

Mechanics of Coffee

Machine Lab

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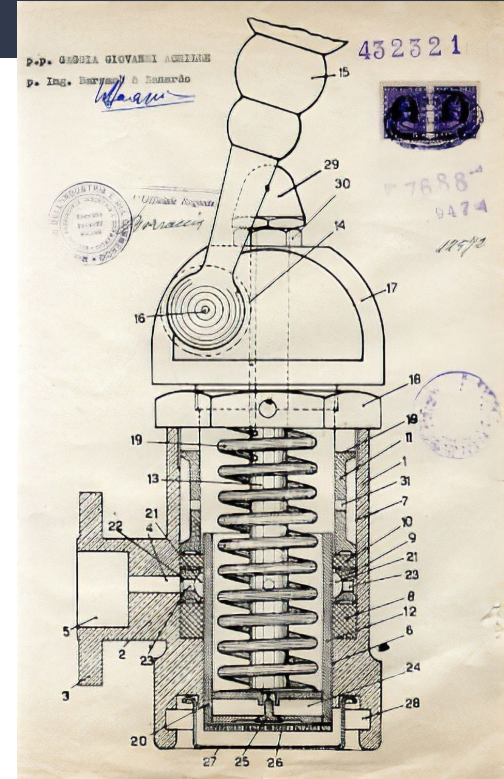
Image:

www.instructables.com/%2FHow-to-Make-a-Lever-Espresso-Machine%2F&psig=AOvVaw3UtgGcH2-rDuYPeliLFhTi&ust=1676526125895000&source=images&cd=vfe&ved=0CBEQjhxqFwoTCMiZ_NPolv0CFQAAAAAdAAAAABAK

Mechanical (Lever) coffee maker

How the mechanism works?

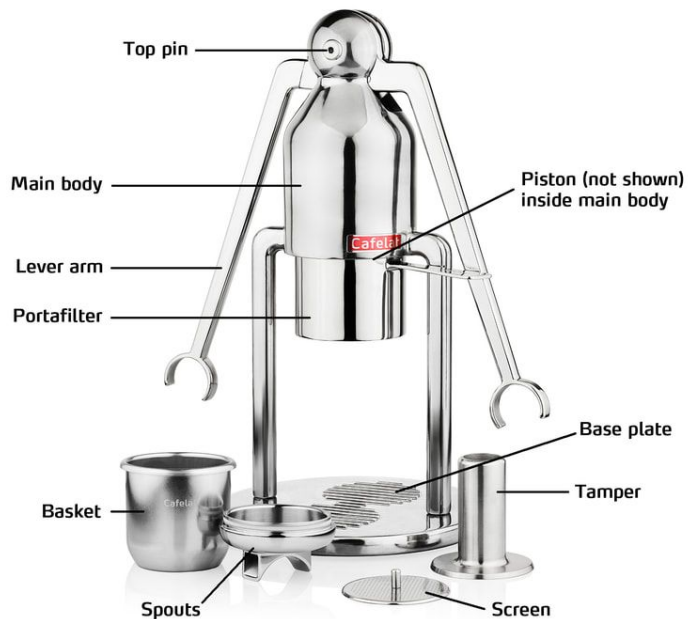
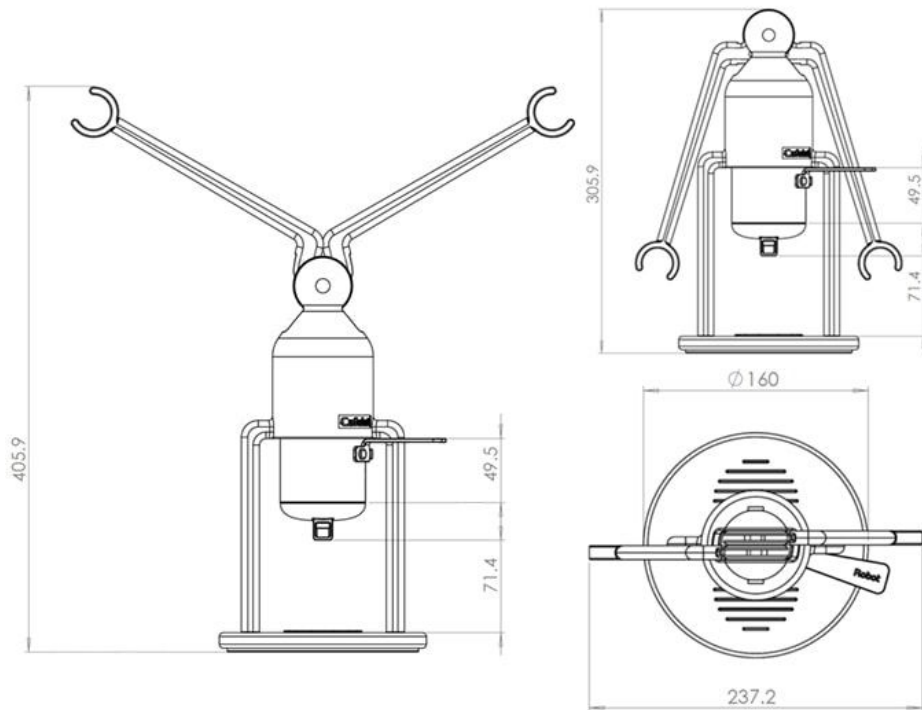
1. The user grinds fresh coffee beans and tamps the coffee into a portafilter.
2. The portafilter is then locked into the grouphead on the espresso machine.
3. The user then pulls down on a lever, which activates the pump and begins the brewing process.
4. As the lever is pulled down, hot water is forced through the coffee grounds and extracted into a cup.
5. The user can control the amount of pressure applied to the coffee by adjusting the lever's position.



More about lever machines...

- Introduced in 1947
- Uses high pressure, not steam power
- Two types: spring piston lever and direct lever
- “A spring piston lever works via an internal spring that pushes water through our ground coffee under pressure. The barista uses a lever (i.e. pulls the shot) to force the spring to compress. On release of the lever the spring then expands and forces water through the coffee at diminishing pressure. The spring automates the pressure, but the barista are able to affect the pre-infusion time, the volume of water through the coffee and the time in which to pull the shot.” ([Source](#))

Cafelat Robot: Another Manual Coffee Maker





Video

First coffee machine and a mechanical music box!

“This is the Swiss-crafted heirloom that produces regular espresso or long-pull espresso accompanied by mellifluous music. Available only from Hammacher Schlemmer, this machine is a combined effort between Reuge—renowned horologists since 1865—in Sainte-Croix, Switzerland, considered the birthplace of the mechanical music box.” ([Source](#))





Video

How are these mechanisms applicable to us?

- Combining electro/mechanics + fun and unexpected elements (music!)
- Using levers, pressure, pistons, and springs
- Thinking about everyday objects and their mechanics
- Applying optimal pressure to move things (i.e. cuckoo flying out of the clock at :00)

Other thoughts, questions, ideas?