(No Model.)

W. G. PRICE.

PENCIL SHARPENER.

No. 510,518. Patented Dec. 12, 1893.

Fig. 1.

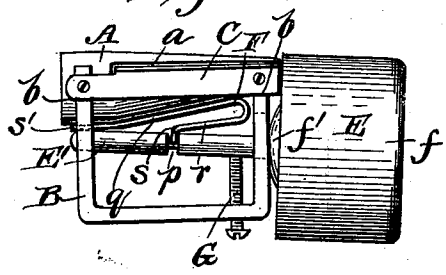


Fig. 2.

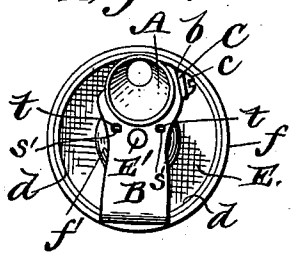


Fig. 3.

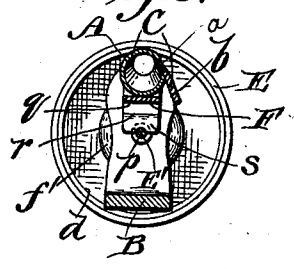


Fig. 4

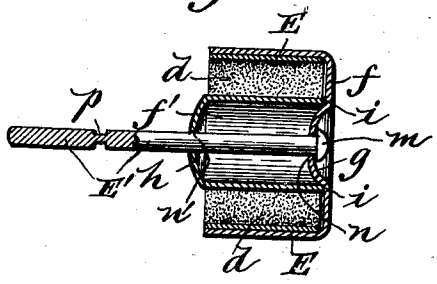


Fig. 5.

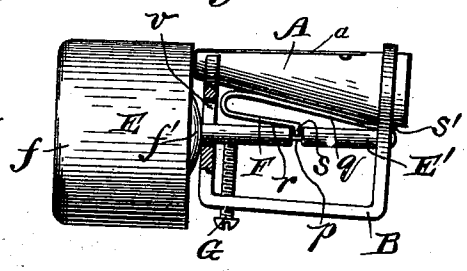
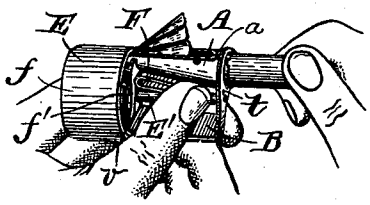


Fig. 6.



WITNESSES

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PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 510,518, dated December 12, 1893.

Application filed March 2, 1893. Serial No. 464,378. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. PRICE, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, 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 a pencil sharpener and grinder of that type which first cuts away the wood of the pencil to a conical point and then grinds the lead to a sharp point, which type of pencil sharpeners is shown in Letters Patent granted me July 19, 1892, No. 479,303.

My present invention consists more especially in a novel construction of the sharpener and grinder whereby great simplicity, cheapness of manufacture and effectiveness are secured.

In the accompanying drawings, Figure 1 is a side elevation of my improved sharpener and grinder. Fig. 2 is an inner end view, and Fig. 3 a cross section of the sharpener and grinder shown in Fig. 1. Fig. 4 is a detail sectional view of the grinder-shaft and grinder. Fig. 5 is a side elevation of the sharpener and grinder in reverse position from that shown in Fig. 1, and constructed without the cutting blade shown in Fig. 1; the cutting edge being formed directly on the conical tube. Fig. 6 is a perspective view of the style of sharpener shown in Fig. 5, illustrating a pencil in the sharpener, and showing the way the pencil, sharpener and grinder are manipulated in the act of cutting away the wood of the pencil to a cone point.

A in the drawings represents a truncated cone-sharpening tube, formed with a slit *a* extending from near its larger end to its truncated end.

B is an open frame in which the tube is firmly secured by solder or other suitable means.

C is a knife or cutter inclined to correspond with the conical tube, and set on beveled seats *b* of the frame, with its edge just entered into the slit of the tube A. This blade is secured in place by means of clamping screws *c*, which screws may pass through slots in the blade so as to allow the blade to be adjusted properly with respect to the slit *a* after it may have been reduced in width by the sharpening operation. It might be practicable to sharpen one of the side walls of the slit of a tube made of fine steel, and construct the sharpener as illustrated in Figs. 5 and 6, but the best way is to make the tube of brass with a slit *a* in it, and employ a steel cutter or blade C as shown in Figs. 1, 2 and 3, because it will be less expensive to supply a new blade or to resharpen the first one which is provided on the sharpener, than it would be to supply a new tube or resharpen one of the walls of the slit *a*.

E is an emery surfaced grinder in form of a hollow drum with one end closed and the other open. This drum is coated on its inner curved surface with emery or other grinding material as indicated at *d*, and it is formed of two hollow shells *f f'*. The outer shell has its head at the outer end of the drum, and the inner one its head at the inner end of the drum. The head of the outer shell is made with a concave depression *g* and the head of the inner shell is made convex or bulging as indicated at *h*. The two shells are soldered together at *i*. This drum is applied loosely on a horizontal shaft E' formed with a head *m* at its outer end, which is seated in the concaved part of the outer shell when the shaft has been passed through central passages *n n'* in the respective shells. At or about one third the length of the shaft, a narrow groove *p* is cut in and all around the shaft. The shaft and the grinding drum are applied to the frame B by passing it through openings in the standards thereof, and the shaft is fastened against longitudinal movement, while it may if necessary revolve, by means of a spring F, which is constructed and applied as follows, so as to serve for keeping the emery drum down to its work in grinding the lead to a point, and also, as a very effective connecting means, and at the same time admit of being conveniently set in position to hold the parts together, and removed to allow of their separation. The spring F is formed of flat metal with two limbs *q*, *r*, and on one of these limbs a lug *s* for fitting in the groove *p*, and the other with two dowels *s' s'* or with a single square shouldered end for entering openings *t* in one of the standards of the frame B.

The spring, when applied as shown, is prevented from turning by its dowels, and it, by its lug entering the groove *p*, holds the shaft, with emery grinding drum attached, and the frame securely connected; and at the same time it serves for keeping the emery surface down upon the lead part of the pencil during the grinding operation. This feature of my invention is very important, as the spring F performs two offices, while considerable expense in the manufacture of the sharpener is avoided, and the taking of the sharpener apart for repairs is facilitated. The construction whereby the hollow cone A may be made of cheaper metal than steel, say brass, and a steel blade may be adopted, and the said parts connected to the frame, is important; it enabling me to effect the connection of the cone A with the frame B by simply passing its large end through an opening in one of the standards of the frame, and setting its truncated end in a saddle-like recess in the top of the other standard, and then simply soldering the cone to the frame. This done, the cone and frame are cut with a milling wheel so as to form suitable flat inclined seats for the sharpening blade, which will insure an inset of the edge of the blade just sufficient for cutting the desired thickness of shaving from the wood of the pencil. This feature of the invention, also, greatly cheapens the cost of manufacturing the sharpener. The other feature of invention, viz., the construction of the grinding drum of two hollow metal shells, soldered together, is very simple and cheap, and at the same time all the support and bearing required for the shaft is secured, and the outer or forward headed end of the shaft is brought flush with the head of the drum; and the construction is such, that the drum is loose on the shaft, and when in use the shaft does not usually revolve but is free to do so if required. A drum can be constructed in this manner so as to be perfectly true and much cheaper than if made from a heavier piece of brass in a turning lathe, and in the old way.

For regulating the downward movement of the shaft in the frame, a screw G may be provided, and the shaft may be fitted in the frame so as to rise and descend in a slot *v*. This adjustment may be necessary as the emery surface wears away, in order to insure that the drum is in proper working relation to the conical sharpener.

What I claim as my invention is—

1. A pencil sharpener and grinder, comprising a shaft carrying a grinding drum, said shaft having a groove or recess in its surface, a frame carrying a sharpener, and a spring serving for locking the parts together and keeping the grinder in proper working relation to the lead point of the pencil as it is being operated upon, substantially as described.

2. The combination of the hollow cone, frame beveled to seat the blade, sharpening blade made separate from the hollow cone and applied to the frame in the manner and relation shown, to the slot in the cone, and grinder, substantially as described.

3. The combination of the grinding drum formed of two hollow shells, one having an emery grinding surface; and the shaft, sharpener frame and sharpener, substantially as and for the purpose described.

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

WILLIAM G. PRICE.

Witnesses:
C. H. HART,
B. H. ELDRIDGE.