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H. KEECH ET AL

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PENCIL SHARPENER

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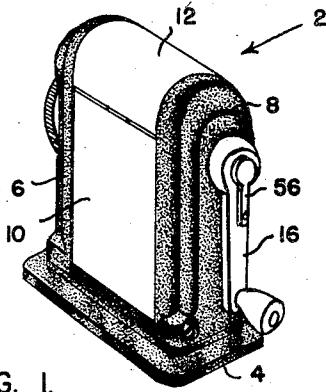


FIG. 1.

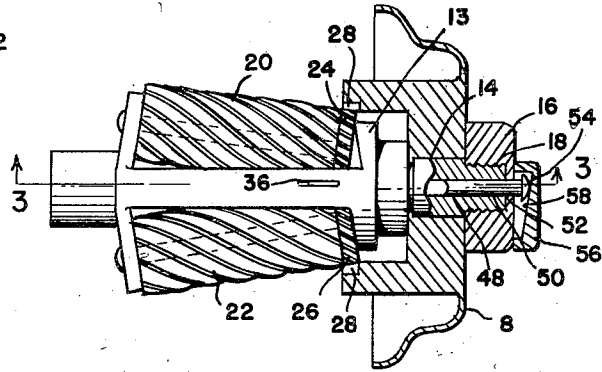


FIG. 2.

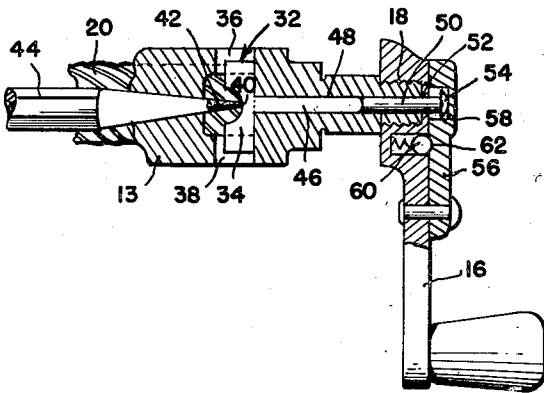


FIG. 3.

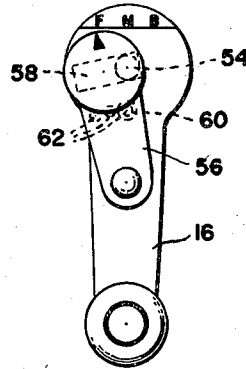


FIG. 4.

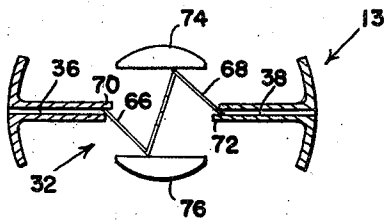


FIG. 5.

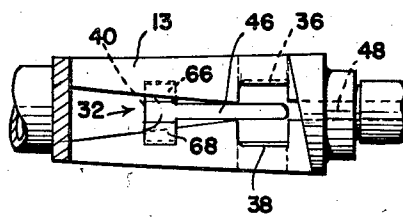


FIG. 6.

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PENCIL SHARPENER

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4 Claims. (Cl. 120—96)

This invention relates to an improvement in a pencil sharpener and, more particularly, relates to the provision of a pencil sharpener having a novel stop.

An object of this invention is to provide a pencil sharpener having a stop which is both simple and efficient in its operation.

A further object of this invention is to provide a pencil sharpener having a stop which is at once low in cost and readily installed.

It is a still further object of this invention to provide a pencil sharpener having a stop which can be easily adjusted from the exterior of the pencil sharpener without the necessity of gaining access to the interior of the pencil sharpener. These and other objects of this invention will become apparent on reading the description in conjunction with the following drawing in which:

Figure 1 is a rear perspective view of a pencil sharpener in accordance with this invention.

Figure 2 is a plan view partially broken away showing a portion of the stop mechanism of the sharpener of Figure 1.

Figure 3 is a vertical section, partially broken away, taken in the plane indicated by the line 3—3 in Figure 2.

Figure 4 is a rear view of the crank handle shown on the pencil sharpener of Figure 1.

Figure 5 is a partially schematic view showing the slide of the stop of Figure 5 just before it is forced into its final position.

Figure 6 is a side elevation of the cutter carrier showing the stop member just after it has been first inserted in the cutter carrier.

As shown in Figure 1, a pencil sharpener 2, in accordance with this invention, has a base 4 on which are mounted a front frame member 6 and a rear frame member 8. A casing 10 having an opening top 12 is mounted between frame members 6 and 8.

As shown in Figure 2, a cutter carrier 13 is journaled in rear frame member 8 at 14 and is retained in place by crank handle 16 which is threadably secured to cutter carrier 13 at 18. Crank handle 16 also serves to rotate cutter carrier 13.

A pair of rotary cutters 20 and 22 are rotatably mounted on cutter carrier 13 and are provided with gears 24 and 26 respectively which are adapted to engage a ring gear 28 fixed in rear frame member 8. Thus, as crank handle 16 rotates cutter carrier 13, cutters 20 and 22 are rotated about their own axes.

As will be readily understood, the pencil sharpener, as thus far described above, is well known to the art and therefore need not be described in greater detail.

Referring now to Figure 3, a stop member 32 has a slide 34 which is mounted in slots 36 and 38 formed in cutter carrier 13. Stop member 32 has a curved stop face 40 which is adapted to be engaged by a lead point 42 of a pencil 44 engaged by cutters 20 and 22.

Stop member 32 is preferably formed of metal, such as for example, stainless steel, cold rolled steel or brass and has a stem portion 46 which is integral with slide 34.

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Stem portion 46 is engaged in a bore 48 in cutter carrier 13. Stem portion 46 in turn is adapted to engage a pin 50 which passes through an opening 52 in crank handle 16 and projects into bore 48. Pin 50 has a head 54 which is larger than opening 52.

A pivoted control lever 56 has a cam surface 58 which is engaged by head 54 of pin 52. A spring biased detent 60 in crank handle 16 is adapted to engage position recesses 62 in control lever 56.

As shown in Figure 2, cam surface 58 has a constant slope in a direction away from the cutter carrier, the face of the cam surface being closest to the cutter carrier at its left-hand portion as viewed in Figure 4 and farthest away from the cutter carrier at its right-hand portion as viewed in Figure 4. Consequently, when control lever 56 is in the far left-hand position, as shown in Figure 4, stem 50 can be forced the maximum distance rearwardly. By the same token, when control lever 56 is in its far right-hand position, stem 50 can be forced the minimum distance rearwardly. In an intermediate position, the stem 50 can be forced back an intermediate distance rearwardly.

Reference is now made to Figures 5 and 6 with respect to further details of structure of slots 36 and 38 and the manner of inserting stop member 32 into slots 36 and 38. Stop member 32 is preformed to have offset wing portions 66 and 68 giving the slide 34 a substantially Z-shaped cross-section. This permits guide member 32 to be inserted into the open center of the cutter carrier with wing 66 in the down and wing 68 in the up positions as shown in Figure 5. The stop member 32 is then advanced to the right with stem portion 46 being introduced into bore 48. After stem 46 is introduced into bore 48, stop member 32 is rotated to bring wing 66 into contact with overhanging extension member 70 which extends beyond slot 36 and at the same time to bring wing 68 into contact with underhanging extension member 72 which extends beyond slot 38. Opposed press platens 74 and 76 are then advanced towards each other until wings 66 and 68 have been forced into slots 36 and 38 and the flat slide 34 has been formed.

In operation, crank handle 16 is rotated while a pencil 44 is advanced between the cutters 20 and 22. The point 42 thus formed is advanced into engagement with stop portion 40 of stop member 32 pushing the stop member 32 as far rearwardly as is permitted by the abutment of pin 50 against cam surface 58. As control lever 56 is advanced to the left as viewed in Figure 4, pin 50 can be pushed further rearwardly, thus causing the stop member 32 to be arrested in positions progressively farther to the rear and hence resulting in the production of finer points 42.

It is not desired to be limited except as set forth in the following claims.

What is claimed is:

1. A pencil sharpener comprising support means, a cutter carrier journaled in said support means, cutters rotatably mounted in said carrier, a crank handle secured to said carrier, a stop member comprising a slide lying between said cutters and having the entire length of its sides respectively mounted in opposed slots in said carrier, and a stem integral with said slide engaged in an axial bore in said carrier, the ends of said slots limiting the travel of the stop member, a pin engaged in said axial bore and in a bore in said handle and adapted to engage said stem, said pin having an enlarged head which is adapted to engage the exterior of said handle, a control member secured to said handle and having a cam face opposite the bore in the handle to variously limit the movement of said pin and in turn the movement of said stop member towards the handle.

2. A pencil sharpener comprising support means, a

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cutter carrier journaled in said support means, cutters rotatably mounted in said carrier, a crank handle secured to said carrier, a stop member comprising a slide lying between said cutters and having the entire length of its sides respectively mounted in opposed slots in said carrier, and a stem integral with said slide engaged in an axial bore in said carrier, the ends of said slots limiting the travel of the stop member, a pin engaged in said axial bore and in a bore in said handle and adapted to engage said stem, said pin having an enlarged head which is adapted to engage the exterior of said handle, a control member pivotally secured to said handle and having a cam face opposite the bore in the handle to variously limit the movement of said pin and in turn the movement of said stop member towards the handle.

3. A pencil sharpener comprising support means, a cutter carrier journaled in said support means, cutters rotatably mounted in said carrier, a crank handle secured to said carrier, a stop member comprising a slide lying between said cutters and having the entire length of its sides respectively mounted in opposed slots in said carrier, and a stem integral with said slide engaged in an axial bore in said carrier, said carrier extending beyond said slots respectively and towards its center line to form extension members, one of said extension members being adjacent the upper portion of one slot and the other of said extension members being adjacent the lower portion of the other slot whereby offset edges of said slide, on engaging said extension members, can be forced into said slots, the ends of said slots limiting the travel of the stop member, a pin engaged in said axial bore and in a bore in said handle and adapted to engage said stem, said pin having an enlarged head which is adapted to engage the exterior of said handle, a control member secured to said handle and having a cam face opposite the bore in the handle to variously limit the movement of said pin and in

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turn the movement of said stop member towards the handle.

4. A pencil sharpener comprising support means, a cutter carrier journaled in said support means, cutters rotatably mounted in said carrier, a crank handle secured to said carrier, a stop member comprising a slide lying between said cutters and having the entire length of its sides respectively mounted in opposed slots in said carrier, and a stem integral with said slide engaged in an axial bore in said carrier, said carrier extending beyond said slots respectively and towards its center line to form extension members, one of said extension members being adjacent the upper portion of one slot and the other of said extension members being adjacent the lower portion of the other slot whereby offset edges of said slide, on engaging said extension members, can be forced into said slots, the ends of said slots limiting the travel of the stop member, a pin engaged in said axial bore and in a bore in said handle and adapted to engage said stem, said pin having an enlarged head which is adapted to engage the exterior of said handle, a control member pivotally secured to said handle and having a cam face opposite the bore in the handle to variously limit the movement of said pin and in turn the movement of said stop member towards the handle.

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