June 29, 1948. L. PAVESI ET AL 2,444,110

KNIFE SHARPENER

Filed Dec. 8, 1947

Fig 1

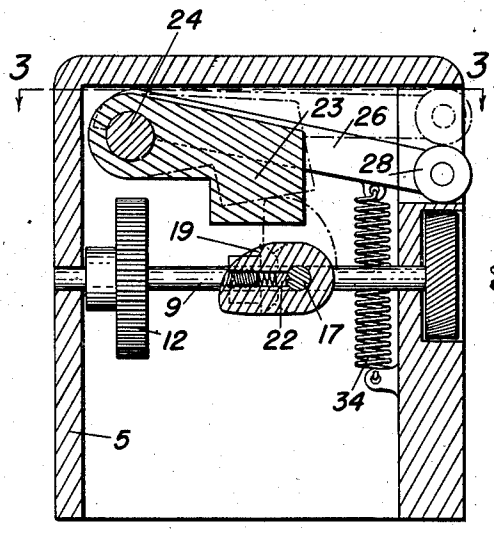
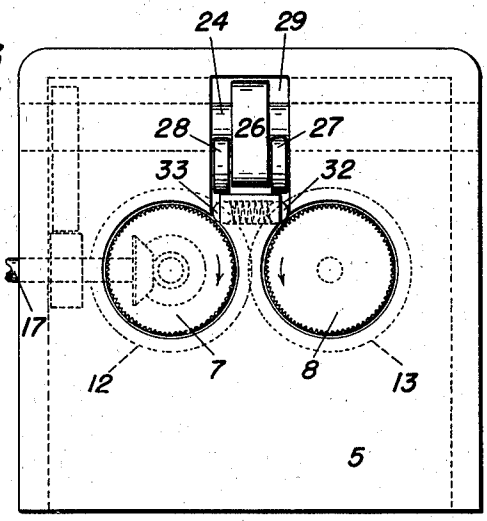


Fig 2



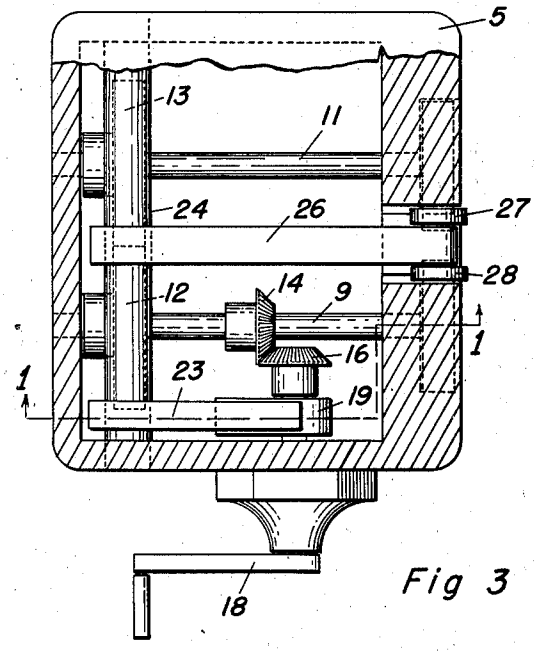


Fig 3

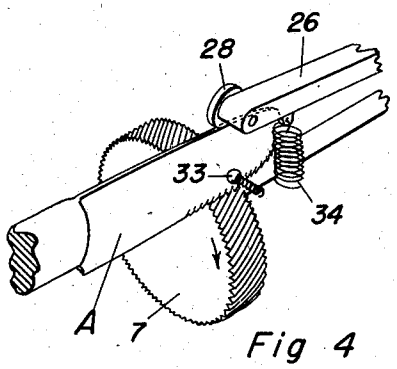


Fig 4

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KNIFE SHARPENER

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4 Claims. (Cl. 76—88)

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This invention relates to improvements in knife sharpeners.

The principal object of this invention is to provide means for cutting teeth in the edges of table knives, whereby a saw-edge effect results.

A further object is to produce a device which is automatic in operation, thereby cutting uniform teeth in either side of the knife, and in the same position at each operation of the device.

A further object is to produce a device which will cut teeth on either side of the knife at will.

A still further object is to produce a device which is economical to manufacture, easy to use, and readily transportable.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a vertical, cross-sectional view taken on the line 1—1 of Fig. 2, and showing portions in elevation,

Fig. 2 is a front elevation of the knife sharpener, looking from the right of Fig. 1,

Fig. 3 is a top-plan view of Fig. 1, and having a portion of the housing broken away, and

Fig. 4 is a fragmentary, prospective view showing the manner in which the knife contacts one of the cutting wheels.

The ordinary table knife, often referred to as "silver knives" is rather blunt; or, in other words, the cutting edge of the knife does not have a very sharp edge and, therefore, it is often very difficult to cut meat and like food with such a knife.

Also, due to the poor quality of the steel used in such knives, even were they sharpened, they would not hold their edge for any length of time.

It has, therefore, been found that, by serrating the cutting edge so as to form saw-like teeth, a better cutting action can be secured and that the teeth last a considerable length of time without re-cutting.

Applicants have devised a knife sharpener which comprises a pair of rotary-cutting wheels, against which either side of the cutting edge of the knife may be brought to bear so that, by rotating the cutting wheels, teeth will be formed adjacent the cutting edge of the knife, and on either side or face of the knife.

In the accompanying drawings, wherein, for the purpose of illustration, is shown a preferred embodiment of our invention, the numeral 5 designates a housing, having a face 6, in which is rotatively positioned cutting wheels 7 and 8,

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mounted on shafts 9 and 11, respectively, which shafts are journalled in the housing and are rotated in opposite directions by meshing gears 12 and 13, respectively.

A pinion gear 14, is pinioned to the shaft 9, and meshes with a gear 16, mounted on shaft 17, extending through the side of the housing 5, and having a handle 18, secured thereto.

A cam 19, is also positioned on the shaft 17, and is free to rotate when the shaft is rotated in one direction, but is locked to the shaft by a spring press pawl 22, when the shaft is rotated in the opposite direction, the purpose of which will be later seen.

An arm 23, is mounted above the cam 19, and is secured to a shaft 24, positioned in the housing 5, which shaft has a depressor arm 26, secured thereto, the free end of which arm carries a pair of rollers, as shown at 27 and 28, which extend through an opening 29, formed in the face 6, of the housing.

An upstanding portion 31, serves to support a pair of spring balls 32 and 33, the purpose of which will be later seen.

Referring now, to Fig. 4, it will be noted that the cutting surface of the cutting wheels is diagonally arranged, and that the spring 34, tends to pull the depressor arm 26, and, consequently, the wheel 28, downwardly on top of the knife blade shown at A, and that the ball 33, tends to press the blade sidewise against the cutting wheel.

When the device is used, the handle 18, is first rotated in a clockwise direction until the cam, 19, is locked to the shaft 16, by its spring press pawl 22.

Further rotation of the handle will cause the cam to engage the free end of the lever 28, and rock the same from the full-line of Fig. 1, to the dotted-line position of this figure.

At the same time the depressor arm 26, will be lifted against the tension of the spring 34, into its dotted-line position.

The knife to be sharpened is now inserted, so that the blade comes to rest on one of the cutting wheels; as, for instance, the cutting wheel 7.

By now reversing the direction of rotation of the handle 18, the cam is released from its engagement with the shaft and the spring 34, moves the arm and its roller 28, downwardly on to the top or back of the knife, thus holding the cutting edge in intimate contact with the surface of the cutting wheel.

Further rotation of the handle will cause the cutting teeth in the cutting wheel to abrade the edge of the knife and, as the teeth are diagonally-

disposed, they will tend to back the knife out of the machine during the sharpening operation.

The knife is then re-inserted into the machine in the manner above described and a second sharpening operation takes place, placing teeth on the opposite side of the knife.

Due to the diagonal arrangement of the teeth, and due to the fact that the knife can move, it is apparent that, every time the knife is inserted in the machine, the initial movement of the cutting wheel will line its teeth up with the teeth already formed in the knife and, consequently, a knife may be re-sharpened many times, with the assurance that each shapening operation will coincide with that of the previous cuts.

It is to be understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim;

1. In a knife sharpener, a housing, a pair of cutting wheels mounted on said housing and adapted to be rotated in opposite directions, said housing having an opening formed therethrough, and means mounted within said opening for pressing the cutting edge of the knife against either of said cutting wheels individually;

2. A knife sharpener, including a housing, a pair of cutting wheels positioned in said housing, means for rotating said wheels in opposite directions, said housing having an opening formed therethrough, into which the peripheries of said wheels are exposed, and spring-pressed means for moving the blade of a knife inserted through said openings, into contact with the periphery of either of said wheels;

3. A knife sharpener, comprising a disc-like wheel, having cutting teeth formed upon its periphery, means for rotating said disc and means for holding and abrading the cutting edge of a knife against the periphery of said wheel;

4. A knife sharpener, comprising a pair of cutting discs, mounted in parallel side-to-side arrangement, each of said discs having cutting teeth formed thereon and diagonally-disposed, the teeth on one of said discs being oppositely-disposed from those on the other of said discs, means for rotating said discs, and means for maintaining the blade of a knife to be sharpened in moveable contact with the periphery of either of said discs during the sharpening operation.

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