J. M. BUTCHER.

PENCIL SHARPENER.

APPLICATION FILED AUG. 6, 1910.

1,010,853.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

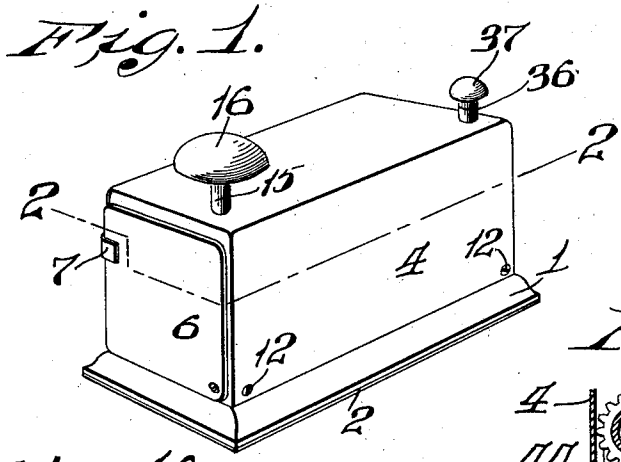


Fig. 9.

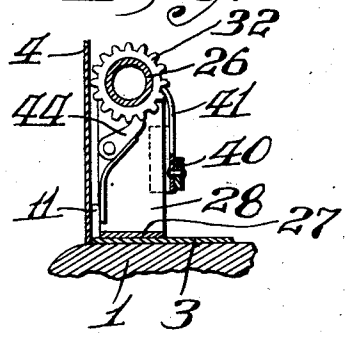


Fig. 10.

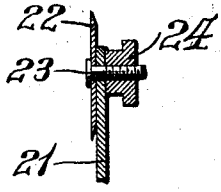
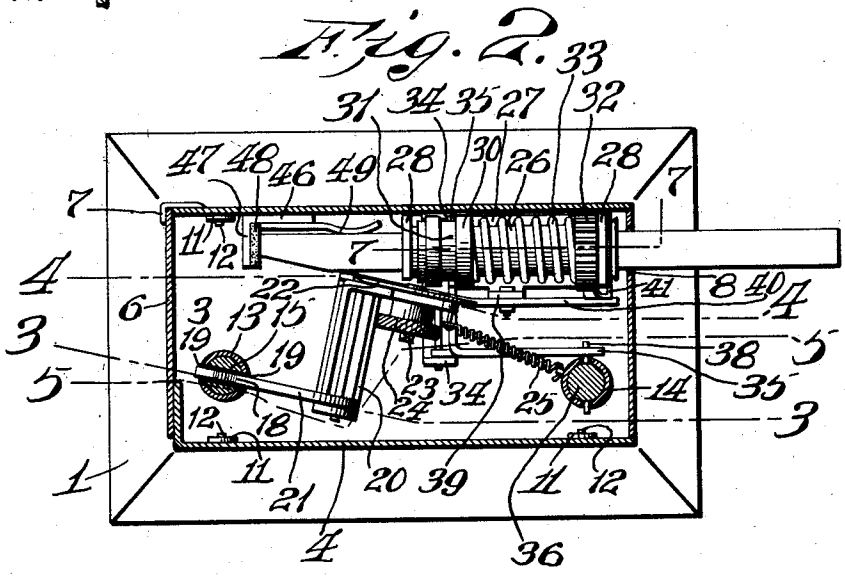


Fig. 2.



Attest:
A. G. Fletcher.
E. L. Wallace.

Inventor:
James M Butcher.
By Higdon Longan
Attys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. M. BUTCHER.

PENCIL SHARPENER.

APPLICATION FILED AUG. 6, 1910.

1,010,853.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 2.

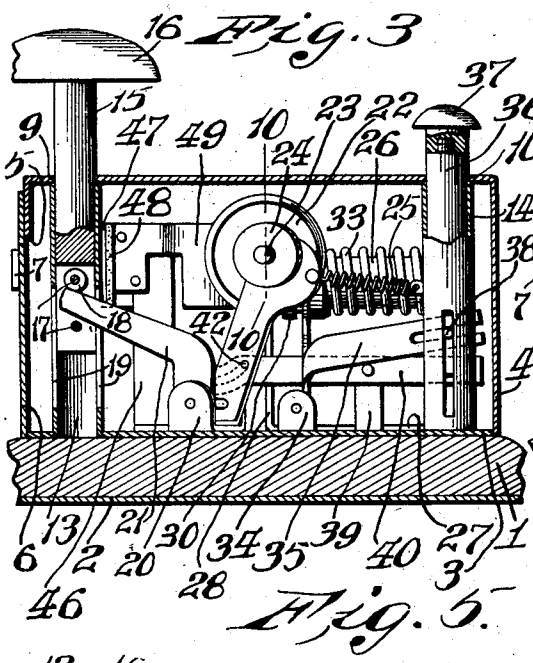


Fig. 3

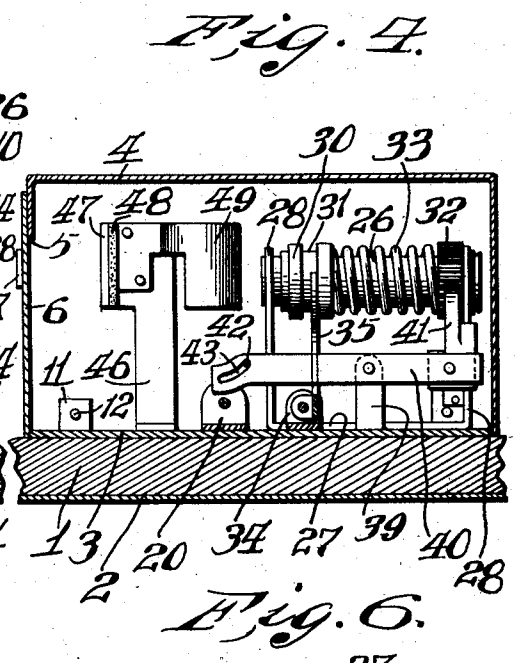


Fig. 4.

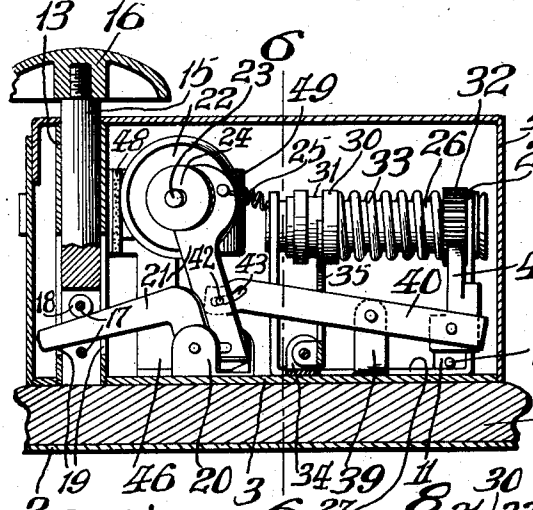


Fig. 5.

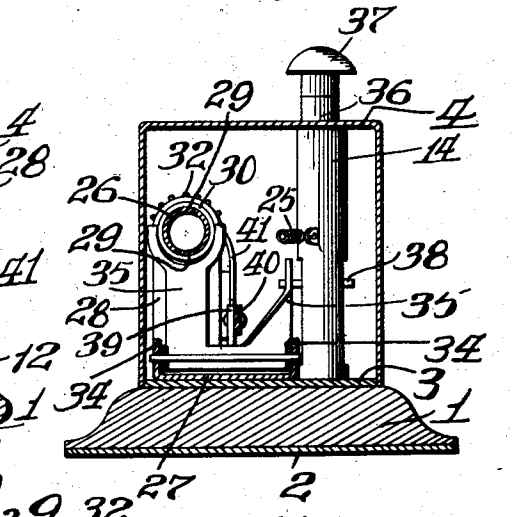
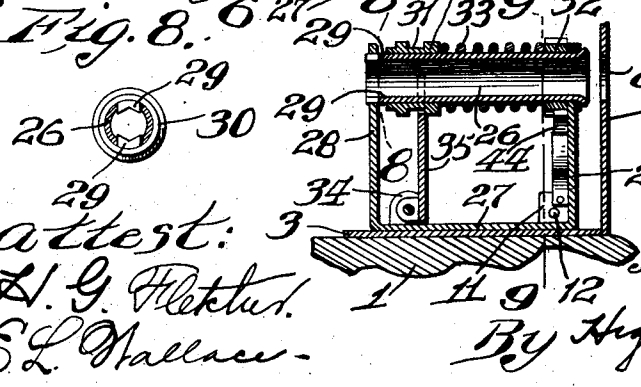


Fig. 6.

Fig. 8.

Fig. 7.



Attest:
L. G. Fletcher.
E. L. Wallace.

Inventor:
James M. Butcher.
By Higdon Longan Attys.

UNITED STATES PATENT OFFICE.

JAMES M. BUTCHER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF THREE-FOURTHS TO EUGENE J. FEINER, OF ST. LOUIS, MISSOURI.

PENCIL-SHARPENER.

1,010,853. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed August 6, 1910. Serial No. 575,879.

To all whom it may concern:

Be it known that I, JAMES M. BUTCHER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in pencil sharpeners, the object of my invention being to construct a neat and compact instrument, designed for use on a desk or table without securing it in place, in which there is a means for automatically holding and revolving a pencil to be sharpened and a reciprocating knife, which knife and pencil holding and revolving means are operated by a vertically movable plunger.

For the above purposes my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawing, in which—

Figure 1 is a perspective of the complete instrument; Fig. 2 is a horizontal plan taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical, sectional elevation taken on the line 3—3 of Fig. 2; Fig. 4 is a vertical, sectional elevation taken on the line 4—4 of Fig. 2; Fig. 5 is a vertical, sectional elevation taken on the line 5—5 of Fig. 2, showing the knife and its operating parts in position after a cut has been made; Fig. 6 is a transverse, sectional elevation taken on the line 6—6 of Fig. 5; Fig. 7 is a longitudinal, sectional elevation through the pencil holding device, taken on the line 7—7 of Fig. 2; Fig. 8 is a detail, transverse, sectional elevation on the line 8—8 of Fig. 7; Fig. 9 is a transverse, sectional elevation taken on the line 9—9 of Fig. 7; and Fig. 10 is a transverse, detail, sectional elevation taken on the line 10—10 of Fig. 3.

Referring by numerals to the accompanying drawings: 1 designates the base of the device the lower face of which is preferably covered with a piece of fibrous material 2 such as felt, or the like. Mounted upon the base 1 is a rectangular, metallic plate 3.

4 designates a substantially rectangular-shaped casing which is open-bottomed and rests upon the base 1 surrounding the plate 3. In the forward end wall there is a rectangular opening 5 which is arranged to be normally closed by a rectangular plate 6 pivotally secured adjacent one of its corners to the forward end wall of the casing.

Carried by the casing at a point diagonally of the pivotal point of the door is a rest or keeper 7. Through the opposite end wall of the casing is formed a circular opening 8 and in the top wall there is formed openings 9 and 10.

Formed integral with the plate 3 projecting vertically from the side margins thereof adjacent its ends are the perforated ears 11 and formed in the casing, alining with the perforations in the said ears, are perforations through which the screws 12 are inserted for the securing of the casing to the base, the perforations in the ears being threaded preferably to receive the threaded ends of the screws.

Secured to the plate 3, vertically alining with the apertures 9 and 10 in the top wall of the casing, are the tubular posts 13 and 14. Mounted for vertical movement within the tubular post 13 is a plunger 15, the upper end of which is reduced and threaded, to the reduced and threaded end is secured a knob 16. The lowermost end of the plunger 15 is bifurcated and arranged transversely of the bifurcation are the pins 17, the uppermost one of which carries a roller 18. At the lower end of the tubular post 13, alining with the bifurcation in the plunger 15, there are slots 19.

20 designates a bearing-plate having integral, upturned, perforated ears, which plate is arranged a slight distance to the right of the post 13 and disposed diagonally to a transverse line drawn through the device.

Pivotally mounted between the ears of the plate 20 is a bell-crank lever 21, one arm of which extends from adjacent one end of the bearing-plate 20 through the slots 19 in the post 13 and terminates between the pins 17; the other arm of the bell-crank lever extends from the opposite end of the bearing-plate 20 upwardly to a point within the instrument and is disposed at an angle, when in a normal non-cutting position, to the vertical. Carried by this last mentioned arm of the bell-crank lever is a circular, flat cutting-disk 22, the margin of which is beveled and sharpened to a cutting edge which, as illus-

trated in Fig. 10, is supported by a bolt 23 with its head on the outside face of the disk and the bolt inserted through an opening formed in said arm. Impinging the opposite face of the arm is a knurled nut 24 which is threaded to the bolt. By this means the disk may be readily loosened as required to rotate the knife to present different portions of its sharpened edge at the cutting point. To normally hold the knife, the bell-crank lever and the plunger 15 to their normal non-cutting positions there is a contractile coil spring 25, one of its ends being connected to the arm of the bell-crank lever supporting the cutting disk and its opposite end being connected to the post 14.

Disposed longitudinally of the instrument alining with the aperture 8 in the end wall is the pencil-holding sleeve 26 supported in a frame comprising a base 27 secured to the plate 3 and the up-turned perforated standards 28. The innermost end of the sleeve 26 carries the integral clutch members 29 which are formed by longitudinally slotting the sleeve and which clutch members have their free ends upset and pointed to engage the pencil, the points being directed toward each other and projecting into the sleeve. These clutch members are sprung outwardly so that the points thereof will normally lie in planes outside of the inner face of the sleeve. Embracing the sleeve is a collar 30 provided with an annular depression 31, which collar is arranged to depress the clutch members 29 and thus grasp the pencil to cause it to rotate with the sleeve. Carried by the sleeve and secured for rotation therewith is a gear wheel 32 which is preferably mounted adjacent the right hand standard 28. Embracing the sleeve and impinging between the gear wheel 32 and the collar 30 is an extensile coil spring 33 for moving the collar 30 to occupy its normal position over the clutch members.

Formed integral with the base 27 are the perforated ears 34 in which is a bell-crank lever 35, one arm of which is bifurcated to embrace the collar 30 and the other end of which is bifurcated and is disposed approximately horizontal and terminates adjacent the post 14. Within the post 14 there is a plunger 36 reduced at its upper end and threaded to receive the knob 37, the side walls of the post being slotted to permit the travel therethrough of the pin 38 carried by the plunger and extended through the bifurcated end of the bell-crank lever 35.

Formed integral with the base 27 is a perforated, up-standing ear 39 to which is pivotally secured a rocking-lever 40, the outer end of which carries a spring detent 41 which is arranged for engagement with the gear wheel 32 and the opposite end of the rocking-lever 40 terminates adjacent the bell-crank lever 21 or, more particularly speaking, the arm of the bell-crank carrying the cutting disk, which last mentioned arm carries a projection 42 which traverses an inclined slot 43 in the rocking lever 40. Thus, it is obvious that, when the cutting knife is operated, the pin or projection 42 traversing the slot 43 rocks the lever 40 and carries the spring detent 41 to engage at another point on the gear wheel 32. Carried by the right hand standard 28 is a second spring-actuated detent 44 engaging with the teeth of the wheel 32 and to prevent a rotary movement of the sleeve 26 greater than the travel of the detent 41.

46 designates an upright, secured to the base, carrying a right angled projection 47 the face of which is provided with a piece of fibrous material 48 which fibrous material serves as a stop for the insertion of the pencil and also serves to permit the knife to cut to the extreme end of the pencil without injury to the knife. Carried by this upright is a leaf spring 49 which normally tends to spring toward the pencil. This spring serves the purpose of adapting the instrument, more especially the pencil-holding device, to different sized pencils. It is to be understood that the sleeve is constructed to receive pencils of ordinary sizes and it is well known that the diametrical dimensions of pencils differ. Now, for example, if a pencil to be cut snugly fits the sleeve then there is no function for the spring 49 to perform but, if the pencil is of less size than the diameter of the sleeve then by reason of the spring 49 engaging with the pencil the knife can be operated and the pencil held against the knife.

In the practical operation of the instrument the operator places his hand upon the knob 37 and depresses same, thereby depressing the plunger 36, which movement rocks the bell-crank lever 35 thereby moving the collar 30 away from the clutch members and permits them to spring outwardly. The operator then inserts a pencil to be sharpened, the insertion being limited by the stop 47, the face of which is covered with a fibrous pad 48. After the pencil has been inserted fully the pressure is released from the knob 37 and the spring 33 acts on the clutch members 29 thereby securely holding the pencil in the sleeve. The operator then places his hand upon the knob 16 and depresses same, which movement depresses the plunger 15 carrying with it the bell-crank lever 21, which draws the knife over the pencil in a direction with the grain of the wood and in a direction not alining with the pencil. After the cut has been made, through the medium of the rocking lever 40 and the detent carried thereby, the gear wheel 32 and the entire sleeve and pencil are rotated, a distance determined by the spacing apart of the teeth of the said gear

wheel, thus bringing a new face of the pencil to be cut. The movements of the knob 16 necessary to complete the sharpening of a single pencil are at a number equal to the teeth in the gear wheel 30 as, for example, if there are sixteen teeth on the gear wheel then sixteen movements of the knob 16 are necessary.

I claim:

1. In a pencil sharpener, the combination with a rotatable pencil-holding means, of a pencil-sharpening means comprising a bell crank lever, a disk carried by one arm of the lever, a spring connected with said arm for actuating the lever in one direction, a plunger, a guide for said plunger, and means carried by the plunger for engagement with and operation of an arm of the bell crank lever.

2. In a pencil sharpener, the combination with a pencil-sharpening disk, a rocking lever supporting the disk and a vertical plunger for the operation of the rocking lever and disk, of a pencil-holding means comprising a sleeve rotatably mounted, integral yielding points struck from the body of the sleeve to clasp the body of the pencil, a sleeve longitudinally movable over the pencil-holding sleeve, a spring for moving the second mentioned sleeve in one direction, a lever connected with said movable sleeve, a vertical plunger connected with said lever for the operation of the sleeve, and means connected with said rocking lever of the pencil sharpener whereby the pencil-holding sleeve is partially rotated at each operation of the cutting means.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

JAMES M. BUTCHER.

Witnesses:

E. L. WALLACE,

N. G. BUTLER.