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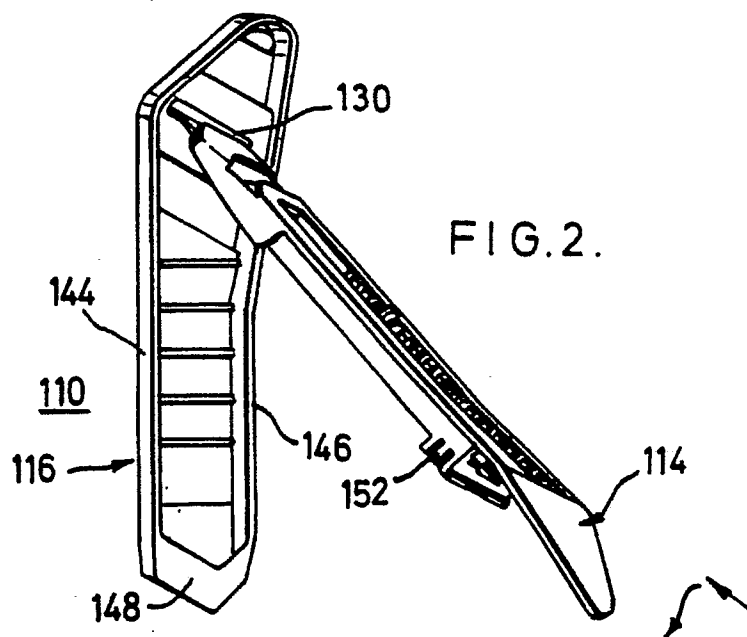
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54 **Snap-off blade knives.**

57 A snap-off blade knife (110, 210, 310) has a two-part handle (112, 212, 312). One handle part (114, 214, 314) has a conventional slider (122, 222, 322) for extending and retracting the blade (120, 220, 320). The second handle part (116, 216, 316) is separable from the first handle part (114, 214, 314) and has a slot (130, 256, 330) leading into a com-

partment (126, 254, 326). In use, to break-off a used end-piece (128, 260, 328), it is introduced into the slot (130, 256, 330) and the two handle parts (114, 214, 314, 116, 216, 316) are manipulated to break it off, whereupon it falls into and is retained in the compartment (126, 254, 326).



# SNAP-OFF BLADE KNIVES

This invention relates to snap-off blade knives.

A known type of snap-off blade knife comprises a handle made of two parts which assemble together for normal use of the knife, a first said part including guide means for a snap-off blade and for a slider for selective extension and retraction of the blade, the second said part of the handle being separable from the first part and being formed with a slot, such that a used end-piece of a blade can be broken-off by introduction of the end-piece into the slot followed by manipulation of the first and second handle parts to snap-off the end-piece.

However, it is frequently a problem to dispose safely and conveniently of the broken-off end-piece.

It is an object of the invention to enable this problem to be overcome in snap-off blade knives.

The invention provides a snap-off blade knife as claimed in each of the claims, to which reference is directed.

The invention will be described by way of example with reference to the drawings, wherein:-

Figs. 1 to 21 inclusive illustrate a snap-off blade knife forming a first embodiment of the invention;

Fig. 1 is a perspective view of the knife, partly disassembled;

Fig. 2 shows a used end-piece of a blade being broken off;

Figs. 3 and 4 are opposite side views of the first embodiment;

Figs. 5 and 6 are respectively sections on V-V and VI-VI in Figs. 3 and 4 respectively;

Figs. 7 to 10 show a first handle part of the first embodiment, being respectively an outside view, an inside view, an edge view and an end view thereof;

Figs. 11 to 14 show a detachable lid, being respectively an outside view, an inside view, a side elevation and a section on XIV-XIV of Fig. 11;

Figs. 15 to 17 show a slider, being respectively an outside view, an edge view and an end view;

Figs. 18 to 21 show a second handle part, being respectively an inside view, an outside view and sections on XX-XX and XXI-XXI in Figs. 18 and 19 respectively;

Figs. 22 to 34 inclusive illustrate a snap-off blade knife forming a second embodiment of the invention;

Figs. 22, 23, 24 and 25 are two opposite side views, an edge view and a rear end view respectively of the knife forming the second embodiment;

Fig. 26 is a section on XXVI-XXVI in Fig. 22

with the blade and slider removed;

Fig. 27 shows a first part of the handle, with the blade extended, the second handle part having been detached;

Fig. 28 shows the second handle part, which has been detached from the first handle part;

Fig. 29 is a section on XXIX-XXIX in Fig. 28;

Figs. 30 and 31 respectively show a plastics piece and a sheet metal piece of the second handle part of Figs. 28 and 29;

Fig. 32 is another view of the metal piece of Fig. 31;

Figs. 33 and 34 illustrate a blade end-piece being broken-off by relative manipulation of the first and second handle parts;

Figs. 35 to 45 inclusive illustrate a snap-off blade knife forming a third embodiment of the invention;

Figs. 35, 36 and 37 are a side view, edge view and an opposite side view of the knife;

Fig. 38 is a section on XXXVIII-XXXVIII of Fig. 35;

Fig. 39 is an end view of the knife;

Fig. 40 shows the two handle parts disassembled;

Fig. 41 is a section on XLI-XLI of Fig. 40 of the second handle part;

Fig. 42 is an end view of the second handle part;

Fig. 43 shows two pieces, one plastics, the other metal, of the handle part, separated from each other; and

Fig. 44 is an edge view and Fig. 45 is an end view of the metal piece.

Referring to Figs. 1 to 21 inclusive, a snap-off blade knife 110 comprises a handle 112 made of two parts 114, 116 which assemble together for normal use of the knife.

The handle part 114 (see Figs. 7 to 10) includes guide means 118 for guiding a snap-off blade 120 and for guiding a slider 122 (Figs. 15 to 17) for selective extension and retraction of the blade 120. Handle part 114 is formed with conventional teeth 124 for engagement by the slider 122 to hold the slider 122 in any desired position along the handle 112.

The second part 116 (Figs. 18 to 21) of the handle 112 is separable from the first part 114. The handle part 116 is formed with a compartment 126, for containment of broken-off, used, blade pieces 128, and is also formed with a slot 130, leading into the compartment 126, such that a used end-piece 128 of the blade 120 can be broken-off by introduction of the end-piece 128 into the slot 130 followed by manipulation of the first and second

handle parts 114, 116 to snap-off the end-piece 128.

The handle part 114 is formed with a tail-piece 132 which acts as a cover, closing off the slot 130 to prevent egress of blade pieces 128 from compartment 126, when the first and second handle parts 114, 116 are assembled together for normal use of the knife 110..

The second handle part 116 comprises a detachable lid 134 (Figs. 11 to 14) for permitting emptying of the compartment 126 of blade pieces 128. The lid 134 has a projection 135 with an undercut 137 for engaging handle part 116 as shown in Fig. 6, to hold the lid 134 normally in place.

It will be seen that the slot 130 is in a wall 139 of the compartment 126.

The front end 136 of handle part 114 projects through an aperture 138 (Figs. 18, 20) at the front end 140 of handle part 116. The aperture 138 is formed between a base 142 and side walls 144, 146, on the one hand, and a bridging-piece 148, on the other hand, which extends across from side wall 144 to the other side wall 146. The bridging-piece 148 occupies a groove 150 formed in the surface of handle part 114.

Adjacent the tail-piece 132, the handle part 114 is formed with a projection 152, which projects through an aperture 154 in the handle part 116. A deflectable lip 156 (Figs. 9, 10) on the projection 152 engages in a corresponding groove 158 (fig. 19) in handle part 116 to hold handle parts 114, 116 releasably assembled together.

Use of the knife 110 for cutting is conventional. However, when it is desired to break-off a used end-piece 128, thumb-pressure on the projection 152 releases lip 156 from engagement in groove 158, so that handle parts 114, 116 can be detached from each other as shown in Fig. 1, followed by withdrawing the front end 136 of handle part 114 from aperture 138. Then the end-piece 128 of blade 120 can be inserted in slot 130 as shown in Fig. 2, after which the handle parts 114, 116 can be manipulated as shown in Fig. 2, to break the end-piece 128 from off the blade 120. The broken-off piece 128 falls into the compartment 126. After re-assembly of handle parts 114, 116, the tail-piece 132 covers the slot 130, to prevent egress of any pieces 128.

Referring to Figs. 22 to 34 inclusive, a snap-off blade knife 210 comprises a handle 212 made of two parts 214, 216 which assemble together for normal use of the knife.

The handle part 214 (see Figs. 22 to 27) includes guide means 218 for guiding a snap-off blade 220 and for guiding a slider 222 (Figs. 22, 25, 27) for selective extension and retraction of the blade 220. Handle part 214 is formed with conven-

tional teeth 224 for engagement by the slider 222 to hold the slider 222 in any desired position along the handle 212.

The second part 216 (Figs. 22 to 26) of the handle 212 is partly wrapped around the first handle part 214 (see below) and is separable from the first part 214 by sliding the part 216 along the part 214 towards and off the front end 226 of the latter. When assembled together, an enlargement 228 at the rear end of the first part 214 abuts the rear end 230 of the second part 216.

The handle part 216 is formed of two pieces, namely, a plastics piece 232 and a sheet metal, lid forming, piece 234. The plastics piece 232 has a back wall element 236, two side wall elements 237, 238 and two front wall elements 239, 240 integrally joined together. Front and rear edges 242, 244 of the plastics piece 232 are sloped, relative to the longitudinal axis of the knife 210. The metal piece 234 has a curved rear edge 246 parallel to the edge 244 and is fixed by fitting front and side edges 248, 250, 252 of metal piece 234 in the plastics piece 232, as shown in Fig. 29, so that the back wall element 236 and the metal piece 234 form a small compartment 254 for the containment of broken-off blade end-pieces. The metal piece 234 has a slot 256 formed in its curved rear edge 246 and the slot 256 leads into the compartment 254. The metal piece 234 can be removed for emptying the compartment 254.

When handle parts 214, 216 are assembled together, the handle part 214 is embraced between the metal piece 234 and the inside surface 258 of back wall element 236, on the one hand, and the two front wall elements 239, 240 on the other hand, the latter leaving space between them for the movement of the slider 222 along the handle 212.

As shown in Figs. 33 and 34, a used end-piece 260 of the blade 220 can be broken-off by introduction of the end-piece 260 into the slot 256 followed by manipulation of the first and second handle parts 214, 216 to snap-off the end-piece 260. The broken-off end-piece 260 falls into the compartment 254. When handle parts 214, 216 are assembled together, the slot 256 is covered by the enlargement 228 of handle part 214.

The sheet metal piece 234 could be replaced by a diecast piece (not shown) or a molded plastics piece (not shown).

Referring to Figs. 35 to 45 inclusive, a snap-off blade knife 310 comprises a handle 312 made of two parts 314, 316 which assemble together for normal use of the knife.

The handle part 314 (see Figs. 35 to 40) includes guide means 318 for guiding a snap-off blade 320 and for guiding a slider 322 (Figs. 35, 40) for selective extension and retraction of the blade 320. Handle part 314 is formed with conven-

tional teeth 324 for engagement by the slider 322 to hold the slider 322 in any desired position along the handle 312.

The second part 316 (Figs. 40 to 45) of the handle 312 is separable from the first part 314. The handle part 316 is formed with a compartment 326 (Fig. 41) for containment of broken-off, used, blade pieces, and is also formed with a slot 330, leading into the compartment 326, such that a used end-piece 328 of the blade 320 can be broken-off by introduction of the end-piece 328 into the slot 330 followed by manipulation of the first and second handle parts 314, 316 to snap-off the end-piece 328.

The second part 316 of the handle 312 is partly wrapped around the first handle part 314 (similar to the second embodiment, see above) and is separable from the first part 314 by sliding the part 316 along the part 314 towards and off the front end 326 of the latter. When assembled together, an enlargement 358 at the rear end of the first part 314 abuts the rear end 331 of the second part 316.

The handle part 316 is formed of two pieces, namely, a plastics piece 332 and a metal piece 334. The plastics piece 332 has a back wall element 336, an intermediate wall element 337, two side wall elements 338, 339 and two front wall elements 340, 341 integrally joined together. Front and rear edges 342, 344 of the plastics piece 332 are sloped, relative to the longitudinal axis of the knife 310. The metal piece 334 has a rear lip 346, parallel to the edge 344, and two mutually parallel side lips 348, 350. The rear lip 346 fits under a curved rear lip 352 of plastics piece 332, whilst the side lips 348, 350 are seated in side recesses 354, 356 of the compartment 326 which is formed between the back and intermediate wall elements 336, 337 of plastics piece 332. A wall element 360 of the metal piece 334 lies against the inside surface of the back wall element 336, within the compartment 326. A depression 362 in the rear lip 346 of metal piece 334 forms the slot 330 leading into the compartment 326. The metal piece can be removed for emptying the compartment 326. There is a "thumb-nail" slot 363 in second handle part 316 to assist this.

When handle parts 314, 316 are assembled together, the handle part 314 is embraced between the intermediate wall element 337, on the one hand, and the two front wall elements 340, 341 on the other hand, the latter leaving space between them for the movement of the slider 322 along the handle 312.

As with the second embodiment (see the description above with reference to Figs. 33 and 34) a used end-piece 328 of the blade 320 can be broken-off by introduction of the end-piece 328 into

the slot 330 followed by manipulation of the first and second handle parts 314, 316 to snap-off the end-piece 328. The broken-off end-piece 328 falls into the compartment 326. When handle parts 314, 316 are assembled together, the slot 330 is covered by the enlargement 358 of handle part 314.

The sheet metal piece 334 could be replaced by a diecast piece (not shown) or a molded plastics piece (not shown).

## Claims

1. A snap-off blade knife (110, 210, 310) comprising a handle (112, 212, 312) made of two parts (114, 116, 214, 216, 314, 316) which assemble together for normal use of the knife, a first said part (114, 214, 314) including guide means (118, 218, 318) for a snap-off blade (120, 220, 320) and for a slider (122, 222, 322) for selective extension and retraction of the blade, the second said part (116, 216, 316) of the handle being separable from the first part and being formed with a compartment (126, 254, 326) for containment of broken-off used blade pieces (128, 260, 328) and a slot (130, 256, 330), leading into said compartment, such that a used end-piece of a blade can be broken-off by introduction of the end-piece into the slot followed by manipulation of the first and second handle parts to snap-off the end-piece, the first part closing off the slot, to prevent egress of blade pieces, when the first and second parts are assembled together for normal use of the knife.

2. A knife as claimed in claim 1, wherein the second handle part (116, 216, 316) comprises an openable lid (134, 234, 334) for permitting emptying of the compartment (126, 254, 326) of blade pieces (128, 260, 328).

3. A knife as claimed in claim 1 or 2, wherein the slot (130) is in a wall (139) of the compartment (126).

4. A knife as claimed in claim 2, wherein the slot (256) is in the lid (234).

5. A knife as claimed in claim 2, wherein the slot (330) is formed between the lid (334) and another portion (332) of the second handle part (316).

6. A knife as claimed in any preceding claim, wherein the first and second handle parts (114, 116) inter-engage at a front end and at a rear end of the handle.

7. A knife as claimed in claim 6, wherein the first handle part (114) extends through an aperture (138) in the second part (116) near the front end (136, 140) of the handle.

8. A knife as claimed in claim 6 or 7, wherein a detent device (152, 154, 156, 158) is provided near the rear end of the handle, for releasably holding

the first and second handle parts (114, 116) assembled together.

9. A knife as claimed in any one of claims 1 to 5, wherein the first handle part (114, 214) extends slidably through the second handle part (116, 216). 5

10. A knife as claimed in claim 1, wherein the second handle part (216, 316) is partly wrapped around the first handle part (214, 314) and is separable therefrom by sliding along towards and off the front end of the first handle part. 10

11. A knife as claimed in claim 10, wherein an enlargement (228) at the rear end of the first handle part (214) abuts the rear end (230) of the second handle part (216). 15

12. A knife as claimed in claim 10 or 11, wherein the second handle part (216, 316) comprises a plastics piece (232, 332) and a metal piece (234, 334). 20

13. A knife as claimed in claim 12, wherein the metal piece (234, 334) at least partly defines the slot. 25

14. A knife as claimed in claim 10, 11, 12 or 13, wherein the second handle part (316) comprises a back wall element (236, 336) and two front wall elements (239, 240, 340, 341) and the compartment (254, 326) is formed partly by the back wall element (236, 336). 30

15. A knife as claimed in claim 14, dependant from claim 12 or 13, wherein the compartment (254) is formed between the back wall element (236) and the metal piece (234). 35

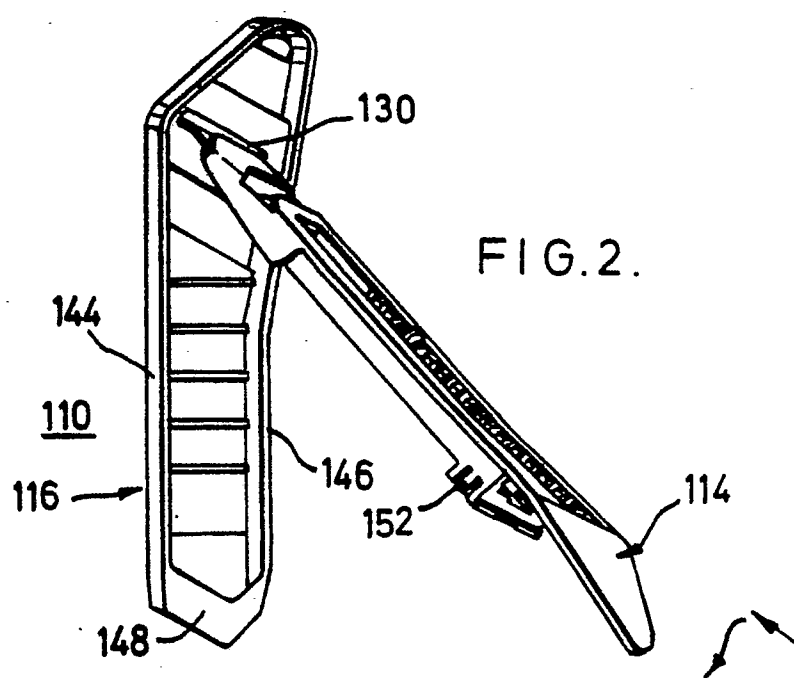
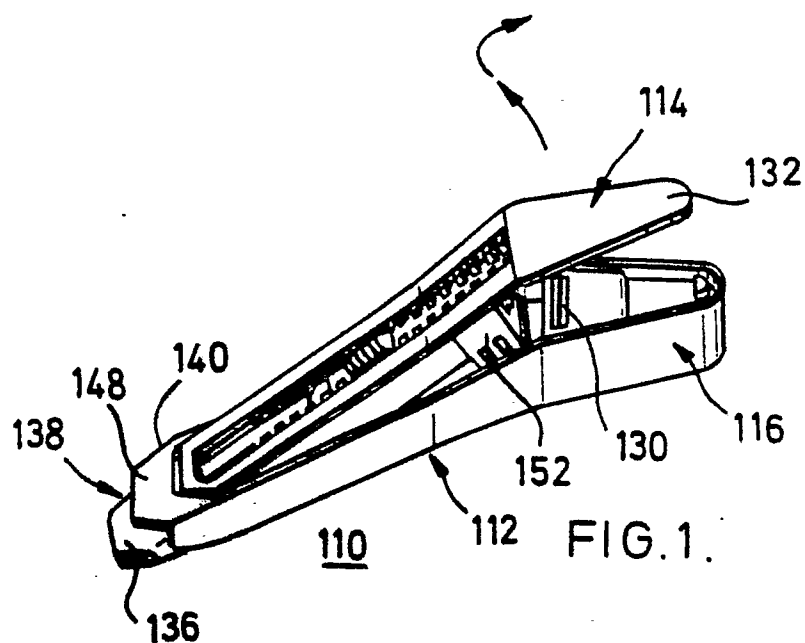
16. A knife as claimed in claim 14, wherein the compartment (326) is formed between the back wall element (336) and an intermediate wall element (337). 40

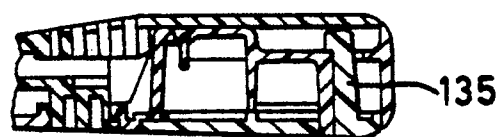
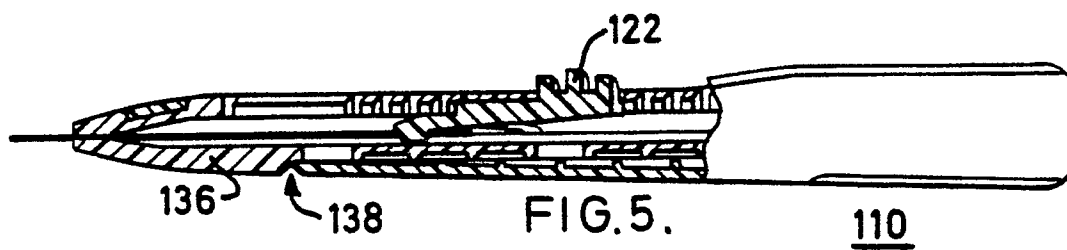
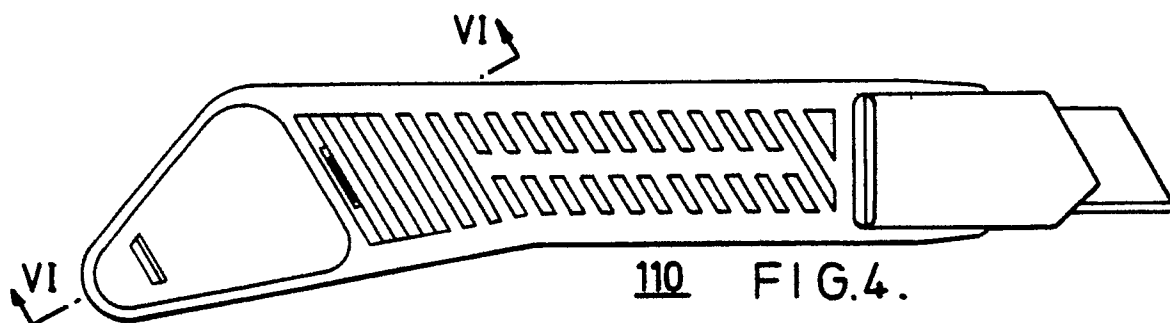
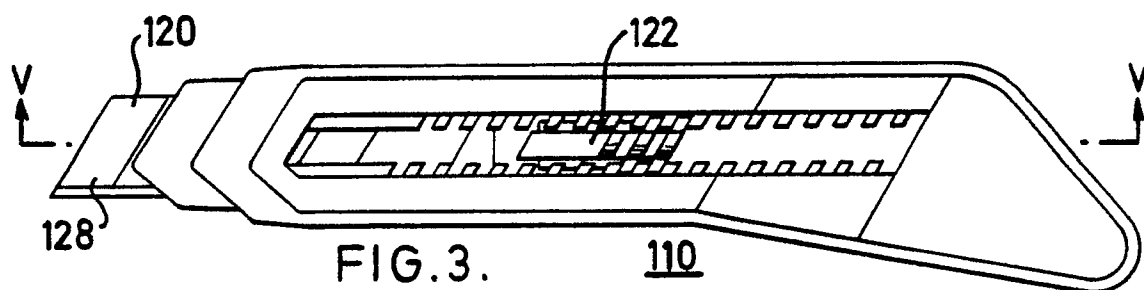
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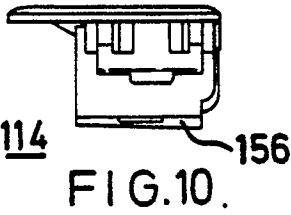
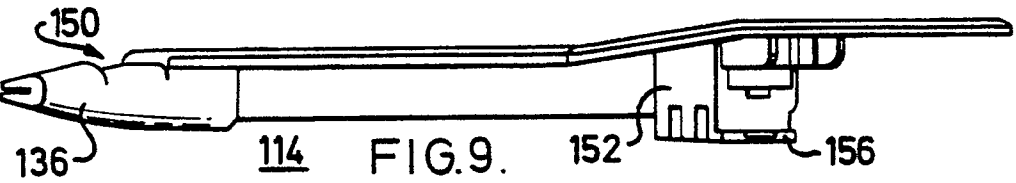
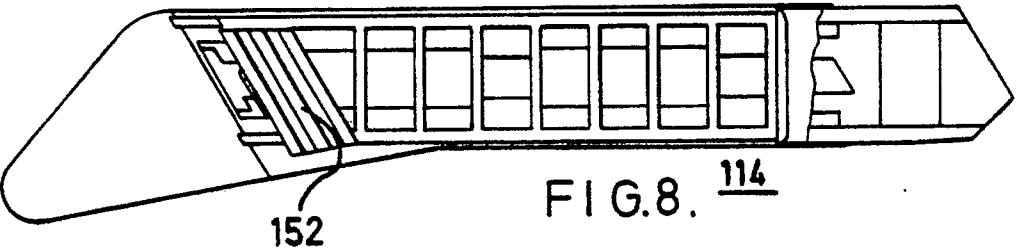
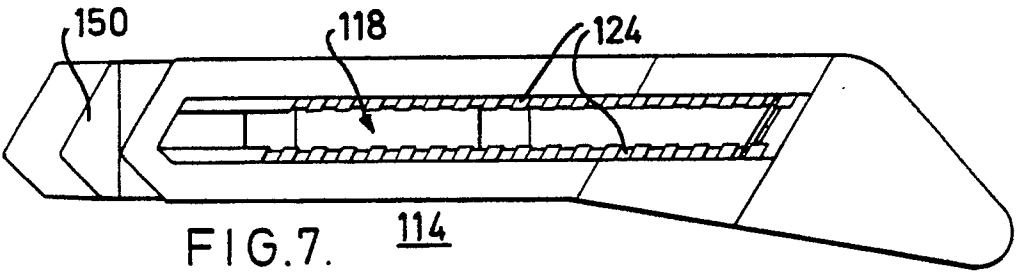
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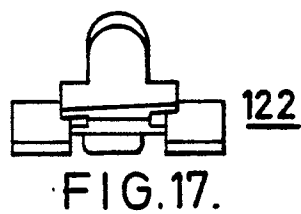
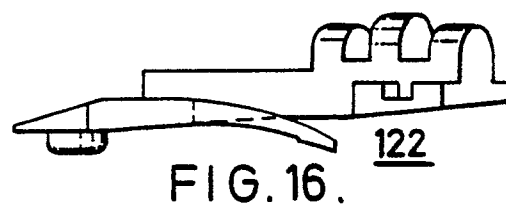
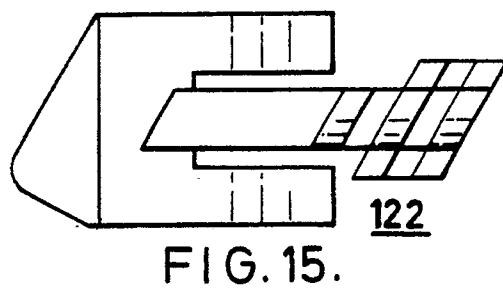
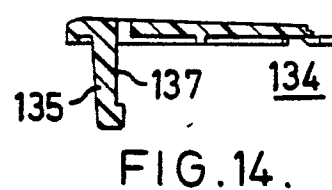
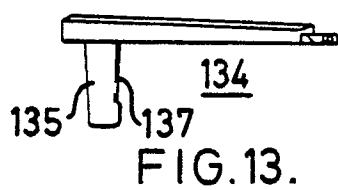
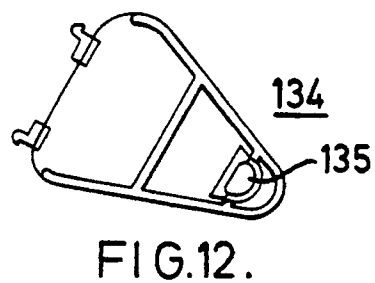
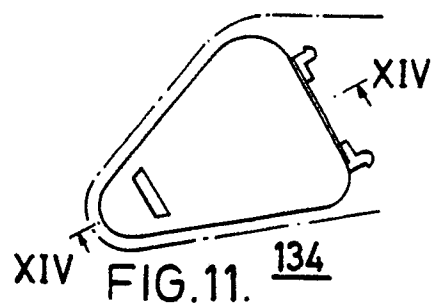
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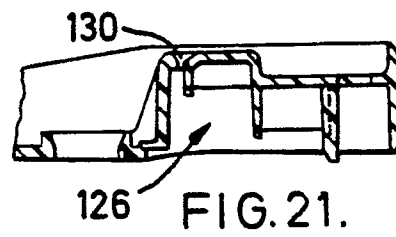
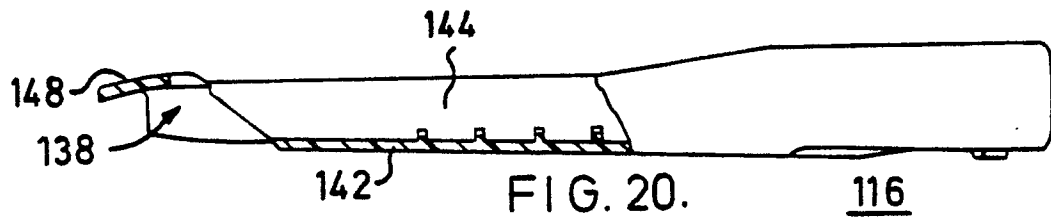
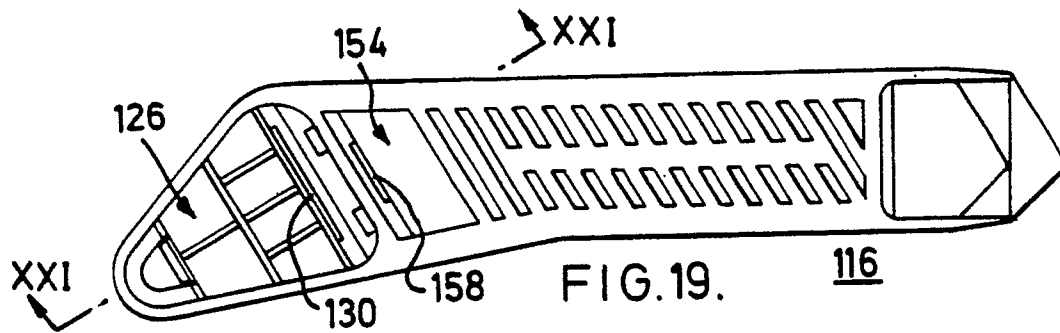
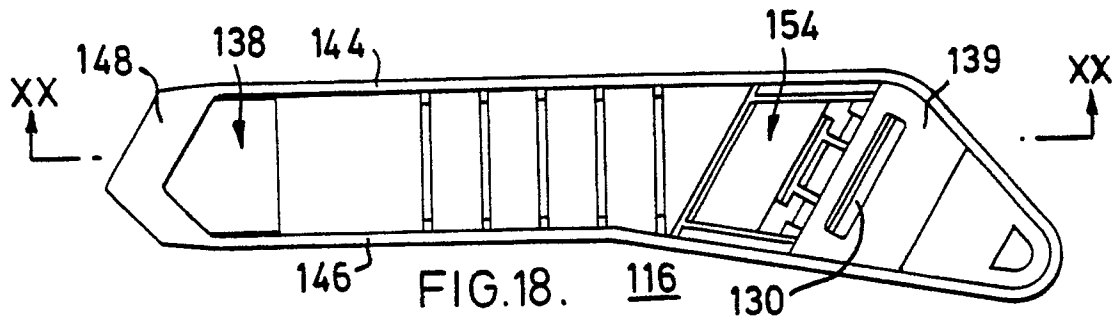


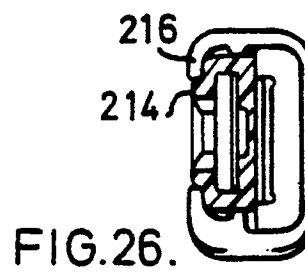
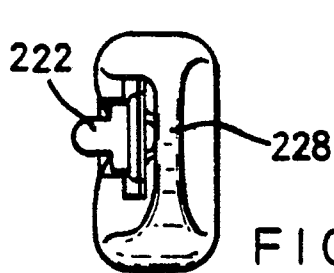
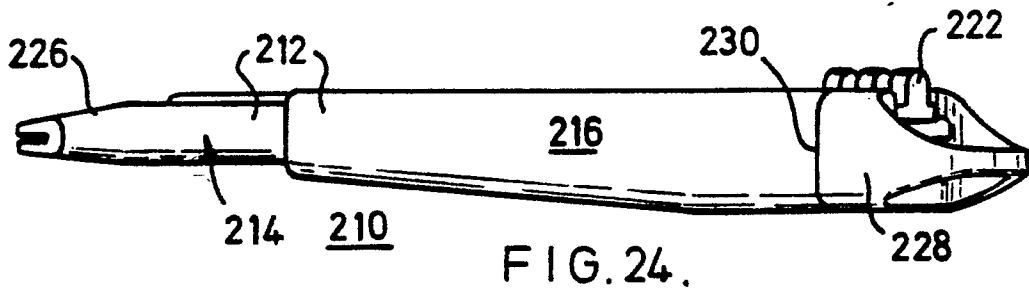
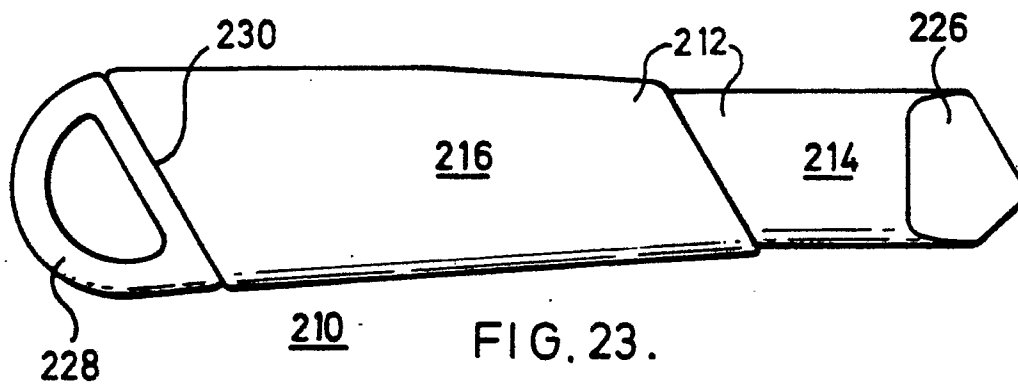
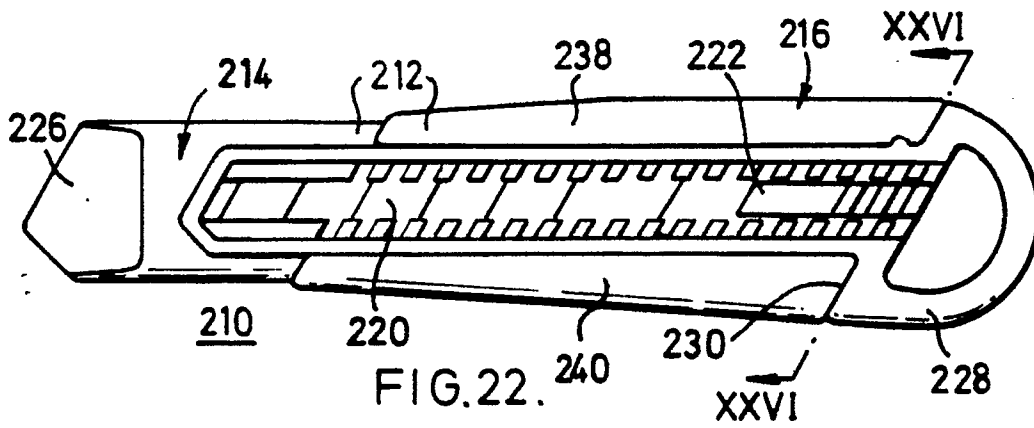


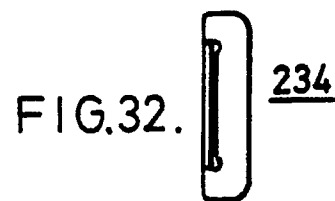
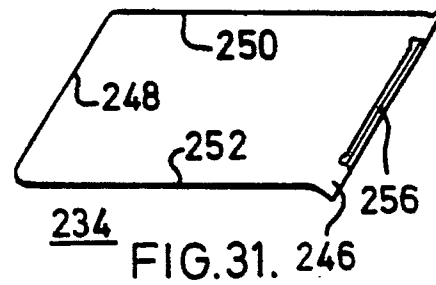
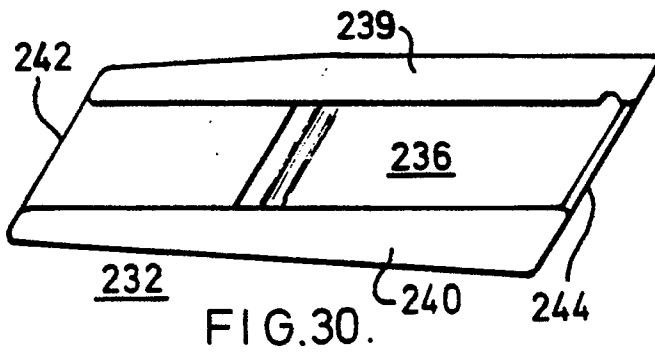
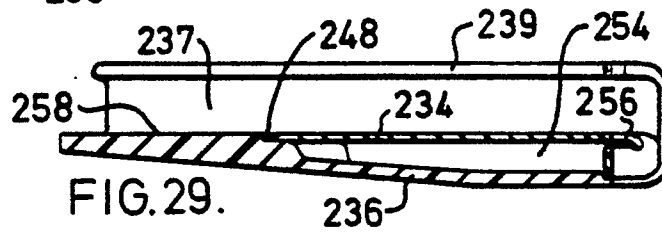
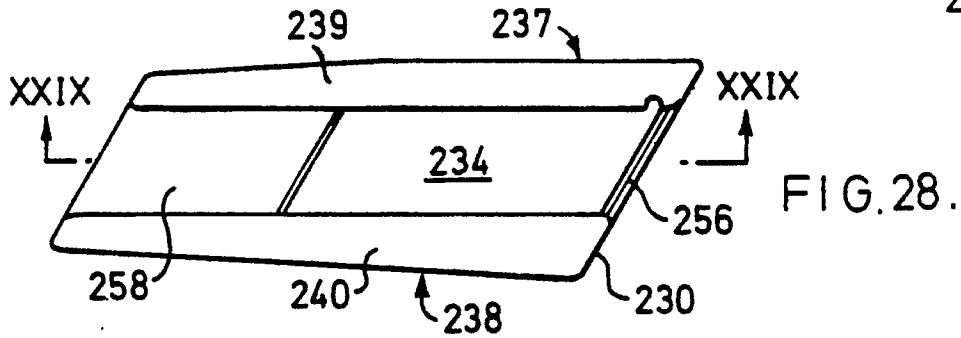
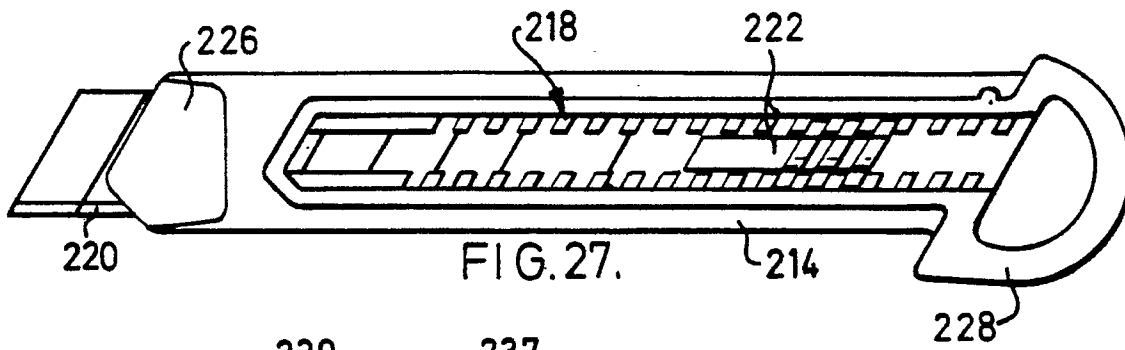


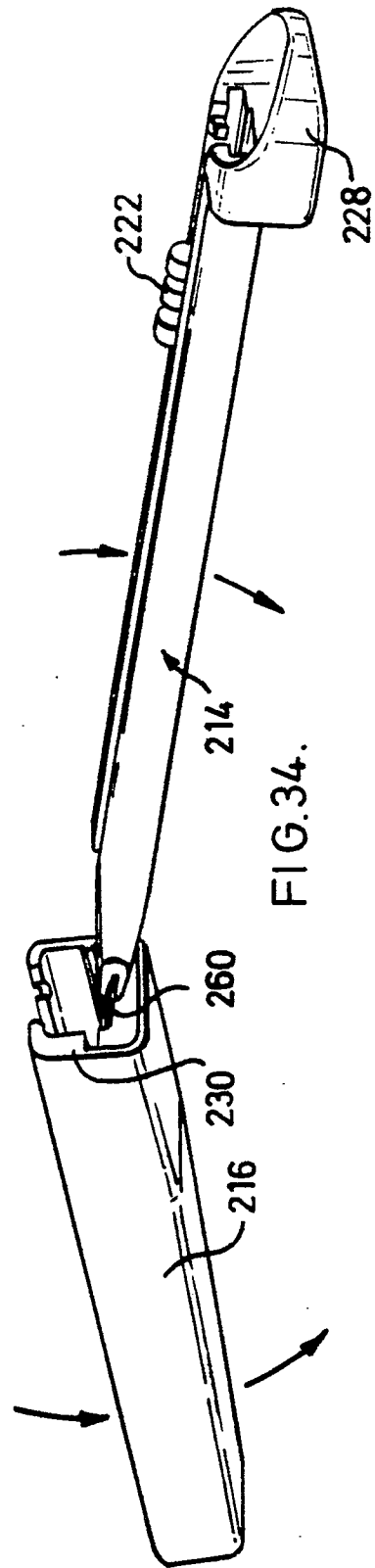
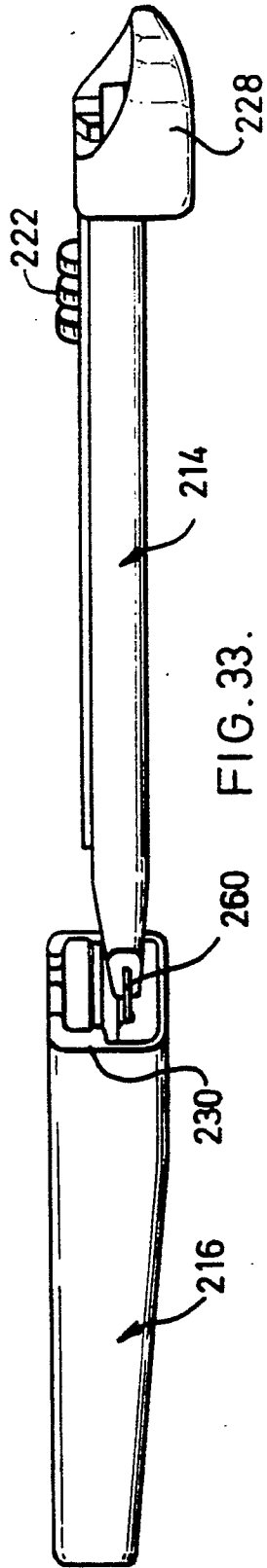


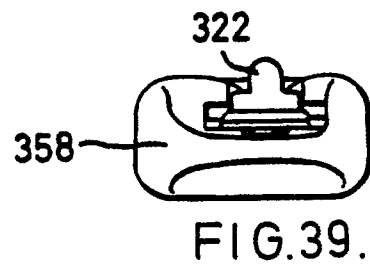
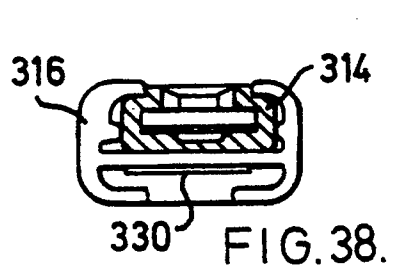
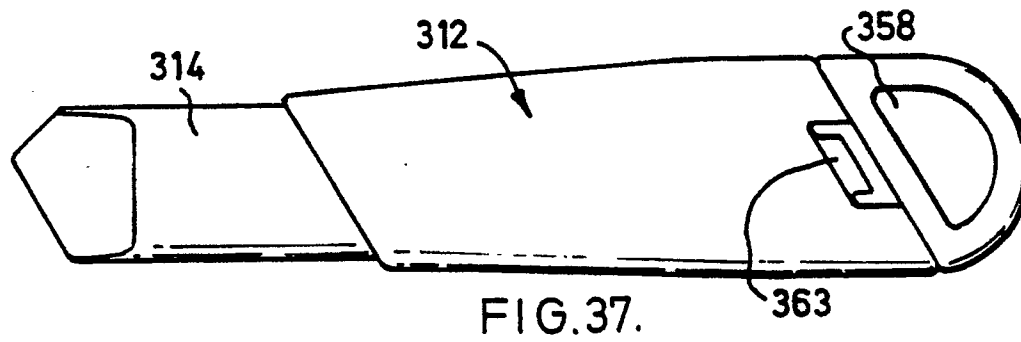
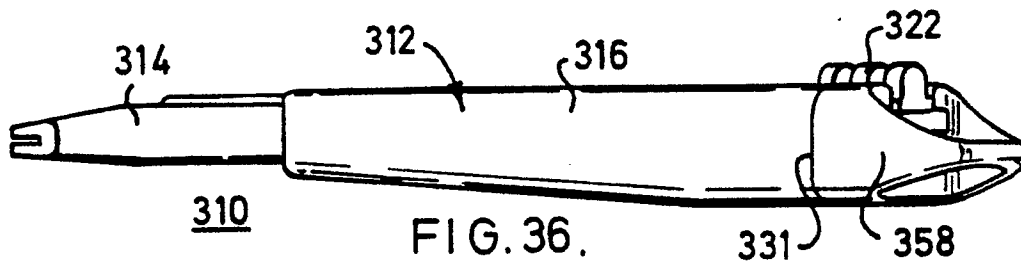
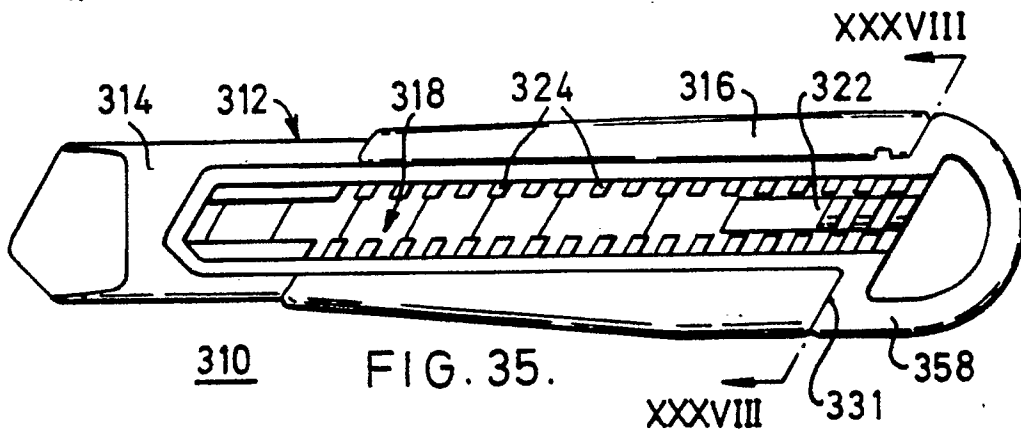


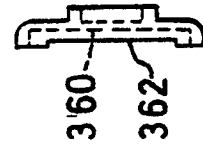
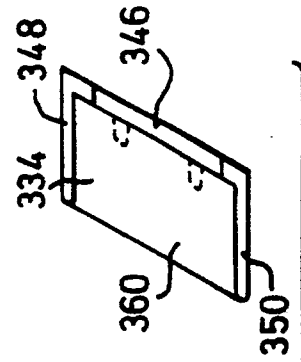
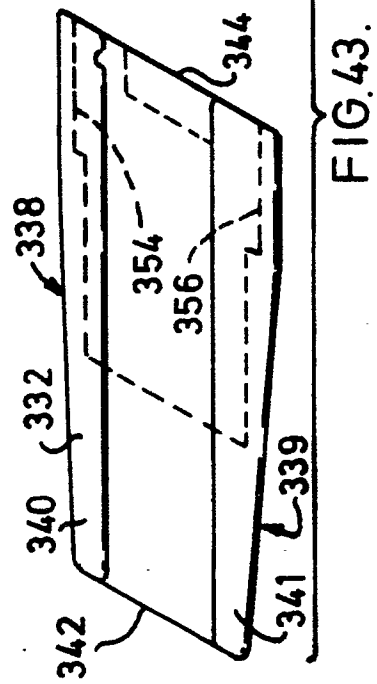
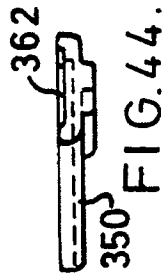
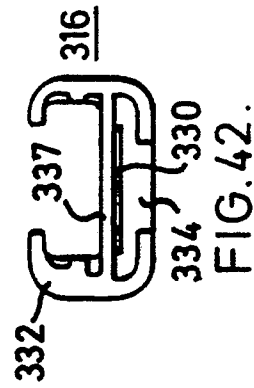
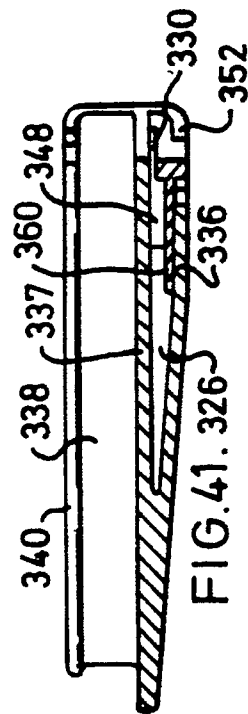
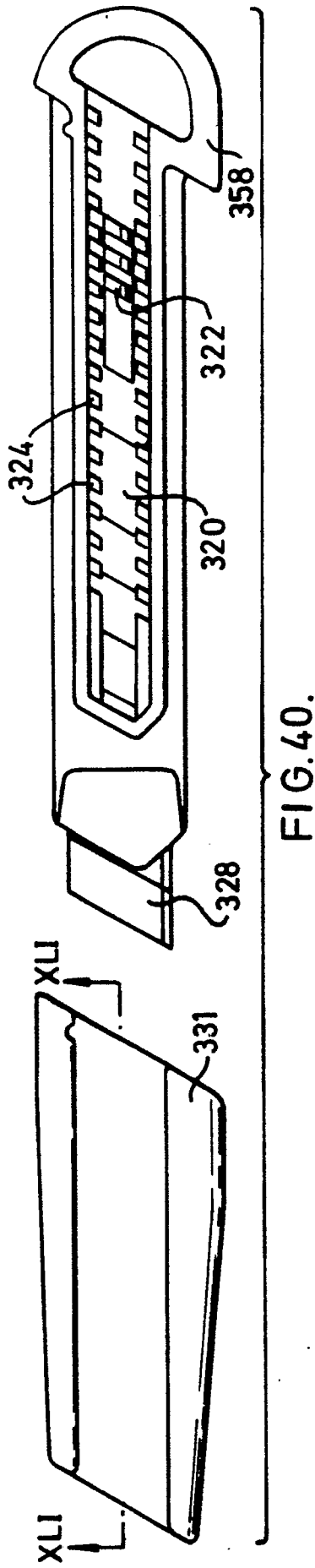














European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number

EP 90 30 4342

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-U-8521402 (GRUNDSTUCKSGESELLSCHAFT) * page 6, line 14 - page 8, line 8; figures 1, 8 * * page 13, lines 20 - 21 * ---	1	B26B5/00
A	GB-A-1575285 (NIPPON TENSHASHI KABUSHIKI) * page 2, lines 49 - 129; figure 6 * ---	1	
A	EP-A-242035 (NUFFIELD HOSPITALS) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B26B A61B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 SEPTEMBER 1990	Examiner CROWE D.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone V : 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 I : document cited for other reasons ..... & : member of the same patent family, corresponding document			