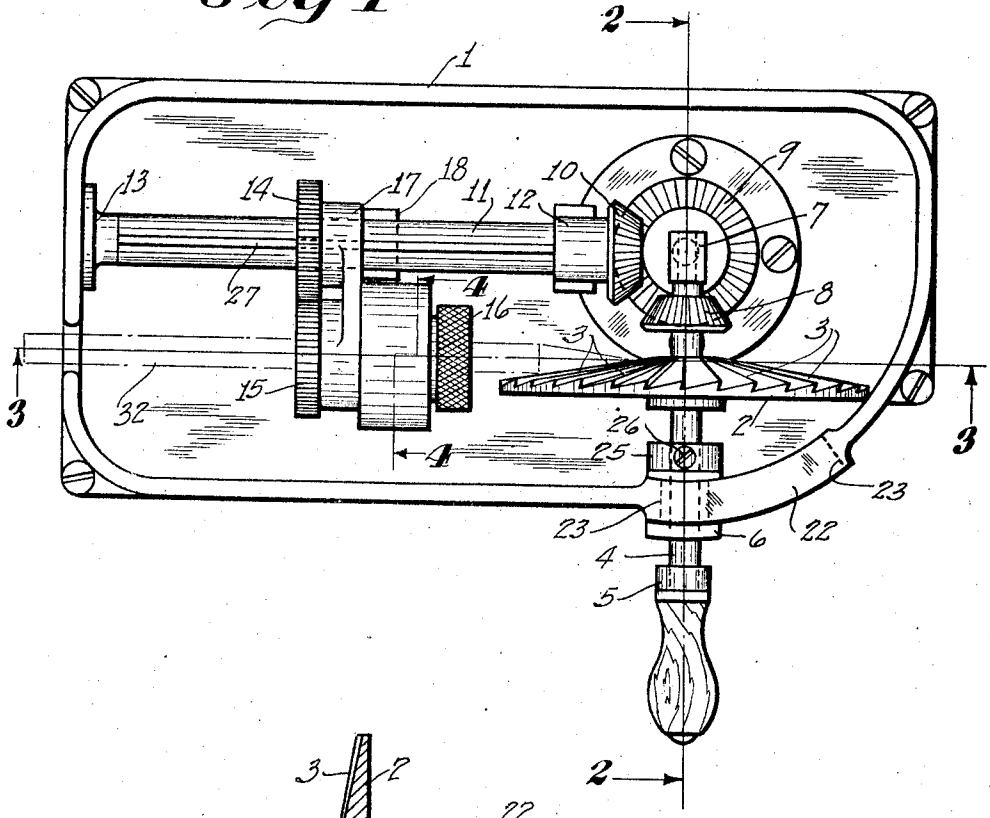
May 3, 1927. 1,627,243

C. O. KOWOL

PENCIL SHARPENER

Filed Feb. 6, 1925 2 Sheets-Sheet 1

Fig. 1.



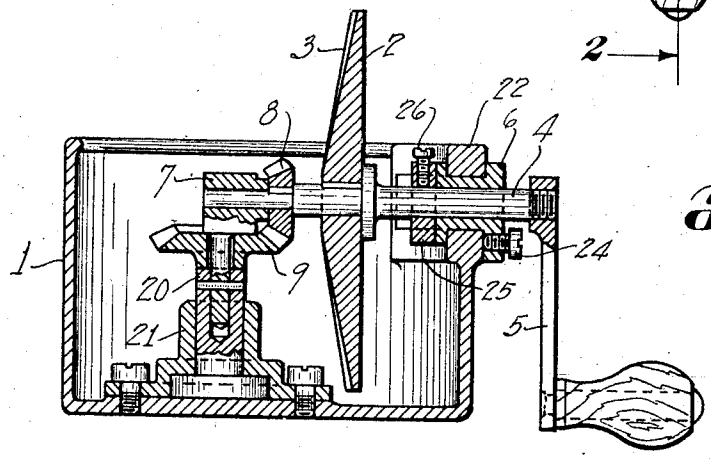


Fig. 2.

INVENTOR
Carl Otto Kowol
BY W. L. Dempsey
ATTORNEY.

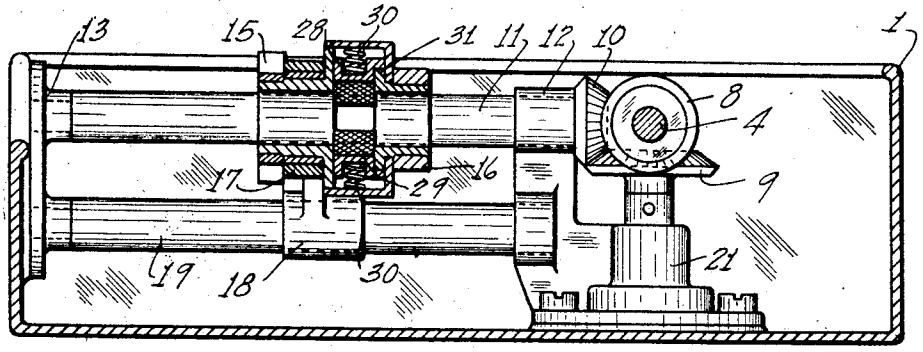
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PENCIL SHARPENER

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Fig. 3.



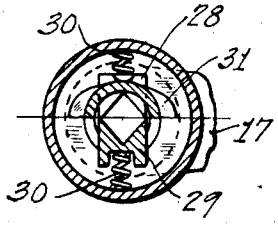


Fig. 4.

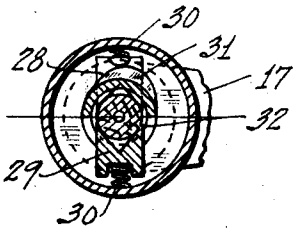


Fig. 5.

INVENTOR
Carl Otto Kowol
By W. H. Dempsey.
ATTORNEY

Patented May 3, 1927. 1,627,243

UNITED STATES PATENT OFFICE.

CARL OTTO KOWOL, OF ALTON, ILLINOIS.

PENCIL SHARPENER.

Application filed February 6, 1925. Serial No. 7,348.

My invention relates to rotary pencil sharpeners, and specifically to adjustable rotary pencil sharpeners.

The object of my invention is to provide a pencil sharpener having a cutting disc that may be readily adjusted to sharpen pencils of very small or very large diameter, so that a very fine point can be produced over a wide range of angles, that is, the angle at which the pencil is sharpened may be regulated to suit the particular kind of pencil being sharpened.

A further object of my invention is to produce a pencil sharpener having a movable chuck that will cause the pencil to rotate in the opposite direction to the cutting disc, thereby increasing its efficiency.

Other and further objects and advantages of my invention will be apparent from the specification, claims and drawings, in which:

Fig. 1 is a plan view.

Fig. 2 is a section along the line 2—2.

Fig. 3 is a section along the line 3—3.

Fig. 4 is a section along the line 4—4.

Fig. 5 is a section through the chuck.

While there are a number of efficient pencil sharpeners on the market, they are all so designed and built that only pencils of a uniform size may be sharpened with a uniform bevel. As pencils vary in diameter, those of very large size, or very small size, are not adapted to be sharpened in the conventional pencil sharpeners.

It is, also, desirable to vary the bevel with which a pencil is sharpened, so that a pencil having hard lead of small diameter may be sharpened with a very long bevel; while, on the other hand, a pencil having lead of large diameter and relatively soft is best sharpened with a short blunt bevel, and in order to overcome the deficiencies of the pencil sharpeners now in use, I have devised a sharpener in which pencils of a large variety of sizes can be successfully sharpened, and at the same time the bevel of the sharpened end can be changed at the will of the operator, so that the pencil may be sharpened with a bevel best suited to its kind.

The preferred embodiment of my invention consists of a main frame or housing 1, adapted to carry the entire mechanism within and provide bearings for the movable parts. A serrated disc 2 is provided with radially disposed cutting teeth 3. The disc is rigidly mounted upon the rotatable shaft 4, manually operated by means of the crankarm 5, mounted in suitable bearings at 6 and 7.

A bevel cog 8 is rigidly attached to the shaft 4 and meshes with the ring gear 9, through which rotary motion is transmitted to the bevel gear 10, rigidly mounted on the splined shaft 11, provided with suitable bearings 12 and 13.

A slidable pinion 14 is mounted upon the splined shaft 11 and meshes with a mating pinion 15, which is rigidly attached to a rotatable chuck 16. The pinions 14 and 15 are held in proper meshing relation by means of the movable housing 17, which also provides bearings for the pinions 14 and 15.

The housing 17 is held in proper relation with the cutting disc 2 by means of a slidable bearing 18, loosely mounted upon the shaft 19, disposed in the same vertical plane with shaft 11, as shown in Fig. 3.

The bearing 7 is rotatably mounted in the shaft 20, which is integral with the ring gear 9, which may be rotated in its bearing 21, thus the crankshaft 4 may be rotated with the bearing 7.

The housing 1 is reinforced at 22 and longitudinally slotted to permit a limited longitudinal movement of the crankshaft 4, as indicated by the dotted lines 23. Any degree of longitudinal movement of the crankshaft desired may be maintained by screwing in the set screw 24.

The crankshaft 4 is held against longitudinal movement by a collar 25, held in place by the set screw 26.

The pinion 14 is caused to rotate by means of a key, not shown, engaging the key seat 27 on the splined shaft 11, thereby transmitting rotary motion to the pinion 15.

The chuck shown in cross section in Fig. 4 consists of two movable jaws 28 and 29, held together by means of helical springs 30 and may, also, be opened and closed by means of the rotation of an eccentric 31, within a hollow housing, not shown but indicated by the dotted lines; hence, a pencil may be tightly gripped by rotating the eccentric as above described.

When operating my improved pencil sharpener, the pencil is inserted through the jaws of the chuck, as indicated at 32, and the chuck housing 17 may be moved longitudinally along the shafts 11 and 19 to the desired position. The pencil 32 is then put into the chuck and made fast, when the crank is rotated clockwise and the cutting

teeth of the disc 2 contacting with the point of the pencil, move in one direction; while the pencil, being rotated also in clockwise direction increases the cutting efficiency, because the two elements while rotating in clockwise direction, rotate in planes at right angles to each other.

It is obvious that by rotating the crankshaft about the bearing 21, as a pivotal point, the bevel of the point of the pencil can be changed.

Having fully described my invention and its mode of operation, what I claim as new and useful and desire to secure by Letters Patent is:

A pencil sharpener of the class described comprising, a housing adapted to support bearings for the movable parts of said pencil sharpener, a rotatable chuck axially movable and adapted to grip and hold a pencil at a predetermined angle to the plane of a rotatable cutting disc, means for adjusting the plane of rotation of said rotatable cutting disc at different angles relatively to the said rotatable chuck without changing the relation of the teeth of the driven and driving bevel gears, said chuck having movable jaws normally held together by means of helical springs, means for holding said cutting disc in adjusted positions, and means for rotating said chuck and said cutting disc.

In witness whereof I have hereunto affixed my signature, this 16 day of January, 1926.

CARL OTTO KOWOL.