

A. BERTRAM.
PENCIL SHARPENER.
APPLICATION FILED JAN. 8, 1910.

995,764.

Patented June 20, 1911.
2 SHEETS-SHEET 1.

Fig. 2.

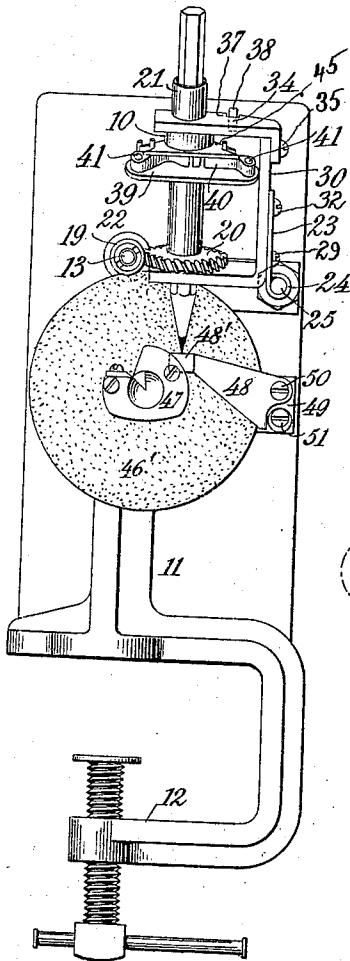
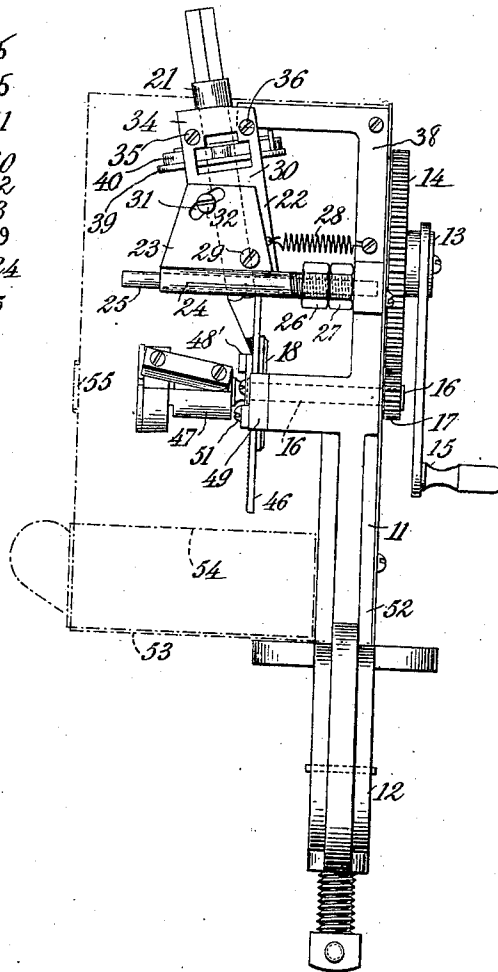


Fig. 1.



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2 SHEETS-SHEET 2.

Fig. 3.

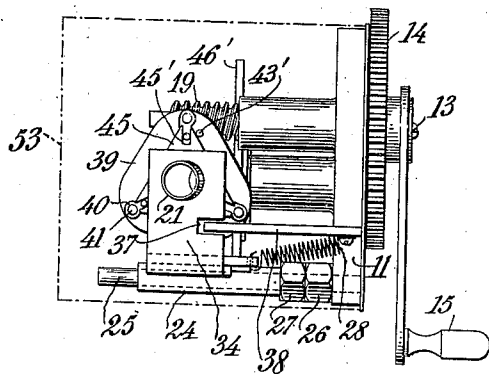


Fig. 4.

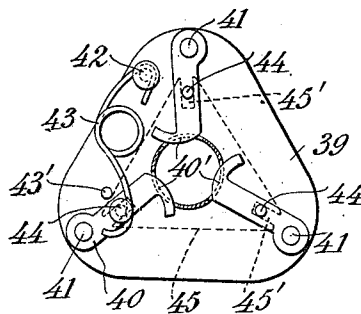
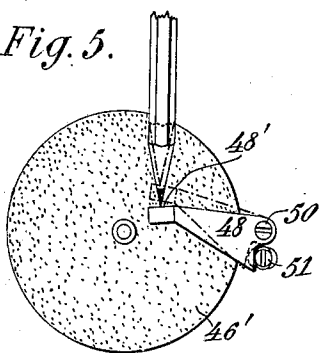


Fig. 5.



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PENCIL-SHARPENER.

995,764.

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To all whom it may concern:

Be it known that I, AUGUST BERTRAM, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

The object of my invention is to provide a pencil sharpener of a new and improved form, by which pencils may be quickly and easily sharpened, and which may be quickly adjusted to form either short and blunt or elongated conical points.

An embodiment of said invention is fully shown in the following specification of which the accompanying drawings form a part, wherein similar numerals of reference designate like or equivalent parts wherever found throughout the several views, and in which:

Figure 1 is a side view of my improved pencil-sharpener, a casing or cover, and cuttings-drawer being shown in dotted lines; Fig. 2 is a front view thereof without a casing; Fig. 3 is a top-view of the device, a casing being shown in dotted lines; Fig. 4 is a top-view on a slightly enlarged scale, of a rotating pencil-clamp with a triangular top-plate in dotted lines, and Fig. 5 is a front view of an abrading-disk and an adjustable point-stop.

Referring to the drawing:—the reference numeral 11 designates the back-plate of the device, which is usually of cast-iron, and provided at the bottom with the securing clamp and screw 12, by which the same may be secured firmly in position for use to a suitable table or shelf. Located in suitable journals formed in and through the back-plate 11, are the drive shaft 13, provided on the outer end with the spur-gear wheel 14, having usually the hand-crank 15, and the disk-shaft 16 provided on the outer end with the small spur-gear wheel 17, meshing with the larger wheel 14 on the drive-shaft, and provided on the inner end with the carrier-disk 18, which is rigidly secured thereto, and rigidly secured in like manner to the inner end of the drive-shaft, is the worm-gear 19, which meshes with the worm gear-wheel 20, rigidly secured to the bottom of the tube 21 of the pencil-carrier 22. The pencil carrier 22, consists of a side-plate 23, having a tube 24 at the bottom by which the same is slidingly supported upon the

carrier supporting-rod 25, which is secured to or formed integral with the back-plate 11. The tube 24 is provided at the rear end with a screw-thread, and on this are placed an adjusting-nut 26, and a check-nut 27, by proper adjustment of which the amount of slide upon the supporting-rod may be limited, the adjusting-nut 26 being normally kept pressed against the back-plate by the spring 28, shown in Fig. 3.

Secured to the side-plate 23, by means of a screw-bolt 29 forming a pivot-joint therefor, is the adjusting or rock-plate 30, and the side-plate 23 is provided with the adjusting slot 31 through which passes the adjusting screw 32 which is screwed firmly into the side-plate 23, and by this screw it will be seen that the angle at which the two plates are set to one another may be varied at pleasure.

Secured to the top of the rock-plate 30, by means of suitable screws 35 and 36, is the pencil-carrier top-bracket 34, through which projects so as to rotate freely therein the pencil carrier-tube 21, rotated by the worm-gear 19; and this top-bracket is provided on the rear edge with the guide-slot 37, coacting with the guide-bar 38 secured to or formed integral with the back-plate to prevent vibration of the side-plate on the rod 25, while permitting of free sliding movement of the same thereon. Rigidly secured to the pencil-carrier-tube 21 a short distance below the bracket 34 is the carrier-plate 39, usually of the triangular form shown, provided with the upwardly extending pivot-studs 41 adjacent to the points thereof, on which are pivoted the carrier-cams 40, which are usually of the shape shown in Fig. 4, each having the curved binding end 40', and each being provided with an upwardly extending actuating stud 44. These cams are covered and held in position by a loose cam-plate 45, usually of triangular form having slots 45' at the points for the reception of the studs 44, and in order to keep this cam-plate in position upon the cams, a washer-ring 10 is interposed between the same and the top-bracket 34, as shown in Fig. 2.

One of the cam-studs 44 is usually made longer than the other two, and to this is secured one end of the cam-spring 43, the other end of which spring is secured to the carrier-plate 39, usually by a screw 42; and the action of this spring upon the cams

through the cam-plate is such that the cams are all forced normally toward the center of the carrier-tube 21, which is provided in the peripheral wall thereof with suitable
5 cam-openings 40', as clearly shown in Fig. 4, while a stop-pin 43' limits the movement of the same in the opposite direction.

Mounted upon and rotating with the carrier-disk 18, is the abrading-disk 46, which
10 may be a steel grinding-disk, with radial-file like teeth, an emery-disk, or merely a disk provided on its outer face or surface with a disk-facing of sandpaper 46' (Fig. 5) and such
15 abrading-disk 46 is secured against rotation on the carrier-disk 18 in any desired manner, usually the studs on the disk 18 entering into sockets formed in the rear face of the disk 46, (neither of which I have deemed it necessary to show in the drawing) and by
20 the pencil-cutter 47, which is screwed firmly in position upon the carrier-disk 18, as soon as the abrading-disk 46 is placed in position thereon. This pencil-cutter, is of any desired form, usually of the common one
25 shown in the drawing, and differing from those in common use, only in having at the rear end a screw-threaded stud (not shown) provided with a left hand-screw thread, screwing into a like cavity in the center of
30 the disk-shaft 16 upon which the carrier-disk 18 is rigidly mounted.

Formed integral with the back-plate 11 and extending forward therefrom so that the front end thereof will be in line with
35 the face of the abrading-disk 46, when all the parts are in position, as shown in Fig. 1, is the point-stop-bracket 49, to the end of which is pivotally secured by means of the pivot-screw 50, the point-stop 48, usually of
40 the form shown, having the stop-face 48' upon which the pencil point will abut, as shown in Figs. 1 and 2 so as to prevent the pencil passing too far downward, when being sharpened; and such point-stop has the
45 working or stop-face raised to and locked against movement beyond the desired point, by means of the eccentric adjusting-screw-bolt 51, clearly shown in Figs. 2 and 5. By turning the bolt 51, its eccentric part causes
50 bracket 49 to move to a higher or lower position with relation to disk 46.

Covering the entire mechanism, is a removable cover-box 53 (shown in dotted lines) having a hole at the top through
55 which passes the carrier-tube 21, and being provided at the front with a like orifice or hole 55, through which the pencil end may be passed into the cutter 47, on the first sharpening operation; and a removable dust
60 drawer 54 is also usually provided, in which falls by gravity the shavings from the cutter and the dust from the abrading-disk.

The operation of the device is as follows:—The parts being in the position
65 shown in the drawing, and properly ad-

justed, the pencil to be sharpened is passed into the cutter 47, through the cutter-hole 55, and is pressed into the same as the mechanism is actuated by the hand-crank 15, to the right, which will through the intervening gearing cause a rotation of such cutter,
70 and also of the abrading-disk 46 in the opposite direction or to the left. The wood of the pencil having been thus removed so as to leave a conical point, the pointed end
75 of the pencil is then inserted in the carrier-tube 21, and pressed down until the pencil-point rests upon the stop-face 48' of the point-stop 48, and this insertion is made by rotating the pencil to the left, as the same is
80 pushed down past carrier-cams 40, which will yield against the tension of the spring 43, when the pencil is so rotated, but will tightly grip the same when there is an attempt to rotate the same in the opposite
85 direction, that is to the right. Once in position the actuation of the crank being continued, it will be seen that the rapid rotation of the abrading-disk 46 against the conical-pencil point, which is being held
90 firmly against the same by the action of the spring 28 upon the side-plate 23, will grind off both the lead and some of the remaining wood thereof so as to form a smooth and
95 perfect point, and this more especially for the reason that as the abrading disk is being rotated to the left with great rapidity, the carrier is at the same time being rotated in the same direction slowly, by the action
100 on the gear-wheel 20 of the worm-gear 19, whereby the entire circumference of the conical point will be little by little brought into contact with the abrading disk, until the proper point has been made.

It will be seen that the sharpness or bluntness of the point to be made may be determined by raising or lowering the point-stop 48, by proper manipulation of the eccentric adjusting-screw 51, while the amount of taper is usually determined by adjusting
110 the carrier 22 to the proper tilt, and then securing the same in such position by screwing the adjusting screw 32 firmly home so as to prevent any relative movement between the side-plate 23 and rock-plate 30; and that proper manipulation of the nuts 26 and 27, will adjust the device to use for sharpening pencils of large or small diameter, or to determine whether the peripheral or central
115 portion of the abrading-disk is to do the work.

By this device while one pencil is having the wood removed by the cutter 47 another may have its point being finished by the
120 abrading-disk 46, and of course if desired any suitable means may be substituted for the hand-crank 15.

What I claim is:—

1. In a device of the class described, an abrading disk, a pencil-carrier having a
130

sliding movement toward and from said disk, means for simultaneously rotating the disk and the carrier, means for yieldingly forcing the carrier toward the disk, and adjustable means for varying the angle of the axis of rotation of the carrier.

2. In a device of the class described, a side-plate having a slidably supported tube, a supporting-rod fitting in the said slidable tube, a rock-plate pivoted to the side-plate, means for locking the side and rock-plates against relative movement, a pencil-carrier revolubly supported by the rock-plate, an abrading-disk, means for simultaneously rotating the pencil-carrier-tube and the abrading-disk, means for yieldingly forcing the side-plate and pencil-carrier-tube toward the abrading-disk upon the supporting-rod, and means for limiting the travel of the side-plate on such rod.

3. In a device of the class described, a side-plate having a slidably supported tube, a supporting-rod fitting in the said slidable tube, a rock-plate pivoted to the side-plate, means for locking the side and rock-plates against relative movement, a pencil-carrier-tube revolubly supported by the rock-plate, an abrading-disk, means for simultaneously rotating the pencil-carrier-tube and the abrading-disk, and means for yieldingly forcing the side-plate and pencil-carrier-tube toward the abrading disk upon the supporting rod.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

AUGUST BERTRAM.

Witnesses:

D. ANTHONY USINA,
THOMAS F. WALLACE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."