Feb. 4, 1941. H. L. COLLINS 2,230,936

PENCIL SHARPENER

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Fig. 1.

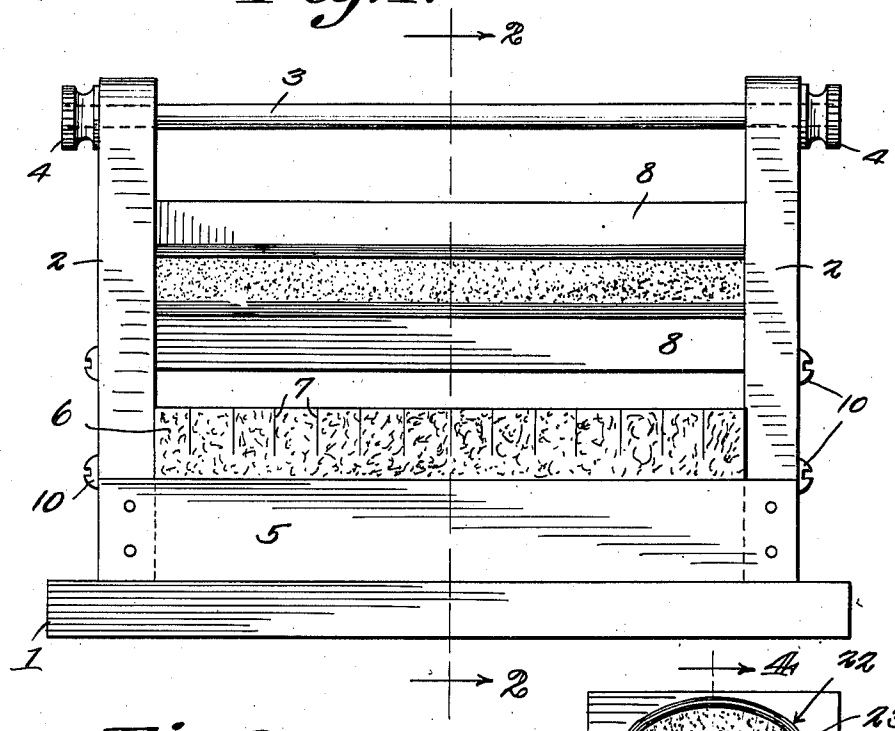
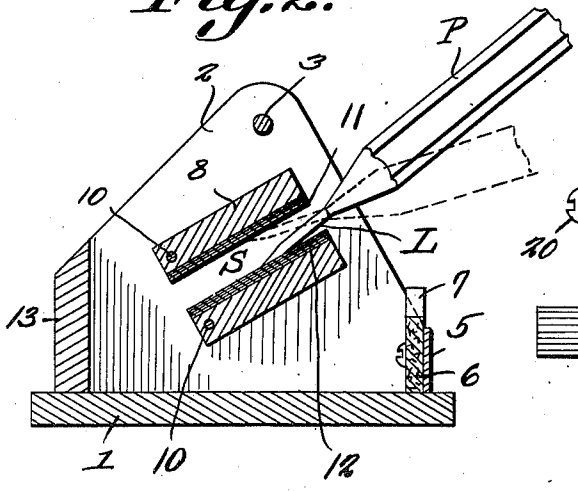


Fig. 2.



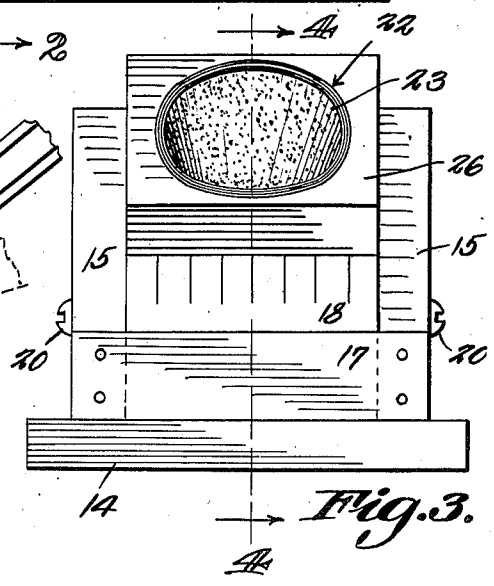


Fig. 3.

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Fig. 4.

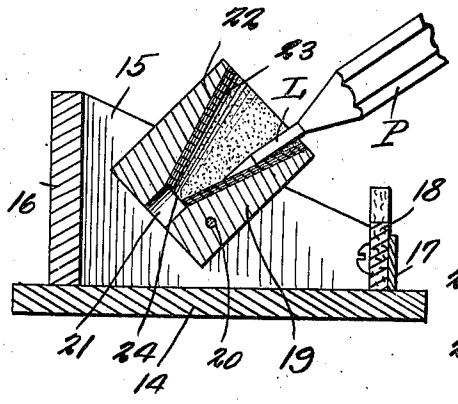


Fig. 5.

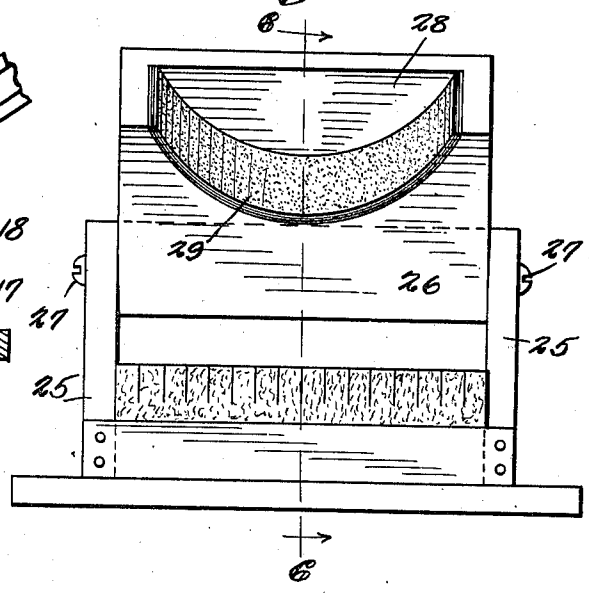


Fig. 6.

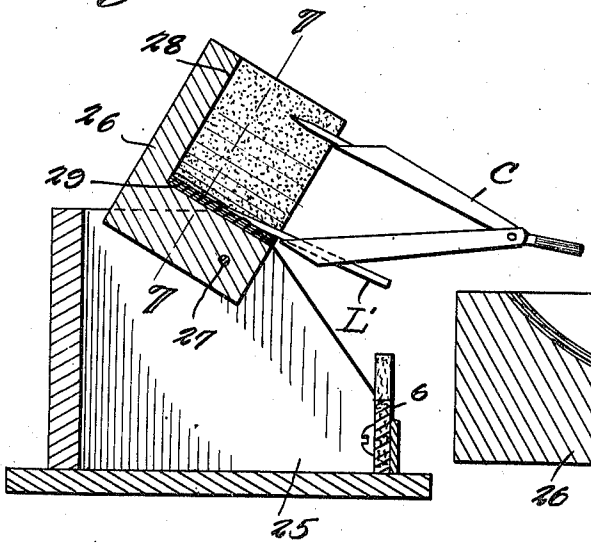
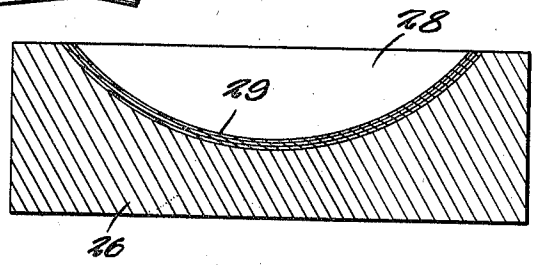


Fig. 7.



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UNITED STATES PATENT OFFICE

2,230,936

PENCIL SHARPENER

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Application January 4, 1940, Serial No. 312,421

5 Claims. (Cl. 120—89)

This invention relates to a device for sharpening the leads of pencils and while it is capable of general use, it is designed primarily to be used by draftsmen, architects and artists.

It is a fact well known that draftsmen necessarily assume a bent over posture while at work and heretofore when it has been desired to point a pencil it has been necessary for them to make a decided change in position which, while intricate work is being performed, frequently constitutes a handicap.

An object of the present invention is to provide a simple device which can be manufactured at low cost whereby the lead can be pointed to meet the requirements, the said sharpening device being so proportioned that it will occupy a very small space on the table and will allow the pencil to be inserted thereinto without necessitating a change in the position of the user.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings

Figure 1 is a front elevation of the device.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is a front elevation of a modified form.

Figure 4 is a section on line 4—4, Figure 3.

Figure 5 is a front elevation of another form.

Figure 6 is a section on line 6—6, Figure 5.

Figure 7 is a section on line 7—7, Figure 6.

The form of the device shown in Figures 1 and 2 is designed for use in making chisel points or, in other words, points having long edges extending straight from end to end. This structure includes a base 1 having upstanding end brackets 2 connected at their upper ends by a rod 3. The ends of the rod are screw-threaded for engagement by nuts 4.

Mounted on the base and connecting the lower portions of brackets 2 at the front thereof is an upstanding strip 5 to which is secured a soft flexible strip 6 of felt or the like which extends upwardly above strip 5 and is provided with slits 7 extending downwardly from the top edge of strip 6. This strip 6 constitutes a wiper and extends from one bracket 2 to the other.

Interposed between and extending up to brackets 2 are superposed strips 8 and 9 which are spaced apart and are connected adjacent to their lower edges to the brackets 2 by means of screws 10 or the like which thus provide pivots for the strips. These strips 8 and 9 are adapted to be adjusted to any desired pitch after which they are held in parallel planes by tightening nuts 4. This results in drawing the brackets 2 toward each other so that they will bind on the ends of strip 8.

To the lower surface of strip 8 is secured an abrasive element 11 consisting of laminations of sandpaper or the like held together temporarily by a suitable adhesive, each strip of sandpaper having its abrasive surface extended downwardly. A similar book formed of abrasive strips is secured on the upper surface of strip 9 as shown at 12, the abrasive material on each strip of the book being on the upper surface.

The brackets 2 are connected at the back by a back strip 13 and this strip with the brackets 2, base 1 and strips 5 and 6 cooperate to form a trough toward which the abrasive surfaces are inclined downwardly.

After the strips have been adjusted and secured so that the abrasive surfaces form a pencil-receiving space as shown at S, these strips, 8 and 9, are secured in place and the device is ready for use. The exposed portion of the lead L of a pencil P is inserted into this space and moved back and forth on book 12 to produce a flat surface at the point. The pencil is then shifted to bring the lead against book 11 as shown by broken lines in Figure 2 whereupon the opposed portion of the lead is similarly worn down to a flat surface which cooperates with the opposed flat surface to produce a straight or chisel edge designed primarily for drawing broad lines. As the lead is sharpened the particles gravitate into the trough formed by brackets 2, base 1 and strips 13 and 6. Subsequently the pencil is withdrawn and pulled over and in contact with wiping strip 6, said pointed lead being passed through one of the strips so that loosened particles will be brushed or wiped from the lead.

The structure shown in Figures 3 and 4 is for producing round points. It has a trough made up of a base 14, end brackets 15, a back strip 16, a front strip 17 and a slitted wiping strip 18. In this trough is mounted a block 19 adapted to tilt on pivot screws 20 carried by brackets 15 and which, when tightened, will hold the block in any position to which it might be adjusted angularly. The block has an opening 21 in the bottom thereof and the upper portion of this opening is flared

as at 22. This flared portion is lined with a book consisting of laminations of abrasive sheets shown at 23, said sheets being conical and nested and having outlet openings 24 through which particles of loosened lead can escape.

A pencil to be pointed is inserted in the space surrounded by conical book 23 and the point is moved in a circle along the abrasive inner surface of the book so that a sharp point is thus produced on the lead as shown in Figure 4. The lead particles will gravitate into the trough and as the pencil is withdrawn it is wiped across the strip 18.

The device shown in Figures 5, 6, and 7 is to be used in forming rounded or arcuate points such as useful on compasses. This modified device includes, in addition to trough 25, a block 26 pivotally supported by screws 27 which, when tightened, will hold the block in any position to which it is adjusted angularly. In the top of the block is a segmental recess 28 the concave bottom of which is covered with a book 29 formed of laminations of abrasive strips.

As shown particularly in Figure 6 the lead L' of a compass C can be moved back and forth along this concave abrasive book so that an arcuate surface will thus be produced on the lead which is especially useful in making a very accurate curve.

It will be noted that in all forms the sharpening element is supported above and discharges into a trough and the wiping strip is so located as to be engaged by the lead while it is being withdrawn following the sharpening operation.

By providing the books of separable laminations of abrasive material, the exposed laminations can be removed when worn thereby to expose an unused lamination.

What is claimed is:

1. In a pencil sharpener the combination with a trough including end brackets, of an angularly adjustable member mounted within the trough and having an inclined surface, an abrasive material mounted on said surface for engagement by the lead of a pencil and pitched at an angle to permit gravitation of loosened lead particles into the trough and adjustable means connecting the brackets for binding them against the ends of the adjusted member to hold said member against movement.

2. In a pencil sharpener the combination with a trough having end brackets, of a member mounted for angular adjustment within the trough, said member having a surface curved about an axis inclined downwardly toward the bottom of the trough, adjustable means connecting the brackets for binding them against the ends of the member, and an abrasive material covering said surface.

3. In a pencil sharpener the combination with a trough having end brackets, of a member mounted for angular adjustment within the trough, there being a recess in said member having a concave surface, adjustable means connecting the brackets for binding them against the ends of the member, and a book of separable abrasive strips mounted on said surface.

4. In a pencil sharpener the combination with a trough having end brackets, of a member mounted for angular adjustment within the trough and in close proximity to the brackets, there being a tapered opening extending through said member, adjustable means connecting the brackets for binding them against the ends of the member, and separable laminations of abrasive material mounted on the wall of said opening.

5. In a pencil sharpener the combination with a trough having end brackets, of spaced superposed members mounted for independent angular adjustment within the trough to provide a pencil-receiving space therebetween opening downwardly into the trough, adjustable means connecting the brackets for binding them against the ends of the adjusted members, and of abrasive material on the respective members and exposed within said space.

HARRY LESTER COLLINS.