Nov. 4, 1952 J. L. MURRAY 2,616,231

KNIFE SHARPENER

Original Filed Aug. 29, 1947

Fig. 1

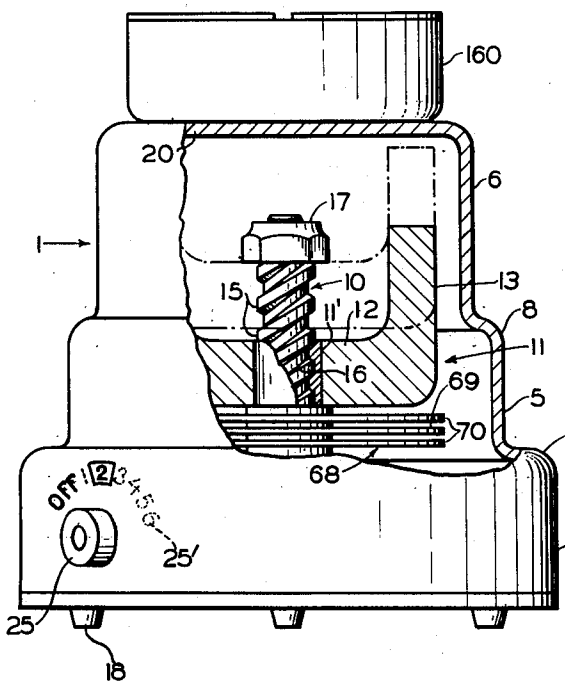


Fig. 3

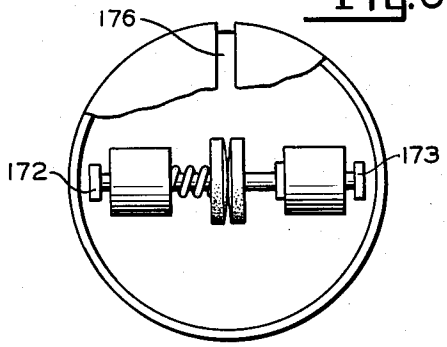


Fig. 2

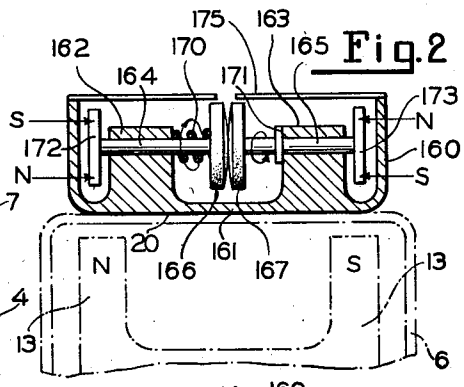
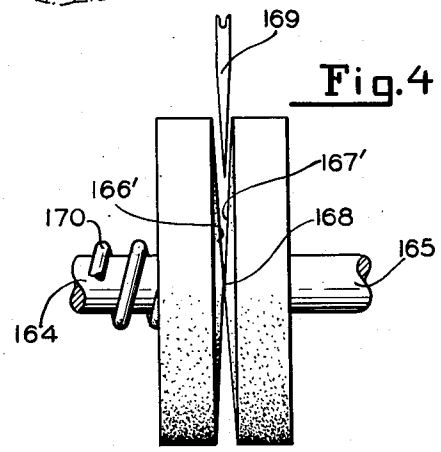


Fig. 4



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KNIFE SHARPENER

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Original application August 29, 1947, Serial No. 771,176. Divided and this application September 16, 1949, Serial No. 122,810

4 Claims. (Cl. 51—241)

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This invention relates to devices for home and kitchen use although certain features thereof have other uses.

This application is a division of my copending patent application, Serial No. 771,176, filed August 29, 1947.

An object of the invention is a novel and improved power driven unit for sharpening kitchen knives and the like.

Further objects and the entire scope of the invention in this divisional application will be further apparent from the following detailed description and from the appended claims.

For a better understanding of the invention, reference may be had to the accompanying drawings forming a part of this application wherein:

Fig. 1 is a fragmentary elevational view partly in section diagrammatically illustrating a power unit with which this invention can be used.

Fig. 2 is an elevational view partly in section through a knife sharpening unit embodying the invention.

Fig. 3 is a plan view thereof with parts broken away.

Fig. 4 is an enlarged elevational view of a part thereof.

The invention disclosed and claimed in this application relates to a unit for sharpening knives and the like. This knife sharpening device or unit is intended for use and in combination with a magnetic power unit of the type disclosed and claimed in my above mentioned copending application. A brief description of the power device will be set forth in this application to provide the necessary understanding of that device. However, a complete description of the power device may be had with reference to the above mentioned copending application.

The power device 1 (Fig. 1) comprises a suitable casing having, in the particular embodiment shown, three cylindrical portions or parts 4, 5 and 6 which are integrally formed as parts or portions of a single casing. The portions 4, 5 and 6 are formed of different diameters with the portion 4 having the larger diameter, the portion 5 a smaller diameter and the portion 6 of smaller diameter than the intermediate portion 5 and these portions are joined respectively to each other by the flange or shoulder portions 7 and 8. The power device 1 also comprises an electric motor housed in the bottom portion of the casing which motor is suitably geared to a vertical spindle or shaft 10 for driving the latter at a reduced speed. This shaft is disposed centrally of the casing.

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The spindle or shaft 10 thus being driven by the motive power carries and drives a magnetic driving element 11 comprising a bar or main body part 12 and upwardly projecting polar parts 13 integrally formed at the ends of the main body part 12. The main body part 12 of the driving magnetic element is fastened to the spindle or shaft 10 in driving relation therewith and the upwardly projecting polar parts 13 are disposed at equal distances from the axis of the spindle or drive shaft 10. This driving magnetic element 11 may be of any suitable construction.

The driving spindle 10 may be provided at its upper portion and exteriorly thereof with a low pitch thread 15 and the body part 12 of the driving element can be provided with an opening therethrough having a similar low pitch thread 16 formed in the wall of the opening therethrough for cooperation with the low pitch thread 15. In the full line position shown, the driving magnetic element 11 is in the position corresponding to the stationary or de-energized position of the electric motor. In the dash line position, the driving magnetic element 11 is in operative position to drive the food preparing element 2, namely with the end surfaces of the poles 13 disposed as close thereto as is practicable. In this dash line position, the element 11 is held against further upward movement by a nut 17 fastened to the upper screw threaded end of the spindle 10, and the rotation of the shaft 10 is in a direction to tend to hold the element 11 in that position.

In Figs. 2 to 4, inclusive, I have illustrated my invention as applied to the grinding or sharpening of knives and other similar instruments. This knife sharpening means comprises an annular casing 160 having a bottom 161 which is shown in the particular embodiment as being integral with the annular casing 160. Within the annular casing 160 and mounted on the bottom 161 are disposed a pair of spaced frames or journal blocks 162 and 163 and in these bearing brackets or blocks are journaled a pair of shafts 164 and 165. These shafts 164 and 165 are axially alined and carry respectively grinding or sharpening discs 166 and 167, these discs being carried on the inner ends of the shafts and being relatively yieldingly biased to bear against each other at the central parts of their opposed faces. The discs are beveled on their inner and opposed faces so as to provide faces which gradually and slightly recede from each other from their central points 168 to their peripheries. This is for the purpose of receiving the instrument to be sharpened as, for example, a knife, a portion of

which is indicated at 169. In the particular embodiment shown the discs 166 and 167 are yieldingly biased relatively toward each other by means of a coil spring 170 surrounding the inner projecting end of the shaft 164 and engaging at one end the frame or bracket 162 and engaging at the other end the outer face of the disc 166. The movement of the shaft 165 and its grinding disc 167 to the right is limited in any suitable manner as, for example, by a collar 171 fastened to the shaft 165 and engaging the bracket or bearing block 163.

The discs 166 and 167 may be driven in the same or opposite directions but preferably in the opposite direction as provided in the embodiment shown. For this purpose the shafts 164 and 165 carry on their outer ends magnetically driven elements 172 and 173 respectively, these magnetically driven elements being fastened in any suitable manner to the outer overhanging ends of the shafts. The arrangement is such that the magnetically driven members 172 and 173 are actuated by the driving element 11 having the polar projections 13. Preferably the driven magnetic elements 172 and 173 are permanent magnets and are in the form of bars with the letters N and S indicating the north and south poles of the magnets. Similarly, the polar projections 13 are marked N and S to indicate the polarity of the driving magnet. With this arrangement each of the shafts 164 and 165 is driven at the same speed as the driving element 11 and the driven elements are driven synchronously with the driving magnet 11. The casing 160 is provided with any suitable cover 175 and the latter is provided with a slot 176 in line with the inner faces of the discs 166 and 167 so as to permit the introduction of the instrument 169 to be sharpened and the free manipulation thereof, the slot preferably extending all the way or nearly all the way across the cover disc 175.

It is only necessary to place a knife sharpening means shown in Figs. 2 to 4, inclusive, upon the upper end 6 of the casing of the power device and energize the electric motor for driving the driving element 11 and the sharpening discs 166 and 167.

It is noted that with the invention illustrated in Figs. 2 to 4, inclusive, the sharpening device is self centered upon the power device by reason of the centering action of the magnet exerted by the driving element 11 upon the driven elements 172 and 173.

I claim:

1. A knife sharpening unit adapted to removably rest upon the top of a magnetic driving device of the type having a driving magnet rotatable beneath the said top, the unit comprising a frame having a bottom adapted to rest on the said top of the driving device, a pair of aligned shafts journalled in the frame in a plane substantially parallel to the said bottom of the frame, sharpening disks mounted on adjacent ends of the aligned shafts in abutting relationship, and driven magnetic members mounted on the outer ends of the aligned shafts, the magnetic driven members having north and south poles, the driven members being so positioned when said unit is on said top so that said poles interact with the poles of the rotating driving magnet to rotate the sharpening disks as the driving magnet is rotated.

2. A knife sharpening unit adapted to rest on the top of a casing with a rotatable driving permanent magnet located beneath the top of said casing, the unit including a frame means with a bottom adapted to rest on the top of said casing over said rotatable driving magnet, a pair of aligned shafts rotatably held in said frame means and substantially parallel to said bottom, knife sharpening discs mounted on adjacent ends of said aligned shafts and in abutting relationship, and a permanent magnet driven means mounted on each of said shafts, each of said driven means having north and south poles and being positioned above said rotatable driving magnet when said unit is on said top so as to interact with said rotatable driving magnet to rotate said shafts and sharpening discs.

3. A knife sharpening unit adapted to rest on the top of a casing with a driving permanent magnet rotatable about an axis, said driving magnet being located beneath the top of said casing, the unit including frame means having a bottom adapted to rest on the top of said casing and over said rotatable driving magnet, a pair of knife sharpening discs rotatably mounted on said frame means on substantially aligned axes in a plane substantially perpendicular to the axis of said driving magnet when said frame is positioned on said casing, and a permanent magnet driven means connected to each of said sharpening discs and rotatable therewith, each of said driven means having north and south poles interacting with said rotatable driving magnet means as it rotates so as to impart impulses to said driven means and to rotate said sharpening discs.

4. A knife sharpening unit adapted to rest on the top of a casing having a top surface, and a driving magnet with north and south poles rotatable beneath said top surface and rotatable about an axis intersecting said surface, the unit comprising, a frame means restable on said top surface, a pair of aligned shaft means mounted on said frame means and located in a plane substantially perpendicular to the bottom of said frame when the frame is positioned on said surface, driven magnet means located on each of said shaft means having north and south poles rotatable about the axis of said shaft means, said driven magnet means having impulses imparted thereto by said driving magnet to rotate said shaft means, and a pair of sharpening discs mounted in abutting relationship on adjacent ends of said shaft means.

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