Abstract

The projects are sectioned according to their topics. Each topic lists relevant information, such as title, synopsis, illustrations, etc.

1 Zımba–Stapler

1.1 Synopsis

The first known stapler was handmade in the 18th century in France for King Louis XV.\textsuperscript{1} Staplers are used to join multiple sheets of paper. The scope of this project is limited to manual staplers.

1.2 Requirement

Design a stapler based on an existing model, clearly indicating your contributions to the adopted technical specifications. See Figure 1.

Figure 1: Photo of a stapler.

2 Delgeç–Hole Punch

2.1 Synopsis

The origins of the hole punch date back to Germany via Matthias Theel, where two early patents for a device designed to “punch holes in paper” have since been discovered.\textsuperscript{1}

\textsuperscript{1}Wikipedia
2.2 Requirement
Design a single-hole punch based on an existing model, clearly indicating your contributions to the adopted technical specifications. See Figure 2.

Figure 2: Photo of a single-hole punch.

3 Tulumba–Water Pump

3.1 Synopsis
Man have been using mechanical devices to displace water, at least for the last 4000 years.

3.2 Requirement
You will design a reciprocating (positive plunger) pump, that is manually operated. Youe design may be based on an existing model, but you should clearly indicate your contributions to the adopted technical specifications. See Figure 3.

Figure 3: An illustration (left) and a photo (right) of the positive plunger pump system.
4  Mutfak el mikseri–Hand mixer

4.1  Synopsis

4.2  Requirement

You will design a hand-mixer based on an existing model, but you should clearly indicate your contributions to the adopted technical specifications. See Figure 4.

![Hand tool to mix food ingredients.](image)

Figure 4: Hand tool to mix food ingredients.

5  Budama Makası–Pruning Shears

5.1  Synopsis

Pruning shears, also called hand pruners (in American English), or secateurs are a type of scissors for use with plants. They are strong enough to prune hard branches of trees and shrubs, sometimes up to two centimetres thick. They are used in gardening, arboriculture, farming, flower arranging, and nature conservation where fine-scale habitat management is required.

5.2  Requirement

You will design a pruning shear based on an existing model, but you should clearly indicate your contributions to the adopted technical specifications. See Figure 5.
6 El Değirmeni–Grain Mill

6.1 Synopsis
A grain mill is used to make flour from grain (wheat, oats, corn etc.). Grain milling may be one of the oldest mechanical processes invented by humans.

6.2 Requirement
You will design a table-top hand-operated grain mill based on an existing model, but you should clearly indicate your contributions to the adopted technical specifications. See Figure 6.

7 Kalem Açağı–Pencil Sharpener

7.1 Synopsis
A pencil sharpener is a device for sharpening a pencil’s writing point by shaving away its worn surface. Bernard Lassimone, a French mathematician, applied for the first patent (French patent #2444) on pencil sharpeners in 1828.

7.2 Requirement
You will design a planetary-type table top pencil sharpener based on an existing model. You should clearly indicate your contributions to the adopted
technical specifications. See figure 7.

Figure 7: Photo of a sophisticated table top pencil sharpener.

8 Basit Mengene–Vice

8.1 Synopsis

A vice (also spelled as vise) is a mechanical screw apparatus used for holding or clamping a work piece to allow work to be performed on it with tools such as saws, planes, drills, mills, screwdrivers, sandpaper, etc. Vises usually have one fixed jaw and another, parallel, jaw which is moved towards or away from the fixed jaw by the screw.

8.2 Requirement

You will design a table-top mechanical vise based on an existing model. You should clearly indicate your contributions to the adopted technical specifications. See figure 8.

Figure 8: Photo of a table-top mechanical vise.
9 El Matkabı–Hand Drill

9.1 Synopsis

A drill is a tool fitted with a cutting tool attachment or driving tool attachment, usually a drill bit or driver bit, used for drilling holes in various materials or fastening various materials together with the use of fasteners. The earliest drills existed some thirty-five thousand years ago.\(^2\)

9.2 Requirement

You will design a modern-type hand drill based on an existing model. You should clearly indicate your contributions to the adopted technical specifications. See Figure 9.

Figure 9: Illustration of an old (left) and modern (right) hand drill. The modern drill is shown at its sub-assembly level.

10 El Taşlama Tezgahi–Pedal Grinding Wheel

10.1 Synopsis

The use of pedal (crank) powered grindstones to sharpen swords is first documented to the 900’s. It is still used by street craftsmen to sharpen household appliances.

10.2 Requirement

You will design a stand-alone pedal-powered grinding wheel from an existing design. You should clearly indicate your contributions to the adopted technical specifications. See Figure 10.

\(^2\)Wikipedia
11 Musluk–Water Tap

11.1 Synopsis

Tap is a device by which a flow of liquid or gas from a pipe or container can be controlled.

11.2 Requirement

You will design a stand-alone pedal-powered grinding wheel from an existing design. You should clearly indicate your contributions to the adopted technical specifications. See Figure 11.

Figure 11: An old illustration (left) and a newer one with a broken-out section view (right) of a traditional tap.
12 Şişeli Sifon–Bottle Siphon

12.1 Synopsis

The word siphon (also spelled syphon) is sometimes used to refer to a wide variety of devices that involve the flow of liquids through tubes, but in the narrower sense it refers specifically to a tube in an inverted U shape which causes a liquid to flow uphill, above the surface of the reservoir, without pumps, powered by the fall of the liquid as it flows down the tube under the pull of gravity, and is discharged at a level lower than the surface of the reservoir.

12.2 Requirement

You will design a bottle siphon from an existing design. You should clearly indicate your contributions to the adopted technical specifications. See Figure 12.

Figure 12: Illustration of a bottle syphon.

13 Çek Valf (kapaklı)–Swing Check Valve

13.1 Synopsis

A check valve, clack valve, non-return valve or one-way valve is a mechanical device, a valve, which normally allows fluid (liquid or gas) to flow through it in only one direction.

13.2 Requirement

You will design a swing type check valve based on an existing model. You should clearly indicate your contributions to the adopted technical specifications. See Figure 13.

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3http://www.users.waitrose.com/~ttagrevatt/vlav/works_cisterns.html
14 Pnömatik piston–Pneumatic piston

14.1 Synopsis

Pneumatic pistons are widely used in industry to control linear motions and apply forces in electromechanical devices.

14.2 Requirement

You will copy the design of a pneumatic piston. You should clearly indicate your contributions to the adopted technical specifications. See Figure 14.

15 Araç içi telefon tutucu–Driver’s phone rest

15.1 Synopsis

This is a gadget used to rest the driver’s phone in the front panel of an automobile.

15.2 Requirement

You will copy the design of a driver’s phone rest based on an existing model. You are expected to come up with new ideas that increase the usefulness of this gadget. You should clearly indicate your contributions to the adopted technical specifications. See Figure 15.
16 El Mikseri–Hand Mixer

16.1 Synopsis

A hand mixer, as the name implies, is a hand-held mixing device, widely used as a kitchen appliance.

16.2 Requirement

You will design a manual hand mixer based on an existing model. You should clearly indicate your contributions to the adopted technical specifications. See Figure 16.
17 Lastik Pompası–Tire Inflating Pump

17.1 Synopsis
A tire inflating pump is a pneumatic gadget used to inflate deflated automobile tires.

17.2 Requirement
You will copy the design of a commercial tire inflating pump. You should clearly indicate your contributions to the adopted technical specifications. See Figure 17.

![Image of tire inflating pump]

Figure 17: Illustration of a tire inflating pump.

18 Bahçe Sulama Tabancası–Garden Hose Nozzle

18.1 Synopsis
The garden hose nozzle is to control and direct the water flow during watering the garden plants.

18.2 Requirement
You will copy the design of a commercial garden hose nozzle. You should clearly indicate your contributions to the adopted technical specifications. See Figure 18.

19 Ayarlanabilir Masa Lambası–Adjustable Desk Lamp

19.1 Synopsis
An adjustable desk lamp is used to adjust the lighting in a study desk.
19.2 Requirement

You will copy the design of an adjustable desk lamp. You should clearly indicate your contributions to the adopted technical specifications. See Figure ??.

Figure 19: Photo of a commercial desk lamp.

20 Silikon Tabancası–Silicon Gun

20.1 Synopsis

A silicon gun is used to force silicon out of its plastic container in a controlled way.

20.2 Requirement

You will copy the design of a commercial silicon gun. You should clearly indicate your contributions to the adopted technical specifications. See Figure 20.
21  Dolap-Menteşesi–Cabinet Hinge

21.1  Synopsis
A hinge is a type of bearing that connects two solid objects, typically allowing only a limited angle of rotation between them. Two objects connected by an ideal hinge rotate relative to each other about a fixed axis of rotation.

21.2  Requirement
You will design a (clip-on type) cabinet hinge based on an existing model http://www.hafele.com/us/products/9273.asp. You should clearly indicate your contributions to the adopted technical specifications. See Figure 21.

Figure 21: The arm and cup part (left) and the mounting plate part (right) of a cabinet hinge.

22  Kablo Sıyırma Pensesi–Cable Stripper

22.1  Synopsis
A cable stripper is a hand gadget used to strip the plastic cover of cables of various sizes.
22.2 Requirement
You will copy the design of a cable stripper. You should clearly indicate your contributions to the adopted technical specifications. See Figure 22.

![Illustration of a cable stripper.](image1)

Figure 22: Illustration of a cable stripper.

23 Kablo Sıkma Pensesi–Cable Crimper

23.1 Synopsis
A cable crimper is another hand gadget used to crimp cables into various types and sized of jacks (RJ45, etc).

23.2 Requirement
You will copy the design of a cable crimper. You should clearly indicate your contributions to the adopted technical specifications. See Figure 23.

![Illustration of a cable crimper.](image2)

Figure 23: Illustration of a cable crimper.
24 Meyve Sıkacağı–Citrus Juicer

24.1 Synopsis
A citrus juicer is used for squeezing juice from soft-centered, citrus fruits (grapefruits, lemons, limes, oranges). It has a conical ridged center. Centering the halves of fruit with their cut-side down over the juicer, a user presses the fruit down and turns the fruit back and forth to extract juice, discarding the fruit afterwards.

24.2 Requirement
You will design a manual fruit juicer based on an existing model. You should clearly indicate your contributions to the adopted technical specifications. See Figure 24.

![Figure 24: Photo of a fruit juicer.](image)

25 Lehim Pompası–Desoldering Pump

25.1 Synopsis
A desoldering pump, colloquially known as a solder sucker, is a manually-operated device which is used to remove solder from a printed circuit board.

25.2 Requirement
You will copy the design a plunger-type desoldering pump See Figure 25.

26 Gres Pompası–Grease Pump

26.1 Synopsis
Grease pump is a small hand pump for forcing grease under pressure into machine components, especially those known as bearings.
26.2 Requirement
You will copy the design a grease pump. See Figure 26.