

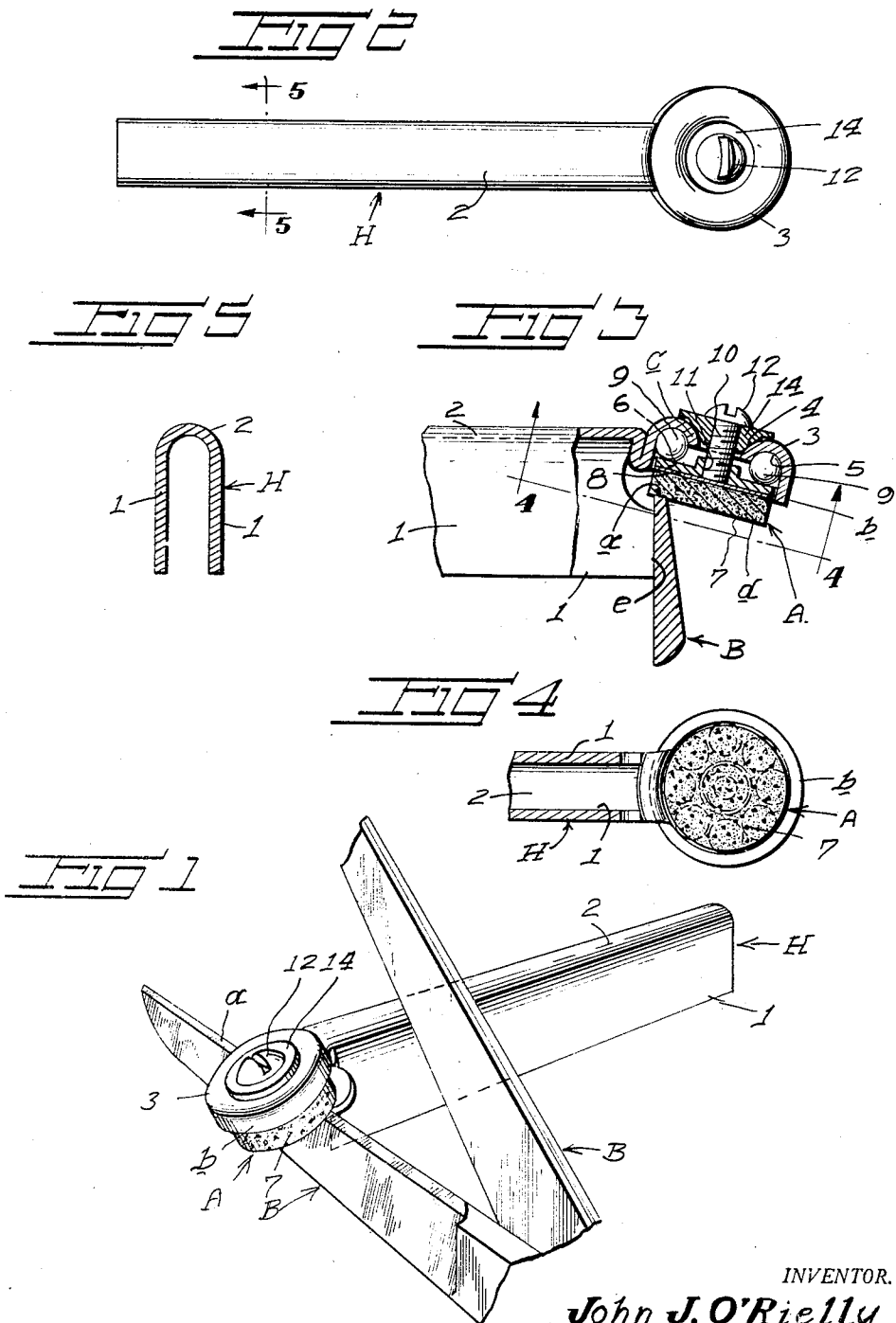
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BLADE SHARPENER

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BLADE SHARPENER

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This invention relates to a blade sharpener and has relation more particularly to a device of this kind especially adapted for use in connection with a blade having a beveled cutting edge.

Primarily it is an object of this invention to provide a device of this kind embodying means whereby the abrasive action of the same on the work is such to assure the maintenance of the original degree of the bevel of the cutting edge and thus assure the blade retaining its desired efficiency.

It is also an object of the invention to provide a device or tool of this kind which substantially eliminates burring or roughening of its work which would otherwise interfere with the cutting action of the blade, more especially when such blade is comprised in shears or the like.

Another object of the invention is to provide an article or tool of this kind wherein the abrasive or working element is mounted for free rotation as the tool or device is drawn along the blade, thus avoiding grooving of the working edge of the abrasive element and which grooving would materially impair the efficiency of the device or tool.

A still further object of the invention is to provide a device or tool of this kind which is manually operated and wherein the abrasive element constitutes the only movable part.

With the above and other objects in view, the invention consists in the details of construction and the arrangement of the several parts to be hereinafter described and more particularly claimed.

In order that the invention may be the better understood, reference will be had to the accompanying drawing wherein like characters of reference refer to similar parts, and wherein

Figure 1 is a view in perspective of an abrasive tool constructed in accordance with an embodiment of the invention and in working position with respect to a blade.

Figure 2 is a view in top plan of the tool as illustrated in Figure 1.

Figure 3 is a sectional view taken substantially on the line 3-3 of Figure 2, and

Figure 4 is a sectional view substantially on the line 4-4 of Figure 2.

Figure 5 is a detailed sectional view taken substantially on the line 5-5 of Figure 2.

In the embodiment of the invention as illustrated in the accompanying drawing, H denotes a handle member of desired dimensions and preferably of a size to be easily and effectively

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grasped by a hand of a person. The handle member H, as herein comprised, is substantially U-shaped in cross section from end to end and includes the parallel side walls or plates 1, and an intermediate or central connecting portion 2, shown in the accompanying drawings from end to end on an outbow curvature of desired radius to facilitate the grasping of the handle member.

The forward end of the portion 2, is continued by an extension plate 3, disposed outwardly and downwardly on an angle of substantially the same degree as the degree of angle of the bevel *a* of the blade B in connection with which the device or tool is intended to be used. In the drawings the blade B is shown as being comprised in a pair of shears, but it is to be understood that a device or tool embodying the present invention can be employed with advantage in connection with other types of blades wherein such blades have a beveled cutting edge.

As shown in the accompanying drawings, the extension plate 3 is substantially circular in plan and is integral with the portion 2 of the handle member H and the arrangement is such that the handle member H with the extension 3 can be readily produced in a single operation from one piece of sheet or blank of material possessing the required strength so that such structure is substantially non-flexible.

The plate 3 is formed to provide a central flared depression in its top side and an opening 4 in the bottom thereof and an annular channel or groove 5 in its lower side, which is substantially concentric to the axis of the opening 4. The outer wall *b* of the groove 5 extends a material distance below the inner wall *c*.

In the assembly of the article or tool, the outer or extended portion of the wall *b* closely surrounds the inner portion of an abrasive element A, or more particularly the backing plate 6. This plate 6 is of such material possessing required strength and rigidity. Rigid with the outer face of the plate 6 is the working disc or stone 7, of any abrasive material of proper quality and which has the peripheral portion *d* of its under face flat and substantially concentric to the axial center of the element A.

The securement of the disc or stone 7 to the plate 6 is shown in the accompanying drawings as by an interposed adhesive lamination 8 so that the peripheral portion of the outer face of the plate 6 will be smooth and unbroken to provide proper contact therewith of the anti-friction elements 9, herein disclosed as ball bearings.

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These elements 9, have desired engagement with the race-way afforded by the annular groove 5 so that the applied abrasive element A may have desired rotation with a minimum of frictional resistance.

Freely directed from above through the opening 4 of the plate 3, is a headed shank 10, herein disclosed as a conventional type of bolt. This member or bolt 10 threads downwardly through a flared nut 14, seated within the depression, through the opening 4 and into an apertured boss 11 formed centrally on the upper side of the plate 6. The shank or bolt 10 serves to hold the plate 6 of the element A in effective contact with the elements 9 and the axial length of the opening 11, which is open at both ends, and the length of the shank or bolt 10 is such whereby contact of the inserted end of the shank or bolt 10 direct with the back face of the disc or stone 7 will prevent such contact of the head 12 with the marginal portion of the opening 4 which would interfere with the desired free rotation of the abrasive element A.

In practice the handle member H is grasped in the hand of the user and the end edges *e* of the walls or plates 1 are placed against the face of the blade B at the low side of the bevel *a* with the portion *d* of the member A in contact with the bevel *a*. As the edges *e* are substantially at right angles to the longitudinal axis of the handle member A, it will be assured that the face *d* will be on the required angle as determined by the angle of the bevel *a*. This is further assured as the face *d* is flat and in a plane substantially at right angles to the axis of the member A. It is also to be understood that the face *d* is of a width in excess of the width of the bevel *a* to assure best results.

After the article or tool has been initially applied to the blade, it is moved back and forth along the blade and such strokes result in the disc or stone 7 having both a sliding and rotating contact with the bevel *a* under such pressure as applied by the operator to so cut or grind the surface of the bevel *a* to effectively sharpen the same without burring or roughening the bevel *a* or grooving the face *d*.

The shank or bolt 10 is passed through a bearing washer 14 of a cross sectional configuration to fit snugly and freely within the outer enlarged end portion of the opening 11 and with which the head 12 of the applied bolt or shank 10 contacts from above. This bearing washer 14 facili-

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tates the desired free rotation of the abrasive element A during a working operation.

From the foregoing it is thought to be obvious that a blade sharpener constructed in accordance with an embodiment of the invention is particularly well adapted for use by reason of the convenience and facility with which it can be produced and used.

I claim:

1. In a blade sharpener, a handle, a circular element extending obliquely downward from the top side of the forward end of said handle, said element being formed with a central flared and apertured depression in its top side and an annular channel in its lower side concentrically of said depression, a flared nut seated within said depression, a screw threaded downwardly through said nut and projecting freely through said aperture, a circular plate supported by said screw below said element, ball bearings in said channel and in rolling contact with said plate, and an abrasive disk secured on the lower side of said plate, the angular relation between the lower side of said disk and the adjacent end of said handle coinciding with the angle of bevel of the cutting edge of the blade to be sharpened.

2. The invention as defined in claim 1, with the said handle and said circular element of unitary construction, the same being formed of a strip of sheet metal with the handle portion constituted in a major length of the strip bent longitudinally to inverted U-shape in cross-section, and said circular element is connected to the adjacent end of the handle portion by a transversely folded portion which is curved to form a continuation of the outer side wall of the said channel.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
557,051	Cohen	Mar. 24, 1896
662,629	Rose	Nov. 27, 1900
954,289	Holt	Apr. 5, 1910
1,941,367	Silver et al.	Dec. 26, 1933
2,009,420	Till	July 30, 1935

FOREIGN PATENTS

Number	Country	Date
201,338	Great Britain	Aug. 2, 1923