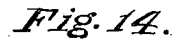
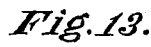
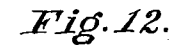
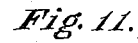
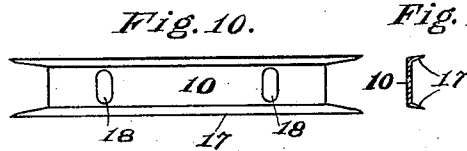
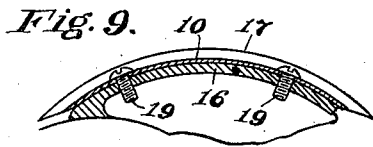
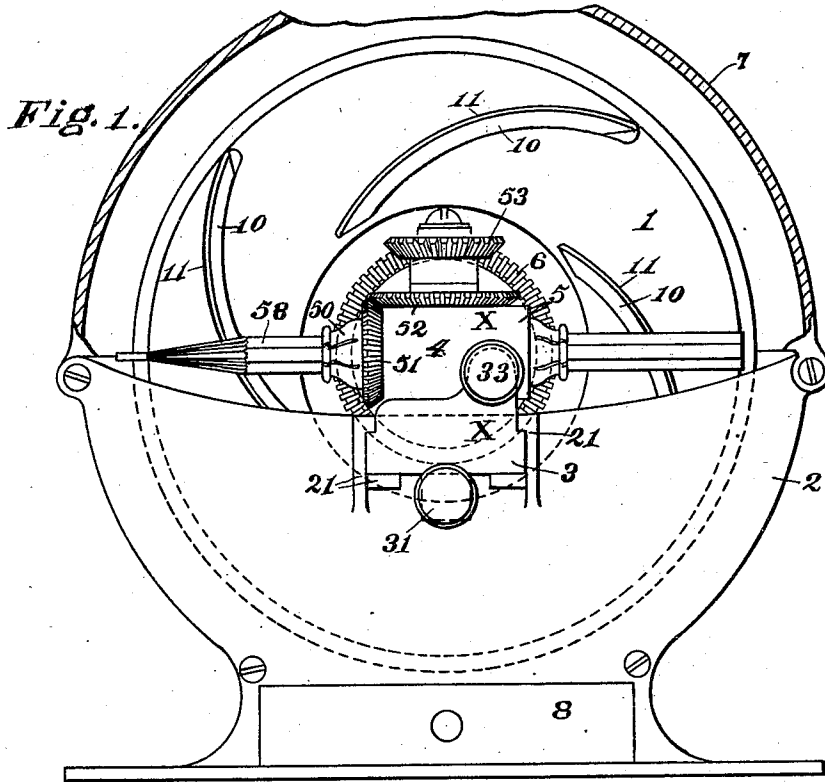


J. W. COVER.
PENCIL SHARPENER.
APPLICATION FILED DEC. 28, 1910.

1,046,379.

Patented Dec. 3, 1912.

3 SHEETS-SHEET 1.



WITNESSES.
Geo. Ken
Chas. H. Kieper.

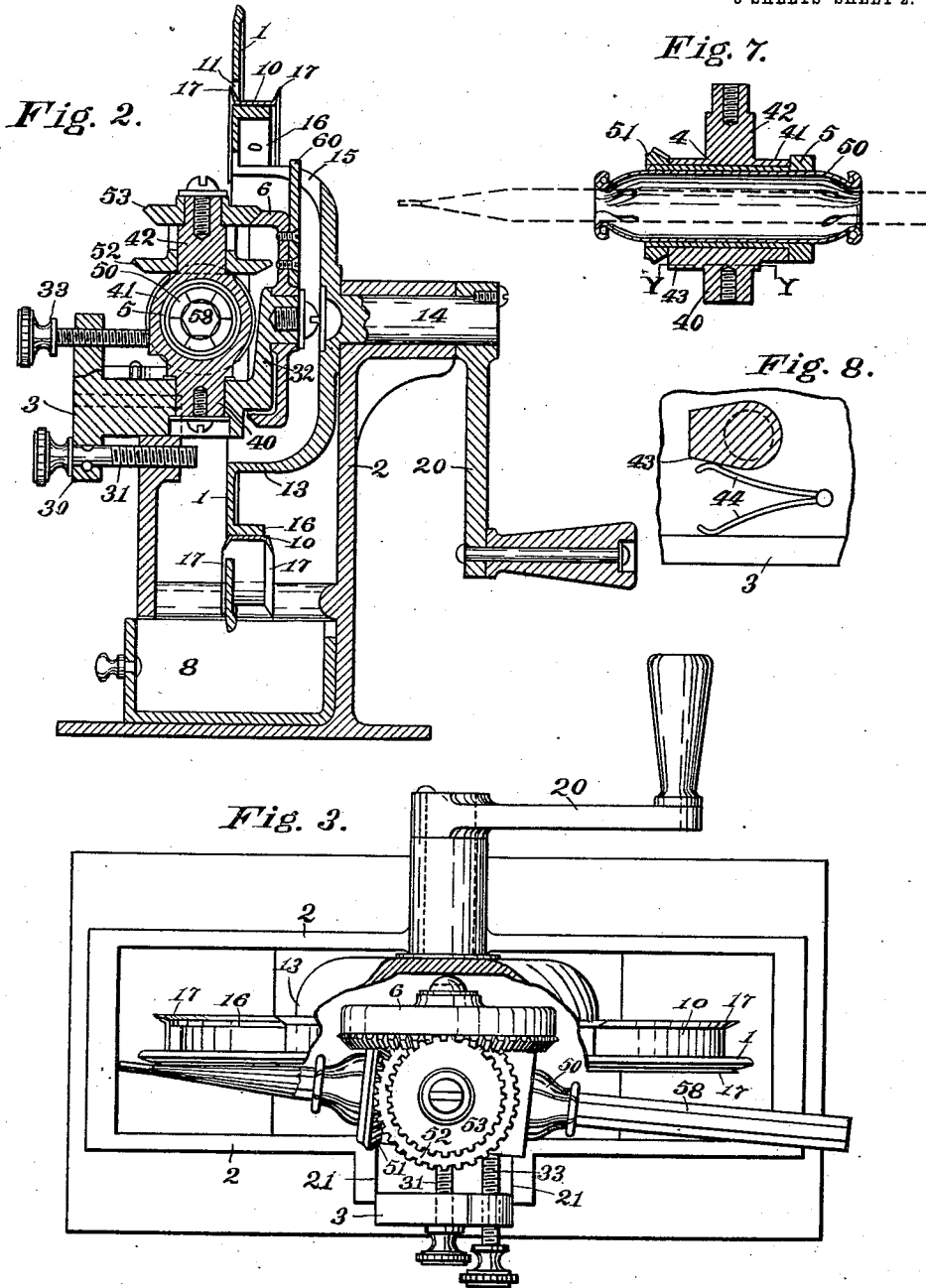
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3 SHEETS-SHEET 2.



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3 SHEETS-SHEET 3.

Fig. 4.

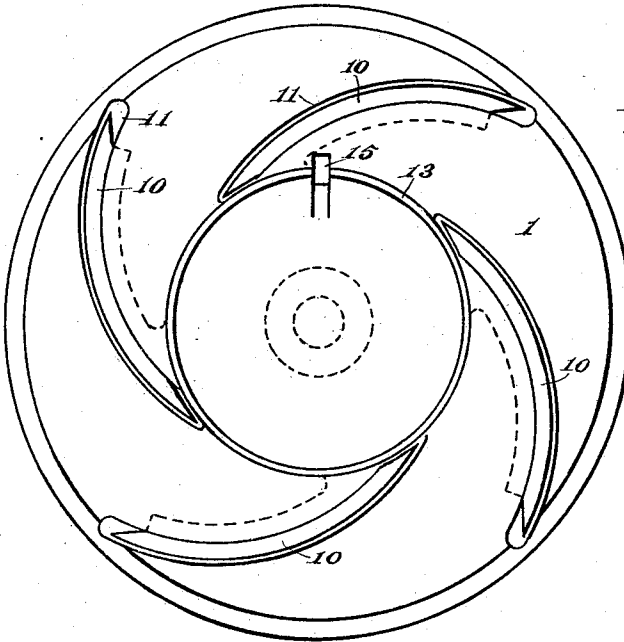


Fig. 5.

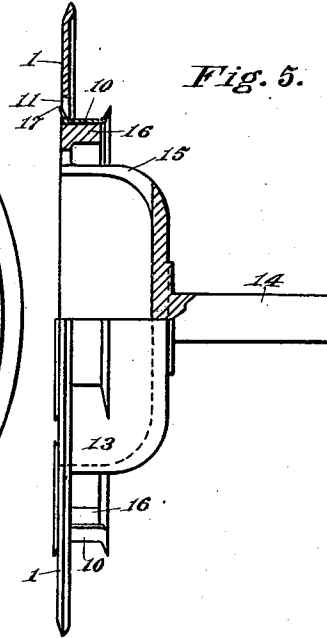
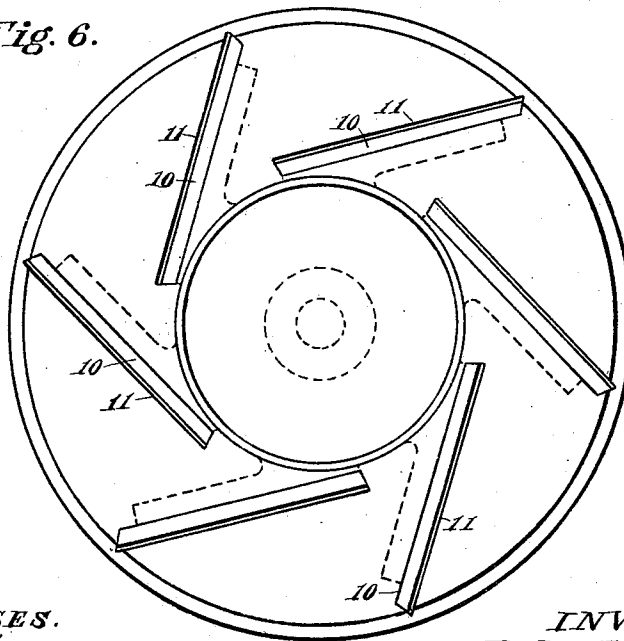


Fig. 6.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN W. COVER, OF SEATTLE, WASHINGTON.

PENCIL-SHARPENER.

Specification of Letters Patent.

Patented Dec. 3, 1912.

1,046,379.

Application filed December 28, 1910. Serial No. 599,730.

To all whom it may concern:

Be it known that I, JOHN W. COVER, a citizen of the United States, and resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Pencil-Sharpener, of which the following is a specification.

My invention relates to an improvement in pencil sharpeners and comprises the novel parts and combinations of parts which will be hereinafter described and particularly pointed out in the claims.

The object of my invention, stated generally, is to improve and simplify such devices and particularly along the line of securing a more perfect job of sharpening the pencil and to do this in such a way that the liability of breaking the lead be reduced to a minimum.

In the accompanying drawings I have shown my invention embodied in the forms which are now preferred by me.

Figure 1 is a front elevation of the device. Fig. 2 is a section taken upon the axial plane of Fig. 1 excepting at the point indicated by the broken line X, X, of Fig. 1. Fig. 3 is a plan view of the complete device excepting that a portion of the rotative disk is broken away. Fig. 4 is a face view of the disk removed from the other parts. Fig. 5 is a half section and half elevation of the disk in edge-view. Fig. 6 is a front view of a disk having a modified type of knife. Fig. 7 is a section taken through the pencil holding mechanism. Fig. 8 is a section taken upon the line Y, Y, of Fig. 7. Figs. 9, 10 and 11 are respectively longitudinal section face view and cross section of the preferred form of cutting knife. Figs. 12, 13 and 14 are respectively front elevation, side elevation and plan of the slide which carries the pencil holding mechanism.

In my present device I employ a rotative disk to which are secured a plurality of cutting knives, these knives being, preferably, so shaped and secured to the disk that their cutting edges lie at a considerable angle to a radius passing through the knife, whereby the benefit of what is ordinarily known as a draw cut, is obtained.

The form of knife which is preferred by me is that which is shown in Figs. 1, 4, 9 and 10, which is substantially an arc of a circle. In Figs. 1 and 4 I have shown the

disk as provided with four such knives, while in Fig. 6 I have shown a disk having 6 straight knives. The exact number of knives employed may be varied as desired and is, to a certain extent, immaterial.

The knives 10 are secured to the outer portion of the disk so as to form a cutting zone extending inward from the perimeter of the disk. The disk is provided with slots 11 extending through the body thereof, and preferably, also provided with a lug or flange 16, to which the knife may be secured.

The knife is clearly shown in Figs. 9, 10 and 11, and consists of a thin sheet of steel having a trough-shaped, or channeled, cross section, forming thereby, two flanges 17, one at each edge. The outer edges of these flanges are sharpened and form the cutting edges. These knives may be secured in place by any suitable means. I have herein shown them as provided with slots 18 adapted to receive clamping screws 19 adapted to screw into flange 16 of the disk.

As a matter of convenience in accommodating the pencil holding and turning mechanisms, I form the disk with a central chamber or recess 13, which includes all that part of the disk lying within the cutting zone. The depth of this recess may vary with the necessities of the case. The disk is also provided with a shaft 14 which is journaled in the frame 2. To the outer end of this shaft may be secured a handle 20 by which it may be turned.

The frame 2 is of a trough-like shape inclosing the lower part of the disk and is provided on the front side with guides 21 adapted to receive a block 3, so as to permit the latter to slide in the direction of the axis of the shaft 14. This block 3 forms the base upon which the pencil holding and turning mechanisms are mounted.

Block 3 is provided with a depending lug 30, within which is mounted an adjusting screw 31, this screw being held against longitudinal movement in the lug 30 by any suitable means. The inner end of this screw has threaded engagement with the frame. By this means the position of the block may be adjusted toward and from the face of the disk. Block 3 has a vertical hole serving as a journal and support for the pivot stem 40, of the pencil holding member 4. This pencil holding member is held in its place by means of a washer and screw secured to its

lower end. In this manner the pencil holding mechanism is mounted to turn upon a vertical pivot.

The pencil holding member 4 includes as the main part thereof, a sleeve 41 which extends horizontally and is adapted to serve as a journal bearing for a sleeve 5, which sleeve 5 has secured within it, a spring sleeve 50, the ends of which are split and bent inward, so as to engage and securely hold a pencil 58 inserted therein. Upon one end of the sleeve 5 is secured a bevel gear 51, by means of which the sleeve 5 may be turned within the sleeve 41.

On the upper side of the sleeve 41 and substantially opposite the pivot stem 40, is a second stem 42, which serves as a bearing for a bevel gear 52 which engages with the bevel gear 51, carried by the pencil turning sleeve 5. Secured to turn with gear 52 is a bevel gear 53, located above the gear 52 and meshing with a gear 6, the latter journaled upon an arm 32, carried by the slide 3. The axis of this gear 6 is substantially coincident with the axis of the shaft 14 of the disk 1. The gear is turned by the disk 1 as follows: The disk 1 in that part thereof surrounding the recessed chamber 13, is provided with a slot 15 extending in an axial plane. The gear 6 is provided with an arm or pin 60, adapted to enter this slot and to slide therein. In this manner the gear 6 is free to move lengthwise the axis of the disk and to be turned by the same disk. The revolution of the disk is communicated through the train of gears described so as to cause the pencil 53 to revolve, the direction of revolution when using the mechanism described, being in a direction opposite that of the portion of the disk which is acting upon the pencil to sharpen it.

The lower part of the pencil holding member 4, has a projection 43 bearing upon the upper side of the slide 3. This is used as an arm for engagement by a spring 44 which lies between this arm and the outer wall of the slide 3, whereby the member 4 is swung into such a position as to hold the point of the pencil against the face of the disk 1. The amount of swing permitted to the member 4 is controlled by a screw 33 which engages the member on the opposite side of the center from that engaged by the spring.

In using the device, it is preferred that this screw be adjusted so that the cutting of the pencil will cease when the knives just reach the lead, from which it follows that, under these conditions, the knives will not sharpen the lead. I prefer to sharpen a pencil in this manner, as is clearly indicated in Fig. 3, in which the lead is shown as projecting beyond the outside corner of the disk. It is possible, by a little adjustment of the screw 33, to adjust the device so as to sharpen in this manner, pencils having quite

a large lead, or pencils having a small lead. This is a matter of considerable advantage where large-leaded colored pencils are employed.

It is often a matter of considerable advantage in connection with the sharpening of any kind of pencil, not to sharpen the lead by the knife, as to do this would be more likely to break the lead than to sharpen it by other means, as for instance, by a piece of sand paper or other abrading surface. At the same time it is often not necessary, or desired, that the lead itself be sharpened, as in doing this a considerable percentage of the body of the lead is wasted.

The straight knives, shown in place upon the disk in Fig. 6, are the same in construction as the curved knife shown in Figs. 9, 10 and 11, except that they are straight instead of curved. Both forms of knives are symmetrical, in the sense that they may be secured in reversed position, whereby it is possible to use both edges of the knives in succession. The same set of knives will thus have double the time of service before becoming dull which a single edged knife would have. They may also be cheaply formed by stamping processes. By the lateral adjustment of the pencil holding mechanism and its ability to also swing upon an axis, it is possible to adjust the device so as to sharpen a pencil at varying angles, thus giving either a short or long point as desired. It is also possible to adjust it to suit leads of different sizes. By using a knife of the type described, the finest quality of steel may be employed, thereby getting a more perfect implement than could be obtained where heavy cutting wheels, or like devices, are employed. The knives are also of such shape that they may be readily sharpened when dull and the angle at which the knife moves past the pencil is such as to secure a smooth cutting effect.

About the perimeter of the disk is a beveled rim 12, which spans the outer ends of the slots 11 and ties the disk segments together. The slots and the knives are so placed and proportioned that the knives extend entirely to the corner between the plane face of the disk and the beveled face of the rim 12, thereby permitting the pencil lead to project beyond the disk and the pencil to be sharpened to the lead.

In the base of the frame or case 2 is a drawer recess and drawer 2 for catching the shavings. A cover 7 preferably incloses the upper part of the disk so as to protect against contact with the knives.

What I claim as my invention is:

1. A knife for pencil sharpeners having a base and a flange at each edge of the base constituting the cutting member and extending at substantially right angles to and both in the same direction from the base, said

knife being symmetrically curved lengthwise, with the concave side at the back, whereby the knife may be reversed in position to thereby use both cutting edges.

5 2. In a pencil sharpener, in combination, a rotative disk having slots therein and knives of a trough-shaped cross section secured in the slots with an edge slightly projecting beyond the face of the disk.

10 3. A pencil sharpener comprising a rotative disk, and a plurality of cutting knives of a channel-shaped cross-section with both flanges sharpened, said knives being reversible and means for securing said knives to the
15 disk in reversed position, thereby to use either cutting edge.

4. In a pencil sharpener, in combination, a rotative disk having slots therein and knives of a trough shaped cross section secured by their base to one side of said slots
20 and with their flanges extending toward the opposite side of the slots, the edges of said flanges constituting the cutting edges of the knives.

25 5. In a pencil sharpener, in combination, a rotative disk having slots extending through it and knives of a trough shaped cross sec-

tion secured by their base to one side wall of the slots, with their flanges extending toward the opposite side of the slots, the slots
30 and knives being symmetrically curved longitudinally whereby they may be reversed in position to use either cutting edge.

6. A pencil sharpener comprising a rotative disk having curved slots extending in
35 inclined position across an outer zone thereof with their concave sides toward the center, flanges extending from the inner walls of said slots toward the back side of the disk, knives of U-shaped cross section and curved
40 lengthwise to correspond with the curve of the slots, the edges of the flanges constituting the cutting edges, and means for securing the base sections of said knives to said
45 disk-flanges, whereby the knife edges project toward the opposite sides of the slots.

In testimony whereof I have hereunto affixed my signature at Seattle, Washington, this 19th day of December, 1910.

JOHN W. COVER.

Witnesses:

H. L. REYNOLDS,
CHARLES H. KREGER.

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