

Description of the Reach® Johnson & Johnson Floss Dispenser

1.0 Introduction

The Reach® Johnson & Johnson floss dispenser is an oral health care product that provides portable and easy access to a roll of floss. This product is similar to a tape dispenser, which has the means to unroll a certain amount of tape, cut the tape quickly, and repeat this process many times. The floss dispenser allows for cutting any desired length of floss quickly and repeatedly. The floss dispenser comes with three main parts: the floss spool, the spool holder, and the plastic covering. The floss dispenser is shown with the parts connected in Figure 1. The parts are shown separately in Figure 2.

Figure 1:
Floss Dispenser



Figure 2: Parts



Plastic Covering

Floss Spool

Spool Holder

2.0 Parts

2.1 The Floss Spool

The floss spool contains the tightly wound and compressed floss. The entire circle is 1½” in diameter and 3/8” thick. The floss spool consists of one very long piece of floss that is wound tightly around a ½” inner plastic cylinder. The plastic cylinder allows for the floss to be wrapped into a perfect circular shape and unwound in a smooth circular motion. The floss thread is a flat piece of green thread that has a waxy outer coating and a minty smell. Because the floss is waxed, it can stick to itself, keeping the floss spool from unwinding. One end of the floss is free from the outer edge of the floss circle. The user pulls this end from the rest of the circle and cuts off a small piece for flossing. The other end of the floss is located in the inner edge of the circle. This end is placed across the plastic cylinder and tucked under the rest of the roll of floss. This placement keeps the roll of floss from slipping off of the plastic cylinder or from unrolling at the wrong end.

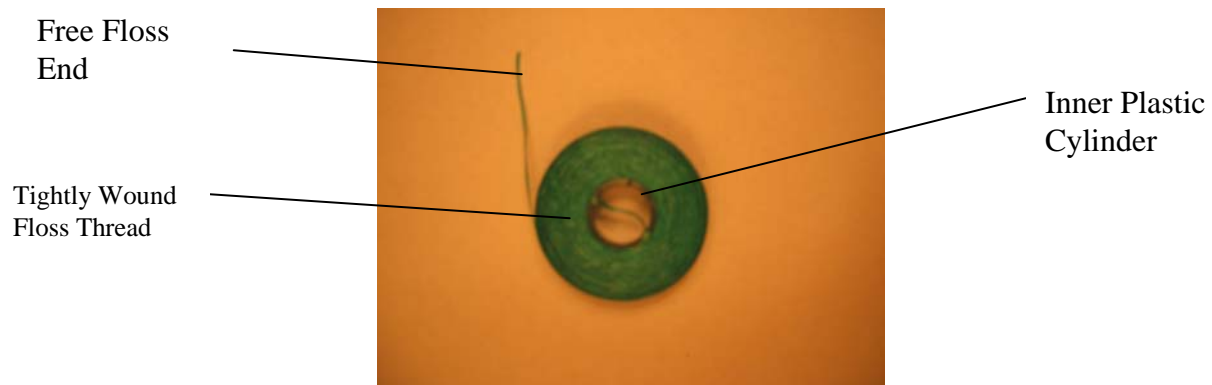


Figure 3:
Floss Spool

2.2 Spool Holder

The spool holder is a transparent V-shaped plastic piece that serves many functions in the floss dispenser. The spool holder is 1½” inches tall, 1¾” wide across the top, and ½” in thickness. It is light and flexible, keeping the device from being heavy or easily breakable. The spool holder is made up of a wheel holder, a floss holding arm, a floss cutting arm, and a finger gap. The floss holding arm feeds the floss up from the floss spool, across the finger gap, and to the floss cutting arm, where the floss is eventually cut. The user grabs the loose end of the floss thread, pulls out an appropriate length of floss thread, and cuts the thread with the help of the spool holder.

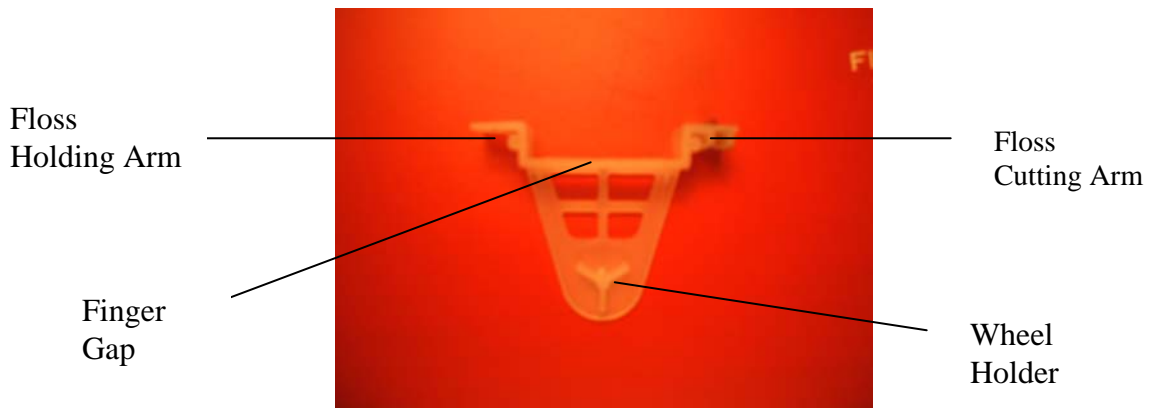


Figure 4:
Spool Holder

2.2.1 Wheel Holder

The wheel holder is a Y-Shaped extension at the bottom of the spool holder. The wheel holder is 5/8" in diameter. The three plastic sections of the "Y" fit nicely in the plastic cylinder from the floss spool. They hold the floss spool in place, only allowing it to rotate around the wheel holder. Above the Y-Shaped extensions, there are four rectangular cuts in the back of the spool holder. Although these cuts make the piece lighter and more flexible, they are primarily there for manufacturing purposes.

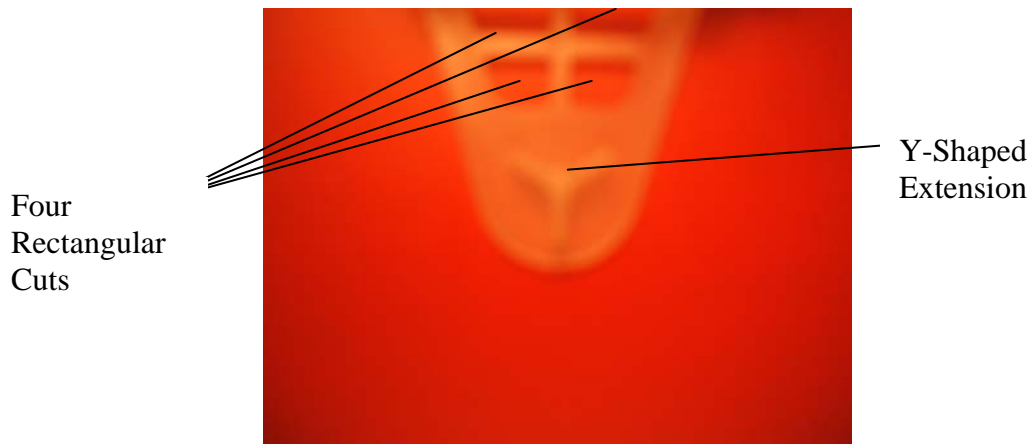


Figure 5: Wheel Holder

2.2.2 Floss Holding Arm

The floss holding arm is located on the upper left side of the spool holder. Its dimensions are $\frac{3}{8}$ " by $\frac{1}{2}$ ". The floss holding arm has a tiny slit on its outer edge that opens into a small hole that is $\frac{1}{16}$ " wide. The floss enters the floss holding arm through the slit and remains in the hole, keeping it from getting misplaced. From there, the user can grip the floss and continue to pull out the floss thread from the floss holding arm. The smooth plastic of the floss holding arm provides a good surface for the waxy floss to glide across.

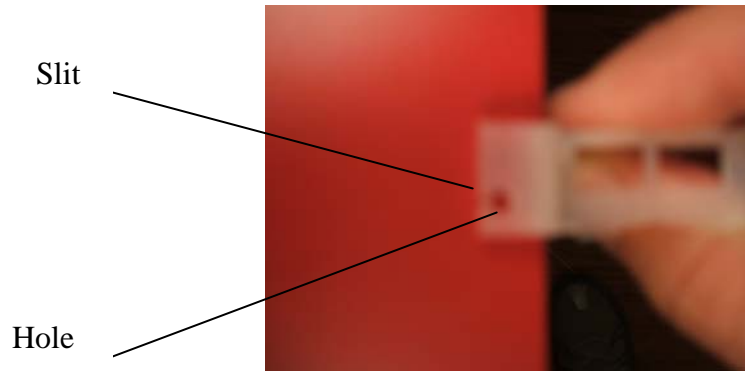


Figure 6: Floss Holding Arm

2.2.3 Floss Cutting Arm

The floss cutting arm contains a piece of metal that is wrapped around the outer side of the spool holder. Its dimensions are 3/8" by 1/2". A curved metal tooth sticks up from the top of this metal piece. The tooth faces the far right corner of the floss dispenser. When the user wants to cut the floss, they simply place the floss under the metal tooth and pull the free end of floss away from the front of the floss dispenser. This brings the floss thread into contact with the metal tooth in two places, one wedge on the left side of the tooth and one wedge on the right side. Although the metal tooth is not sharp, the contact spot on the right side of the tooth cuts the floss thread when the thread is slowly forced into the wedge. At this point, the user pulls the floss thread taught, so the tiny pinch from the right contact wedge is able to cut the floss thread. The floss is not forced as tightly under the left contact wedge, so the rest of the floss stays put under the grip of the metal tooth after a cut has been made. This lets the user quickly get a hold of the free end of floss during each use.

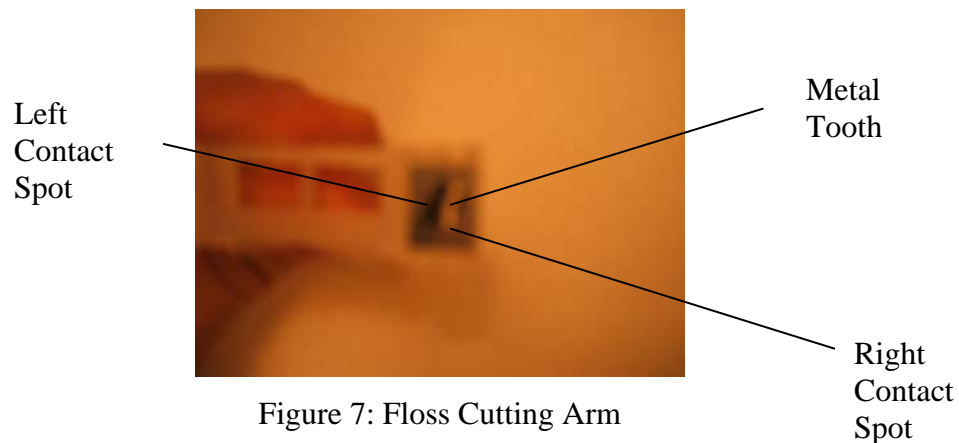


Figure 7: Floss Cutting Arm

2.2.4 Finger Gap

The Finger Gap is location between the two arms of the spool holder. It is 1 1/8" by 1/2". It is lower than the arms, because it provides a space where your finger can fit to grab the floss thread. This piece has two rectangular cuts in it. These cuts, along with the spool holder's transparency, allow for the user to see through and determine if the floss spool is in place and not depleted. In the front of the finger gap are two triangular wedges that make sure that the spool holder does not fall down into the plastic covering. The wedges also make sure that the spool holder is placed correctly in the plastic covering, because it will not fit if it is turned any other direction.

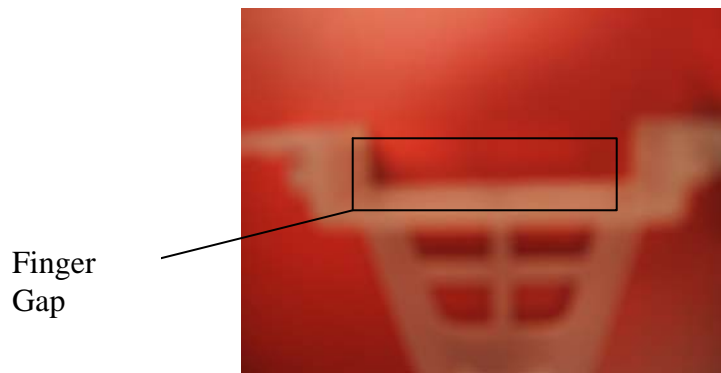


Figure 8: Finger Gap

2.3 Plastic Covering

The plastic covering, made out of white plastic, holds the other two pieces in place, keeping the floss safe from outside contaminants. It has a 2" by 1/2" base, and it is 2 1/4" tall. There are two pieces to the plastic covering, the top piece and the bottom piece. The top and bottom are joined together in the back of the floss dispenser with a plastic hinge. This hinge provides rotation for the top to come off of the bottom, giving the user access to the floss inside. The whole plastic covering is light and durable, which helps the portability of the device.



Figure 9: Plastic Covering

2.3.1 The Top

The Top is 2" by ½" and ¼" tall. It has an extra flap in the front that hangs over the gap in the bottom piece. There is a small notch behind the flap, which securely fastens the top to the bottom when the top is pressed down.

Front Flap



Figure 10: Top Piece Side View

Notch

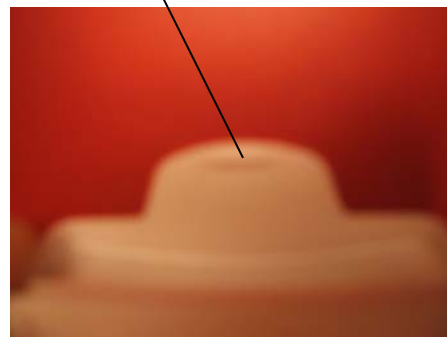


Figure 11: Flap Under View

2.3.2 The Bottom

The bottom is 2" by 1/2" and 2" tall. The two side walls and the back wall of the bottom piece are a little bit thicker than the front wall. This allows the front wall to be compressed inward easily, which releases the top piece and the bottom piece from their front connection. There is a gap in the top of the front wall that lets your finger reach inside of the mechanism to grip the floss thread. At the edge of this gap there is a small notch. This notch comes in contact with the notch from the top piece, securely closing the lid. Three notches on the back wall of the bottom piece keep the spool holder from coming out once it is securely in place. Tall notches at each corner of the bottom piece keep the arms of the spool holder from going too far down into the plastic covering. One extra tall notch is located on the left wall of the bottom piece. This notch fits nicely into the left arm slit of the spool holder. This ensures that the spool holder cannot go in the reverse way. This also helps keep the floss in place of the hole in the left arm.

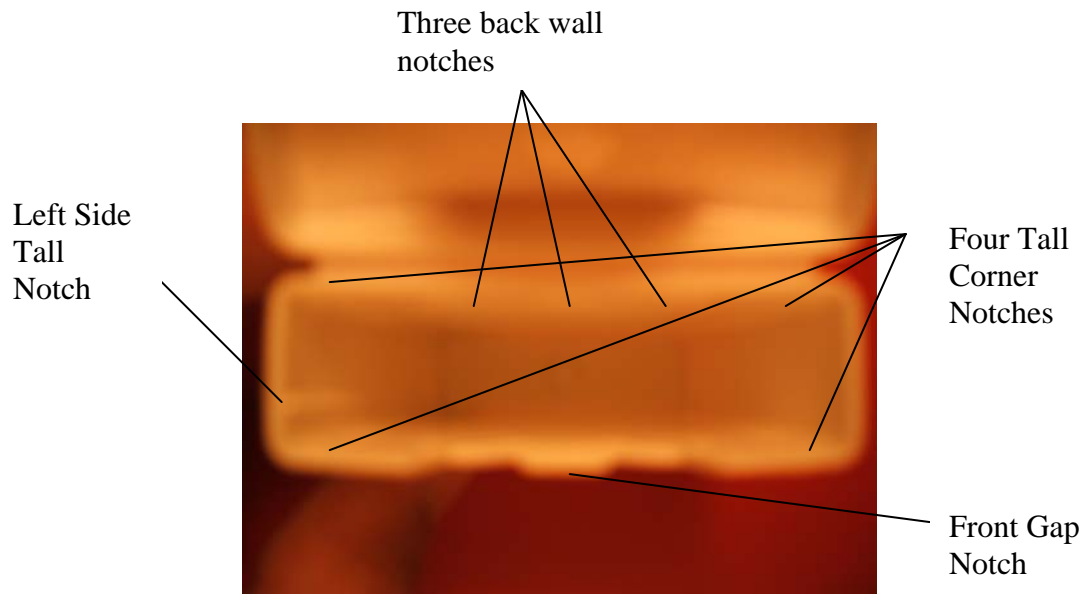


Figure 12: Top view of Bottom Piece

3.0 Mechanism in Use

3.1 To open the floss dispenser, hold the dispenser in one hand with the colorful writing facing you. Use a finger to press into the front wall of the plastic covering (Figure 13). The bond between the notches in the plastic covering will be released, and the force from the hinge in the back will cause the top to lift up from the bottom. The mechanism should be in order at this point, with the floss coming up through the left arm and over the finger gap to the right arm. Grip the floss thread with your thumb and index finger over the finger gap. Pull the floss up directly over the left arm of the spool holder (Figure 14). This will cause the spool to spin around the spool holder, releasing the floss out of the plastic container for the user. When you have pulled out about two feet of floss, place the floss flat across the arms of the spool holder (Figure 15). Keeping the floss thread taut, place the floss thread under the metal tooth of the right arm of the spool holder. Then bring the floss thread towards you, making a right angle with the floss placed across the spool holder (Figure 16). Pull the floss towards you, and the metal tooth will cut it. The cut is made from the floss being slowly forced into the right wedge under the tooth. The left wedge under the tooth keeps holding onto the floss. Now the floss is still placed across the arms of the spool holder and can be gripped again for future uses. When you are finished retrieving floss, simply press down on the top piece of the plastic container until you feel the click of the two notches forming a bond.

Applied Force

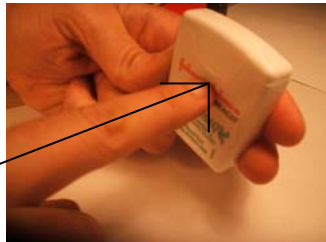


Figure 13: Opening Top



Figure 14:
Pulling Floss
Up

3.2



Figure 15: Pulling
Floss Across

Exceptions



Figure 16:
Pulling Floss
Towards You
to Cut

If the floss is not coming out of the bottom of the floss dispenser, the first thing you should do is look down into the bottom to see if there is floss there. If there is floss in the bottom, turn the floss dispenser upside down with the top lid open. Then use your thumb and index finger to pinch the left and right sides of the plastic covering (Figure 17). This will cause the bonds between the spool holder and the plastic covering to break, and the spool holder and floss spool will fall out of the plastic covering. Take the floss spool and place it flat around the wheel holder of the spool holder piece (Figure 18). Make sure you orient the floss spool so that the floss placed across the plastic cylinder does not get in the way of the wheel holder. Then take the end of floss from the outer end of the floss spool and bring it through the slit of the left arm of the spool holder. Unwind enough floss so that you can extend the floss across the finger gap and under the metal tooth of the right arm of the spool holder. This will keep the floss steady in the proper position for consumer use. Then fit the floss spool and spool holder into the plastic covering (Figure 19), matching up the left arm with the left wall of the plastic covering and the right arm with the right wall of the plastic covering. If you try to reverse the orientation, the tall notches in the plastic covering will stop the pieces from fitting properly. Push down on the spool holder until you hear the clicks of the notches forming bonds. The floss dispenser will now be in the correct position for use in Section 3.1.



Figure 17:
Pinching
Dispenser



Figure 18: Floss
Spool in Spool
Holder



Figure 19: Placing
Spool Holder and
Floss Spool inside
Plastic Covering

4.0 Conclusion

The floss dispenser is a handy mechanism that makes transporting and cutting floss easy. All dentists recommend flossing, which is made possible by tools such as a floss dispenser. With its portable size and weight, the floss dispenser can be transported anywhere. The elegant design of the dispenser ensures that all of its parts stay in place and function properly. Anyone who uses this dispenser does not need to put forth a lot of effort to cut a fresh piece of floss. Also, because a long length of floss thread is tightly wound around the floss spool, one floss dispenser will last over many cuts of floss. There are many similar designs to floss dispensers, but the Reach® Johnson & Johnson floss dispenser is one design that has remained popular for many years.