

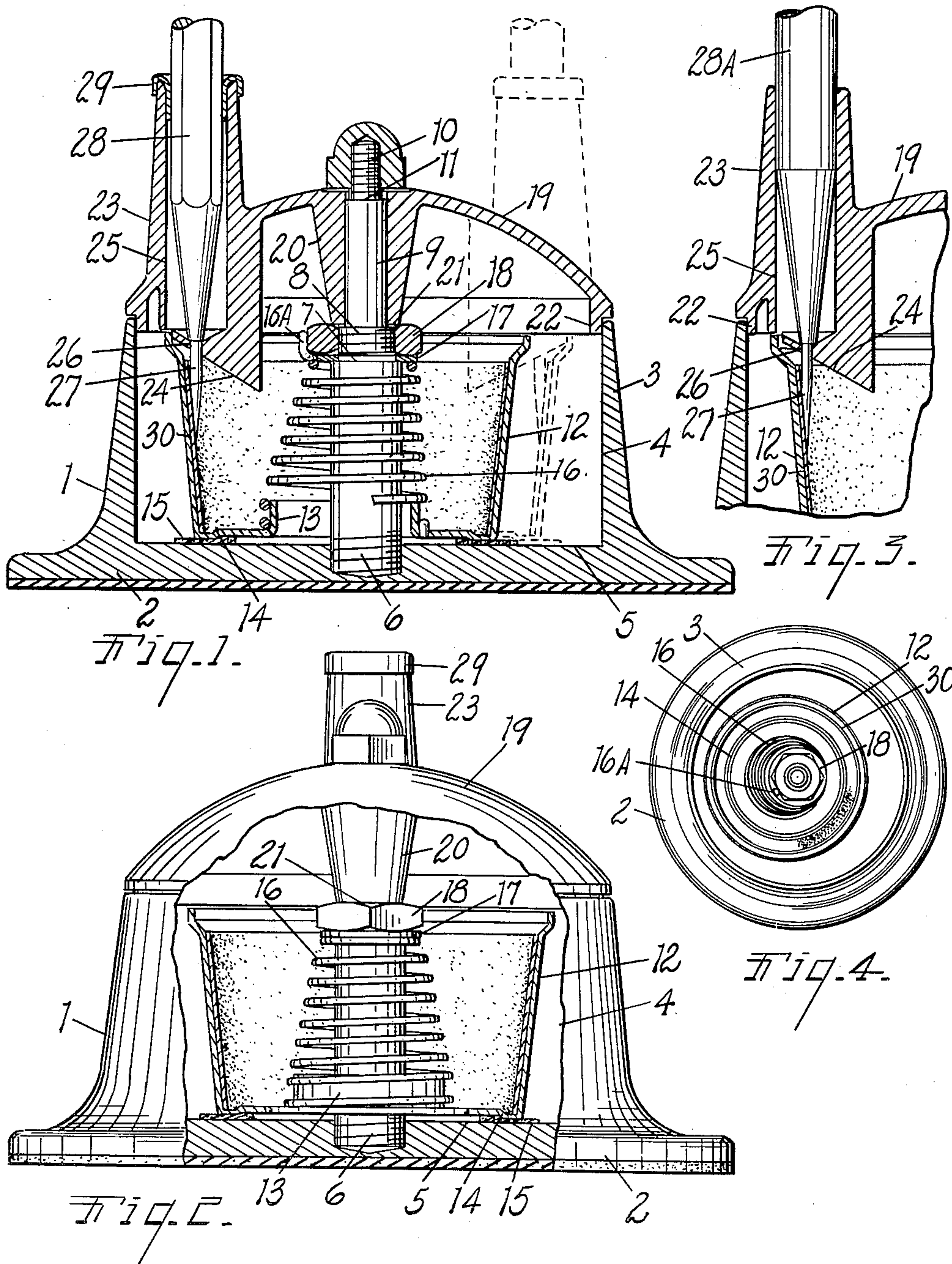
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PENCIL POINTER

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PENCIL POINTER

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9 Claims. (Cl. 120—91)

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This invention relates to improvements in the Pencil Pointer disclosed in my copending application for Pencil Sharpener, Serial No. 778,899, filed October 9, 1947.

The principal objects of this invention are:

First, to provide a device for pointing the leads of pencils which does not require the use of gears or other complicated rotating parts.

Second, to provide a pencil pointer which will form an accurate sharp conical point on a pencil lead and which may be operated without fear of breaking the lead.

Third, to provide a pencil pointer in which the abrading pressure between the pencil lead and the abrasive element is furnished by spring loaded frictional sliding engagement between the abrasive carrier and the base of the device.

Fourth, to provide a pencil pointer which is easily operated with one hand.

Fifth, to provide a pencil pointer which is inexpensive to manufacture and assemble.

Other objects and advantages relating to details of my invention will be apparent from a consideration of the following description and claims. The drawings, of which there is one sheet, illustrate a preferred form of my pointer.

Fig. 1 is a vertical transverse cross sectional view through the pointer illustrating a pencil in one operative position therein and illustrating a second position of the pencil in dotted lines.

Fig. 2 is a side elevational view partially broken away in vertical cross section illustrating the pointer in another of its operative positions.

Fig. 3 is a fragmentary vertical cross sectional view similar to Fig. 1 illustrating the pointer adapted for use with mechanical type pencils.

Fig. 4 is a plan view of the pointer with the cover removed.

My pointer consists of a body member 1 which is preferably formed as a casting and which has a relatively heavy base 2 so that the pointer will hold its position on a table without being held by the user. The body member is provided with generally cylindrical side walls 3 which form a central pocket 4, the bottom of which is finished in a flat smooth surface 5. The base 2 is tapped to receive the central post 6 which projects upwardly through the center of the pocket. The post is provided with a first shoulder 7 and a threaded portion 8 located just below the upper edge of the side walls 3. Above the threaded portion 8 the post is further reduced to form a bearing section 9 and the upper end of the post is further threaded at 10 and shouldered as at 11.

Positioned within the pocket 4 is a cup-like abrasive carrier 12 preferably formed as a stamp-

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ing from sheet metal. The side walls of the carrier 12 are downwardly and inwardly tapered, as illustrated, at an angle with the vertical corresponding to the angle of taper to be formed on a pencil point. The bottom wall of the carrier is apertured and flanged as at 13 so that the carrier will fit oscillatably over the post 6. Preferably the bottom of the carrier is further upwardly offset or embossed as at 14 and a flat annular ring 15 of soft material such as leather is interposed between the bottom of the carrier and the bottom surface 5 of the pocket.

The cup-like carrier 12 is restrained against movement in the pocket by means of a coil spring 16 positioned around the post 6 and the flange 13. The upper end of the spring 16 bears against a washer 17 which in turn bears against a nut 18 engaged with the first threaded portion 8 on the post. The compression of the spring compresses the soft leather ring 15 between the bottom of the carrier and the bottom surface of the pocket and determines the frictional resistance to sliding of the carrier on the bottom of the pocket. Axially turned tips 16A on the ends of the spring engage the side of the nut and the bottom of the carrier to prevent rotation of the spring and carrier.

The top of the pocket 4 is closed by a dome shaped cover member 19 which is also preferably formed as a casting. The cover 19 is provided with an internal boss 20 which is vertically bored and rotatably mounted on the bearing portion 9 of the post. The bottom of the boss is in thrust engagement with the top of the nut 18 as at 21 to fix the position of the cover vertically on the bearing 9. The rim of the cover 19 is provided with a lip 22 rotatably received within the open end of the pocket 4.

Radially disposed on the cover 19 with respect to the boss 20 is a second boss 23 which projects upwardly above the cover and downwardly below the inside of the cover. The inner end of the boss 23 is downwardly and inwardly beveled as at 24 so that when the cover is placed on the post 6 the beveled surface 24 will engage the rim of the carrier 12 and slide the carrier radially of the post to the position illustrated in Fig. 1. The boss 23 is vertically bored as at 25 to receive a substantial portion of the end of a pencil. The bottom of the bore 25 terminates within the boss 23 and a small central aperture 26 is formed between the bottom of the bore and the beveled surface 24. The aperture 26 is of such a size as to receive the lead 27 of a pencil 28 inserted in the bore.

Preferably the aperture 26 is of such size as to

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snugly receive and support the standard size of leads used in drafting pencils and the bore 25 is of such size as to snugly receive a common type of mechanical drafting pencil as illustrated at 28A in Fig. 3. In order to use the pointer with the older wooden pencils 28 I provide a grommet 29 which fits into the top of the bore 25.

The inner wall of the carrier 12 is faced with a layer of abrasive material, such as sandpaper, as at 30 and in operation the user inserts the pencil into the boss 23 with the lead 26 projecting downwardly against the abrasive 30. The user then rotates the pencil and cover 19 about the bearing 9 causing the lead 26 to move in a circular path about the post 6. As the lead 26 moves in its circular path it engages and draws the abrasive 30 and carrier 12 with it in an orbital movement. The frictional drag between the carrier and the bottom of the pocket resists this orbital movement resulting in abrasive action between the lead and the surface 30.

Attention is called to the fact that the user cannot apply any greater pressure to the point of the lead than is furnished by the resistance of the carrier member to movement in the pocket 4. Therefore the user cannot accidentally break the point of the lead in the device. Further, the pencil is held by engagement with the boss 23 in a fixed vertical position and it is impossible for the user to tilt the pencil and obtain anything but a true conical point on the lead. The abrasive facing can be replaced when it becomes worn or filled with dust.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A pencil pointer comprising a heavy cast body member forming a central pocket open at the top and having a flat bottom, a post secured to said member and projecting upwardly in the center of said pocket, a cup shaped carrier having downwardly and inwardly tapered side walls positioned in said pocket, the bottom of said carrier having an aperture formed therein substantially larger than said post and positioned around said post, a nut threaded on an intermediate portion of said post, a coil spring compressed between said nut and the bottom of said carrier to urge said carrier toward the bottom of said pocket, said spring having lugs engaging said nut and carrier against rotation, a cover for said pocket rotatably mounted on the upper end of said post, a boss on said cover projecting from the top and bottom thereof and forming a vertical bore open at the top and radially positioned with respect to said post, said bore being adapted to receive the end of a pencil, an aperture connecting the center of said bore to the bottom of said boss and adapted to pass and supportingly engage the lead of a pencil, the mean radius of said carrier being less than the radius of rotation of said aperture about said post, a facing of abrasive material on the inside of said carrier, and a friction washer positioned between the bottom of said carrier and the bottom surface of said pocket, the bottom of said boss being sloped downwardly and inwardly of said cover and projecting below the rim of said carrier to cammingly engage the top of said carrier and draw said carrier off center of said pin as said cover is positioned on said post.

2. A pencil pointer comprising a body member forming a central pocket open at the top, a post secured to said member and projecting upwardly in the center of said pocket, a cup shaped carrier

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having inclined side walls positioned in said pocket, the bottom of said carrier having an aperture formed therein substantially larger than said post and positioned around said post, a projection around an intermediate portion of said post, a coil spring compressed between said projection and the bottom of said carrier to urge said carrier toward the bottom of said pocket, a cover for said pocket rotatably mounted on the upper end of said post and having thrust engagement with said projection, a boss on said cover forming a vertical bore radially positioned with respect to said post, an aperture connecting the center of the bottom of said bore to the bottom of said boss and adapted to pass the lead of a pencil, the mean radius of said carrier being less than the radius of rotation of said aperture about said post, a facing of abrasive material on the inside of said carrier, and a friction washer positioned between the bottom of said carrier and the bottom surface of said pocket, the bottom of said boss being sloped downwardly and inwardly of said cover and projecting below the rim of said carrier to assure the off center positioning of said carrier relative to said post and in the direction of said boss by camming engagement by the rim of said carrier and the sloping bottom of said boss in the event said carrier is not properly positioned when said cover is placed on said body.

3. A pencil pointer comprising a body member adapted to rest on a supporting surface, said body member forming a pocket having a bottom with a flat surface, a post projecting upwardly within said pocket from a central portion of said flat surface, a cup-like carrier member having an opening in the bottom thereof substantially larger than said post and positioned around said post with the bottom of said carrier member frictionally engaged with said flat surface, an abrasive facing on the inner surface of said carrier, and a pencil supporting member rotatably mounted on said post and having a pencil receiving bore radially spaced from said post, the radial dimension of said carrier member being less than the radial spacing of said bore from said post whereby a pencil positioned in said supporting member and projecting into said carrier member will impart oscillating motion to said carrier member when said pencil and supporting member are rotated.

4. A pencil pointer comprising a body member forming a pocket, a carrier member radially movably positioned in said pocket and having a slightly tapered generally cylindrical inner surface open at the top, a facing of abrasive material on said surface, a pencil holder rotatably mounted on said body and adapted to hold a pencil with the lead thereof projecting against said facing, the radial distance between said lead and the center of rotation of said holder being greater than the radial dimension of said abrasive facing, and means engageable between said carrier member and said body member to uniformly resist radial motion of said carrier with respect to the axis of rotation of said holder.

5. In a pencil pointer, a base, a guide rotatably mounted on said base and having a socket adapted to receive a pencil to guide said pencil in a circular path with the pencil approximately parallel to its axis of rotation, a carrier movable relative to said base and having an interior abrasive surface of revolution positioned to abradingly engage the lead of the pencil in said socket, the radius of said abrasive surface being less than

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the radius of rotation of said pencil whereby said lead imparts oscillatory movement to said carrier, and means acting on said carrier to uniformly and yieldably resist said oscillatory movement to provide uniform abrading pressure between said lead and said surface.

6. A pencil pointer comprising a base having a chamber therein open at the top, a post on said base and within said chamber, a pencil holder rotatably mounted on said post and provided with a pencil socket radially spaced from the axis of rotation of the holder to guide a pencil disposed within the socket in a circular path, an abrasive element in said chamber slidably and nontiltably supported on the base about said post and provided with an interior annular conical abrasive surface, a coiled spring disposed about said post with its upper end in supported thrust engagement with the post and its lower end in thrust engagement with said abrasive member, the diameter of said conical abrasive surface of said abrasive member being less than the diameter of said circular path of said pencil socket.

7. A pencil pointer comprising a base having a chamber therein open at the top, a post fixedly positioned to project from the bottom of said chamber, a pencil holder rotatably mounted on said post and constituting a cover for said chamber and provided with a vertical pencil socket radially spaced from the axis of rotation of the holder to support and guide a pencil disposed within the socket in a circular path, a downwardly tapered cup-like abrasive element open at the top and slidably and nontiltably supported on the bottom of said chamber about said post and provided with abrasive on its inner side, a conical coiled spring disposed about said post with its smaller end upwardly and in supported thrust engagement with the post and its lower end in thrust engagement with said abrasive member, the diameter of said abrasive member being less than the diameter of said circular path of said pencil socket.

8. A pencil pointer comprising a body member having an upwardly projecting post thereon, an abrasive element of inverted truncated conical shape mounted on said body member about said post for radial sliding movement relative to said

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post, said abrasive element having an internal abrasive surface, means for urging said abrasive element against said body member while permitting radial frictionally sliding movement thereof, and a pencil holder rotatably mounted on said post and provided with a vertical pencil socket traveling in a circular path around the post when the pencil holder is rotated and adapted to hold a pencil with the lead thereof projecting against the inner side of the abrasive element, the radius of rotation of the lead in the holder exceeding the radius of said abrasive surface at the area of contact between said lead and said surface.

9. A pencil pointer comprising a body member, an abrasive element mounted on said body member for frictionally resisting radial movement, said abrasive element having an interior annular conically tapered abrasive surface, and a rotatable pencil holder on said body provided with a pencil socket traveling in a circular path when the pencil holder is rotated and adapted to hold a pencil with the lead thereof projecting against the conical abrasive surface of the abrasive element from the wide end thereof, the radius of rotation of the lead in the holder exceeding the radius of said abrasive surface at the area of contact between said lead and said abrasive surface.

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