Aug. 22, 1950 H. BECKER 2,519,625

PENCIL SHARPENER

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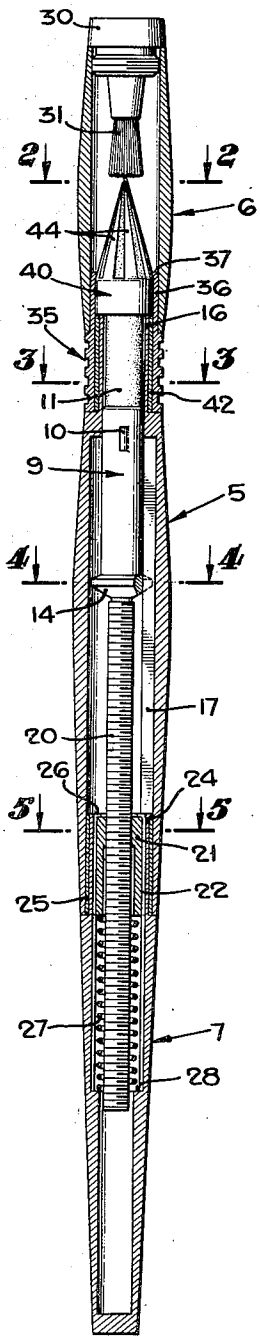


Fig. 1.

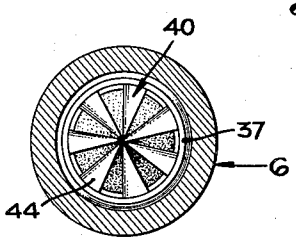


Fig. 2.

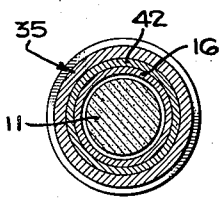


Fig. 3.

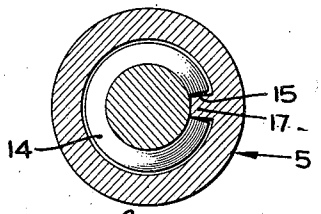


Fig. 4.

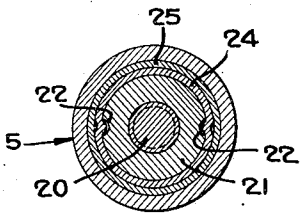


Fig. 5.

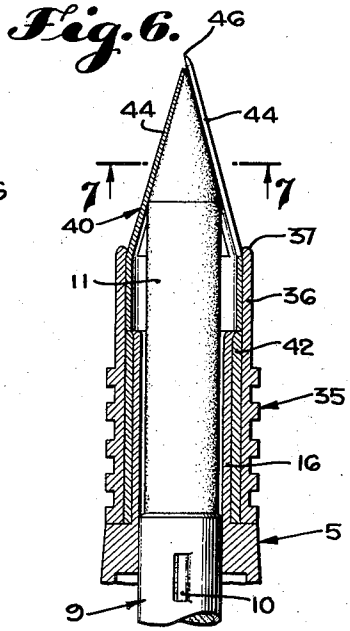


Fig. 7.

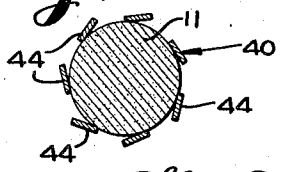
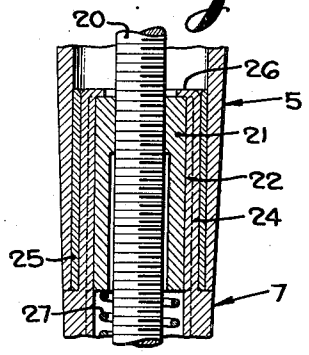


Fig. 8.



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PENCIL SHARPENER

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Application May 17, 1948, Serial No. 27,457

6 Claims. (Cl. 120—87)

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This invention relates to a sharpener for a pencil having a relatively soft crayon.

China and eyebrow pencil leads or cores, particularly the latter, are composed of a soft, wax-like substance which is difficult to sharpen with a razor blade or knife. When sharpened in this manner, the greater portion of the pencil is usually wasted in the attempt to obtain a neat, fine point desired by most women and artists. Furthermore, such a neat, fine point is exceptionally difficult to obtain by such sharpening methods. Generally, when the pencil requires sharpening, the knife or razor blade is not readily available, and the pencil is continued to be used in a dull condition.

The present invention provides a sharpener, which, when not in use, is quickly removable with its cap or cover when it is desired to use the pencil, and quickly replaced and the cap then removed from the sharpener when the pencil needs sharpening. A brush may be provided in the end of the cap to clean the shavings from the sharpener.

There are several features of importance embodied in the pencil unit and sharpener. First, the pencil is advanced as needed by a screw mechanism, the pencil crayon, however, being under spring tension during sharpening. Since the crayon is soft, a certain predetermined pressure of the pencil into the conical sharpener is provided by spring tension of the required amount, it being possible, however, to eliminate the resiliency of the spring when it is desired to insert a new crayon when pressure must be applied to the holder-ejector socket. Another feature is the form of sharpener used, this unit consisting of a plurality of tapering blades tilted at an angle to the chord of any cross-sectional circle and which are semi-flexible for expansion under the pressure of the spring behind the crayon. Also, one knife blade may be extended slightly beyond the ends of the others in order to always insure a fine point. Thus, the sharpener provides the desired type of point backed by a smooth cone with the removal of the minimum amount of crayon.

It is understood that ejector writing and slate pencils and sharpeners are known, as disclosed by U. S. Patents No. 366,791 of 1887 and No. 1,431,722 of 1922, but these pencils use comparatively hard leads and do not provide a predetermined sharpening tension, the type of sharpener, or the arrangement of sharpening casing and cap.

The principal object of the invention, therefore, is a device for facilitating the sharpening of a pencil with soft crayon.

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Although the novel features which are believed to be characteristic of this invention will be pointed out with particularity in the appended claims, the manner of its organization and the mode of its operation will be better understood by referring to the following description read in conjunction with the accompanying drawings, forming a part hereof, in which:

Fig. 1 is a cross-sectional view of a combination eyebrow pencil and sharpener embodying the invention.

Fig. 2 is a cross-sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a cross-sectional view taken along the line 4—4 of Fig. 1.

Fig. 5 is a cross-sectional view taken along the line 5—5 of Fig. 1.

Fig. 6 is an enlarged, detail view of the sharpener unit of the invention.

Fig. 7 is a cross-sectional view taken along the line 7—7 of Fig. 6, and

Fig. 8 is an enlarged, detail view of the lead advancing unit of the invention.

Referring now to the drawings, in which the same numerals identify the same elements, the complete unit has three tubular casings, a central, double-tapered, cylindrical casing 5; a double-tapered cap 6; and a rotatable end portion 7; although, it is to be understood that the outer configuration of the casings may vary from that shown in the drawings. A cylindrical pencil socket 9 having a portion of its shell punched inwardly, as shown at 10, to prevent rotation of a crayon 11 therein, has a head or enlargement 14 at its lower end with a notch or keyway 15 therein. The socket 9 is slidable longitudinally within the upper portion of casing 5 and within a sleeve portion 16 at the upper end of the shell 5, rotation of the socket being prevented by the key 17 in notch 15 attached to the inside of the casing 5.

To the head 14 is fastened a threaded rod 20 and upon which is threaded a nut 21 having longitudinal grooves 22 on the surface thereof diametrically opposite one another. Surrounding the nut 21 is an upper sleeve portion 24 of the end piece 7, the upper end of the sleeve 24 being crimped over the nut 21 as shown at 26 in Fig. 8. The sleeve 24 also has detents which fit into the detents 22 of the nut 21 so that rotation of end piece 7 will rotate nut 21. Surround-

ing the sleeve 24 is a sleeve 25 upon which the lower end of casing 5 is slidable and which permits easy rotation of the sleeve 24 within the casing 5.

Encircling the lower end of rod 20 is a coil spring 27, one end abutting an internal shoulder 28 of the end 7, and the other end of the spring abutting the nut 21. There is thus a tension on the nut 21, rod 20, and lead 11 urging the crayon outwardly at a predetermined pressure determined by the tension in the spring. Any longitudinal force on the crayon exceeding this tension may depress the spring until its coils are in contact. The nut 21 cannot move upwardly beyond the sleeve 24, since the edge of sleeve 24 is crimped at 26 over the nut 21.

Referring now to the cap 6, this cap has a closure plug 30 threaded in one end thereof and to which is attached a short brush 31. Thus, the cap not only covers the sharpener, removes the sharpener, as will be explained later, and completes the unit, but contains a very useful adjunct for the article.

In Figs. 1, 2, 3, 6, and 7, the sharpening unit is illustrated, this unit comprising a cylindrical, externally ribbed, sleeve 35 having an externally smooth, upper portion 36 which has its upper edge 37 crimped over to hold a sharpener 40. Between sleeve 35 and the sleeve 16 is a bearing sleeve 42, the friction between the sleeve 36 and cap 6 being greater than the friction between the sleeves 35 and 42. Thus, when the cap 6 is pulled away from the casing 5, the sleeve 35 and sharpener 40 are removed with it, thereby exposing the crayon 11 for use. If it is desired to use the sharpener, the ribbed portion of sleeve 35 is grasped, and the cap removed therefrom, the sharpener remaining in the position shown in Fig. 6. Should the pencil crayon be retracted, the end 7 is turned until the pencil is inserted in the sharpener, as shown in Fig. 6, and until the pressure of spring 27 holds the pencil in the sharpener. The sharpener 40 is then rotated once or twice, and the pencil is sharp. The cap is then placed on sleeve 35, and thus, the sleeve and sharpener are removed from the pencil when the cap is removed. If it is desired to clean the sharpener after use, the brush 31 may be removed from the cap 6 and applied to the sharpener before the cap is placed on sleeve 35.

As mentioned above, the sharpener is especially constructed for a soft crayon. It comprises a plurality of especially tapered cutting blades 44, the smaller ends of which approach each other, but do not contact at the tip of the sharpener. The blades are set as shown in Fig. 7, so the sharpener is rotatable in a clockwise direction to do the sharpening. The blades 44 are semi-flexible, which, in cooperation with the spring 27, places a predetermined taper and point on the pencil, thus eliminating the use of hand force which may vary with each individual user. To insure a finely pointed tip, one of the blades such as shown at 46 is slightly longer than the others, and thus, extends beyond the tips of the other blades.

When the penicl is used to the rim of the socket 9, it may be removed by a sharp, pointed instrument inserted in the slot 10 and a new crayon inserted. To hold the socket fixed during the inserting operation, the end 7 is turned until the head 14 abuts the internal shoulder of the casing 5 and the turning continued until the nut 21 depresses the spring 27 to its full extent and its coils are in contact. The end 7 is then turned in the opposite direction to withdraw the pencil within the shell 5 to a desirable operative position. Although the sharpener has been illustrated and described in combination with a pencil, it may be used independently for sharpening other crayons of the same size or could be varied in size to accommodate differently sized crayons.

I claim:

1. A sharpener for a crayon resiliently held in a holder comprising a cylindrical base section and a plurality of conically tapered, semi-flexible blades attached to said base section, said blades being arranged to form a hollow cone and tilted at an angle to the cord of any cross-sectional circle of said sharpener.

2. An eyebrow pencil sharpener in accordance with claim 1, in which the end of one of said blades extends beyond the tips of said other blades.

3. A crayon sharpener, comprising a ring section and a plurality of blades extending from one edge of said ring section in the form of a cone, said blades being wider at the point of attachment to said ring than at their tips, said blades being tilted at an angle to the cord of any cross-sectional circle of said sharpener.

4. A crayon sharpener in accordance with claim 3, in which the cross-sectional areas of said blades decrease from their points of attachment toward their tips to render said blades flexible under pressure of said crayon within the cone.

5. A sharpener for an eyebrow pencil lead resiliently supported in a holder on which said sharpener is adapted to be inserted, comprising a cylindrical base adapted to slide over said crayon and adapted to be rotatable on said holder, and a plurality of tapered blades having their wide ends at one edge of said base and their tips adjacent one another near the axis of said base, said blades being adapted to bear against said resiliently supported lead and being tilted at an angle to the cord of any cross-sectional circle of said sharpener.

6. A sharpener in accordance with claim 5, in which one of said blades is longer than said other blades.

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The following references are of record in the file of this patent:

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