

(No Model.)

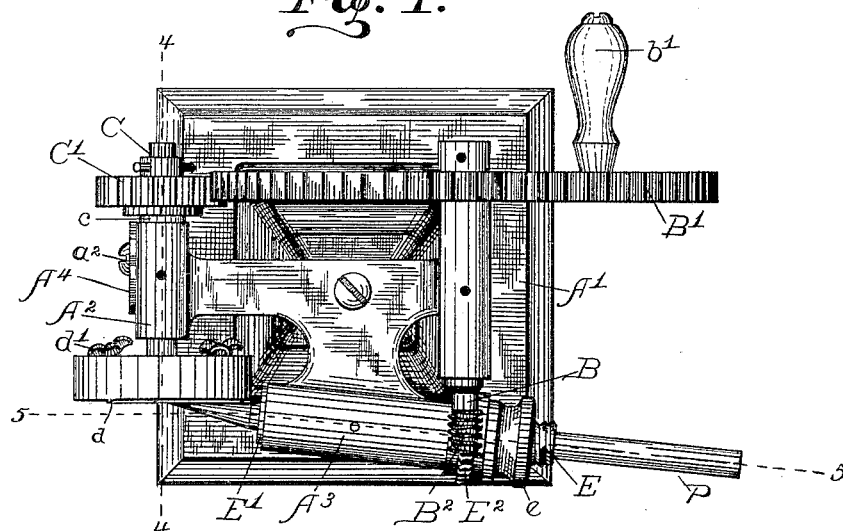
2 Sheets—Sheet 1.

C. B. WANAMAKER.  
PENCIL SHARPENER.

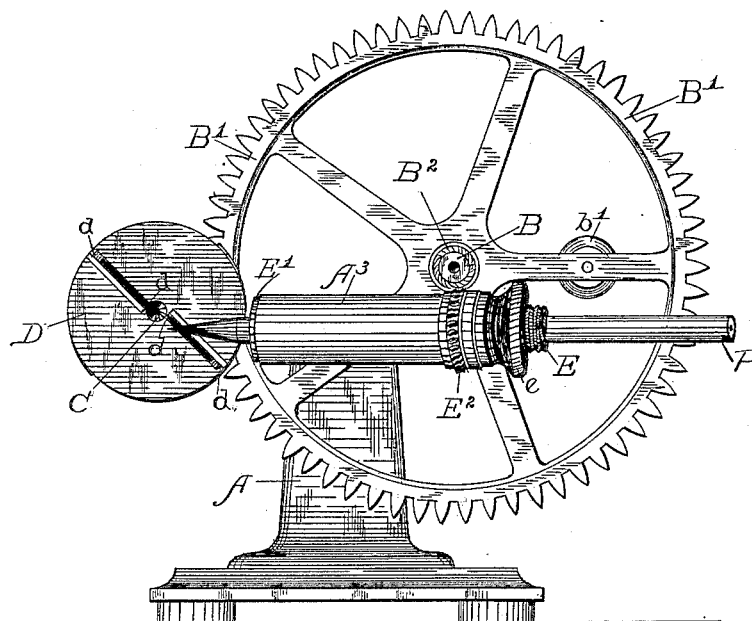
No. 418,997.

Patented Jan. 7, 1890.

*Fig. 1.*



*Fig. 2.*



WITNESSES.

*F. Dean Rhodes,*  
*J. Walsh.*

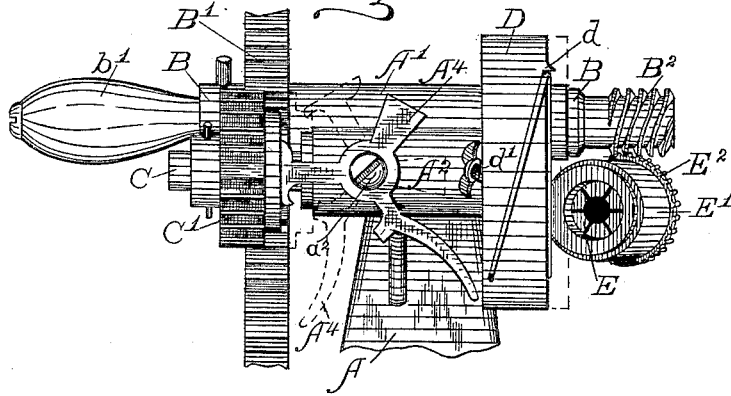
INVENTOR.  
*Charles B. Wanamaker,*  
per *Wm. D. Bradford.*  
ATTORNEYS.

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PENCIL SHARPENER.

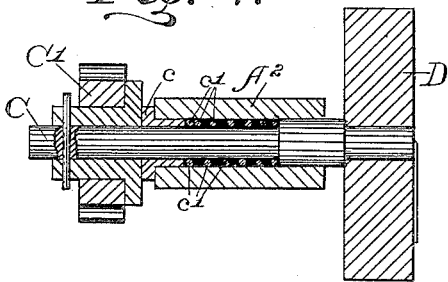
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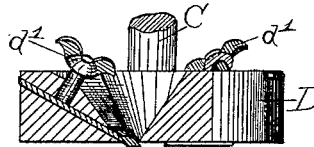
*Fig. 3.*



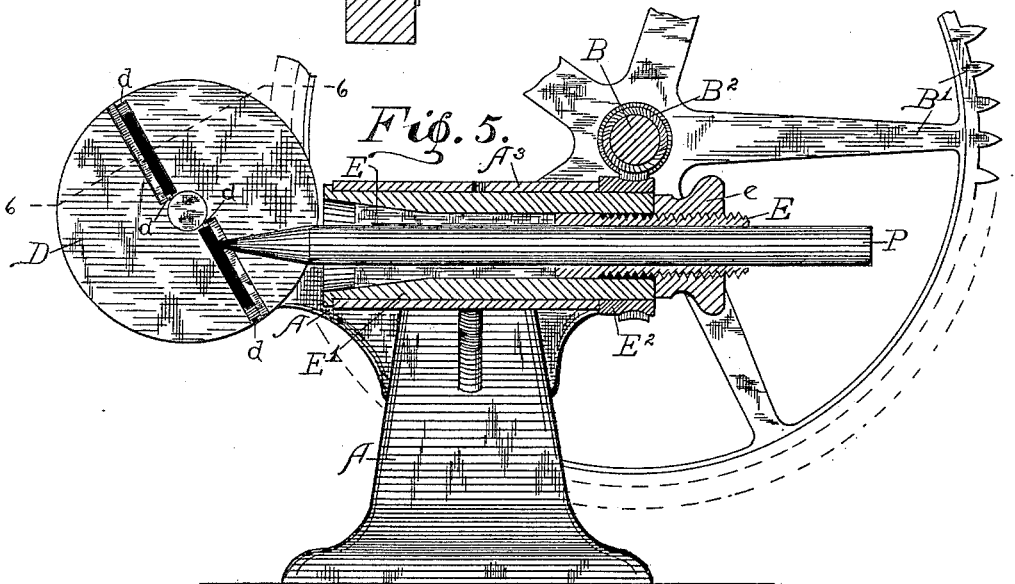
*Fig. 4.*



*Fig. 6.*



*Fig. 5.*



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per E. W. Bradford.  
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# UNITED STATES PATENT OFFICE.

CHARLES B. WANAMAKER, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO ALBERT G. COX, OF SAME PLACE.

## PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 418,997, dated January 7, 1890.

Application filed September 24, 1889. Serial No. 324,942. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES B. WANAMAKER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

The object of my said invention is to produce a machine by which pencils may be rapidly and efficiently sharpened, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a pencil-sharpener embodying my said invention; Fig. 2, a side elevation of the same; Fig. 3, a front elevation, on an enlarged scale, with the cutting-head thrown back, while the forward position is indicated by dotted lines; Fig. 4, a vertical sectional view looking toward the right from the dotted line 4 4; Fig. 5, a vertical sectional view looking upwardly from the dotted line 5 5 in Fig. 1; and Fig. 6, a sectional view of the cutter-head, looking downwardly from the dotted line 6 6 in Fig. 5.

In said drawings, the portions marked A represent the frame-work of the device; B, the main or driving shaft; C, the shaft of the cutter-head; D, said cutter-head, and E the chuck or clamp by which the pencil is held.

The frame A contains bearings for the shafts B and C and the chuck E, and is of a size and shape to properly support said parts.

The shaft B is mounted in a long sleeve-like bearing A' on the frame A. It carries the main driving-wheel B' upon one end, which is preferably in the form of a spur gear-wheel, as shown, and which is provided with a crank-handle b' or a pulley, by which it may be driven. Upon the other end said shaft carries a worm gear-wheel B<sup>2</sup>, which engages with a similar gear-wheel on the chuck, and is thus enabled to revolve said chuck.

The shaft C is mounted in a long sleeve-like bearing A<sup>2</sup> on the frame A, and carries upon one end a spur-pinion C', which engages with and is driven by the spur gear-wheel B',

and upon the other end the cutter-head D. This shaft is smaller at one end than at the other, and a bushing c is inserted in one end of the bearing A<sup>2</sup>. Between the shoulder, which is the termination of the large end of the shaft and this bushing, is interposed a spring c', which surrounds the shaft, and which serves to hold the cutter-head against the point of the pencil while the device is being operated and to cause it to follow up against the work until the operation of sharpening is finished, the arrangement being such that this result is reached just as the hub of the pinion C' comes against the outer face of the bushing c.

The cutter-head D is practically a rotary plane with one or more knives (I have shown two) set in a similar manner to ordinary plane-knives therein. In order that the knives may be quickly set to proper position or set by inexperienced persons, I have provided projections d at the extreme ends of the slots containing the knives, with which the outer and inner corners of said knives will just come in contact when the edges of said knives are in proper position for cutting. Said knives are beveled on the inner or top surfaces, as shown most plainly in Fig. 6, and are secured in position by set-screws d'. This form of knife discharges the cuttings much better than one which is beveled upon the outer or cutting side, and therefore the head is less likely to become choked up with the shavings. An inexperienced person can also sharpen knives with this bevel without danger of spoiling their cutting qualities, while knives sharpened on the other bevel must be treated with more care, or the bevel will be so changed as to render them inefficient in use, notwithstanding that the edge may be keen.

Upon the outside of the bearing A<sup>2</sup> upon a pivot c<sup>2</sup> is mounted a catch A<sup>4</sup>, which, when turned up in the position shown by the full lines in Fig. 3, forces the shaft C endwise and holds the cutting-head out of the way of the pencil which is being put into or taken from the machine, and enables the operator to insert and adjust or remove said pencil readily without having to hold the head back out of the way. When the machine is started to op-

erate, the catch is thrown out of engagement automatically by the friction of the wheel with which it is in contact and drops back into the position shown by the dotted lines in said Fig. 3, thus permitting the head to press against the side of the pencil and to follow it up as the operation of cutting continues.

The chuck E is a hollow chuck formed of metal capable of springing and split into segments, which segments are inclosed in an interiorly-tapered barrel E', in which they may be drawn endwise by a thumb-nut *e* on the screw-threaded end of the chuck which extends to the outside, as shown most plainly in Figs. 2 and 5. The barrel of the chuck is mounted in a bearing A<sup>3</sup>, forming part of the frame-work A, and upon its outer end is a screw gear-wheel E<sup>2</sup>, which engages with the corresponding screw or worm B<sup>2</sup> on the end of the shaft B. By this means the chuck is slowly revolved at the same time the cutter-head is revolved, and thus the knives are enabled to operate uniformly upon all sides of the pencil, cutting it rapidly to an accurate point. The chuck is set diagonally with the cutter-head to produce the tapering point desired on the pencils, as will be readily seen by an inspection of the drawings, particularly Fig. 1.

The operation of my said invention is as follows: A pencil P is inserted into the chuck E, and secured therein by pulling the segments of said chuck against its barrel by means of the thumb-nut *e*, the cutting-head D having previously been secured back out of the way by means of the catch A<sup>4</sup>. After the pencil is secured in position the wheel B' is turned, which, through the spur-pinion C' and the shaft C, revolves the cutter-head D at a high speed, and through the worm-gear E<sup>2</sup> revolves the chuck at a slow speed. As previously explained, upon the starting of the machine in motion the catch A<sup>4</sup> is immediately turned by the friction of the pinion C' and becomes disengaged therefrom, which permits the cutter-head to be forced against the point of the pencil, (by the spring *c'*), which it rapidly cuts away to a sharp point, the spring serving to keep the cutter-head in position to operate until it has reached the limit of its movement, and the result is an even uniform point upon the pencil.

As will be noticed by the drawings, more particularly Fig. 5, the arrangement of parts is such that the point of the pencil is somewhat below the center of the face of the cutter, and that the knives are caused by this arrangement to cut diagonally to and toward the point of the pencil, insuring a smooth cut and obviating all danger of splintering the wood, which is frequently done with cutters which operate circumferentially of the pencil. The peripheral velocity of the cutter being of course much greater than that at the center, and the wood part of the pencil being nearer the periphery than the center, the cutting upon the wood is proportionately as

much more rapid than the cutting upon the lead as the greater amount of wood to be cut, and as the spring force which keeps the cutter in contact with the pencil is necessarily even upon the whole surface against which said cutter bears the wood sustains the greater part of said force, and therefore there is little or no danger of breaking the lead, it being impossible for the spring to push the knives any faster than they cut away said wood. It will also be noticed that the machine is a very strong and substantial one for the purpose, there being no delicate parts likely to get out of order, and with the stops *b* to enable the operator to exactly set the knives without any care upon his part the knives can be removed for sharpening and replaced very speedily.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a pencil-sharpener, of a main shaft, a cutter-head shaft, a chuck, and gearing uniting said main shaft to both said cutter-head shaft and said chuck, whereby all of said parts are revolved simultaneously, substantially as set forth.

2. The combination, in a pencil-sharpener, of a longitudinally-movable cutter-head shaft and a catch A<sup>4</sup>, mounted on the frame and adapted to hold the shaft and cutter-head back out of engagement, substantially as set forth.

3. The combination, in a pencil-sharpener, of a chuck for holding the pencil, consisting of a sleeve-like portion formed of spring metal and split into several parts, a barrel surrounding it tapered on the interior at one end, a screw-threaded extension to said chuck extending out beyond the end of the sleeve opposite to that containing the gripping portion of the chuck, and a thumb-nut thereon, whereby it may be operated, substantially as set forth.

4. The combination, in a pencil-sharpener, of a chuck, the outer or sleeve portion of which is mounted in a bearing in the frame-work, a screw-gear upon said sleeve-like portion, and a corresponding worm upon the driving-shaft engaging directly therewith, whereby it may be revolved, substantially as set forth.

5. The combination, in a pencil-sharpener, of the main or driving shaft carrying the driving-wheel upon one end and a screw gear or worm upon the other, a cutter-shaft adapted to be moved endwise and provided with a spring, whereby it is held in contact with its work, and a chuck, also mounted in said frame-work and arranged diagonally to the cutter-head and provided with a screw-gear engaging with the worm on the main driving-shaft, substantially as set forth.

6. In a pencil-sharpener, a cutter-head provided with one or more knives, and catches or projections *d*, against which the corners of the knives come, and whereby they are

stopped to proper position when placed in the head, substantially as set forth.

7. The combination, in a cutter-head for pencil-sharpeners, of the main head portion  
5 D, carrying one or more knives D' and provided with stops d, and set-screws for holding the knives in position, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 10 18th day of September, A. D. 1889.

CHARLES B. WANAMAKER. [L. s.]

Witnesses:

C. BRADFORD,  
E. W. BRADFORD.