

953,998.

F. E. HINER.
PENCIL SHARPENER.
APPLICATION FILED APR. 8, 1909.

Patented Apr. 5, 1910.
2 SHEETS—SHEET 1.

Fig. 1.

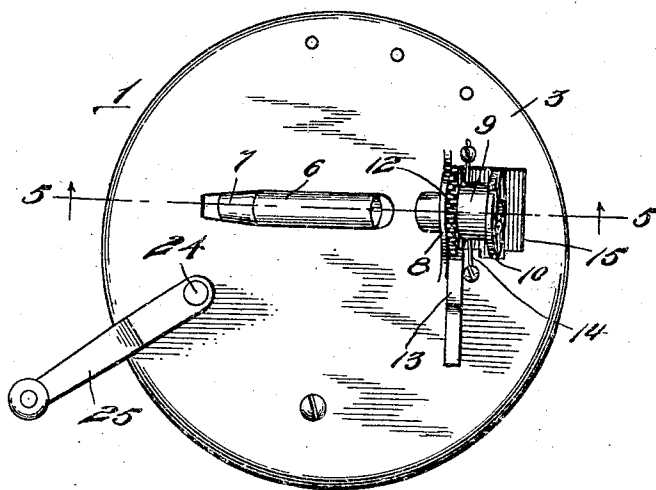
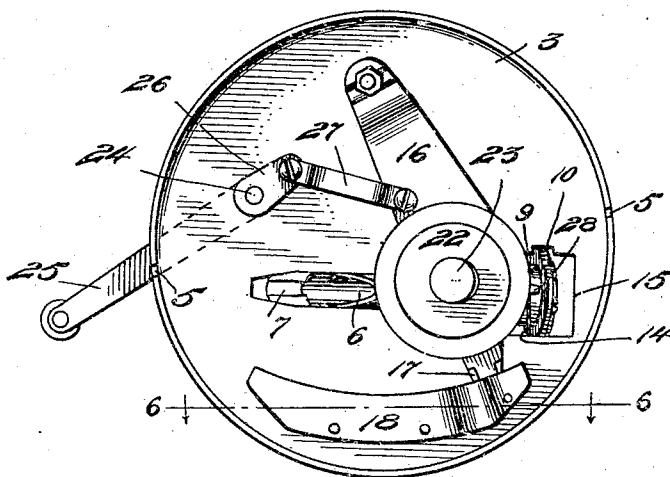


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

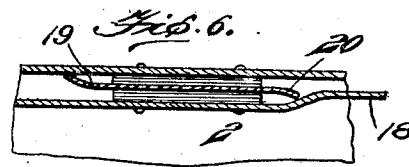
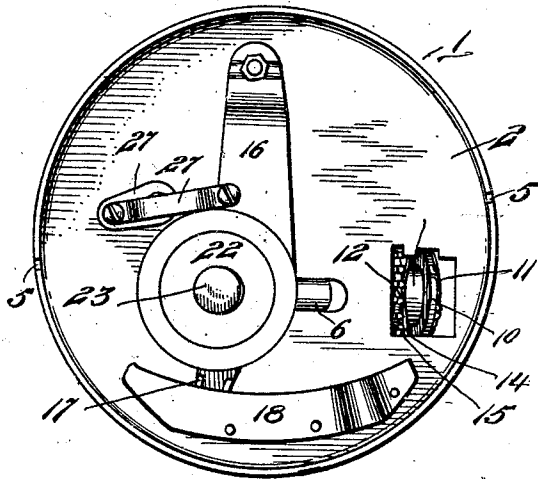


Fig. 4.

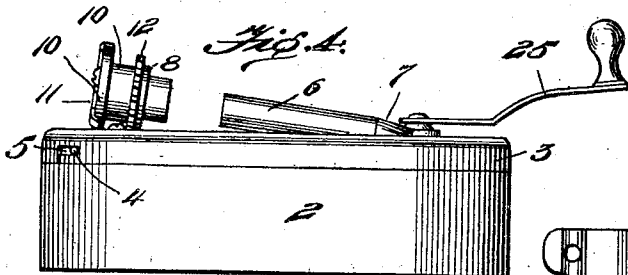


Fig. 7.

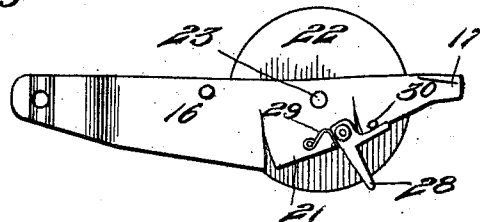
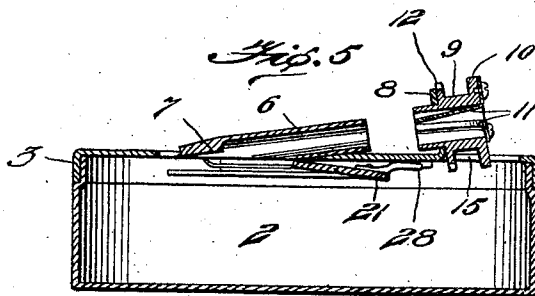


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PENCIL-SHARPENER.

953,998.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed April 8, 1909. Serial No. 488,667.

To all whom it may concern:

Be it known that I, FRANK E. HINER, 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; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pencil sharpeners.

The object of the invention is to provide a pencil sharpener having an improved construction of knife and means for operating the same.

A further object is to provide a pencil sharpener by means of which both the wood and the lead of the pencil may be evenly sharpened without danger of breaking off the lead point.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view of a pencil sharpener constructed in accordance with the invention; Fig. 2 is a similar view of the inner side of the cover portion of the sharpener, showing the construction and arrangement of the operating mechanism and illustrating the position of the knife and its connected parts, at the beginning of the stroke; Fig. 3 is a similar view showing the position of the knife at the end of the stroke; Fig. 4 is a side or edge view of the sharpener; Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 1 with parts omitted for clearness; Fig. 6 is a detail sectional view on the line 6—6 of Fig. 2; Fig. 7 is a detail view of the inner side of the knife carriage showing the chuck operating pawl.

In the embodiment of the invention, I provide a casing 1 which may be of any suitable shape but which is here shown and is preferably cylindrical in form and consists of a body portion 2 and a flanged cover section 3, which is removably engaged with the body portion and is secured in place thereon by means of studs 4 arranged on the

outer side of the body portion and which are adapted to be engaged with bayonet slots 5 formed in the flange of the cover portion whereby the latter is locked into engagement with the body portion as will be understood.

On the outer side of the cover portion 1 is arranged a pencil holding socket 6, the outer end of which is reduced to form a point receiving recess 7. The inner side of the outer end of the socket 6 is formed at an angle and is open and communicates with an opening in the side of the top or cover section whereby when a pencil is inserted in the socket end, the same will project a slight distance beyond the inner wall of the top in position to be engaged with the sharpening mechanism hereinafter described. The socket 6 may be of any suitable construction but is here shown and is preferably constructed of sheet metal, riveted or otherwise secured to the outer side of the cover.

On the outer side of the top or cover of the casing and spaced from the inner end of the socket 6 is riveted or otherwise secured a bearing bracket 8 in which is revolutely mounted a pencil rotating mechanism comprising a sleeve 9 having on its upper end an annular flange 10 to which is secured inwardly projecting spring fingers 11 which are adapted to grip and hold a pencil when inserted in the sleeve. On the sleeve, between the flange 10 and the bracket 8, is arranged an annular series of spur gear teeth 12 with which is adapted to be engaged a suitable rotating mechanism hereinafter described. Secured to the outer side of the cover section and in engagement with the teeth 12 is a holding spring 13 which controls the movement of the sleeve and prevents the same from being turned more than one tooth at each stroke of the knife. The pencil rotating mechanism is held in operative position in the bracket 8 by means of a spring retaining rod 14 which is secured to the outer side of the cover above the gear teeth 12, as shown. In the outer side of the cover, opposite to the pencil rotating mechanism is formed an aperture 15 through which the teeth 12 project and are engaged by the operating mechanism of the knife.

On the inner side of the cover section 3 is pivotally mounted in any suitable man-

ner a knife carriage 16 which is here shown and is preferably in the form of a plate having on its free end a bevel finger 17 which is adapted to engage a guide passage 5 formed by a segmental guide plate 18 secured to the inner side of the cover 3, adjacent to one edge thereof as shown. Between the guide plate 18 and the adjacent inner wall of the cover section is arranged 10 a tension spring 19 which is bent downwardly at one end, as shown at 20, whereby the finger 17 in moving in one direction will pass over the spring and between the same and the plate 18, while in its return movement, the beveled edge of the finger will 15 engage beneath the opposite edge of the spring, thus elevating the same so that in its return movement, the finger 17 will pass beneath the spring. By this construction, 20 the pressure of the spring is brought to bear upon the finger when moved in either direction.

The knife carriage or plate 16 is provided with an inclined seat 21 on which is secured 25 a knife 22, said knife being preferably in the form of a disk having its outer edge beveled or sharpened so that when brought into engagement with the end of the pencil which projects through the opening in the 30 end of the socket and side of the cover, it will shave off a chip each time the knife is reciprocated. The knife 22 is preferably secured to the inclined seat of the carriage by means of a clamping screw 23 whereby 35 the knife may be turned on its seat to bring different parts of the edge of the knife into operative position so that when one portion of the edge becomes dull, the blade may be 40 turned to bring another portion into position.

Revolubly mounted in the cover portion 3 is a short knife operating shaft 24 on the outer end of which is secured an operating 45 crank handle 25 and on the inner end of which is fixedly mounted a crank 26 which is connected by a pitman rod 27 to the knife carriage 16 whereby when said shaft is revolved by the handle, the knife carriage will 50 be oscillated to carry the knife back and forth over the inner side of the cover, thus shaving off the end of the pencil.

Pivotally mounted on the inner side of the inclined knife seat 21 of the carriage 16 is a 55 pawl 28 which is adapted to be brought into engagement with the teeth 12 on the pencil rotating mechanism each time the knife carriage is reciprocated thereby turning said pencil rotating mechanism to the distance of 60 one tooth, immediately before each stroke of the knife. The pawl 28 is provided with a spring 29 adapted to restore the pawl to operating position each time it engages the teeth 12 of the pencil rotating mechanism and said pawl is also provided with a stop

lug 30 whereby the same is held in operative 65 position to engage the teeth 12.

In the operation of the sharpener, the end of the pencil is inserted in the socket 6 so that a portion of the end projects through the openings in the socket and side of the 70 cover section after which the handle 25 is revolved, thus oscillating the knife carriage in the manner hereinbefore described to bring the edge of the knife into engagement with the projecting portion of the pencil, 75 thus severing a chip or shaving each time the knife is brought into engagement with the pencil. By means of the pawl 28 carried by the knife carriage, the pencil 80 rotating mechanism is actuated to turn the pencil to the distance of one tooth before each stroke of the knife, so that a fresh surface of the pencil is brought into position to be cut at each stroke of the cutting 85 mechanism.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without 90 requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the 95 appended claims.

Having thus described my invention, what I claim is:

1. In a pencil sharpener, a casing, a pencil holder on said casing, a pencil rotating 100 mechanism, a knife carriage in said casing, a knife mounted on said carriage, means to actuate the latter, means carried by said carriage to operate said pencil rotating 105 mechanism at each stroke thereof, and means to raise the carriage in its retrograde movement whereby the knife will be raised from cutting position.

2. In a pencil sharpener, a casing, a pencil holding socket arranged on said casing, 110 a pencil rotating mechanism, a knife carriage pivotally mounted on the inner side of the casing, a guiding and tension mechanism engaged by the free end of said knife carriage, a knife adjustably mounted on the 115 carriage and adapted to be brought into engagement with a pencil inserted in said socket, means arranged on said knife carriage to engage the pencil rotating mechanism and to actuate the same to turn the pencil 120 at each stroke of the knife, and means for actuating the knife carriage.

3. In a pencil sharpener, a casing comprising a body portion, a cover section engaged with said body portion, means to lock 125 the cover section onto said body portion, a pencil holding socket arranged on said cover section, a pencil rotating mechanism mount-

ed on the cover section and comprising a
 revolvably mounted sleeve, an annular series
 of gear teeth on said sleeve, means to retard
 the movement of the rotating mechanism, a
 5 knife carriage pivotally mounted on the inner
 side of the cover section, a knife carried
 by said carriage, a pawl arranged on the
 carriage and adapted to be brought into
 engagement with the teeth of said pencil
 10 rotating mechanism at each stroke of the
 knife, means for actuating the knife carriage,
 and means to raise the carriage in its
 retrograde movement whereby the knife
 will be raised from cutting position.
 15 4. In a pencil sharpener, a casing, a pencil
 socket arranged on said casing to hold
 a pencil in position for sharpening, a pencil
 rotating mechanism, a knife carriage
 comprising a plate pivotally mounted at
 20 one end in said casing, guiding and tension
 mechanism engaged by the free end of said
 plate, an operating shaft, a handle secured
 to one end of said shaft, a crank secured
 to the opposite end within said casing, a
 25 pitman rod to connect said crank with said
 plate, and a knife carried by said plate and

adapted to be brought into successive engagement
 with the end of the pencil in said holding mechanism.

5. In a pencil sharpener, a casing, a pencil
 30 holding socket arranged on said casing to hold
 the pencil in position for sharpening, means
 for rotating the pencil while being sharpened,
 a knife carriage operatively mounted in said
 casing, means to actuate 35 said carriage, a guide
 plate arranged in the casing, a tension spring
 to co-act with said guide plate for guiding the
 carriage in its movement, a knife carried by
 said carriage, said knife comprising a circular
 disk having 40 a continuous cutting edge, and a
 clamping screw adapted to detachably secure
 said knife to the carriage whereby the former
 may be turned to bring different portions
 of the edge into operative position. 45

In testimony whereof I have hereunto set
 my hand in presence of two subscribing
 witnesses.

FRANK E. HINER.

Witnesses:

E. C. STOHMBURGER,
 ALICE R. SHONE.