Feb. 15, 1955 C. I. FORS 2,702,022

PENCIL SHARPENER

Filed Oct. 9, 1951

Fig. 1

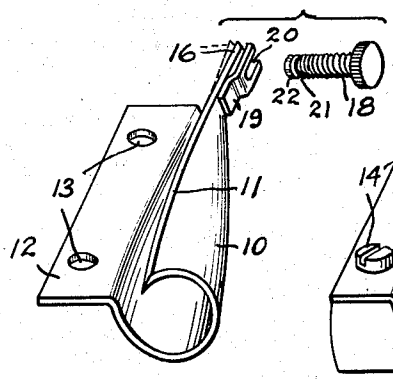


Fig. 2

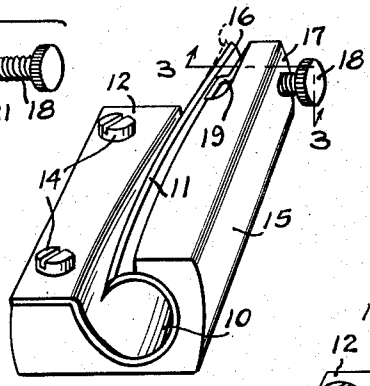


Fig. 5

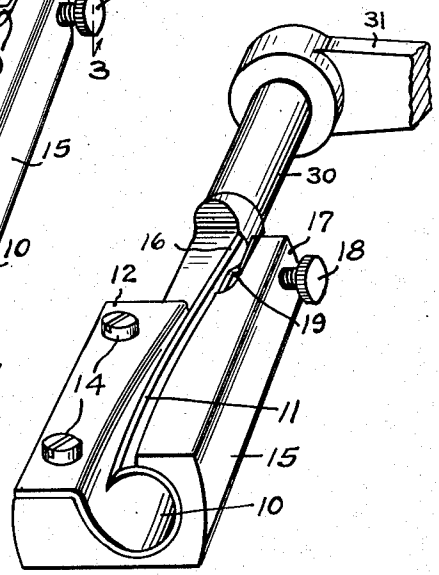


Fig. 6

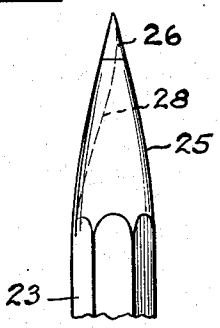


Fig. 7

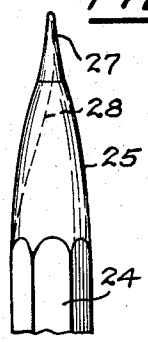


Fig. 3

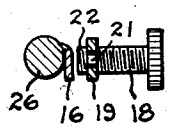
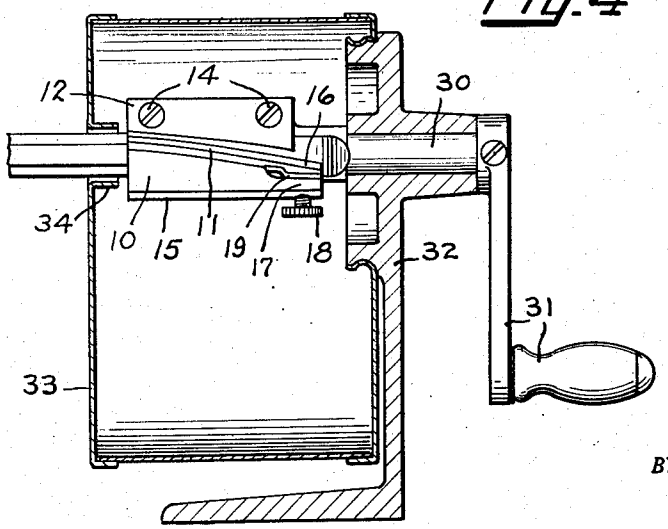


Fig. 4



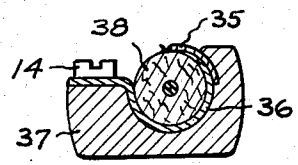


Fig. 8

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PENCIL SHARPENER

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5 Claims. (Cl. 120—96)

This invention relates to pencil sharpeners.

An object of this invention is to provide a simple and efficient pencil sharpener which will convexly round the wood on the tapered end portion of a pencil, longitudinally considered, so as to leave on such tapered end portion more wood than is ordinarily left on the tapered end portion of a pencil to provide more than the usual amount of reinforcing and strengthening of the lead and thereby reduce breakage of the lead.

Another object is to provide a pencil shapener in which the tip portion of a pencil sharpening blade is resilient and is supported by adjustable means and may be adjusted to vary the shape and length of the lead point on the pencil and to provide, for instance, a short strong pencil point for heavy work or a longer thinner point for finer work.

Another object is to provide a pencil sharpener having a blade with a cutting edge shaped and positioned so that it will be applied to the tapered end portion of a pencil spirally or at an incline relative to a radial plane of the pencil so that rotary movement of the blade relative to the pencil will make a slicing cut and thereby insure smoother sharpening of the pencil with less danger of breaking the lead.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of a simple type of pencil sharpener constructed in accordance with this invention.

Fig. 2 is a detached, partially exploded, perspective view of a pencil sharpening element and adjusting screw used in this pencil sharpener.

Fig. 3 is a view partly in section and partly in elevation taken substantially on broken line 3—3 of Fig. 2 and showing an adjustable resilient tip portion of the blade of this pencil sharpener applied to the point of a pencil.

Fig. 4 is a sectional view, with parts in elevation, showing a crank operated wall or desk type pencil sharpener constructed in accordance with this invention.

Fig. 5 is a detached perspective view, with parts broken away, and showing a pencil sharpener unit or assembly of the type used in the wall or desk type sharpener shown in Fig. 4.

Fig. 6 is a fragmentary side view of a pencil having a short point made with this pencil sharpener.

Fig. 7 is a fragmentary side view of a pencil having a longer point made with this pencil sharpener.

Fig. 8 is a cross sectional view of a modified form of this pencil sharpener in which the blade is made separate from the member by which it is held.

Like reference numerals indicate like parts throughout the several views.

The exemplary form of this invention disclosed in Figs. 1 to 5 comprises a one piece pencil sharpening member made up of a tapered receptacle **10** having a knife edge or blade portion **11** and having a flat flange **12** provided with holes **13** for the reception of screws **14** by which the sharpening member is secured to a holder **15**.

The receptacle **10** is of generally conical shape but is not a true cone because the side walls thereof are outwardly curved longitudinally considered and the knife or cutting edge of the same is similarly outwardly curved to leave more wood on the tapered end portion of a pencil. Also an opening is left between the knife edge **11** and the flanged part **12** of the receptacle **10** and this opening extends from end to end of the sharpener member.

The holder **15** is grooved or recessed to a suitable shape to snugly receive the pencil sharpening member. The forward end of the pencil sharpening member **10, 11, 12** has a relatively narrow forwardly projecting or protruding resilient tip portion **16** which is a part of the cutting edge of the same. This tip portion **16** is adapted to be adjusted toward and away from the axis of the sharpening member to vary the shape and length of the lead point formed on a pencil sharpened thereby, as hereinafter explained.

The holder **15** has a forwardly protruding part **17** which is positioned alongside of the resilient tip **16** of the cutter member and is spaced from said resilient tip **16**. A tip adjusting screw **18** is threaded through the forwardly protruding part **17** of the holder and engages with the resilient blade tip **16** for the purpose of adjusting said tip **16**. Preferably an offset clip **19** is fixedly secured to the outer side of the resilient tip **16** and has a slot **20** which is open at one end. The end portion of the adjusting screw **18** adjacent the clip **19** is annularly grooved to provide a neck portion **21** which fits into the slot **20** of the clip **19** and to further provide a flat head **22** which engages with the inner side of the clip **19**. The clip **19** is thus a forked clip which fits into the annular groove in the adjusting screw and this makes it possible to positively adjust the resilient pencil pointing tip **16** either toward or away from the axis of the sharpener member and any pencil which may be positioned therein.

Figs. 6 and 7 show two pencils **23** and **24** respectively which have been sharpened by a pencil sharpener of the type just described. In both of these pencils the wood on the tapered or sharpened end portion **25** of the pencil is convex, longitudinally considered. This convex shape results from the longitudinal convex curvature or outwardly bowed shape of the knife edge **11** and from the similar outwardly bowed longitudinal curvature of the receptacle **10** which receives and affords room for the tapered part **25** of the pencil. Providing this longitudinally convex curvature on the tapered or sharpened end portion of the pencil leaves more wood around the lead to support the lead where it is subjected to the greatest breaking strain and thus reduces the danger of breaking the lead.

If the resilient tip portion **16** of the blade part **15** is moved inwardly toward the axis of the sharpener member by adjustment of the screw **18** then application of the sharpener member to a pencil positioned coaxially therein will provide on the pencil a relatively short strong point **26**, as on pencil **23** shown in Fig. 6. If said blade tip portion **16** is adjusted outwardly from the common axis of the sharpener and pencil by turning of screw **18** then a longer point **27** of the type shown in Fig. 7 will result. The tip **16**, being resilient, will assume an externally convex longitudinal curvature when it is adjusted inwardly and the short stubby lead **26** provided by such adjustment will also have a longitudinally convex curvature which will help to make it strong and highly resistant to breaking. When this resilient blade tip portion **16** is adjusted outwardly it will tend to assume an externally concave longitudinal curvature and will provide a long thin lead **27**, as shown in Fig. 7. Thus the flexing adjustment of the blade tip **16** is important in securing the type of lead desired on the pencil.

The cutting edge of the blade part **11** of the sharpener will be applied to both the wood and the lead of the tapered end portion of a pencil at an incline or spirally, as indicated by dash lines **28** in Figs. 6 and 7. Thus the line of cut made in sharpening is not in a radial plane of the pencil but is a slicing cut rather than a cut squarely across the grain of the wood. This is conducive to easier and smoother sharpening of the pencil and is less liable to result in breaking the lead.

The pencil sharpener shown in Figs. 1, 2 and 3 is adapted to be held in the hand and used in a well known manner by inserting a pencil therein and relatively rotating the pencil and the sharpener.

Fig. 8 shows a form of this invention in which a blade **35** is made separate from a blade holding part **36** and

is either permanently or detachably secured thereto and in which a holder **37** of modified form receives and holds the blade **35** and part **36**. The blade **35** of Fig. 8 is applicable to a pencil **38** in the usual manner and said blade **35** has an adjustable tip portion similar to the previously described adjustable blade tip **16**.

Figs. 4 and 5 show a wall or desk type pencil sharpener in which the parts **10** to **22** inclusive are the same as those disclosed in Figs. 1, 2 and 3 and in so far as they are shown these parts are similarly numbered. The additional parts shown in Fig. 4 and Fig. 5 include a shaft **30** rigidly attached to an end portion of the holder **15** and having a crank **31** secured thereto. At least a portion of the shaft **30** is positioned coaxially of the sharpener member **10**, **11**, **12** and is journaled in a relatively long bearing provided by an L-shaped bracket **32**. The bracket **32** may be mounted on any suitable support, such as a wall or desk or table. A shavings receptacle or housing **33** is detachably secured to the bracket **32** and is provided with a tubular boss **34** through which a pencil may be inserted into the sharpener in well known manner. The boss **34** helps to guide and hold the pencil and the sharpener member is rotated around the pencil by turning the crank **31**.

The foregoing description and accompanying drawings clearly disclose what I now regard as a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that changes may be made within the scope of the following claims.

I claim:

1. In a pencil sharpener, a blade having an integral resilient tip portion of substantially uniform thickness, and tip portion adjusting means connected with said resilient tip portion providing flexing adjustment of said tip portion in directions at right angles to the plane thereof.

2. In a sharpener for sharpening a lead pencil, a blade having an integral resilient tip portion provided with a sharpening edge positioned to engage with the lead of a pencil; and means adjustably supporting said resilient tip portion for flexing movement toward and away from the lead tip of the pencil, whereby the shape and length of the lead point provided by the sharpener on the pencil may be varied.

3. In a pencil sharpener, a sharpening member of tubular convergent shape adapted to receive the end portion of a lead pencil; a blade carried by said sharpening member and having an integral resilient tip portion the blade and resilient tip portion having a continuous sharpening edge; a supporting member carrying said sharpening member; and an adjusting screw threaded in said supporting member and adjustably supporting said resilient tip portion of said blade.

4. In a pencil sharpener, a tubular convergent sharpening member adapted to receive the end portion of a pencil; a blade carried by said sharpening member and having a resilient tip portion extending beyond the end of said sharpening member; a clip secured to the resilient tip portion of said blade; a supporting member carrying said sharpening member and having a forwardly protruding portion extending alongside of said resilient blade tip in transversely spaced relation therefrom; and an adjusting screw threaded through the forwardly extending portion of said supporting member and engaged with said clip, whereby turning of said adjusting screw will adjust the flexible tip portion of said blade toward and away from the axis of said pencil sharpening member.

5. In a pencil sharpener, a tubular convergent member adapted to receive the end of a pencil and having walls which are convexly outwardly curved longitudinally considered; a blade supported by said tubular convergent member and extending continuously from end to end thereof, said blade having a convex outward curvature longitudinally considered, whereby the exterior of the tapered end portion of a pencil sharpened thereby will be longitudinally convex and a substantial amount of wood will be left on the lead of the pencil throughout the entire length of the sharpened end portion of the wood of the pencil; an integral resilient pencil pointing blade tip on said blade, said blade and tip having a continuous sharpening edge; and adjustable means supporting said blade tip for transverse flexing adjustment.

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