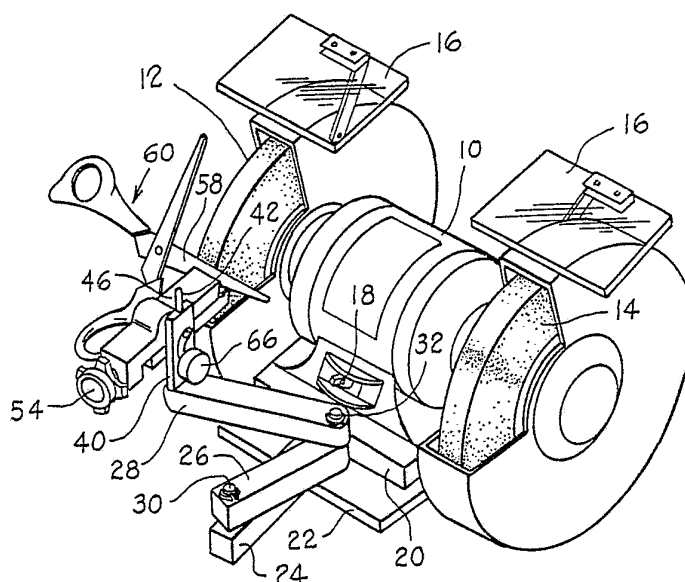


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(54) Title: IMPLEMENT SHARPENING DEVICE



(57) Abstract

An apparatus for holding a blade (58) of an implement while sharpening an edge thereon with a rotating sharpening wheel (12). The blade (58) is carried by a blade holder (44) which is, in turn, supported on a vertically extending bracket (40). The angle that the blade holder (44) is supported on the bracket (40) can be readily adjustable. A pair of opposed vertically extending posts are provided on the bracket so that the entire holder (44) can be rotated for presenting the edge of the blade to different directions of rotation of the sharpening wheel (12).

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IMPLEMENT SHARPENING DEVICE

Background of the Invention

Heretofore, there have been many types of machines for sharpening blades on implements such as scissors, however, normally they are relatively complicated or are not readily useable for sharpening an edge on the blade and for reversing the position of the blade for buffing the same edge. The sharpening of the edge normally takes place with a grinding wheel moving in the direction away from the cutting edge. When buffing the edge of the implement after the sharpening has taken place, this normally occurs with the buffing wheel moving in a direction toward the cutting edge.

Typical shears and scissors sharpeners are disclosed in U. S. patents 3,755,971; 1,381,416; 2,179,725; 3,574,268; 1,955,366; 1,200,605, and 1,472,760.

Summary of the Invention

This invention relates to an apparatus for holding a blade of an implement such as a pair of scissors while sharpening an edge thereon. The device includes a blade holder that is carried on an outer extremity of an arm arrangement which includes a plurality of links. The links are pivotably connected together permitting the blade holder to be moved horizontally in a straight line across the face of the sharpening wheel. The blade holder includes a support bracket which has an arcuate groove provided therein. A clamping jaw mechanism extends outwardly from the support bracket and positions the edge of the blade to be sharpened adjacent



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the surface of the sharpening wheel. A pair of posts extend laterally from the clamping jaw mechanism into the arcuate groove so that the angle of the clamping jaw can be adjusted by sliding the pair of posts within
5 the groove. One of the posts is threaded for receiving a knob that can be drawn tightly adjacent the edge of the bracket for fixing the angle of the clamping jaw and, in turn, the blade relative to the sharpening wheel. The arcuate groove has a center of radius which is at
10 approximately the edge of the blade being held by the clamping jaws. As a result of the manner in which the clamping jaws are attached to the support bracket through the posts extending into the arcuate groove, the blade can be positioned at substantially the same center
15 point on the wheel whether it is set at a flat or an angle, for example, 55°.

The blade holder can be readily turned over so that the blade can be held adjacent a first grinding wheel with the direction of rotation of the grinding
20 wheel being into the cutting edge being sharpened. When it is desired to put a fine edge or buff the edge of the blade with a buffing wheel, then the fixture with the blade therein is turned over so that the direction of rotation of the grinding wheel is toward the cutting
25 edge being buffed. This is accomplished by providing posts on the outer ends of the bracket which can be readily inserted into a bore provided in the outer extremity of the last link forming part of the arm arrangement.

30 Accordingly, it is an important object of the present invention to provide an apparatus for sharpening the blades of implements which includes a blade holder that can be readily turned over for sharpening the edge in two different directions.



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Another important object of the present invention is to provide an apparatus for sharpening the blades of implements such as knives and scissors wherein the angle that the blade is presented to the sharpening wheel remains the same regardless of the wear of the wheel.

Still another important object of the present invention is to provide an apparatus for sharpening the blades of implements such as scissors and knives wherein the edge of the blade can be readily moved across the face of a sharpening wheel.

Still another important object of the present invention is to provide an apparatus for sharpening the edge of a blade wherein the angle that is desired to be sharpened thereon can be readily and accurately adjusted.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown and wherein:

Brief Description of the Drawings

Figure 1 is a perspective view of a blade sharpening device constructed in accordance with the present invention;

Figure 2 is an enlarged plan view illustrating the blade holder holding the edge of a knife in different sharpening positions;

Figure 3 is a side elevational view illustrating the manner in which the angular position of the blade holder can be changed.



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Description of a Preferred Embodiment

Referring in more detail to the drawings, there is illustrated a conventional sharpening device which includes a motor 10 which has a sharpening wheel 12 positioned on one side with a buffer wheel 14 carried on the other side thereof. This may be any conventional grinding or sharpening wheel equipped with the standard items such as protective shields 16 and ON/OFF switch 18. The motor 10 is supported on a base 20 that is, in turn, secured to the flat metal plate 22.

Mounted on the plate 22 is a blade holder that is supported on an arm arrangement. The arm arrangement includes a plurality of links 24, 26, and 28. The lower link 24 has its inner end pivotably attached by means of a vertically extending post to the base plate 22. The outer end of the link 24 has a vertically extending post provided thereon which extends upwardly through a bushing provided in an end of link 26. The other end of the intermediate link 26 has a post 32 projecting upwardly therefrom which extends into a bushing provided on an end of the link 28. There is provided a vertically extending bore 34 in the outer extremity of the link 28 into which a pin or post 36 carried on a bracket extends. The bracket is substantially rectangular shaped and has another post 42 projecting out of the upper end thereof. A blade holder generally designated by the reference character 44 is carried by the vertically extending bracket 40. The blade holder includes a pair of elongated members 46 and 48 slidably positioned relative to each other. Elongated member 46 has a flange 50 provided on the outer end thereof. Extending through the flange 50 is a threaded bore through which a threaded bolt 52 extends to threadably engage the slidable member 48. By rotating



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an enlarged knob 54a provided on the end thereof, the slidable member 48 is moved longitudinally relative to the member 46. Adjacent the other end of the slidable member 48 is one face 54 of a clamping jaw. This face
5 is angled as shown in Figure 3. Directly opposite the face 54 of the clamping jaw is a face 56 forming part of the clamping jaw. The face 56 is carried on the inner end of elongated member 46.

By rotating the enlarged knob 54, the two
10 faces 54 and 56 can be separated for receiving and holding a blade 58 to be sharpened. As shown in Figure 1, the blade 58 forms part of a pair of scissors 60.

The holder 44 is attached to the vertical bracket by means of a pair of laterally extending posts
15 60 and 62 which project out of the side wall of the elongated member 46 through an arcuate groove 64 which is provided in the vertically extending bracket 40. A knob 66, as shown in Figure 1, is threaded on the post 62 so that when such is rotated, it draws the blade
20 holder 44 tightly up against the opposed surface of the vertically extending bracket 40 for holding such tight in a fixed position.

As seen in Figure 3, the center of curvature of the groove 64 is approximately at the outer edge of
25 the blade to be sharpened which is normally approximately 1/8" out beyond the holding jaws of the holder 44.

The posts 60 and 62 permit the blade holder to be rotated for changing the angle that the gripping jaws present the edge of the blade to the grinding
30 wheel. As a result of the two posts 60 and 62 being utilized, the edge of the blade is always presented to the true center of the cutting wheel regardless of the angle that the holder 44 is positioned. Such is particularly advantageous since the blade that is to be



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sharpened is always presented at the same point on the grinding wheel and, as a result, at the same angle regardless of the wear of the wheel.

When sharpening an edge on an implement such as a knife 70 or a blade of a pair of scissors 60, first the blade is presented to the grinding wheel 12 for sharpening the blade to the desired angle that is set by rotating the holder 44 and tightening the knob 66. The holder does not tend to move as a result of the two posts 60 and 62 being utilized to position it within the vertically extending bracket 40. As shown in Figure 2, the pivotable arms 24, 26 and 28 permit different angle surfaces and lengths to be readily presented to the grinding wheel. It is noted, however, that all of the surfaces to be sharpened are presented at the same horizontal plane relative to the grinding wheel. During the sharpening operation on wheel 12, the grinding wheel is rotated into the cutting edge of the scissors. After the initial edge has been sharpened on the blade, it is desired that the scissors be buffed on a buffing wheel being with the direction of rotation of the buffing wheel towards the cutting edge. This is readily accomplished by merely lifting the vertical bracket 40 and turning it over and inserting the post 42 back into the bore 34 carried on the end of the arm 28. The entire arm arrangement is then shifted laterally in front of the buffer wheel 14.

While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.



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What is claimed is:

- 1 1. An apparatus for holding a blade of an
2 implement while sharpening an edge thereon with a
3 rotating sharpening wheel comprising:
- 4 a blade holder supporting said blade to
5 be sharpened;
- 6 an arm arrangement including a plurality
7 of links supporting said blade holder on an outer
8 extremity of said arm;
- 9 means for pivotally connecting said links
10 together permitting said blade holder to be moved hori-
11 zontally in a straight line across the face of said
12 sharpening wheel;
- 13 a vertically extending bore provided in
14 said outer extremity of said arm;
- 15 a pair of opposed vertically extending
16 posts provided on said holder, said posts corresponding
17 in diameter to the diameter of said bore so that either
18 post can be inserted in said bore for supporting said
19 holder on said arm and permitting said holder to be
20 turned over for reversing the face of said blade to the
21 direction of rotation of said sharpening wheel.

- 1 2. The apparatus as set forth in claim 1
2 further comprising:

said holder including,



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- 4 (i) a vertically extending bracket;
- 5 (ii) said pair of vertically extending posts
6 extending out of opposed ends of said
7 bracket;
- 8 (iii) an arcuate groove provided in said
9 bracket;
- 10 (iv) a clamping jaw mechanism supporting
11 said blade, and
- 12 (v) a pair of posts extending from said
13 clamping jaw into said groove securing
14 said clamping jaw to said vertically
15 extending bracket.
- 1 3. The apparatus as set forth in claim 2 further
2 comprising:
- 3 a locking means for adjustably fixing said
4 clamping jaw mechanism relative to said vertically
5 extending bracket by sliding said pair of posts in said
6 arcuate groove so as to change the angle that said blade
7 is held relative to said sharpening wheel.
- 1 4. An apparatus for holding a blade of an
2 implement while sharpening an edge thereon with a
3 rotating sharpening wheel comprising:
- 4 a blade holder;



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5 an arm arrangement including a plurality of
6 links supporting said blade holder on an outer extremity
7 of said arm;

8 means pivotably connecting said links
9 together permitting said blade holder to be moved
10 horizontally in a straight line across the face of said
11 sharpening wheel;

12 said blade holder comprising:

13 (i) a support bracket;

14 (ii) an arcuate groove provided in said
15 bracket;

16 (iii) a clamping jaw mechanism extending
17 outwardly from said support bracket
18 positioning said blade to be sharpened
19 adjacent said sharpening wheel, and

20 (iv) post means extending from said clamping
21 jaw mechanism into said groove for
22 adjustably positioning said clamping
23 jaw relative to said sharpening wheel.

1 5. The apparatus for holding a blade as set
2 forth in claim 4 further comprising:

3 said post means including a pair of spaced
4 posts extending into said arcuate groove, and



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5 locking means for fixing the position of
6 said clamping jaw for holding said blade at a predeter-
7 mined angle relative to said sharpening wheel.

1 6. The apparatus as set forth in claim 5
2 further comprising:

3 said arcuate groove having a center of
4 radius which is at approximately the edge of said blade
5 held in said clamping jaw for being sharpened.

1 7. The apparatus as set forth in claim 4
2 further comprising:

3 attachment means carried on opposed ends of
4 said support bracket so that said support bracket can
5 be attached to the outer end of said outer extremity of
6 said arm by either end;

7 whereby said blade to be sharpened can be
8 presented to said sharpening wheel with the wheel rotating
9 towards the edge of said blade or away from the edge of
10 said blade.



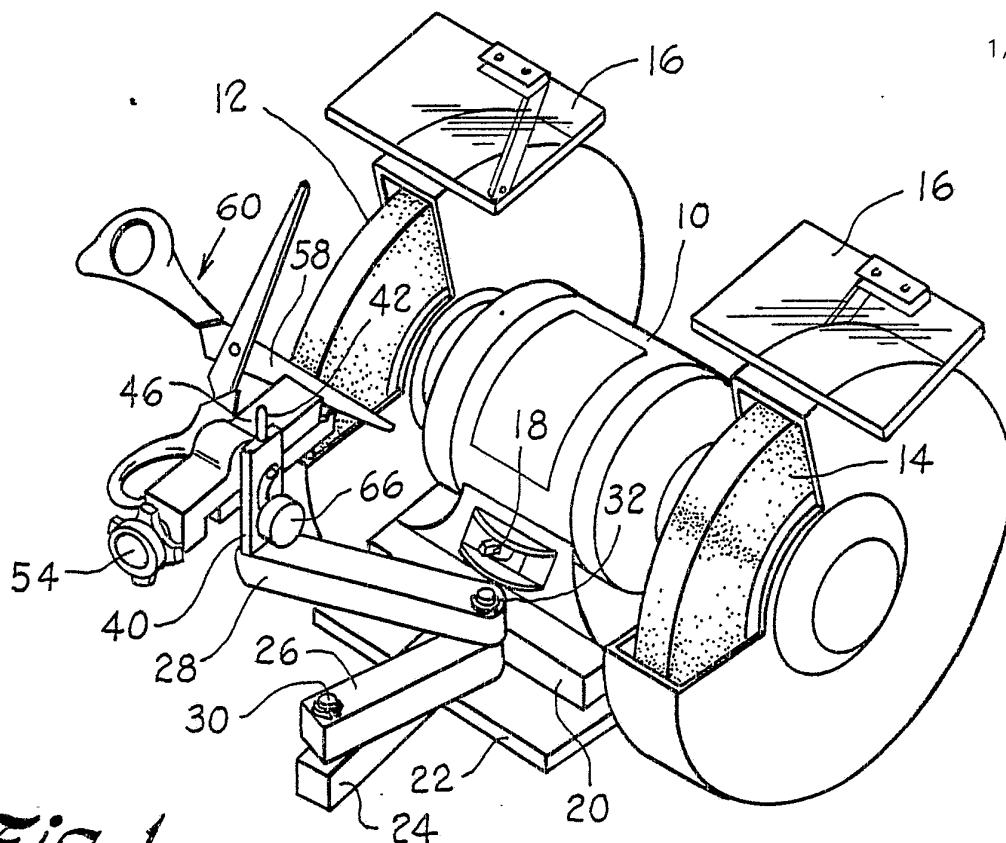


Fig. 1

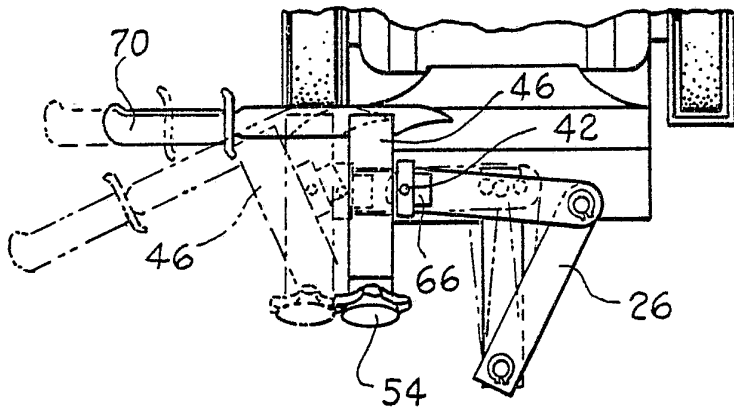


Fig. 2

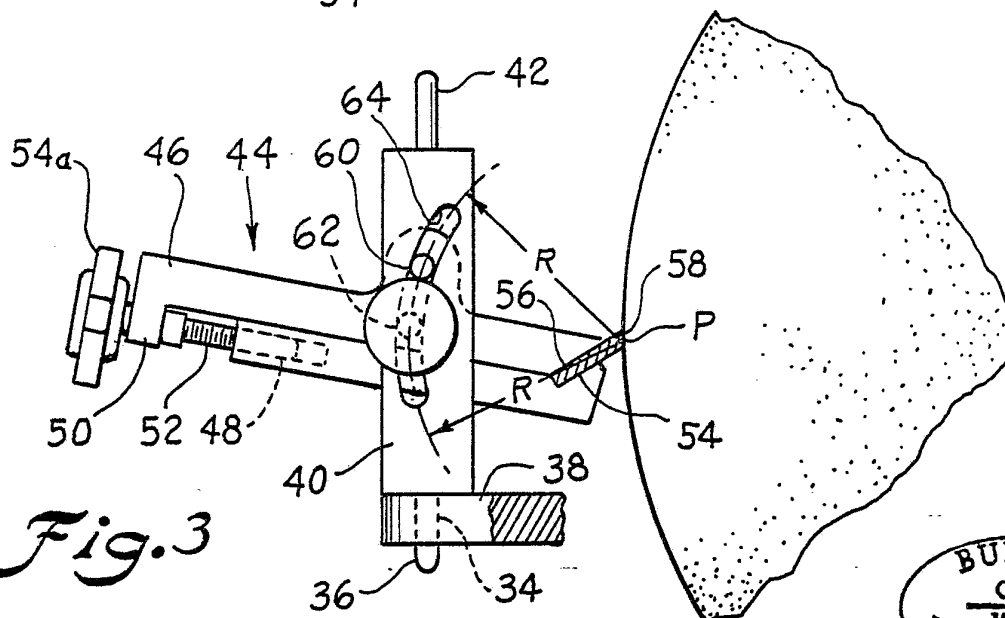


Fig. 3

INTERNATIONAL SEARCH REPORT

International Application No PCT/US84/00196

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ³		
According to International Patent Classification (IPC) or to both National Classification and IPC		
US 51/218A Int. CL. ³ B24B 3/52		
II. FIELDS SEARCHED		
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Classification System	Classification Symbols	
US	51/218R. 51/218A. 51/219R, 51/220, 51/224, 51/285 76/82.2 51/92BS	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category [*]	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
Y	US.A, 2,435,671 Published 10 February, 1948 Clark	1-7
Y	US.A, 2,455,562 Published 7 December, 1948 Crowther	1-3&7
Y	US,A, 438,581 Published 14 October 1890 Hastings	2 3,5&6
A	US,A 1,200.605 Published 10 October, 1916 Gleckler	
A	US,A 2,097,068 Published 26 October, 1937 Johnson	
A	US,A, 1,042.253 Published 22 October. 1912 Nilsson	
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IV. CERTIFICATION		
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