

Nov. 28, 1939.

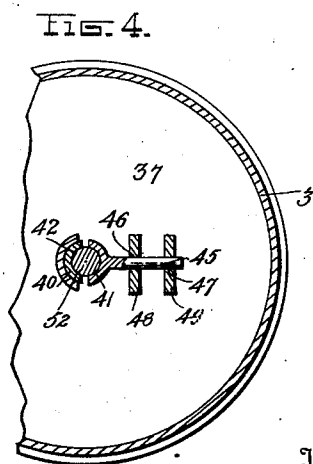
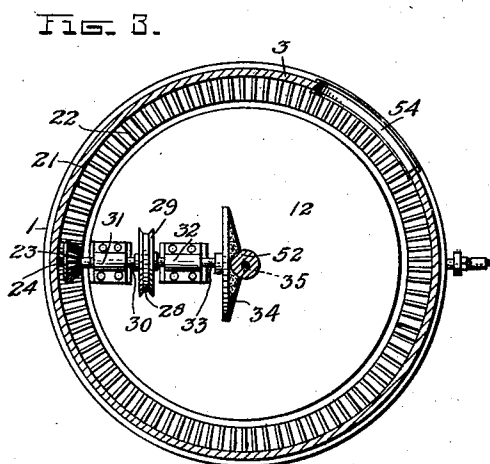
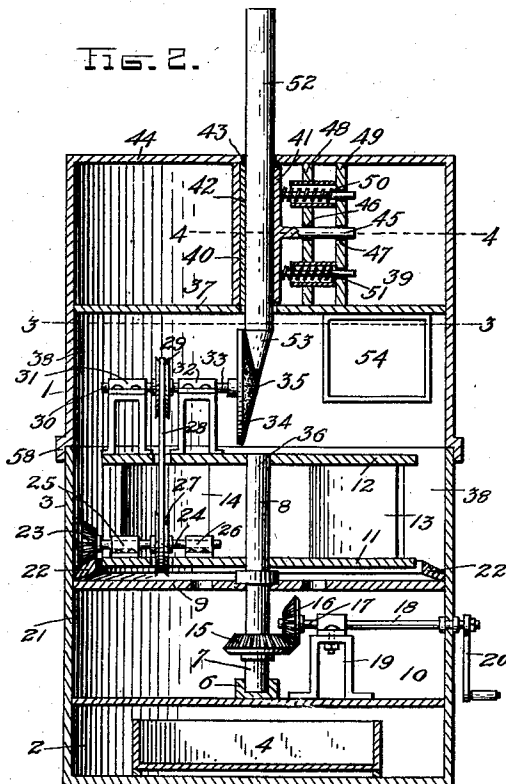
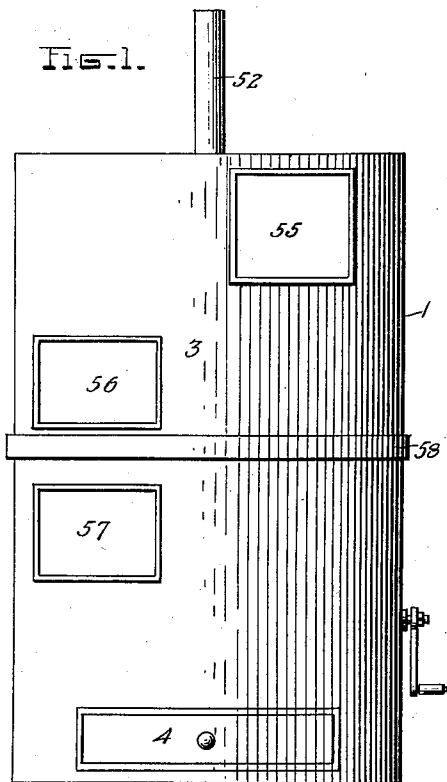
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2,181,285

PENCIL SHARPENER

Filed July 2, 1938

2 Sheets-Sheet 1



Inventor

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FIG. 6.

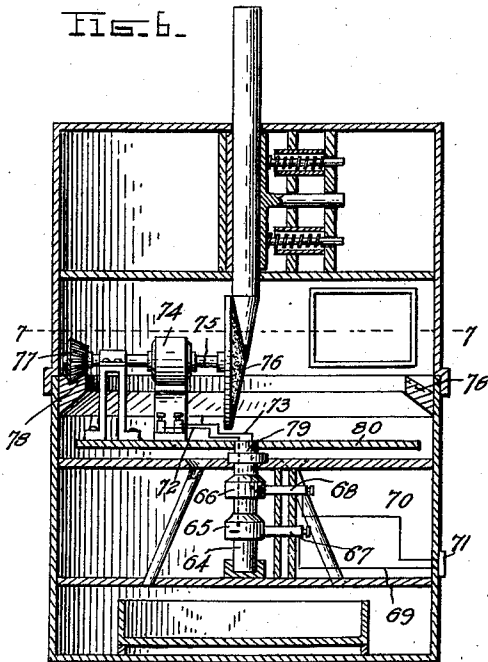


FIG. 7.

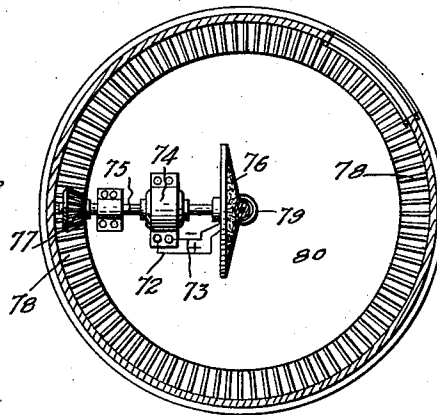


FIG. 8.

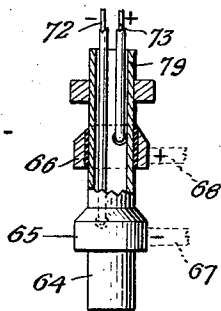
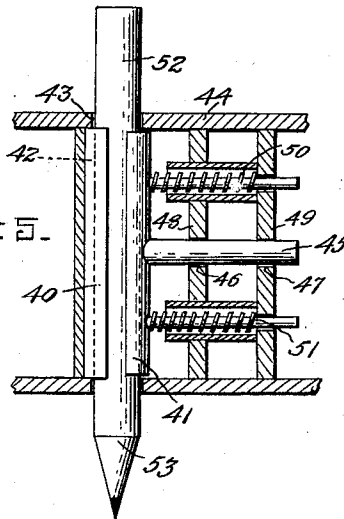


FIG. 9.



Inventor

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UNITED STATES PATENT OFFICE

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PENCIL SHARPENER

John George Schuler, Dutton, Mont.

Application July 2, 1938, Serial No. 217,140

21 Claims. (Cl. 120—96)

This invention relates to pencil sharpeners and has for its object to provide a device which will sharpen a pencil to an exact fineness of point desired and without danger of breaking the lead.

Another object of the invention is to provide a pencil sharpener which will very rapidly sharpen a pencil with little or no manual effort.

Another object of the invention is to provide in a pencil sharpener an abrasive material with which the pencil is sharpened.

A further object of the invention is to provide, in a pencil sharpener, means whereby the pencil point may be seen in order that the exact desired point may be had.

A further object of the invention is to provide in a pencil sharpener a cone-shaped grinding stone for sharpening the pencil.

A still further object of the invention is to provide, in a pencil sharpener a sharpening element which revolves around a pencil end held in fixed position.

Another object of the invention is to provide in a pencil sharpener, means for holding a pencil in fixed vertical position while being sharpened.

A further object of the invention is to provide, in a pencil sharpener means for gradually moving one end of a pencil toward the sharpening element.

Another object of the invention is to provide in a pencil sharpener a turn-table carrying a sharpening element.

A further object of the invention is to provide in a pencil sharpener a driving element, a turntable for carrying a sharpener element, a pencil holding element, a plurality of compartments for the several elements, a housing for said compartments and means whereby all of said elements and compartments may be plainly visible from outside said housing.

A still further object of the invention is to provide an electrically operated pencil sharpener.

An important object of this invention is that a plurality of windows are provided in the sharpener housing in order that school children may clearly see the operation of all of the elements and thus impress upon their minds certain movements and operations embraced in the invention.

With the above and such other objects in view as may hereinafter more fully appear I have invented the device shown in the accompanying drawings in which:

Figure 1 is an elevational view of my pencil sharpener;

Figure 2 is a vertical sectional view thereof; Figure 3 is a section on line 3—3 of Figure 1; Figure 4 is a section on line 4—4 of Figure 2; Figure 5 is an enlarged detail view of a pencil holding device;

Figure 6 is a view, similar to Figure 2, showing a modification;

Figure 7 is a section on line 7—7 thereof; and Figure 8 is a detail view, partly in section, of a conductor staff.

Like reference characters indicate like parts throughout the following specification and in the several views in the drawings in which 1 indicates a pencil sharpener embodying one form of my invention. The device includes a base 2 upon which is mounted a housing 3, and within which is a drawer 4 for collecting parings from pencils sharpened by the device. Mounted on the exact center of the top wall 5 of base 2 is a bearing 6 within which the lower end 7 of a vertical shaft 8 is rotatably mounted. This shaft projects rotatably through the top wall 9 of the compartment 10 for driving mechanism of the sharpener, and fixedly through a turntable 11 and fixed to the top platform 12 carried by and spaced apart from the turntable by spaced apart side walls 13 and 14. The said driving mechanism consists of a bevel gear 15 keyed to said shaft 8, which is in mesh with a bevel gear 16 mounted on the inner end 17 of a drive shaft 18 supported by a housing 19 adjacent its inner end and the housing 3 at its outer end which latter end terminates in a crank handle 20 the turning of which drives said gears and through them the shaft 8, and the turntable 11 fixed thereto.

Supported on the inner surface 21 of the housing 3 is a ring gear 22 between said inner surface and the turntable, which is of sufficiently smaller diameter than the wall 9, or diameter of the housing, to permit room for said gear. Meshed with the ring gear is a gear 23, mounted upon a shaft 24 supported upon bearings 25 and 26 mounted upon said turntable 11. Keyed to shaft 24, is a V-rimmed wheel 27 driving a belt 28 which runs through the platform 12 and threaded over V-pulley 29 mounted upon a shaft 30 supported by bearings 31 and 32 and having fixed to its inner end 33 a conically shaped abrasive wheel 34 the apex 35 of which is exactly on a vertical line with the upper end 36 of shaft 8. The rotation of the turntable revolves said apex around said vertical or axial line. Spaced above the grinder 34 is a horizontal wall 37 separating the turntable compartment 38 from the upper compartment 39 of the device. In the latter

compartment is fixedly mounted a vertical semi-cylindrical jaw member 40, alining with a similarly shaped movable jaw member 41, the passage 42 between said jaws alining with an opening 43 in the center of the top wall 44 of said housing 5
3. The movable jaw 41 is fixedly carried on a pin or bar 45 movably supported in two alining horizontally disposed apertures 46 and 47 in spaced uprights 48 and 49. Springs 50 and 51
10 also supported in said uprights bear against the jaw 41, and normally urge it toward the member 40 in order that when a pencil 52 is pressed down through the passage 42 until its lower end 53 is in proper position against the abrasive member 34.
15 The proper position of the pencil end may be clearly seen through window 54 of compartment 38. When crank 20 is turned, causing turntable 11 to rotate the gear 23 operating upon the fixed ring gear 22 drives the shaft 24 and with it the pulley wheel 27, belt 28, wheel 29, shaft 30 and abrasive element 34 which grinds off the pencil, both wood and lead to a proper or desired taper, said element 34 revolving around the pencil and through the action of said turntable. Windows
20 55, 56 and 57 are provided in the housing wall, in various positions, and compartments of the device in order that all of its operating mechanism may be clearly seen from the outside and without removing the housing, which housing
25 may be formed in sections as at 58, if desired, in order to facilitate assembly of the device.

In Figure 6 I show a modification of the invention whereby it may be electrically operated. In this form of the device the shaft 64 has copper
35 contact collars 65 and 66 engaged by brushes 67 and 68 from which wires 69 and 70 lead to the switch 71. The collars 65 and 66 are connected through wires 72 and 73 to the electric motor 74 which drives shaft 75 on the inner end of which is abrasive grinding wheel 76 and on the
40 other end of which is a gear 77 operating upon the ring gear 78. The upper end 79 of shaft 64 is fixed to the turntable 80 so that the rotation of the turntable through gears 77 and 78 rotates shaft 64. The shaft 75 is either the shaft of the
45 motor 74 or an extension thereof.

Having now described my invention that which I claim to be new, and desire to procure by Letters Patent is:

- 50 1. In a pencil sharpener an abrasive element revoluble around a pencil end and a turntable carrying said element and a motor on said turntable for driving said element.
- 55 2. In a pencil sharpener an abrasive element revoluble around a pencil end and a turntable carrying said element and a motor on said turntable for driving said element, and means for revolving said table.
- 60 3. In a pencil sharpener an abrasive element revoluble around a pencil end, a turntable carrying said element, means for revolving said table and a vertical shaft upon which said table is mounted.
- 65 4. In a pencil sharpener an abrasive element revoluble around a pencil end, a turntable carrying said element, means for revolving said table and a vertical shaft upon which said table is mounted, said element being rotatable.
- 70 5. In a pencil sharpener an abrasive element revoluble around a pencil end, a turntable carrying said element, means for revolving said table and a vertical shaft upon which said table is mounted, said element being rotatable, and means for rotating said element.
- 75 6. In a pencil sharpening device an abrasive

element revoluble around a pencil end, a turntable carrying said element, means for revolving said table, a vertical shaft upon which said table is mounted, said element being rotatable, and means for rotating said element, said rotating means
5 being driven through said revolving means.

7. The device, as claimed in claim 6, said rotating means being carried partly by said turntable.

8. The device, as claimed in claim 6, said rotating means being carried partly by said turntable, 10 and a housing for said device partly carrying said last means.

9. The device, as claimed in claim 6, said rotating means being carried partly by said turntable, a housing for said device partly carrying said last 15 means, and means for centering a pencil end over said shaft.

10. In a pencil sharpening device an abrasive element revoluble around a pencil end, a turntable carrying said element, means for revolving said table, a vertical shaft upon which said table is mounted, said element being rotatable, means for rotating said element, said rotating means being driven through said revolving means, said rotating means being carried partly by said turntable, a housing for said device partly carrying said last means, and means for substantially centering a pencil end over said shaft, said last means consisting of a pair of jaws. 25

11. The device, as claimed in claim 10, one of said jaws being spring actuated. 30

12. The device, as claimed in claim 10, one of said jaws being spring actuated, said drive means being electrically operated.

13. In a pencil sharpener a cone-shaped abrasive wheel, means for revolving said wheel around a pencil, and means for rotating said wheel, said first means including a turntable. 35

14. In a pencil sharpener a cone-shaped abrasive wheel, means for revolving said wheel around a pencil end, means for rotating said wheel, said first means including a turntable, and a fixed ring gear. 40

15. In a pencil sharpener a cone-shaped abrasive wheel, means for revolving said wheel around a pencil end, means for rotating said wheel, said first means including a turntable, a fixed ring gear, and a traveling gear meshed with the first gear. 45

16. In a pencil sharpener a cone-shaped abrasive wheel, means for revolving said wheel around a pencil end, means for rotating said wheel, said first means including a turntable, a fixed ring gear, a traveling gear meshed with the first gear, and an electric motor for driving said traveling gear. 55

17. In a pencil sharpener, a conical abrasive wheel revoluble around a pencil end, a turntable carrying said wheel, and means whereby the rotation of said turntable will cause the operation of said wheel. 60

18. In a pencil sharpener, a conical abrasive wheel revoluble around a pencil end, a turntable carrying said wheel, and means whereby the rotation of said turntable will cause the operation of said wheel, said means including a housing, a ring gear carried on the housing, a shaft and a bevel gear on the turntable and meshed with the first gear. 65

19. In a pencil sharpener a cone-shaped abrasive wheel, means for revolving said wheel around a pencil end, means for rotating said wheel, said first means including a turntable, a fixed ring gear, a traveling gear meshed with the first gear, and means for driving said traveling gear. 75

20. In a device as described a pencil holder, a turntable, and a housing therefor, a ring gear fixed on the housing, an abrasive mounted upon a shaft and a bevel gear on the shaft for operation by the ring gear said shaft being carried by the turntable.

turntable, and a housing therefor, a ring gear fixed on the housing, an abrasive mounted upon a shaft and a bevel gear on the shaft for operation by the ring gear said shaft being carried by the turntable, and means whereby the turn table may be revolved.

21. In a device as described a pencil holder, a

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