A LOOK INTO THE BP5327 PEN

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CCNY Writing For Engineers

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The Ballpoint pen is one of the most common types of pens found and used today. Many know of the ballpoint pen and use it on a day to day basis but often times the history of it is forgotten. The ball point pen earns its name from the ball at the point of the pen, which rotates when the tip is dragged across a surface. The pen since its conception invented and patented in 1888 in America by John J Loud (History of Pencils, n.d). It wasn't until the early 20th century however that László Bíró, a news editor, teamed up with his brother Gyorgy, a chemist, to try and create a workable pen that dried quickly to avoid smudges. This new innovation sought to make writing more efficient and the process all the more pleasant. Together, the brothers made pen that combined viscous ink with a ball socket mechanism to create this feat. Despite their version of the pen still leaving a marks when used, they became the first steps of a longer journey for the ball point pen. Many individuals however did fail in trying to commercialize what the brothers had brought out in their findings and were met with very limited success.

A man by the name of Milton Reynolds in 1945 then redesigned the pen and gained an American patent while on a business trip. He sold it with the reputation of not needing to be refilled for 15 years. The Miles Martin Pen company soon followed Reynolds in pioneering and became one of the first to sell ballpoint pens to the British public. Since then, more efficient ink formulas and cheaper ball points were used to mass produce what we see today as the ballpoint pen (Chemistry world, 2003, March 1). Different companies have adopted different items in the market to assemble their version of the ballpoint pen however, each have done so differently to the BP54327 (Ball Point 54327) which makes use of its components efficiently.

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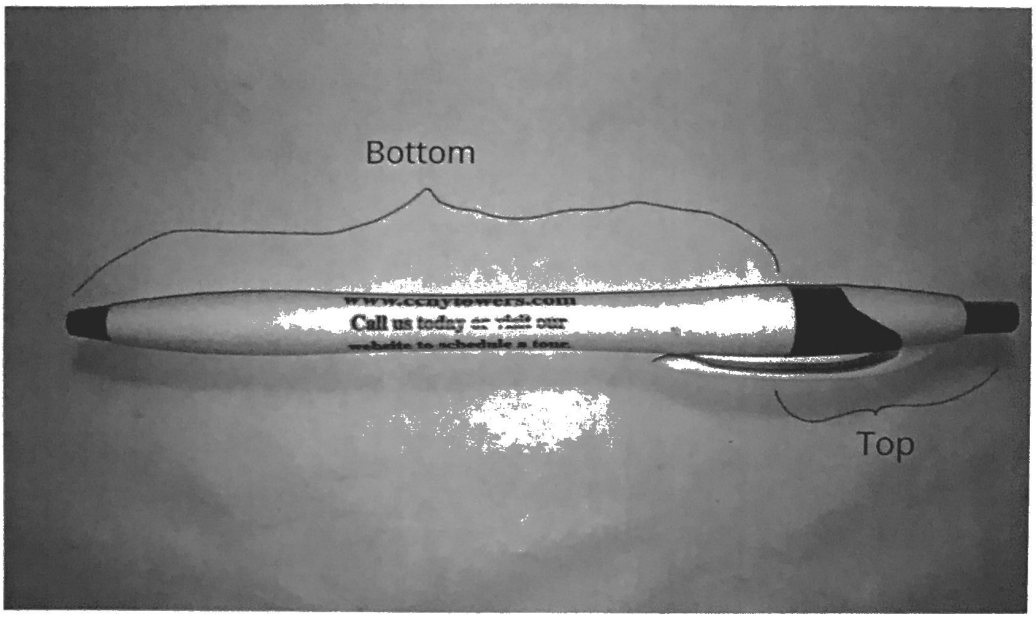
Skeleton

Figure 1: Image of the exterior layer of the BP5327A

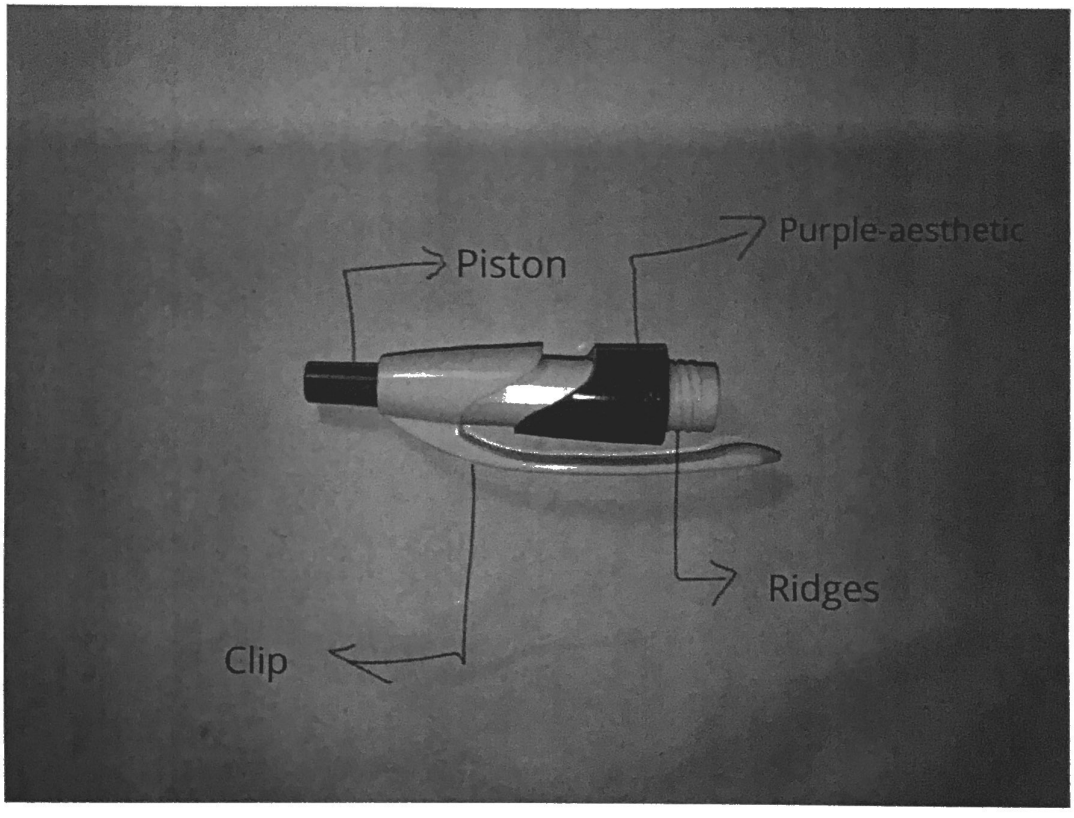


The pen's design begins at the skeleton. The skeleton of the pen is what brings the pen together as a unit. As shown in Figure 1, much like how our organs and inner workings are held together by our skin, the skeleton of the pen is what holds and keeps together this ball point pen. This is the outermost region of the pen and encompasses the bulk of the pen. The skeleton layer is made out of plastic, which although it is a cheap material, it makes the item affordable costing just 26 cents per pen(Discount Mugs, n.d). The skeleton can be further broken down into two segments through inspecting the inner workings of a ballpoint pen. By first holding the pen vertically upward and then rotating counter-clockwise on clip, the pen can be unscrewed to examine these two major segments and the pen's components.

As shown in Figure 1, the bottom portion of the skeleton is a section of its own. In the bottom portion of the skeleton is the ink cartridge with the ballpoint, spring, and half of the connector. On this bottom skeleton portion, often times companies place logos and trademarks

to make themselves more well known and increase their business. The room for advertisement goes hand in hand with the material of a BP5327 being plastic and affordable making it a perfect pen to invest in.

Figure 2: Image of the top portion of the skeleton, unscrewed from the bottom half

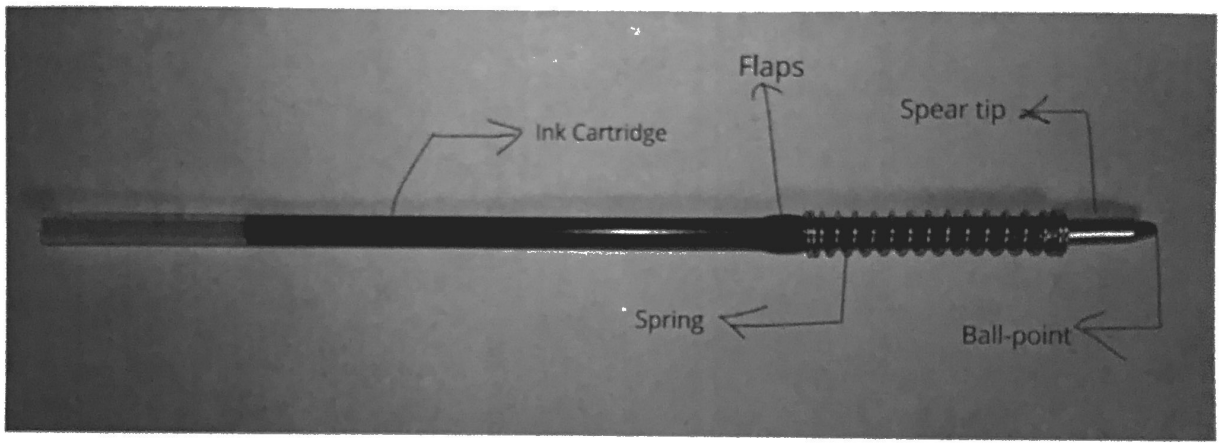


The top portion of the skeleton contains ridges, which is a circular threading pattern around the cylinder to lock in with the bottom portion of the screw. Encompassed by the top portion of the skeleton is the other half of the connector, the piston to click, and the purple aesthetic. As shown in Figure 2, the top skeleton extends outward to form a clip. This clip, matching the top color and material, is used to grip onto pockets and tiny gaps of fabrics allowing for easy accessibility.

As shown in Figure 2, the purple aesthetic is a portion of the pen that is a subsection of the top part of the skeleton as it is on the top exterior of the skeleton. The main purpose of this blocky cylinder is to add the aspect of color to the design of the pen with a sleek look: contrast of color creates attention to the pen as it becomes more appealing and interesting with a variation from a monotone color structure throughout.

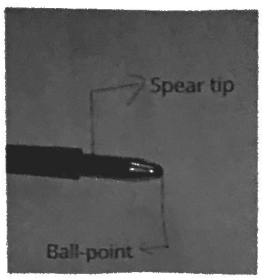
Interior

Figure 3: An image of the basic components that are observed at the interior of the pen



According to Figure 3, starting from the first item at the bottom most interior section of the pen is the ball-point. The ball-point is one of the most important parts of the pen when it comes to functionality. This part of the pen is what reacts when a rubbing motion is completed with a surface to bring out ink from inside ink cartridge, within the spear tip. The ball part of the BP327A pen is made with usually brass, steel, and tungsten carbide, that in all serves to rotate and deposit ink from the ink cartridge onto the paper (History of Pencils, n.d).

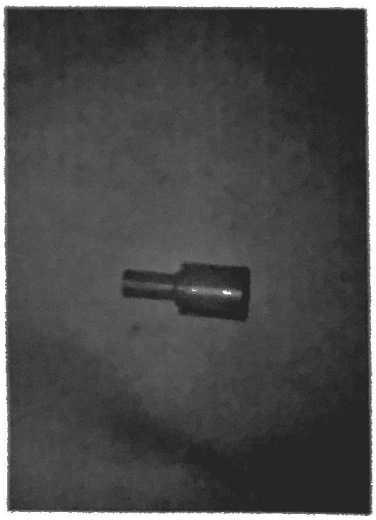
Figure 4: Zoomed in image of the tip of the pen



Displayed on Figure 4, connected directly to the ball point is a metal speartip which connects the ink cartridge to the ball point. The main role of this portion of the pen is to narrow and direct the flow of the ink into a focused point from which the ball can rotate on to produce ink on paper. The ball point is made up of metal as well and is rust resistant. The speartip is locked in its place and prevented from moving by usually glue with the ink cartridge but configurations with tight grips to click in the tips have also been used.

Figure 3 displays the ink cartridge, which is the next part of the pen. From the ink cartridge, the spear tip directs the reserves to the ball point to provide a steady current of ink. The contents of a ballpoint ink is usually a paste containing 40-50% dye with the rest being mixed with water and is non-toxic making it safer for casual use (Chemistry world, 2003). The ink also stays compacted within the pen through the combination of a small surface area present for the ink to move through and the high viscosity of the ink at about 10,000 to 25,000 cps to make sure that there is no ink spilling out of the cartridge to stain belongings.

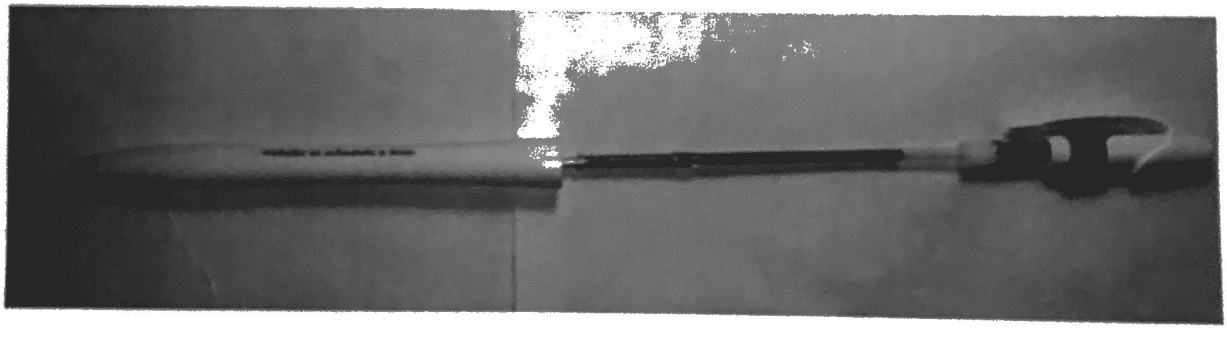
Figure 5: Image of the connector, taken from the top of the ink cartridge



As shown in Figure 6, the Ink cartridge is then grappled and connected to the upper portion of the pen through the plastic connector. The connector displayed in Figure 5 is the component of the pen that is attached to the clip side end of the ink cartridge and is the direct link that connects the ink cartridge to the piston. With the connector, the contents inside the pen feels tension too keep the other parts up right and in line. As the name implies, the connector is more of a connecting piece yet it is still an important piece that the BP5427 needs.

Lastly, at the very top of the pen is the piston which is shown in Figure 2. This portion of the pen is plastic and varies in color to add another layer of contrast to stay in with a purple and white theme created. Displayed in Figure 3, the spring and flaps allows the pen to have its advanced retractability feature with piston. The advanced retractability feature prevents the pen from needing a cap. Losing a cap can become problematic with stray marks being made when the pen is not in use but having a retractability feature tackles this problem .

Figure 6: An image of the parts of the pen expanded out



As shown in Figure 6, all of these parts come together to form what is known as the BP5327 pen and its functions. A pen is an instrument to record thoughts and ideas and the BP5327 takes this function and goes beyond. The efficiency of the cost of this material allows more people to be equipped with pens allowing for people to have better access to pens. Through its main function of writing, the BP5327 takes affordability and extends this privilege to many

people by using cheaper materials like plastic. The magnitude of ideas being written down and knowledge being transferred through the ball point is what this pen was made to do. This pen can come useful in almost every department of writing like being a teacher, tutor, student, accountant etc. making it very versatile.

The components of a pen are each essential in their own regard to form what we know as the BP5327 pen. The breakdown of each component represents a lineage of innovation to what we have today: each part of this pen is equipped with a functionality to the entire structure as a whole. Through examining each part of the pen, the efficiency of the BP5327A becomes apparent. The room for advertisement, affordability, and slim fit design combine with the components in the BP5327 pen to make it uniquely efficient .

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