Feb. 1, 1949. S. TARAPCZYNSKI 2,460,552

KNIFE SHARPENER

Filed May 22, 1947

Fig. 1.

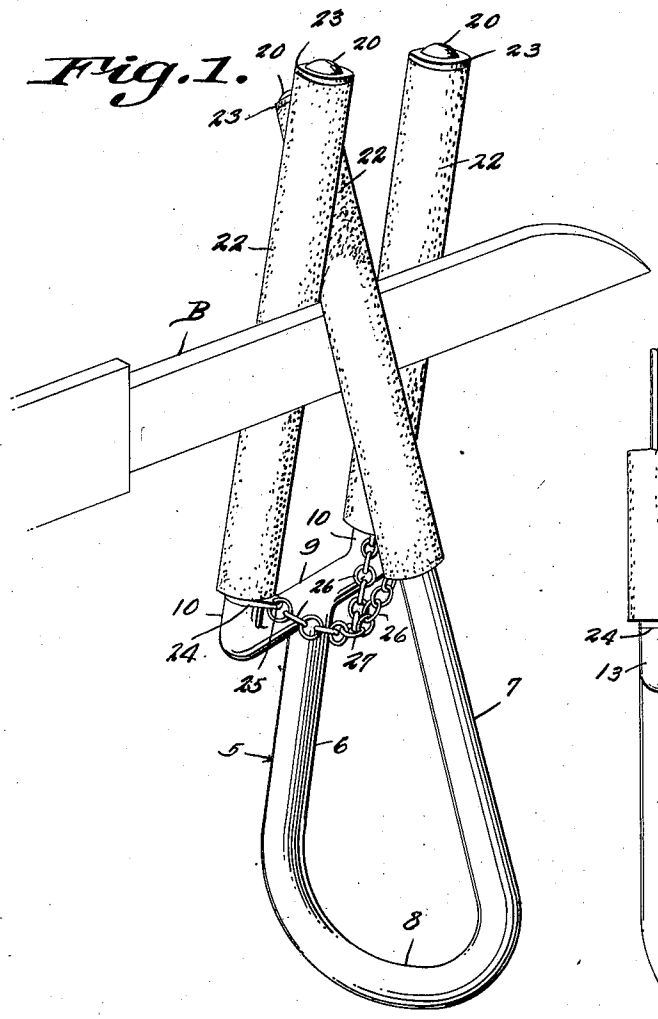


Fig. 2.

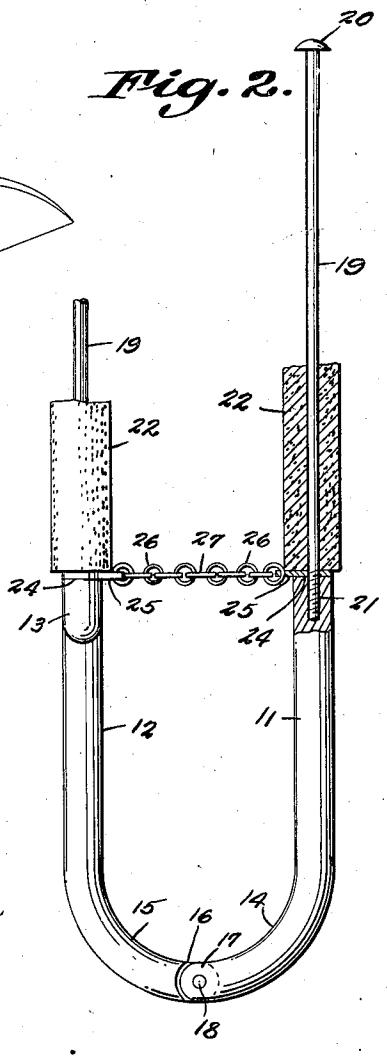
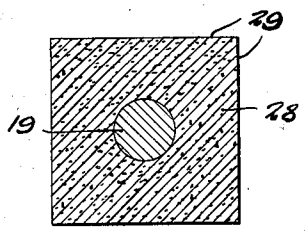


Fig. 3.



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KNIFE SHARPENER

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4 Claims. (Cl. 51—214)

1

This invention relates to devices for sharpening knives and the like, and more particularly, has reference to a device of the character stated embodying the use of a plurality of rotatable stones, that are movable into position relative to each other to grind abrasively the sides of a cutting edge of a knife blade.

The primary object of the invention is to provide a knife-sharpening device of this type wherein wear of the abrasive surfaces of the stones may be evenly distributed around the entire outer surfaces.

Another important object of the invention is to provide a device of the character stated that will be capable of unusually inexpensive construction, and which will yet be of extreme durability and unusual operating efficiency.

Another important object of the invention is to provide a knife-sharpening device in which the stones are capable of removal from their holder with unusual ease, in the event a replacement becomes necessary.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the drawings, it being understood that changes may be made in the construction and arrangement of parts, without departing from the spirit of the invention as claimed.

Referring to the drawing

Figure 1 is a perspective view of a preferred embodiment of the invention, with the parts thereof in operating position to sharpen the blade of a knife held therebetween.

Figure 2 is a view partly in side elevation and partly in vertical section, with parts broken away, and showing a modified form of holder.

Figure 3 is a cross-sectional view taken through a modified form of stone.

Referring to the drawing in detail, the reference character 5 refers generally to one form of holder or handle, shown in Figure 1. This may be formed from a single length of material, of resilient quality, and comprises opposed stone-holding arms 6 and 7 integrally joined by a curved connecting end portion 8. In the position in which the arms 6 and 7 are illustrated in Figure 1, they are shown as being inclined toward each other, this being their operating position, whereby to bring sharpening stones held thereon into crossed relation. However, normally the arms 6 and 7 are spaced from each other in parallel relation by reason of the inherently resilient quality of the material used, however, they may both be gripped in one hand of the user and brought to the position illustrated. When the sharpening operation is completed, it is seen that their connecting end portion 8, being no longer held under compression, will automatically return them to their normal positions.

2

The arm 6 is shorter in length, preferably, than the arm 7, and carries on its free end the cross bar 9, having upturned ends 10 that are parallel to each other and to the arm 6.

Referring now to Figure 2, there is there illustrated a modified form of holder which is especially adapted to be formed from material not possessing the resilient qualities of the material used in the form described above. In this embodiment of the holder, the arms 11 and 12 are of the same conformation as the arms 6 and 7, the arm 12 carrying a cross bar having upturned parallel ends 13. The arms 11 and 12 normally are spaced from each other in parallel relation, as shown, but have curved end portions 14 and 15 respectively provided with interfitting ears 16 and 17, connected by the pivot pin 18. Thus, it is seen that although no resilient materials are used, the arms 11 and 12 may be gripped and brought toward each other for the purpose of performing the necessary sharpening operations.

In either event, the upturned ends of the cross bar, and the free end of the opposed arm, have mounted therein elongated rods 19, which preferably are formed at their free ends with heads 20. These may be suitably mounted in the holder so as to be immovable relative to the holder, by the provision of threaded ends 21 on the rods 19, engaged in correspondingly threaded openings in the holder. Obviously, other means for effecting the desired mounting could be used, and would be well within the spirit of the invention as claimed.

Rotatably carried by the rods 19 are elongated sharpening stones 22, which in the embodiment thereof illustrated in Figures 1 and 2, are of cylindrical formation, and are formed of a suitable abrasive material. Washers 23 are preferably interposed between the heads 20 of the rods 19 and the adjacent ends of the stones 22, for the purpose of permitting easier rotation thereof.

Interposed between the other ends of the stones 22 and the ends of the holder are flat rings 24, which also perform the function of washers, in addition to performing another function to be described immediately hereinafter.

The rings 24 are integrally formed with pro-

jecting marginal portions 25, respectively formed with openings to receive the ends of a plurality of chains 26 or like connecting means having the same flexible qualities. The other ends of the chains 26 are joined intermediate the stones by means of a ring 27.

These serve the purpose of preventing outward movement of the stones 22 and the arms of the holder beyond a point at which said members will be parallel, or substantially so, to each other.

In Figure 3, I have shown a modified stone construction, in which the stone 28 is not cylindrical in cross-section as are the stones 22, but rather is of square formation, having flat faces 29 equal in width to each other. In this embodiment, the stones 28 are also rotatable on the rods 19.

In operation of a device constructed in accordance with the invention, the rods 19 may be adjusted relative to the arms of the holder, whereby to permit either a fully free rotation of the stones 22, limited rotation thereof, or no rotation. Preferably, however, the stones 22 are permitted to revolve freely on the rods 19. The arms of the holder are then gripped in the hand of the user, the other hand holding a knife having a blade B. The blade B is then interposed between the stones, preferably with the cutting edge thereof turned upwardly, as shown clearly in Figure 1. The arms of the holder are then compressed by the user, so that the stones will assume a crossed relation, with one stone being interposed between the opposed stones. The knife is then moved forwardly and rearwardly, and as it is so moved, it will rotate one of the stones in one direction, while the other stones are rotated in an opposite direction. A certain amount of resistance to rotation will result by reason of the angular relation of the stones to the blade of the knife and to each other, whereby the desired abrasive action on the cutting edge will be effected.

At the same time, however, while a fully abrasive action results from the construction and arrangement described, the stones are being continually turned so as to present a fresh abrasive surface to the cutting edge. In this way, not only is wear on the stones 22 evenly distributed, but also, a better sharpening action is provided.

Obviously, the entire length of the abrasive surfaces of the stones can be used, by varying the compressibility of the grip of the user on the arms of the holder, and thereby positioning the blade-receiving notch formed by the crossed stones at different points between the ends of the stones, as desired.

In use of stones formed as illustrated in Figure 3, the stones 28 freely rotate on the rods 19. However, when they are crossed for sharpening operations, only one face 29 of each stone is used. In subsequent sharpening operations, the stones 28 may be turned on the rods 19 so as to present a different face 29. Thus, four sharpening faces are utilized in each stone, in turn.

What is claimed is:

1. A device for sharpening knives, comprising a holder having opposed arms normally disposed in spaced relation, rods constituting extensions of the respective arms and threadedly connected at one end to said arms, relatively elongated sharpening stones rotatably mounted on the rods, the stones being normally spaced apart when the arms are in normal position, means for inclining the stone-holding ends of the arms toward each other, whereby to cross the stones in angular relation, and a flexible connection extending between the arms, whereby to limit outward movement thereof beyond their normal positions.

2. A device for sharpening knives, comprising a holder having opposed arms normally disposed in spaced relation, rods constituting extensions of the respective arms and threadedly connected at one end to said arms, relatively elongated cylindrical sharpening stones rotatably carried by the rods, said threaded connections comprising means for adjusting the freedom of rotation of the stones, means for inclining the arms toward each other, whereby to cross the stones in angular relation, and a flexible connection extended between the arms, whereby to limit outward movement thereof beyond their normal positions, said rotatable mounting of the stones adapted to impart rotation thereto on reciprocation of a blade between the crossed stones.

3. A device for sharpening knives, comprising a holder having opposed arms normally disposed in spaced relation, rods constituting extensions of the respective arms and threadedly connected at one end to said arms, relatively elongated sharpening stones rotatably carried by the rods, said threaded connections comprising means for adjusting of the freedom of rotation of the stones, means for inclining the arms toward each other, whereby to cross the stones in angular relation, and a flexible connection extending between the arms, and adapted to prevent movement of the arms outwardly beyond a normal position.

4. A device for sharpening knives, comprising a holder having opposed arms normally disposed in spaced relation, rods constituting extensions of the respective arms and threadedly connected at one end to said arms, relatively elongated sharpening stones rectangular in cross-section rotatably carried by the rods, said threaded connections comprising means for adjusting the freedom of rotation of the stones, means for inclining the arms toward each other, whereby to cross the stones in angular relation, and a flexible connection extending between the arms, and adapted to prevent movement of the arms outwardly beyond a normal position.

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