

PATENT SPECIFICATION

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DRAWINGS ATTACHED



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(54) KNIFE SCABBARD OR HOLDER

(71) We, WILTSHIRE CUTLERY COMPANY PROPRIETARY LIMITED, a Company incorporated under the laws of the State of Victoria, Australia of 213 Sunshine Road, Tottenham, in the State of Victoria, Commonwealth of Australia, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to knife scabbards or holders, and for convenience will be hereinafter described in relation to knives of the kind used in an ordinary household for carving meat for example. It is to be understood however, that the invention is also applicable to other types of knives, irrespective of whether they are used in the home or industry.

It has long been a problem to maintain knives in a sharpened condition, especially when they are used frequently. The user of a knife does not always remember, or it is not convenient, to hone or otherwise sharpen the knife before each use, and consequently the cutting edge of the knife blade develops burrs which dull the cutting edge and make cutting difficult. If the knife is used on several occasions without sharpening, it might be necessary to remove a considerable amount of metal in order to again produce a keen cutting edge on the knife.

A principal object of the present invention is to provide storage means for a knife blade in the form of a scabbard or holder which serves to protect the cutting edge of the blade when the knife is not in use, and which incorporates a sharpening device whereby the cutting edge of the knife blade is automatically sharpened during movement of the knife blade into or out of the scabbard or holder.

A typical knife to which the invention applies includes a blade sharpened along a lower edge to form a cutting edge, and having a handle attached to or integral with the blade. The outer portion of the cutting edge remote from the handle may be curved

upwardly to merge at a point with the upper edge of the blade.

For convenience of description, the end of the scabbard through which the knife blade is received will be hereinafter referred to as the front end of the scabbard. Thus, the relative terms "front" and "rear", or words of similar import, as used throughout this specification are to be construed in relation to the front and rear ends of the scabbard.

Similarly, the words "upper" and "lower", or words of similar import, as used throughout this specification are to be construed in relation to the upper and lower (cutting) edges of the knife blade. In this regard, the scabbard of the invention will be hereinafter described as arranged to hold a knife blade with its cutting edge lowermost. It is to be realised however, that the scabbard can be mounted to support the knife blade upright or on its side.

According to one aspect of the present invention there is provided a knife scabbard including a hollow housing defining an elongate blade receiving passage, said passage being open at a front end to define an access opening through which a knife blade is insertable into said passage; characterised in that a sharpening device is attached to said housing in longitudinal alignment with said opening so as to be engageable with the cutting edge of said blade to sharpen same as said blade is moved lengthwise relative to said housing, and pressure means is attached to said housing and is operative to maintain a suitable pressure between said knife blade and said sharpening device during the blade sharpening operation.

According to a further aspect of the invention there is provided a knife scabbard including a hollow housing having a pair of opposite side walls, an upper wall, and a lower wall, said walls defining between them an elongate blade receiving passage, and a blade access opening is formed through a front end wall of said housing and communicates with said passage; characterised in that a sharpening device is attached to said housing in longitudinal alignment with

said opening so as to be engageable with the cutting edge of said blade to sharpen same as said blade is moved lengthwise relative to said housing, and guide means is provided on said housing to limit lateral tilting of said blade during the sharpening operation.

The end of the blade receiving passage not open to receive the blade may be closed by a rear end wall of the housing.

It is preferred that the passage is elongated and has a greater height than width.

Means may be provided for securing the housing to a bench, wall, cupboard, or other fixture.

The following description refers in more detail to the essential features and further optional features of the invention. To facilitate understanding of the invention, reference is made to the accompanying drawings where these features are illustrated in preferred form. It is to be understood however, that the essential and optional features of the invention are not limited to the specific forms of these features as shown in the drawings.

In the drawings:

Figure 1 is a longitudinal cross sectional view of one embodiment of the invention.

Figure 2 is a cross sectional view taken along line II—II of Figure 1.

Figure 3 is a front elevational view of the embodiment shown in Figure 1.

Figure 4 is a sectional view taken along line IV—IV of Figure 1.

Figure 5 is a sectional view taken along line V—V of Figure 1.

Figure 6 is a sectional view taken along line VI—VI of Figure 1 but showing the sharpening device in normal elevation for convenience of illustration.

Figure 7 is a sectional view taken along line VII—VII of Figure 1.

Figure 8 is a longitudinal sectional view of part of the scabbard according to Figure 1 and showing a knife blade being inserted into that scabbard.

Figure 9 is a view similar to Figure 1 but on a reduced scale and showing a knife blade fully inserted into the scabbard.

Figure 10 is a view similar to Figure 8, but showing the knife blade being removed from the scabbard.

Figure 11 is a part sectioned view taken along line XI—XI of Figure 10, parts being omitted for convenience of illustration.

Figure 12 is a plane view of the sharpening device shown in Figure 11.

Figure 13 is a view similar to Figure 11 but showing a modified form of sharpening device.

Figure 14 is a sectional view similar to Figure 7, but showing a modified form of guide means within the scabbard.

Figure 15 is a view similar to Figure 14

and showing yet another modification of the guide means.

Figure 16 is a view similar to Figure 6 showing still another modification of the guide means.

Figure 17 is a longitudinal sectional view of the front section of a modified form of the scabbard shown in Figure 1.

Figure 18 is a part sectioned front elevational view of a modification of the sharpening device.

Figure 19 is a sectional view of part of the scabbard showing adjusting means which may be used with the embodiment of Figure 1.

Figure 20 is a front elevational view of a modified cushion spring assembly for the sharpener device.

Figure 21 is a side elevational view of the assembly shown in Figure 20.

Figure 22 is a side elevational view of another modification of the cushion spring.

Figure 23 is a plan view of the modification shown in Figure 22.

Figure 24 is a side elevational view of yet another modification of the sharpening device mounting.

Figure 25 is a side elevational view of still another modification of the sharpening device mounting.

Figure 26 is a side elevational view of means for securing the scabbard to a support.

Figure 27 is a sectional view taken along line XXVII—XXVII of Figure 26.

Figure 28 is a plan view of still another modification of the sharpening device; and

Figure 29 is a side elevational view of yet another modification of the sharpening device.

In the preferred form shown in Figures 1 to 10 of the drawings, the scabbard housing 2 includes two side walls 3 and 4, an upper wall 5 and a lower wall 6 which cooperate to define the knife receiving passage 7. The aforementioned walls are preferably longer than the knife blade 8 (see Figure 9) to be contained within the passage 7 so as to provide complete protection for the cutting edge 9 thereof. Also, the front end of the passage 7 is partially closed by a front wall 11 having an aperture 12 therethrough, and the rear end of the passage 7 is completely closed by a rear wall 13 although that is not essential.

The aperture 12 is in the form of a slot having a width greater than that of the knife blade 8, but preferably no greater than twice the greatest width of that knife blade. With such an arrangement the front wall 11 serves as a guide as hereinafter described and also provides a limit stop against which the handle 14 of the knife abuts when the knife blade 8 is fully inserted into the scabbard 7.

The upper, lower and side walls of the housing 2 project forwardly beyond the front wall 11 to define a cavity 15 for receiving part of the knife handle 14. In addition, the housing 2 is divided longitudinally as at 16 (see Figures 4 to 7) into two sections, each of which includes a respective side wall and part of the upper and lower walls. The two housing sections are releasably secured together by screws or the like to allow access to the interior of the housing 2, and in particular to allow replacement and repair of the sharpening device 17.

In the form shown, the abutting surfaces of the abovementioned upper and lower wall parts are provided with substantially complementary stepped formations as shown in Figures 4 to 7, which cooperate to locate the two housing sections in correct relationship. Alternatively, substantially complementary recesses or grooves and ribs may be provided within and on respectively, those abutting surfaces.

The sharpening device 17 is mounted within the housing 2 adjacent the front wall 11, and includes a pair of upstanding cutter plates 18 formed of a suitable material. Preferably, the cutter plates 18 are made from a material such as hard steel or tungsten carbide, which is harder than stainless steel and which will retain a keen cutting edge for some period of time. The cutter plates 18, may be arranged transversely relative to the passage 7 in partially overlapping relationship (see Figures 11 and 12) so as to form a V-shaped recess 19 between adjacent side surfaces 21 thereof as shown in Figure 11.

In a simple form of the invention, the rear edge 22 of each side surface 21 forms a cutting edge. If the device 17 is mounted stationary relative to the housing 2, each side surface 21 may slope outwardly and forwardly away from its respective rear edge 22 at an appropriate clearance angle as shown in Figure 13. With that form of device 17, sharpening is effected by withdrawing the knife blade 8 out of the scabbard or holder.

It is preferred however to support the cutter plates 18 on a support member or rocker member 23 in the form of a block and of the kind shown in Figures 11 and 12, which is pivotally mounted within the housing 2 for movement about an axis extending transverse to the passage 7 so as to be adapted for forward and rearward tilting movement (see Figures 8, 9 and 10). Such a construction enables the cutter plates 18 to have a sharpening effect on the knife blade 8 during both insertion and withdrawal of that blade relative to the passage 7, and the aforementioned clearance angle is automatically achieved by the member 23 tilting.

Front and rear stops 24 and 25 may be provided to limit the tilting movement of the rocker member 23, and those stops may be positioned to produce the same or different cutting angles on the knife blade 8 with forward and rearward movement respectively of that blade.

The relative positions of the stops 24 and 25 are such that when the rocker member 23 is in its forward-most position the rear edges 22 of the cutting plates 18 act as the cutting edges (see Figure 10), and in the rearmost position of the rocker member 23 the front edges 26 of the cutter plates 18 act as the cutting edges (see Figure 8). The rocker member 23 will of course move against the front or rear stops according to the direction of movement of the knife blade 8 through the passage 7.

If the adjacent side surfaces 21 of the cutter plates 18 extend substantially at right angles to the front and rear faces of the plates 18 as shown in Figures 11 and 12, it will be appreciated that the front and rear edges 26 and 22 (see Figure 12) will produce a cutting angle on the knife blade 8 which is the same angle as that defined between the surfaces 21, only when sharpening of the blade 8 is performed with the cutter plates 18 perpendicular to the cutting edge 9 of the knife blade 8. The cutting angle will be increased with each increase in the angle of tilt of the cutter plates 18 from the aforementioned position, and the stops 24 and 25 may be arranged so that the angle of tilt is different in each of the positions of the rocker member 23 shown in Figures 8 and 10.

It has been found with the above arrangement (i.e., use of a rocker member) that the cutters 18 cause the knife blade 8 to tilt laterally during the sharpening operation so that the side surfaces of the blade which converge downwardly to form the cutting edge 9 are slightly convex. If such lateral tilting did not occur, the converging side surfaces would each be composed of two angularly disposed flat surfaces, and a better cutting edge is believed to be obtained with a convex configuration. The degree of lateral tilt however, is limited by guide means as hereinafter described.

The rocker member 23 may be of any convenient form, such as a block of plastics material moulded about the associated cutter plates 18. A rocker axle 27 (see Figures 11 and 12) may be formed integral with the block at each side thereof so as to be journaled in opposite side walls 3 and 4 of the housing 2. Alternatively, the lower part of the block 23 may be moulded about a metal spindle which has end portions extending laterally beyond opposite sides of the block so as to be journaled in the side walls of the housing.

Guide means may be provided within the

scabbard passage 7 to maintain the knife blade 8 in correct alignment with the recess 19 during movement of the blade relative to the housing 2. In the embodiment of figures 1 to 10, such guide means includes ribs 28 and 29 formed integral with each of the side walls 3 and 4 of the housing 2. The ribs 28 and the ribs 29 are arranged to be spaced as shown in Figure 7, and the space between adjacent surfaces of the ribs 28 and 29 is in alignment with the cutter recess 19 and is slightly greater than the maximum width of the knife blade 8 proposed to be used with the scabbard.

In an alternative arrangement shown in Figure 14, pads 31 may be substituted for the ribs 28 and 29. For example a respective pair of opposed pads may be located adjacent the sharpening device 17 and intermediate that device and the rear wall 13. The pads 31 may be fixed to the side walls of the housing 2 as shown in Figure 14, or they may be spring influenced away therefrom as shown in Figure 15 so that knife blades of various widths may be inserted between, and engaged by, opposite surfaces of each pair of pads. The spring influencing of the pads 31 is preferably such that there is minimum resistance to sliding movement of the knife blade 8 between the pads. Also, the opposite surfaces of each pair of pads 31 may be polished or otherwise treated to minimise frictional resistance to the aforementioned sliding movement.

According to another arrangement as shown in Figure 16, the side walls 3 and 4 of the housing 2 are spaced apart over a substantial part of their area so as to act as guide walls for the knife blade 8. In such a case, a cavity 32 is provided between the side walls, at the front lower corner thereof for example, for containing the sharpening device.

In any one of the aforementioned embodiments of the guide means, the apertured front wall 11 of the housing 2 serves as an additional guide.

Furthermore, the upper and lower walls 5 and 6 of the housing 2 converge toward the rear thereof so that the upper wall 5 serves to guide the knife blade 8 towards the sharpening device 17 during insertion of the knife blade 8 into the passage 7. Also, the upper wall 5 restricts upward movement of the knife blade 8 during withdrawal from the housing 2 to such an extent that there is a natural tendency to maintain the knife blade 8 in engagement with the sharpening device 17. The lower wall 6 is substantially flat for a reason hereinafter made clear, and the upper wall 5 slopes downwardly and rearwardly.

In addition, the slot 12 in the front wall 11 merges with a longitudinal slot 33 in the front end portion of the upper wall 5 (see

Figure 17) to provide an opening whereby the knife blade 8 can be fully inserted into the passage 7, or removed therefrom, without the cutting edge 9 contacting the sharpening device 17. With some sharpening devices 17, this arrangement avoids damage to the cutting plates 18 which might result if those plates were contacted by the knife blade 8 during movement thereof in one particular direction.

Pressure means is also provided to maintain a suitable pressure between the knife blade 8 and the sharpening device 17 during movement of the knife blade relative to the housing 2. In one form, the pressure means includes one or more magnets 34 located within the housing 2 adjacent the sharpening device 17. Preferably, the magnet 34 is secured to the rocker member 23 as shown in Figure 18, in which case the rocker member may be moulded (from a suitable plastics material) about the cutter plates 18 and magnet 34 so that those integers become integral parts of the rocker member 23. Alternatively, the cutter plates 18 and/or the magnet 34 may be removably mounted on the body of the rocker member 23.

In the preferred embodiment of Figures 1 to 10, however, the pressure means includes a leaf spring 35. Alternatively the pressure means may comprise a resilient member such as a coil or torsion spring mounted within the passage to engage the upper edge of the knife blade 8 directly or indirectly, and maintain engagement between the cutting edge 9 of the knife blade 8 and the cutter plates 18. The leaf spring 35 extends longitudinally of the housing 2 with a rear end portion 36 secured to the housing 2 adjacent the upper wall 5, and a front end portion 37 engaging a latch member 38. The spring 35 may be bowed upwardly so that the knife blade 8 does not contact the spring 35 at any time during its movement through the passage 7 in the housing 2.

The latch member 38 is formed from a strip of metal pivotally mounted at 39 about a transverse axis, and that mounting is provided at an end portion of the latch 38 located within the upper front corner section of the housing 2. A stop 41 may be provided within the housing 2 to limit forward pivotal movement of the latch 38, and in its forwardmost position the latch 38 extends downwardly with its lower end portion 42 positioned to be engaged by the knife blade 8 as it is inserted into the passage 7 of the housing 2. Also, in this forwardmost position of the latch 38, the front end portion 37 of the spring 35 overlaps the lower end portion 42 of the latch 38 (see Figure 1), and for this purpose the lower end portion 42 of the latch 38 is bent rearwardly.

As the knife blade 8 is inserted into the passage 7, (see Figure 8), it engages the lower end portion 42 of the latch 38 so that further inward movement of the blade 8 requires sufficient effort to overcome the force applied to the latch 38 by the spring 35. With continued inward movement of the knife blade 8, the latch 38 swings upwardly and causes upward movement of the front end portion 37 of the spring 35. Such movement of the spring 35 results in its zone of contact with the latch 38 being progressively moved towards the latch pivot 39 (see Figure 9), and this action compensates for the increase in the spring force applied to the latch 38 because of upward flexing of the spring 35.

The shape of both the spring 35 and the latch 38 is preferably predetermined relative to the shape of the upper edge of the knife blade 8, so that the spring force applied to the knife blade 8 through the latch 38 remains substantially constant during movement of the knife blade 8 through the passage 7 in the housing 2. This is advantageous because it ensures that the cutters will remove a substantially even amount of stock from the knife cutting edge 9 along the length thereof.

In the uppermost position of the latch 38, as shown in Figure 9, it extends in substantially the same direction as the knife blade 8. Thus the latch 38 and spring 35 cooperate to firmly retain the knife blade 8 within the housing 2 against inadvertent removal. Also, a stop (e.g. wall 11) for limiting forward movement of the knife handle may be positioned so that the heel of the knife rides over the cutter plates 18 when the knife is in its innermost position so that it is further retained against inadvertent removal.

A modified form of the above embodiment includes means for adjusting the applied force of the leaf spring 35. Such means may be of any suitable form such as an adjusting screw protruding through the upper wall 5 of the housing 2 and engaging the spring 35 intermediate its ends.

In one form as shown in Figure 19, such adjusting means includes a sliding ramp device comprising a ramp section 43 interposed between the spring 35 and the upper wall 5 of the housing 2, and connected to a finger engageable member 44 through a neck or web portion 45. The neck or web portion 45 is slidable between the ends of a longitudinally extending slot 46 formed through the upper wall 5 of the housing 2, and the finger engageable member 44 is disposed externally of the housing 2 so as to engage or lie adjacent the upper surface of the upper wall 5. The ramp surface 47 which engages the spring 35 slopes upwardly and rearwardly.

Any appropriate means may be employed

for securing the ramp device in a chosen position, or it may be retained in that position simply by frictional engagement between it and the housing 2. The effective length of the spring 35 and therefore its applied force is varied by adjusting the longitudinal position of the ramp device.

The lower wall 6 of the housing, or a member formed within the housing, may be arranged to contact the cutting edge 9 of the knife intermediate the rear end wall 13 of the housing 2 and the sharpening device 17, so as to maintain the knife blade 8 in proper contact with both the sharpening device 17 and the spring 35.

In any event, the pressure means is preferably adapted to produce a predetermined pressure between the knife blade 8 and the sharpening device 17 so that a minimum amount of metal is removed during the sharpening operation and the life of the knife blade 8 is not unduly limited. That is, the pressure need only be sufficient for removal of slight blunting of the cutting edge 9 of the knife blade 8 during use.

It is preferred that the rocker member 23 is resiliently mounted so as to limit the force required to insert the knife blade 8 into the scabbard. This overcomes any problem that may result from the user exercising force on the knife handle 14 when inserting the blade 8 into the passage 7, which would result in excessive sharpening and a tendency for the knife to jam or resist entry into the scabbard.

In the embodiment of Figures 1 to 10, the resilient mounting preferably includes a cushion spring in the form of a pre-loaded leaf spring 48 which bears on the rocker member 23 so as to limit its rearward movement when the knife blade 8 is inserted in the scabbard. This pre-loaded leaf spring is attached to the housing 2 at one end 49, and the opposite end portion 51 bears on the rear face of the rocker member 23 and has limited rearward travel because of stop 25. The stop 25 avoids overstressing of the spring 48, and the spring itself provides the principal stop which determines the cutting angle formed by the plates 18 during movement of the knife blade 8 towards the rear of the housing 2.

If, during insertion of the knife blade 8 into the passage 7, the user exerts excessive force on the handle 14 of the knife in a direction towards the cutter plates 18, the rocker member will pivot rearwardly against the action of the spring 48. That movement prevents or minimises any tendency of the cutter plates 18 to dig into the blade 8, and thereby reduces the risk of the knife jamming when entered into the scabbard.

The cushion spring may take any one of numerous forms. For example, as shown, it may be a double or single leaf spring 48

having the end portion 51 engaging the rocker member 23 recessed so as to allow passage of the knife blade 8. Also the spring can be made from wire, in which case it may be shaped to bear on each side of the cutter recess 19, and in one form as shown in Figures 20 and 21, has two rocker member engaging arms 52 extending from a coil 53 mounted on a transverse pin 54, and a rearwardly extending portion 55 engaging the lower wall 6 of the housing 2.

Alternatively, the cushion spring may form an integral part of the rocker member 23 as shown in Figures 22 and 23, especially if that member is made from a resilient plastics material such as acetal resin. In such a case, the spring is in the form of a rearward leaf extension 56 which merges with the main body of the rocker member 23 through a curved fillet section 57 and engages the lower wall 6 of the housing 2. The leaf extension 56 may be split longitudinally for at least part of its length to increase its flexibility.

In yet another arrangement as shown in Figure 24, the cushion spring takes the form of a leaf spring 58 having opposite end portions engaging the lower wall 6 of the housing 2, and an upwardly bowed portion 59 intermediate its ends. The rocker member 23 engages the upper surface of the bowed portion 59 so that it is depressed during forward and rearward movement of the rocker member 23 about its pivotal axis, from a central normal position. The positive stops 24 and 25 are provided to limit the movement of the rocker member 23 in both directions. In a variation of this arrangement as shown in Figure 25, the rocker member 23 is pivotally mounted in a bracket 61 secured to the intermediate portion 59 of the spring 58, so that the member 23 is capable of pivotal movement and movement towards and away from the lower wall 6 of the housing 2.

According to a further variation (not shown) of the Figure 24 embodiment, the rocker member 23 is not pivotally mounted as previously described, but is simply mounted for movement towards and away from the lower wall 6 of the housing 2. The cushion spring 58 is arranged to normally urge the rocker member 23 into an upper position relative to the lower wall 6. It is desirable in this arrangement to prevent the rocker member 23 from bottoming in its travel and thereby increasing the normal force between the cutter plates 18 and the cutting edge 9 of the knife blade 8. It is therefore preferable to provide a positive stop, which in one form consists of the moulding of the opening 12, so as to cause the cutting edge 9 of the knife blade 8 to bottom before the rocker member 23 bottoms on the spring 58. A similar positive

stop may be provided in any of the previously described arrangements.

Any suitable means may be provided for attaching the scabbard housing 2 to a support such as a bench, wall or cupboard. In a preferred form as shown in Figures 26 and 27, that means includes a snap fastener connection comprising a mounting bar 62 arranged to be secured to the support 63 by screws 64 or the like and having a fastening member 65 upstanding from respective opposite end portions thereof. Each fastener member 65 has an enlarged head 66 and is arranged for location in a slotted or substantially keyhole shaped aperture 67 formed through the lower wall 6 of the housing 2, and the housing 2 is secured in assembly with the mounting bar 62 by being moved longitudinally in a direction such that each head 66 is forced over a protruding hump 68 formed on the upper surface of the housing lower wall 6.

Alternative to securing the mounting bar 62 to the support 63 by means of screws 64, a double sided adhesive tape may be used.

In another form of the attaching means not shown, the lower wall 6 of the housing 2 is extended lengthwise and/or laterally to provide flanges which are secured to the support 63 by screws or any other appropriate fixing means.

If desired, one or more metal dowels (not shown) may be provided in the lower wall 6 of the housing 2 so as to extend transversely of the knife passage 7, the dowels being positioned intermediate the sharpening device 17 and the rear end of the housing 2. Such dowels serve to prevent the knife blade 8 piercing the lower wall 6 and protruding out of the housing 2. In a preferred embodiment the lower wall 6 of the housing 2 is strengthened by an additional thickness of material.

Although the embodiments of the invention so far described have been described as including a single pair of cutter plates 18, it will be appreciated that two pairs of cutter plates may be used if desired (see Figure 28). That is, the two pairs may be located in spaced relationship adjacent the front and rear respectively of the rocker member 23.

In the foregoing construction, there may be a different angular displacement between the adjacent side surfaces 21 of each pair of cutter plates 18. Preferably, the angle formed between the adjacent side surfaces 21 of the rear pair of plates 18 is more acute than the angle between the side surfaces 21 of the front pair of plates 18. For example, the angles formed by the rear and front recesses 19 may be 30° and 40° respectively.

With such a two angle arrangement, the rear set of cutter plates 18 will remove the major portion of metal from the cutting

edge 9 of the knife blade 8 during the sharpening operation, and only the actual tip of the blade cutting edge 9 will be in contact with the front cutter plates 18 so that a finishing operation will be performed on that cutting edge. This will provide an extremely sharp and smooth cutting edge similar in principle to that of a razor blade.

Furthermore, if the rocker member 23 is pivotally mounted as previously described, both pairs of cutter plates are able to remain in contact with a contoured cutting edge 9 of a knife blade 8 during movement of the blade through the scabbard.

In a modification of the foregoing construction, as shown in Figure 29, each pair of cutter plates 18 is secured to a separate pivotally mounted rocker member 23. The two rocker members 23 are spaced longitudinally of each other, and front and rear stops 69 and 71 are provided for each member 23 to limit the degree of forward and rearward tilting about their pivotal axes.

With the above arrangement, it is preferred that the cutter plates 18 are such as to allow sharpening of the knife blade 8 during forward and rearward movement of that blade through the knife passage 7 in the housing 2.

The angle formed between adjacent side surfaces 21 of each pair of cutter plates 18 may be the same or different, and the rear stops 71 are positioned accordingly so that the rear pair of cutter plates 18 are adapted to produce a cutting angle on the knife blade 8 more acute than the cutting angle adapted to be produced by the front pair when both rocker members 23 engage their respective rear stops 71. The front stops 69 may be positioned so that front pair of cutter blades 18 are adapted to produce a cutting angle more acute than the cutting angle adapted to be produced by the rear pair when both rocker members 23 engage their respective front stops 69.

Instead of having to separate the scabbard housing as previously described for replacement or repair of the sharpening device 17, rocker axle 27 may be slidably received in slots in the side walls 3 and 4 of the housing 2 which slots extend lengthwise from the front of the side walls for a suitable distance. Any appropriate fixing means may be employed to secure the axles 27 hard against the blind ends of the respective slots, and the front wall 11 of the housing 2 may be removably secured over the open ends of those slots.

Alternative to having overlapping plates 18 forming the sharpening device 17, it will be appreciated that such a device may comprise a single member having an appropriately shaped recess formed therein, rather than consisting of two pair of separate plates. Furthermore, a person skilled in the

art will realise that one or more suitable honing stones could be adapted for use as the sharpening device.

It will be appreciated from the foregoing description that the present invention provides a convenient storage means for a knife and has the additional advantage of sharpening the knife each time it is withdrawn from the storage means for use. Such means improves the efficiency of the knife and will generally prolong the useful life when sharp of the knife beyond that experienced when the knife is only sharpened on odd occasions. The scabbard is convenient to dismantle for cleaning or maintenance, and may be readily secured to a support structure.

Finally, it is to be understood that various alterations, modifications and/or additions may be introduced into the preferred constructions and arrangements of parts previously described, without departing from the scope of the invention as defined by the appended claims.

WHAT WE CLAIM IS:—

1. A knife scabbard including a hollow housing defining an elongate blade receiving passage, said passage being open at a front end to define an access opening through which a knife blade is insertable into said passage; characterised in that a sharpening device is attached to said housing in longitudinal alignment with said opening so as to be engageable with the cutting edge of said blade to sharpen same as said blade is moved lengthwise relative to said housing, and pressure means is attached to said housing and is operative to maintain a suitable pressure between said knife blade and said sharpening device during the blade sharpening operation.

2. A knife scabbard according to claim 1, wherein said pressure means includes a leaf spring located within said housing so as to extend generally in the longitudinal direction of said passage and having a rear end portion secured to the housing, and a latch member having one end portion attached to said housing and being engageable at its opposite end portion with the upper edge of said knife blade, the front end portion of said spring engaging the latch member to urge it in a direction to engage said knife blade upper edge.

3. A knife scabbard according to claim 2, wherein said one end portion of the latch member is pivotally attached to said housing adjacent an upper wall thereof, said sharpening device being located adjacent the lower wall of said housing, said latch member being in the form of a metal strip which extends downwardly and rearwardly from said pivotal mounting, and said spring

edge 9 of the knife blade 8 during the sharpening operation, and only the actual tip of the blade cutting edge 9 will be in contact with the front cutter plates 18 so that a finishing operation will be performed on that cutting edge. This will provide an extremely sharp and smooth cutting edge similar in principle to that of a razor blade.

Furthermore, if the rocker member 23 is pivotally mounted as previously described, both pairs of cutter plates are able to remain in contact with a contoured cutting edge 9 of a knife blade 8 during movement of the blade through the scabbard.

In a modification of the foregoing construction, as shown in Figure 29, each pair of cutter plates 18 is secured to a separate pivotally mounted rocker member 23. The two rocker members 23 are spaced longitudinally of each other, and front and rear stops 69 and 71 are provided for each member 23 to limit the degree of forward and rearward tilting about their pivotal axes.

With the above arrangement, it is preferred that the cutter plates 18 are such as to allow sharpening of the knife blade 8 during forward and rearward movement of that blade through the knife passage 7 in the housing 2.

The angle formed between adjacent side surfaces 21 of each pair of cutter plates 18 may be the same or different, and the rear stops 71 are positioned accordingly so that the rear pair of cutter plates 18 are adapted to produce a cutting angle on the knife blade 8 more acute than the cutting angle adapted to be produced by the front pair when both rocker members 23 engage their respective rear stops 71. The front stops 69 may be positioned so that front pair of cutter blades 18 are adapted to produce a cutting angle more acute than the cutting angle adapted to be produced by the rear pair when both rocker members 23 engage their respective front stops 69.

Instead of having to separate the scabbard housing as previously described for replacement or repair of the sharpening device 17, rocker axle 27 may be slidably received in slots in the side walls 3 and 4 of the housing 2 which slots extend lengthwise from the front of the side walls for a suitable distance. Any appropriate fixing means may be employed to secure the axles 27 hard against the blind ends of the respective slots, and the front wall 11 of the housing 2 may be removably secured over the open ends of those slots.

Alternative to having overlapping plates 18 forming the sharpening device 17, it will be appreciated that such a device may comprise a single member having an appropriately shaped recess formed therein, rather than consisting of two pair of separate plates. Furthermore, a person skilled in the

art will realise that one or more suitable honing stones could be adapted for use as the sharpening device.

It will be appreciated from the foregoing description that the present invention provides a convenient storage means for a knife and has the additional advantage of sharpening the knife each time it is withdrawn from the storage means for use. Such means improves the efficiency of the knife and will generally prolong the useful life when sharp of the knife beyond that experienced when the knife is only sharpened on odd occasions. The scabbard is convenient to dismantle for cleaning or maintenance, and may be readily secured to a support structure.

Finally, it is to be understood that various alterations, modifications and/or additions may be introduced into the preferred constructions and arrangements of parts previously described, without departing from the scope of the invention as defined by the appended claims.

WHAT WE CLAIM IS:—

1. A knife scabbard including a hollow housing defining an elongate blade receiving passage, said passage being open at a front end to define an access opening through which a knife blade is insertable into said passage; characterised in that a sharpening device is attached to said housing in longitudinal alignment with said opening so as to be engageable with the cutting edge of said blade to sharpen same as said blade is moved lengthwise relative to said housing, and pressure means is attached to said housing and is operative to maintain a suitable pressure between said knife blade and said sharpening device during the blade sharpening operation.

2. A knife scabbard according to claim 1, wherein said pressure means includes a leaf spring located within said housing so as to extend generally in the longitudinal direction of said passage and having a rear end portion secured to the housing, and a latch member having one end portion attached to said housing and being engageable at its opposite end portion with the upper edge of said knife blade, the front end portion of said spring engaging the latch member to urge it in a direction to engage said knife blade upper edge.

3. A knife scabbard according to claim 2, wherein said one end portion of the latch member is pivotally attached to said housing adjacent an upper wall thereof, said sharpening device being located adjacent the lower wall of said housing, said latch member being in the form of a metal strip which extends downwardly and rearwardly from said pivotal mounting, and said spring



makes sliding contact with said strip intermediate the ends thereof.

4. A knife scabbard according to claim 3, wherein said spring and said latch member are arranged so that the lowermost end of the latch member moves upwardly and rearwardly as the depth of said knife blade being inserted into said passage increases, and as a consequence of said movement of said latch member the front end portion of said spring moves upwardly so that the zone of contact between said spring and said latch member is progressively moved towards said pivotal attachment, whereby the pressure exerted by said latch member on said blade remains substantially constant.

5. A knife scabbard according to claim 2, wherein means is attached to said housing for adjusting the force applied to said latch member by said spring.

6. A knife scabbard according to claim 5, wherein said adjusting means includes a ramp device interposed between an upper wall of said housing and said spring and being slidable lengthwise of said passage, and a finger engageable member secured to said ramp device extends through a longitudinal slot formed through said upper wall.

7. A knife scabbard according to claim 1, wherein said pressure means includes a magnet attached to said sharpening device to draw said knife blade into engagement with said sharpening device.

8. A knife scabbard according to claim 7, wherein said sharpening device includes a support member formed of plastics material and at least one sharpening element having part thereof moulded within said member, and said magnet is also moulded within said member.

9. A knife scabbard according to any preceding claim, wherein said sharpening device is mounted for limited movement relative to said housing, and there is provided resilient means which acts on said sharpening device to resist said movement thereof and to limit the pressure acting between said knife blade and said sharpening device during said sharpening operation.

10. A knife scabbard according to claim 1, wherein said sharpening device is mounted for limited movement relative to said housing, and said pressure means comprises resilient means which acts on said sharpening device to resist said movement thereof and to limit the pressure acting between said knife blade and said sharpening device during said sharpening operation.

11. A knife scabbard according to claim 9 or 10, wherein said sharpening device includes a main body which is pivotally mounted on said housing for limited movement about an axis extending transverse to the longitudinal direction of said passage.

12. A knife scabbard according to claim

11, wherein said resilient means includes a cushion spring attached to said housing and bearing against a rear face of said sharpening device so as to urge said sharpening device into a normal forward position, and positive stops are provided on said housing so as to limit the degree of pivotal movement of said sharpening device and prevent overstressing of said cushion spring.

13. A knife scabbard according to claim 11, wherein said resilient means includes a rearwardly directed leaf extension of said main body, said leaf extension being resilient in the direction of pivotal movement of said main body and engaging a lower wall of said housing at a zone remote from said pivotal axis.

14. A knife scabbard according to claim 11, wherein positive stops are provided on said housing to limit the degree of pivotal movement of said main body, and said resilient means includes a leaf spring which has a section bowed upwardly from a lower wall of said housing and bearing against a flat lower surface of said main body, said leaf spring being attached to said housing and functioning to resiliently retain said support block in a normal position intermediate said stops.

15. A knife scabbard according to claim 9 or 10, wherein said sharpening device includes a main body mounted on said housing for limited linear movement relative thereto in a direction normal to a lower wall of said housing, and said resilient means includes a spring element attached to said housing and engaging said main body to urge it into its uppermost position relative to said lower wall.

16. A knife scabbard according to any one of claims 1 to 7 and 10, wherein said sharpening device includes a pair of cutter plates arranged in partially overlapping relationship so as to define between them a V-shaped recess for receiving said cutting edge of said knife blade.

17. A knife scabbard according to claim 16, wherein said cutter plates are attached to a support block which is pivotally mounted on said housing for limited rocking movement about an axis extending transverse to the longitudinal axis of said passage, whereby said cutter plates present a respective pair of sharpening edges to said knife blade for each direction of longitudinal movement of that blade relative to said housing, the edges of each said pair of sharpening edges being angularly disposed relative to each other.

18. A knife scabbard according to claim 17, wherein each said pair of sharpening edges is arranged to define a respective sharpening angle.

19. A knife scabbard according to claim 16, wherein there is provided two pair of



said cutter plates, said pairs being spaced apart in the longitudinal direction of said passage, and each said pair being arranged to form a respective cutting angle on the cutting edge of said knife blade.

20. A knife scabbard according to claim 19, wherein said two pair of cutting plates are mounted adjacent respective ends of a support block, and said support block is pivotally attached to said housing for limited rocking movement about an axis extending transverse to the longitudinal direction of said passage.

21. A knife scabbard according to claim 19, wherein each said pair of cutter plates is attached to a respective support block, and each said support block is pivotally attached to said housing for limited rocking movement about an axis extending transverse to the longitudinal direction of said passage.

22. A knife scabbard according to any preceding claim, wherein said housing includes a pair of opposite side walls, an upper wall, and a lower wall, said walls defining between them said elongate blade receiving passage; said access opening is formed through a front end wall of said housing; and guide means is provided on said housing to limit lateral tilting of said blade during the sharpening operation.

23. A knife scabbard including a hollow housing having a pair of opposite side walls, an upper wall, and a lower wall, said walls defining between them an elongate blade receiving passage, and a blade access opening is formed through a front end wall of said housing and communicates with said passage; characterised in that a sharpening device is attached to said housing in longitudinal alignment with said opening so as to be engageable with the cutting edge of said blade to sharpen same as said blade is moved lengthwise relative to said housing, and guide means is provided on said housing to limit lateral tilting of said blade during the sharpening operation.

24. A knife scabbard according to claim 22 or 23, wherein said front end wall forms an abutment against which the front end of a knife handle engages when the blade of said knife is fully contained within said passage.

25. A knife scabbard according to claim 22, 23, or 24, wherein said access opening communicates with a longitudinally extending slot formed in said upper wall of the housing, whereby said knife blade can be inserted into or withdrawn from said passage without contacting said sharpening device.

26. A knife scabbard according to any one of claims 23 to 25, wherein said housing is split longitudinally along a plane extending between said side walls, said two parts of the housing being releasably secured together to enable access to said sharpening device.

27. A knife scabbard according to any one of claims 23 to 26, wherein said sharpening device is located adjacent said lower wall, and said upper and lower walls converge to guide said knife blade into engagement with said sharpening device.

28. A knife scabbard according to any one of claims 23 to 27, wherein said guide means includes a plurality of ribs formed integrally with each said side wall and extending generally in the longitudinal direction of said passage, the respective ribs of the said side walls being spaced apart to allow passage of said knife blade therebetween, and said opening is dimensioned to also form part of said guide means.

29. A knife scabbard according to any preceding claim, wherein said housing is releasably attachable to a mounting bar which is securable to a support, said mounting bar having a pair of fastening members upstanding therefrom, an enlarged head formed at the end of each said fastening member remote from said bar, and a pair of key hole shaped apertures formed through the said lower wall of said housing to receive a respective one of said fastening members, said housing being attachable to the mounting bar as a result of longitudinal movement of said housing relative to said bar after said fastening members are each located in a respective one of said apertures.

30. A knife scabbard according to claim 29, wherein a hump is formed on said lower wall adjacent each said aperture, each said hump snap engaging with a respective one of said enlarged heads when said housing is moved longitudinally relative to said mounting bar with the said fastening members located in their respective said apertures.

31. A knife scabbard having parts constructed, arranged and adapted to function substantially as herein described with reference to any one of the embodiments illustrated in the accompanying drawing.

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