June 19, 1951 D. J. FUGLE 2,557,646

LEAD SHARPENER

Filed March 10, 1949

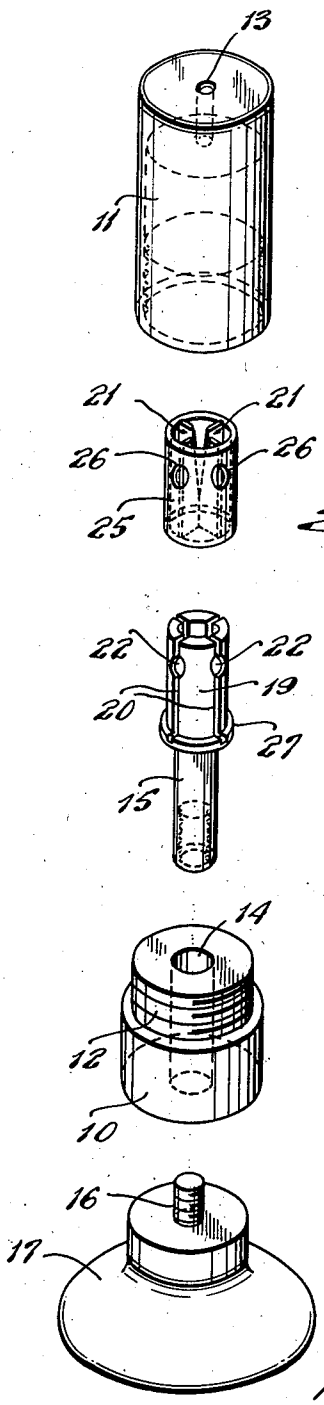


Fig. 1.

Fig. 2.

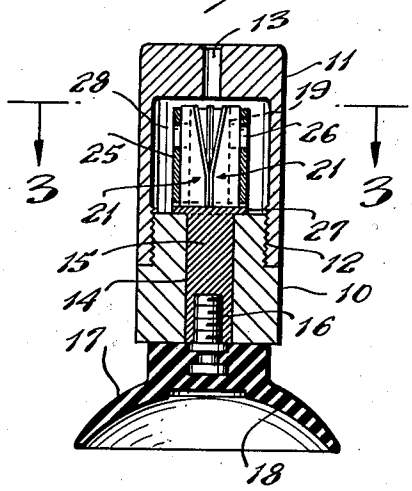


Fig. 3.

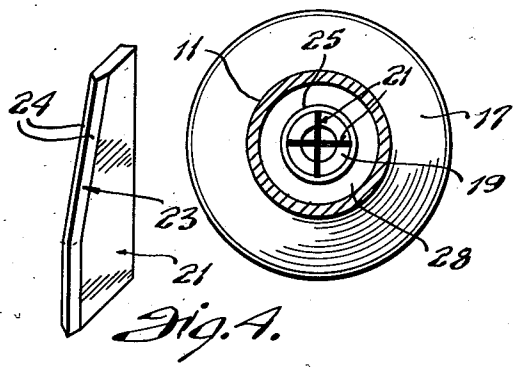


Fig. 4.

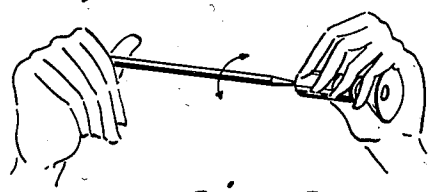


Fig. 5.

INVENTOR.
DELMAR J. FUGLE
BY
ATTORNEY

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LEAD SHARPENER

Delmar J. Fugle, Miami, Fla., assignor to Fugle-Mellet Products, Inc., a corporation of Florida

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1 Claim. (Cl. 120—92)

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This invention relates to a lead sharpener, and more particularly to an implement for sharpening leads of mechanical pencils and the like.

Precision workers, such as architects, draftsmen, engineers, artists, photograph retouchers, and others, when using mechanical pencils require leads with sharp smooth points, and during the course of work the leads must frequently be re-sharpened to keep the points in proper condition.

At present such workers usually employ a sheet or pad of sandpaper to point the leads. Use of sandpaper is not only messy, inconvenient, and unsatisfactory, but is also time consuming and does not result in points of uniform shape and fineness. Moreover, the scrapings or lead dust produced by sandpapering is likely to soil the hands of the workers and to smudge the drawings.

Among the objects of the invention are to provide an implement for sharpening leads of the kind used in mechanical pencils, which implement will produce a perfectly smooth and evenly graduated point; will avoid or reduce breakage of the leads; is clean and convenient to use; and, is easy and swift to operate.

While the implement is intended primarily for sharpening the leads of mechanical pencils, it may be used for the leads of pencil-compasses, as well as for other purposes.

I am aware, of course, that various implements have been devised for trimming and sharpening ordinary lead pencils, crayons, chalks, and the like. However such implements are unsuitable for sharpening the leads of mechanical pencils. Since such leads are relatively fragile they will break when subjected to the shaving, cutting, or grinding action of the ordinary types of pencil sharpeners.

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

Fig. 1 is an exploded perspective view of the implement;

Fig. 2 is a vertical section of the completely assembled implement;

Fig. 3 is a horizontal section on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view illustrating a manner of using the implement.

It is to be understood that for clearness of illustration the implement is shown on an enlarged scale in Figs. 1, 2, and 3.

The implement, in the particular form shown, comprises a casing that consists of a body member 10 and a detachable cover or cap member 11. The two members may be detachably secured together in any suitable manner, as for example by the screw-threads 12, and they may be made of metal, preferably aluminum, plastic or other material, and of cylindrical or other desired shape. The cap has a central opening 13 through which the lead to be sharpened may be inserted.

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The body member has a central opening 14 into which the foot or lower end of the hollow stem 15 extends. Said end of the stem is interiorly threaded for engagement with the threaded stud 16 of the base member 17. For convenience in holding the implement on a drawing board, table, or desk, the base member is preferably in the form of a rubber suction or vacuum disk having a concave lower surface 18.

At its head or upper end 19, which may be somewhat enlarged, the stem is provided with a plurality of equi-spaced vertical guide slots 20, usually four, in which the scraper blades 21 are received. Each slot includes an enlarged opening 22 to provide exits for discharge of the scraping or dust produced while sharpening the lead.

The scraper blades 21 are made of hardened tool steel or other suitable material, and they are each provided with a downwardly sloping scraping edge 23, the beveled faces 24 of which edge preferably form an angle of about 60° with each other. I have found that the best results are obtained with blades of this form since they act to scrape the lead, rather than to cut or shave it, and reduce breakage to a minimum. The blades are disposed with their opposed sloping edges 23 converging towards a common point at such an angle as to produce a relatively long acute point at the end of the lead. A sleeve or band 25 fits around the head of stem 15. The blades are preferably held in sleeve so that the sleeve and blades may be detached as a unit. In assembly, the four individual blades may first be placed in the slots, with the lower ends of the blades, that is the portion of each below its oblique edge, abutting against one another. The sleeve is then slipped over the stem-head to wedge and hold the blades tightly in place in the sleeve so that on removal of the sleeve the blades will be withdrawn with it. The sleeve is provided with openings 26 that correspond substantially in size and shape with the openings 21 in the head of the stem. The stem-head may be formed with a flange 27 to provide a stop or rest for the sleeve 25.

With the construction and assembly described

it will be seen that it is a simple and easy matter to detach the sleeve **25** so as to replace the blades should they become dull.

In use, the casing is held in one hand, as seen in Fig. 4, and the lead held in the other is turned or partly rotated to and fro to sharpen the point by a scraping action. The scraping or dust produced in sharpening is discharged into the interior chamber **28** of the casing and may be easily discharged by detaching the cap.

Various modifications in the arrangement of parts and details of construction may be made within the scope of the invention pointed out in the claim.

What I claim is:

A lead sharpener comprising a casing consisting of a body member and a detachable cover member having an opening for insertion of the lead to be sharpened, said body member having an opening axially therethrough, a stem having a foot and a hollow head, the foot of the stem passing through the opening in the body member, a base secured to the foot of the stem, the head of the stem having a plurality of vertical guide slots, a plurality of scraping blades seated in said slots, a sleeve detachably surrounding the head of the stem to retain the blades in place, said blades each having an oblique scraping edge and being arranged with the oblique edges of the several blades converging toward a common point at approximately the center of the support.

DELMAR J. FUGLE.

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