D. F. OLIVER.

PENCIL SHARPENER.

APPLICATION FILED OCT. 25, 1909.

979,688. Patented Dec. 27, 1910.

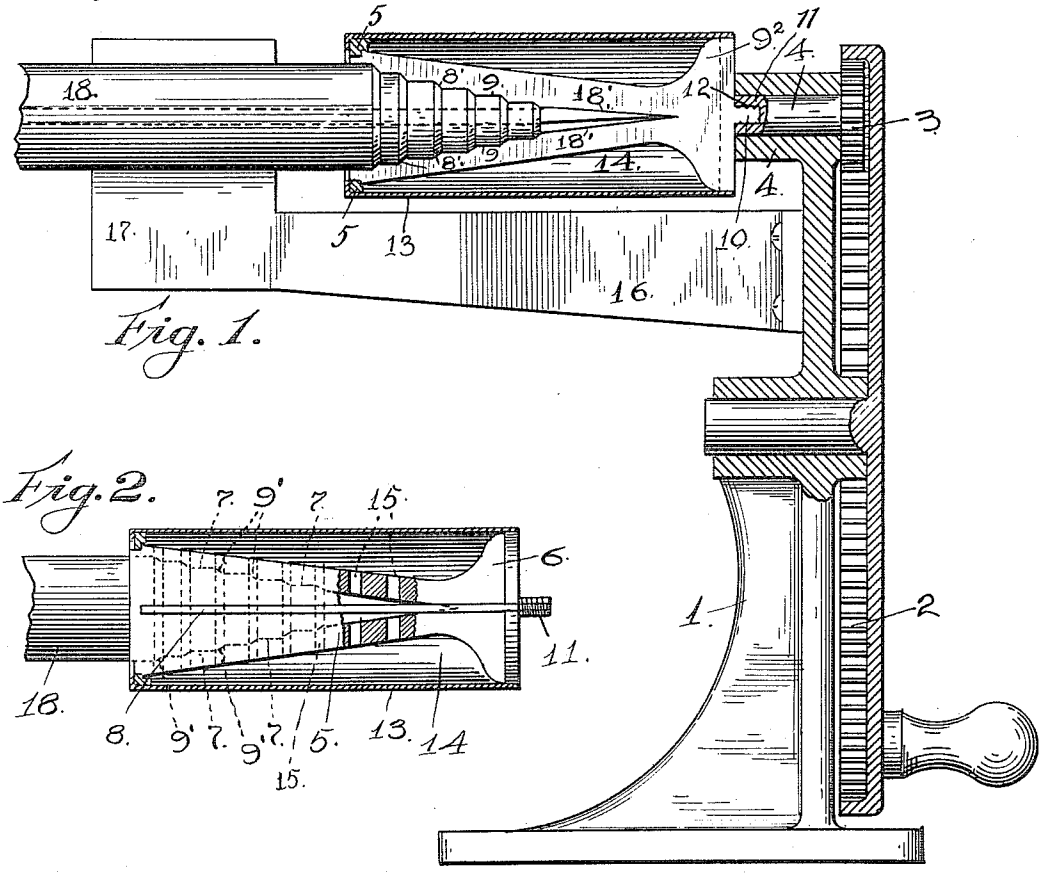


Fig. 1.

Fig. 2.

Fig. 3.

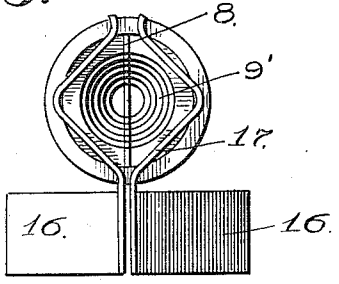
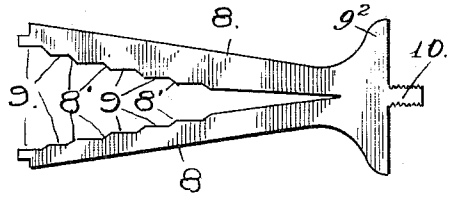


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PENCIL-SHARPENER.

979,688. Specification of Letters Patent. Patented Dec. 27, 1910.

Application filed October 25, 1909. Serial No. 524,541.

To all whom it may concern:

Be it known that I, DOCTOR FRANKLIN OLIVER, a citizen of the United States, residing at Fruitvale, in the county of Alameda and State of California, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

The hereinafter described invention relates to that type of pencil sharpeners known as rotary cutters, *i. e.* wherein the cutting blades are given a rotary movement during the inward feed of the pencil. Usually, with this class of sharpeners, the pencil is held by a single bearing and the entire surface of the pencil inserted within the sharpener is acted on by the cutting blade or blades, the result being that the slightest vibration of the pencil causes the lead being sharpened to break.

The object of the present invention is to provide a series of step bearings for the pencil during its inward feed within the barrel of the sharpener, so as to maintain the pencil in true alinement with the axis of the cutting blade, and to so arrange the cutting blade as to present a plurality of inclined cutting edges to the surface of the pencil.

To comprehend the invention reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view of the improved sharpener disclosing the position of the cutting blade, the pencil within the barrel for the cutting blade, and illustrating the character of the cut given to the end of the pencil sharpened. Fig. 2 is a plan view of the barrel carrying the cutting blades, the outer cylindrical casing for the barrel being sectioned. Fig. 3 is an end elevation of the sharpener and the holder for the pencil. Fig. 4 is a detail view of the cutter removed from its barrel.

In the drawings, the numeral 1 is used to indicate any suitable form of a supporting base, on which is rotatably mounted the drive gear 2. This gear meshes with a pinion 3, the shaft 4 of which works within the bearing 4′ of the supporting base.

The conical barrel 5 is inwardly tapered toward the outwardly projected foot extension 6, and the said barrel is centrally slotted from its inner end to within a short distance of its outer enlarged end. This barrel interiorly is formed with a series of step bearings 7, which, due to the taper of the barrel, gradually reduce in diameter toward the inner end.

Within the slotted portion of the barrel 5 is fitted the cutter, which, in the present case, comprises a single piece of metal stamped to form a V-shaped cutting blade, the inner face of each cutting member 8 being formed with a series of inclined step cutting edges 8′, and straight bearing surfaces 9. These bearing surfaces register with the bearings 7 of the barrel 5 and the cutting edges 8′ project a slight distance inwardly beyond the inclined faces 9′ of the barrel, when the cutting blade is fitted therein. The cutting blade is provided with a foot extension 9^2 which corresponds in shape to that of the barrel, and from said extension projects the flat projection 10, which rests within the slotted screw-threaded stud 11 projecting from the foot extension 6 of the barrel, the edges of the projection 10 having threads thereon which correspond with those cut in the stud 11.

In assembling the sharpener, the flat cutting blade, which is formed of thin metal, is inserted within the slotted portion of the barrel 5, and the projecting stud 11, of which the projection 10 forms a portion, is then screwed into the screw-threaded socket 12 of the shaft 4 of the pinion 3, to tightly clamp the cutting blade in its adjusted position, after which the cylindrical casing 13 is fitted over the barrel to form a chamber 14 for receiving the shavings discharged through the outlet openings 15 of the said barrel.

From the supporting base 1 is extended a bracket 18, which, at its outer end terminates in the split spring holder 17 for the pencil 18.

In sharpening a pencil, rotation being imparted to the barrel and its connected parts by the drive gear 2 actuating the pinion 3, the pencil 18 is inserted within the spring clamp holder 17 and gradually moved within the sharpener. The surface of the pencil is engaged by the first of the series of the cutting edges 8′, and successively by the remaining ones as the pencil is fed inwardly, the lead of the pencil being finally acted on by the tapering cutting edges 18 of the blade, to give a point thereto. During the travel of the pencil within the barrel 5, the same is held in position by the concentric bearing sections 7, which gradually reduce

in diameter, and the pencil thus secured against lateral movement.

By the construction of the sharpener, the cutting blade acts onto the pencil in the same manner as a series of graduated planers, so that when the sharpened pencil is removed from within the sharpener, the end thereof will present the appearance of a series of concentric ridges.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is:—

1. In a pencil sharpener, the combination with a suitable base, of a barrel rotatably mounted thereon, a series of concentric step bearings within the same, a cutting blade held within the barrel, the said blade being provided with a series of step cutting edges which project within the barrel intermediate the step bearings thereof.

2. In a pencil sharpener, the combination with a suitable base, of a barrel rotatably mounted thereon, a series of concentric step bearings within the barrel, and a series of inclined cutting edges within the barrel intermediate the step bearings thereof.

3. A pencil sharpener, the same comprising a tapering barrel for the cutting blade, the said barrel being provided on its inner surface with a series of concentric step bearings, and a cutting blade removably held with the barrel.

4. A pencil sharpener, the same comprising a tapering barrel for the cutting blade, the said barrel being centrally slotted to receive a cutting blade, and provided on its inner face with a series of concentric step bearings, and a cutting blade held within the barrel.

5. The combination with a slotted barrel for a pencil sharpener, a series of concentric step bearings on the inner face thereof, a cutting blade held within the slotted portion of the barrel, and a series of inclined cutting edges on said blade which project within the barrel intermediate the step bearings, and means for holding the cutting blade within the barrel.

6. A pencil sharpener comprising a cutting blade having its exposed edge formed with a series of step cutting surfaces, and a slotted holder provided with a series of step bearings for said blade, the cutting surfaces of the blade extended beyond the bearing surfaces of the holder.

7. In a pencil sharpener, the combination with a holder provided with a plurality of step bearings, a cutting blade comprising two cutting members formed from a single piece of metal held within the holder, the inner edge of each cutting member having a series of step cutting surfaces which project beyond the bearing surfaces of the holder and act successively against the surface of a pencil during the operation of sharpening.

8. A pencil sharpener, the same comprising a barrel provided on its inner face with a series of step bearings, a blade formed with a series of step cutting edges held within the barrel, means for imparting rotation to the barrel, and a spring clamp guide holder for the pencil to be sharpened.

9. In a pencil sharpener, a barrel for the cutting blade, and the said barrel on its inner face being provided with a plurality of step bearings.

10. In a pencil sharpener, the combination with a barrel provided on its inner face with a plurality of step bearings, a blade formed with a series of step cutting edges held within the barrel, and an outer casing for the blade holding barrel, the said casing forming a chamber to receive the cuttings discharged from the barrel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DOCTOR FRANKLIN OLIVER.

Witnesses:
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