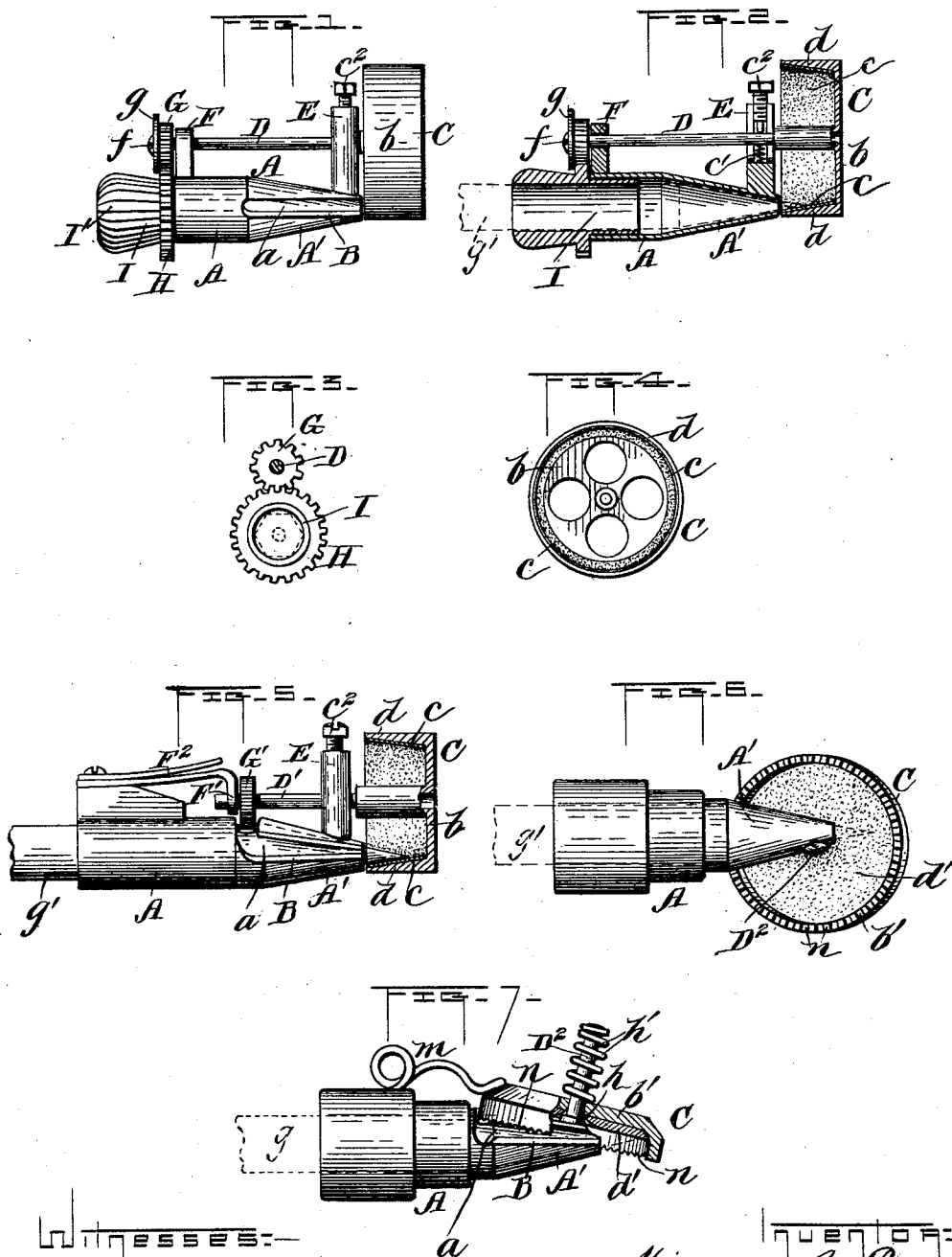


(No Model.)

W. G. PRICE.
PENCIL SHARPENER.

No. 479,303.

Patented July 19, 1892.



Witness:
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UNITED STATES PATENT OFFICE.

WILLIAM G. PRICE, OF NEW ORLEANS, LOUISIANA.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 479,303, dated July 19, 1892.

Application filed March 22, 1892. Serial No. 425,939. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. PRICE, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Pencil-Sharpeners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that type of pocket pencil-sharpeners which is adapted for being placed upon the end of a pencil and cutting away the wood to a truncated conical form with a portion of the lead exposed; and its object is to render such sharpeners capable of grinding down the exposed lead to a conical point on an angle corresponding, or nearly so, to the angle on which the wood is cut away.

To this end my invention consists in the combination of a rotary grinding device in form of a cylinder or disk for grinding away the lead at the point of the pencil with that portion of the sharpener which cuts away the wood.

It also consists in the combination of the wood-cutting portion of the sharpener, the lead-grinding portion, and means for revolving the grinding portion operated by the pencil or its holder, as will be hereinafter described, and specifically claimed.

In the accompanying drawings, Figure 1 represents a side elevation of a pocket pencil-sharpener constructed in accordance with my invention; Fig. 2, a vertical central section of the same; Figs. 3 and 4, detail views showing, respectively, the gearing and the grinding device. Fig. 5 is a side elevation of the wood-cutting portion and a section of the grinding portion of a pencil-sharpener of a slightly-different construction from that shown in the figures just described. Fig. 6 is an inverted plan view, and Fig. 7 a side view and broken section, of a pencil-sharpener of a slightly-different construction from that shown in the preceding figures.

In the drawings, A is a cylindrical tube having a truncated conical portion A' with a longitudinal opening α extending from the forward end of the cylindrical portion to the truncated cone end. In the opening the usual knife B is fitted, as shown.

The pencil-sharpener thus far described has in a slightly-different form from that shown by me been in use for years, and when the pencil is inserted into it and rotated the knife cuts away the wood and the lead to the proper shape for use. This sharpener soon becomes dull and worthless on account of the injurious effect of the lead upon the edge of the knife, which effect is due to the fact of the lead being a mixture of plumbago and clay or these with small particles of quartz-sand intermixed, and this mixture having the capability of cutting away the edge of the steel knife. A steel knife will last a long time when used for cutting the wood only, and to have it only cut away the wood I have shortened the conical part A' and the knife B and provided an independent device C for grinding away the lead beyond the wood. This device may be a hollow emery-surfaced wheel b of cylindrical form externally or an emery-surfaced crown-wheel, as b' . The emery lining or other grinding-surface c may be placed upon the surface of the internally-beveled rim d of the wheel b so as to give the proper taper to the lead of the pencil; or it may be a flat grinding-surface d' , set on the inner face of the incliningly-set crown-wheel b' , as such inclined flat grinding-surface will give the proper taper to the lead. If the wheel b is adopted as the grinder, it is connected rigidly to a shaft D, supported by bearings E and F, both bearings being mounted upon the wood-cutting portions A and A' of the pencil-sharpener. The bearing E contains a spring c' , arranged below the shaft, and is provided with an adjusting-screw c'' , whereby the grinding-wheel is adjusted to its most proper position relatively to the conical portion A' for doing good and accurate work.

For giving rotation to the wheel b two toothed wheels G and H are provided and arranged to gear with each other, the smaller one G being placed on the rear end of the shaft and secured by a screw f and circular lug g , and the larger one H on a hollow plug I, set some distance in the end of the cylindrical part A of the sharpener, as shown. The lug g extends down back of the wheel H and, in conjunction with the grinding-wheel, keeps it and the plug firmly in position

against longitudinal movement. The plug has a milled hollow head I' and is bored either round or hexagonal, the bore being of a proper diameter to fit the pencil g'. In the drawings, except Fig. 5, the pencil is shown by dotted lines as passed through the sharpener and properly shaped and sharpened on its lead point, and in Fig. 5 it is shown in full lines. In using the sharpener shown in Figs. 1, 2, and 4 the pencil is inserted as illustrated in Fig. 2 by dotted lines and rotated against the knife B until sufficient wood has been cut away, and then by pressing the thumb on the milled surface I' of the plug I the plug and the pencil are turned or rotated at the same time. This causes the grinding-wheel to revolve rapidly and grind off the lead point to the desired shape. If round pencils only are used, the plug I, or at least the milled portion I' thereof, can be dispensed with, and a larger wheel G', with its teeth sharpened and placed on a shorter shaft D', may be substituted for the two wheels G H. When only hexagonal pencils are to be used, the bore in the plug is made hexagonal, so as to fit the pencil, and the milled part I' of the plug I is left off. In this construction the rear end of the shaft will be fitted in a spring-bearing F', attached to a seat-block on the cylindrical part A and limited in its vibrations by a stop F², as shown in Fig. 5. The sharpened teeth of the wheel G' penetrate the pencil, and by revolving the pencil this wheel is caused to revolve, and thereby revolve the grinding-wheel against the lead point of the pencil and sharpen the same properly. If the construction shown in Figs. 6 and 7 is adopted, the crown-wheel b', carrying the emery grinding-surface or lining d', will be fitted loosely against a collar h of a headed central pin D², which extends up from the conical part A' of the sharpener, and a spring h' will be arranged on said pin and made to press against the outer surface of the crown-wheel, so as to give it a yielding spring action, and the crown-wheel will be suspended by a spring-bracket m, attached to the part A of the sharpener. For insuring rotation of this crown-wheel sharpened teeth n will be provided on the bottom edge of the rim of the crown-wheel, and said teeth will penetrate the wood of the pencil, and as the pencil is rotated in the sharpener the crown-wheel will be caused to revolve, and thereby sharpen the lead point of the pencil.

What I claim as my invention is—

1. The combination of a rotary grinder for sharpening the lead points of pencils with a tubular pencil-sharpener provided with a side blade for cutting the wood of the pencil preparatory to the grinding of its lead point, whereby the wood is first cut to a conical

point and the lead of the pencil immediately thereafter, without removal of the pencil from the sharpener, ground to a point, substantially as described.

2. The combination of the wood-cutting portion and the lead-cutting portion of the sharpener and gearing and means for operating the grinder and insuring the cutting away of the wood and the lead successively without removing the pencil from the sharpener, substantially as described.

3. The combination of the spring and adjusting screw with the grinder and the wood-cutting portion of the sharpener, the combined sharpener and grinder being adapted for cutting away the wood and the lead successively without removing the pencil from the sharpener, substantially as described.

4. A rotary emery grinder applied at the conical end of the tubular wood-cutting portion of the sharpener, the combined sharpener and grinder being adapted for cutting the wood and lead successively without removing the pencil from the sharpener, substantially as described.

5. The combination of the tubular wood-cutting portion of the sharpener, the shaft of the grinder, the plug, and the confining-lug, substantially as described.

6. The plug provided with a milled head, in combination with the wood-cutting portion of the sharpener and the rotary grinder, substantially as described.

7. The combination of the shaft of the rotary grinder provided with the toothed wheel, the plug provided with a toothed wheel, the rotary grinder, and the wood-cutting portion of the sharpener, substantially as described.

8. The rotary hollow grinding-wheel for a tubular pencil-sharpener, having a beveled emery-covered internal surface, a shaft, suitable bearings, and a wheel for insuring the revolution of the grinder when the pencil is revolved within the wood-cutting portion of the sharpener, substantially as described.

9. A rotary yielding grinder applied at the end of the wood-cutting portion of the tubular pencil-sharpener and means for revolving the grinder when the pencil is revolved, said grinder pointing the lead of the pencil immediately after the wood is cut away and the pointing being effected without removing the pencil from the tubular wood-cutting portion of the sharpener, substantially as described.

In testimony whereof I herewith affix my signature in presence of two witnesses.

WILLIAM G. PRICE.

Witnesses:

GEORGES DAMIENS,
J. NEWMAN AUGUSTINE.