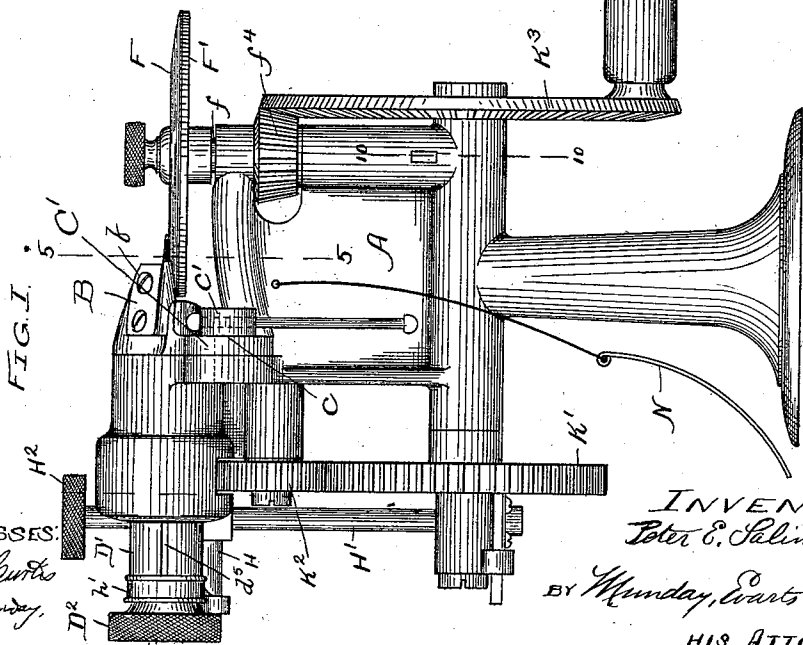
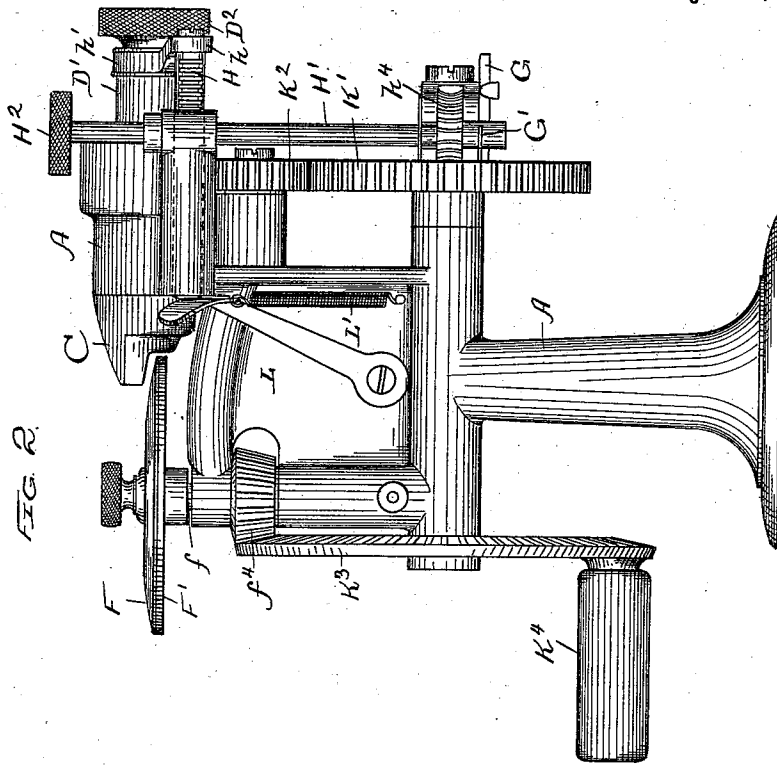


P. E. SALIN.
PENCIL SHARPENER.

No. 560,304.

Patented May 19, 1896



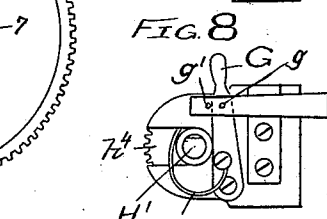
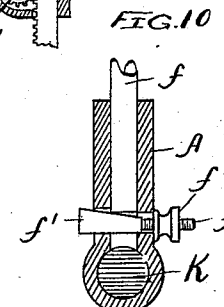
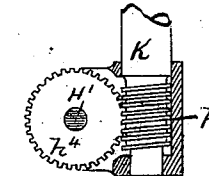
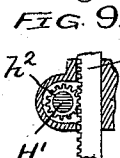
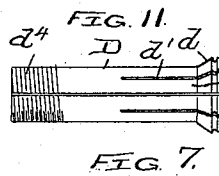
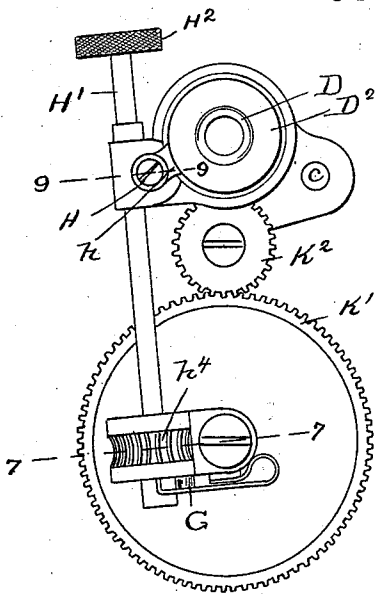
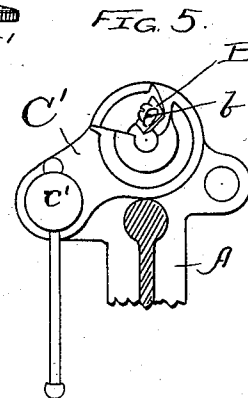
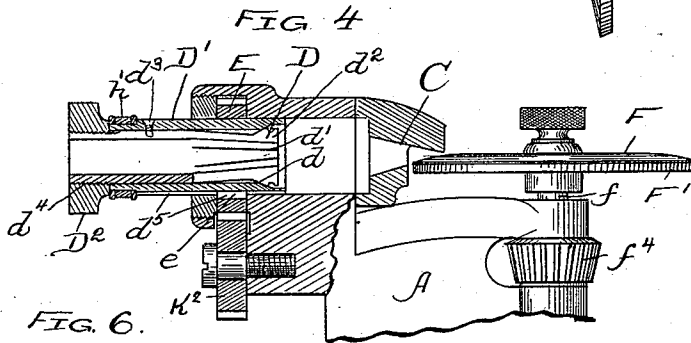
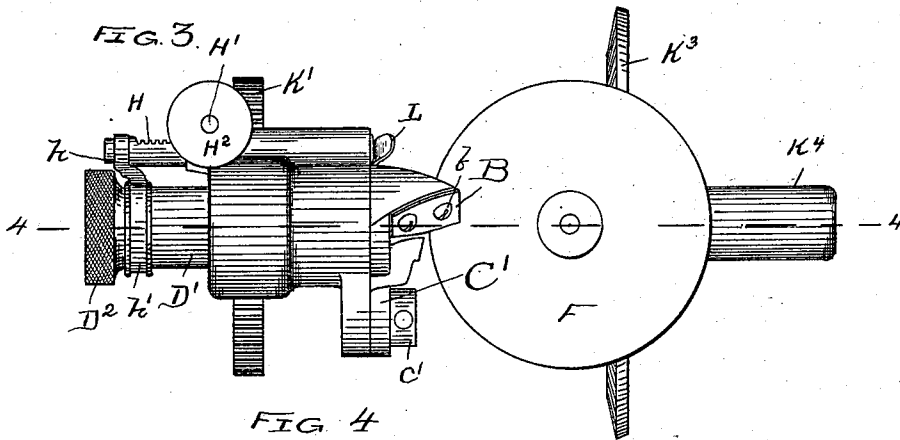
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 HIS ATTORNEYS.

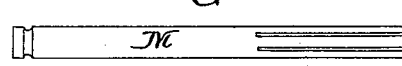
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WITNESSES:
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UNITED STATES PATENT OFFICE.

PETER E. SALIN, OF CHICAGO, ILLINOIS.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 560,304, dated May 19, 1896.

Application filed September 25, 1895. Serial No. 563,577. (No model.)

To all whom it may concern:

Be it known that I, PETER E. SALIN, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pencil-Sharpener, of which the following is a specification.

My invention relates to pencil-sharpener.

The object of my invention is to produce a pencil-sharpening machine of a simple, durable, and efficient construction by means of which pencils may be rapidly, conveniently, and perfectly sharpened.

The machine embodying my invention comprises, in combination, the following parts or devices: a knife or cutter, a hollow conical guide for the tapering end of the pencil and to which the knife is preferably secured, a rotating chuck for holding the pencil in respect to the knife, a rotary emery-disk revolving approximately in the plane of the axis of the pencil for sharpening the lead of the pencil, a feeder or feed device for feeding the chuck and pencil forward as they revolve in contact with the emery-disk and knife, a swinging arm upon which the hollow conical guide and the cutter are preferably mounted, and a clamp or device for holding such arm in position.

My invention also consists in the novel construction and in the various novel combinations and subcombinations of these parts and devices and other parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, forming a part of this specification, Figures 1 and 2 are side elevations of a machine embodying my invention, one looking from one side and the other from the opposite side. Fig. 3 is a plan view. Fig. 4 is a detail section on the line 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is an end view. Fig. 7 is a section on the line 7 7 of Fig. 6. Fig. 8 is a detail bottom view showing the device for throwing the feeder in and out of gear. Fig. 9 is a section on the line 9 9 of Fig. 6. Fig. 10 is a section on the line 10 10 of Fig. 1. Fig. 11 is a detail view of the pencil-holding chuck, and Fig. 12 shows a supplemental holder for slate or other pencils of small diameter.

In the drawings similar letters of reference indicate like parts throughout all the figures.

In said drawings, A represents the frame of the machine; B the knife or cutter, the same being placed in a diagonal or spiral position in respect to the axis of the pencil or pencil-holder chuck.

C is the hollow conical socket or guide against which the tapering end of the pencil fits and to which the knife or cutter B is preferably attached by the screws *b*. The guide or socket C and the knife B are preferably mounted movably, this being done by a swinging arm *C'*, pivoted at *c* on a screw-threaded pivot *c'*, which serves as a vise or clamp to lock the swinging arm in operative position, or so that the guide or socket C is axially in line with the pencil or its holding chuck.

D is the pencil-holder or chuck, the same consisting, preferably, of a sleeve furnished with a conical head *d* and a series of longitudinal slits *d'* to form the movable or spring jaws *d²* of the chuck. The jaws of the chuck or pencil-holder are closed by the conical head *d* impinging against the tapering or conical interior face of the outer sliding rotary sleeve *D'*. The chuck or holder D is prevented from rotating in the sleeve *D'* by means of an interior pin or projection *d³* on the sleeve, fitting in one of the slots *d'* of the holder D, which extends the full length of the holder D, in order to permit the holder D to be inserted in the sleeve *D'*. The holder D is furnished with screw-threads *d⁴* at its outer end, and it is reciprocated in respect to the sleeve *D'* so as to loosen or tighten the jaws *d²* against the pencil by means of a thumb-nut *D³*. The sleeve *D'* is furnished with a longitudinal groove *d⁵*, in which fits an interior pin or projection *e* on the gear E, by which the sleeve *D'* and the pencil-holder D are rotated, so as to permit the sleeve *D'* and the holder D to slide or reciprocate to feed the pencil against the cutter B and the emery cutter or grinder F.

The grinder or sharpening device F for the lead of the pencil consists, preferably, of a rotating disk of emery or emery-paper. It is supported upon a metal disk *F'*, slightly dished, beveled, or cone-shaped, the plane of which is arranged just below the axis of the

pencil or its holder B. The emery supporting disk or plate F' is secured to an upright shaft *f*, which may be adjusted up and down to bring the emery-disk F into proper relation to the axis of the pencil-holder by means of a wedge *f'*, which abuts against the lower end of the shaft *f* and which is moved by an adjusting-screw *f*² and nut *f*³.

The feeder or device for feeding the pencil or its holder D and the sleeve D' forward consists, preferably, of a sliding or reciprocating rack H, connected by an arm *h* with the sleeve D', the arm *h* having a collar *h'* to connect with the sleeve and permit the sleeve to rotate. The feeder or rack H is reciprocated or moved forward by means of the feed-shaft H', which has a gear *h*², engaging with the teeth of the feed-rack H. The feed-shaft H' itself is rotated automatically by means of a worm *h*³ on the driving-shaft K, engaging a worm-gear *h*⁴ on the feed-shaft H'. The feed-shaft H' is thrown into and out of gear with the driving-shaft K by means of a lever G, which moves the lower end of the shaft sufficiently to cause the worm *h*³ and the worm-gear *h*⁴ to engage and disengage. This lever is furnished with a spring G' to move the end of the feed-shaft in the opposite direction. The gear-lever is locked in position by a pin or projection *g*, engaging a detent in the guard *g'*. The feed-shaft H' is further provided with a thumb-wheel H² at its upper end, so that the feeding may be done by hand, when desired. When the feed-shaft is thrown out of gear, the feed-rack may be returned to position by the feed-rack-returning lever or arm L, which is actuated by a spring L'. The driving-shaft K is furnished with a spur-gear K', meshing with an intermediate gear K², that engages the gear E for rotating the sleeve D' of the pencil-holder D, and the driving-shaft K is furnished with a bevel-gear K³, that engages a bevel-gear *f*⁴ on the emery-disk-driving shaft *f*, so as to rotate the emery-disk. The driving-shaft K is rotated by a crank K⁴, secured, preferably, to the gear-wheel K³.

M is a supplemental pencil-holder split sleeve adapted to be inserted in the holder D for receiving slate-pencils or other pencils of small diameter. The supplemental pencil-holding split sleeve M is made of about the size or diameter of an ordinary pencil, so that it may be inserted like a pencil of ordinary size in the holder D. The hole or bore in this split sleeve M is of a size to fit an ordinary slate-pencil or lead-pencil of small diameter. The supplemental pencil-holding sleeve M operates simply as a split bushing to diminish the bore of the holder D.

N is a curved rod which may be used for expelling short pencils from the chuck or holder D.

The operation is as follows: The pencil being inserted in the holder D, the jaws of the holder are tightened on the pencil by turning the thumb-nut D². The gear-controlling le-

ver G is then moved to throw the feeder-shaft H' in gear with the driving-shaft K. The operator then, by turning the driving-shaft by the crank, causes the pencil in the holder to rotate on its own axis and at the same time feed slowly forward, bringing the wood of the pencil in contact with the cutter B and the lead or point in contact with the emery disk or grinder F, thus quickly, easily, and perfectly sharpening the pencil. When it is desired to sharpen slate or other pencils by use of the grinder F alone, without the aid of the knife or cutter B, the vise or screw *c* is loosened and the arm C', carrying the knife B, is turned or swung to one side, so as to be out of the way.

I claim—

1. In a pencil-sharpener, the combination with a stationary knife or cutter, of a rotary pencil-holder and a rotary grinder-disk revolving on an axis at an angle to the axis of the pencil-holder, substantially as specified. 85

2. In a pencil-sharpener, the combination with a knife or cutter, of a hollow conical guide to which the knife is attached, a rotating pencil-holder, and a rotating grinder revolving at an angle to the axis of the pencil-holder, substantially as specified. 90

3. In a pencil-sharpener, the combination with a knife or cutter, of a hollow conical guide to which the knife is attached, a swinging arm upon which said knife and guide are mounted, a rotating pencil-holder, and a rotating grinder revolving at an angle to the axis of the pencil-holder, substantially as specified. 95 100

4. In a pencil-sharpener, the combination with a stationary knife or cutter, of a rotary pencil-holder and a rotary grinder-disk revolving on an axis at an angle to the axis of the pencil-holder, and a feeder for feeding the pencil-holder forward as it rotates, substantially as specified. 105

5. In a pencil-sharpener, the combination with a knife or cutter, of a hollow conical guide to which the knife is attached, a rotating pencil-holder, a rotating grinder revolving at an angle to the axis of the pencil-holder, mechanism for rotating the pencil-holder, and means for feeding the pencil forward as it rotates, substantially as specified. 110 115

6. In a pencil-sharpener, the combination with a stationary knife or cutter, of a rotary pencil-holder and a rotary grinder-disk revolving on an axis at an angle to the axis of the pencil-holder, a feeder for feeding the pencil forward as it rotates, and a lever or device for throwing the feeder or feed mechanism in and out of gear, substantially as specified. 120 125

7. In a pencil-sharpener, the combination with a stationary knife or cutter, of a rotary pencil-holder and a rotary grinder-disk revolving on an axis at an angle to the axis of the pencil-holder, a feeder for feeding the pencil forward as it rotates, a lever or device for throwing the feeder or feed mechanism in 130

and out of gear, and a spring-actuated lever or device for returning the feeder to position, substantially as specified.

8. In a pencil-sharpener, the combination with a stationary knife or cutter, of a rotary pencil-holder and a rotary grinder-disk revolving on an axis at an angle to the axis of the pencil-holder, and means for adjusting the grinder-disk in respect to the axis of the pencil-holder, substantially as specified.

9. In a pencil-sharpener, the combination with a knife or cutter B, of a rotating and reciprocating pencil-holder, means for rotating said pencil-holder, means for reciprocating said pencil-holder to feed the pencil forward against the knife, and a hollow conical socket or guide C, substantially as specified.

10. In a pencil-sharpener, the combination with a knife or cutter B, of a rotating and reciprocating pencil-holder, means for rotating said pencil-holder, means for reciprocating said pencil-holder to feed the pencil forward against the knife, a hollow conical socket or guide C, a swinging arm C', and a clamp-screw or vise for locking the swinging arm in position, substantially as specified.

11. In a pencil-sharpener, the combination with knife B, of rotating pencil-holder or chuck D, reciprocating and rotating chuck-sleeve D', feed-rack H, and arm *h* connecting said feed-rack and chuck-sleeve D', substantially as specified.

12. In a pencil-sharpener, the combination with knife B, of rotating pencil-holder or chuck D, reciprocating and rotating chuck-sleeve D', feed-rack H, arm *h* connecting said feed-rack and chuck-sleeve D', and feed-shaft H' furnished with a gear meshing with said feed-rack H, substantially as specified.

13. In a pencil-sharpener, the combination with knife B, of rotating pencil-holder or chuck D, reciprocating and rotating chuck-sleeve D', feed-rack H, arm *h* connecting said feed-rack and sleeve D', feed-shaft H' furnished with a gear meshing with said feed-rack H, the driving-shaft and a worm and gear connecting the feed-shaft and driving-shaft, substantially as specified.

14. In a pencil-sharpener, the combination with knife B, of rotating pencil-holder or chuck D, reciprocating and rotating chuck-sleeve D', feed-rack H, arm *h* connecting said feed-rack and chuck-sleeve D', feed-shaft H' furnished with a gear meshing with said feed-rack H, the driving-shaft, a worm-gear connecting the feed-shaft and driving-shaft, the lower end of the feed-shaft being mounted movably, and a lever or device for throwing the worm-gear in and out of engagement, substantially as specified.

PETER E. SALIN.

Witnesses:

H. M. MUNDAY,
EDMUND ADCKOCK.