

(No Model.)

J. SIEGEL.
PENCIL SHARPENER.

No. 474,418.

Patented May 10, 1892.

Fig. 1.

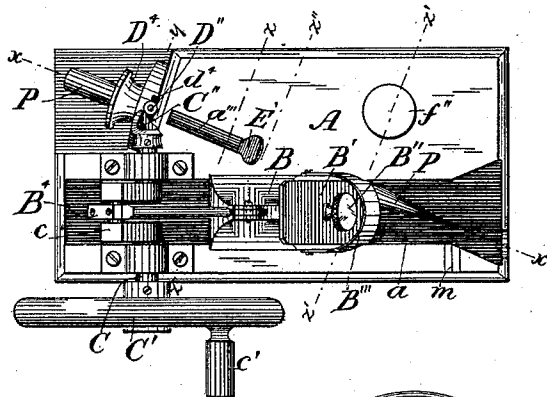


Fig. 2.

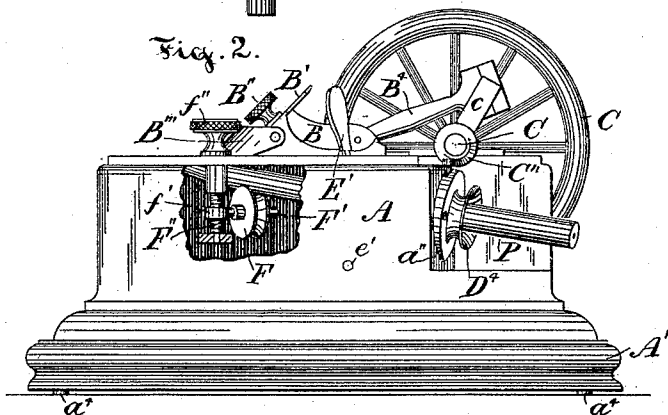


Fig. 3.

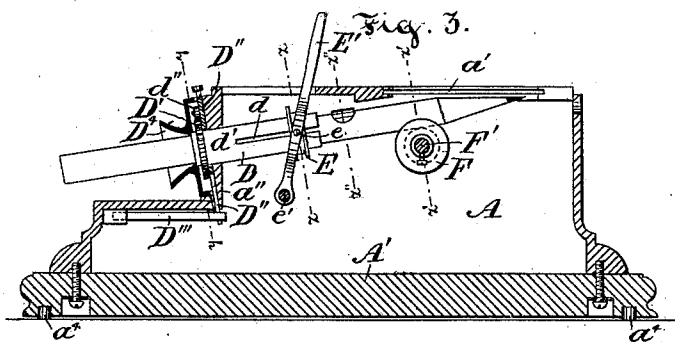


Fig. 6.

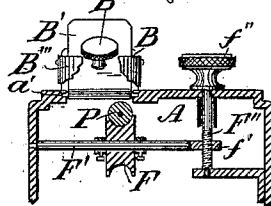


Fig. 5.

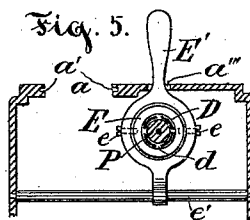


Fig. 4.

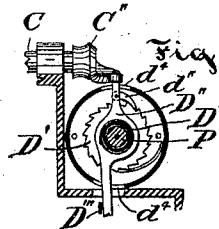


Fig. 7.

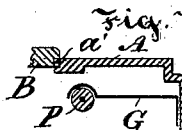
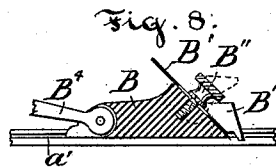


Fig. 8.



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UNITED STATES PATENT OFFICE.

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PENCIL-SHARPENER.

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Application filed January 21, 1892. Serial No. 418,840½. (No model.)

To all whom it may concern:

Be it known that I, JOHN SIEGEL, of the city of Montreal, in the Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Pencil-Sharpener or Pointing-Planes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to machines for sharpening pencils or planing similar objects to a point.

The object of my invention is a miniature planing-machine, in which a pencil or similar article is held mechanically at an angle, which may be varied and automatically rotated while being subjected to the operation of a guided plane, so as to produce a point of any desired fineness without soiling the fingers.

Figure 1 is a top view of my improved machine, showing the pencil in position. Fig. 2 is a side elevation of the same, parts being broken out to show the angle-adjusting mechanism. Fig. 3 is a longitudinal vertical section of the same on line *xx*, Fig. 1. Fig. 4 is a transverse section of the same on line *yy*, Figs. 1 and 3, showing the chuck-turning mechanism. Fig. 5 is a transverse section of the same on line *zz*, Figs. 1 and 3, showing the chuck-locking mechanism. Fig. 6 is a transverse section of the same on line *z'z'*, Figs. 1 and 3, showing the mechanism for varying the angle or length of the point to be planed. Fig. 7 is a transverse section of the same on line *z''z''*, Figs. 1 and 3. Fig. 8 is a longitudinal section of the plane, the dotted lines showing the waste-guard turned up.

On the top of a bed-frame or box *A*, which may have any desired shape or outline, I form a slide bed race or track *a* for a small plane, consisting of a longitudinal gap or slot in the top, preferably parallel to and at one side of said bed, if rectangular. The edges of said race are grooved to form a guide *a'* for the plane.

B, Figs. 1, 2, 6, and 8, is a plane adapted to run in the race *a*, having its sides prepared to run in the guides *a'*. It is provided with a cutting-bit *B'*, adjustably secured to the beveled body by a set-screw *B''*, and also with

a hinged cover or waste-guard *B'''* for the cutter to prevent the flying of waste and shavings and to force them to drop in the interior of the box or bed. Near one end of the track and across it is journaled a crank-shaft *C*, Figs. 1 and 2, having crank *c*, which is connected by a pitman *B⁴* to the plane *B*, said shaft having mounted upon it at one end a fly-wheel *C'*, with handle *c'*, and at the other a face-cam *C''*.

D, Figs. 3, 4, and 5, is a chuck consisting of a tube or barrel of such internal diameter as to be capable of holding the thickest pencil or other object *P* for which the machine is to be used. A number of wide slits *d* are made in it extending from one end to within a short distance of the other, and the external diameter of the tube at the slit end is made larger to the extent of the width of the slits, tapering down to the normal diameter at the solid end, so that when the split end is compressed in such manner that all the slits are closed at the free end the tube forms a cylinder—i. e., its external diameter is uniform. The solid end *d'* of said tube is journaled in the beveled end *a''* below the level of the top, said end forming a recess in the bed or box opposite the crank-shaft *C* at such an angle with the horizontal and with the plane-track that the center line intersects the plane-bit when near the end of its track near its farthest side, as indicated by the pencil-point in Figs. 1, 2, and 3. Said tube is journaled yieldingly to permit of its angle being varied by raising or depressing the other or free end. Upon the end *d'* of the tube projecting from the journal a ratchet-wheel *D'* is mounted, so as to be capable of turning it, and between the journal end and the ratchet is journaled upon said tube-neck a rocker *D''*, carrying a pawl *d''*, gearing in said ratchet, an upward-projecting finger being pressed into contact with the cam *C''* on the crank-shaft by a spring *D'''*, Figs. 3 and 4, operating against a downward-projecting finger, Fig. 4. The ratchet-wheel is inclosed by a trumpet-mouthed cover *D⁴*, secured to the end *a''*, it being provided with slots *d⁴* at the top and bottom for the fingers of the rocker *D''*. A circularly-grooved collar *E*, Figs. 3 and 5, is adapted to slide upon the chuck-tube snugly, compressing it when near the free end. Said collar may be moved

forward and backward on the tube by means of a lever E', pivoted upon a cross-bar or fulcrum e' below, and projecting through a slot a''' in the top of the bed, screws or pins e engaging the groove of the collar.

F is a grooved pulley journaled upon an axle F', disposed at a right angle to the vertical plane which passes through the center line of the chuck D and at such a height that the free end of the pencil or other object P inserted in the chuck will rest in the groove of said pulley and find a rigid support on said pulley while the plane is operating upon it. The bar F' has one end secured in the side of the box or bed, and the other is provided with a threaded eye f', through which passes a screw F'', having its lower end journaled in a ledge or bracket f''' and its upper end in the top of the bed, the end projecting above it being provided with a milled head f''.

Between the end of the chuck and the pulley is placed a spring G, Figs. 3 and 7, secured to the box or bed and so disposed that it will stand at a right angle to the pencil or other object and press upon the same downwardly. The bed or box A may be secured upon a base A', if desired, as shown in Figs. 2 and 3, a' being rubber feet.

The machine operates as follows: The chuck D is opened by drawing the lever E' back from the position shown in Figs. 1, 2, and 3, thus moving the collar E toward the box end or journal and allowing the lips of the chuck to expand and open out. The pencil or other object P to be operated upon is then inserted through the mouth of the cover D' into the chuck D, pushed along under the spring G, and into the groove upon the pulley F until its end is even with one of the marks m, which are made upon the top of the bed for convenience of adjustment. The pencil is now clamped into the chuck by pushing the lever E' forward, thus moving the collar E nearer the split end and compressing it. The milled head f'' is now turned to the right or left, according to whether it is desired to raise or depress the end of the object and to have the point shorter or longer. The crank-shaft C is now rotated by means of the handle c' on the fly-wheel C', and the plane B is thereby given a reciprocating movement, at each forward stroke of which it takes a cut off the elevated end of the object P. During the return stroke the cam C'' pushes the upper projecting end of the rocker D'' outward, thus turning the chuck D and object P to the extent of one tooth of the ratchet-wheel D', the pawl d'' slipping over one tooth of the ratchet-wheel back as soon as the pressure of the cam on the upper end of the rocker ceases, and the spring D''' pushes the lower end of the rocker in the other direction and the upper end against the cam, thus presenting a new operating-surface to the plane-bit at each stroke until the chuck has made a complete revolution. The box form of frame or bed answers the purpose of a receptacle for shav-

ings and waste, the waste-guard B''' preventing the latter from flying. The plane, being oblique to the object upon which it operates, prevents the former being blunted too rapidly in one place, as thus the whole width of the bit is brought into operation; but it is essential in making a fine point on a pencil, which breaks in the operation of cutting if plane and pencil are parallel.

I claim as my invention—

1. The combination of a bed-frame or box, a plane guided in a track on the top of said bed, a crank-shaft journaled on the top of said bed near the end at the heel of said plane and provided with means of turning it and connected to the plane by a pitman, a rotary chuck having one end journaled yieldingly in the bed end opposite said crank-shaft, so that its free end and center line slopes upward and laterally and the latter intersects the plane-track at an acute angle near its far end and side at the level of the cutting-edge of the plane-bit, said free end being elastic and tapering, a sliding locking-collar on said free elastic end, mechanism for sliding said collar, mechanism for rotating said chuck, an adjustable support for the end of the object projecting from the chuck, and a spring pressing it downward, substantially as set forth.

2. In a pencil-sharpener or pointing-plane, the combination of a bed A, having a race or track a, with guides a', adapted to guide a plane, a plane-body B, adapted to run in said guides, a cutting-bit B', held on said body adjustably by a screw B'', and waste-guard B''', hinged to said body, substantially as set forth.

3. In a pencil-sharpener or pointing-plane, the combination of a bed A, having an open race or track a, a plane B, guided in said race and provided with adjustable bit B' and hinged waste-guard B''', a crank-shaft C, journaled across said track near one end thereof, a pitman B⁴, connecting said plane with the crank, a fly-wheel C' on said shaft, and handle c' on said fly-wheel, substantially as set forth.

4. The combination of a bed or box A, having at one end a beveled recess with end a'', with an elastic tubular chuck D, journaled yieldingly in said end and diagonally in said bed, so that its center line forms an acute angle with the top surface of the bed, its free end slit open and tapering in diameter, the sliding collar E on the tapering split portion having a circular groove, and the lever E', pivoted below said collar and projecting through a slot in the top and engaging the groove of the collar, substantially as set forth.

5. The combination of a bed or box A, having in its top a race or track a, and a chuck D, having one end journaled below the level of said track at one end of said bed and having its other end projecting into said bed or box at a line rising and deviating laterally, so as to intersect said track at the opposite end at an acute angle, substantially as set forth.

6. The combination of a bed or box A, a race or track a in the top of the same, a re-

cess with beveled end a'' normal to a line intersecting the opposite end and side of said track at an acute angle in an upward and lateral direction, and a tubular and flexible chuck D, journaled yieldingly in said end and taking said line as a center, substantially as set forth.

7. The combination of a bed or box A, having in its top a race or track a , a tubular flexible chuck D, journaled below said top at one end of said bed and projecting into said bed, so that its center line intersects the race a at an acute angle, a sliding collar E on said chuck, the lever E', pivoted upon the axle e' and connected to the collar by screws e , a grooved pulley F, normal to the line of said chuck and near the end of the line, the bar F', upon which said pulley is journaled, having a threaded eye f' , a screw F'', journaled in the bed-top and passing through the eye f' and provided with a milled head f'' , and the spring G between the end of the chuck D and the pulley F, substantially as set forth.

8. The combination of a bed or box A, having in its top a race or track a , a tubular flexible chuck D, journaled in the recessed and beveled end a'' of said bed and below the top, so that its center line intersects said track at an acute angle, a ratchet-wheel D', mounted near the end of said chuck, a rocker D'', journaled upon said chuck between its bearing and the ratchet-wheel and having arms projecting above and below, the pawl d'' , piv-

oted on said rocker and gearing in the ratchet-wheel, the spring D''', pressing against the lower arm of said rocker, the face-cam C'' at the end of a crank-shaft, against which the end of the upper arm of the rocker is pressed by said spring, the crank-shaft C, journaled across the track a , opposite said rocker and having said cam mounted upon its end, and the trumpet-mouthed cover D⁴, inclosing said ratchet-wheel, substantially as set forth.

9. The combination of the box A, having an open track a in its top and having one corner recessed by a beveled end a'' , said box forming a receptacle for waste, a plane B, provided with adjustable bit and having a hinged waste-guard B''' running on said track, a crank-shaft C, journaled across the track, a fly-wheel C' on said shaft provided with handle c' , a pitman B⁴, connecting the crank and plane, a cam C'' on the end of said shaft, a chuck D, journaled in the end a'' below the top of the bed and having mounted upon it a ratchet-wheel and journaled upon it a rocker operated by said cam and a spring and carrying a pawl gearing in said ratchet-wheel, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses:

JOHN SIEGEL.

Witnesses:

ANGUS MCCALLUM,
J. V. SHOEMAKER.