

No. 640,846.

Patented Jan. 9, 1900.

J. A. WEBSTER.
PENCIL SHARPENER.

(Application filed Apr. 29, 1899.)

(No Model.)

2 Sheets—Sheet 1.

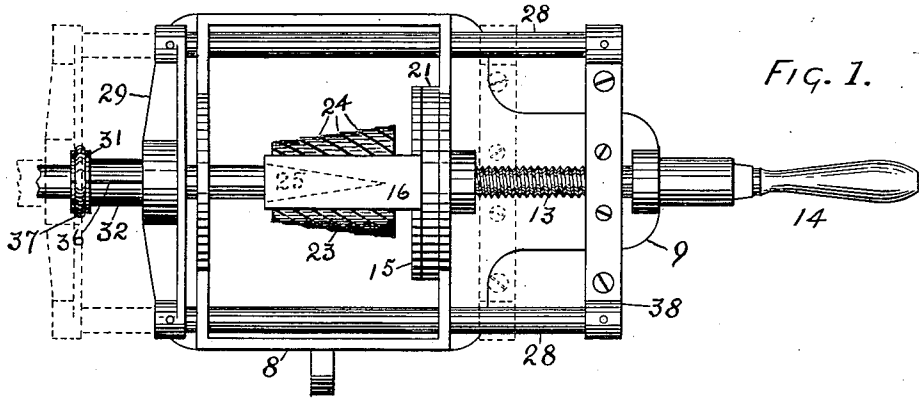


FIG. 1.

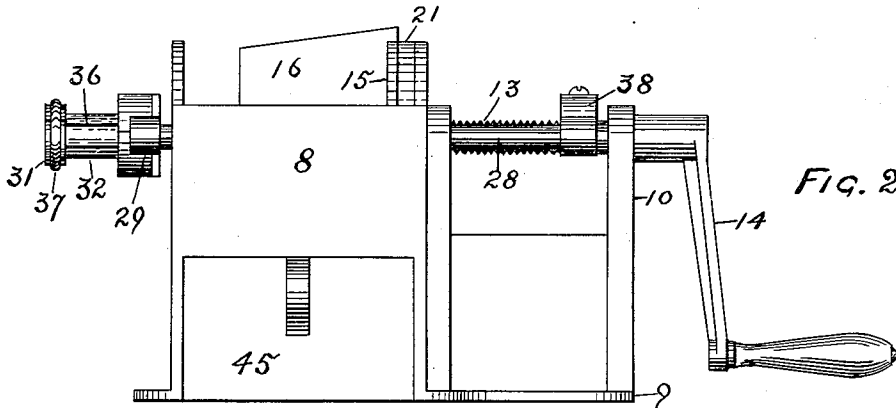


FIG. 2.

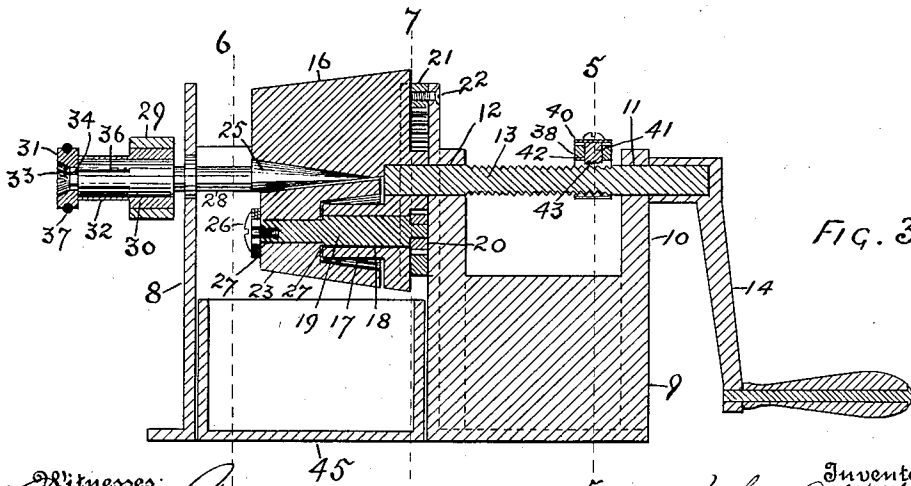


FIG. 3.

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2 Sheets—Sheet 2.

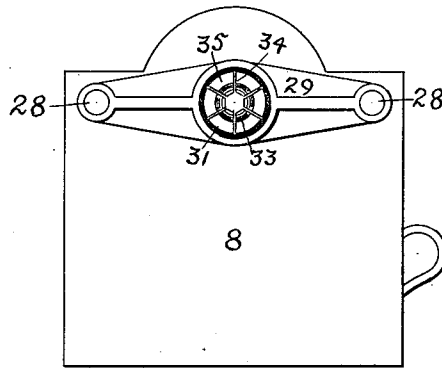


FIG. 4.

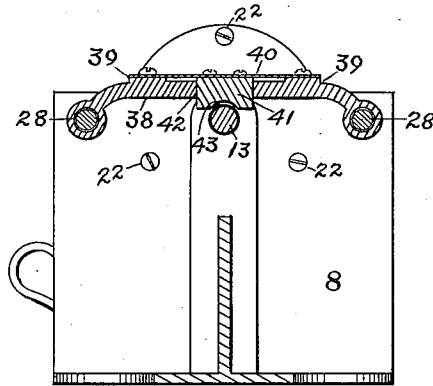


FIG. 5.

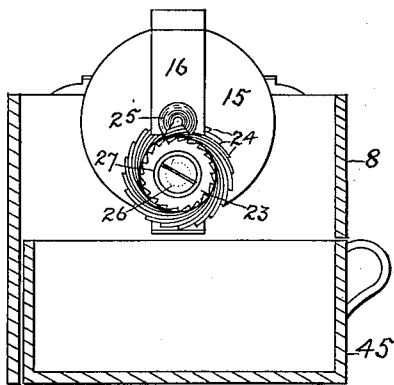


FIG. 6.

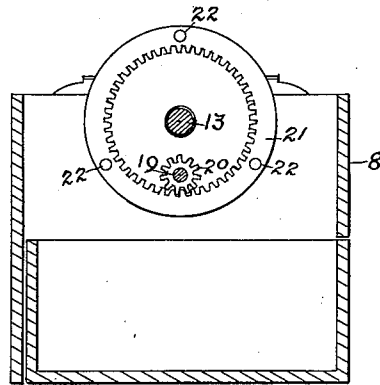


FIG. 7.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN A. WEBSTER, OF NEW YORK, N. Y., ASSIGNOR TO FLORENCE A. MORRISON, OF SAME PLACE.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 640,846, dated January 9, 1900.

Application filed April 29, 1899. Serial No. 715,055. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WEBSTER, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Pencil-Sharpener, of which the following is a specification.

My invention relates to improvements in pencil-sharpener; and the object thereof is to provide a simple and efficient device for pointing the pencil in a perfect manner without breaking the lead, a further object being to provide means to automatically feed the pencil against the cutter.

I accomplish the objects of my invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved pencil-sharpener and automatic feeding mechanism. Fig. 2 is an elevational view of the same. Fig. 3 is a central vertical longitudinal section thereof. Fig. 4 is an end view of the same, showing the clamp to hold the pencil in the feeding device. Fig. 5 is a sectional view on the line 5 5 of Fig. 3, looking in the direction of the arrow. Fig. 6 is a sectional view on the line 6 6 of Fig. 3, and Fig. 7 is a sectional view on the line 7 7 of Fig. 3.

In the accompanying drawings similar numerals of reference refer to like parts in each of the views, and in the practice of my invention I provide a casing 8, provided with an extension 9, having a standard 10, in which is formed the bearing 11, and the casing 8 is provided with a bearing 12, and in the bearings 11 and 12 is mounted a shaft 13, which is provided at one end with a crank 14, by which it may be rotated. The shaft 13 extends into the casing 8, as clearly shown in Fig. 3, and to the inner end thereof is secured a piece of metal, which consists of a circular part 15, a block 16, and a hub 17, and in the hub 17 is formed a bearing 18, in which is mounted a shaft 19, on one end of which is mounted a pinion 20, which meshes with an internal gear 21, which is secured to the casing 8 by screws 22, but which may be secured thereto in any convenient manner, nor do I limit myself to the kind of gears used.

On the free end of the shaft 19 I mount a cutter 23, which in shape is a frustum of a cone, and is provided with a plurality of

spiral blades 24, and the block 16 is provided on the side adjacent to the cutter 23 with a conical-shaped groove 25, which is adapted to receive the end of a pencil and sustain and direct the same against the cutter 23, as will be readily understood by an inspection of the drawings. The cutter 23 is secured upon the shaft 19 by means of a screw 26, which enters the end of the shaft 19, and between the head of the screw 26 and the cutter 23 I mount a plurality of washers 27, and between the cutter 23 and the hub 17 I mount a washer 27, and by putting more washers between the hub and the cutter and fewer between the screw and the cutter I can adjust the said cutter longitudinally, as will be readily understood. This construction will allow for the grinding of the blades and the adjustment of the cutter accordingly and will greatly prolong the life of the cutter.

In the top of the frame or casing 8 I slidably mount two shafts 28, at one end of which is secured the cross-piece 29, the central part of which is enlarged and provided with a bore or passage in which is mounted a pencil-holder of the following construction: I preferably form the holder out of one piece, and on one end is formed an enlarged part 30, which is secured in the said bore or passage in the cross-piece 29 in any convenient manner, and at the opposite end I also provide an enlarged part 31, and the intervening barrel 32 is made quite thin. The bore through the part 31 is less in diameter than that through the parts 29 and 32 and is made flaring at the outer end, as shown at 33. The part 31 is divided by a plurality of radial slots 34 into segments 35, and the slots 34 extend into or through the part 32, as shown at 36. The pencil-holder may be made of spring metal, so that when a pencil is introduced between the segments the same will be sprung apart and clamp upon the pencil, as will be readily understood, and this action may be increased by mounting a rubber band 37 in a peripheral groove in said segments. This device forms a very simple and efficient means for holding a pencil and is so disposed that it is always in line with the groove 25 in the block 16. On the other ends of the shafts 28 I mount a cross-piece 38, which is provided on the upper side with two pro-

jections 39, on the top of which is mounted a strap-spring 40, to which is secured a block 41, which is slidably mounted in a passage 42 through the cross-piece 38, and the under side of the block 41 is provided with a semicircular screw-threaded groove 43, and the shaft 13 is provided with a corresponding screw-thread between the bearings 11 and 12.

A box 45 is mounted in the bottom of the casing 8 through an opening in one side thereof, and it will be observed that when assembled the circular part 15 will coincide with the face of the gear 21 and will prevent dust entering between the gears.

In operation the pencil is inserted between the segments 35 and pressed inwardly until the end enters the conical groove 25 and bears against the cutter-blades. Then by turning the crank 14 the block 16 and hub 17, with shaft 19 and cutter 23, will be given a planetary motion around the point of the said pencil, and at the same time the cutter will be rapidly rotated by reason of the pinion 20 engaging with the internal gear 21, which is secured to the casing. It will be observed that the blades on the cutter are made spiral and so disposed that as the cutter is rotated the cutting will be from the point of the pencil backward, thereby giving a very fine long point without breaking the lead. The pencil can be fed to the cutter by gently pressing the same in as the material is cut away; but by placing the sliding frame in the position indicated by dotted lines in Fig. 1 and pushing the pencil in until the end bears against the cutter the screw-threaded groove 43 of the block 41 can be forced into engagement with the screw-threaded part of the shaft 13 by depressing the spring 40, as will be clearly understood, and as the shaft 13 is rotated by the crank 14 it is evident that the said block will travel on the shaft and draw with it the sliding frame carrying the pencil-holder, and the pencil will be fed automatically against the said cutter as long as the spring 40 is depressed, which can be easily done by placing the finger of one hand upon the same, while the other hand rotates the shaft 13 by means of the crank 14.

The block 16 serves as a firm support for the pencil while being fed against the cutter 23, so that there is no danger of breaking the lead of the pencil, and it will thus be seen that I have provided a very simple and efficient pencil-sharpener, and the construction is so simple that the cost to manufacture will not be great.

It is evident that hard rubber may be used in constructing the pencil-holder instead of spring metal, and it is also evident that spur-gears can be used instead of the gears disclosed, and many other changes can be made without departing from the spirit of my invention, and I reserve the right to make such changes.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a pencil-sharpener, a cutter conical in form and provided with blades, a block provided with a conical groove adapted to hold a pencil whereby one side thereof will be presented to said cutter, means to rotate said cutter, and means to give the cutter and block a planetary motion, and means to adjust one of said last-named parts whereby a different point may be given to the pencil.

2. In a pencil-sharpener, a cutter conical in form and provided with spiral blades, means to rotate said cutter so that the said spiral blades shall cut from the point of the pencil toward the body portion, and means to give a planetary motion to said cutter, and means to hold a pencil against said cutter.

3. In a pencil-sharpener, a cutter conical in form and provided with spiral blades, said cutter being mounted upon an axle upon the opposite end of which is a pinion, an internal gear secured to the stationary casing, and with which said pinion is adapted to mesh, said axle being mounted in a bearing which is secured to a second shaft, or axle, and means to rotate said second axle, and means to hold the pencil against said cutter.

4. In a pencil-sharpener, a cutter provided with spiral blades said cutter being mounted upon an axle upon the opposite end of which is a pinion, an internal gear secured to the stationary casing, and with which said pinion meshes, said axle being mounted in a bearing which is mounted upon a second axle, a crank secured to said second axle, and a block secured upon said second axle adjacent to said cutter, and provided with a conical groove adapted to receive a pencil and direct and hold the same against the said cutter, substantially as, and for the purpose set forth.

5. In a pencil-sharpener, a shaft, or axle 13, internal gear 21, block 16 and hub 17 mounted on said axle, an axle 19 mounted in said hub and carrying pinion 20, cutter 23 mounted on axle 19, said block 16 being provided with the conical groove 25, substantially as and for the purpose set forth.

6. In a pencil-sharpener, the block 16 mounted on shaft 13, the hub 17 mounted on said shaft, an axle 19 mounted in said hub and provided with a pinion which meshes with a gear-wheel secured to the casing, the cutter 23 mounted on said axle 19, and means to adjust said cutter, said block 16 being provided with the conical groove 25, substantially as and for the purpose set forth.

7. In a pencil-sharpener, a conical-shaped cutter mounted in bearings which are secured to a second rotary axle, a block mounted upon said axle adjacent to said cutter and provided with a conical groove whereby a pencil is held against said cutter, means to impart rotary motion to said cutter, and means to adjust the same longitudinally, substantially as and for the purpose set forth.

8. In a pencil-sharpener, a conical-shaped cutter mounted in bearings which are secured to a second rotary axle, a block mounted upon said second axle adjacent to said cutter and provided with a conical groove whereby a pencil is held against said cutter, means to impart rotary motion to said cutter, and means to adjust the same longitudinally, consisting of washers mounted on the axle of the cutter, substantially as and for the purpose described.

9. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, and means to connect said frame with a part of the operating mechanism of the pencil-sharpener whereby the said frame is moved so as to carry the pencil against the cutter, for the purpose set forth.

10. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, a movable part secured to said frame and provided with a screw-threaded groove adapted to be brought into contact with a screw-thread formed on one of the shafts, or axles of the pencil-sharpener, whereby the said sliding frame is moved so as to carry the pencil against the cutter, for the purpose set forth.

11. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, a spring secured to said frame, a block secured to said spring and provided with a screw-threaded groove, and the axle of the pencil-sharpener being provided with a screw-threaded portion with which said screw-threaded groove is adapted to engage when the spring is depressed, substantially as and for the purpose set forth.

12. In a pencil-sharpener, a sliding frame, a pencil-holder secured thereto, and consisting of radial spring-arms having an interior shoulder at the outer end, and means to move the frame and holder so as to feed the pencil against the cutter, substantially as and for the purpose set forth.

13. In a pencil-sharpener, a cutter having a rotary and planetary motion, a block having planetary motion, and provided with a conical groove whereby the pencil is held against the said cutter, and a sliding frame provided with a pencil-holder in line with the said groove, and means to move said pencil-holder toward said cutter, substantially as and for the purpose set forth.

14. The herein-described pencil-sharpener, consisting of the conical-shaped cutter having spiral blades mounted upon a rotary axle, a block mounted upon said axle and provided with a conical groove whereby the pencil is held against said cutter, a pinion and gear-wheel whereby the cutter is given rotary motion while the said first axle imparts to it and the block planetary motion, and a sliding frame mounted in the casing, and provided with a pencil-holder in line with the conical groove in said block, a block secured to said sliding frame, and said first axle being provided with a screw-threaded portion with which a screw-threaded groove in said last-named block is adapted to contact whereby the pencil is fed against the cutter, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereto affixed my signature in the presence of two subscribing witnesses.

JOHN A. WEBSTER.

Witnesses:

JAMES M. FISK,
OLIVER E. DAVIS.