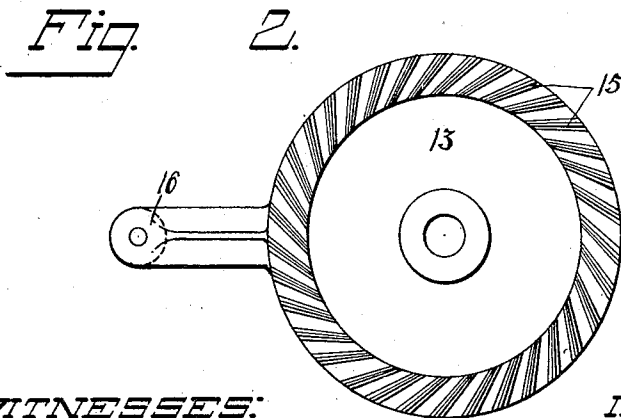
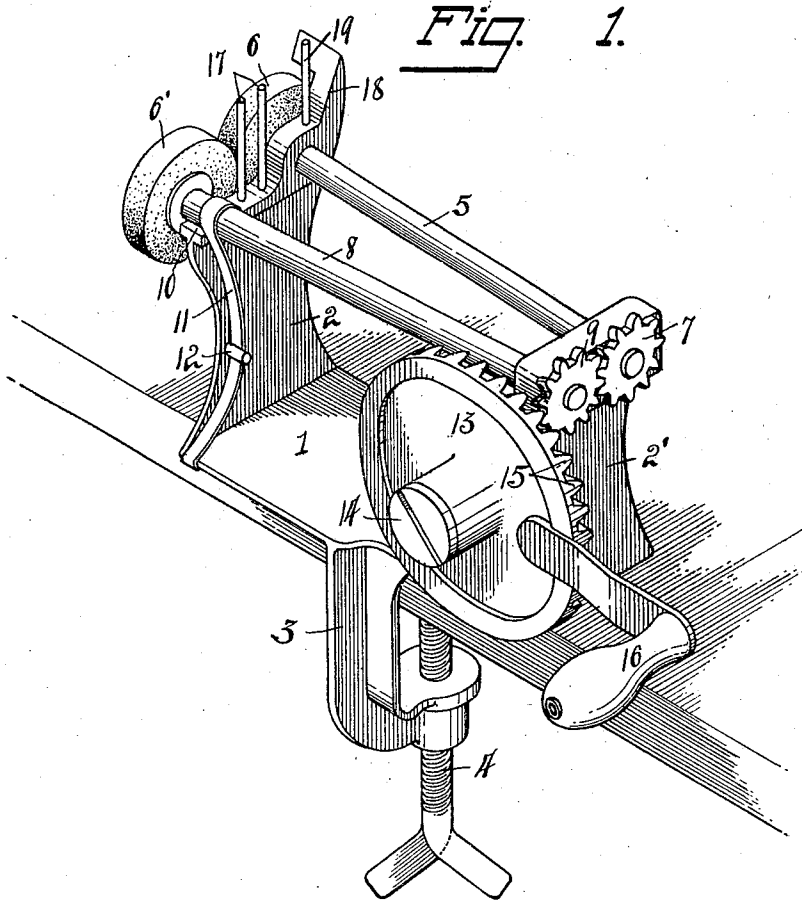


G. J. SEISS.
GEARING FOR KNIFE SHARPENERS.
APPLICATION FILED JUNE 5, 1912.

1,109,945.

Patented Sept. 8, 1914.



WITNESSES:

C. H. Mills.
E. C. Thomas.

INVENTOR.

George J. Seiss;
By Owen & Owen,
His attys.

UNITED STATES PATENT OFFICE.

GEORGE J. SEISS, OF TOLEDO, OHIO.

GEARING FOR KNIFE-SHARPENERS.

1,109,945.

Specification of Letters Patent.

Patented Sept. 8, 1914.

Application filed June 5, 1912. Serial No. 701,880.

To all whom it may concern:

Be it known that I, GEORGE J. SEISS, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Gearing for Knife-Sharpeners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for the sharpening of knives, scissors, and the like, and has for its object the provision of an improved apparatus of this character which is easy and efficient in its operation, simple and inexpensive of manufacture, and adapted for the sharpening of knives, scissor blades, lawn-mower blades, and other forms of cutlery.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an apparatus embodying the invention, and Fig. 2 is an inner side view of the master drive gear thereof.

Referring to the drawings, 1 designates the base of the machine frame; 2, 2' bearing standards rising from opposite ends thereof, and 3 an L-shaped arm which extends downwardly from one side of the base and carries a screw 4 for clamping the machine frame to a table edge or other suitable support.

A shaft 5 is mounted at its opposite ends in the upper end portions of the respective standards, 2, 2', and carries an emery or other suitable form of grinding or sharpening disk without the standard 2, and a spur-gear 7 without the other of said standards. A similar shaft 8 is also mounted at one end in the standard 2' and carries a spur-gear 9 at such end in mesh with the spur gear 7, while its other end rests for lateral sliding movements upon a seat 10, provided at the upper end of the standard 2, and carries an emery or other suitable form of grinding disk 6' without said standard in peripheral contact with the disk 6.

The shaft 8 is retained to the standard seat 10 for yielding sliding movements thereon toward or away from the shaft 5 by a spring-finger 11, which has its upper end hooked over the shaft 8 at the inner side of the standard 2 and thence extends downwardly, in inwardly bowed form, around a tension pin 12, projecting from the standard 2, and has its lower end hooked around the edge of the base 1, or anchored thereto in any other suitable manner. The grinding disks 6, 6' are preferably of greater diameter than the gears 7 and 9 to enable them to be used a considerable length of time without replacing on account of wear. The making of the disks 6 and 6' of greater diameter than the spur-gears causes the shafts to stand in diverging planes and to gradually move toward each other at their more remotely spaced ends as the disks wear down in use.

A crown-toothed gear 13 is employed to drive one of the gears 7, 9, it being mounted, in the present instance, on a stud 14 projecting from an edge of the standard 2' and having its teeth in loose mesh with the gear 9, the edge of which projects from the adjacent edge of the standard 2' for such purpose. The crown-teeth 15 of the gear 13 are peculiarly arranged on the face of the gear, each being disposed in planes which are tangential to an imaginary circle intermediate the gear periphery and axis, such circle having its radius preferably about two-thirds of the length of the gear radius.

In order to adapt the teeth of the gears 7 and 9 to mesh properly with each other when their shafts are disposed in diverging planes and to enable the teeth of one of the gears to mesh with the teeth 15 of the drive, the spur gear teeth are twisted slightly so that their end edges are inclined relative to their axes instead of being in parallelism with such axes as is ordinarily the case. Upon a turning of the gear 13 to the right, or in a direction to cause an upward rolling of the coating portions of the grinding disks, the spur teeth are caused to have inward sliding movements relative to the crown teeth, as will be apparent by reference to Fig. 1. This form of drive gear not only provides a very efficient drive means for the rotary grinding members of apparatus of this class, but also prevents a back turning of the drive gear, which back turning if permitted would tend to cause a

drawing of the article being sharpened down between grinding members, which feature is quite objectionable in rotary sharpeners of this class. The back turning of the drive gear is prevented by reason of the inner ends of its teeth 15 striking against the sides of the spur teeth, thus locking the parts against back turning. The gear 13 is provided with a crank-handle 16 for turning.

When sharpening knives or similar articles it is preferable to place the edge to be sharpened downward in the space between the two grinding disks, the article being guided in such movement by a pair of spaced guide-pins 17 rising from the inner end portion of the standard seat 10 in proper position for such purpose.

In order to adapt the apparatus for the sharpening of blades the cutting edges of which are angled, as in the case of the blades of scissors, lawn-mowers, and the like, the top of the standard 2 is provided at the outer side of the shaft 5 with an upwardly extending boss 18, the inner side of which is inclined at the desired angle relative to the registering peripheral portion of the grinding disk 6 in which it is desired to hold a blade while being sharpened. The boss 18 preferably has its upper end angled over the grinding disk, as shown. A guide-pin 19 rises from the upper end of the standard 2 adjacent to the base of the boss 19 to co-operate therewith in guiding the movements of a blade when being sharpened.

It is found in practice that my improved sharpening apparatus is admirably adapted for household use in the sharpening of knives, scissors and the like, and its cheapness and durability of construction enables it to be produced and sold at a small cost to the user.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. In combination, a driven gear, a drive gear mounted with its axis disposed substantially at right angles to and below the axis of the driven gear and having crown teeth in loose mesh with the teeth of the driven gear and disposed in tangential relation to the circumference of a circle intermediate the axis and periphery of the drive gear and of a length sufficient to engage advance contiguous driven gear teeth when driving in one direction but disposed relative to the driven gear to abut the contiguous driven gear teeth at the ends of the teeth of the drive gear when the motion is reversed.

2. In combination, a pair of driven spur gears, a shaft for supporting each of said spur gears, the shaft of one of the said spur gears being movable at one end with respect to the shaft of the other spur gear, a spring for normally pressing the said movable shaft toward the shaft of the other spur gear, a drive gear mounted with its axis disposed at substantially a right angle and below the axes of the spur gears and having crown teeth in loose mesh with the teeth of the spur gear having the movable shaft and disposed in tangential relation to the circumference of a circle intermediate the axis and periphery of the drive gear and of a length sufficient to engage advance contiguous driven spur gear teeth when driving in one direction but disposed relative to the spur gear to abut the contiguous spur gear teeth at the ends of the drive gear when the motion is reversed.

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

GEORGE J. SEISS.

Witnesses:

C. W. OWEN,
E. E. THOMAS.