Nov. 8, 1955 L. O'RUSSA 2,722,783

KNIFE SHARPENER

Filed March 27, 1953 2 Sheets-Sheet 1

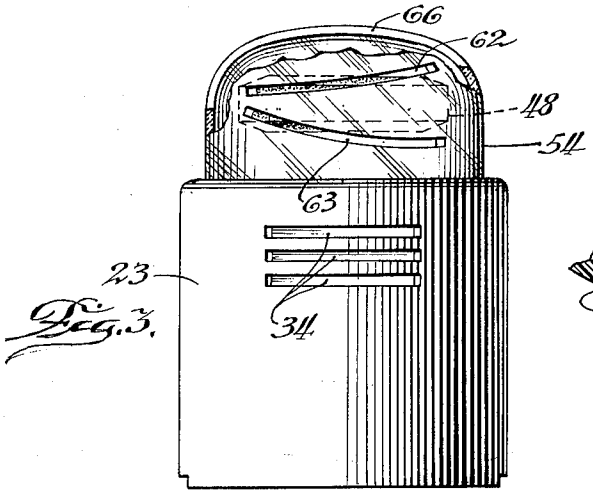


Fig. 3.

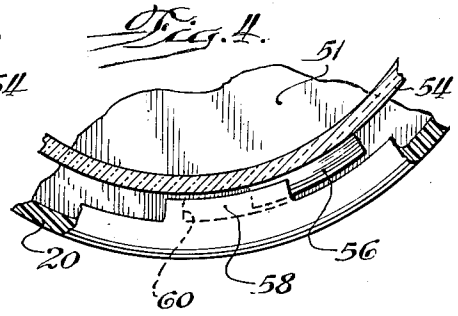


Fig. 4.

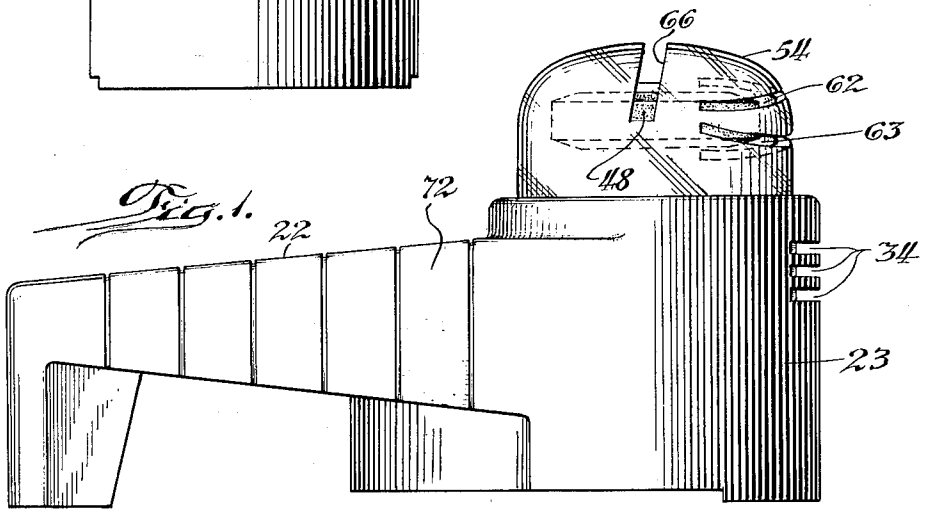


Fig. 1.

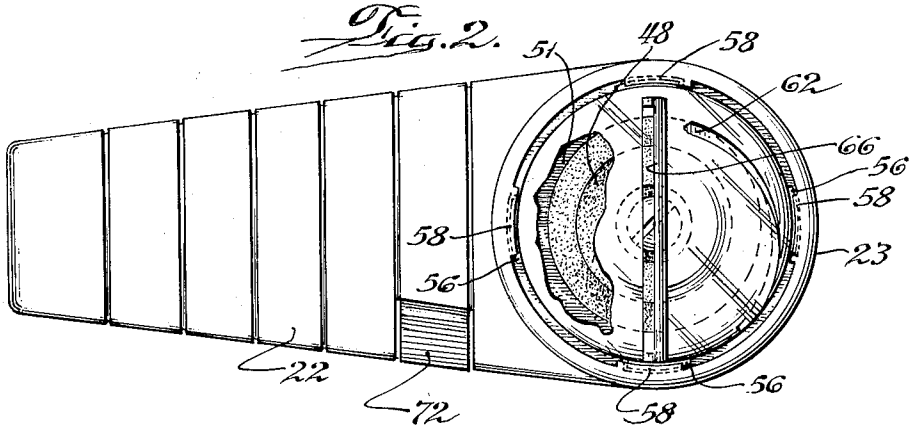


Fig. 2.

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Nov. 8, 1955 L. O'RUSSA 2,722,783

KNIFE SHARPENER

Filed March 27, 1953 2 Sheets-Sheet 2

Fig. 6.

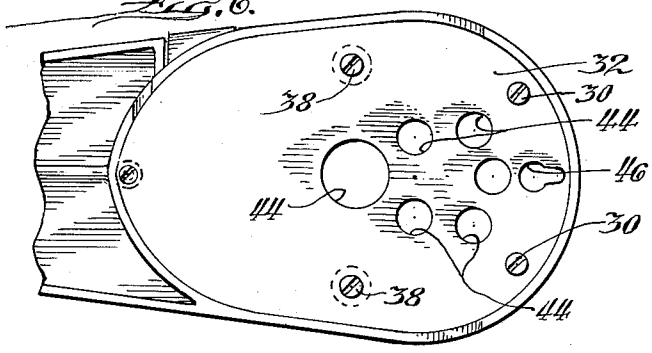


Fig. 8.

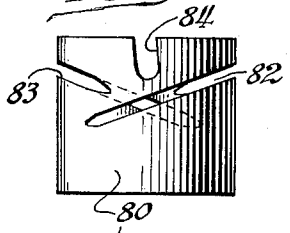


Fig. 9.

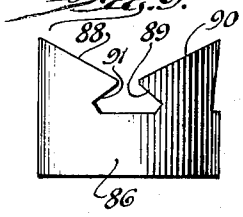


Fig. 10.

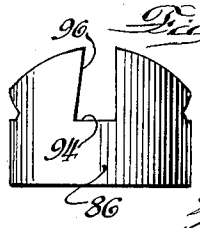
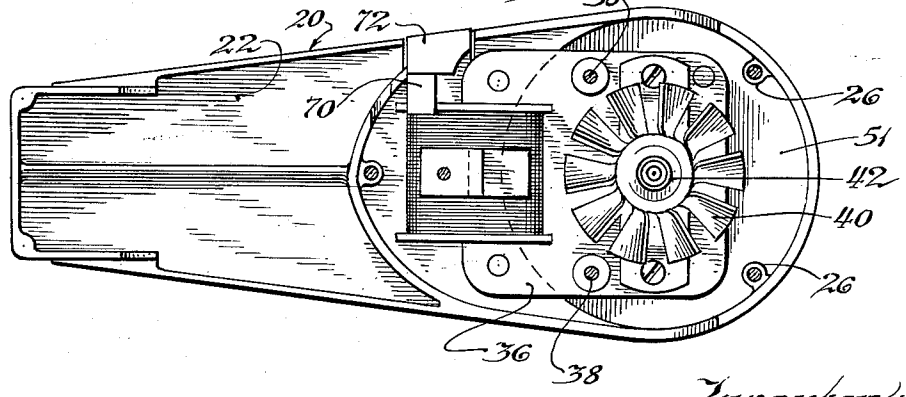


Fig. 5.

Fig. 7.



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KNIFE SHARPENER

Lorence O'Russa, Peoria, Ill.

Application March 27, 1953, Serial No. 344,937

1 Claim. (Cl. 51—102)

My invention relates generally to knife and scissors sharpeners, and particularly to those designed for domestic use.

It is an object of my invention to provide a motor driven sharpener for scissors as well as knives, in which improved guide means are provided for assuring that the edge of the cutting instrument will be ground at the proper angle.

A further object is to provide an improved domestic knife and scissors sharpener in which the grinding wheel is partially enclosed to reduce to a minimum the escape of sparks.

A further object is to provide an improved domestic knife and scissors sharpener which is light in weight, of simple construction, and which may be manufactured economically.

Other objects will appear from the following description, reference being had to the accompanying drawings, in which

Fig. 1 is a side elevation of the sharpener;

Fig. 2 is a plan view thereof, a portion of the grinding wheel enclosure being broken away to show the wheel;

Fig. 3 is an end elevational view thereof;

Fig. 4 is a fragmentary sectional view showing the means by which the wheel enclosure is secured to the body of the sharpener;

Fig. 5 is a vertical sectional view showing the method of mounting the motor;

Fig. 6 is a bottom plan view of a portion of the sharpener;

Fig. 7 is a bottom plan view with the bottom plate removed;

Fig. 8 is an elevational view of a modified form of wheel enclosure, shown to a reduced scale;

Fig. 9 is a front elevational view of a second modified form of enclosure for the grinding wheel; and

Fig. 10 is a side elevational view of the enclosure shown in Fig. 9.

The knife sharpener comprises a body **20**, preferably formed as an integral plastic molding, having a hollow handle portion **22** into which an extension cord **24** may be tucked, and a motor housing portion **23**. The body **20** has a plurality of vertical ribs **26** formed integrally therewith. These ribs terminate short of the bottom edge of the body, and are provided for the reception of screws **30** used to fasten a metal plate **32** to the body. The body is provided with suitable louver openings **34** for the ventilation of a motor **36** which is secured to the metal plate **32** by screws **38**. A fan **40** is secured to the lower end of the motor shaft **42** and forces air admitted through openings **44** in the bottom plate **32** past the motor and outwardly through louvers **34**. The bottom plate is also provided with a keyhole slot **46** for the reception of the head of a screw or nail so that the sharpener may be hung against a wall when not in use.

The upper end of the motor shaft **42** extends through the top **51** and has a grinding wheel **48** suitably secured thereto. The wheel is preferably of the type having

beveled side faces. A pad **50** of felt or the like surrounds the shaft **42** and is pressed against the body **20** around the opening through which the shaft **42** projects, by a compression coil spring **52** resting on the frame of the motor **36**. This pad thus prevents emery dust from falling into the motor bearings.

The wheel **48** is protected by a dome-shaped guide and guard **54**, preferably made of a transparent plastic. This guide and guard is detachably secured to the body **20** by a bayonet connection comprising outwardly extending lugs **56** (Fig. 4) formed at the bottom of the guide and guard **54**, cooperating with inwardly extending lugs **58** formed on the body **20**, the lugs **58** having stop end portions **60** to limit the movement of the lugs **56** into the groove-like space between the lugs **58** and the top portion **51** of the body **20**.

The guide and guard **54** is provided with a pair of slots **62** and **63** for the reception of the blade of a knife to be sharpened. These slots define planes longitudinal thereof at an angle of ten degrees with respect to the horizonal, and are so positioned and conformed that a knife blade inserted in either of them and drawn past the grinding wheel **48** will engage the bevel portion of the sides of the wheel, and thus will be ground at the proper angle. The guide and guard **54** is also provided with a slot **66** which is at an angle of seven degrees relative to the vertical, this slot being provided to guide the blade of a pair of scissors so that its cutting edge will be ground at the proper angle.

A suitable switch **70** is mounted on the motor **36** and is actuated by a push button **72** which is located in such position that it may be operated by the thumb of the user while his hand rests on the handle portion **22** of the grinder.

The motor rotates counterclockwise, as viewed from the top, so that in using the grinder the knife blade is preferably placed in the slot **62** and drawn slowly toward the left (Fig. 3) to grind one surface of the cutting edge, and then placed in the slot **63** and again drawn toward the left to grind the other surface of the cutting edge. The slots **62** and **63** are so positioned that the surface adjacent the cutting edge of the knife will contact the beveled surfaces of the sides of the wheel.

In grinding the blades of a pair of scissors, the surface of the blade which shears against the other blade is held against the left-hand (Fig. 1) edge of the slot **66** and drawn toward the left (Fig. 3) to assure sharpening the cutting edge at the proper angle.

By virtue of the fact that the grinding wheel is at the upper end of the vertical rotor shaft, and because of the fact that the guide and guard is made of a transparent plastic, the user of the sharpener may observe the position of the knife blade during the grinding operation.

The guide and guard of the form shown in Fig. 8 may be used in place of that shown in Figs. 1 to 5. It comprises a tube **80** having deep knife guiding slots **82** and **83** formed therein and a scissors blade guiding slot **84**. This form of guide and guard is designed for use with a smaller diameter grinding wheel than that shown in the preferred embodiment of the invention.

The guide **86** shown in Figs. 9 and 10 is likewise in the form of a metal tube, and has guiding surfaces **88** and **89** for engagement with knife blades when grinding one side thereof, and surfaces **90** and **91** for use when grinding the other side of the cutting edge. The guide **86** also has a pair of aligned vertical slots **94**, one edge **96** of each of these slots being at an angle of seven degrees with respect to the vertical so that the cutting edge will be ground at the correct angle if the surfaces of the blades are held against these edges of the slots as they are drawn past the grinding wheel.

While I have shown and described preferred embodiments of my invention, it will be apparent that numerous

variations and modifications thereof may be made without departing from the underlying principles of the invention. I therefore desire, by the following claim, to include within the scope of the invention all such variations and modifications by which substantially the results of my invention may be obtained through the use of substantially the same or equivalent means.

I claim:

In a sharpener including a motor housing and a motor mounted within the housing having a vertical rotor shaft extending through the top of the housing, the combination of a grinding wheel secured to the rotor shaft above the top of the housing, said grinding wheel having upper and lower bevel surfaces adjacent its periphery, a cylindrical flange secured to and projecting above the top of the housing, a dome shaped guide and guard having a cylindrical lower portion fitting within said flange and enclosing said grinding wheel, at least two pairs of diametrically oppositely located cooperating interlocking lugs on said flange and on said lower portion of said guide and guard detachably securing said guide and guard to the housing, said interlocking lugs being engaged by rotating said guide and guard relative to said flange through a turn of less than 180°, said guide and guard having a pair of slots for guiding knife blades to be ground against the upper and lower bevel surfaces of said grinding wheel, and having a generally diametral slot in its top extending downwardly at an angle of approximately seven degrees from the vertical for receiving and guiding the blade of a pair of scissors, whereby the guide and guard may be mounted on the housing with the knife blade guiding slots in either of at least two different positions relative to the housing.

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