

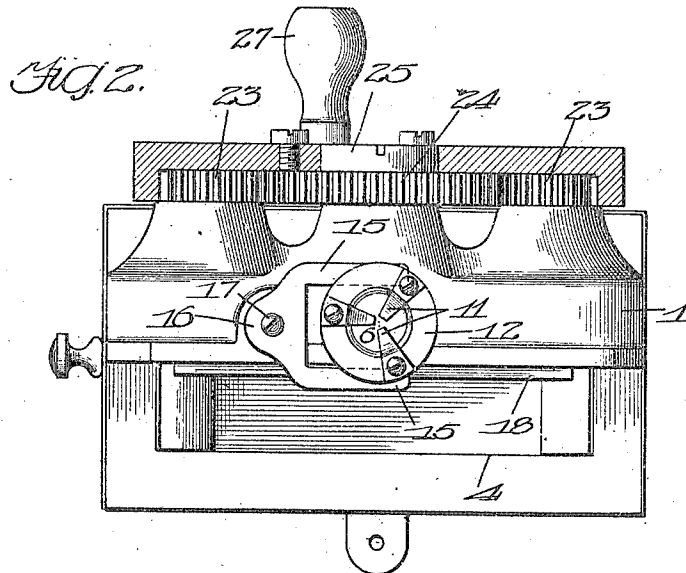
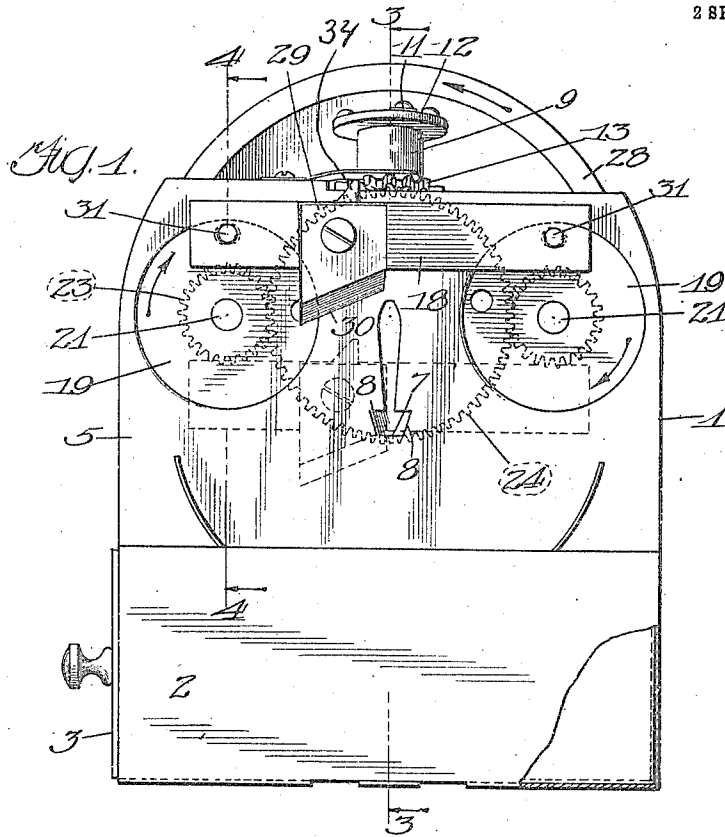
C. C. SPENGLER.
PENCIL SHARPENER.

APPLICATION FILED JUNE 20, 1908.

950,797.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



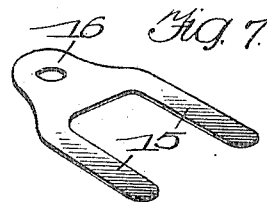
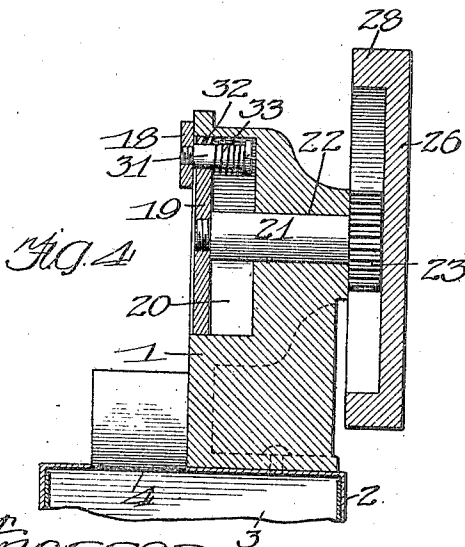
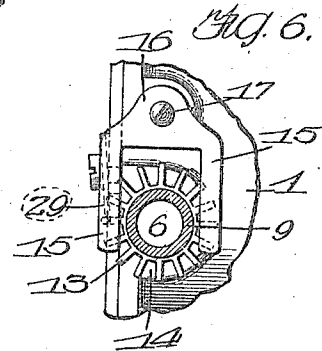
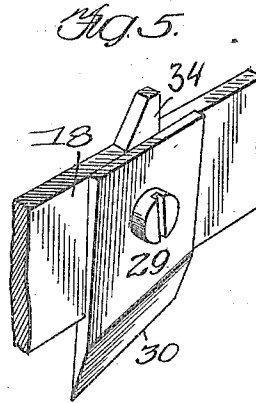
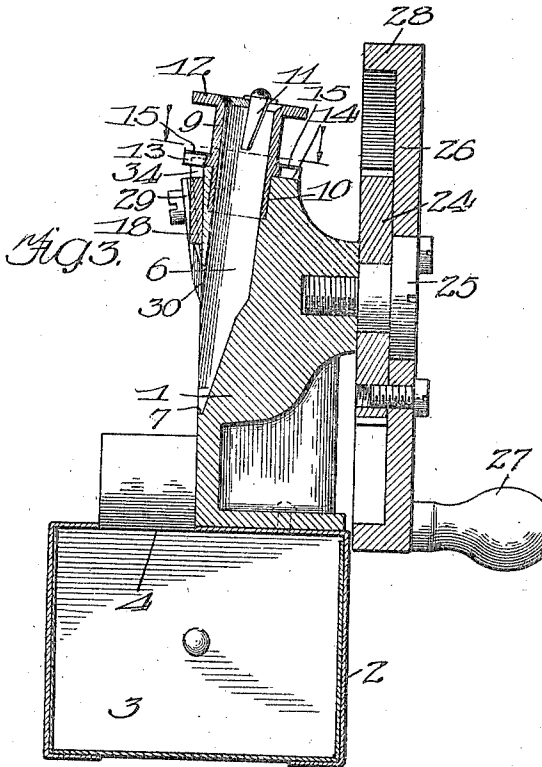
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UNITED STATES PATENT OFFICE.

CHARLES C. SPENGLER, OF ROCKFORD, ILLINOIS.

PENCIL-SHARPENER.

950,797.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed June 20, 1908. Serial No. 439,553.

To all whom it may concern:

Be it known that I, CHARLES C. SPENGLER, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

One of the objects of this invention is the production, in a pencil sharpener, of improved means for actuating the cutting element.

Other objects and advantages will appear from the detailed description hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of a pencil sharpener embodying the features of my invention. Fig. 2 is a top plan view, partly in section, of said machine. Fig. 3 is a section on line 3 3 of Fig. 1. Fig. 4 is a section on line 4 4 of Fig. 1. Fig. 5 is a detail perspective view of a portion of the knife bar, showing the cutting element in position thereon. Fig. 6 is a detail view of the pencil-rotating means. Fig. 7 is a detail perspective view of the spring member that frictionally engages the pencil-holding means to prevent too free movement thereof.

The embodiment of the invention which I have chosen for illustration comprises a structure 1 which may be a casting, said structure supporting the mechanisms of the machine and being mounted upon a box-like base 2. A drawer 3 is slidably mounted in said base, and is intended to receive the shavings from the pencil, an opening 4 being provided in the upper wall of the base, through which the shavings may drop into the drawer. The structure 1 has a plane vertically-extending face 5. An opening 6 is formed in said structure, said opening being inclined with respect to the plane face 5 and extending to said face. The lower end of the opening 6 is contracted or conical in form, and at the extreme lower end thereof is a shoulder 7 upon which the point of the pencil rests when the pencil is fully sharpened. At opposite sides of said shoulder the opening is enlarged to form clearance spaces 8 to permit the escape of the cuttings.

In the present embodiment the pencil is arranged to be given a series of partial rotations in order that a new portion of the pencil may be presented to the cutting ele-

ment at each cutting action of said element. The means for thus rotating the pencil, as herein shown, comprises a sleeve 9, the bore of which is of the same diameter as the opening 6 and is alined with said opening. The lower end of the sleeve fits within a counterbore 10 within the structure 1. The sleeve 9 carries means for engaging the pencil so that the pencil shall be moved with the sleeve when the latter is rotated. In this instance, said engaging means consists of a plurality of spring fingers 11, the bases of which fingers are secured to an outwardly-extending flange 12 upon the sleeve 9, said fingers extending downwardly into the sleeve. The means for rotating the sleeve 9 comprises in the present instance a toothed member 13 rigidly attached to said sleeve in any suitable manner and lying on the surface 14 of the structure 1. The sleeve 9 is held in place in the counterbore 10 by means consisting preferably of two spring fingers 15 (Fig. 7), said fingers having an attaching portion 16 which is secured to the structure 1 by means of a screw 17. The fingers 15 rest upon the toothed member 13 at opposite sides of the sleeve 9, and frictionally engage said member 13 to prevent it from rotating too freely.

The cutting means, in the form herein illustrated, comprises a knife-bar 18 attached at its ends to two cranks. In this instance, the cranks are in the form of disks 19 which are rotatably mounted in recesses 20 formed in the face of the structure 1. Each of said disks is fixed to a shaft 21 that is rotatably supported in a bearing opening 22 in the structure 1. To the rear end of each shaft 21 is fixed a pinion 23 which meshes with a spur gear 24 that is loosely mounted upon a screw 25 seated in the structure 1. The spur gear 24 is rotated in this instance by means of a hand-crank herein shown as consisting of a disk 26 fixed to said spur gear and carrying a crank-handle 27. The disk 26 has a peripheral flange 28 and constitutes a protective casing for the gear train 23 24.

The knife bar 18 has rigidly fixed thereto a knife blade 29, which blade has an inclined cutting edge 30. Said blade is yieldingly pressed against the face 5 of the structure 1, which result is herein attained by yieldingly connecting the knife bar 18 to the cranks 19. Referring to Fig. 4, 31 is a pin secured to one end of the knife bar 18 and rotatably mounted in an opening 32 (Fig. 4)

in the crank disk 19. Said pin extends into the recess 20 and between its head and the disk 19 is placed a spring 33 that tends to draw the knife blade 29 against the plane surface 5. In order to provide for a small amount of play between the gears 23 23 24, the opening 32 may be slightly elongated, as indicated in dotted lines in Fig. 1.

A spur 34 fixed to the knife bar 18 is arranged to engage a tooth of the member 13 in each revolution of the crank disks 19, said spur moving the tooth before it a short distance, thus giving the pencil a partial rotation and presenting a fresh portion of the pencil to the knife blade. Should the toothed member 13 get out of position to be properly engaged and moved by the spur 34, the spring fingers 15 will yield to permit the member 13 and the sleeve 9 to move upward out of the path of movement of the spur 34, thus preventing breakage.

In operation, the pencil to be sharpened is inserted into the sleeve 9 and the opening 6, said pencil being frictionally held therein by the spring fingers 11. A portion of the lower end of the pencil protrudes through the opening 6 past the plane face 5 of the structure 1. The disk 26 is then rotated by means of the crank handle 27, thus driving the crank disk 19 through the medium of spur gear 24, pinions 23 and shafts 21. In each revolution of the crank disks 19 the knife bar 18 is given one complete reciprocation, carrying the knife blade 29 downward over the opening 6 in the plane face 5, said knife blade cutting off the portion of the pencil which projects outwardly beyond said face. When the knife bar 18 is at substantially the highest point in its movement the spur 35 on said knife bar engages a tooth on the member 13, rotating a short distance the member 13, sleeve 9, and the pencil therein, thereby moving a new portion of the pencil into position to be shaved off by the knife blade. The pencil is fed down by the pull of the knife 29 as it shaves off the portions protruding from the opening 6. The downward movement of the pencil is arrested when the point thereof reaches the shoulder 7, thus preventing the knife from acting

upon the pencil when the latter is fully sharpened. The clearance spaces 8 permit the shavings to drop out of the opening 6 and thereby prevent clogging of said opening.

It will be noted that the knife blade 29 moves diagonally downward across the opening 6 in the plane face 5. A draw-cutting action is thus obtained which is less likely to splinter the wood or break the lead of the pencil than a cutting movement at right angles to the pencil. The cutting edge 30 of the knife blade 29 is inclined, as shown, in order to assist in obtaining this diagonal or draw cut. Should a pencil be forced into the opening 6 when the knife blade 29 lies over said opening, the springs 33 will permit the knife bar 18 to yield laterally, thus preventing breakage.

It will be understood that many details of construction herein specifically illustrated may be changed without departing from the spirit and scope of the invention, wherefore I do not limit myself to the exact form shown and described.

I claim as my invention:

1. In a pencil sharpener, in combination, a pencil-supporting means, a crank at each side of said pencil-supporting means, a knife extending between said cranks, the ends of said knife being yieldingly attached to said cranks to permit of a yielding lateral movement of said knife, and means for rotating said cranks.

2. In a pencil sharpener, in combination, a structure having two bearing openings and recesses therein; shafts rotatably supported in said bearing openings; disks fixed upon said shafts and lying in said recesses; a bar pivotally connected at its ends to said disks; a knife attached to said bar intermediate its ends; said structure having a pencil-receiving bore therein intermediate said disks, arranged to support a pencil in position for cutting by said knife; and means for driving said shafts.

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