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(54) **Cutting tool**

(57) A cutting tool (1) comprising a support member (3) configured to be worn on a digit of a user and a blade member (13) carried by and retractable into the support member wherein the blade member is retractable between an operating and a non operating position.

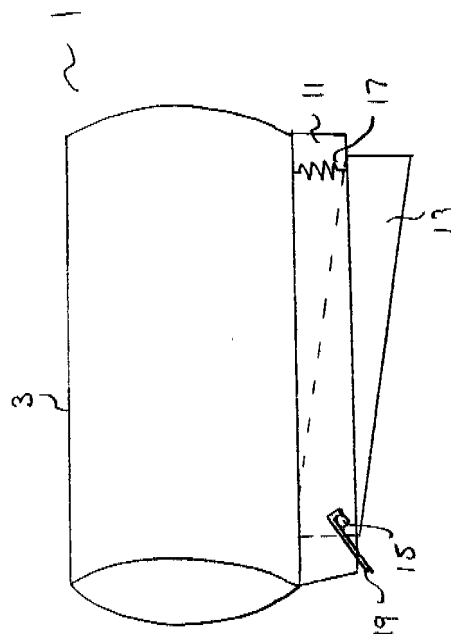


Fig. 1

Description

[0001] The present invention relates to a cutting tool.

[0002] Existing cutting tools are held in the hand of a user during use. Knives with retractable blades, such as Stanley™ knives, are safer to use than conventional fixed-blade knives because when the blade is not in use it can be retracted into a sheath. However, when the blade is retracted a user needs to store the knife to use their hands for other tasks and remove the knife again for use. This is time consuming and inconvenient. For example, when the knife is used during packing and unpacking of stored objects, carpet fitting or sign writing the knife must be frequently stored and removed.

[0003] The present invention sets out to provide a cutting tool which alleviates the problems described above by providing a tool that does not have to be stored when not in use.

[0004] In one aspect, the invention provides a cutting tool comprising a support member configured to be worn on a digit of a user and a blade member carried by and retractable into the support member wherein the blade member is retractable between an operating and a non operating position.

[0005] A cutting tool which can be worn on a digit of a user can be quickly and conveniently used. When a user wishes to use their hand for another task the blade can be retracted but the cutting tool does not need to be removed from the hand and stored. A user can switch quickly and easily between use of their hands and use of the blade.

[0006] Preferably, the cutting tool comprises a support member to be worn on a thumb of a user.

[0007] Preferably, the support member is adjustable.

[0008] More preferably, the support member is rubber coated.

[0009] A support member with an adjustable shape and/or size allows the cutting tool to be worn on any digit by any user and be easily fitted and removed. A rubber coated material improves the grip between a user's digit and the support member.

[0010] Preferably, the support member comprises at least one opening to allow air to reach a user's digit.

[0011] An opening/s in the support member allows for ventilation of a user's digit and prevents the digit overheating whilst the cutting tool is being used.

[0012] Preferably, the support member comprises a plastics material.

[0013] Alternatively, the support member comprises a metal.

[0014] Optionally, the blade member is pivotable with respect to the support member between an operating and non-operating position.

[0015] Preferably, the blade member is slideable with respect to the support member between an operating and non-operating position.

[0016] Preferably, the blade member is resiliently biased.

[0017] More preferably, the blade member is resiliently biased by a spring.

[0018] A resiliently biased or spring-loaded blade allows for safe storage of the blade when not in use. Automatic retraction of the blade improves the safety of the cutting tool because the blade will be stored even if a user neglects to retract it.

[0019] Preferably, the cutting tool further comprises locking means.

[0020] Locking means allows the blade to be locked in either an operating or a non-operating position without further intervention by a user.

[0021] Preferably, the cutting tool further comprises blade member control means for controlling retraction of the blade member.

[0022] More preferably, the blade member control means comprises a ratchet.

[0023] Still more preferably, the ratchet is resiliently biased. For example, by a spring.

[0024] Preferably, the support member comprises a sheath.

[0025] Preferably, the cutting tool further comprises a blade mounting means,

[0026] More preferably, the blade mounting means allows the blade to rotate.

[0027] A rotatable blade allows for more accurate cutting. A blade that can rotate 360 degrees and act as a "swivel plate" can be used to cut intricate designs because curves and corners can be cut easily and accurately.

[0028] Preferably, the cutting tool further comprises resistance means to resist retraction of the blade member.

[0029] More preferably, the resistance means comprises at least one wire.

[0030] A wire/s to resist the blade, when in use, allows for more accurate and safer cutting.

[0031] Preferably, the blade member is replaceable.

[0032] A removable blade can be easily replaced or interchanged depending on a user's requirements.

[0033] Preferably, the blade member is a rectangular blade.

[0034] Preferably the blade member comprises two blades wherein a second blade is moveably fixed to a first blade,

[0035] More preferably, the second blade moves 0.5 to 1mm longitudinally parallel to the axis of the first blade.

[0036] Preferably, the blade member is made of a metal.

[0037] Preferably, the blade member further comprises at least one marking to indicate whether the blade is in an operating position.

[0038] A marker can be used to indicate the position of the blade in relation to the support member. This allows for safe and accurate cutting, even when the blade and/or support member are obscured during use.

[0039] Preferably, the cutting tool further comprises an attachment means.

[0040] An attachment means allows the cutting tool to

be easily and conventionally carried. For example, the cutting tool can be attached to a belt clip or a key ring

[0041] The invention will now be described by way of example with reference to the accompanying diagrammatic drawings, in which:-

Figure 1 is a longitudinal cross sectional view of a cutting tool constructed in accordance with the present invention; and

Figure 2 is a side view of the support member of the cutting tool of Figure 1;

Figure 3a is a longitudinal cross sectional view of a cutting tool constructed in accordance with a second embodiment of the present invention shown in a non-operational position;

Figure 3b is a longitudinal cross sectional view of the cutting tool of Figure 3 shown in an operational position;

Figure 4a is a longitudinal cross sectional view of a cutting tool constructed in accordance with a second embodiment of the present invention further comprising a ratchet arrangement and shown in a non-operational position;

Figure 4b is a longitudinal cross sectional view of region A of Figure 4a, showing release of the ratchet arrangement in a non-operational position;

Figure 4c is a longitudinal cross sectional view of the cutting tool of Figure 4a shown in an operational position;

Figure 5 is a longitudinal cross sectional view of a cutting tool constructed in accordance with a third embodiment of the present invention shown in a non-operational position;

Figure 6 is a longitudinal cross sectional view of the cutting tool of Figure 5 shown in an operational position; and

Figure 7 shows a longitudinal cross sectional view of an alternative blade to be used with the cutting tool of Figures 1 to 6.

[0042] Referring to Figure 1, the cutting tool 1 comprises a support 3. The support 3 is cylindrical and made from a plastics material, which is rubber coated. The support 3 is not a complete cylinder but, as shown in Figure 2, includes two opposing air holes 5, 7. In use, the air holes 5, 7 allow air to enter the support 3 to ventilate a user's digit. The support 3 also defines a gap 9 running longitudinally along the full length of the support 3.

[0043] In use, the support 3 is fitted around a digit of

a user, for example around the user's thumb. The holes 5, 7 allow air to reach the thumb so that it does not become too hot during use. The diameter of the support 3 can be increased or decreased by squeezing the support to respectively decrease or increase the gap 9. This allows the support 3 to be adjusted to fit around the user's thumb.

[0044] As shown in Figure 1, the cutting tool 1 further comprises a sheath 11 and a rectangular blade 13. The sheath 11 runs longitudinally along the length of the support 1 opposite to the gap 9. The rectangular blade 13 is retractable between an operating and a non-operating position and is pivoted, relative to the support 3, about a pivot point 15. The blade 13 is pivotable to move in and out of the sheath 11. The pivotable blade 13 is resiliently biased by a spring 17 and is locked within the sheath by a locking means 19.

[0045] In use, the locking means 19 is released by a user, for example using the index finger opposing the thumb on which the cutting tool 1 is worn. On release of the locking means 19, the blade 13 pivots about pivot point 15 and the weight of the blade 13 acts to extend the spring 17. The blade 13 extends out of the sheath 11. The locking means 19 is then used to lock the blade 13 in an operating position whilst the cutting tool 1 is used.

[0046] When a user no longer requires the cutting tool 1, the locking means 19 is released and downwards pressure is put on the support member 3 to press the blade 13 against a surface. The upwards force on the blade causes the spring 17 to contract and the blade is retracted into the sheath. As shown in Figure 4b, in use the gripping means 21 is used to release the pawl of the ratchet 25b from the inclined teeth 29 of the sliding means 23.

[0047] As shown in Figure 4c, the gripping means 23 and pawl 25b are moved forward, which causes the sliding means 23a to further compress the spring 17 and move the blade 13 forward to extend beyond the sheath 11. In use, the cutting tool 1 is maintained in the operational configuration when the pawl 25b is within the forward most tooth 29 of the sliding means 23b.

[0048] When a user no longer requires the cutting tool 1, the gripping means 21 is pulled downwards and the pawl 25b is released from the tooth 29 to release sliding means 23a. The sliding means 23a moves rearwards because spring 17 relaxes and extends and the blade 13 is retracted into the sheath 11. The resiliently biased pawl 25b moves into the rearmost tooth 29 and locks the blade 13 and cutting tool in the non-operating position.

[0049] Referring to Figures 5, In a third embodiment of the present invention the rectangular blade 13 is moveable in and out of a sheath 11. The blade 13 is fixed to and resiliently biased by a first spring 17. The first spring 17 is connected by a second spring 31 to a release means 33. In a non operating position, both springs 17, 31 are relaxed and in an extended position. The blade 13 is retracted within the sheath 11.

[0050] As shown in Figure 6, when the cutting tool 1 is in an operating position, a user squeezes the release means 33, for example using the index finger opposing

the thumb on which the cutting tool is worn, to pull the release means towards the support 3. This compresses the second spring 31 which in turn compresses the first spring 17 and moves the blade 13 forward to extend beyond the sheath 11.

[0051] In use, the cutting tool 1 is maintained in the operational configuration provided a user applies upwards pressure to the release means 33. When a user releases the release means 33 the second spring 31 and so the first spring 17 extend to their relaxed position and the blade 13 retracts into the sheath 11 to return the cutting tool 1 to a non operating position.

[0052] Alternatively in further embodiments of the present invention, the cutting tool 1 of the second or third embodiments is maintained in the operating or no operating configuration by locking the gripping means 21 or the release means 33 in an operating or non operating position.

[0053] Referring to Figure 7, in alternative embodiments of the cutting tool 1 of Figures 1 to 6 the rectangular blade 13 is replaced by a two-piece blade 13'. In the same manner as the previously described embodiments, the blade 13' retracts and extends from the sheath and relative to the support member of the cutting tool 1. The two-piece blade 13' comprises a first blade 35 and a second blade 37. The first blade 35 is fixed to the cutting tool 1. For example, in the first embodiment of the invention, shown in Figure 1, the first blade 35 is pivotable around pivot point 15. The second blade 37 is moveably fixed to the first blade 35 by fixing means 39.

[0054] In use, in an operating position the first blade 35 is held in a fixed position and extends from the sheath 11. The second blade 37 moves relative to the first blade 35 along a longitudinal axis, which is parallel to the support member 3 and cutting tool 1. The fixing means 39 allow the second blade 37 to move between 0.5mm and 1mm from a central position X. The fixing means can be adjusted to determine the movement of the second blade 37 relative the first blade 35. This blade arrangement 35, 37, 41 allows a user to cut material using the first fixed blade 35 alone or in combination with the second blade 37. The blade arrangement 35, 37, 41 allows a user to cut material between the first and second blade 35, 37 using a "scissoring" action.

[0055] The above described embodiment has been given by way of example only, and the skilled reader will naturally appreciate that many variations could be made thereto without departing from the scope of the present invention.

Claims

1. A cutting tool comprising a support member configured to be worn on a digit of a user and a blade member carried by and retractable into the support member wherein the blade member is retractable between an operating and a non operating position.

2. A cutting tool according to claim 1 wherein the support member is configured to be worn on a thumb of a user.

3. A cutting tool according to any of claim 1 or claim 2 wherein the support member is adjustable.

4. A cutting tool according to any preceding claim wherein the support member is rubber coated.

5. A cutting tool according to any preceding claim wherein the support member comprises at least one opening to allow air to reach a user's digit.

6. A cutting tool according to any preceding claim wherein the support member comprises a plastics material.

7. A cutting tool according to any of claims 1 to 5 wherein the support member comprises a metal.

8. A cutting tool according to any preceding claim wherein the blade member is pivotable with respect to the support member between an operating and non-operating position.

9. A cutting tool according to any of claims 1 to 7 wherein the blade member is slideable with respect to the support member between an operating and non-operating position.

10. A cutting tool according to any preceding claim wherein the blade member is resiliently biased.

11. A cutting tool according to claim 10 wherein the blade member is resiliently biased by a spring.

12. A cutting tool according to any preceding claim further comprising a locking means.

13. A cutting tool according to any preceding claim further comprising blade member control means for controlling retraction of the blade member.

14. A cutting tool according to claim 13 wherein the blade member control means comprises a ratchet.

15. A cutting tool according to claim 14 wherein the ratchet is resiliently biased.

16. A cutting tool according to claim 15 wherein the ratchet is resiliently biased by a spring.

17. A cutting tool according to any preceding claim wherein the support member comprises a sheath.

18. A cutting tool according to any preceding claim comprising a blade mounting means.

19. A cutting tool according to claim 18 wherein the blade mounting means allows the blade to rotate.
20. A cutting tool according to any preceding claim comprising a resistance means to resist retraction of the blade member. 5
21. A cutting tool according to claim 20 wherein the resistance means comprises at least one wire. 10
22. A cutting tool according to any preceding claim wherein the blade member is replaceable.
23. A cutting tool according to any preceding claim wherein the blade member is a rectangular blade. 15
24. A cutting tool according to any preceding claim wherein the blade member comprises two blades.
25. A cutting tool according to claim 24 wherein a second blade is moveably fixed to a first blade. 20
26. A cutting tool according to claim 25 wherein the second blade moves 0.5mm to 1mm longitudinally parallel to the axis of the first blade. 25
27. A cutting tool according to any preceding claim wherein the blade member is made of a metal.
28. A cutting tool according to any preceding claim wherein the blade member further comprises at least one marking to indicate whether the blade is in an operating position. 30
29. A cutting tool according to any preceding claim further comprising an attachment means. 35
30. A cutting tool substantially as hereinbefore described and referred to in the accompanying Figures 1 to 7. 40

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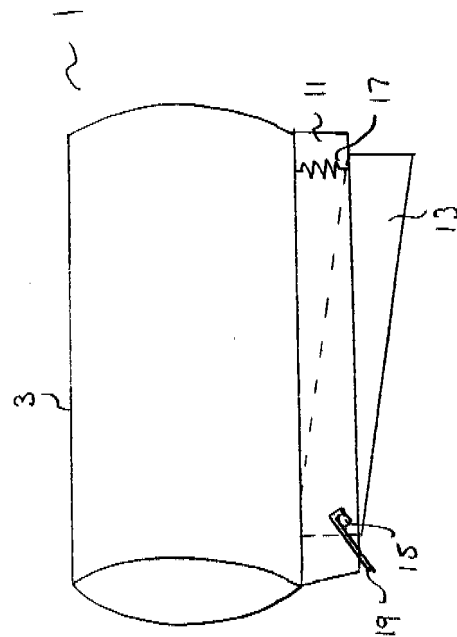


Fig. 1

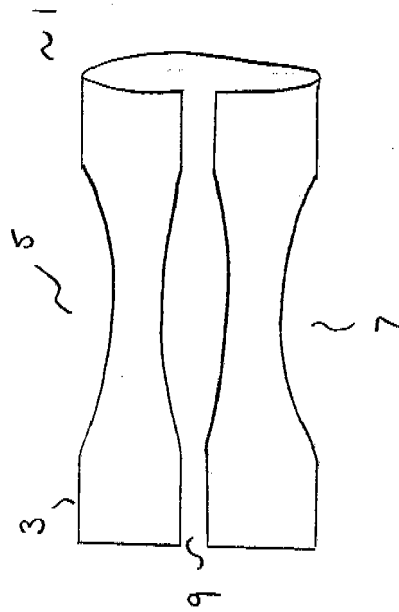


Fig. 2

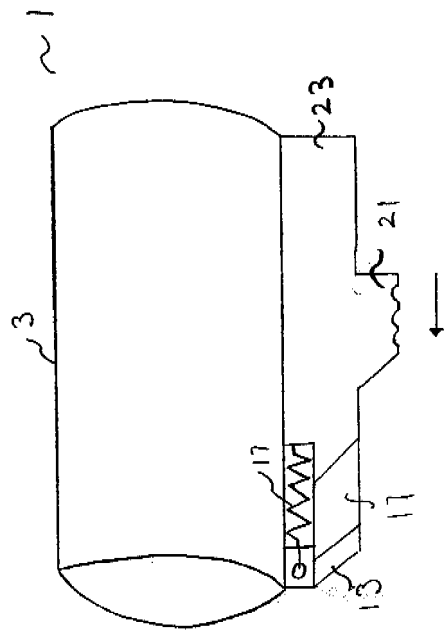


Fig. 3a

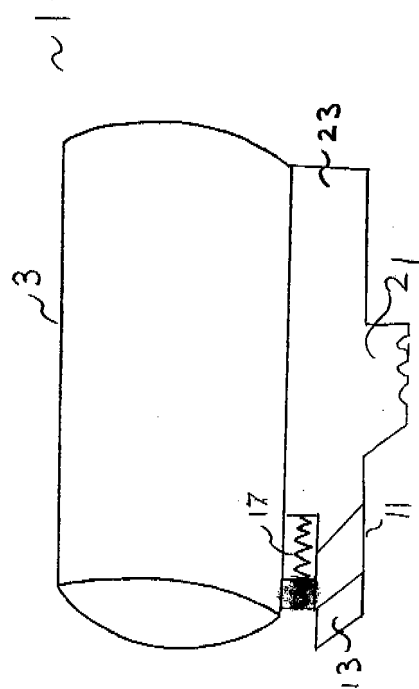


Fig. 3b.

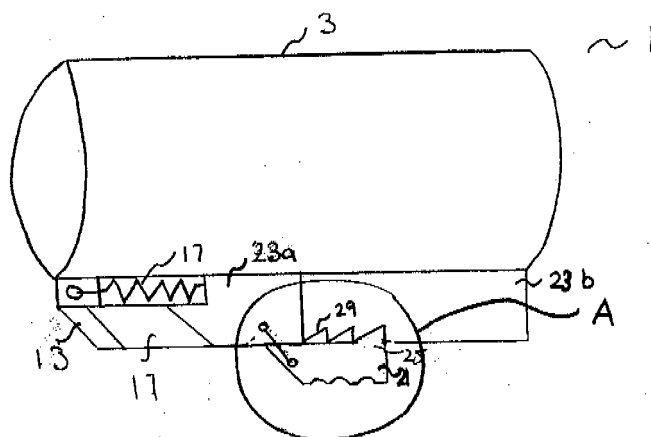


Fig. 4b

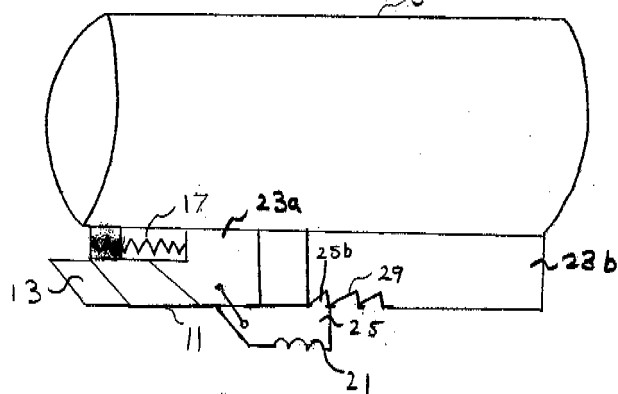
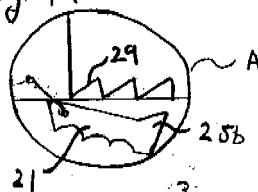
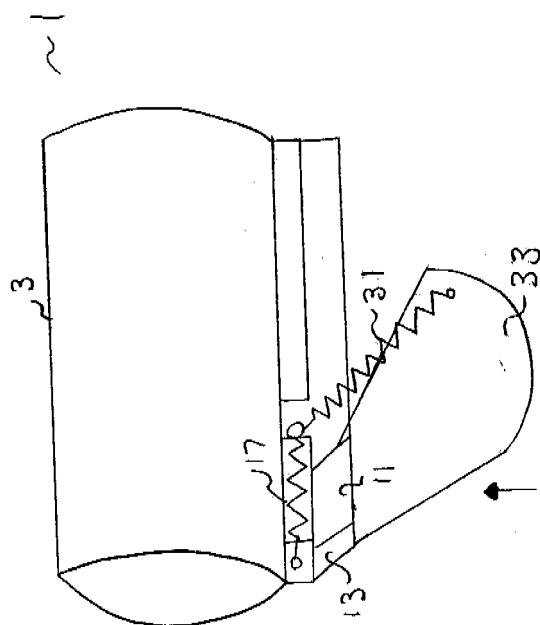


Fig. 4c



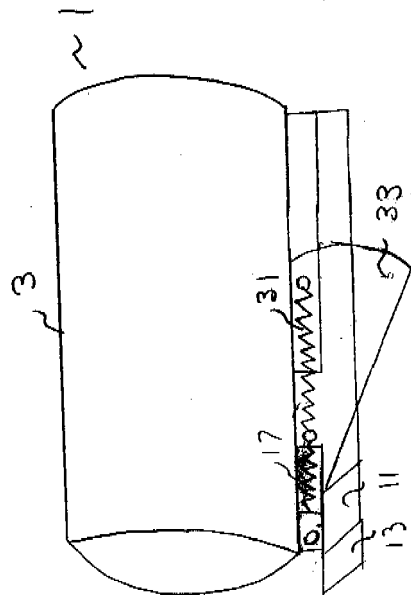


Fig. 6

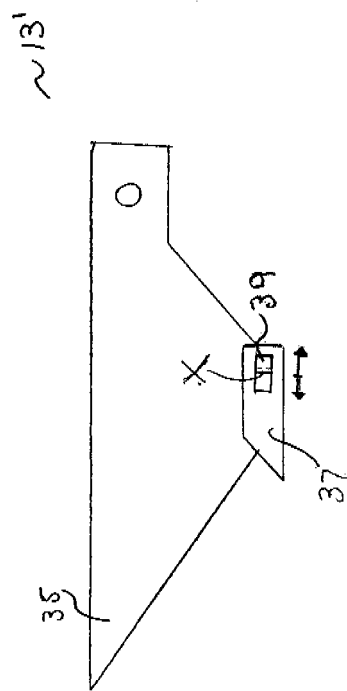


Fig. 7



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Application Number
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Place of search Munich		Date of completion of the search 16 May 2007	Examiner RATTENBERGER, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)



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EUROPEAN SEARCH REPORT

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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