

Running Head: SHARPENER ANALYSIS

Technical Description of a Standard Prism Sharpener

and its Components

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Yes, I'm Carving

I'm a carpenter with the role of a blacksmith

I create a weapon for soldiers yet a tool for craftsmen

I am busy every day and every night

When a craftsman finishes scratching away or a soldier returns from a fight

Hassle is which my work brings nay, for it brings me great delight

The first ever pencil sharpener to be patented was by French mathematician Bernard Lassimonne in 1828 (Prism). Before the pencil sharpener became standard, pencils were sharpened manually using a knife (2016). There are several different types of sharpeners including prism sharpeners, linear sharpeners, cylindrical sharpeners and electrical sharpeners. This description will focus on the prism model sharpener. The prism model is probably the simplest as it contains no moving parts. It is composed of a blade made of a sharp plastic or metal alloy, and a fitting compartment for a pencil tip to be inserted. It functions by continuously carving the edge of the pencil into a molded point as the user rotates the pencil while the sharpener remains stationary or vice versa. Most modern prism sharpeners also have a detachable compartment which hold the shavings of the pencil. They are also very small and hence they are easily portable and cheap.

Most commonly, a prism sharpener will be a small rectangular prism or block about 2.5x1.7x1.1 cm in size. From the right side up, looking from the top, the blade of the sharpener is

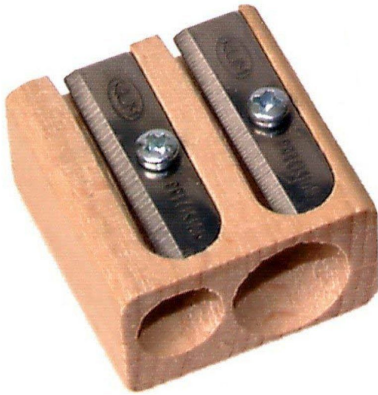


visible and fastened with a screw. The shavings of the sharpened utensil will deposit from this side as they are carved from the pencil. Some models may have two blades for sharpening other sizes of writing utensils which differ from the standard size of a #2 pencil. The blade will have a slanted cut at the end going into the hole to insert the pencil into.

Also, there may be an intentional outer lining of the base for which a shavings cover is attachable. The sides are most commonly identical for a standard sharpener, however the front and back may have different dimensions. The front may have a

smaller height and width as this is where the very point of the pencil will reach. The holes in the sharpener must tightly conform to the pencils shape or the point will be broken easily due to wobbling. As a result, the base of the sharpener gets smaller from the back to the front as it is conforming to the shape of the pencil from the base to the point.

The standard size of a blade for a pencil sharpener is 4.064x3.302x1.016 cm. The blades of a sharpener will be securely fastened to the top of the sharpener's structure using a screw which go directly through the middle of the blades. The blades also weigh 9.072 grams and are standardly forged of tempered steel. This allows for long continued use without the sharpener



dulling. However, one may choose to sharpen them rather easily if they remove the blade by unscrewing it from the structure which it is fastened to. Branding may be etched into the top side of the blade as well.

Lastly, like most cutting utensils, the blade is only sharpened on one side as you only need one to carve the pencil's tip.

The structure of the prism sharpener is it's most defining feature as its architecture is vital to its functionality. A standard prism sharpener size is 2.5x1.7x1.1 cm in size. They also tend to weigh no more than 40-50 grams. This allows for its extreme portability as opposed to its functional counterparts. However, the most important aspect of the prism sharpener's functionality is the conal holes which the pencil tip is inserted into. The conal holes are designed with the intent to wrap around the pencil tip very tightly so that the pencil tip does not have much room to move or wobble resulting in a sharp and sturdy finish with no breakage. Also,

these conal holes are designed so that the pencil comes in contact with the blades tangentially. This design allows for the pencil to be sharpened very easily with a rotational motion. Taking into account the hexagonal edge design of a pencil, the diameter of a pencil is around 7mm standardly, so the conal base will be around this diameter or very slightly larger.

The shavings cover of a prism sharpener is not necessarily one of its defining features, rather it is a supplementary one. This compartment may be of various different sizes, shapes, and colors, however, it is most commonly made out of plastic.



Prism sharpeners with a shavings cover are designed with a particular architecture in which the shavings cover may be attached to the sharpener's structure so that it may be easily attached and detached. The two components are designed so that their attaching ends are roughly the same size when fixed together, so that the plastic is forced to

flex a bit to fit. As a result a secure attachment is created which can be easily detached when necessary. The shavings cover as a whole enhances the portability aspect of the sharpener as it allows one to sharpen while away from a disposal bin.

Lastly the standard screws in a sharpener are cross recessed pan head screws. These screws standardly have a philips driver type and a plain finish for ease of use. The screws also have anti-corrosive properties. These screws attach the blades to the structure of the sharpener allowing them to be removed if one pleases to perform maintenance on the blades.

References

The Prism Sharpener. (2016, July 27). Retrieved November 2, 2018, from
<https://theinspirationshots.com/2016/07/28/the-prism-sharpener/>