

The invention relates to a knife as is known from the characterising clause of patent claim 1 of US-A 28 62 296.

5 In the known knife, the length of time taken to change the knife blade, which is in the form of a trapezoidal blade, is felt to be a drawback. To do this, it is first necessary to unscrew the binding screw which holds the two longitudinal shells of the handle together. Only once this has been done, can the slide portion, which is connected in a longitudinally movable manner to the knife blade, be removed to allow
10 the knife blade to be changed.

The generic term "short knife blade" is to be taken as meaning a short trapezoidal, rectangular or hooked blade - at any rate, not a strip-like break-off blade. A short knife blade is therefore used which is
15 predominantly made of steel hoop and, after becoming blunt, is usually discarded in exchange for a new blade.

Taking as a basis the knife according to US-A 28 62 296, the aim of the invention is to develop the known knife in such a manner that
20 changing the knife blade can be effected easily and without time-consuming manipulation. This aim was achieved according to the characterising portion of patent claim 1.

The knife according to the invention is distinctive in that, when the
25 knife blade is in the retracted position (with the knife blade drawn completely back inside the handle), the slide portion or a part thereof is easily detachable and removable through the slide portion longitudinal slot which is open towards the outside, thereby leaving the knife blade exposed. Replacement of the blunt knife blade can then be
30 effected in that the blunt blade is removed through the slide portion longitudinal slot and a new blade is inserted, similarly through the slide portion longitudinal slot, into its assembly position and is thereby or subsequently locked by the slide portion or a part thereof positively and releasably on the slide portion. According to a first
35 basic embodiment of the invention, the longitudinal slot has a width corresponding to the knife blade and is disposed on a broad side of the handle, the removable as well as positively and releasably locked slide portion forming a covering adjacent to the outer broad side of the blade. This covering is easily detachable and, if for example
40 hinged at one end, it can be pivoted outward leaving the blunt blade for replacement exposed. The quick-release locking of the slide covering may be effected in a different manner, preferably by means of snap locks which releasably lock the covering on the actual inner
45 slide portion.

A second basic embodiment of the invention is basically such that the positively, easily releasably locked slide portion together with the knife blade is removable through a slot provided on a narrow side of the handle and extending longitudinally of the handle. A particularly
50 preferred embodiment according to the invention of this second basic form is such that the slide portion with the knife blade, in the retracted position of rest of the knife blade, is pivotable about a pivot which extends transversely relative to the broad surfaces of the handle.

Further details, advantages and features essential to the invention are indicated in additional sub-claims as well as in the following description of preferred embodiments of the knife according to the invention with reference to the attached drawings, which show:

- 5 Fig.1 a broad-side-on view of a knife,
- 10 Fig.2 a plan view of the upper narrow side of the knife in the direction of viewing of the arrow II of Fig.1, with the longitudinal halves of the handle shells partially cut away to reveal an easily releasably locked slide cover portion holding the knife blade, which is in its forward cutting position,
- 15 Fig.3 a view as in Fig.2 only with the slide covering pivoted and
- 20 Fig.4 a partial view of another embodiment of the knife in which, to facilitate the functional description, the two partially illustrated longitudinal halves of the handle shells have been folded open.

In the drawings, a knife is illustrated as a whole with the reference numeral 10 (Figs.1-3) or 10a (Fig.4).

- 25 Each knife has a substantially hollow handle 11 (Figs.1-3) or 11a (Fig.4) made of two longitudinal halves of a handle shell 12 (Figs.1-3) or 12a (Fig.4).
- 30 According to Figs.1-3, there is provided on one broad side (i.e. on one handle shell longitudinal half 12) of the handle 11 a slide longitudinal slot 13 which penetrates the entire thickness of the handle shell longitudinal half 12. The width b of the slide longitudinal slot 13 is slightly greater than the width of the knife blade
- 35 14 - in the present case, a trapezoidal blade - with its cutting edge 15. The lower handle shell longitudinal half 12, otherwise not visible in Fig.1, forms two parallel knife blade guideways 16 on which the knife blade 14 is guided, not directly but by way of an inner slide guide portion 17, so as to be longitudinally displaceable
- 40 parallel to the handle longitudinal axis x.

- 45 In Figs.1 and 2, the knife blade 14 is in its cutting position, i.e. the inner slide portion 17 has been moved completely forward toward the cutting side designated S, a slide covering 18 which is roughly V-shaped viewed from the front abutting a correspondingly constructed stop A of the slide longitudinal slot 13.

- 50 The inner slide portion 17 with the slide covering 18 is moved longitudinally forward towards the cutting side S against the restoring force of a tension spring 19. As soon as the slide covering 18, which forms a grab handle 34, is no longer pushed forward by the thumb, the tension spring 19 withdraws the slide arrangement 17, 18 together with the knife blade 14 into a position of rest (Fig.3) in which the knife blade 14 is completely contained in the handle 11. In this position,
- 55 the knife blade 14 has the entire broad side 20 of its blade inside

the slide longitudinal slot 13.

Removal of the knife blade in its retracted position of rest of Fig.3 is effected as follows:

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First, the knife blade 14 is held, as in the illustrations of Figs.1 and 2, in its advanced cutting position releasably locked between the inner slide portion 17 and the slide covering 18. The releasable locking is effected by means of snap locks 21 which are illustrated by the broken lines in Fig.2.

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Once the tension spring 19 has taken effect, the knife blade 14, together with the inner slide portion 17 and the slide covering 18, is in the retracted position of rest of Fig.3. Since the slide covering 18 is held by a film hinge 22 adjacent to a knee-type part 23 and this in turn is held adjacent to the inner slide portion 17, the slide covering 18 can be released from the hold of the snap locks 21 by pivoting in the direction u so that the knife blade 14 can be removed through the wide slide longitudinal slot 13 and can be replaced by a new blade 14.

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Fig.3 also shows that the snap locks 21 comprise undercut, male-mould-shaped snap-in and centering pins 24 of the inner slide portion 17 and correspondingly undercut, female-mould-shaped locking holes 25 of the slide covering 18. As soon as a new blade 14 has been inserted, the slide covering is moved once more into its locked position (as in Figs.1 and 2).

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It remains to point out that the swivelling axis a of the film hinge 22 extends parallel to the lateral axis y of the handle 11.

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The slide portions 17, 18 - the latter with the knee-type part 23 - are advantageously made of a suitable plastic and are therefore injection moulded plastic parts. The two handle shell longitudinal halves 12 may be either injection moulded plastic parts or die-cast metal parts.

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In the embodiment illustrated in Fig.4, the same reference numerals have - as far as possible - been used for any parts which are identical to those of Figs.1 to 3.

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Unlike the embodiment of Figs.1-3, the embodiment of Fig.4 has a slide longitudinal slot 13a on the upper narrow side of the handle 11a. In Fig.4, the knife blade 14 is in its operating position, i.e. advanced towards the cutting side S. The slide arrangement 26, 27 is so arranged that the knife blade 14, when the slide 26 is in its retracted position of rest, is pivotable with the slide 26 about a pivot 27, which protrudes inwards from a handle shell longitudinal half 12, in the swivel direction v outwards from the slide longitudinal slot 13a, this being indicated in Fig.4 by the broken partial illustration. In the swivelled-out position (not shown), the knife blade 14 may be pulled sideways off the centering pins 28 and replaced by a new blade.

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Basically, the embodiment of Fig.4 functions as follows:

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- The slide or the slide portion 26 form a slot 29 which extends longitudinally of the handle in the direction x and in which the pivot 27 is contained. The end 30 of the slot 29 remote from the cutting side S lies adjacent to the pivot 27 when the knife blade 14 is in the illustrated cutting position.
- The handle shell longitudinal half 12a shown folded down forms, offset relative to the pivot 27, a short guide groove 31 which extends longitudinally of the handle in the direction x and is open at both ends.
- A strip-like guide shoulder 33 on the slide side, which overlaps the rear end of the knife blade 14 partially with clearance, engages in this guide groove 31 for guidance and longitudinal and sliding displacement. If the slide 26 with its slot 29 then moves completely backward away from the cutting side S and the pivot 27 is pushed against the front end 32 of 29, the strip-like guide shoulder 33 is already outside of the guide groove 31 so that the pivot movement of the arrangement 26, 14 in the direction v for changing the knife blade 14 can be initiated unimpeded.
- The operating handle 34 on the slide side is connected by a connecting web 35 to the inner slide portion 17. The entire slide is advantageously made of plastic, i.e. is an injection moulded plastic part. The handle shell longitudinal halves 12a may be either injection moulded plastic parts or die cast metal parts.
- The slide handling surfaces are in each case designated 36. The end of the guide groove 31 remote from the cutting side S is designated 37.

Patent Claims

1. Knife having a substantially hollow handle (11,11a), a short knife blade (14) guided therein so as to move longitudinally on a knife blade guideway (16), as well as a slide portion (18,26') which is connected in a longitudinally movable manner at least indirectly to the knife blade, is guided on the handle side and with which a longitudinal slot (13,13a) and an operating handle (34) are associated, each of the latter penetrating the wall of the handle, characterised in that the knife blade (14) can be inserted through the slide longitudinal slot (13,13a) adapted to its spatial requirements at least indirectly into the knife blade guideway (16) and is positively and releasably locked there by means of the slide portion (18,26) which is at least partially removable from the handle (11,11a).
2. Knife according to claim 1, characterised in that the slide longitudinal slot (13) is of a width (b) corresponding to the knife blade (14) and is disposed on a broad side of the handle (11), the removable and positively and releasably locked slide portion forming a covering (18) adjacent to the outer broad side (20) of the blade.
3. Knife according to claim 2, characterised in that the knife blade (14) is held positively locked at one end only with its inner broad side adjacent to an inner slide portion (17) guided on the knife blade guideway (16,16), while the covering (18) adjacent to the outer broad side (20) of the knife blade (14) is positively locked on the inner slide portion (17).
4. Knife according to claim 2 or according to claim 3, characterised in that the covering (18) is held by means of snap locks (21) on the inner slide portion (17).
5. Knife according to one of claims 2 to 4, characterised in that the covering (18) is pivotable at one end on the inner slide portion (17).
6. Knife according to claim 5, characterised in that the swivelling axis (a) between the covering (18) and the inner slide portion (17) extends at right angles to the feed direction (at x) and parallel to the lateral axis (y) of the handle (11).
7. Knife according to claim 6, characterised in that the swivelling axis (a) is located at the point remote from the cutting side (S) of the handle (11).
8. Knife according to one of claims 2 to 7, characterised in that the covering (18) at the same time forms a slide operating surface (36).
9. Knife according to one of claims 2 to 8, characterised in that there is alternatively or additionally provided a slide operating portion which is connected in an extension- and pressure-resistant manner to the inner slide portion (17) and projects through an operating slot which is provided on the lower or upper, preferably on the upper, narrow side of the handle and extends parallel to the handle longitudinal axis (x).



10. Knife according to claim 1, characterised in that the positively
releasably locked slide portion (26) together with the knife blade
(14) is removable through a slide longitudinal slot (13a) provided on
a narrow side of the handle and extending in a longitudinal direction
(x) of the handle (11a).
11. Knife according to claim 10, characterised in that the slide
portion (26) with the knife blade (14) is pivotable, when the knife
blade (14) is in the retracted position of rest, about a pivot (27)
extending transversely relative to the broad surfaces of the handle.
12. Knife according to claim 11, characterised in that the slide
portion (26) forms a slot (29) which extends in a longitudinal
direction (x) of the handle and in which the pivot (27) is contained,
the end (30) of the slot (29) remote from the cutting side (S) being
adjacent to the pivot (27) when the knife blade is in its cutting
position.
13. Knife according to claim 12 or according to claim 13,
characterised in that the handle (11a) forms, disposed offset relative
to the pivot (27), a guide groove (31) which extends in a longitudinal
direction (x) of the handle and releases at its end remote from the
cutting side (S) a guide shoulder (33) on the slide side, which is
longitudinally displaceable in said groove, in order to permit outward
pivoting (at v) of the slide portion (26).
14. Knife according to claim 13, characterised in that the guide
shoulder (33) is strip-like.

