Swing-A-Way Can Opener
A Technical Description
1. General Description

The Swing-A-Way can opener is a handheld mechanical device used to open cans of all sizes. This device is a common household appliance that is most often stored in the home’s kitchen due to the fact that the cans it most frequently opens are filled with non-perishable food items. This can opener is a popular item among users for two reasons. Firstly, with a retail price of approximately $9.95 (as of 2013) in most home appliance stores, this device is inexpensive which makes it desirable and available to consumers from a wide variety of backgrounds. Secondly, it is easy to use as it does not require a manual to describe its operation, though it may require a basic demonstration from a user who is familiar with the appliance.

The Swing-A-Way can opener is comprised of two levers which are connected by a rivet which allows the can opener to be swiveled outward to 180 degrees. Each lever has a white rubberized handle and a stainless steel component. When held lengthwise and with the two levers closed, the can opener forms an elongated rectangular shape (see Figure 1).

Measurements:

- 17.5 cm in length (closed)
- 4.4 cm in height (closed)
- 1.4 cm of space between the top lever and the bottom lever (closed)
- 32.9 cm in length (opened – see Figure 2)
2. Description of Main Parts

The Swing-A-Way can opener consists of two main components: (1) the top lever and (2) the bottom lever (see Figure 3).

2.1 The Top Lever

The top lever is the rigid strip comprised of both rubber and stainless steel that forms the upper half of the Swing-A-Way can opener. It is the part of the can opener that is clamped down on the top of the can being opened to ensure that the can is securely in place so that it can be opened from the top. This lever can only move in a top-to-bottom motion when held properly in the left hand.

This component of the appliance is made up of four main parts (see Figure 4): (1) a rubberized handle, (2) a stainless steel component, (3) a rivet, and (4) a cutting wheel.
2.1.1 The Rubberized Handle

The rubberized handle is a gripping mechanism that helps the user secure his or her hand in place in order to exert force. It belongs to the top lever portion of the can opener and is to be gripped by the user's thumb on their left hand. This grip ensures that the can opener stays securely in the hand of the user and also that the whole can opener stays fastened to the can. This handle is white in colour and made of a stiff rubber material.

This handle measures:

- 8.7 cm in length
- 1.6 cm in height
- 1 cm in thickness

The rubberized handle has a straight length and smooth surface that allows the user to grip it with ease. It forms a long (8.7 cm) rectangular shape that has a slightly curved end. It seamlessly connects to the stainless steel component of the can opener.

2.1.2 The Stainless Steel Component

The stainless steel component of the Swing-A-Way can opener acts as a base for the cutting wheel and ensures that there is space between the rubberized handle and the can being opened. It is a part of the top lever and connects to the rubberized handle, the cutting wheel, and the bottom lever (it is connected to the bottom lever by way of the rivet). This component is silver in colour and made of metal (i.e. stainless steel).

The stainless steel component measures:

- 4 cm in height at its widest point
- 2.2 cm in height at its narrowest point
- 8.2 cm in length
- 0.5 cm in thickness

The stainless steel component is straight on the top and on its sides, though at the bottom it has a curve that juts out from the rest of the component 1.7 cm, measures 2.5 cm in width and curves at a 45 degree angle and straightens for another 5.7 cm until it meets the rubberized handle. The steel bubbles out to a height of 0.5 cm where it is connected to the cutting wheel. This bubble measures 2 cm in length and 4.1 cm in width.

2.1.3 The Rivet

The function of the rivet is small but important. It is what ensures that the two main parts of the Swing-A-Way can opener, the top lever and the bottom lever, can smoothly swing upward and downward to allow the can opener to be attached to cans of various sizes.
The rivet measures:

- 0.9 cm in diameter
- 3 cm in circumference

The rivet is the circular device located within the top lever of the Swing-A-Way can opener that connects the top lever and bottom lever and allows them to both swivel outward 180 degrees away from each other. This device is circular in shape and dark silver in colour.

### 2.1.4 The Cutting Wheel

The cutting wheel is the part of the Swing-A-Way can opener that performs the main function of the device: it does the actual opening of the can by cutting into the top of it. It is located within the stainless steel portion of the top lever. Once the user has secured the top lever to the can, the cutting wheel punctures into the top after the user applies pressure to the rubberized handle. Once this initial puncture has been made, the cutting wheel continues to slice into the top of the can as it circles the perimeter. The cutting wheel is circular in shape and dark silver in colour.

This wheel measures:

- 1.8 cm in diameter
- 7.2 cm in circumference
- 1 cm in thickness

There are also metal spokes located behind the cutting wheel which connect to the gear-driving wheel located on the bottom lever in order to help the can turn as it is being opened. There are 14 spokes to the wheel, each spoke measuring 0.2 cm in length and 0.2 cm in width.

The cutting wheel is circular in shape, with a rougher metal texture than the stainless steel component, due to the fact that it is prone to rust. Semi-regular (approximately after every 10 uses) polishing of the cutting wheel will prevent tarnishing.

### 2.2 The Bottom Lever

The bottom lever is the rigid strip comprised of both rubber and stainless steel that forms the lower half of the Swing-A-Way can opener. It is the part of the can opener that is secured to the underside of the can lid to ensure that the can is properly in place and will be able to rotate as the cutting wheel opens the lid from the top. This lever can only move in a bottom-to-top motion when held properly in the left hand.

This component of the appliance is made up of six main parts (see **Figures 5.1 and 5.2**): (1) a rubberized handle, (2) a stainless steel component, (3) a bottle opener, (4) a jutted metal square, (5) a gear-driving wheel, and (6) a crank.
2.2.1 The Rubberized Handle

Similar to the rubberized handle in section 2.1.1, this rubberized handle is also a part of the Swing-A-Way can opener that acts as a gripping mechanism for the user. It belongs to the bottom lever portion of the can opener and is to be gripped by the user’s index, middle, ring, and pinky fingers on their left hand. This grip ensures that the can opener stays securely in the hand of the user and also that the whole can opener stays attached to the can as the can is being opened from the top. This handle is white in colour and made of a stiff rubber material.

This handle measures:

- 8.7 cm in length
- 1.6 cm in height
- 1 cm in thickness

Identical in looks to the rubberized handle in section 2.1.1, this rubberized handle also has a straight length and smooth surface that allows the user to grip it with ease. It forms a long (8.7 cm) rectangular shape that has a slightly curved end. It seamlessly connects to the stainless steel component of the can opener.

2.2.2 The Stainless Steel Component

The stainless steel component of the Swing-A-Way can opener acts as a base for the gear-driving wheel and the crank. It is a part of the bottom lever and connects to the rubberized handle, the gear-driving wheel, the bottle opener, the jutted metal square, the crank, as well as the top lever (it is connected to the top lever by way of the rivet). This component is silver in colour and made of stainless steel.

The stainless steel component measures:
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- 5 cm in height at its widest point
- 2.8 cm in height at its narrowest point
- 8.2 cm in length
- 0.5 cm in thickness

The stainless steel component is straight along the top for 5.7 cm, then it angles downward at a 90 degree angle (measuring 2 cm in length) until it straightens out again for 2.5 cm and meets the rubberized handle. The bottom portion of the stainless steel component is rounded for 5 cm until it curves into the bottle opener. After the bottle opener portion, it is straight for 1 cm until it meets the rubberized handle.

2.2.3 The Bottle Opener

The bottle opener is a bonus piece attached to the Swing-A-Way can opener that easily opens bottle tops by placing the sharpest point of the opener underneath the perimeter of the bottle top. The user then, with their right hand, pulls the Swing-A-Way can opener up at a 45 degree angle, causing the top to be quickly lifted from the bottle. The bottle opener is attached to the stainless steel component of the bottom lever. It is silver in colour and made of stainless steel.

The bottle opener measures:

- 1 cm in length
- 1.2 cm in width
- A curve of 1 cm
- 0.5 cm in thickness

The bottle opener has a curved, hook-like shape that ends in a sharp point (see Figure 6). This allows it to better get under the top of the bottle lid. It juts 1 cm out from the bottom of the stainless steel component. This particular part of the Swing-A-Way can opener gives the appliance some diversity as it takes the can opener from simply opening cans to opening bottles as well.

![Figure 6 Bottle opener](image-url)
2.2.4 The Jutted Metal Square

The jutted metal square is the part of the Swing-A-Way can opener that ensures that the can being opened does not get too close to the bottom lever portion of the appliance, therefore ensuring that the gear-driving wheel, which has a serrated edge, does not compromise the body of the can. This metal square is silver in colour and made of stainless steel (see Figure 7).

![Figure 7 Jutted metal square]

The jutted metal square measures:

- 1 cm in height
- 1 cm in width
- 0.5 cm in thickness

The jutted metal square forms, as implied by the name, a square shape that horizontally juts 1 cm out from the bottom of the stainless steel component. Its main function is to provide some distance between the can and the can opener so that the can may be turned more easily and with no damage to either the can or the can opener.

2.2.5 The Gear-Driving Wheel

The gear-driving wheel is a circle with a serrated edge that ensures that the can being opened turns smoothly while attached to the Swing-A-Way can opener. The gear-driving wheel works closely with the cutting wheel by turning the can while the cutting wheel slices open the top of the can. By applying pressure to the bottom lever of the can opener when fastening the can opener to the can, the user ensures that the gear-driving wheel fits snugly just under the outer rim of the can. When the user turns the crank with their right hand, the spokes behind the gear-driving wheel fit into the spokes of the cutting wheel and force the can to begin to move in a counter-clockwise circuit. The gear-driving wheel is circular in shape and dark silver in colour.
The gear-driving wheel measurements:

- 1.7 cm in diameter
- 6.2 cm in circumference
- 0.3 cm in thickness

The gear-driving wheel forms a circular shape with a serrated edge to allow for maximum grip of the can. Behind this wheel are its spokes which link to the spokes of the cutting wheel on the top lever as the can turns. There are 12 spokes to the gear-driving wheel, each measuring 0.2 cm in length and 0.2 cm in width.

### 2.2.6 The Crank

The crank is the part of the Swing-A-Way can opener that the user turns to keep the can spinning as it opens. The user grips the crank with their right hand and turns it top-over-bottom. The crank is directly connected to the gear-driving wheel and is in fact what makes the gear-driving wheel move. When the cranks forces the gear-driving wheel to move, the gear-driving wheel forces the cutting wheel to move, thus opening the can as it turns in a circuit. The crank is silver in colour and made of stainless steel.

The crank measurements:

- 8.3 cm in length
- 1.1 cm in width at its narrowest point
- 1.6 cm in width at its widest point
- 1.1 cm thick

The crank forms an elongated diamond shape with narrow (1.1 cm) ends and a wider (1.6 cm) middle. It has a smooth surface and edges and is connected to the stainless steel component/gear-driving wheel by a post that is 3.5 cm long, has a diameter of 1.2 cm, and a circumference of 4 cm.

### 3. Conclusion

The Swing-A-Way can opener is a highly useful mechanical appliance that is easy to function and simple to maintain. Its ability to swing outward 180 degrees allows the user the freedom to open cans both big and small. It is widely available in most home appliance stores at a very reasonable price, making it accessible to people from all walks of life who will never struggle to find this device. This conclusion is broken down into two parts: (1) cycle of operation, and (2) value to the user.

#### 3.1 Cycle of Operation

To operate the Swing-A-Way can opener, the user grips the two white rubberized handles in their left hand, and fastens both the gear-driving wheel (a part of the bottom lever) and the cutting wheel (a part of the top lever) around the perimeter of the can (see Figure 8).
Then with the right hand the user turns the crank (see Figure 9), which causes the gear-driving wheel to force the can to turn and the cutting wheel to cut open the top of the can as the can is turning. Once the can has completed its circuit, the user may then unfasten the can opener from the can and remove the can lid, being careful in doing this as the lid will have sharp edges.

![Figure 8 Securing can opener to can](image)

![Figure 9 Turning the crank](image)

### 3.2 Value of the Swing-A-Way Can Opener to the User

The Swing-A-Way can opener has great value to any user, as cans of non-perishable food items are staple pieces in most homes and oftentimes cannot be opened without the use of a can opener. This appliance is easy to operate, not requiring any special usage instructions, though a basic demonstration from a more experienced user might be necessary for some. Additionally, with the 180 degree movement of the two levers, this can opener has the ability to open cans both big and small. In conclusion, this appliance is inexpensive, good quality, and convenient. It is an asset to any home.