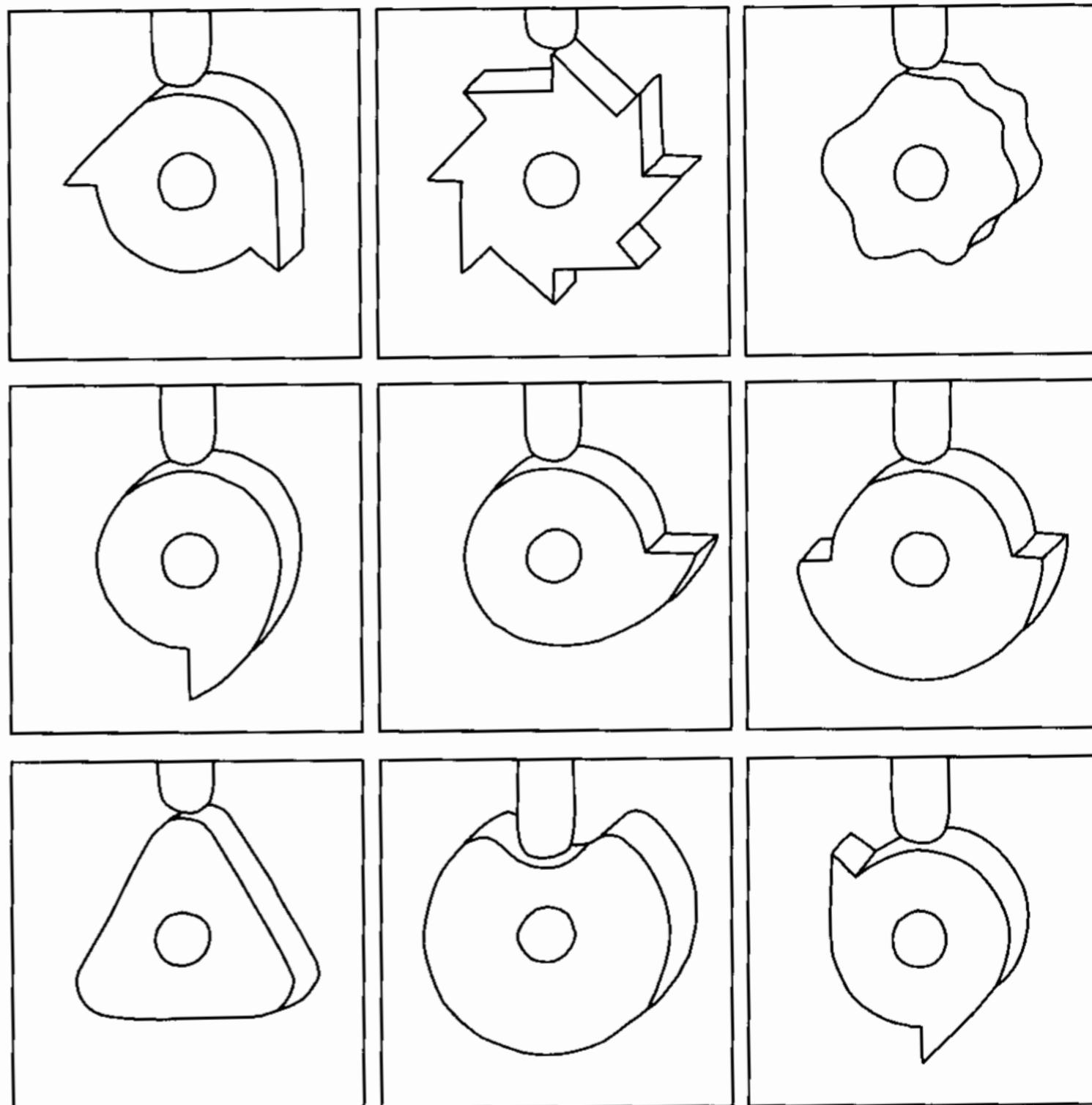
CAMS



CAMS



CAMS



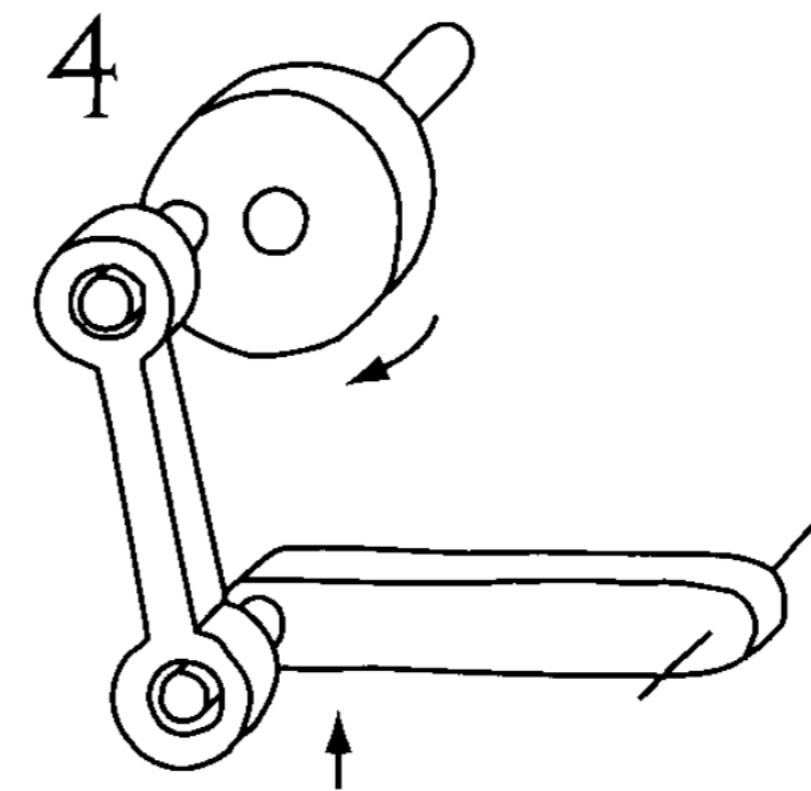
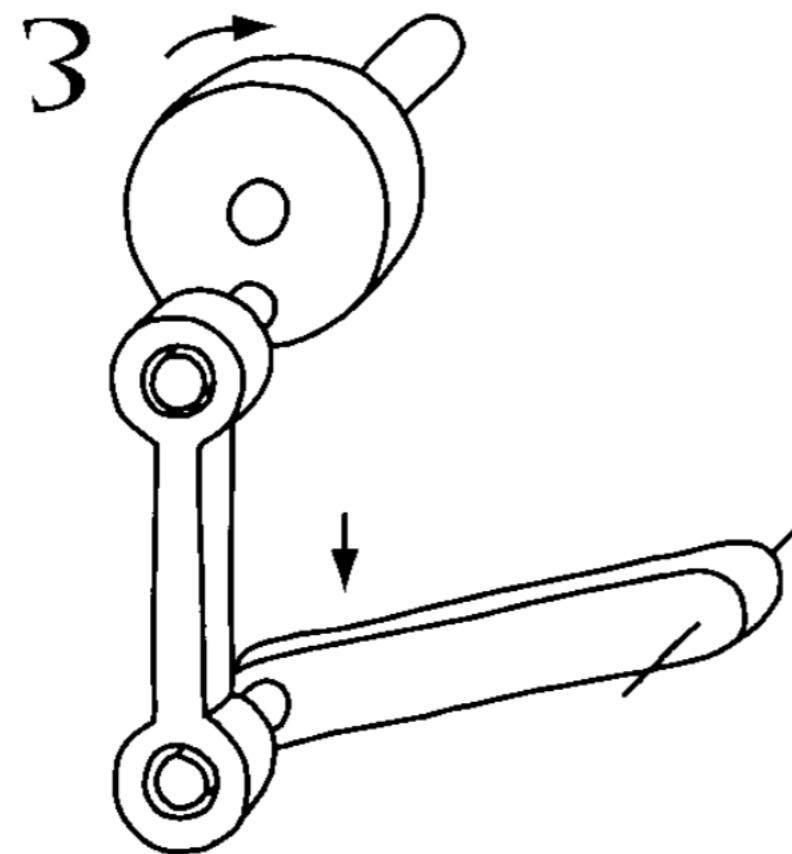
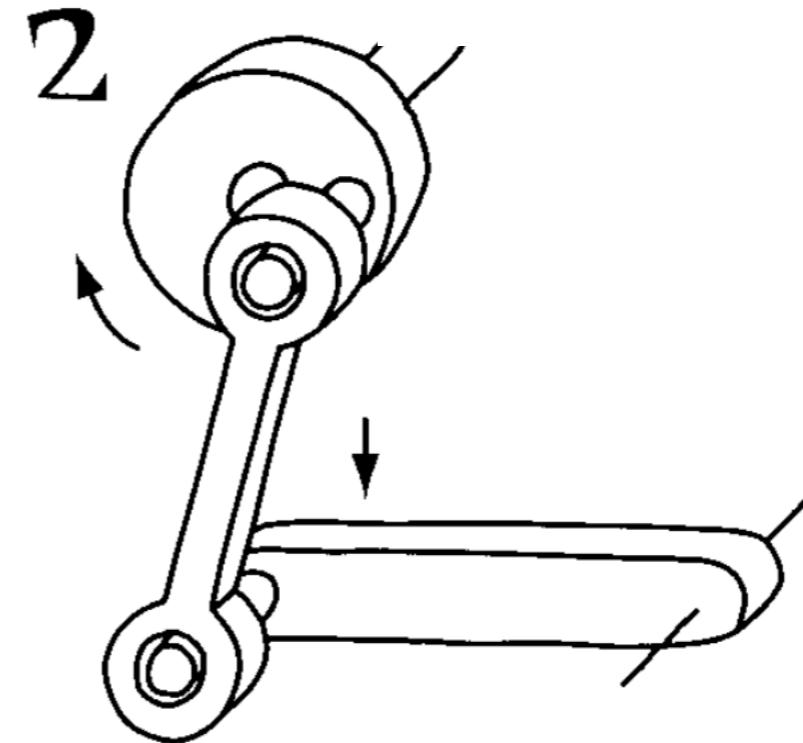
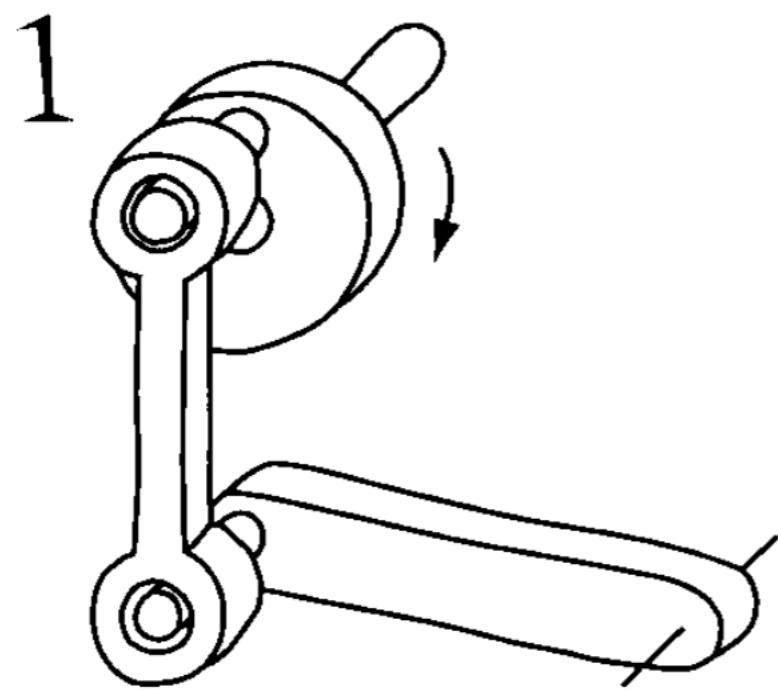


Hamster Powered Drawing Machine

Neil Mendoza

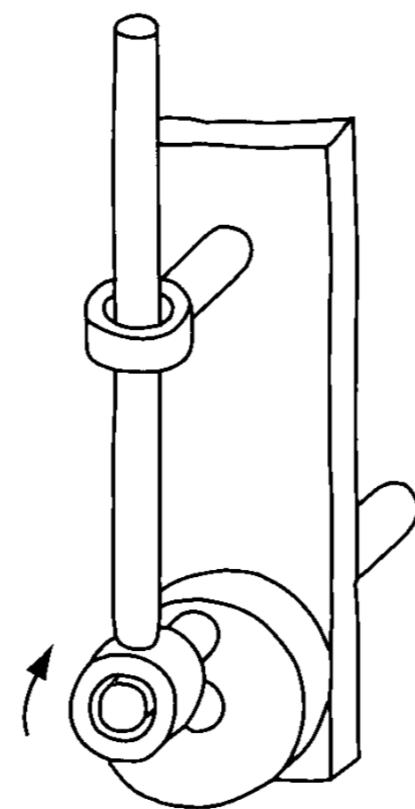
2016

LINKAGES

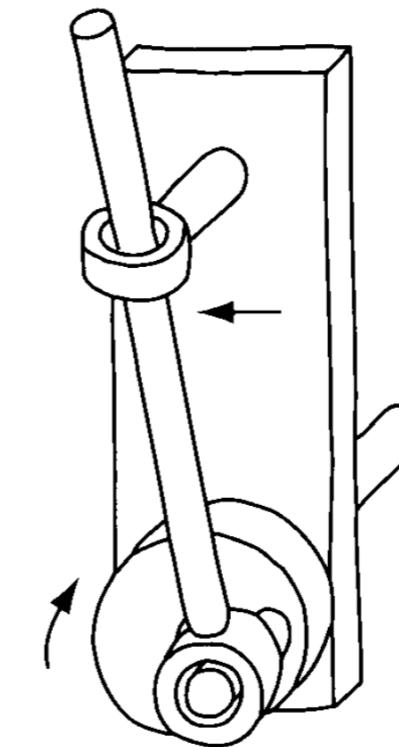


LINKAGES **(Crank Slider)**

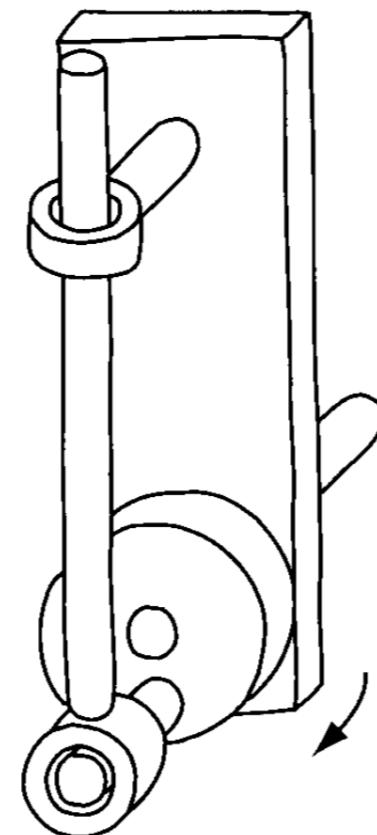
1



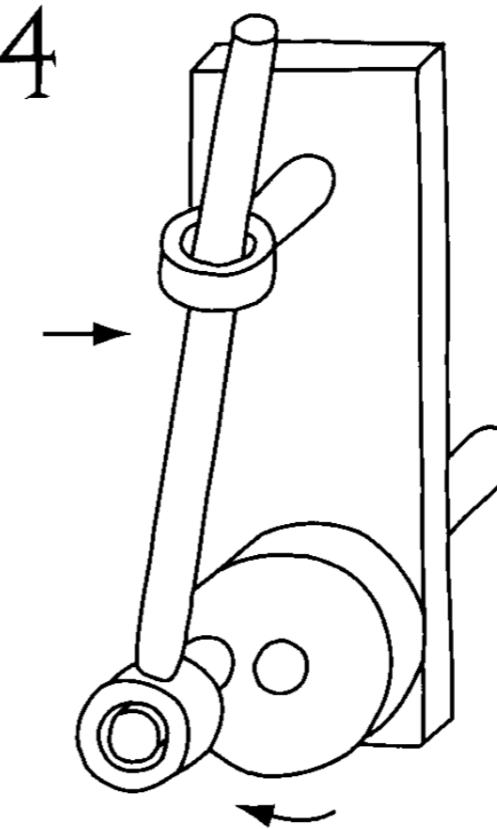
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3

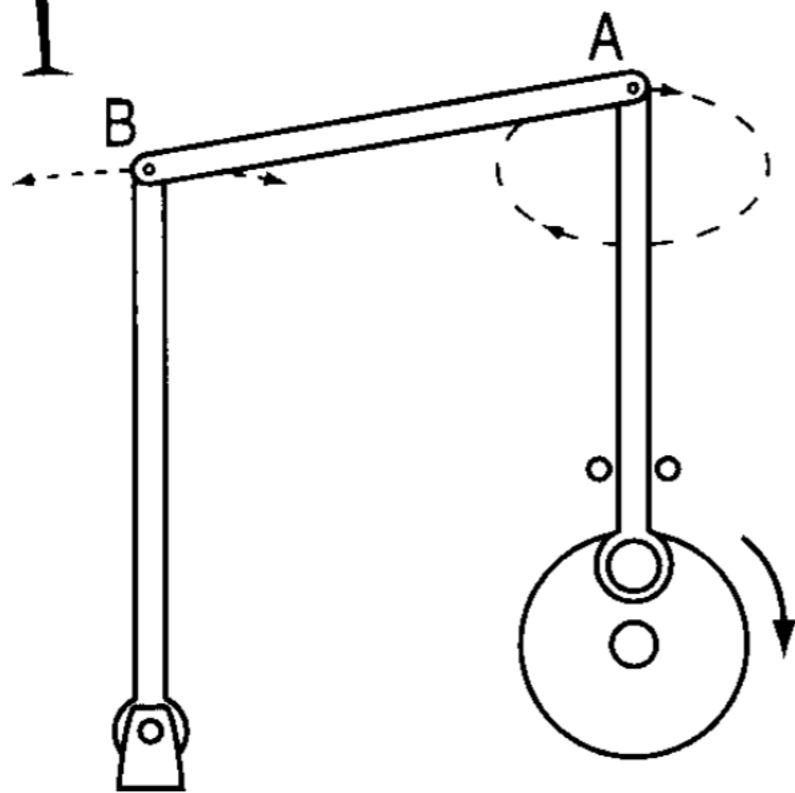


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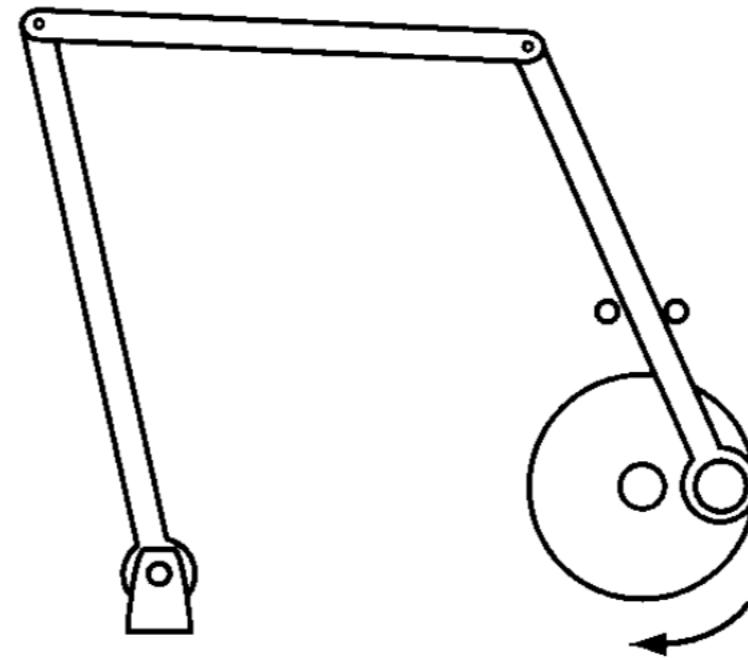


LINKAGES (Three Bar)

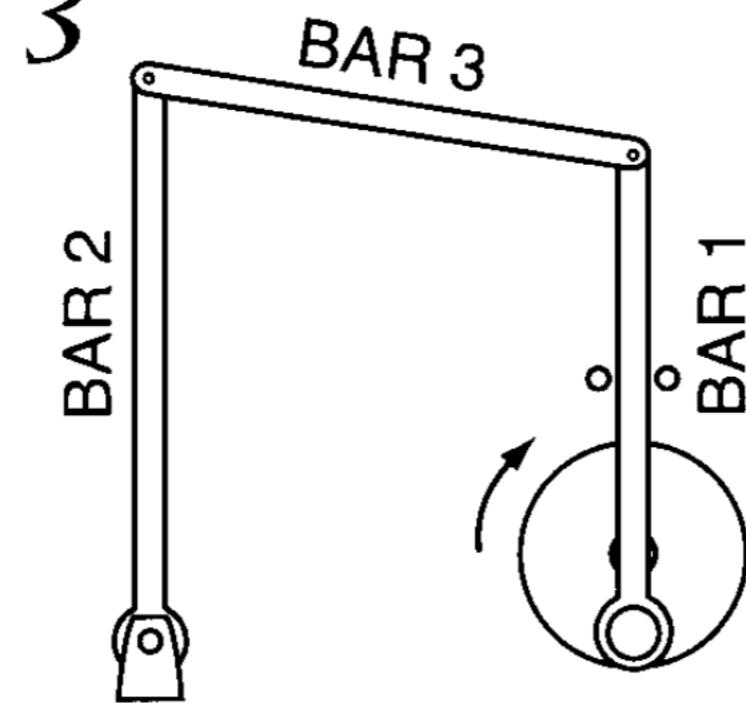
1



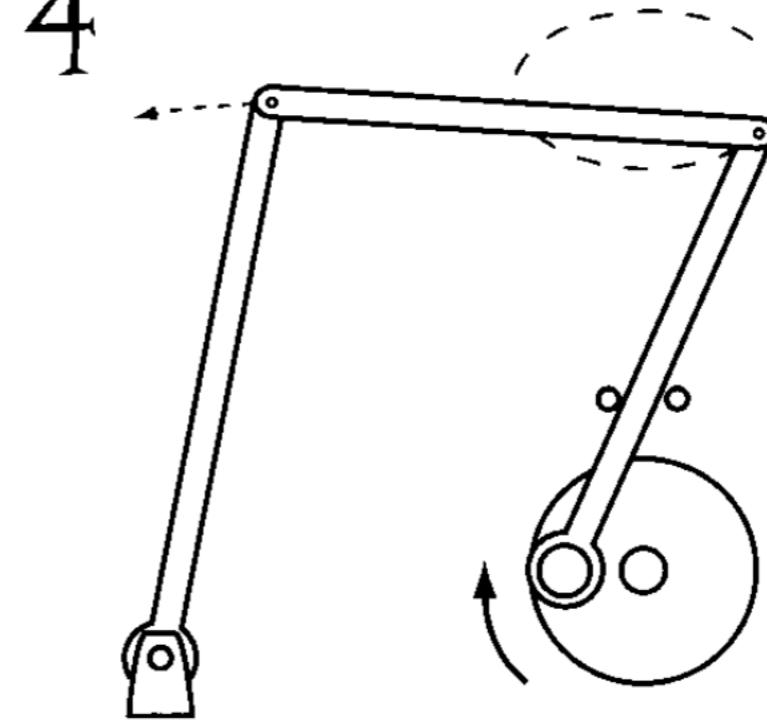
2



3

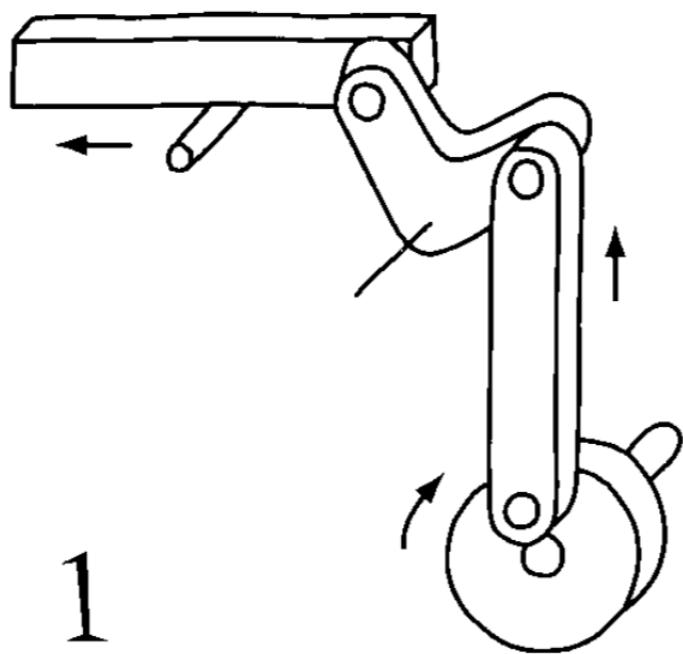


4

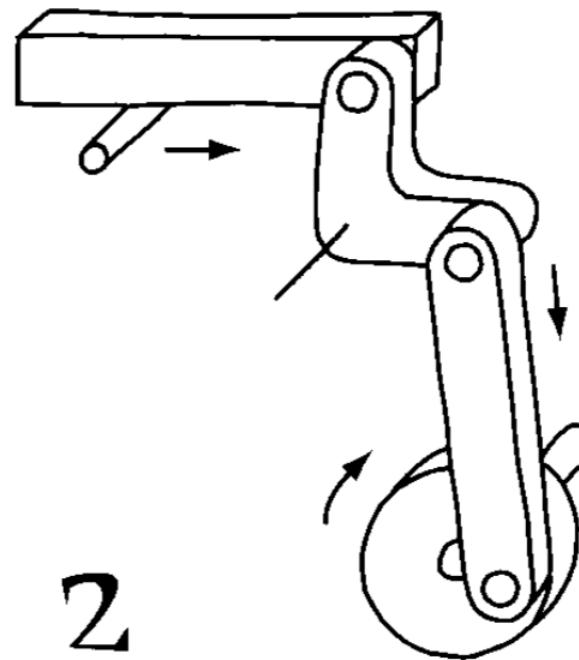


LINKAGES

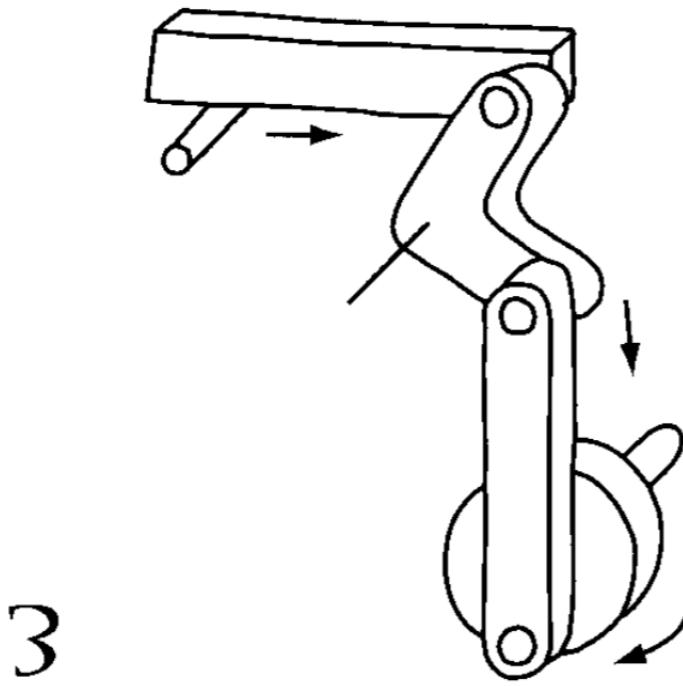
(Bell Crank)



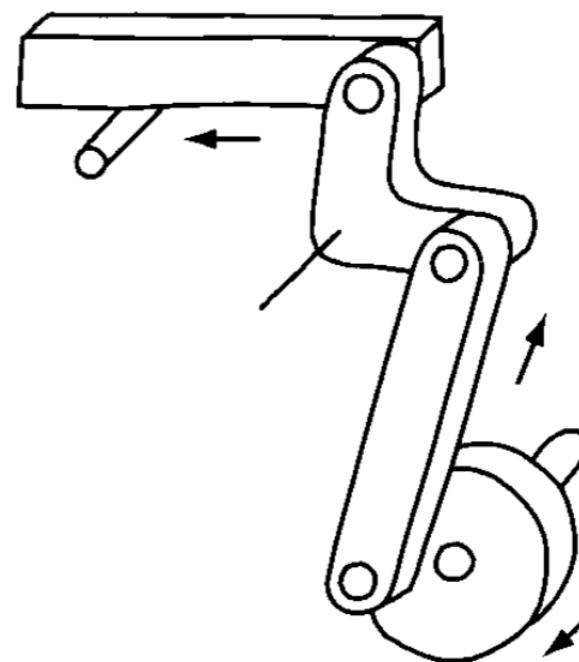
1



2



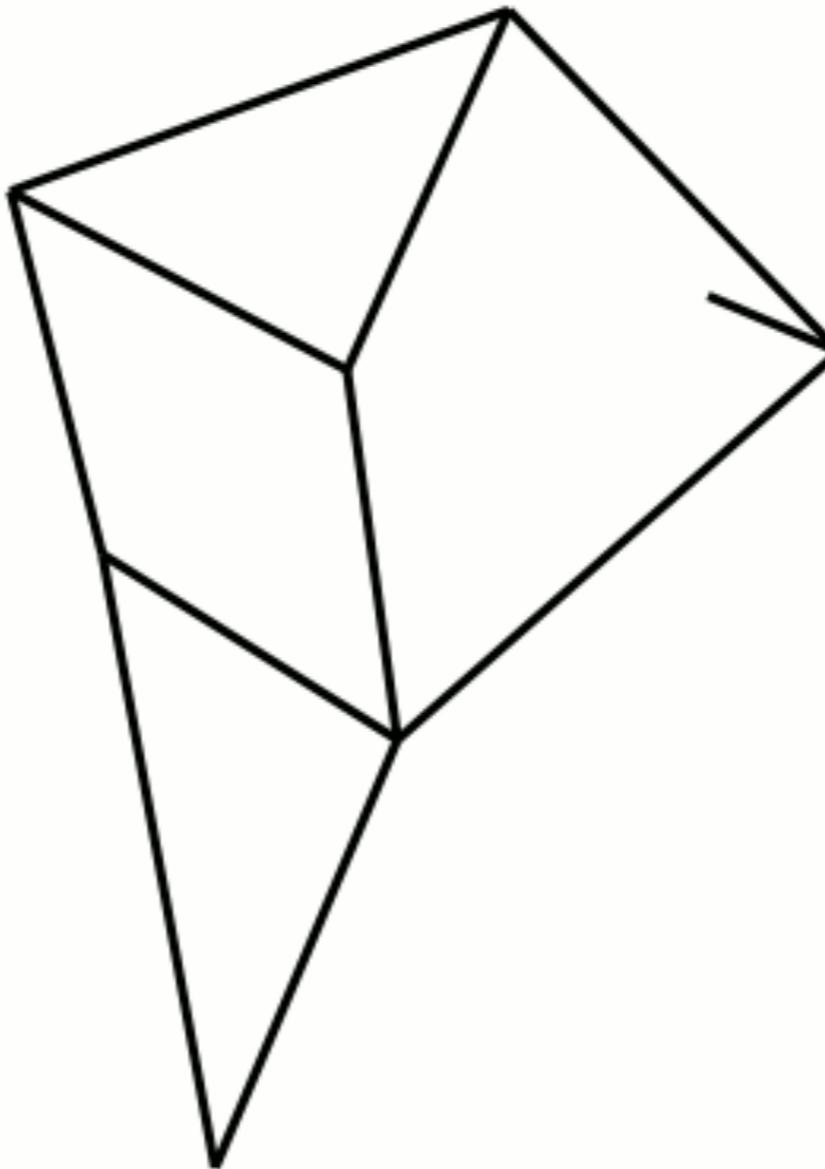
3



4

LINKAGES

(Jansen)



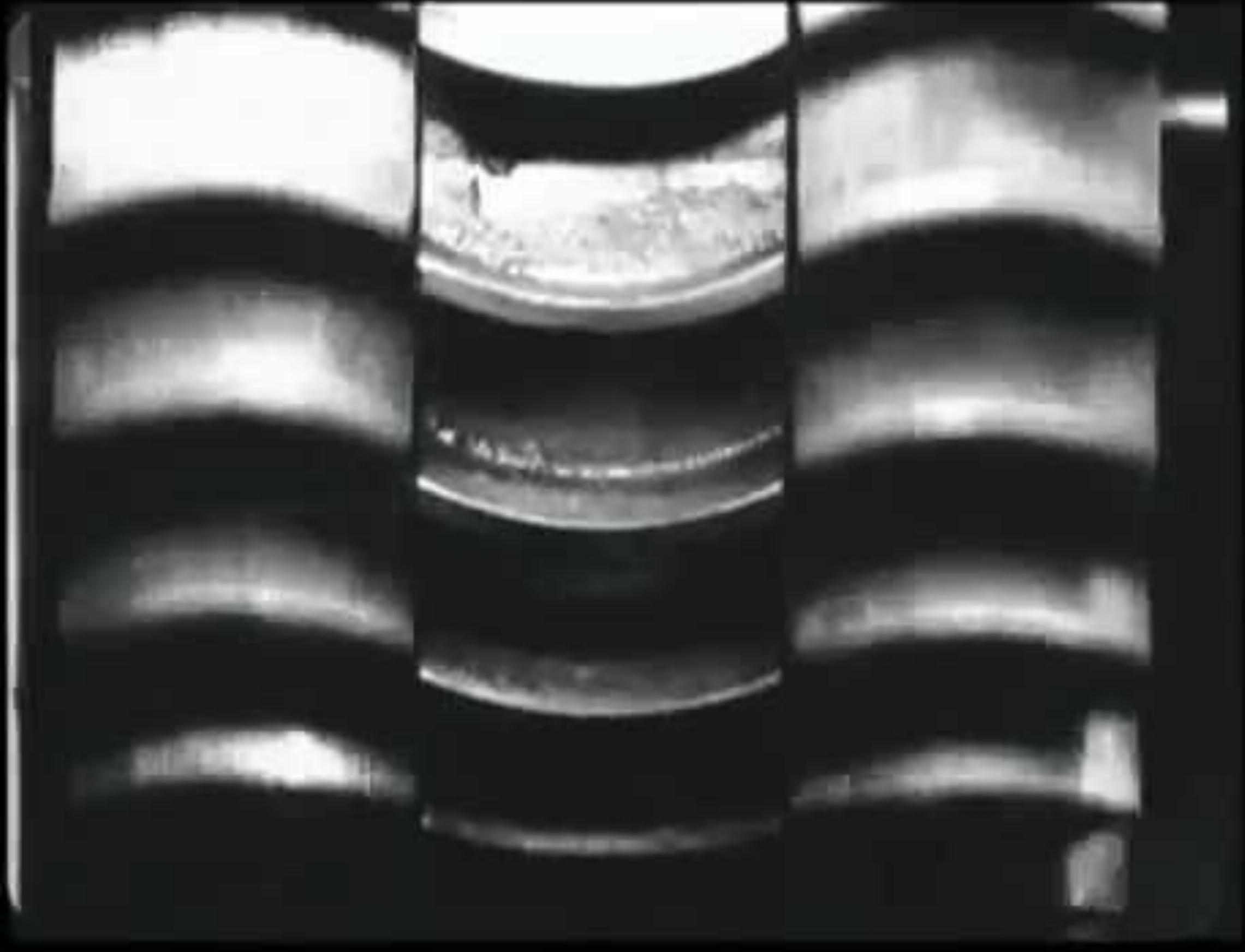


Strandbeest
Theo Jansen



Motors

Lolo and Sosaku



Mechanical Principles

Ralph Steiner

1933

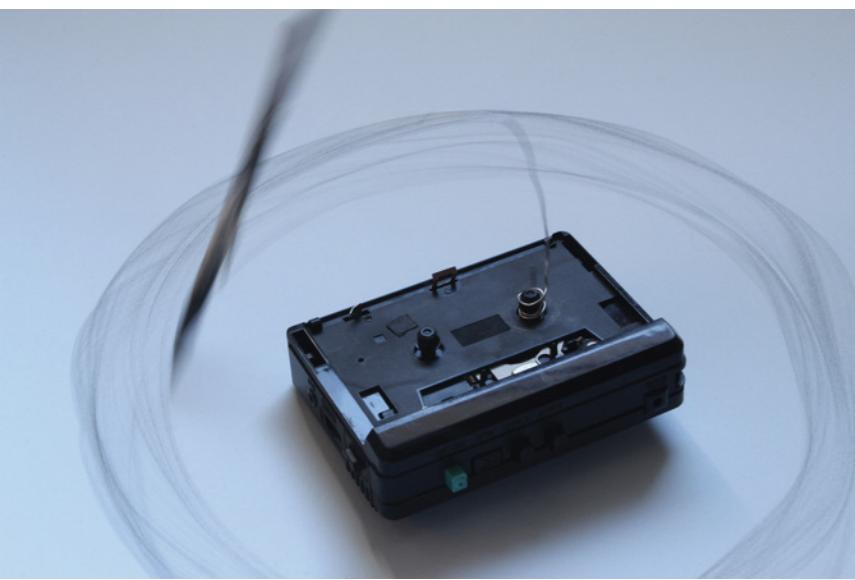


Rotozaza II
Jean Tinguely
1967

DRAWING MACHINES



Wind Machine



Autonomous Machines
Echo Yang

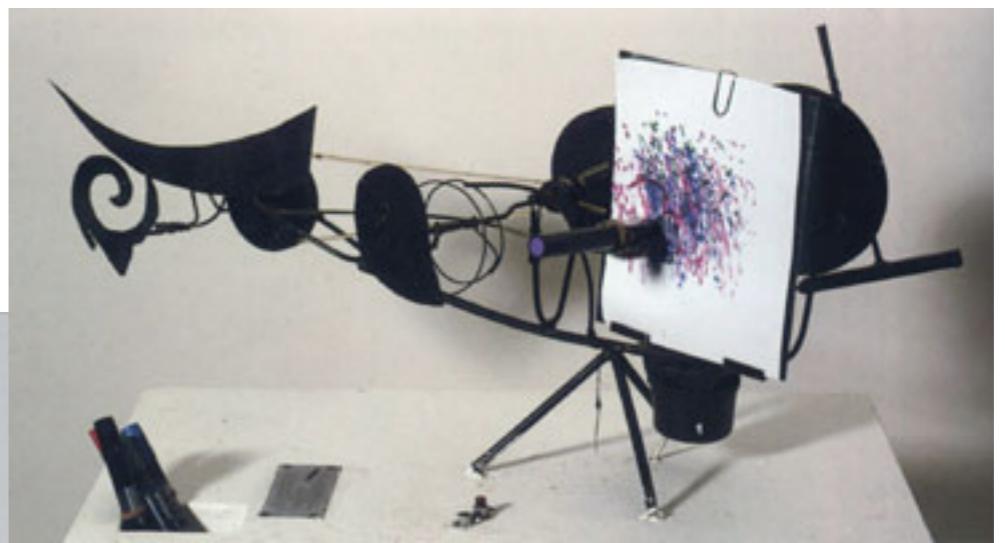


Drawn by Wind Up Alarm Clock
Material Pen
No. Acoo9



Autonomous Machines
Echo Yang

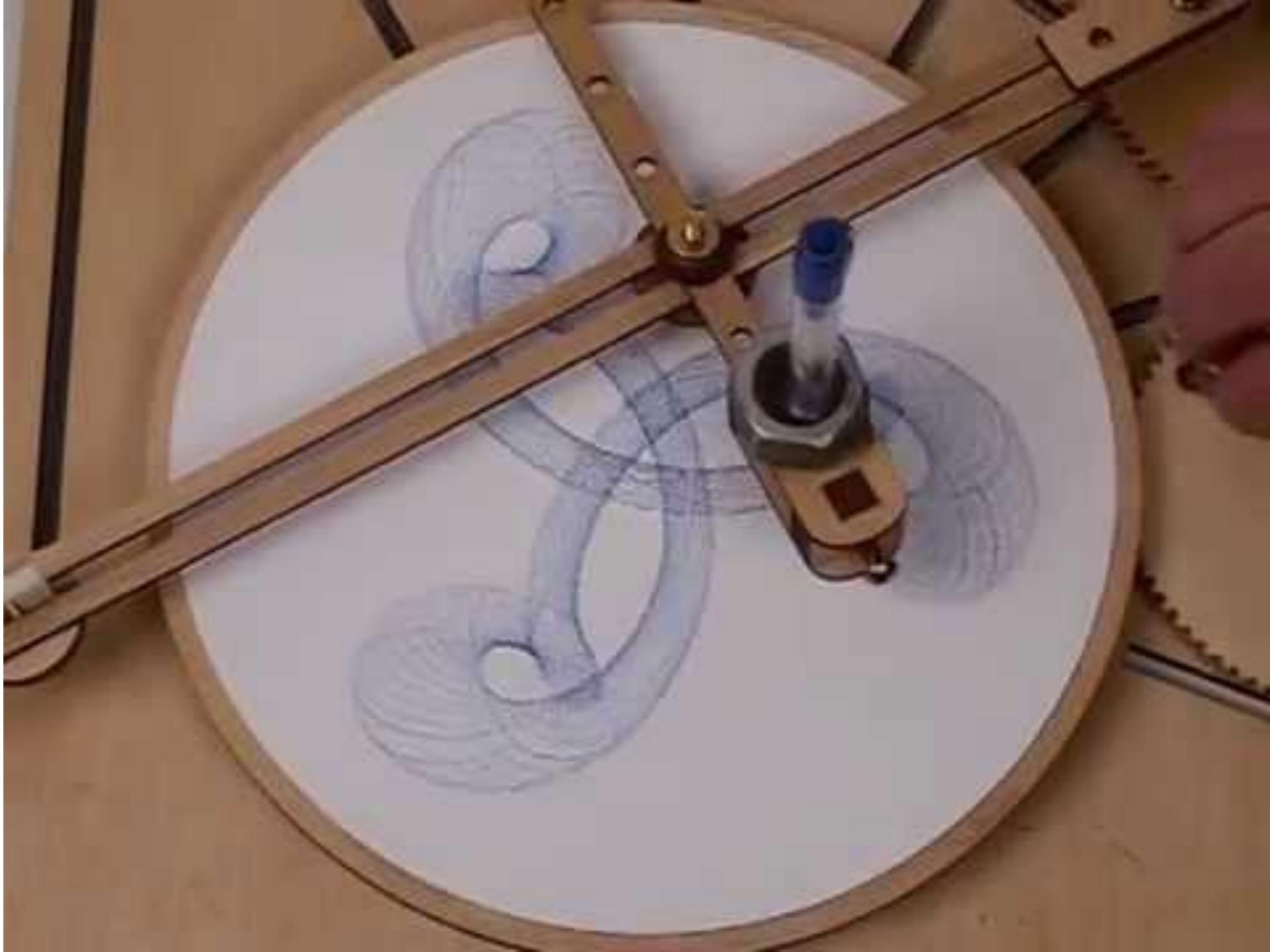
Drawn by	Tia Toy - Chicken
Material	Watercolor
	Cotton Swab.
No.	TTC 002



Jean Tinguely's
Drawing Machines



Drawing Machine
Joseph Griffiths



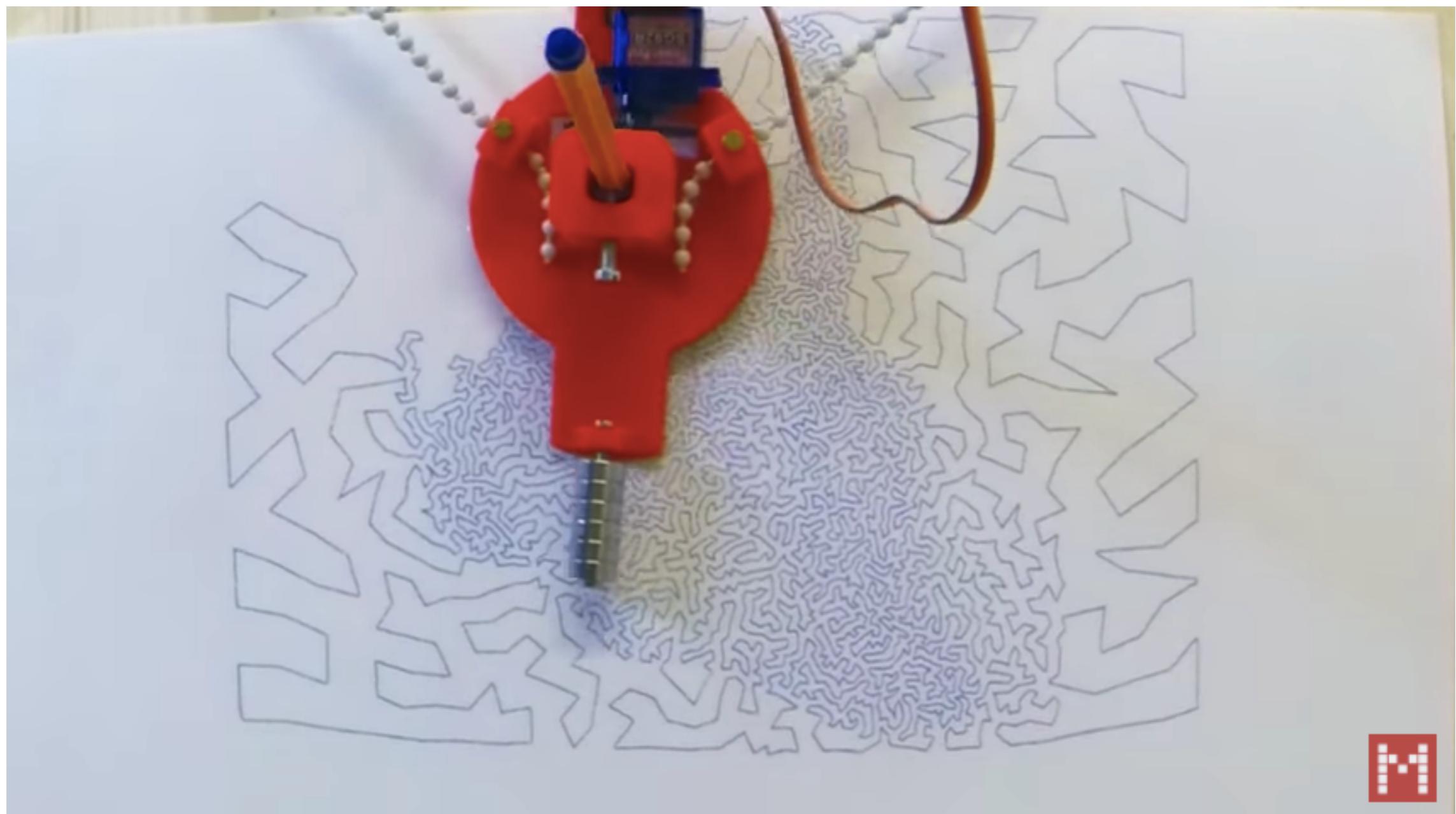
Cycloid Drawing Machine

Joe Freedman



Jack Schulze
playdiation

Line-us: The little robot drawing arm



M

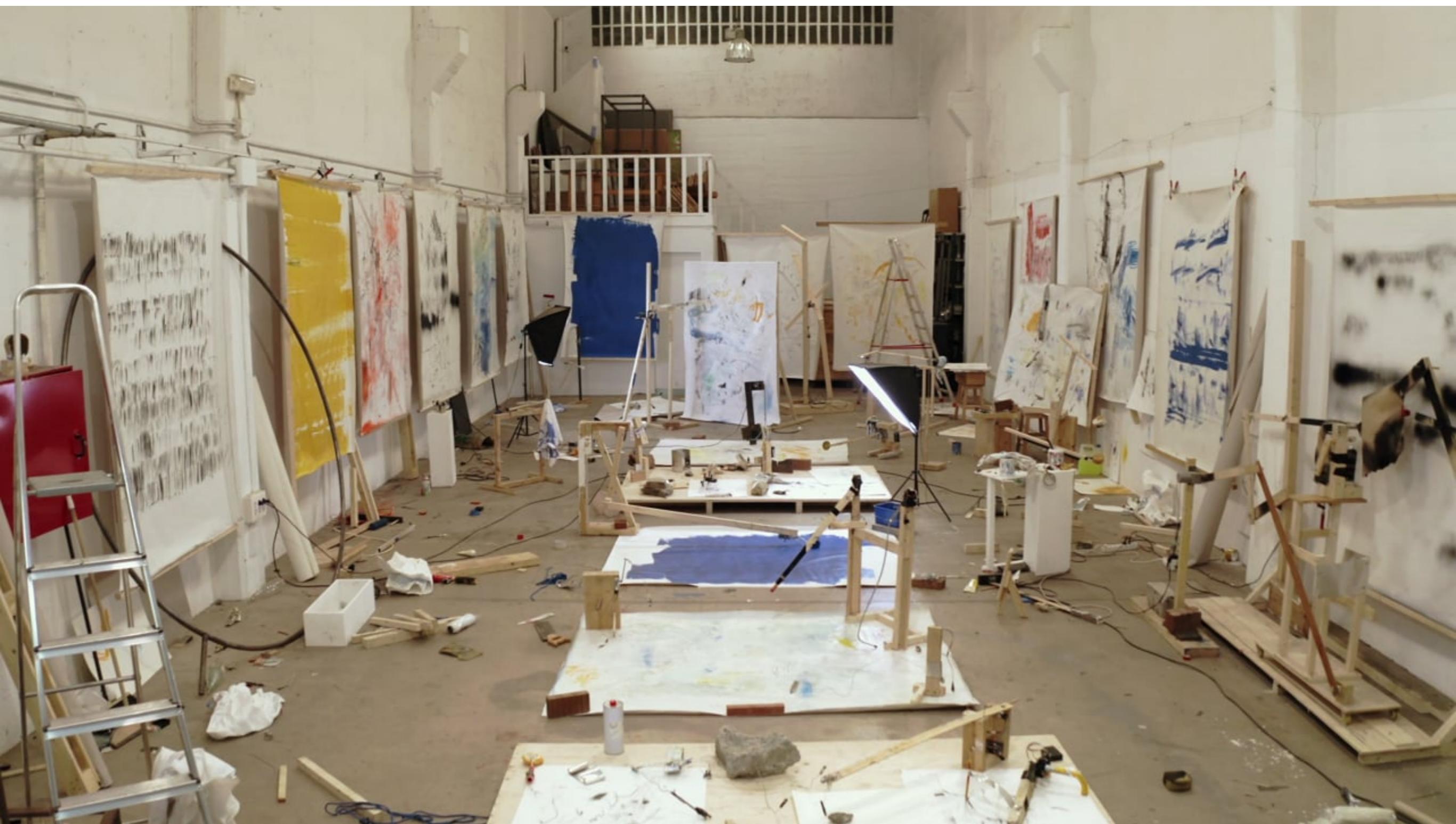
Polarograph

https://www.youtube.com/watch?v=YDo_upuQ5UA

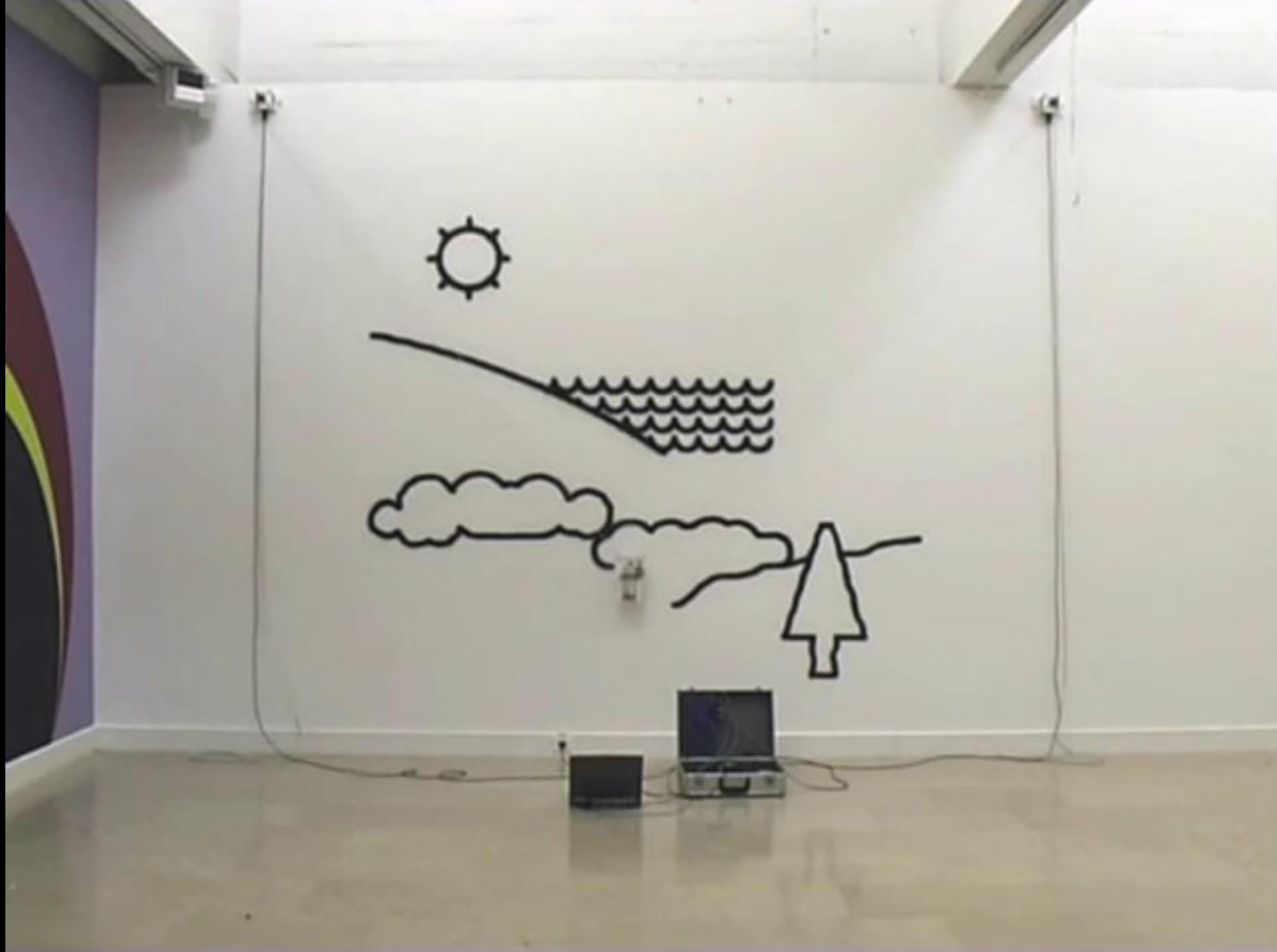


Painting System I

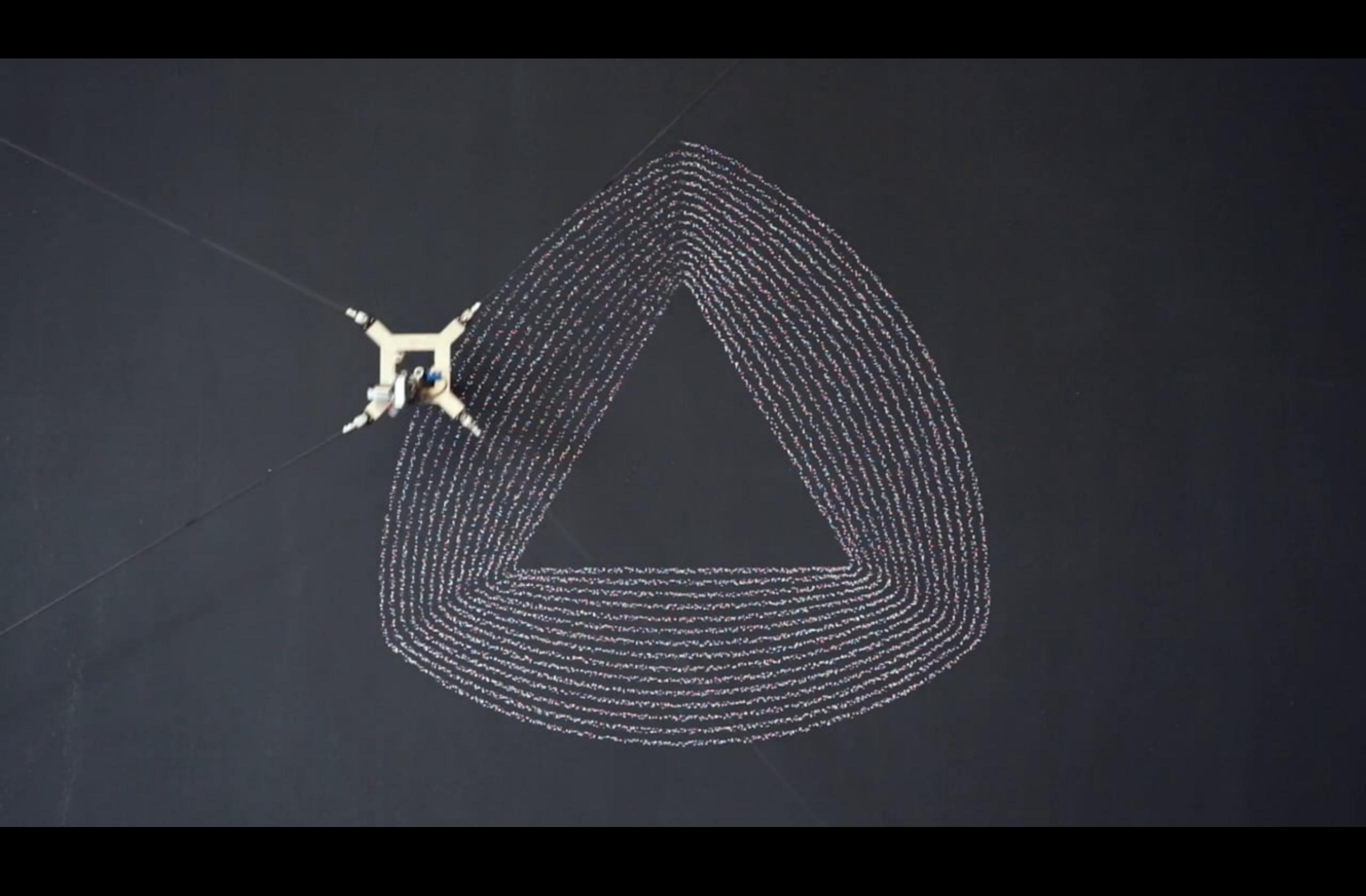
Lolo and Sosaku



Painting Machines
Lolo and Sosaku



Hektor
Jürg Lehni
2003



Otto
Jürg Lehni
2014

<https://www.instructables.com/Solar-Draw/>