

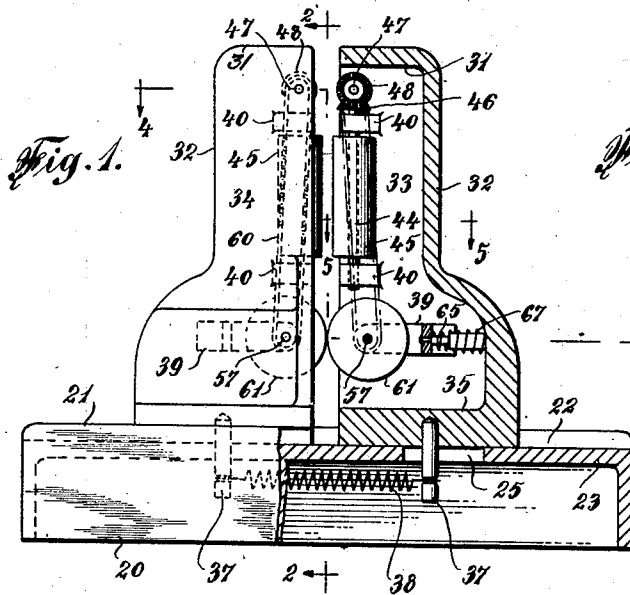
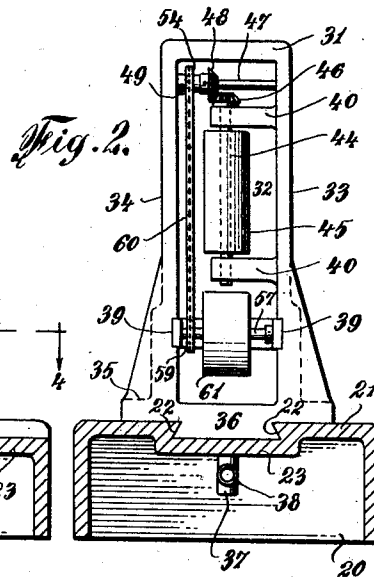
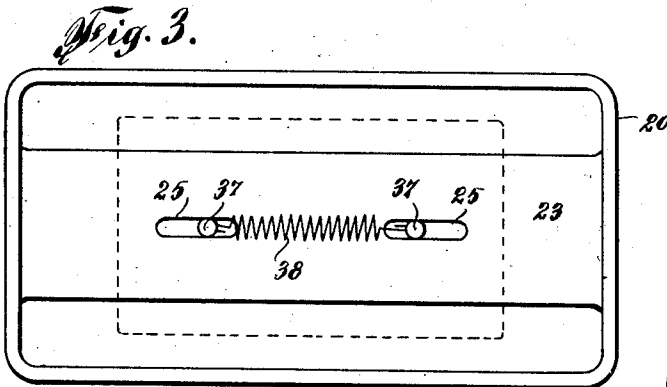
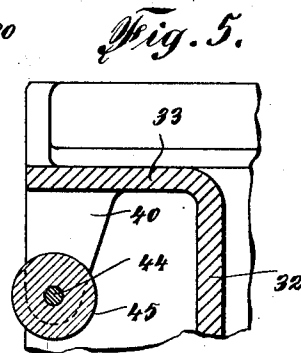
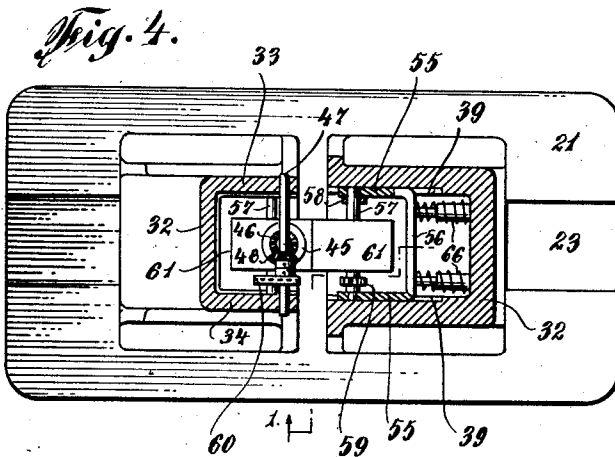
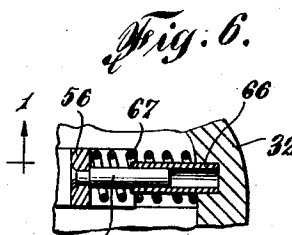
June 24, 1930.

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KNIFE SHARPENER

Filed March 7, 1929



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UNITED STATES PATENT OFFICE

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KNIFE SHARPENER

Application filed March 7, 1929. Serial No. 345,020.

This invention relates to a knife sharpener.

The object of the invention is the production of a sharpener by means of which blades of various thicknesses, depths and lengths can be easily sharpened. The second object of the invention is the production of a sharpener, by means of which the cutting portion thereof is sharpened during the operation of drawing it through the sharpener. The third object of the invention is the production of a sharpener by means of which sharpening wheels are maintained in contact with the cutting portion of a blade as it is being operated upon. The fourth object of the invention is the production of a knife sharpener comprising automatically operated sharpening means.

In the accompanying drawings Fig. 1 represents in part a front elevation and section as on the line 1, 1 of Fig. 4 of an exemplification of the improved knife sharpener; Fig. 2 shows a partial side view and section of Fig. 1 on the line 2, 2; Fig. 3 is a bottom plan view of the knife sharpener; Fig. 4 indicates a top plan view and section of Fig. 1 on the line 4, 4; Fig. 5 represents a section of Fig. 1 on the line 5, 5 on an enlarged scale and Fig. 6 shows an enlarged view of a fragmentary portion of Fig. 1.

The knife sharpener in this instance comprises the U-shaped base 20 having the upper wall 21, with the dovetail guide slot having the inclined side walls 22 and the horizontal wall 23. Longitudinal openings 25 are formed in the wall 23.

Similar adjustable U-shaped standards are each indicated with the top wall 31, the rear wall 32, the side walls 33 and 34 and the bottom wall 35, that has formed therewith the dovetail projection 36. The latter engages the guide slot having the inclined side walls 22. From the projections 36 extend the pins 37, that pass through the openings 25 and are connected by the spring 38. In the inner face of each pair of the walls 33 and 34 are formed the pair of guide slots 39 and from each of the walls 33 extend the pair of journal lugs 40. In each

pair of the journal lugs 40 is journaled a vertical spindle 44, to which is fastened an adjusting roller 45. To the upper end of each of the spindles 44 is fastened a bevel gear 46. In the upper portion of each pair of walls 33 and 34 is journaled a horizontal spindle 47, which has fastened thereto the bevel gear 48 which is in mesh with the bevel gear 46. A collar 49 is fastened to the spindle 47 to laterally maintain it in place. A sprocket chain wheel 54 is fastened to the spindle 47. In each of the pair of guide slots 39 is slidably supported a U-shaped bracket having the pair of longitudinal legs 55 with the connecting leg 56. In each pair of the legs 55 is journaled the horizontal spindle 57 that has fastened thereto the collar 58 and the sprocket chain wheel 59. The sprocket chain wheels 54 and 59 are connected by the sprocket chain 60. To each of the spindles 57 is fastened the sharpening wheel 61. The sharpening wheels 61 are normally located with their circumferential faces in contact. From each connecting leg 56 of each U-shaped bracket extends a guide pin 65, and from each rear wall 32 extends a guide sleeve 66 axially in line with its coaxing guide pin 65. A spring 67 encircles each pin 65 and sleeve 66, and bears between the leg 56 and the rear wall 32.

To use the sharpener a blade is inserted between the adjusting rollers 45 with its cutting portion in contact with the adjacent portions of the circumferential faces of the sharpening wheels 61. The blade is then drawn forwardly and backwardly. By this means rotation is transmitted from the adjusting rollers 45 to the sharpening wheels 61 by means of the bevel gears 46, 48, the sprocket chain wheels 54, 59 and the sprocket chains 60. While the blade is located between the adjusting rollers 45 the standards having the top walls 31 slide on the base 20 against the tension of the spring 38, and thereby the rollers 45 are caused to hug the blade operated upon. At the same time the springs 67 force the sharpening wheels 61 toward the cutting portion of said blade.

Various modifications may be made in the invention and the present exemplification is to be taken as illustrative and not limitative thereof.

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

1. In a knife sharpener the combination of a pair of adjustable standards, a base slidably supporting said standards, a sharpening wheel adjustably journaled in each standard, an adjusting roller pivoted to each standard adjacent to its sharpening wheel and means to transmit rotation from each adjusting roller to the sharpening wheel of its standard.

2. In a knife sharpener the combination of a pair of adjustable standards, means to slidably support said standards, a spindle journaled in each standard, a roller fastened to each of said spindles, a second spindle adjustably journaled in each standard, a sharpening wheel fastened to each second spindle and transmission means interposed between the spindles of each standard.

3. In a knife sharpener the combination of a pair of adjustable standards, means to slidably support said standards, a spindle journaled in each standard, a roller fastened to each of said spindles, a second spindle journaled in each standard, a sharpening wheel fastened to each second spindle, a third spindle journaled in each standard, a gear fastened to each third spindle, a gear fastened to each of the spindles of the rollers, the said gears in mesh with each other, a sprocket chain wheel fastened to each third spindle, a sprocket chain wheel fastened to the spindle of each sharpening wheel and a sprocket chain connecting the sprocket chain wheels.

4. In a knife sharpener the combination of a pair of adjustable standards, a base slidably supporting said standards, a pin extending from each standard through an opening in the base, a spring connecting said pins, an adjusting roller journaled in each standard, a sharpening wheel journaled in each standard, said adjusting rollers adapted to have a knife blade inserted between them and maintained in contact therewith, said rollers turning when said blade is drawn between them and means to transmit rotation from the rollers to said sharpening wheels.

5. In a knife sharpener the combination of a pair of adjustable standards, means to slidably support said standards, an adjusting roller journaled in each standard, a bracket slidably supported in each standard, a spring bearing between each bracket and its standard, a sharpening wheel journaled in each bracket and means to transmit rotation from each adjusting roller to the sharpening wheel in its standard.

6. In a knife sharpener the combination of a pair of adjustable standards, a base slidably supporting said standards, a spring coacting with said standards to draw them toward each other, an adjusting roller journaled in each standard adapted to bear against a blade located between them, a sharpening wheel journaled in each standard, a spring coacting with each sharpening wheel to force them toward each other and means to transmit rotation from each adjusting roller to the sharpening wheel of its standard.

7. In a knife sharpener the combination of a pair of adjustable standards, a dovetail projection extending from each standard, a base having a dovetail guide slot, said projections engaging said slot, flexible means connecting said standards, an adjusting roller journaled in each standard, a sharpening wheel flexibly journaled in each standard and means to transmit rotation from each roller to the sharpening wheel in its standard.

Signed at the Borough of Manhattan, city of New York, in the county of New York and State of New York this 4th day of March, A. D. 1929.

ROBERT E. MILLSAP.