

(No Model.)

W. DUFFIELD.
PENCIL SHARPENER.

No. 543,727.

Patented July 30, 1895.

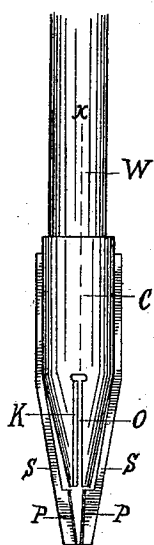


Fig. 1. x

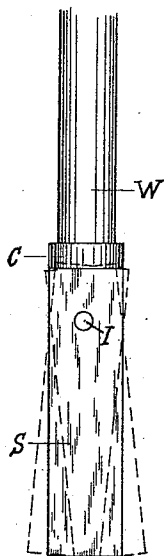


Fig. 2.

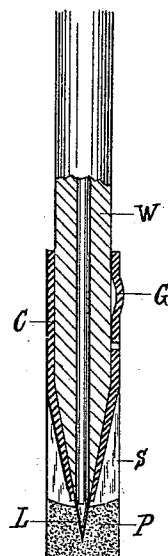


Fig. 3.

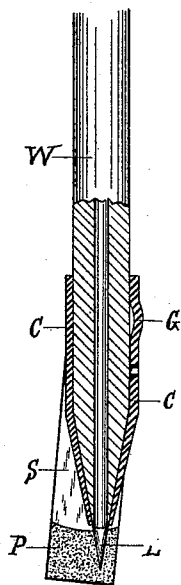


Fig. 4.

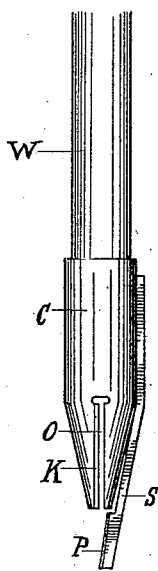


Fig. 5.

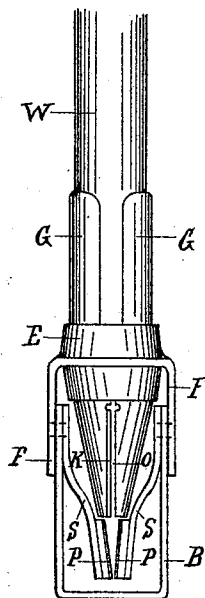


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM DUFFIELD, OF LONDON, CANADA.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 543,727, dated July 30, 1895.

Application filed October 10, 1894. Serial No. 525,645. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DUFFIELD, a subject of the Queen of Great Britain, and a resident of the city of London, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Pencil-Sharpener, of which the following specification, taken in connection with the accompanying drawings, forms a full, clear, and exact description.

This invention relates to lead-pencil sharpeners and the like, and has for its object to provide a simple, practical, and inexpensive device whereby the end of the wood portion of the pencil and the lead point may be formed conical at one operation, and simply by revolving the pencil in an apparatus which will remain stationary while the pencil is being sharpened, and at the same time so constructed that a new portion of the abrading-face may be adjusted opposite the lead point when the former portion adjacent thereto has become worn.

In order that my improvements may be better understood, I have illustrated in the accompanying drawings a pencil-sharpener constructed according to my invention, in which drawings—

Figure 1 is a side view, and Fig. 2 an end view, of a pencil-sharpener embodying my invention. Fig. 3 is a central longitudinal sectional view on the line xx of Fig. 1. Fig. 4 is another view of Fig. 3, showing a lateral adjustment of the abrading-plate. Figs. 5 and 6 illustrate modifications of my invention.

G designates a resilient spring-guide, which is secured to or formed integral with the conical tubular cutter C. This guide conducts the pencil to the cutting blade or face K in proper position, so that said cutting blade or face will cut or form a conical end on said pencil. This guide also grips pencils of different sizes in cross-section to prevent them from vibrating when the wood portion W is being cut away.

C designates a conical tubular cutter, in which the longitudinal opening O is formed, and secured to or formed integral with which is the cutting blade or face K.

K designates a cutting blade or face suitably arranged in relation to the opening O to remove the wood W and to cut or form a

conical end on said wood portion; but this cutting blade or face K is set at such an angle that it will not cut or interfere with the lead portion L of the pencil.

S designates an arm connected to the tubular cutter C and provided at its outer end, which extends beyond the front end of the tubular cutter, with an abrading-surface P.

In practice I have found it an advantage to pivotally connect said arm S to said cutter C, because when so constructed said arm may be swung to either side in order to bring a new portion of the abrading-surface in contact with the lead point L when the former portion of said abrading-surface adjacent to said lead point has become worn. This arm S may be constructed of any suitable size or shape and of any suitable material; but I preferably form it of a spring or from spring-steel, so that it will yield laterally away from the pencil, and thus prevent the lead point L when sharpened, or nearly so, from breaking or being otherwise injured.

In Fig. 1 two spring-arms S are shown, each provided with an abrading-surface P, and in Fig. 5 one spring-arm S and abrading-surface P only is shown, and in these figures said spring-arms are pivotally secured by pivot pins or rivets I directly to the conical tubular cutter C; but in Fig. 6 these spring-arms S are shown secured to a frame B, and the latter is pivotally secured to the flanges F, and said flange projects downward from a collar E, which collar is rigidly secured to the conical tubular cutter C; and in Fig. 6 the resilient spring-guide is formed by slitting the rear portion of the tubular cutter C and forming these rear portions to act resiliently on the pencil.

The swinging spring-arm S in Figs. 1 and 5, or the frame B, (shown in Fig. 6,) to which the spring-arm S is secured, is swung to either side to bring a new portion of the abrading faces or plates P in contact with the lead point of the pencil when the former portions adjacent thereto have become worn; and these abrading-plates P and tubular cutter C are then held stationary in the position to which they are adjusted, the pencil being sharpened by simply pressing it inward and revolving it in the tubular cutter C, the cutting face or blade removing the wood portion

in a conical form and the abrading surfaces or plates P removing the lead point in a conical form and at one operation without removing the pencil by simply pressing inward and revolving the pencil, the sharpening and abrading apparatus remaining stationary.

The construction herein shown and described I have found by experiment to give the best results, and I prefer the construction shown. At the same time I do not limit myself to the details thereof, as they may be modified in various ways without departing from the spirit of my invention.

Having thus described my invention, I claim—

1. In a pencil sharpener, the combination with a tubular cutter, of an arm pivotally connected to said cutter and provided with an abrading surface on its free end in front of the tubular cutter, substantially as and for the purpose described.

2. In a pencil sharpener, the combination with a tubular cutter, of a spring arm connected to said cutter and provided with an abrading surface on its free end in front of the cutter, substantially as and for the purpose specified.

3. In a pencil sharpener, the combination with a tubular cutter, of a spring arm pivotally connected to said cutter, and provided with an abrading surface on its free end in front of the cutter, substantially as and for the purpose specified.

4. In a pencil sharpener, the combination with a tubular cutter, of a frame supported thereon, and a spring arm pivoted to said frame and provided with an abrading surface on its free end in front of the tubular cutter, substantially as and for the purpose specified.

5. In a pencil sharpener, the combination with a tubular cutter, of a collar on said cutter, flanges extending from said collar, a frame pivoted to said flanges and an arm secured at one end to said frame and provided with an abrading surface on its free end in front of the tubular cutter, substantially as described.

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

WILLIAM DUFFIELD.

Witnesses:

P. J. EDMUNDS,
S. MCBAIN.