No. 667,173. Patented Jan. 29, 1901.

J. WHOWELL.

PENCIL SHARPENING MACHINE.

(Application filed June 28, 1899.)

(No Model.)

Fig. 1.

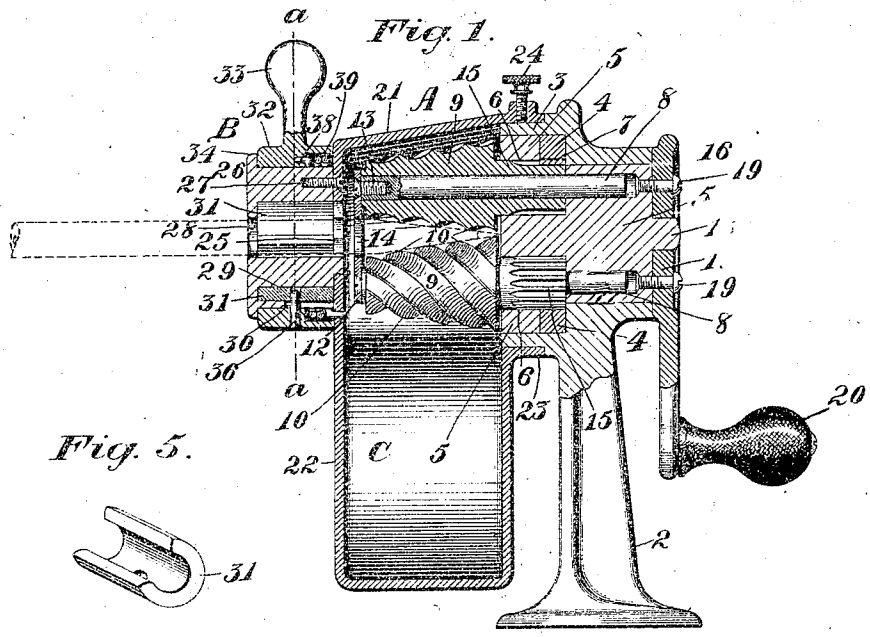


Fig. 3.

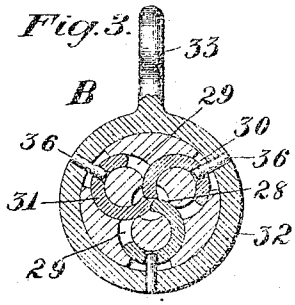


Fig. 2.

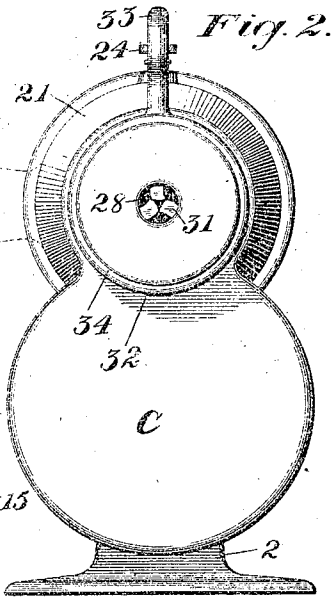


Fig. 4.

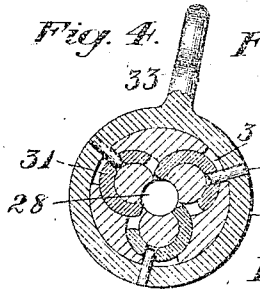


Fig. 6.

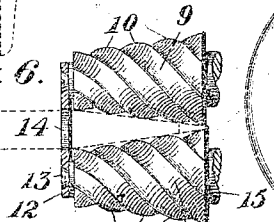
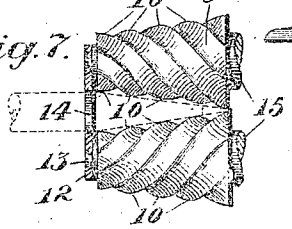


Fig. 7.



Witnesses:
A B Smattingly
Fred. J. Dole.

Inventor:
John Whowell.
By his Attorney,
F. A. Richards.

UNITED STATES PATENT OFFICE.

JOHN WHOWELL, OF NEWARK, NEW JERSEY, ASSIGNOR TO ROBERT L. THOMAE, OF FANWOOD, NEW JERSEY.

PENCIL-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,173, dated January 29, 1901.

Application filed June 28, 1899 Serial No. 722,128. (No model.)

To all whom it may concern:

Be it known that I, JOHN WHOWELL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Pencil-Sharpening Machines, of which the following is a specification.

This invention relates to pencil-sharpening machines, a primary object of the invention being the provision of an improved pencil-sharpening mechanism.

A further object of the invention is the provision of a pencil-sharpening mechanism in which the cutting devices work on opposite sides of a pencil simultaneously and are supported on axes longitudinally disposed with relation to such pencil.

A further object of the invention is to provide improved pencil-cutting mechanism including one or more devices having spirally-located cutting edges.

A further object of the invention is to provide an improved pencil-holding device adapted to effectually hold a pencil in position to be operated upon by the sharpening mechanism.

A further object of the invention is to provide an improved pencil-sharpening machine involving improved sharpening mechanism and improved pencil-holding mechanism combined with a means for receiving the dust and chips of the pencil and which mechanism is simple in its construction and effective in operation.

In the drawings accompanying and forming part of this specification, Figure 1 is a vertical sectional view of this improved device, parts thereof being in elevation. Fig. 2 is an end view of the same, looking toward the right, the dotted lines representing the support or bracket adjusted into a horizontal position to support the device. Figs. 3 and 4 are sectional views taken in line *a a*, Fig. 1, of the pencil-holding chuck respectively in closed and open position. Fig. 5 is a perspective view of one of the chuck-jaws. Fig. 6 is a view of the cutting-rolls shown in Fig. 1; and Fig. 7 is a view of a pair of cutting-rolls, the cutting edges of one being made right-handed and the cutting edges of the other made left-handed.

Similar characters of reference designate like parts in all the figures of the drawings.

This pencil-sharpening mechanism in the form shown and which may be its preferred form, if desired, comprises in a general way pencil-sharpening mechanism (designated in a general way by A) including a plurality of cutting devices having spirally-located sharpening or cutting edges and means for operating the same, pencil-holding means (designated in a general way by B) comprising a chuck, and a chip-receiving receptacle (designated in a general way by C) adapted to completely inclose the sharpening mechanism and receive the dust and chips of the pencil.

This improved pencil-sharpening mechanism comprises a supporting bracket or standard 2, adapted to be rigidly secured by suitable fastening devices to any desired means of support. This bracket carries at its upper end a bearing 3 of different diameters, that part thereof having the largest diameter carrying an internal gear 4, rigidly secured thereto. Rotatably carried within this bearing is a head 5, likewise of different diameters and having a pair of circular gear-receiving recesses 6, extending from the face of said head rearwardly, and which recesses communicate, by means of transversely-extending recesses 7, with the outer surface of said head at a point in the rear of that part of said head having the largest diameter and adjacent to the internal gear 4. Rigidly secured in said head and projecting through said circular gear-openings 6 is a pair of spindles 8. Mounted on these spindles are the sharpeners or cutters 9, shown herein as conical in shape and having spirally-located cutting or sharpening edges 10, shown in the present instance so formed that the rolls may be operated in either direction, whereby the device is made capable of effective use without requiring the operator to operate the machine in any particular direction.

The sharpening-rolls are maintained against lateral movement or separation at their outer ends on the insertion of the pencil by a suitable device, such as a disk 12, rigidly secured to each of the spindles by a screw 13 engaging internal threads formed in the ends of said spindle, said disk being provided with a centrally-located opening 14 for the insertion of the pencil. Each of the cutting-rolls is provided with a geared shank

15, extending into the recess 6 of the head, the teeth thereof meshing with the internal gear.

For rotating the head and the rolls the apparatus is provided with an actuator 16, comprising a crank disk or plate 17, carried by a stud 18, formed on the rear end of the head, said plate being rigidly secured to said head by suitable fastening devices, such as screws 19, and having a handle 20. By this construction it will be seen that on the rotation of the handle the head and the cutting devices are rotated therewith in one direction, while at the same time such cutting devices are revolved independently around the pencil by means of the internal gear.

From the foregoing it will be seen that the shaving or sharpening rolls are mounted on axes longitudinally disposed with relation to the axes of the head, each roll being conical in shape from the head outwardly, whereby they form a triangular bearing for the tapering end of the pencil, each roll having spirally-formed cutting edges. To insure the sharpening of the lead at the point, one roll is shown preferably extending beyond the other, and both rolls are shown of a length to insure a proper cutting or shaving of the wood to form a point and also to sharpen such point, this cutting or shaving of the wood being readily accomplished, owing to the spirally-formed cutting edges above set forth.

One of the serious disadvantages experienced with pencil-sharpening mechanisms now on the market is that the user is not protected from the dust and chips which fly in all directions. In the present construction the sharpening mechanism is completely inclosed and the user is not annoyed with the pencil dust and chips.

Carried on the bracket-bearing 3 is an improved dust and chip receiving receptacle C, comprising a casing 21, completely inclosing the sharpening mechanism and having depending therefrom a closed receptacle 22 for receiving the dust and chips of the pencil. This receptacle is provided with a circular flange 23, encircling a part of the bearing 3 and maintained in position by some suitable means—as, for instance, by a set-screw 24. The casing of this receptacle is provided with an opening 25 for insertion of the pencil.

For the purpose of maintaining the pencil in position for the effective action of the sharpening devices an improved pencil-holding mechanism B is provided, comprising in the present instance a chuck 26, secured to the casing by some suitable fastening means—as, for instance, screws 27. This chuck comprises a head 27', having a centrally-located bore 28 for the insertion of the pencil and a plurality (shown herein as three) of circular grooves or channels 29 intersecting said bore 28 and communicating with slots 30 in communication with the outer surface of said head. Disposed in the circular channels of this head are a corresponding number of chuck-jaws 31, shown as substantially ring-shaped or pen-annular. For operating these chuck-jaws the chuck is provided with an actuator 32, comprising a ring-shaped member having a handle 33 and maintained in position by an outwardly-extending flange 34, carried at the outer end of the chuck-head. Each of the jaws is provided with a projection or pin 36, extending through the slots 30 and rigidly secured to said ring-shaped member, whereby on the movement of said member by means of its handle the jaws will be rotated in their channels away from the pencil-receiving opening, thereby to permit the insertion of any suitable size of pencil.

To permit the pencil to be maintained firmly in position by the chuck-jaws, the chuck is shown provided with a coiled spring 38, one end of which is secured to the ring-shaped member, while the opposite end thereof is secured to the chip-receiving casing, the coils of said spring being disposed in a chamber 39 of the ring-shaped member and effective to maintain the jaws in their pencil-engaging position. (See Fig. 3.) By this construction it will be seen that any suitable size of pencil may be received by the apparatus and effectively acted upon by the sharpening-rolls.

By the adjustment of the set-screw 24 the supporting-bracket 2 can be adjusted laterally of the receptacle, as indicated in dotted lines in Fig. 2, thereby to support the device from an upright support.

In the form of sharpening-rolls shown in Fig. 7 the cutting edges of one roll are formed right-handed, while those of the other roll are formed left-handed, so that one of the rolls will cut in a direction crosswise to the direction of cut of the other roll. For some purposes this organization is particularly effective.

Having described my invention, I claim—

1. In a pencil-sharpener, the combination of a rotary device provided with spirally-disposed cutting edges, and means for imparting motion thereto.

2. In a pencil-sharpener, the combination of means for sharpening a pencil comprising a device provided with a continuous edge spirally located thereon from one end toward the other; and means for imparting planetary motion to said device.

3. In a pencil-sharpener, the combination of a pair of devices having spirally-located cutting edges the cutting edge of one device formed as right-handed and the cutting edge of the other device formed as left-handed, and means for imparting movement to said devices.

4. In a pencil-sharpener, the combination of two rotary cutting or sharpening devices the axes thereof extending in parallelism and adapted to work on opposite sides of a pencil, and means for imparting motion to said devices.

5. In a pencil-sharpener, the combination of means for sharpening a pencil comprising

a plurality of devices each provided with a continuous cutting edge spirally located thereon, and means for imparting motion to said devices.

6. In a pencil-sharpener, the combination of a pair of conically-shaped rotary devices each having spirally-formed cutting edges, and means for imparting a planetary motion thereto.

7. In a pencil-sharpener, the combination of a pair of conically-shaped rotary cutters or sharpeners having spirally-formed cutting edges; means for imparting a planetary motion to said cutters; and a chuck for holding a pencil.

8. In a pencil-sharpener, the combination, with a pair of conically-shaped rotary cutters or sharpeners having spirally-formed cutting edges, of means for imparting a planetary motion to said cutters, and a chuck for holding a pencil and comprising a plurality of jaws movable in a circular path.

9. In a pencil-sharpening device, pencil-holding means comprising a chuck-head having a plurality of circular grooves communicating with a plurality of slots; a plurality of jaws movable in said grooves; a ring-shaped member encircling said head and having means in engagement with said jaws for actuating the same; and a spring for maintaining said jaws in operative position.

10. In a pencil-sharpener, a pencil-holding device comprising a chuck-head having a bore and provided with a plurality of circular grooves communicating with slots; a plurality of jaws movable in said grooves; an actuator for operating said jaws; and a spring for maintaining said jaws in operative engagement with a pencil.

11. In a pencil-sharpener, a pencil-holder comprising a chuck-head having a bore and provided with a plurality of ring-shaped or pen-annular grooves; a plurality of ring-shaped or pen-annular jaws movable in said grooves; and means for actuating said jaws to have the same grasp the pencil.

12. A pencil-sharpener, having means for holding a pencil and comprising a chuck-head having a pencil-receiving opening; a plurality of circular grooves communicating therewith and also communicating with a plurality of slots; a plurality of circular jaws movable in said grooves; a ring-shaped member encircling said head and carrying means for operating said jaws; and a spring for maintaining said jaws in operative relation with a pencil.

13. A pencil-sharpener, having means for holding said pencil and comprising a plurality of ring-shaped or pen-annular jaws movable in a circular path.

14. A pencil-sharpener, having means for holding said pencil and comprising a plurality of spring-controlled ring-shaped or pen-annular jaws movable in a circular path.

15. A pencil-sharpener comprising a plurality of spirally-located cutting edges adapted to work on opposite sides of a pencil, and means for operating said cutting edges.

16. In a pencil-sharpener, the combination of a pair of cutting-rolls having spirally-formed cutting edges; means for imparting planetary motion thereto; a chip-receiving receptacle; and a pencil-holding device.

17. In a pencil-sharpening machine, the combination of a supporting-bracket having a bearing carrying an internal gear; a rotary head supported in said bearing and carrying a pair of spindles; means for rotating said head; a pair of conically-shaped rolls having spirally-located cutting edges carried on said spindles and provided with gears meshing with said internal gear; a chip-receiving receptacle including a casing mounted on said bearing and inclosing said rolls; and a pencil-holding device comprising a chuck-head carried by said casing.

18. In a pencil-sharpener, the combination of a supporting-standard having a bearing projecting laterally thereof; means carried by said standard for sharpening a pencil; means for imparting motion to said sharpening means; and a chip-receiving receptacle including a casing removably supported on said bearing and completely inclosing said sharpening means.

19. In a pencil-sharpener, the combination of a support constituting a part of said sharpener and having an annular bearing; means supported interiorly of said bearing for sharpening a pencil; means for imparting motion to said sharpening means; and a chip-receiving receptacle including a casing removably supported on said annular bearing and completely inclosing said sharpening means, said support and casing having an adjustment relatively to each other.

20. In a pencil-sharpener, the combination of a support constituting a part of such sharpener; means carried thereby for sharpening a pencil; means for imparting motion to said sharpening means; a chip-receiving receptacle including a casing removably supported on said support and completely inclosing said sharpening means, said support and casing having an adjustment relatively to each other; and means carried on the outer side of said casing for holding a pencil and removable with said casing.

21. In a pencil-sharpener, the combination of a plurality of rotary sharpening devices having their axes in parallelism and adapted to work on opposite sides of a pencil, one of said devices projecting beyond the other, and each having a spirally-located cutting edge and means for imparting motion to said devices.

JOHN WHOWELL.

Witnesses:
C. A. WEED,
JOHN O. SEIFERT.