

(No Model.)

P. W. STRONG.
SHARPENING TOOL.

No. 577,991.

Patented Mar. 2, 1897.

Fig. 1,

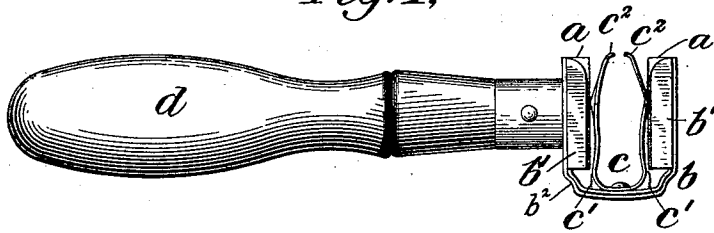


Fig. 2,

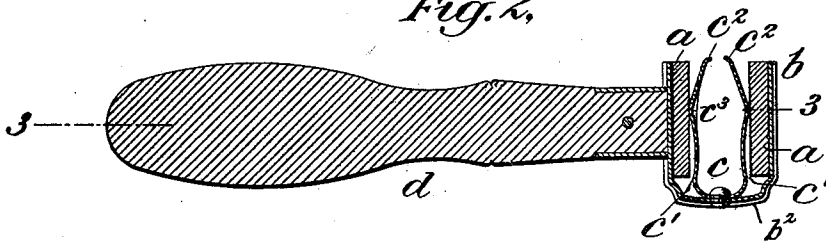


Fig. 3,

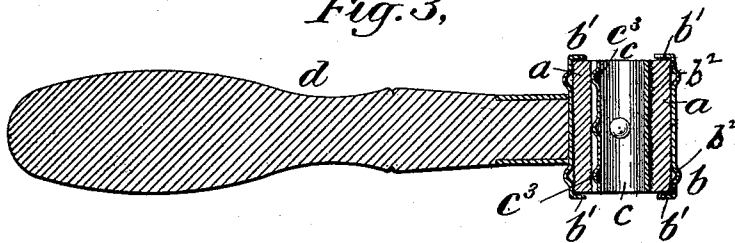
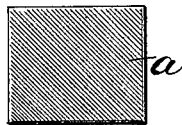


Fig. 4,



Witnesses:-

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UNITED STATES PATENT OFFICE.

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SHARPENING-TOOL.

SPECIFICATION forming part of Letters Patent No. 577,991, dated March 2, 1897.

Application filed July 12, 1895. Serial No. 555,702. (No model.)

To all whom it may concern:

Be it known that I, PRESTON WILLIS STRONG, a citizen of the United States, and a resident of the city of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Sharpening-Tools, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof.

10 This invention relates to tools or devices for sharpening metal articles, such as knives, and has for its objects to provide a simple and inexpensive device or tool for hand manipulation adapted to sharpen a knife or similar
15 edge-tool by contact of an abrading-surface with the sides of the knife in proximity to and at the edge of the knife, but without pressure against or possibility of injury to the edge of the knife, and to provide for readily changing the abrading action from one side to the
20 other of the knife edge without adjustment or change of position of the sharpening-tool, and also to provide for adjusting and reversing the abrading plate or plates, so as to present fresh abrading-surfaces in place of other
25 abrading-surfaces that have been dulled by use, and for the removal of an abrading-plate and the substitution of a new abrading-plate in place thereof whenever desired.

30 My invention has other objects and advantageous features hereinafter referred to.

According to my invention abrading means, which may consist of two abrading-plates, are held in a holder with exposed abrading-surfaces oppositely arranged, and an inclined
35 guide is provided for each surface, so that a knife may be drawn through the tool in contact with an abrading-surface at either one or the other side of the knife or may be drawn
40 through the tool so as to alternately sharpen the knife first on one and then on the other side of its edge, as may be desired. If desired, a single abrading-plate may be employed and the tool reversed to sharpen the
45 knife on opposite sides of its edge. The guide which I propose to employ is a spring-guide in contact with the abrading-surface on a substantially transverse line and with an inclined guide-surface above said line of contact, and this spring extends upward from the
50 bottom of the holder and approaches the abrading-surface near the root of the spring,

so as to form a side stop to a knife accidentally pushed down below the line of contact, thereby preventing injury to the edge of the knife. 55 The spring guide and stop as employed by me is a bowed spring, the two free ends of which constitute guides for the two opposite exposed abrading-surfaces.

My invention also includes other features 60 of construction, which will now be more particularly set forth in describing the accompanying drawings.

Figure 1 of the drawings is a front elevation of a knife-sharpener embodying my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a longitudinal horizontal section of the same on the line 3 3, Fig. 2. Fig. 4 is a face view of one of the
65 abrading-plates. 70

The abrading-surfaces may be formed upon a plate or block or may be surfaces of an oil-stone, and preferably two steel plates *a a* are provided having roughened surfaces or provided with file-teeth, and, as shown, having
75 file-teeth extending obliquely across their surfaces, (see Fig. 4,) whereby an oblique or draw filing action is had upon the knife or other article. The two opposite faces of each
80 plate may be thus prepared and may have teeth of different degrees of fineness, so that one surface or a part of either surface may be adapted for a coarse or rough preliminary
85 sharpening operation and the other surface or other parts of either surface may be adapted for a smooth and fine finishing sharpening operation, or the user may be provided
90 with two tools, one having abrading-surfaces adapted for rough sharpening and the other having abrading-surfaces adapted for fine sharpening. A portion only of one face of
95 an abrading-plate is in operative position at one time and the abrading-plates may be reversed or changed in position or adjusted as desired to bring fresh surfaces into operative
100 position, as will hereinafter appear. A plate having but one face provided with file-teeth or only a portion of one face provided with file-teeth may be employed; but this diminishes the reserve abrading-surface afforded
by each plate.

The holder *b* is preferably made of spring sheet metal, as spring brass, iron, or steel, and is preferably bent or stamped up into U

form, open at the top and partly open at the front and rear and having flanges $b' b'$ along its sides at the front and rear to form two pockets, one at each side of the holder, for receiving the abrading-plates $a a$, each of said flanges $b' b'$ being narrower than the thickness of the abrading-plate held in the pocket, so that the inner face or face nearest the middle of the holder of each abrading-plate is exposed, and a knife in contact with said surface will be held clear of the flanges b' . The exposed inner surfaces of the abrading-plates $a a$ are therefore oppositely arranged, as will be seen, so that if a knife is drawn through the tool in contact with the abrading-plate at the right side of the holder the right side of the knife will rub against the inner abrading-surface of that plate, and again if the knife is drawn through the tool in contact with the abrading-plate at the left side of the holder the left side of the knife will rub against the inner abrading-surface of that plate.

For the purpose of guiding the knife as it is drawn through the holder b and also for holding the abrading-plates a in place and for other purposes, as will hereinafter appear, spring-guides are provided, such guides in the construction shown forming parts of a bowed spring c , said bowed spring c resting at its middle portion against the bottom of the holder a and preferably secured thereto by a rivet, as shown, and having two upwardly-extending portions coming in contact with the inner exposed abrading-surfaces of the plates $a a$ on transverse lines and preferably at or slightly above the middle transverse lines of said surfaces, as shown, and terminating in inclined guides $c^2 c^2$ above said lines of contact with the abrading-surfaces. The two parts of the spring are oppositely or reversely arranged and thus the guides $c^2 c^2$ are inclined in opposite directions, each guide c^2 being inclined upwardly and away from its abrading-surface.

The inclination of the guides should correspond with the greatest bevel desired in the knives or other articles for which the tool is designed, and where it is desired to produce an edge more acute than that provided by the guides the article may be held at a less inclination, which may be readily measured by eye relatively to the guides. As a result of the spring or yielding action of the guides $c^2 c^2$ a spring-pressure is exerted upon the side of the knife-edge in contact with the guides as the knife is drawn through the tool, and this spring action also compensates for varying thicknesses of plates and for wear. The spring c also permits of the ready insertion and removal of the abrading-plates and their reversal or change of position, as desired, as the spring or part spring in contact with any abrading-plate may be readily pushed inward away from the plate and the plate removed. If a plate is removed and then inverted or turned upside down and re-

placed, the portion of that plate previously below the middle line will now be above that line, and thus a new abrading-surface will be exposed, and a plate may be slightly changed in position by moving it up or down in the holder, and thus new surfaces brought into operative position. So also the reversal of a plate having file-teeth on both faces will expose a new face for the abrading operation.

It will be observed that each of the two parts of the spring c approaches or is in proximity to the surface of its abrading-plate at a point c' near the root of the spring. The object of this construction is to provide a side stop for a knife which may be accidentally or otherwise forced past the transverse line of contact of an abrading-plate and the spring c , so as to prevent the edge of the knife from striking against the bottom of the holder, and as these points c' are near the roots of the parts of the spring it will be practically impossible to press the spring away from the abrading-plate, and the knife will therefore be tightly held without injury to its edge.

In the operation of drawing the knife through the tool small filings will be formed at the line of contact of the knife-edge. In the construction shown at the right hand in the drawings, in which construction the line of contact of the spring and abrading-plate is continuous, these filings may be discharged by occasionally pressing the knife downward beyond the line of contact of the spring and abrading-plate, thereby making an opening for the filings to fall through, and also forcing the filings down past the line of contact, but to provide for the discharge of these filings as rapidly as they are formed I employ the construction shown at the left hand and hereinafter particularly claimed, in which construction corrugations c^3 are formed in the part of the spring c in contact with the abrading-plate, whereby the spring is in contact with the abrading-plate at separate points along a transverse line, said corrugations extending from points above the line of contact downward a short distance below the line of contact. These corrugations c^3 also stiffen the somewhat angular bend at the line of contact of the spring and abrading-plate.

I have found in practice that the filings are more readily discharged at the right-hand abrading-plate than at the left-hand abrading-plate with the file-teeth cut as shown, probably for the reason that the downward inclination of the file-teeth is toward the direction of movement of the knife drawn through the tool in the exposed surface of the right-hand abrading-plate and against said direction of movement in the left-hand abrading-plate.

The holder b is shown as provided with a suitable socket to receive a handle d , said handle permitting the tool to be held in one hand, as the left hand, of the user, and a knife held in the other hand, as the right hand, of

the user, to be drawn through the tool, and, as will be seen, the direction of movement of the knife with relation to the hand holding the sharpening-tool is such that there is practically no liability of injury to the user. In the use of the sharpener the holder may be placed upon a table or other support and firmly held by the handle *d* against said support while the knife is being drawn through the sharpener in contact with one or the other of the abrading-surfaces. Corrugations or beads *b*² *b*³ are shown as formed in the holder *b*, running from end to end thereof to improve the appearance of and to stiffen the holder.

In the following claims, and to some extent in the above description, I have for convenience used the term "abrading-plate," intending thereby to cover a plate or block or oil-stone or other piece or part having an abrading-surface.

It is of course evident that various modifications may be made in the construction shown in the drawings and above particularly described, and I do not therefore limit myself to such specific construction; but

What I claim, and desire to secure by Letters Patent, is—

1. In a sharpening device, the combination with a holder, of an abrading-plate therein, and a spring normally in contact with and pressing against an abrading-surface of said plate, and in contact with said abrading-surface between the fixed portion and the free end of said spring, the portion of said spring from the line of contact with the abrading-surface to the outer free end of the spring being inclined at an acute angle to the abrading-surface so as to constitute an inclined spring-guide to receive the edge to be sharpened between this guide and the abrading-surface, substantially as set forth.

2. In a sharpening device the combination with a holder of abrading means held therein, with two exposed abrading-surfaces facing in opposite directions and with two inclined spring-guides oppositely arranged, each spring-guide being normally in contact with and pressing against one of said exposed abrading-surfaces, substantially as set forth.

3. In a sharpening device the combination with a holder of two abrading-plates held therein with exposed abrading-surfaces oppositely arranged, and two inclined spring-guides each in contact with one of said plates at an exposed surface thereof, substantially as set forth.

4. In a sharpening device, a holder having a bottom part and sides and having two pockets formed therein, one at each side, and each pocket adapted to receive an abrading-plate

and to hold the same with its inner face exposed, and a bowed spring adapted to press against the inner exposed surfaces of both abrading-plates, and having inclined guide-surfaces above lines of contact with such plates, substantially as set forth.

5. In a sharpening device, a holder having a bottom part and sides and having two pockets formed therein, one at each side, in combination with two abrading-plates, one in each pocket, the opposite inner surfaces of said plates being exposed, and a spring extending up from the bottom part of the holder and pressing against said exposed inner surfaces of the abrading-plates, substantially as set forth.

6. In a sharpening device the combination with a holder of an abrading-plate held in said holder with an exposed abrading-surface and an inclined spring-guide in contact with said exposed abrading-surface at separate points on a substantially transverse line, substantially as set forth.

7. In a sharpening device the combination with a holder having a pocket therein open at one side to expose an abrading-surface of said plate, and a spring on said holder having corrugations therein arranged to come in contact with the exposed abrading-surface at separate points on a substantially transverse line, said spring having an inclined guide-surface above said line of contact with the abrading-surface, substantially as set forth.

8. In a sharpening device, in combination, a holder having a bottom part and sides and having pockets formed therein and two abrading-plates in said pockets with opposite exposed surfaces, a spring pressing against said exposed surfaces of the abrading-plates and terminating in oppositely-arranged inclined guides, and a handle extending from one side of said holder, substantially as set forth.

9. In a sharpening device, in combination, a holder having a bottom part and sides and having flanges forming pockets at each side thereof, two abrading-plates, one in each pocket, said plates having exposed inner abrading-surfaces, a bowed spring pressing against said exposed abrading-surfaces on substantially transverse lines and terminating in oppositely-arranged inclined guides, and a handle extending from one side of said holder, substantially as described.

This specification signed and witnessed this 11th day of July, 1895.

PRESTON WILLIS STRONG.

In presence of—

HENRY D. WILLIAMS,
EVARTS L. PRENTISS.