Feb. 15, 1949. K. K. LEONG 2,461,690

KNIFE SHARPENER

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Fig. 1.

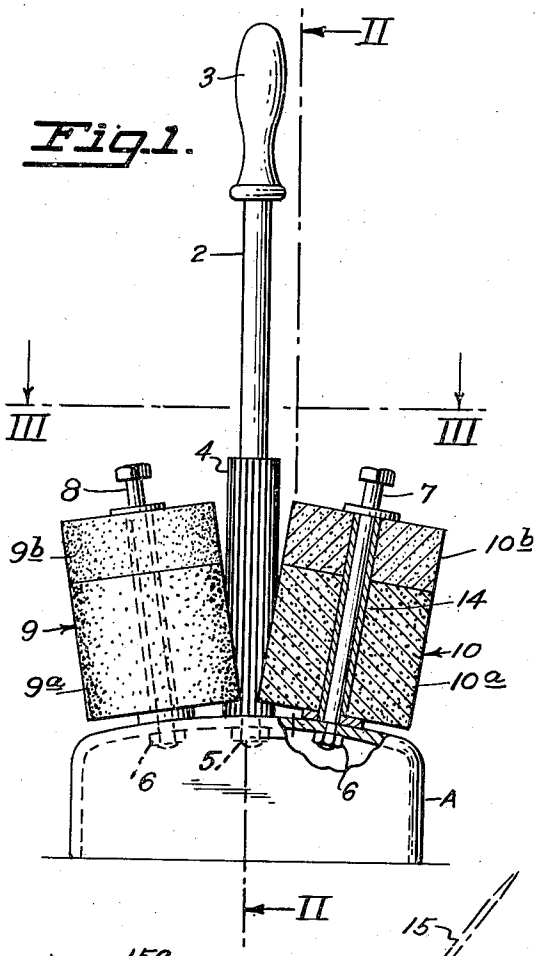


Fig. 2.

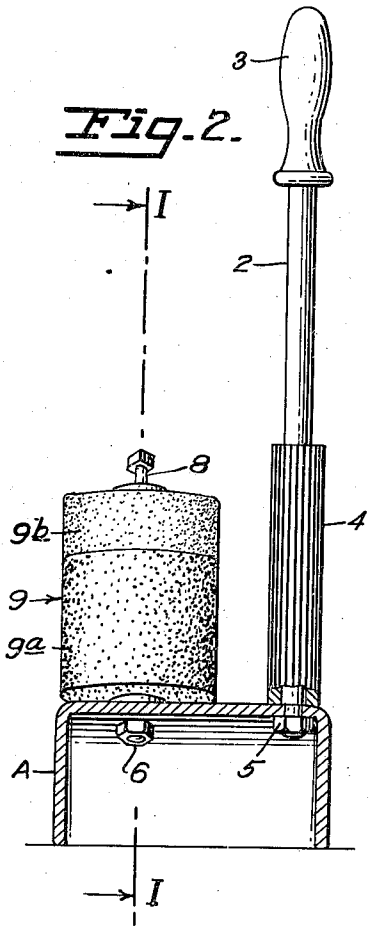
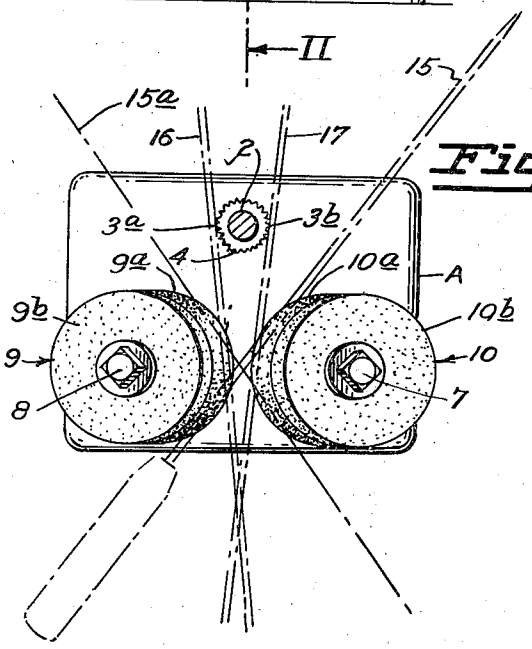


Fig. 3.



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KNIFE SHARPENER

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6 Claims. (Cl. 51—214)

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This invention relates to a knife sharpener whereby knives of varying size and shape may be quickly sharpened and honed.

The object of the present invention is generally to improve and simplify the construction and operation of knife sharpeners; to provide a sharpener by which the cutting edge of a knife is sharpened by drawing it lengthwise between a pair of abrasive stones; to provide a sharpener which employs abrasive stones in the form of wheels disposed on acute angles opposed to each other; to provide abrasive wheels which are rotated by drawing a knife blade between them and which move vertically a limited distance while being rotated; and further, to provide a sharpener by which blades of varying size and shape may not only be rapidly sharpened, but also honed.

The knife sharpener is shown by way of illustration in the accompanying drawings, in which:

Fig. 1 is a front view partially in section, said section being taken on line I—I of Fig. 2;

Fig. 2 is a sectional side elevation taken on line II—II of Fig. 1; and

Fig. 3 is a plan view taken on section line III—III of Fig. 1.

Referring to the drawings in detail, and especially Fig. 1, A indicates a base member which is provided with a rod 2 and a handle 3 whereby the base is held when sharpening a knife. Formed integral with the rod or pressed on the rod in the form of a sleeve is a sharpening steel or hone 4, and in order that the hone may be slightly rotated from time to time as it wears, the rod and hone are secured to the base by a threaded extension and a nut 5. Also secured to the base by nuts 6 is a pair of rods or bearing pins 7 and 8 and freely rotatable on the respective pins are sharpening stones in the form of wheels 9 and 10 which are made of a suitable abrasive material. The lower portion of each wheel is composed of a comparatively coarse abrasive 9a and 10a, while the upper portion of each wheel is composed of a finer grain abrasive as indicated at 9b and 10b. It will further be noted that each abrasive wheel is provided with a bearing sleeve 14 to reduce wear on the pins about which they rotate. The coarse and fine grain sections of each wheel are cemented to each other and to their sleeves so that they will rotate in unison, and it should be further noted that the bearing pins project above each wheel so that vertical movement of each wheel on its bearing pin is permitted.

In actual operation a knife to be sharpened is

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placed between the abrasive wheels in the position indicated by dotted lines at 15 and pushed back and forth between the wheels a few times, care being taken that the edge of the blade to be sharpened contacts both wheels. During this back and forth movement of the knife blade, both wheels will rotate first in one direction and then in the other, and as they are disposed on an acute angle with relation to a vertical plane, and on angles opposed to each other, one wheel will travel upwardly on its bearing pin while the other wheel moves downwardly, but the moment the knife is pushed or pulled in the opposite direction, the wheel that moved upwardly will move downwardly, and the other wheel will move upwardly.

This vertical movement of the wheels with relation to the cutting edge of the knife blade plus slippage between the knife blade and the wheels causes the abrasive in the wheels to sharpen the cutting edge of the knife blade, and when the blade is sharpened to a desired degree, it is finished by pulling it across one side of the hone 4 and the wheel 9 as indicated by the dotted lines 16 and then across the other side of the hone and the wheel 10 as indicated by the dotted lines 17.

When a right handed person is using the sharpener, the handle 3 is grasped with the left hand and the knife by the right hand. The knife will assume the dotted line position shown at 15 when being sharpened between the wheels. If a person is left-handed, the hands are reversed and the knife to be sharpened will assume the dotted line position 15a between the wheels.

Whether a person is right or left handed the knife edge is first held in a position to engage or contact the surfaces of the wheels which contain the coarser abrasive, then by gradually moving the blade upwardly as it is being pulled back and forth, the surfaces containing the finer abrasive are engaged to finish the sharpening of the cutting edge before honing the same. By employing this method of sharpening the surfaces of the wheels 9 and 10 tend to remain straight as the wear is substantially uniform. That is, there is less tendency to form grooves. Grooving of the wheels is further prevented due to the vertical movement of the wheels while rotating.

The steel or hone 4 will obviously tend to wear on the sides indicated at 3a and 3b (see Fig. 3), but as wear takes place, the hone may be slightly rotated to present new surfaces by merely loosen-

ing the nut 5 and then tightening it after the hone has been re-set.

The sharpener as a whole is simple in construction and operation. Knife blades of varying size and shape are quickly sharpened and honed, and if the abrasive wheels or the hone become excessively worn, it is obvious that they may be readily replaced, and while this and other features of the invention have been more or less specifically described and illustrated, it should be understood that changes may be resorted to within the scope of the appended claims and that the materials and finish of the several parts employed may be such as the experience or judgment of the manufacturer may dictate or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A knife sharpening device comprising a base member, a pair of spaced apart abrasive wheels disposed on the base, and means mounting said wheels for rotation and vertical movement with respect to said base in response to longitudinal movement of a knife held in contact with the wheels.

2. A knife sharpening device comprising a base member, a pair of spaced apart abrasive wheels disposed on the base, means mounting said wheels for rotation and vertical movement relative to said base member in response to longitudinal movement of a knife held in contact with the wheels, and a handle on the base to hold the same while drawing a knife against the abrasive wheels.

3. A knife sharpener comprising a base member, a pair of spaced apart abrasive wheels journaled on the base, said wheels being disposed on an acute angle with relation to a vertical plane and on angles opposed to each other, and means mounting said wheels for rotation and reciprocation in a vertical direction during such rotation when a knife blade is drawn longitudinally against the wheels in contact therewith.

4. A knife sharpener comprising a base member, a pair of spaced apart abrasive wheels journaled on the base, said wheels being disposed on an acute angle with relation to a vertical plane and on angles opposed to each other, means mounting said wheels for rotation and reciprocation in a vertical direction during such rotation when a knife blade is drawn longitudinally against the wheels in contact therewith, and a handle on the base to hold the same while drawing a knife against the abrasive wheels.

5. A knife sharpening device comprising a base, a pair of similar abrasive wheels rotatably mounted thereon with their axes of rotation vertically disposed on opposite sides of a plane of symmetry, said wheels being spaced a short distance apart, and a hone mounted on said base and aligned with said plane of symmetry.

6. A knife sharpening device comprising a base, a pair of similar abrasive wheels rotatably mounted thereon with their axes of rotation disposed at acute angles to and on opposite sides of a vertical plane of symmetry, said wheels being spaced a short distance apart, and a hone mounted on said base and aligned with said plane of symmetry.

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