

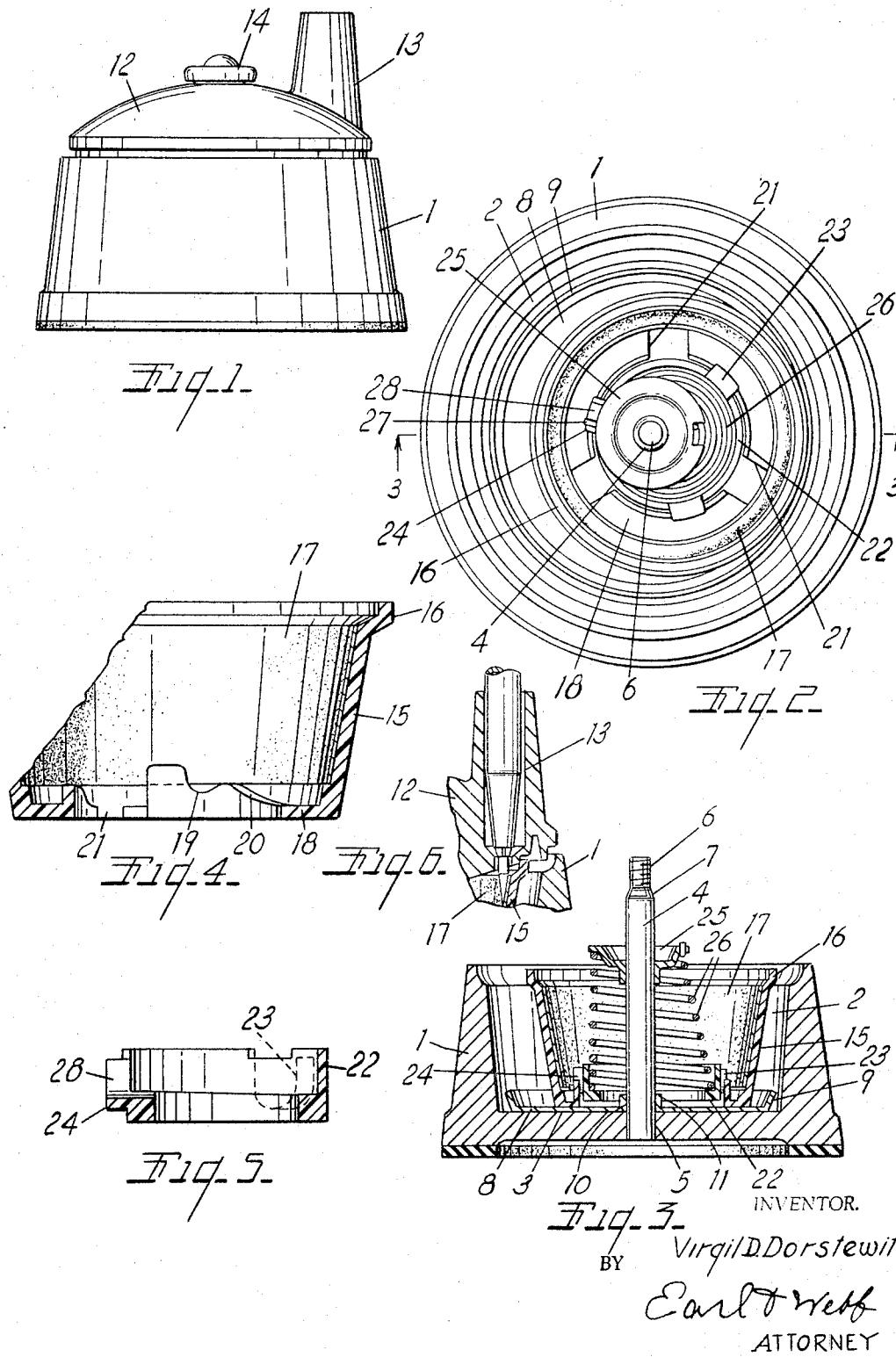
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V. D. DORSTEWITZ

3,276,434

## PENCIL POINTER

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## PENCIL POINTER

Virgil D. Dorstewitz, Coloma, Mich., assignor to True Point Products, Inc., Coloma, Mich.  
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This invention relates to pencil pointers. The main objects of this invention are,

First, to provide a pencil pointer which is highly efficient in use and does not require the use of gears, or other driving or connecting parts.

Second, to provide a pencil sharpener which does not require special care on the part of the user in sharpening pencils of commonly used types and of widely varying degrees of hardness.

Third, to provide a pencil sharpener in which the sharpening member or element may be quickly removed and replaced in the event that it becomes desirable because of wear resulting from use.

Fourth, to provide a pencil sharpener in which the body portion of the sharpening member is formed of non-rustable or non-corrodable material such for example as thermoplastic materials.

Fifth, to provide a pencil sharpener having these advantages which is portable and is adapted to be positioned on various types of supports as may be desired for the convenience of the user, and which is not likely to slide even when positioned on an inclined surface.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

FIG. 1 is a side elevational view of a pencil sharpener embodying my invention.

FIG. 2 is a plan view with the pencil holder removed, the pencil holder constituting the top member.

FIG. 3 is a view of the body member and certain of the parts mounted therein on a line corresponding to line 3—3 of FIG. 2.

FIG. 4 is an enlarged fragmentary vertical section of the abrasive member.

FIG. 5 is a vertical section of the holder member for the abrasive member.

FIG. 6 is a fragmentary sectional view illustrating the positioning of a pencil to be sharpened.

It is desired to point out that this invention is an improvement upon and embodies certain features of the Cayo Patent 2,540,320, issued February 6, 1951, which has been commercialized.

The body member 1 is adapted to rest upon a supporting surface and has an upwardly opening chamber 2 preferably cylindrical and in the commercial embodiment desirably somewhat tapered. The chamber has an upwardly facing flat bottom 3. A post 4 is disposed centrally of the chamber with its lower end fixedly secured in an opening 5 provided therefor. The upper end of the post projects substantially above the top of the body member and is provided with a threaded upper end 6 and an upwardly facing bearing 7 at the inner end of the threaded portion.

A bearing member 8, preferably provided with an upwardly projecting peripheral flange 9, is supportedly mounted on the bottom of the body member as is illustrated in FIG. 3, and it has a post receiving opening 10 surrounded by an upwardly projecting flange 11.

A pencil holder 12 is provided with a socket 13 open at its upper and lower ends and adapted to receive a pencil as is illustrated in FIG. 6.

The top member 12 is rotatably mounted on the post

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and retained thereon by the nut 14 which rotatably supports the pencil holder on the post and permits the rotation thereof by means of a pencil inserted in the pencil holder 13. The abrasive element 15 of the embodiment illustrated is downwardly tapered and provided with an offset portion 16 at its upper end which serves to stiffen the abrasive element and also serves as a stop limiting the inward movement of the abrasive element relative to the pencil holder thereby preventing the entire lead being ground away.

The abrasive element is slidably and nontiltably supported on the bottom bearing member 8. The abrasive element has inwardly projecting portions 18 at its lower end provided with upwardly facing seats 19 and inclined way portions 20 extending from the seat with their lower edges merging into the flange portions 18.

The circular abrasive member holder or coupling 22 is provided with laterally projecting peripherally spaced lugs 23 and 24 which project over the flange 18 but are dimensioned and spaced to permit the insertion and removal, as well as the rotative engagement of the abrasive element with this holder member. The post is provided with an abutment 25 which is fixedly secured to the post in downwardly spaced relation to its upper end.

The coil spring 26 is in thrust engagement with the abutment 25 and the lower end of the spring is in thrust engagement with the coupling member 22, being seated in the inwardly projecting flange portion thereof. A lug 27 on the lower end of the spring projects into engagement in a notch 28 in the lug 24.

As stated, the top member 12 is removably secured to the post member 4. When it is desired to replace the abrasive element, the top member is removed, the user can hold the holder member 22 against rotation as by engaging a pencil or other tool behind one of the lugs 23 or 24, while rotating the abrasive element 15 to cause the lugs 23 and 24 to move out of the seats 19 and down the inclines 20 to the notches 21 and then lift outwardly the abrasive lined cup member 15. Insertion of a new abrasive cup is accomplished by reverse sequence of these steps. It is desired to point out that this abrasive element change is accomplished without the operator's hands touching more than the rim 16 of the abrasive cup which remains clean as all pencil lead dust falls to the bottom of the cup and body, below the rim 16. The abrasive element and the holder member are desirably formed of thermoplastic material, this from the production and cost standpoint and also from the fact that such material does not rust even though subjected to moisture.

With this arrangement of parts, the only element subjected to wear is easily and quickly replaced. The holder member 22 is lifted up out of contact with the bottom plate 8 when in use by engagement of the lugs 23 and 24 with the inclined ways 20 and seats 19.

I have illustrated and described a highly desirable commercial embodiment of my invention. I have not illustrated or described various modifications which might be made in structural features, as this disclosure is such as to enable those skilled in the art to adapt my invention for particular use conditions.

What is claimed as new is:

1. A pencil pointer comprising, a body member adapted to rest upon a supporting surface and having an upwardly opening chamber therein, the chamber having a substantially flat bottom portion, a post fixedly secured to the bottom of the body member and projecting above the top thereof, a bearing member supportedly disposed on the bottom of said body member, a pencil holder supportedly and rotatably mounted on said post and constituting a cover for said body member chamber and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a

circular path as the pencil holder is rotated, a downwardly tapered abrasive element open at the top and having a continuous inner abrasive surface, said abrasive element being slidably and nontiltably supported on said bearing member, said abrasive element having an inwardly projecting portion on its inner end provided with upwardly facing seats, a coil spring disposed about said post and laterally swingable relative thereto, said post having an abutment for the outer end of said spring, a holder member for said abrasive element provided with a seat with which the inner end of said spring is in thrust engagement and having radial lugs detachably engageable with said seats in said abrasive element, the opening in the bottom of said abrasive element being dimensioned to permit the insertion and removal of the abrasive element without removing the said holder member and spring, the body portion of said abrasive element and said holder member being of form retaining thermoplastic material.

2. A pencil pointer comprising, a body member adapted to rest upon a supporting surface and having an upwardly opening chamber therein, the chamber having a substantially flat bottom portion, a post fixedly secured to the bottom of the body member and projecting above the top thereof, a bearing member supportedly disposed on the bottom of said body member, a pencil holder supportedly and rotatably mounted on said post and constituting a cover for said body member chamber and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a downwardly tapered abrasive element open at the top and having a continuous inner abrasive surface, said abrasive element being slidably and nontiltably supported on said bearing member, said abrasive element having an inwardly projecting portion on its inner end provided with upwardly facing seats, a coil spring disposed about said post and laterally swingable relative thereto, said post having an abutment for the outer end of said spring, a holder member for said abrasive element provided with a seat with which the inner end of said spring is in thrust engagement and having radial lugs detachably engageable with said seats in said abrasive element, the opening in the bottom of said abrasive element being dimensioned to permit the insertion and removal of the abrasive element without removing the said holder member and spring.

3. A pencil pointer comprising, a body member adapted to rest upon a supporting surface and having an upwardly opening chamber therein, the chamber having a substantially flat bottom portion, a post fixedly secured to the bottom of the body member and projecting above the top thereof, a bearing member supportedly disposed on the bottom of said body member in engagement with said post and provided with an upwardly projecting peripheral flange, a pencil holder supportedly and rotatably mounted on said post and constituting a cover for said body member chamber and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a downwardly tapered abrasive element open at the top and having a continuous inner abrasive surface, said abrasive element being slidably and nontiltably supported on said bearing member, said abrasive element having an inwardly projecting portion on its inner end provided with upwardly facing seats, a coil spring disposed about said post and laterally swingable relative thereto, said post having an abutment for the outer end of said spring, a holder member for said abrasive element provided with a seat with which the inner end of said spring is in thrust engagement and having radial lugs detachably engageable with said seats in said abrasive element, the opening in the bottom of said abrasive element being dimensioned to permit the insertion and removal of the abrasive element without removing the said holder member and spring.

4. A pencil pointer comprising a body member adapted

to rest upon a supporting surface and having an upwardly opening chamber therein, a post fixedly secured to the bottom of the body member and projecting above the top thereof, a pencil holder supportedly and rotatably mounted on said post and constituting a cover for said body member chamber and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a cylindrical downwardly tapered abrasive element open at the top and having an inwardly projecting portion on its end provided with upwardly radially spaced seats, a coil spring disposed about and laterally swingable relative to said post, the outer end of said spring being supportedly connected to said post, a holder member for said abrasive element provided with a seat with which the inner end of said spring is thrustingly engaged and having radial lugs detachably engageable with said seats in said abrasive element, the opening in the bottom of said abrasive element being dimensioned to permit the insertion and removal of the abrasive element without removing said holder member and said spring, the body portion of said abrasive element and said holder member being of form retaining thermoplastic material.

5. A pencil pointer comprising a body member adapted to rest upon a supporting surface and having an upwardly opening chamber therein, a post fixedly secured to the bottom of the body member and projecting above the top thereof, a pencil holder supportedly and rotatably mounted on said post and constituting a cover for said body member chamber and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a cylindrical downwardly tapered abrasive element open at the top and having an inwardly projecting portion on its end provided with upwardly radially spaced seats, a coil spring disposed about and laterally swingable relative to said post, the outer end of said spring being supportedly connected to said post, a holder member for said abrasive element provided with a seat with which the inner end of said spring is thrustingly engaged and having radial lugs detachably engageable with said seats in said abrasive element, the opening in the bottom of said abrasive element being dimensioned to permit the insertion and removal of the abrasive element without removing said holder member and said spring.

6. A pencil pointer comprising a body member having a chamber therein open at its outer end, a post supportedly connected to the inner end of the body member and projecting from the chamber, a pencil holder rotatably mounted on said post and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a cylindrical inwardly tapered abrasive element of form retaining thermoplastic material supported at its inner end in said body member and having an opening in its inner end and being provided with outwardly facing radially spaced holder member seats, a spring laterally swingable relative to said post and connected thereto at its outer end, a holder member for said abrasive element of form retaining thermoplastic material with which the inner end of said spring is in thrust engagement, said holder member and said abrasive element having coengaging means for releasably holding said abrasive element while permitting lateral shifting thereof.

7. A pencil pointer comprising a body member having a chamber therein open at its outer end, a post supportedly connected to the inner end of the body member and projecting from the chamber, a pencil holder rotatably mounted on said post and provided with a pencil socket spaced radially from the axis of the holder and adapted to supportedly receive and guide a pencil in a circular path as the pencil holder is rotated, a cylindrical inwardly tapered abrasive element supported at its inner end in said

body member and having an opening in its inner end and being provided with outwardly facing radially spaced holder member seats, a spring laterally swingable relative to said post and connected thereto at its outer end, a holder member for said abrasive element with which the inner end of said spring is in thrust engagement, said holder member and said abrasive element having coengaging means for releasably holding said abrasive element while permitting lateral shifting thereof.

8. A pencil pointer comprising a body member having a chamber therein open at its outer end, a post supportedly connected to the bottom of said chamber, a pencil holder supportedly and rotatably mounted on said post and provided with a pencil socket disposed radially from the post, a cylindrical inwardly tapered abrasive element of form retaining thermoplastic material supported at its inner end in said body member chamber and having an opening in its inner end and being provided at its inner end with outwardly facing holder member seats, a coil spring connected at its outer end to said post and laterally swingable relative thereto, a holder member for said abrasive element with which the inner end of said spring is in thrust engagement, said holder member being detachably engageable with the inner end of said abrasive element whereby said abrasive element may be removed and replaced without removing said spring and holder member from said post.

9. A pencil pointer comprising a body member having a chamber therein open at its outer end, a post supportedly connected to the bottom of said chamber, a pencil holder supportedly and rotatably mounted on said post and provided with a pencil socket disposed radially from the post, a cylindrical inwardly tapered abrasive element supported at its inner end in said body member chamber and having an opening in its inner end and being provided at its inner end with outwardly facing holder member seats, a coil spring connected at its outer end to said post and laterally swingable relative thereto, a holder member for said abrasive element with which the inner end of said spring is in thrust engagement, said holder member being detachably engageable with the inner end of said abrasive element whereby said abrasive element may be removed and replaced without removing said spring and holder member from said post.

10. A replaceable abrasive assembly for a pencil pointer with a body member having a chamber open at its outer end, and a post disposed in said chamber and supportedly connected to the bottom of said body member, said assembly comprising an outwardly opening truncated conical abrasive element including a body portion of thermoplastic material, said abrasive element having an inwardly turned flange with an opening therein in its inner end, said flange having angularly spaced inwardly opening notches therein, a holder member of thermoplastic material having a plurality of outwardly facing angularly spaced lugs spaced equally and sized to pass through said flange by manual rotation of said abrasive element, and an annular spring supporting flange on the inside of said holder member, said holder member having a radially extending upwardly opening notch formed therein and extended into one of said lugs to receive an outwardly turned anchor end on a spring seated against said holder member.

11. A replaceable abrasive assembly for a pencil point-

er with a body member having a chamber open at its outer end, and a post disposed in said chamber and supportedly connected to the bottom of said body member, said assembly comprising an outwardly opening truncated conical abrasive element, said abrasive element having an inwardly turned flange with an opening therein in its inner end, said flange having angularly spaced inwardly opening notches therein, a holder member having a plurality of outwardly facing angularly spaced lugs spaced

5 equally and sized to pass through said flange by manual rotation of said abrasive element, and an annular spring supporting flange on the inside of said holder member, said holder member having a radially extending upwardly opening notch formed therein to receive an outwardly turned anchor end on a spring seated against said holder member.

10 12. A replaceable abrasive assembly for a pencil pointer with a body member having a chamber open at its outer end, and a post disposed in said chamber and supportedly connected to the bottom of said body member, said assembly comprising an outwardly facing conical abrasive element having a transversely turned flange at its inner end, said abrasive element having an opening in its inner end, an annular holder member having a plurality of radially outwardly extending and angularly spaced coupling members with which said abrasive element may be engaged and disengaged by relative rotation of said abrasive element and holder member, and a spring seat on said holder member, said flange on said abrasive element being supportingly engageable with said coupling members and having notches therein spaced to pass said coupling members, said holder member having a recess formed therein to non-rotatably receive a portion of a spring engaged with said seat.

15 13. A replaceable abrasive assembly for a pencil pointer with a body member having a chamber open at its outer end, and a post disposed in said chamber and supportedly connected to the bottom of said body member, said assembly comprising an outwardly opening annular abrasive element having a transversely turned flange at its inner end, said abrasive element having an opening in its inner end, an annular holder member having a plurality of radially extending and angularly spaced coupling members with which said abrasive element may be engaged and disengaged by relative rotation of said abrasive element and holder member, and a spring seat on said holder member, said flange on said abrasive element being supportingly engageable with said coupling members and having notches therein spaced to pass said coupling members, said holder member having a recess formed therein to non-rotatably receive a portion of a spring engaged with said seat.

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LAWRENCE CHARLES, Primary Examiner.