FA22 ENG W234-21935

Memo

To: Dr. Evans

From: Samantha St. John

Date: October 11, 2022

Re: Technical Description Final

During the workshop portion of this assignment, I received feedback from my classmates that there was some disconnect between the diagrams presented in my Technical Description and the description text of the parts. This feedback did make sense upon review as I saw where there was general expectation to be told about the plethora of parts listed in my diagram, and then to only see a few major parts discussed. To address this issue, I added additional information regarding all the parts listed in my diagram to make it more clear to the reader. Now, readers of this technical description should have a good understanding of the basic parts listed in my diagram before delving into the interior components.

Furthermore, I removed or reworded portions of the description that were unclear or potentially distracted from the main content of the technical description. For example, I previously mentioned that some coffee makers use a “drip area” as part of the interior design, however, I did not include the relevant pictures or diagrams to properly display this feature. I felt that this became too distracting and possibly a little confusing to the reader. To avoid this, I simply edited it out in the final version of my technical description.

Lastly, I corrected and added more in-text citations to properly cite the sources I used. This includes updating the citations on the figures and pictures used to provide better detail in what they were displaying. This was accomplished by simply filling out the proper note information for each figure. I chose to do it this way because I did not think the information would fit the flow of the technical description if I listed the information in its own paragraph. I did still want to include the information, and I found that simply listing it as part of the figure’s note citation allowed the document to keep a good flow while incorporating all the necessary details.

Technical Description:
Coffee Makers – How They Work

Intended Audience:
Coffee Consumers

Author:
Samantha St. John

Date:
October 11, 2022

Content

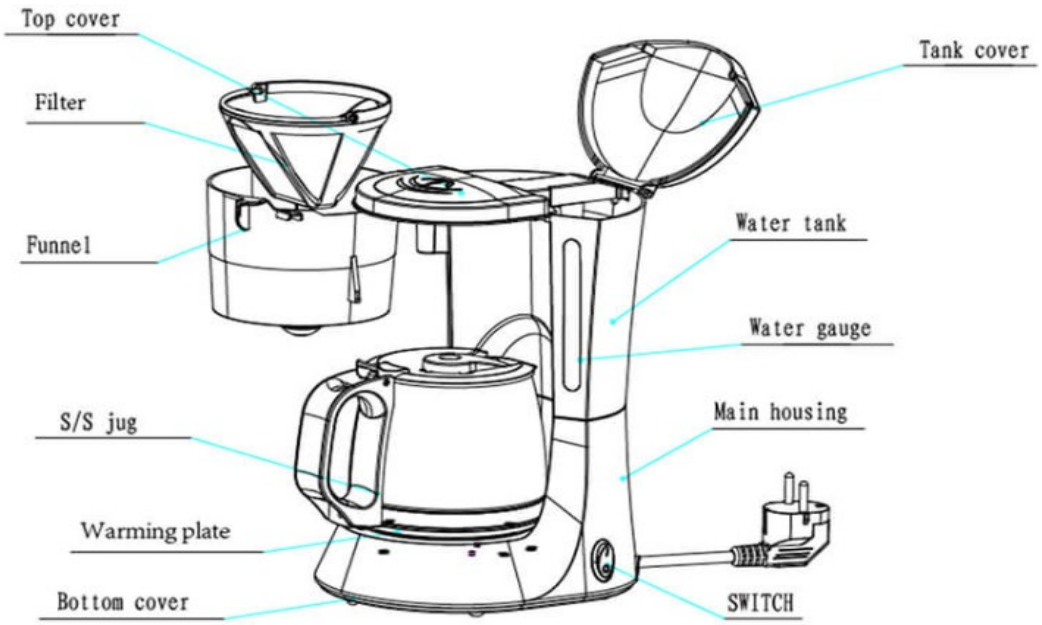
The following document is a technical product description of coffee makers and how the process of brewing coffee works. This document is going to explore the inner workings of the coffee makers typically used at home and assumes there already exists a basic understanding of how to use a coffee maker.

Introduction

For many people, the day begins with a cup of coffee, and most often that event occurs within their own kitchen. The wide variety of coffee makers offered on the market range from large 12-cup programmable or switch coffee makers, to smaller 5-cup coffee makers, to single-serve coffee makers if only a single cup is desired. Shown below in Figure 1 is a standard 12-cup coffee maker and the diagram of parts.

Figure 1

Diagram of parts for a drip coffee maker



Note. A diagram of the outer components of a drip style coffee maker. From *Mocita*. (www.mocita.cn/product/drip-coffee-maker-dd6636). Copyright 2022 by Mocita.

Detail

What are the Outside Components of a Coffee Maker?

Referring to Figure 1 above shows a good example of what the outside of a coffee maker looks like. The main housing holds the pieces together and keeps the inner parts of the coffee maker housed safely. The top cover, tank cover, and bottom cover all serve as covers for important aspects of the coffee maker. Usually, as with the top cover and tank cover, they open to allow for the consumer access inside. Beneath the top cover lies the filter and funnel, into which the coffee

grounds are poured and where coffee later filters into the S/S jug during the brewing process. The tank cover opens to reveal the water tank, where water is poured to begin the brewing process, and the water gauge allows the consumer to accurately measure the contents. The S/S jug is where the brewed coffee funnels down to, and the handle allows for safe handling of the jug. It sits on the warming plate which keeps the coffee warm after brewing has completed. At the bottom is the switch which acts as the power source: turning it on starts the brewing process as well as keeps power running to the warming plate and turning it off removes power from the coffee maker.

What is Inside a Coffee Maker?

The drip coffee makers typically seen in homes and work offices today has become a streamlined design as manufacturers have had more than 30 years to perfect the design (Marshall & Toothman, 2006). The inside of a coffee maker typically consists of three things: (1) a water tank, (2) the shower head, (3) and the heating element. Figure 2, shown below, depicts a closer look at some of these elements.

Figure 2

Inside a Coffee Maker



Note. The inside of a coffee maker. On the right is the water tank where water is first poured, and the black circle at the bottom is where gets pulled up to the shower head after heating. The long, white arm device is the shower head, where water drips onto the coffee grounds. They, in turn, are housed in the black basket that makes up the filter. From *How Stuff Works.* (https://home.howstuffworks.com/coffee-maker.htm). Copyright 2022 by *How Stuff Works.*

(1) The Water Tank

Water gets poured into the reservoir as the start of the coffee brewing process. At the bottom of this water tank is a hole, and from this hole a tube leads up to the drip area once the water has been sufficiently heated.

(2) The Shower Head

Resembling the same shower heads found in many shower stalls, this is where the hot water arrives as it then sprays over the coffee grounds. In the models that use a drip area, water comes

from the shower head onto a perforated plastic disc where it then falls through the holes onto the coffee grounds.

(3) The Heating Element

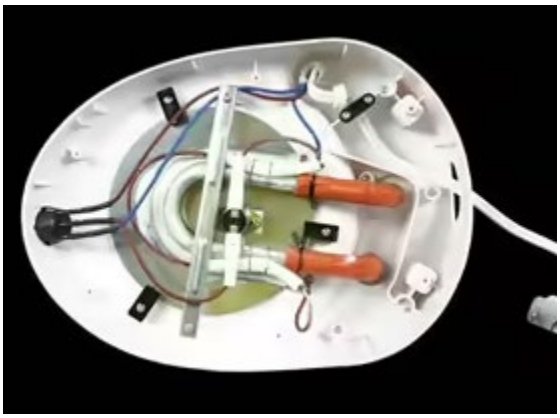
The heating element of coffee makers is located on the left-hand side of the base and is comprised of an aluminum extrusion with two parts. The first is a resistive heating element and the second is a tube for water to flow through. Water is heated through the resistive heating element and the aluminum tube.

How Does the Heating Element Work?

Within the base of the coffee maker, the heating element is a simple coiled wire, and resembles the filament of a lightbulb. Typically, the coil is embedded in a plaster to make it more rugged. The main jobs of the heating element are to heat water put into the coffee maker and to keep the coffee warm once it is made. Directly against the warming plate is where the resistive heating element presses, and effective heat transfer is assured because of white, heat-conductive grease. Figure 3 below shows the inside of a coffee maker's base to where the heating element is housed.

Figure 3

The Heating Element of a Coffee Maker



Note. The heating element located at the bottom of the coffee maker. The depression on the right-hand side is the bottom of the main housing, beneath the bottom cover. The top orange tube picks up cold water coming down from the water tank. The bottom orange tube is the hot-water tube. From *How Stuff Works.* (https://home.howstuffworks.com/coffee-maker.htm). Copyright 2022 by *How Stuff Works.*

Power to the heating element is tied to the switch on the front of the coffee maker. To prevent the heating element from overheating there are components like sensors and fuses. The sensors in a coffee maker detect if the coil is getting too hot and cut off the current of electricity if so. Once it cools down, the sensors turn the current back on. This cycling of current keeps the coil at an even temperature. The fuses in a coffee maker cut the power if they sense the temperature is too high. They are added as a secondary precaution in the event the sensors fail.

A final important part of the coffee maker is the one-way valve, which is located either in the hole of the water tank or in the aluminum heating pipe. The purpose of this one-way valve is to let cold water into the aluminum tube while forcing the bubbles of boiling water to flow up the tube to the coffee grounds.

Conclusion

The coffee makers found in homes and offices across the world have a simple design that accomplishes much. After adding water to the water tank, the coffee filter, and coffee grounds to the device, it has the capability to heat up the water, push it through a tube leading to the coffee grounds and provide the drip method used in making coffee.

Works Cited

Mocita Drip Coffee Maker. (n.d.). *Diagram of Parts.* Retrieved from www.mocita.cn/product/drip-coffee-maker-dd6636. Accessed 4 October 2022.

Marshall, B., Toothman, J. *How Coffee Makers Work* 29 November 2006. HowStuffWorks.com. https://home.howstuffworks.com/coffee-maker.htmAccessed 4 October 2022.