



Make it Yourself: An Evening at the Lacey MakerSpace

A three-hour wine and cheese event for 6 individuals with the Director of the Lacey MakerSpace, Michelle Pope. Each attendee will get to design and assist with the fabrication of their own project and take it home at the end of the evening.

Assembly

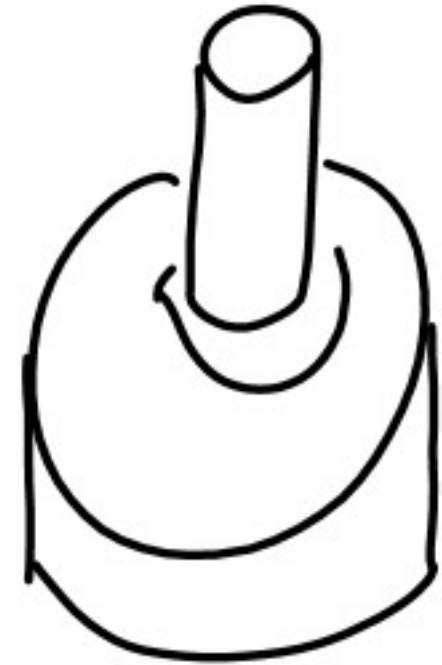
Mechanical Fastening

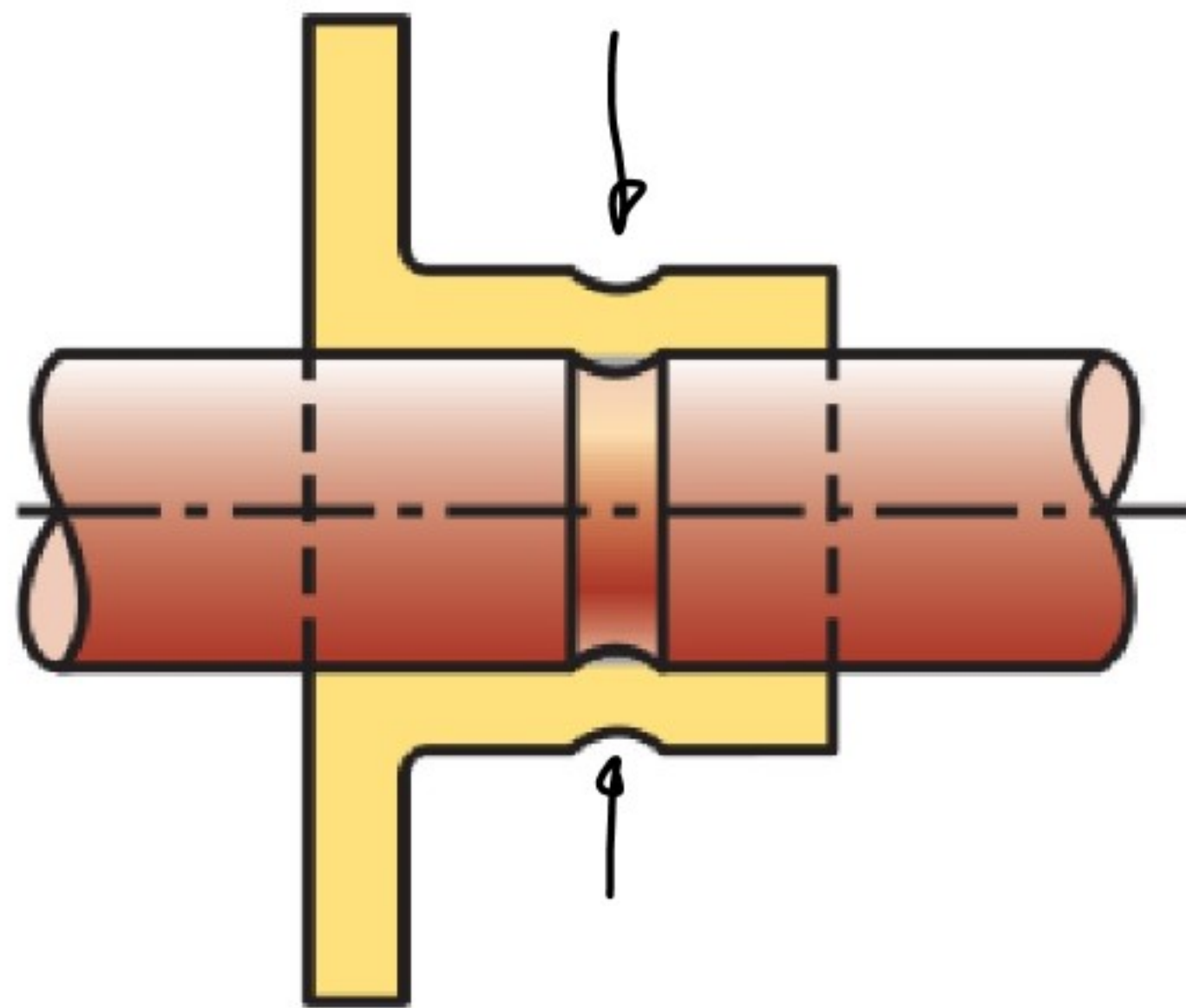
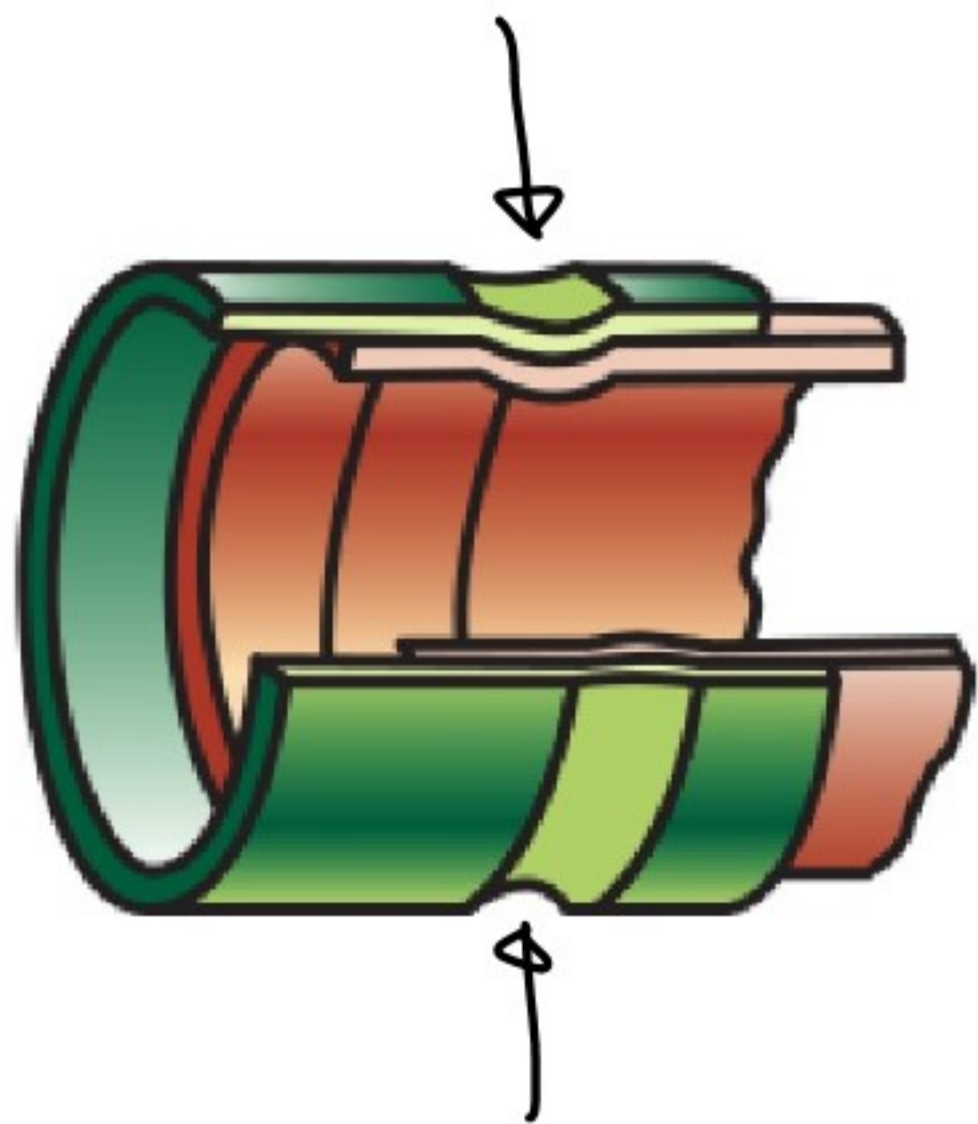
Press Fit

Crimping

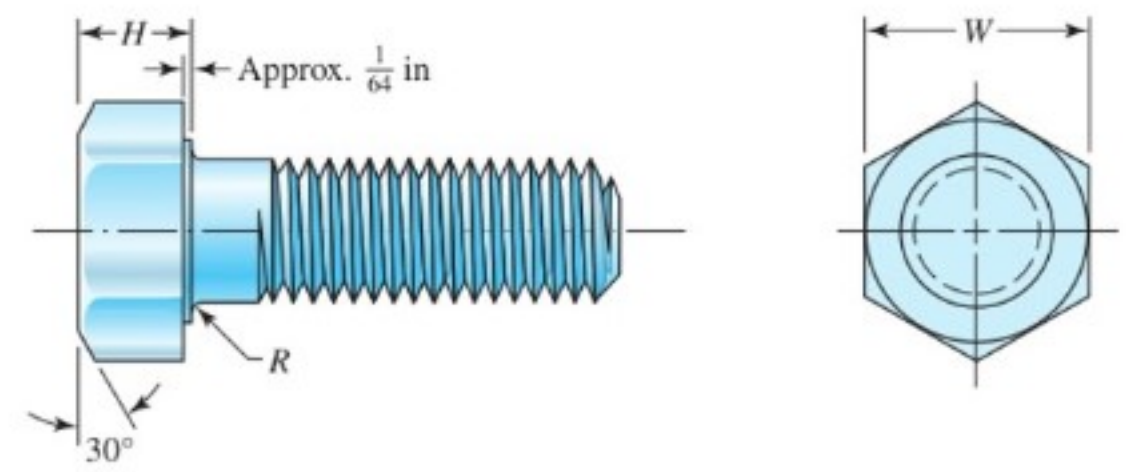
Screws and Bolts

Clips



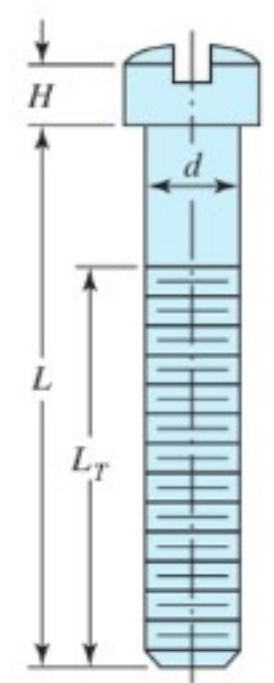
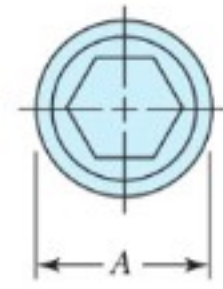
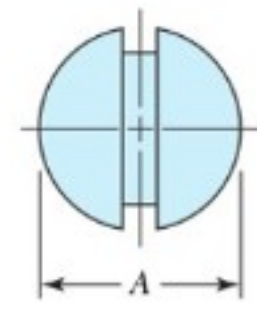
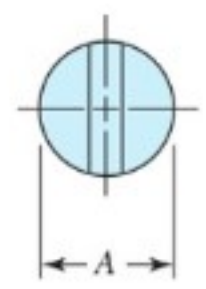


Bolts
Larger

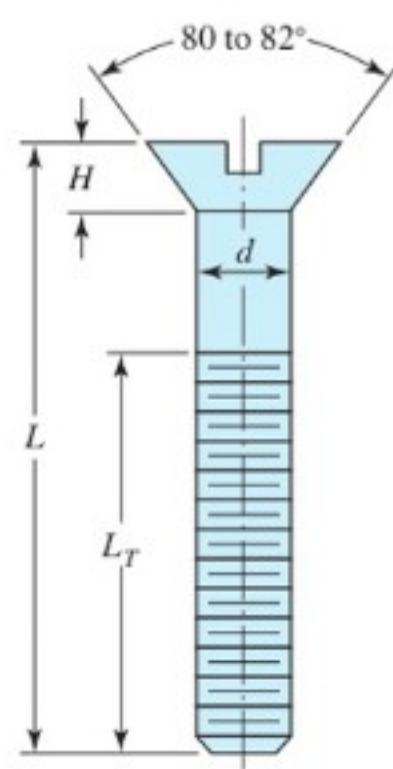


Machine Screws

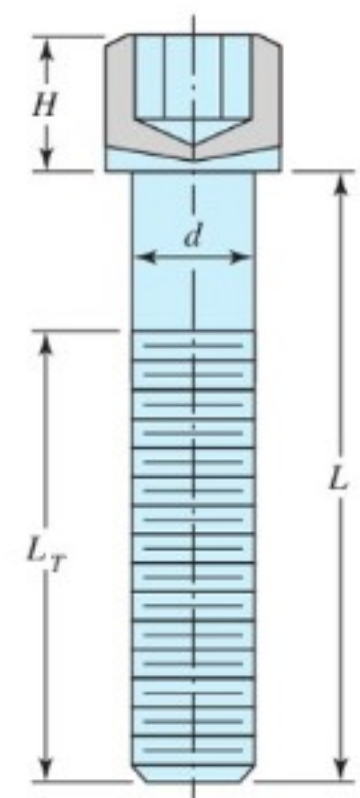
Smaller



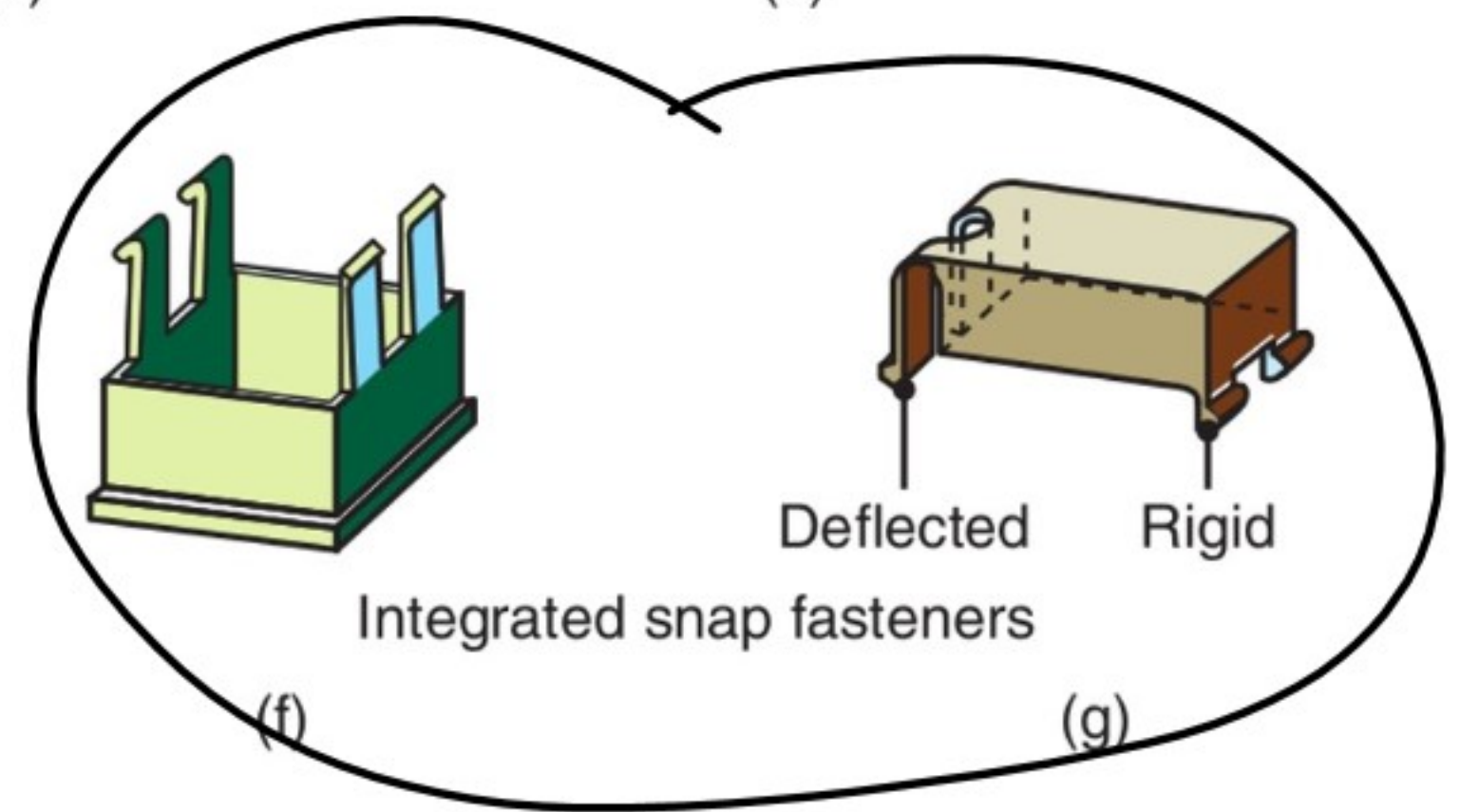
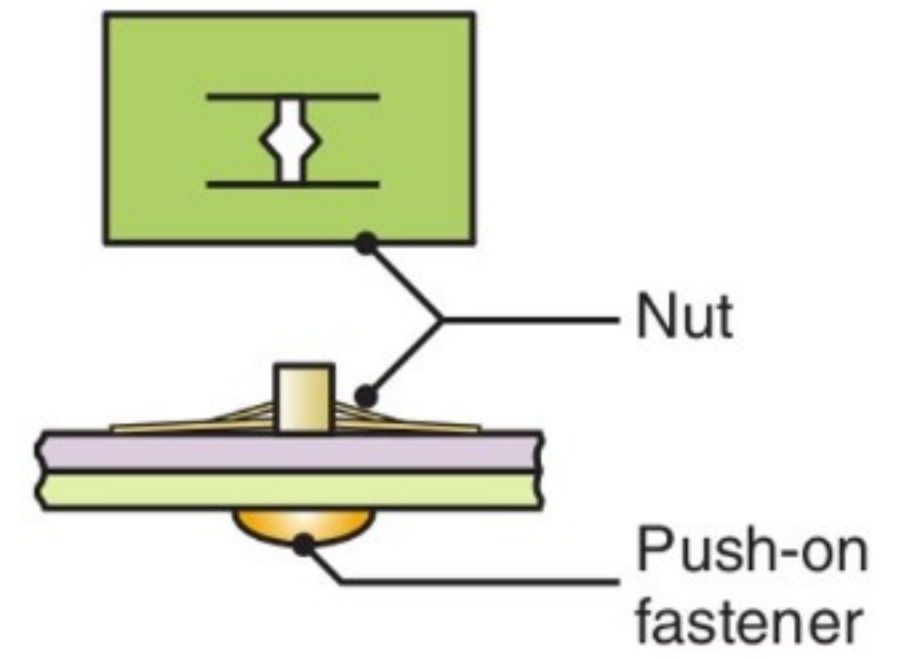
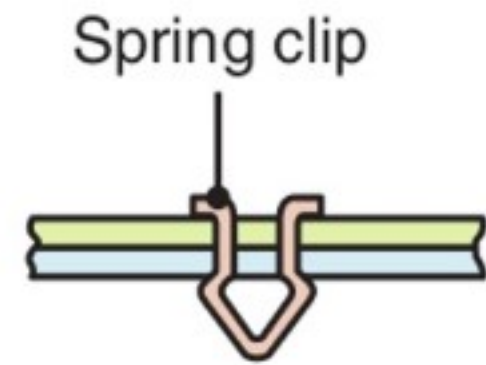
(a)



(b)



(c)



Increase Assembly Throughput

Power Tools

Screw driven

Torque limiter

Fixturing

Part Feeders

(consistent orientation)

Vibratory
Feeder



Full Automation

Actuators

Pneumatic

Hydraulic

Motors

Servo Motor

AC Motors

Synchronous

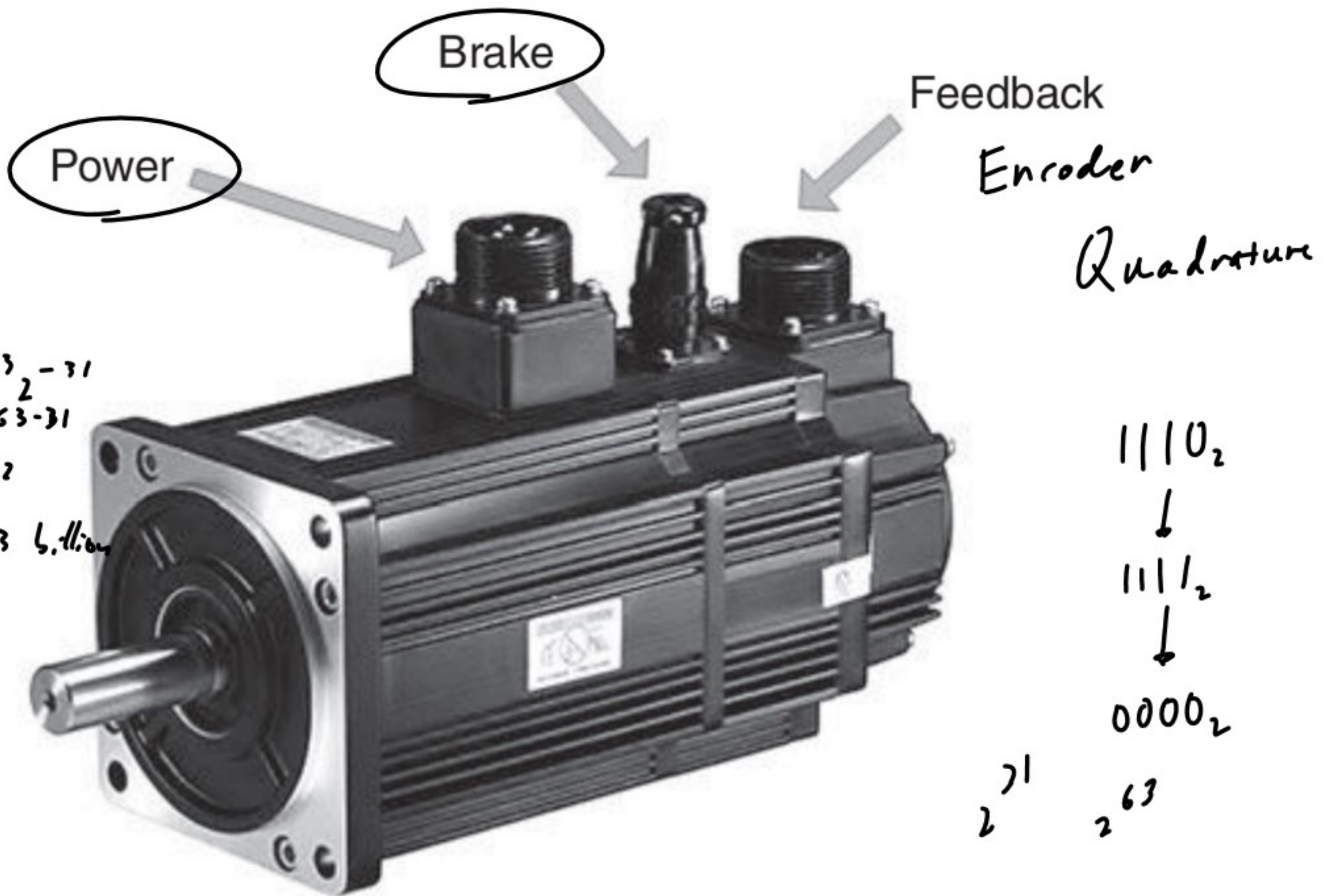
VFD Variable Frequency Drive

Stepper

440 kW

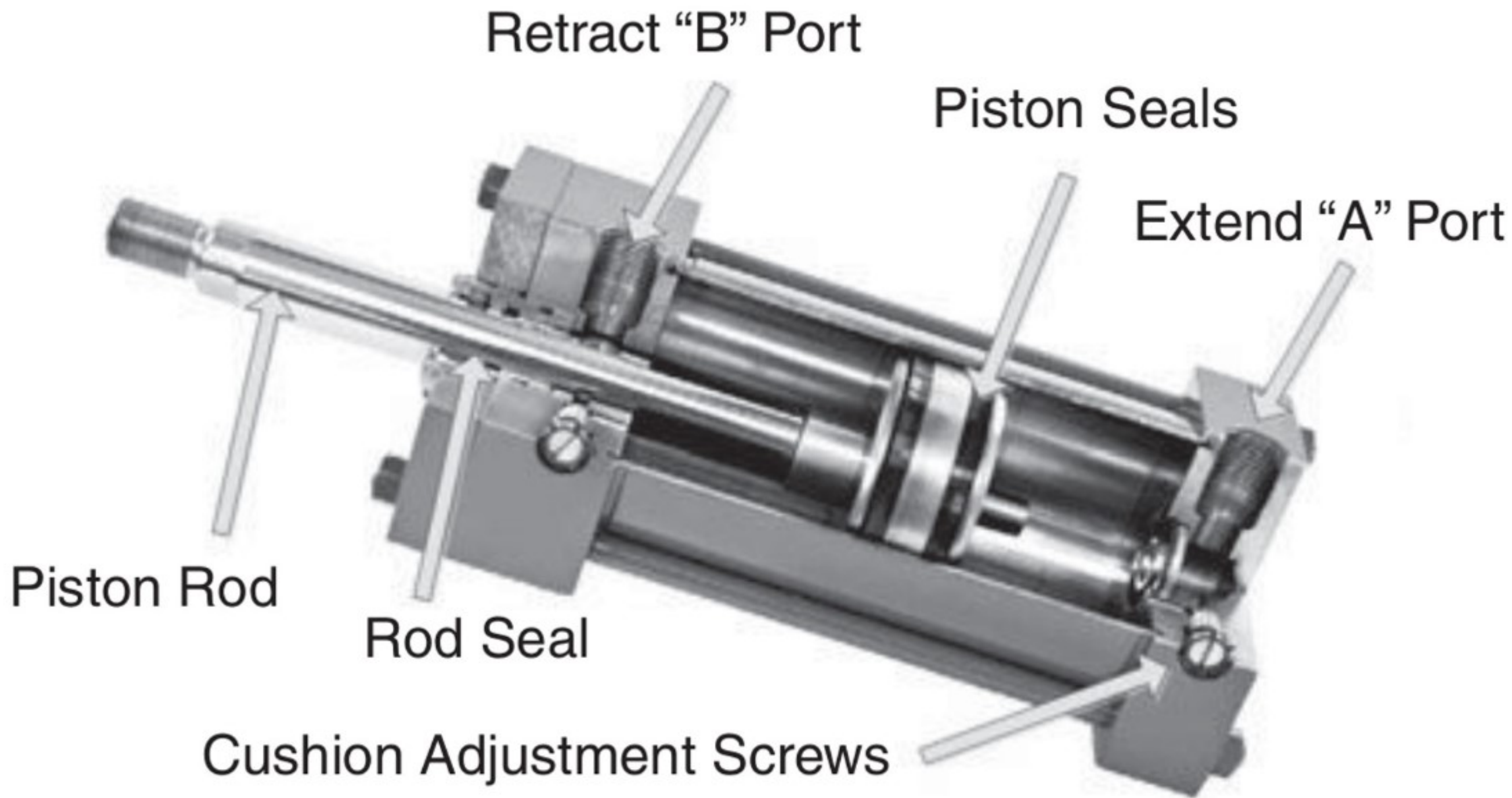
590 Hp

1 hp = 745.7



$$\begin{aligned}
 & \times 2^{31} = 2^{63} \\
 & X = \frac{2^{63}}{2^{31}} = 2^{63-31} \\
 & = 2^{32} \\
 & = 9.3 \text{ billion}
 \end{aligned}$$

$$\begin{aligned}
 & 1110_2 \\
 & \downarrow \\
 & 1111_2 \\
 & \downarrow \\
 & 0000_2 \\
 & 2^{31} \quad 2^{63}
 \end{aligned}$$



Sensors

Inductive

Limit Switches

Capacitive Sensors

Ultrasonic Sensors

level sensing

Light

Color

Temperature

thermocouple

IR

non contact + temperature

Radar

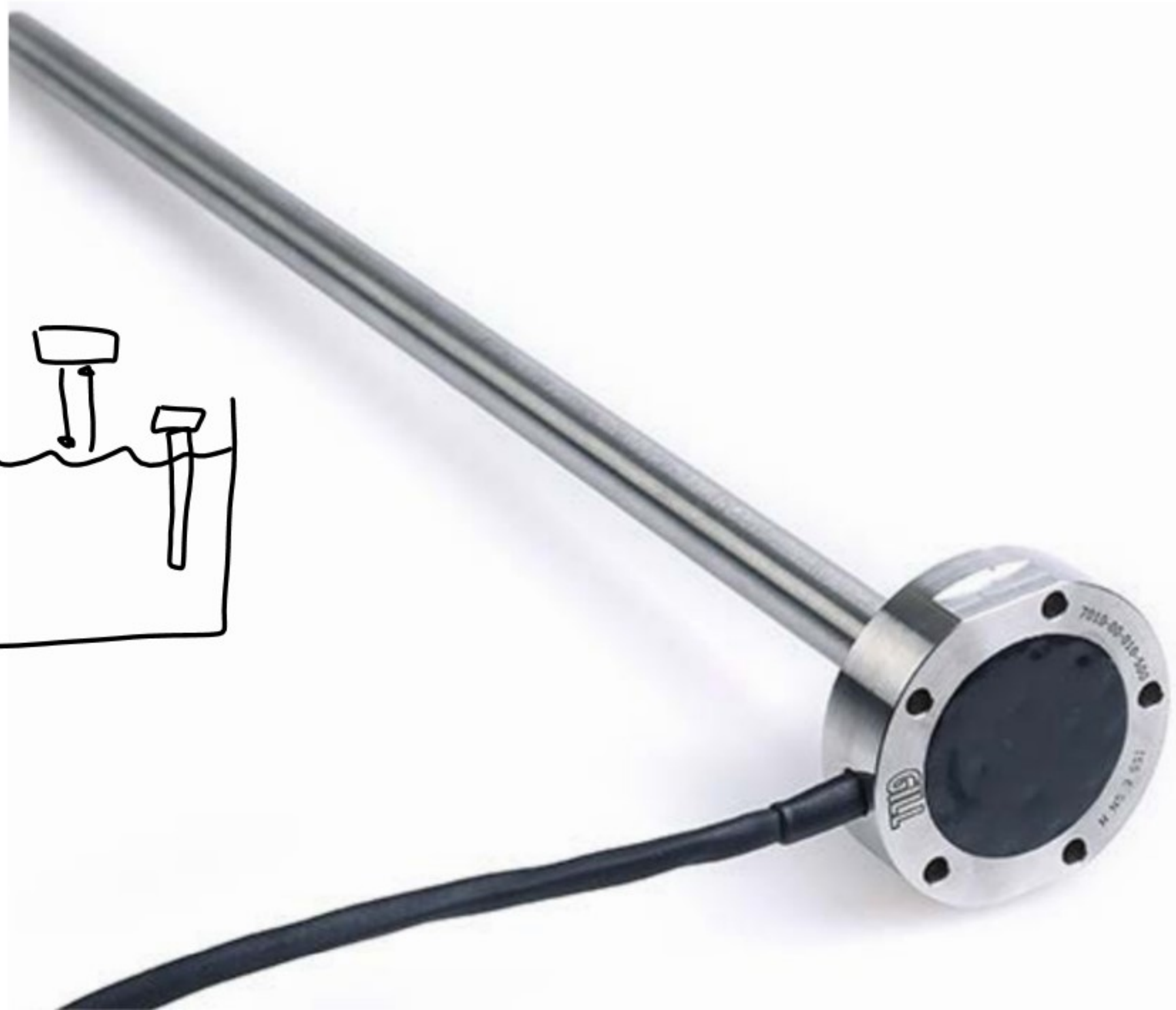
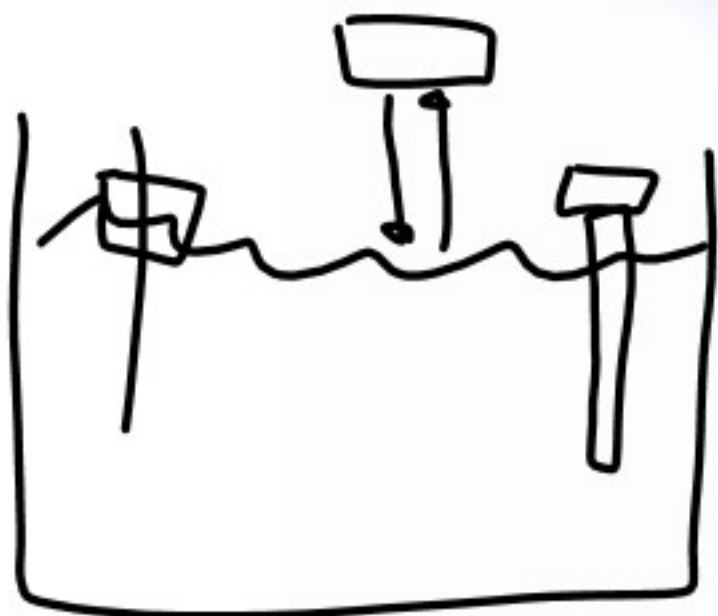
Camera

Machine Vision

Scales

Inductive sensor





PLC

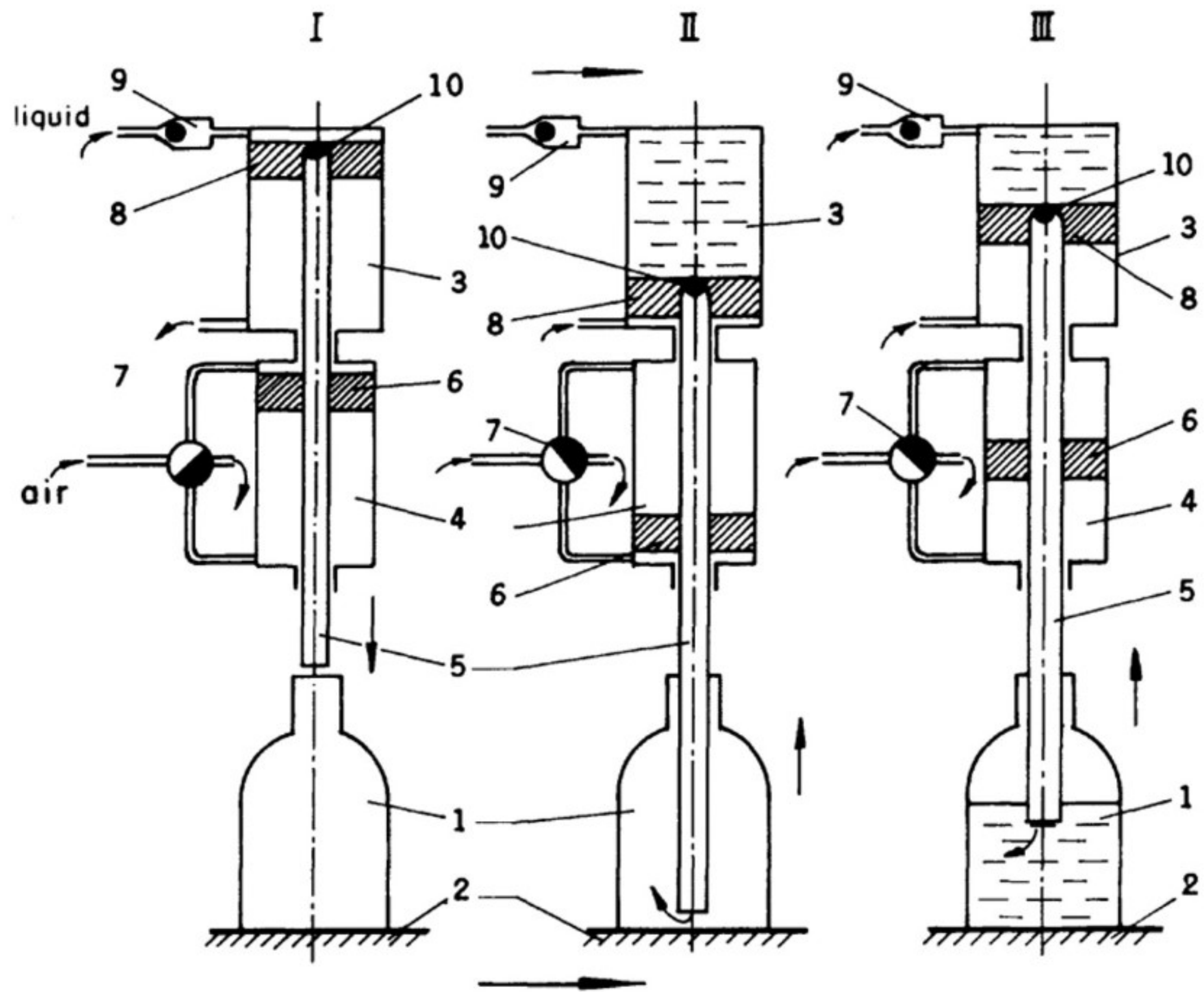
Programmable Logic Controller

HMI

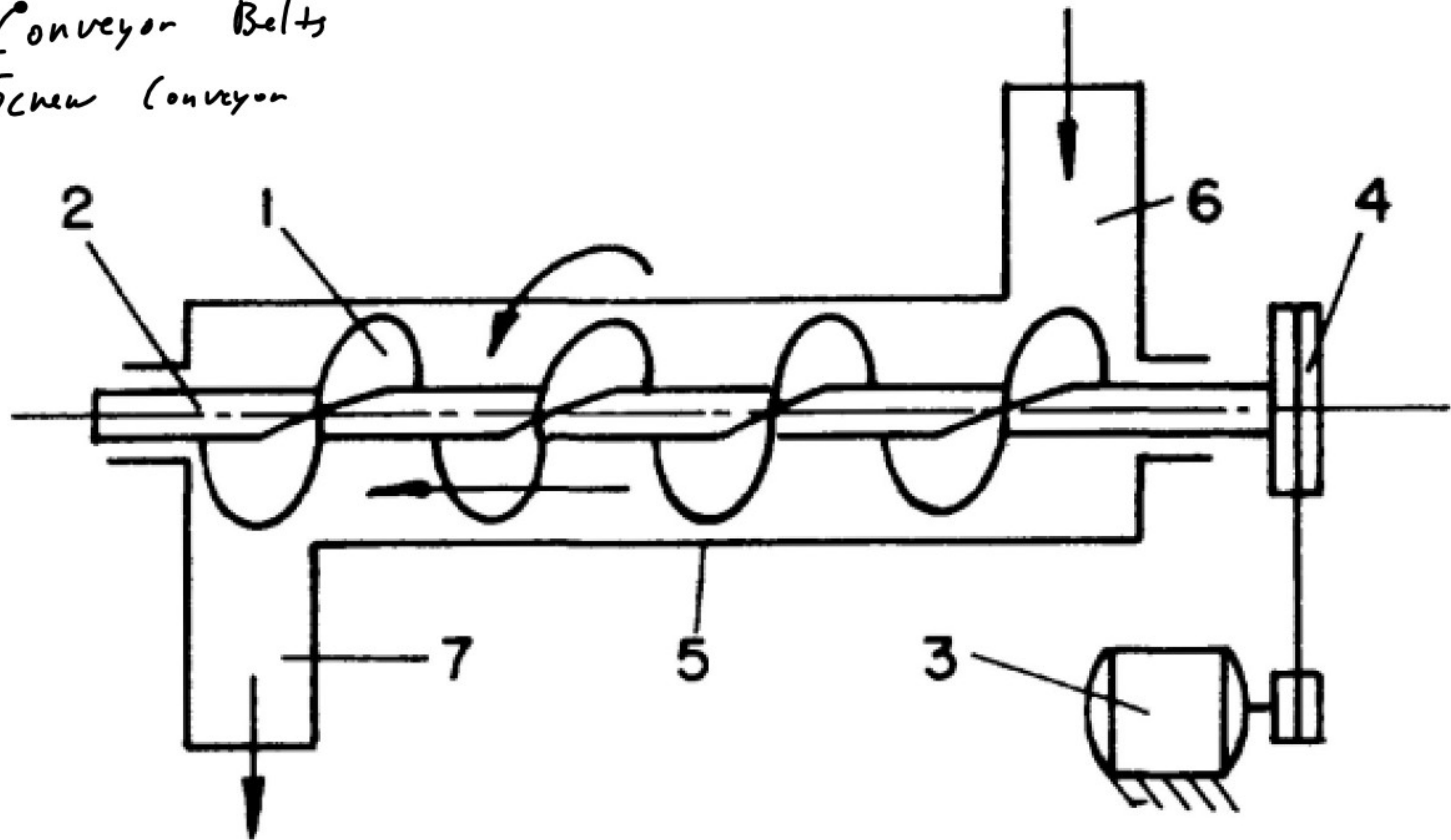
Human Machine Interface

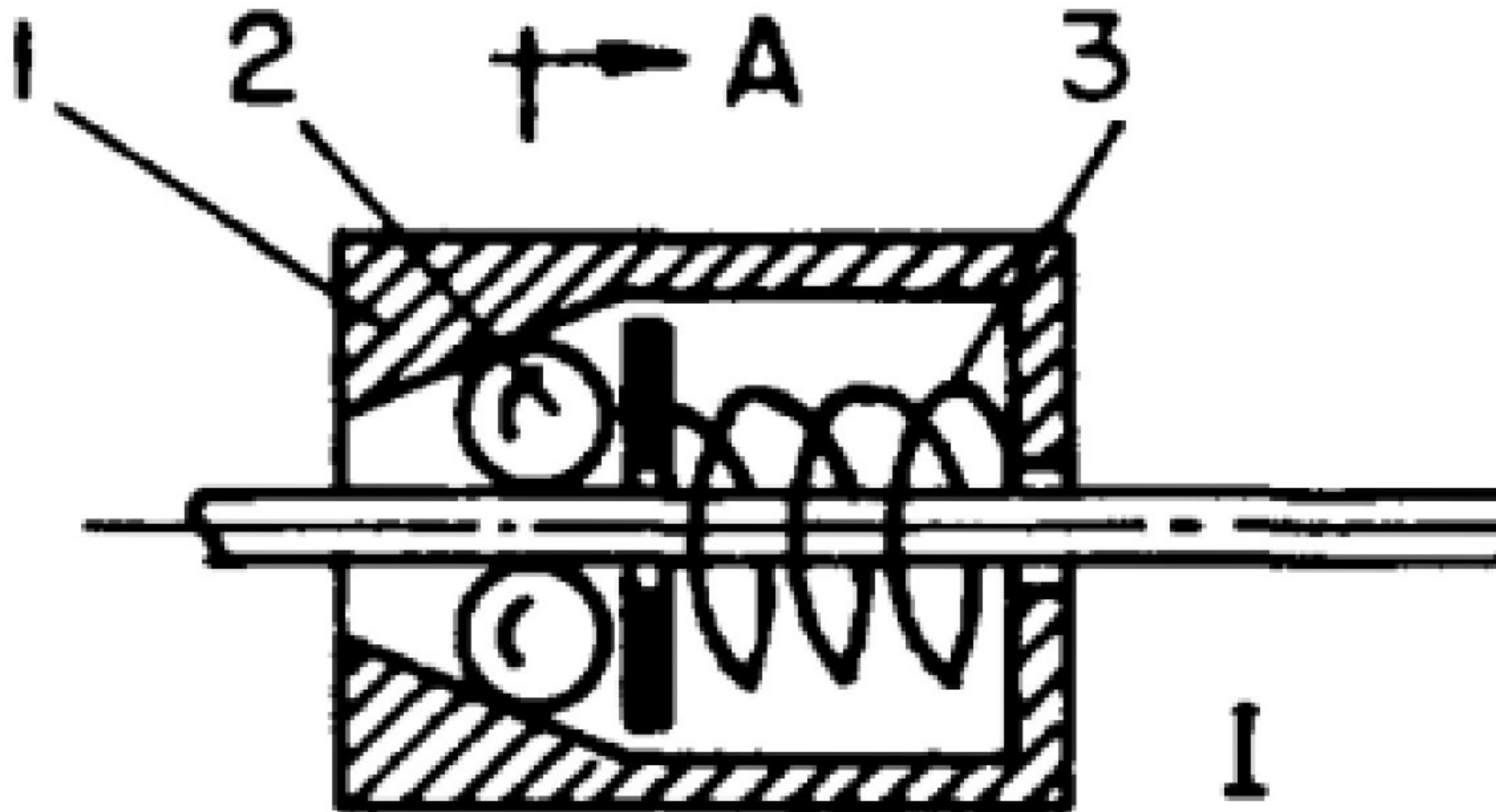
HMI



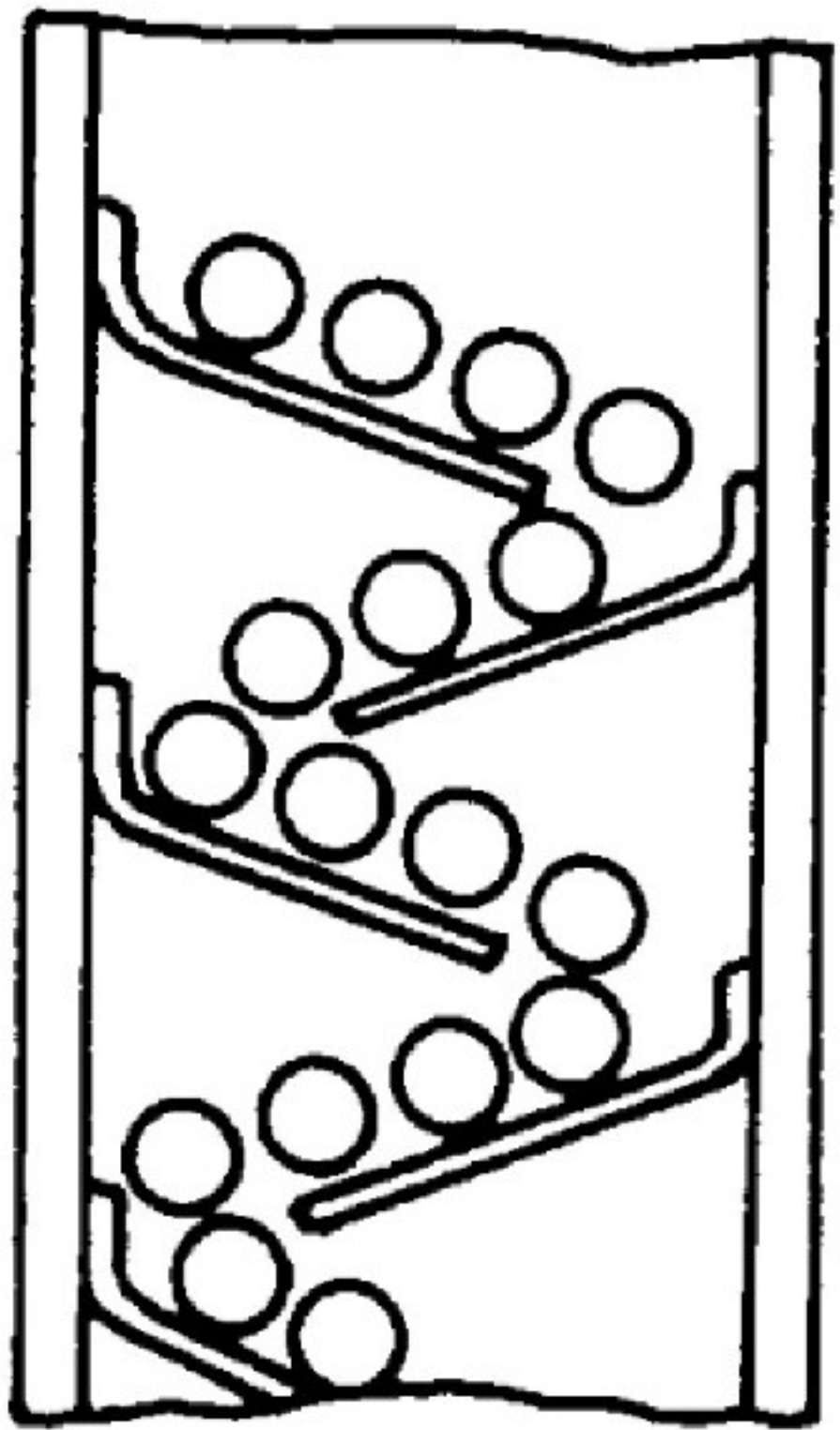


Conveyor Belts
Screw Conveyor

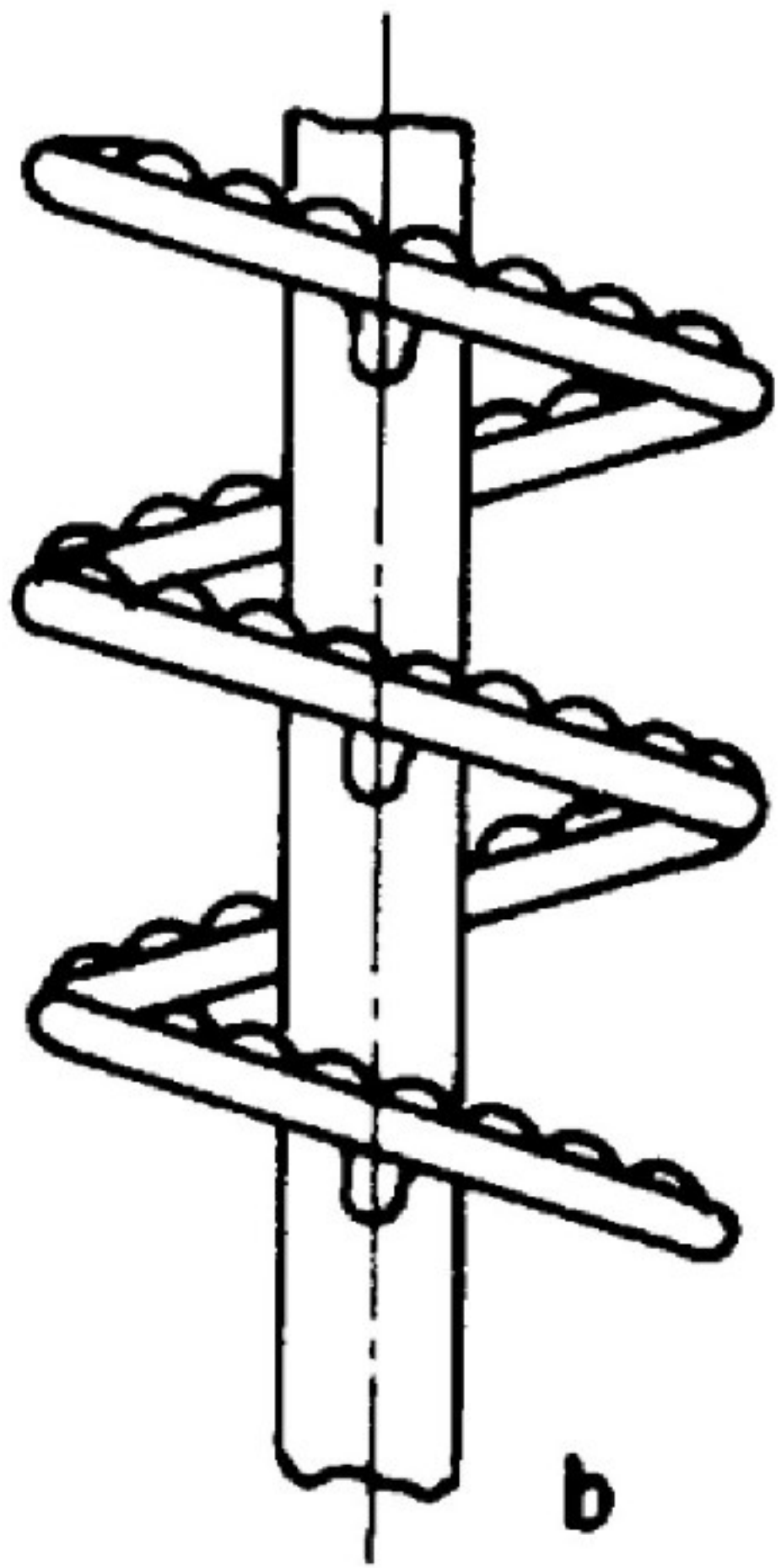




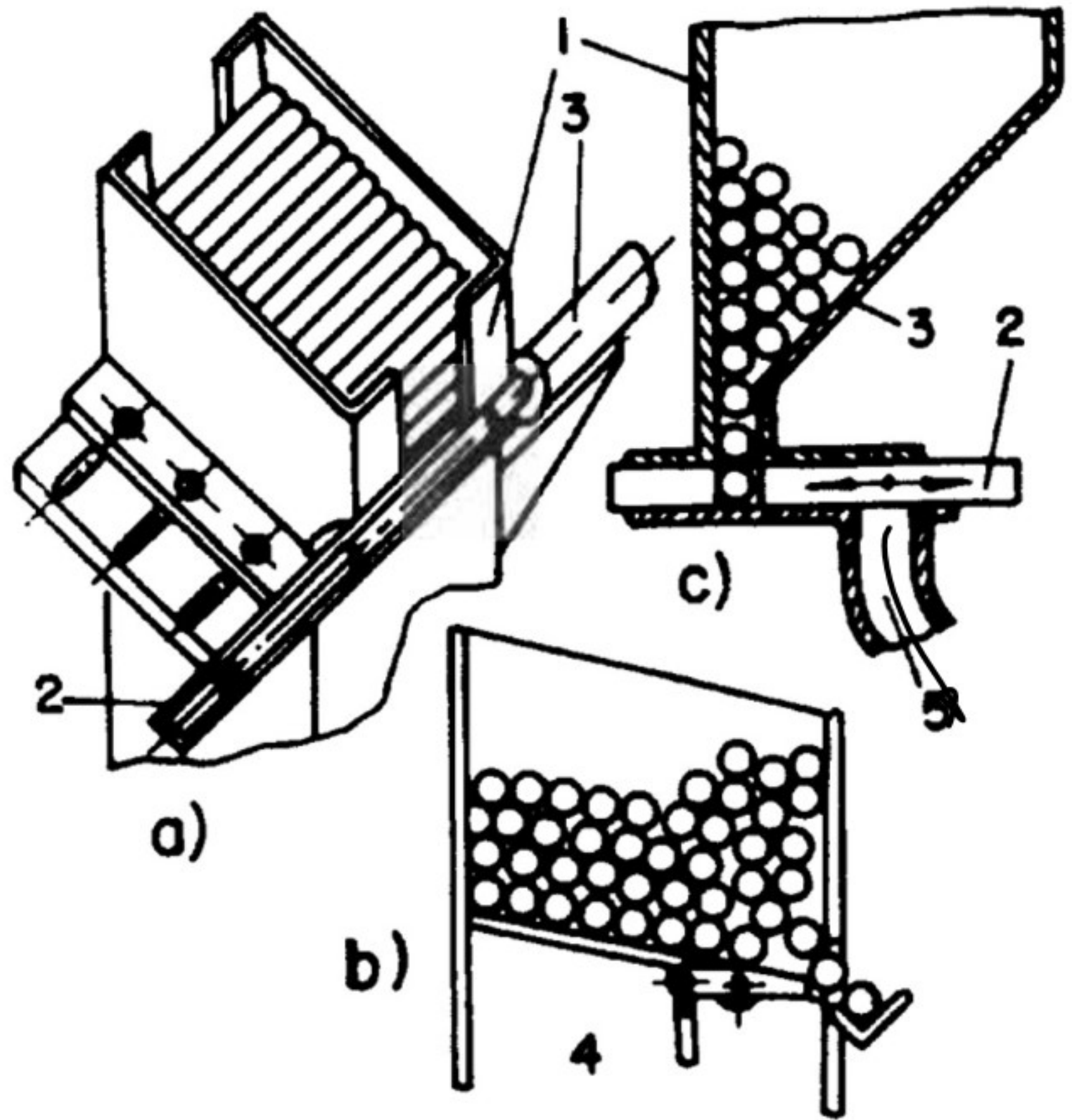
Hoppers

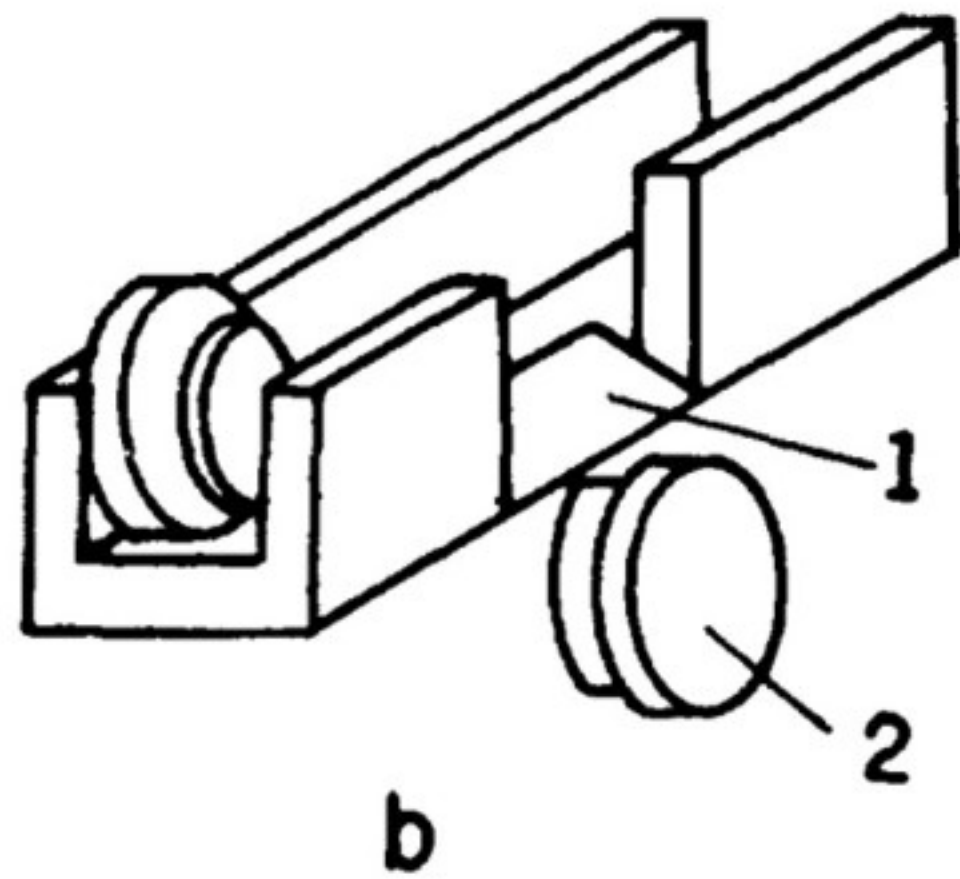
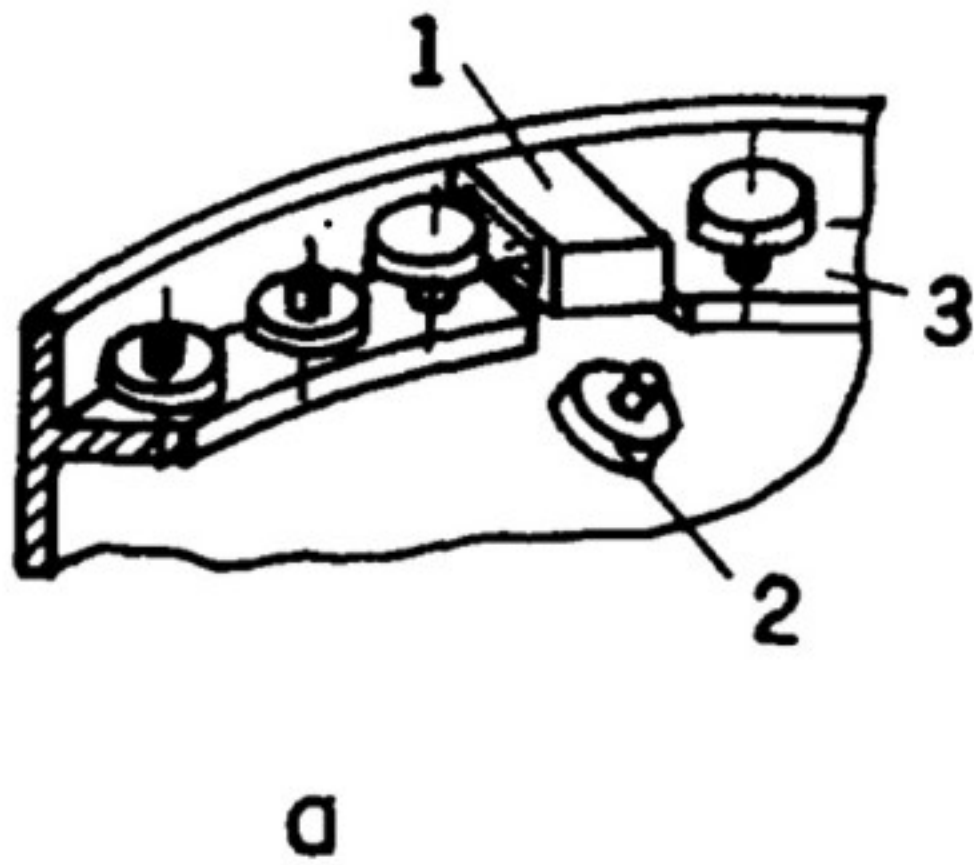
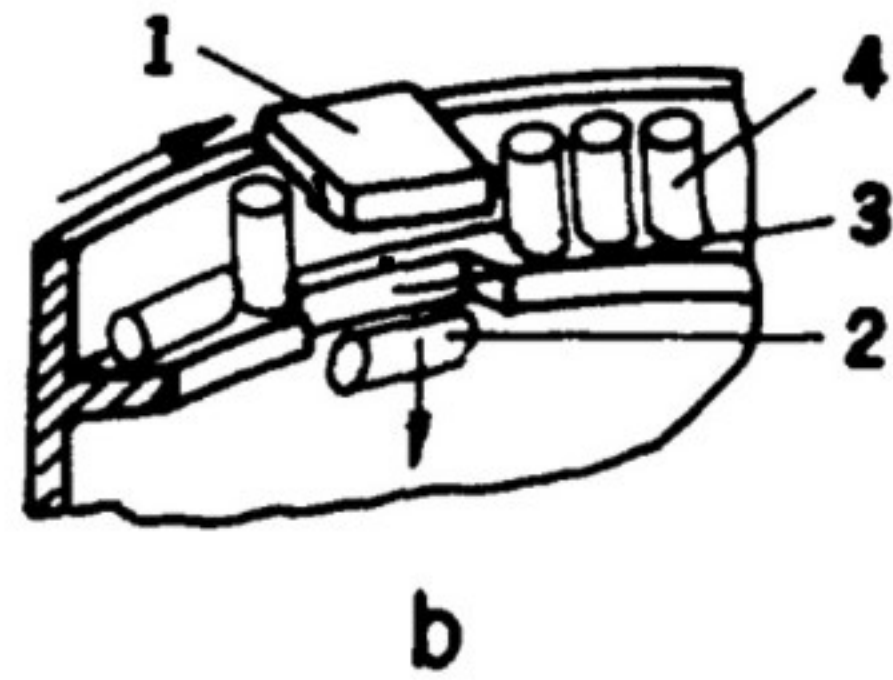
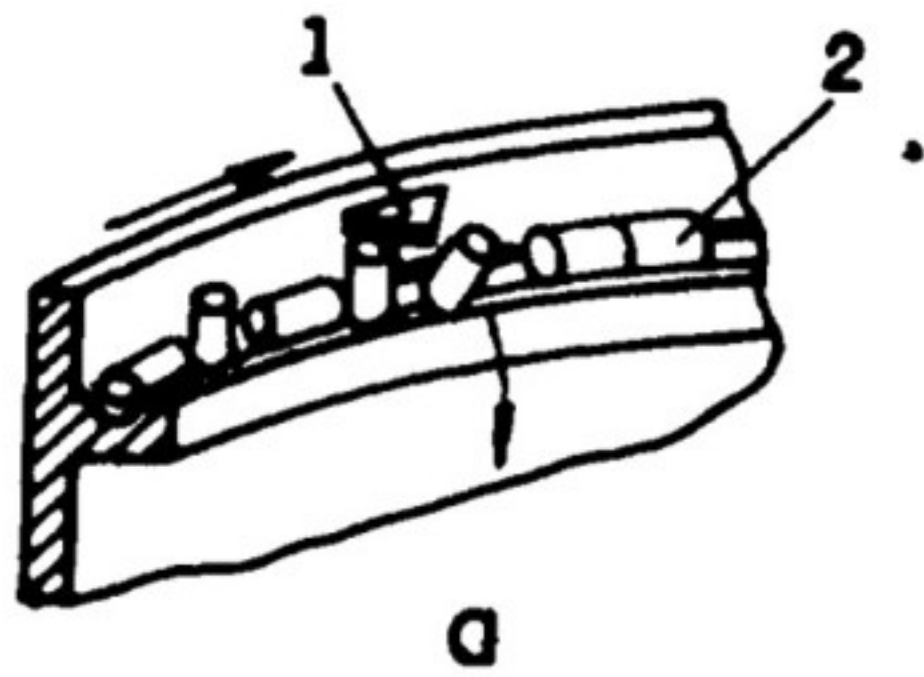


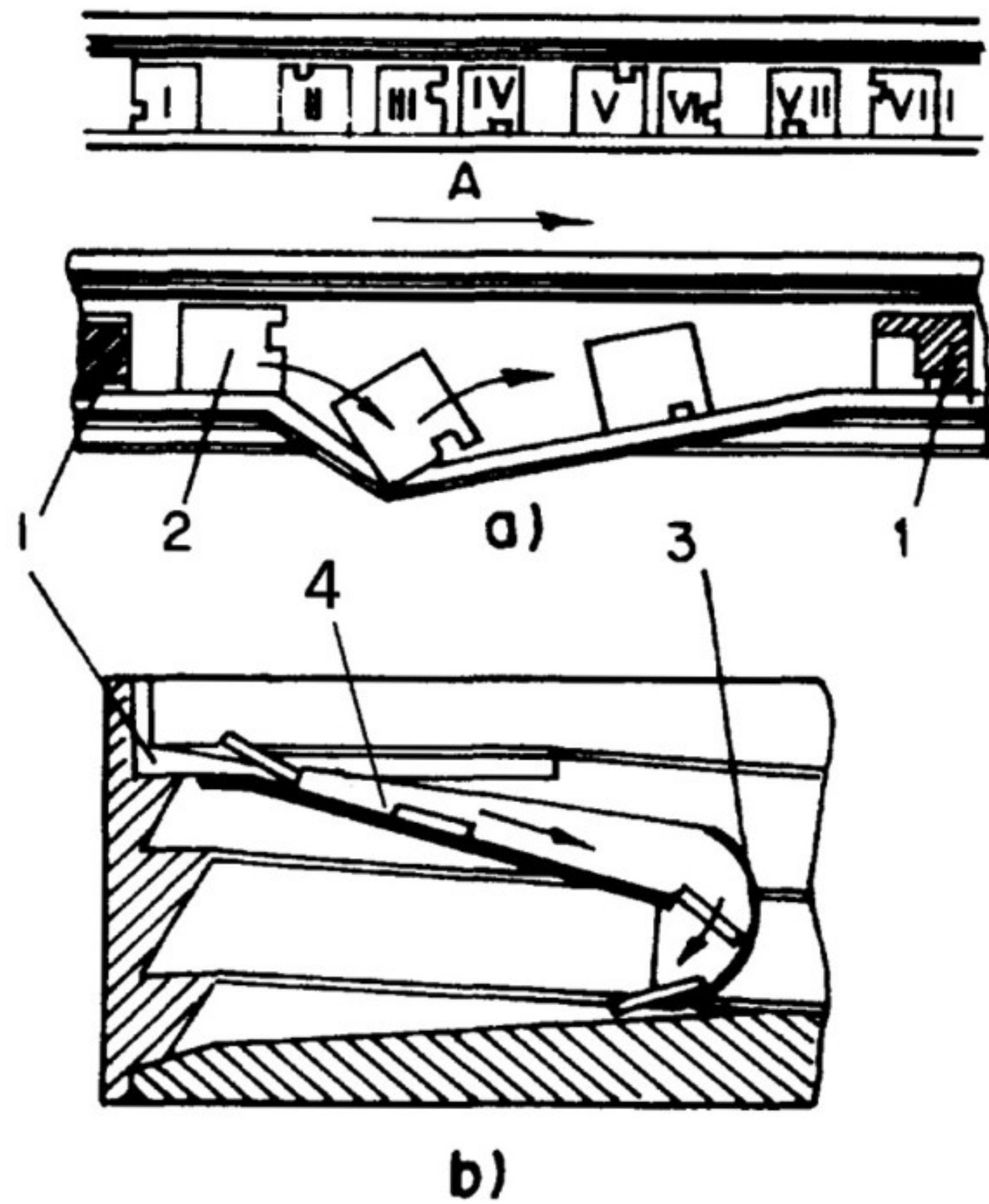
a



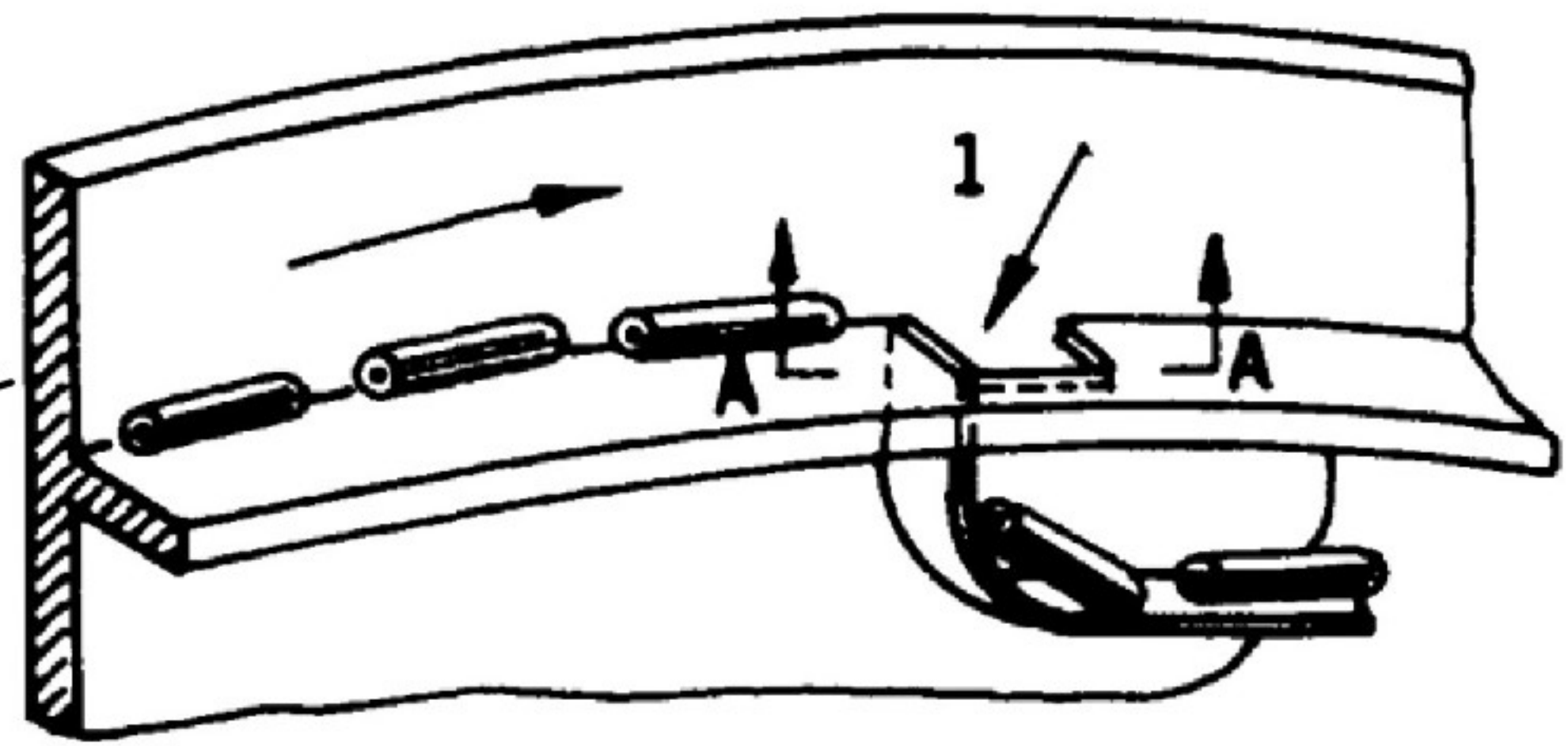
b



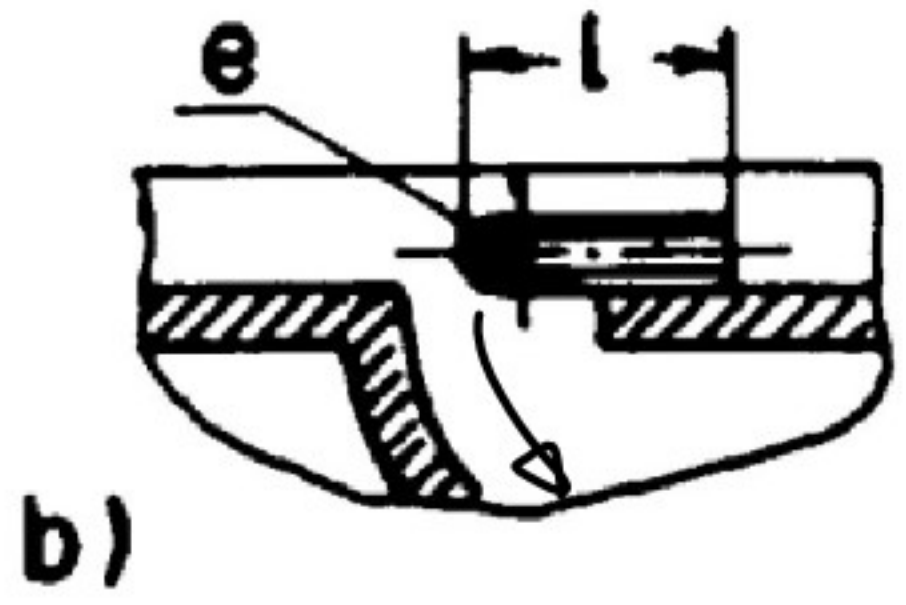
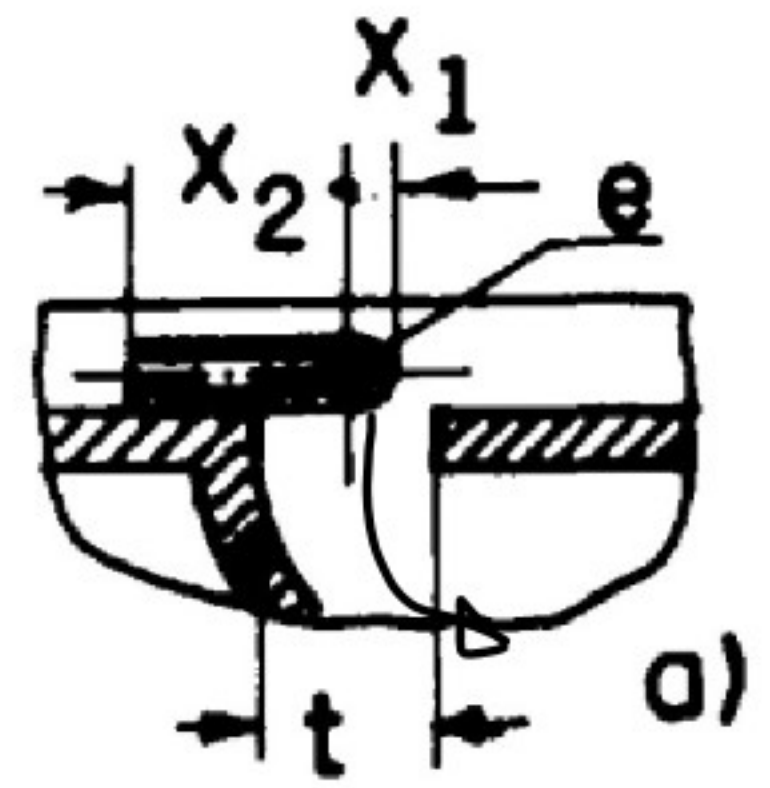


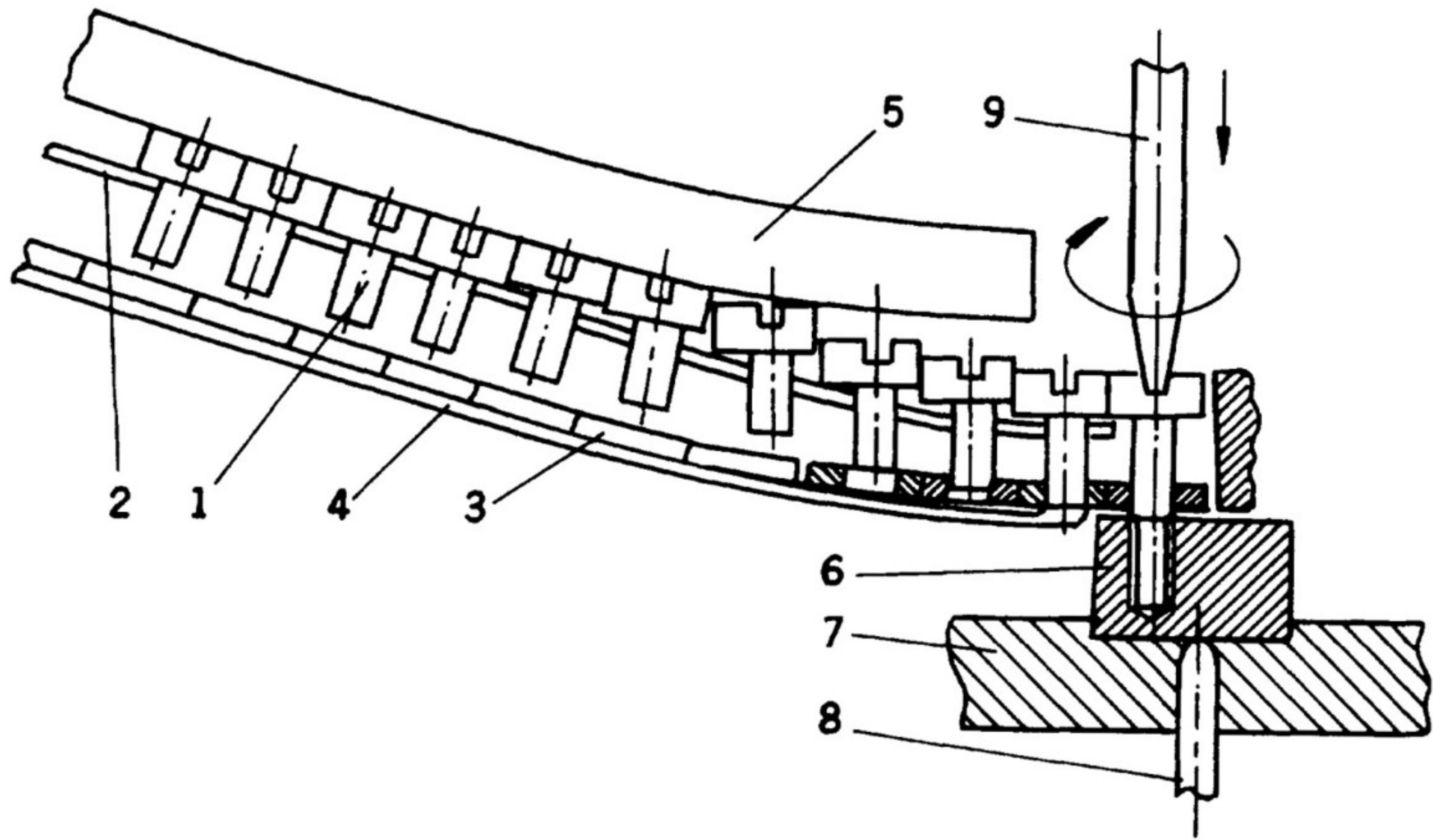


Lighter & heavier



A-A





- ▶ Vibratory Feeder (https://youtu.be/_3envoV7l0Q)
- ▶ Part Feeders (<https://youtu.be/ad4EqRxG-n8>)
- ▶ Rotary Part Feeder (<https://youtu.be/2hJ4fDah3ww>)
- ▶ Rotary Part Feeder (<https://youtu.be/4fwfum2RSAY>)
- ▶ Part Orientation
(<https://www.tiktok.com/@4234machinee/video/7156596676797615406>)
- ▶ Hopper Feeder
(<https://www.tiktok.com/@venaticsgear/video/7158082309227318533>)
- ▶ Pneumatics (<https://youtu.be/XIVeitmEAuE>)
- ▶ Pneumatics (<https://youtu.be/nhSQ9DxoBu4>)
- ▶ Assembly Automation (<https://youtu.be/ILb3oS-6NtQ>)
- ▶ 5 Axis Milling
(<https://www.tiktok.com/@machinecutting/video/7144753400058596650>)