(No Model.)

A. FORNANDER.

PENCIL SHARPENER.

No. 508,693. Patented Nov. 14, 1893.

Fig. 2.

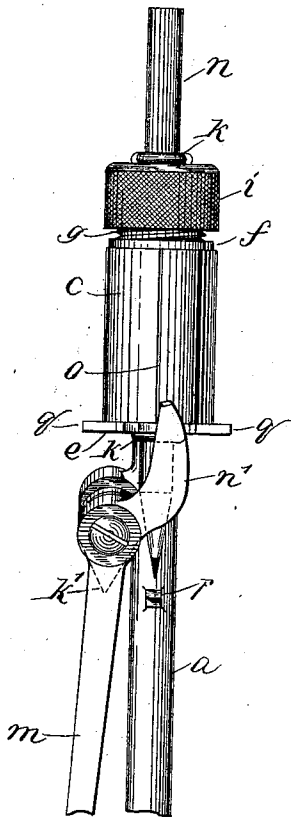


Fig. 1.

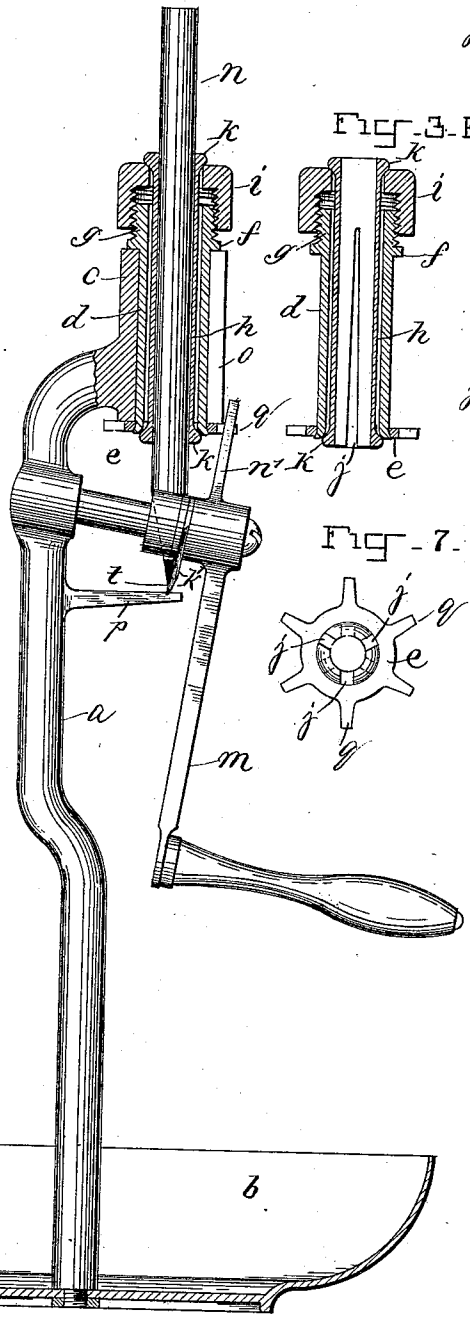


Fig. 5.

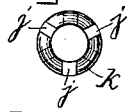


Fig. 3. Fig. 4.

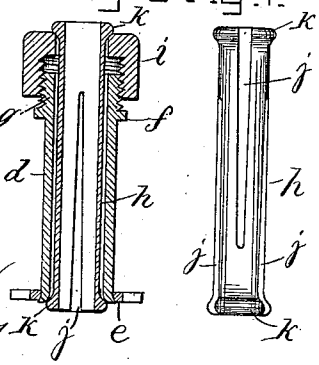
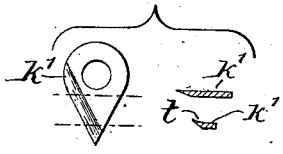


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED FORNANDER, OF NEW YORK, N. Y., ASSIGNOR TO EBERHARD FABER, OF SAME PLACE.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 508,693, dated November 14, 1893.

Application filed January 26, 1893. Serial No. 459,768. (No model.)

To all whom it may concern:

Be it known that I, ALFRED FORNANDER, a subject of the King of Sweden and Norway, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

My invention consists essentially of a cutting blade projecting radially from a rotatory shaft having a crank for turning it, and an intermittingly rotatory pencil holding chuck arranged in such relation to the blade that the blade will whittle the required taper point on the pencil, intermittent rotation of the chuck being caused by an arm of the cutter shaft acting at each revolution of the cutter shaft on a spur of a star wheel attached to the chuck, all in a very simple and cheap but efficient contrivance, as hereinafter fully described reference being made to the accompanying drawings, in which—

Figure 1, is an elevation of my improved pencil sharpener with part of the chuck and the head stock in which the chuck is mounted, in section. Fig. 2, is an elevation of my improved sharpener in a view at right angles to that of Fig. 1., the lower part being broken off. Fig. 3, is a sectional elevation of the pencil holding chuck detached from the chuck holding stock. Fig. 4, is a sectional elevation of the expanding gripper of the chuck. Fig. 5, is an end view of said expanding gripper. Fig. 6, represents a side view and cross section of the blade. Fig. 7, is an end view of the chuck.

I prefer to mount the apparatus on an upright standard *a*, having a supporting base *b*, the upper side of which is a cup for receiving the cuttings produced in sharpening the pencils but the base may be omitted and the standard may form a handle by which to hold the sharpener in one hand while working the crank with the other hand, or any other approved way of manipulating the apparatus may be employed.

At the upper end of the standard *a*, is a head stock *c*, offset from the line of the standard and bored parallel with it and having the pencil holding chuck mounted in it, said chuck consisting of the short tube *d*, fitted in and extending through the head stock, with the star wheel *e*, secured on the lower projecting end directly under the lower end of the head stock, said tube also having the collar *f*, bearing on the upper end of the head stock and also having the screw threaded extension *g* above the collar on which a nut *i* screws up and down, and inside of the tube is the expanding and contracting gripping tube *h* for holding the pencils *n*, said tube having several slits *j* along it from each end nearly to the other and a collar *k* at each end adapted for a countersunk hole, said collars being larger when expanded than the bore of the tube *d*, and the hole through the nut *i*, so that the nut *i* being screwed upward under the collar of the upper end of the gripping tube contracts said tube its whole length by drawing the counter-sunk heads into the nut and tube *d*. To insert the expanding gripper in its place in nut *i*, and tube *d*, one end is contracted sufficiently to enable its collar to pass through the nut and the tube after which it expands to such extent that when a pencil is inserted the collar will be larger when reduced to its limit of contraction than the hole in which it is contracted and thus will not fail of gripping and securing the pencil firmly. The head stock *c*, is split through one side at *o*, and the tube *d* is fitted so as to expand the head stock slightly, and thus be held with sufficient friction to retain its position in which it is left after each shift and while the cutter is taking effect on the pencil.

The cutting blade *k'* is mounted on the rotating shaft *l*, placed a short distance below the head stock at one side of the axis of the head stock and crossing it at a suitable inclination to swing in the oblique plane adapting it to cut taper points as required, said shaft having a crank *m*, for turning it and also having the projecting arm *n'*, adapted to have contact with a tooth *q*, of the star wheel *e*, at each revolution and shift the chuck and the pencil held in it a step in rotation prior to each cut by the blade, said star wheel having six, eight or other number of teeth according to the desired number of cuts to be made for shaping the points.

A stop gage *p* may be attached to the standard suitably for determining the required position of the point of the pencil when setting it in the chuck, said gage being so placed and the length the blade being such that the point of the blade will swing clear of the ends of the gage.

That part of the point of the blade which cuts the lead is made harder than the rest of the cutting edge and it is set to a greater angle of pitch for greater clearance and more direct impingement of the edge upon the lead which is required because of the more refractory nature of the lead than the wood. See *t*, Fig. 6.

I claim—

1. The combination with the pencil holding chuck rotative in the head stock, and having the star wheel, of the rotating cutter arranged in the described relation to said chuck for cutting taper points on the pencils held in the chuck, and the arm of the cutter carrier coacting with the star wheel for intermittingly shifting the pencil intermediately of the actions of the cutter on the pencil, substantially as described.

2. The combination with the head stock and the cutter, of the intermittingly rotating chuck, consisting of the tube rotatively fitted in the bore of the head stock, the expanding and contracting gripping tube having the countersink heads and inserted in the rotative tube, and the adjusting nut on the projecting end of the rotative tube substantially as described.

3. The pencil holding chuck confined in the split gripping head stock and having the star wheel, in combination with the rotating cutter, and the star wheel shifting arm of the cutter substantially as described.

4. The combination with the intermittingly rotative pencil holding chuck, of the rotative point sharpening cutter having greater angle of clearance pitch of the lead cutting part of its edge than the clearance of the wood cutting part substantially as described.

5. In a pencil sharpener, the part of the cutting blade acting on the lead having greater angle of clearance than the part acting on the wood substantially as described.

Signed at New York city, in the county and State of New York, this 16th day of January, A. D. 1893.

ALFRED FORNANDER.

Witnesses:
W. J. MORGAN,
C. E. WHITNEY.