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(54) **Tool having detachable handle**

(57) A tool includes a handle (10) having a chamber (12) to receive a block (42) of a tool member (40) which is arranged to be rotated and driven by the handle (10). A ferrule (30) is engaged onto the handle (10) and includes a catch (33) engageable with the block (42) of the tool member (40), to detachably secure the tool member (40) to the handle (10). The block (42) includes a peripheral groove (44) to receive the catch (33), and to secure the block (42) of the tool member (40) to the handle (10). The block (42) includes a peripheral rib (45) having a notch (47) to receive the catch (33), and to allow the catch (33) to be engaged into the peripheral groove (44) of the block (42) via the notch (47) of the peripheral rib (45).

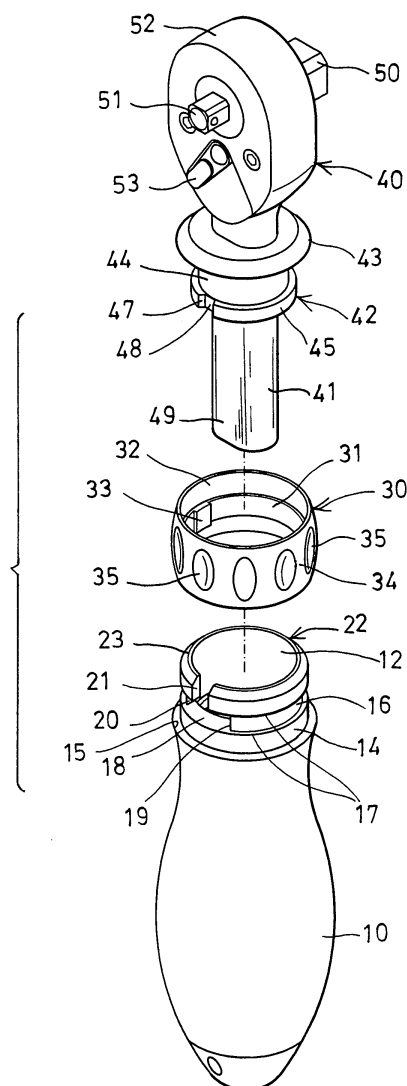


FIG. 1

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Description

[0001] The invention relates to a tool having a detachable or changeable handle.

[0002] Typical tools comprise a tool member attached to a handle with fasteners which takes time to thread and to unthread the fasteners.

[0003] The invention is to provide a tool including a detachable or changeable handle that may be solidly secured to the tool member.

FIG. 1 is a partial exploded view of a tool;

FIG. 2 is a partial side view of the tool;

FIGS. 3, 4 are cross sectional views; and

FIG. 5 is a perspective view of the other tool.

[0004] Referring to FIGS. 1-3, a tool comprises a handle 10 including a bore 11, and a greater chamber 12 to form a shoulder 13 between the chamber 12 and the bore 11. The handle 10 includes a peripheral wall 14 to form the chamber 12 and to form an outer shoulder 15, and having an outer channel 16 defined between two flanges 17. The wall 14 includes a slot 18 communicating with the chamber 12 and the channel 16 and defined between two end fences 19, 20, and an opening 21 formed in the upper portion 22 and communicating with the chamber 12 and the channel 16 of the handle 10, and includes an inclined surface 23 formed in the upper portion 22.

[0005] A ferrule 30 includes a peripheral bulge 31 extended from an inner surface 32 to force into the channel 16 of the wall 14 over the inclined surface 23 of the wall 14, and a catch 33 extended from the bulge 31 to engage into the slot 18 via the opening 21 of the wall 14. The end fences 19, 20 may engage with the catch 33 to limit the catch 33 to slide within the slot 18 of the wall 14. The ferrule 30 includes one or more swellings 34 and/or depressions 35 for rotating the ferrule 30 relative to the wall 14 of the handle 10.

[0006] A tool member 40 includes a stem 41 to engage into the bore 11 of the handle 10, a block 42 to engage into the chamber 12 of the handle 10, a cap 43 to engage with the wall 14, and to position the tool member 40 to the handle 10. The tool member 40 includes one or more driving shanks 50, 51 provided on the other end 52 with a ratchet mechanism (not shown), and a knob 53 to change the driving directions of the driving shanks 50, 51. The stem 41 is non-circular or has one or more flat surfaces 49 to engage with the non-circular bore 11 of the handle 10, and to be driven by the handle 10.

[0007] The tool member 40 includes a peripheral groove 44 formed by a peripheral rib 45 to receive the catch 33, and a notch 47 formed in the peripheral rib 45, to allow the catch 33 to engage into the peripheral groove 44 via the notch 47 of the block 42. The tool member 40 may be solidly secured to the handle 10 when the catch 33 is disengaged from the notch 47 of

the peripheral rib 45. The tool member 40 may include a protrusion 48 extended into the notch 47 of the block 42, and arranged to allow the catch 33 to be engaged into the peripheral groove 44 of the block 42 via the notch 47, but to prevent the catch 33 from being disengaged from the notch 47 of the peripheral rib 45 inadvertently.

[0008] The handle 10 may include a rod 70 (FIG. 5) having a cavity 71 to receive an elongate tool stem 80 of the tool member 40.

Claims

1. A tool comprising a handle (10) having a chamber (12), a tool member (40) having a block (42) received in the chamber (12) and secured to the handle (10), **characterized in that:**
 - a ferrule (30) is engaged onto the handle (10) and includes a catch (33) engageable with the block (42) of the tool member (40), to detachably secure the tool member (40) to the handle (10).
2. A tool as claimed in claim 1, wherein the block (42) includes a peripheral groove (44) to receive the catch (33).
3. A tool as claimed in claim 2, wherein the block (42) includes a peripheral rib (45) to engage with the catch (33).
4. A tool as claimed in claim 3, wherein the peripheral rib (45) includes a notch (47) to receive the catch (33).
5. A tool as claimed in claim 4, wherein the block (42) includes a protrusion (48) extended into the peripheral groove (44) to engage with the catch (33).
6. A tool as claimed in claim 1, wherein the handle (10) includes a wall (14) to form the chamber (12).
7. A tool as claimed in claim 6, wherein the wall (14) includes a slot (18) communicating with the chamber (12) of the handle (10), to receive the catch (33).
8. A tool as claimed in claim 7, wherein the wall (14) includes a channel (16) communicating with the slot (18), the ferrule (30) includes a bulge (31) engaged into the channel (16) of the wall (14).
9. A tool as claimed in claim 8, wherein the wall (14) includes an inclined surface (23) to engage with the peripheral bulge (31) of the ferrule (30).
10. A tool as claimed in claim 6, wherein the wall (14)

includes an opening (21) communicating with the slot (18) of the wall (14), to receive the catch (33).

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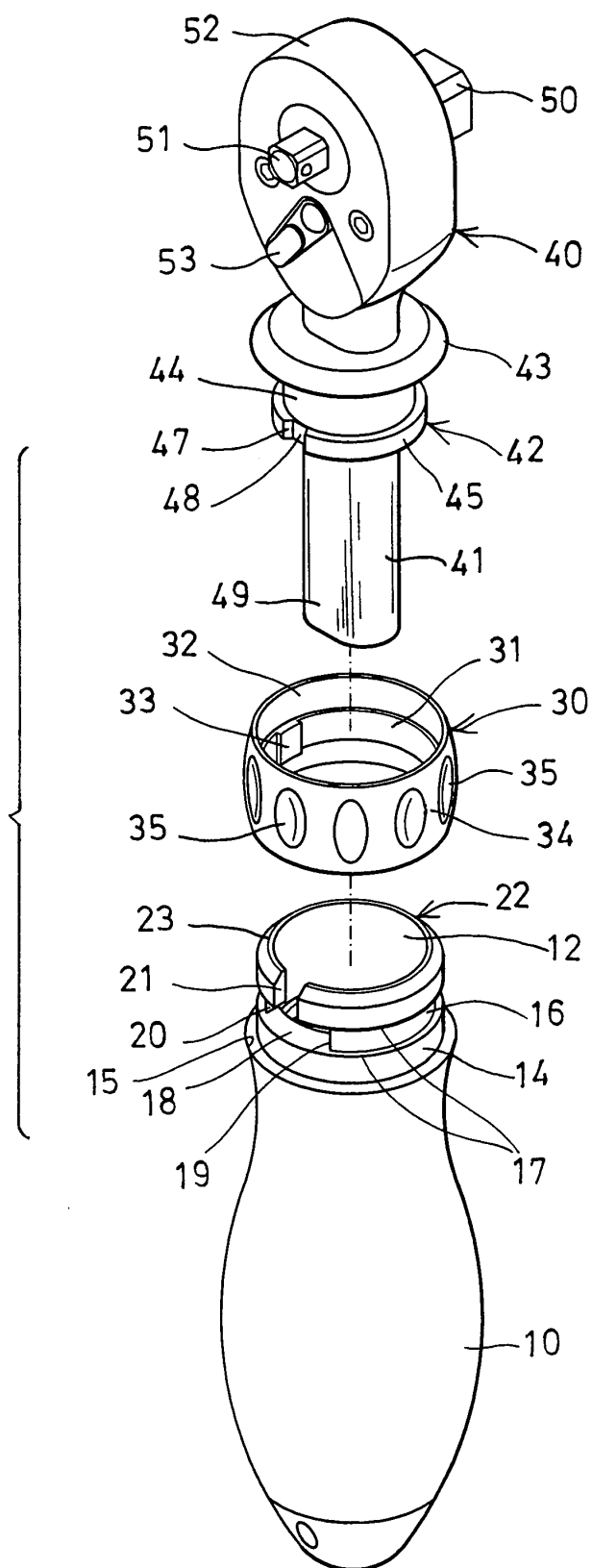


FIG. 1

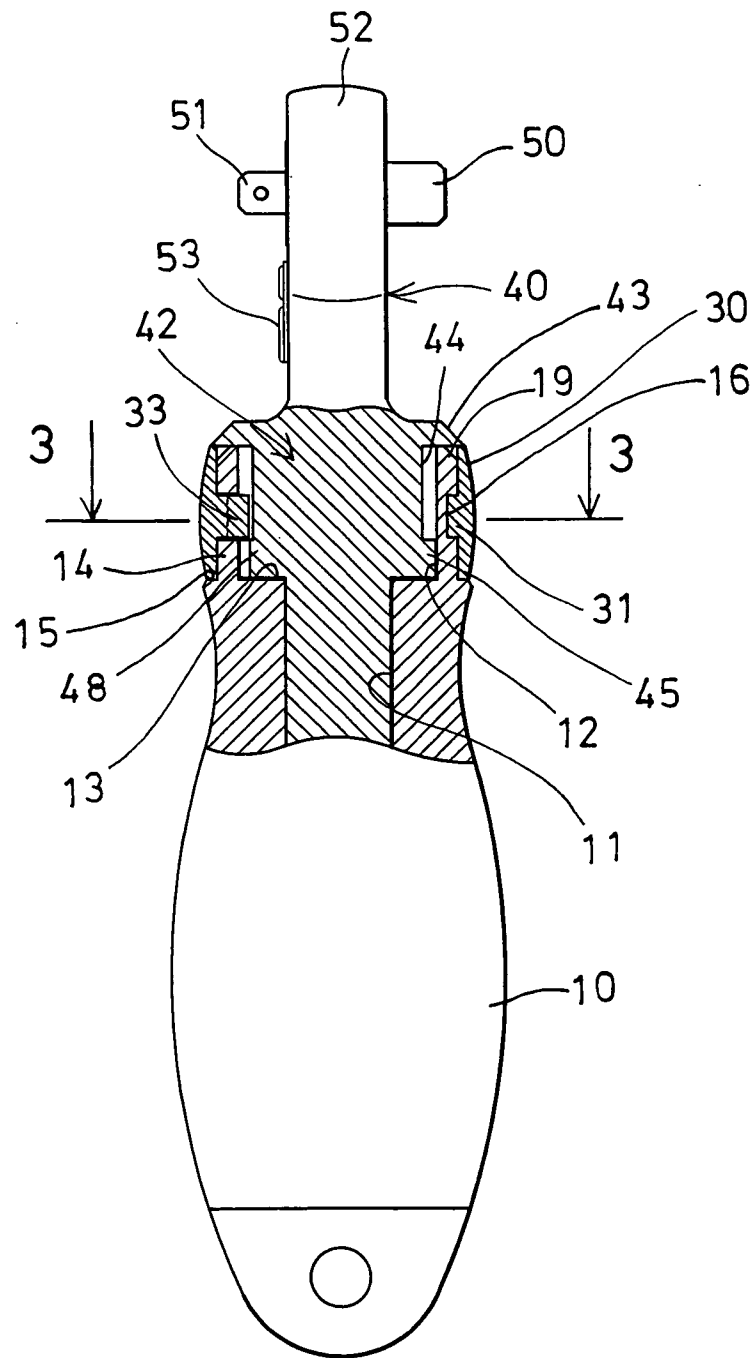


FIG. 2

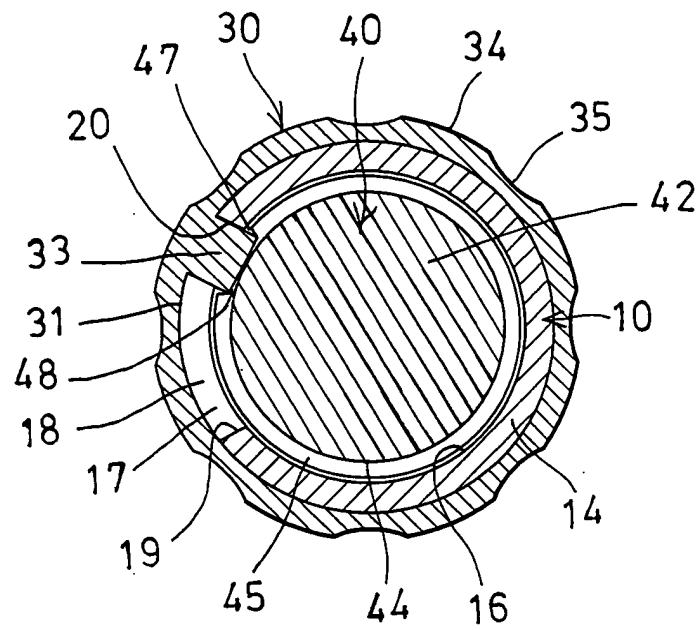


FIG. 3

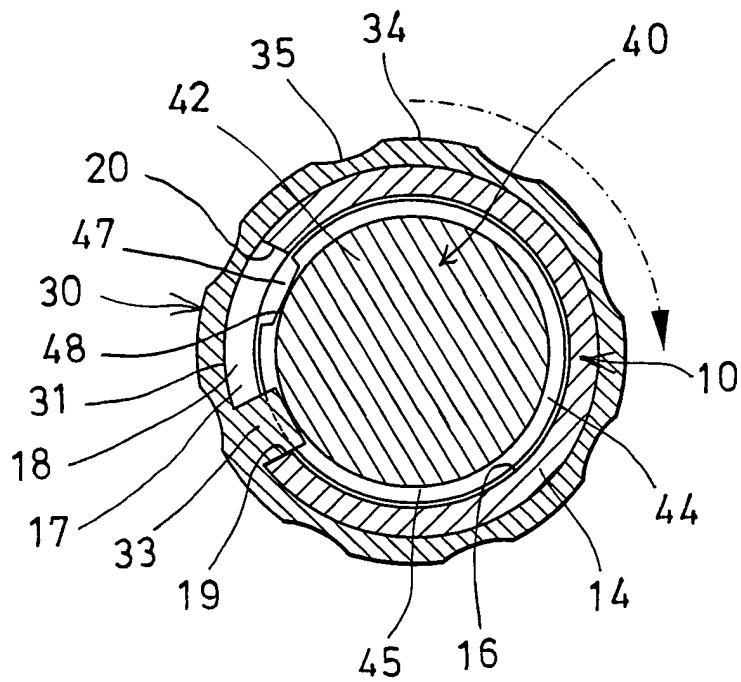


FIG. 4

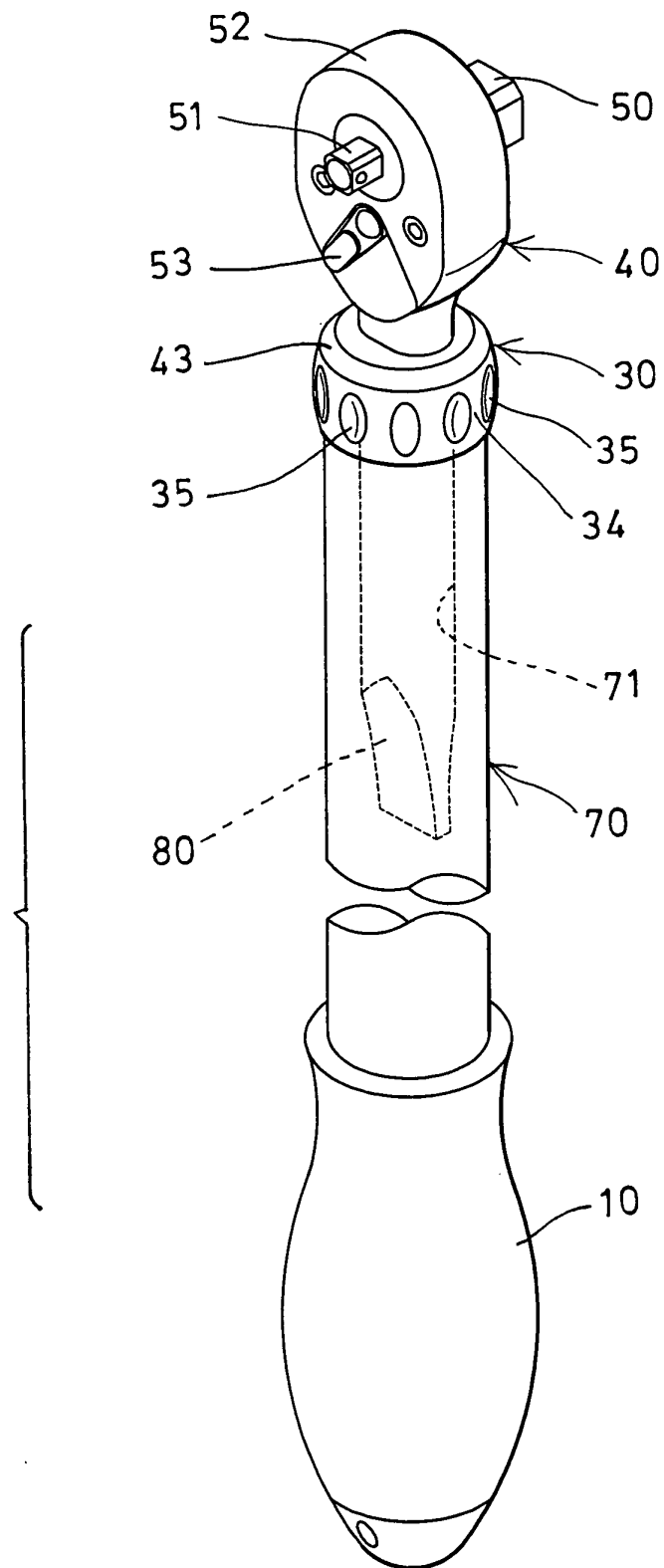


FIG. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 04 00 2215

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.7)
X	DE 299 11 230 U (CHEN PAO LU) 28 October 1999 (1999-10-28) * page 6, line 25 - page 7, line 2 * * figure 7 *	1-4,6-8, 10	B25G3/12
A	----- US 4 697 949 A (PEREZ ANTONIO C) 6 October 1987 (1987-10-06) * the whole document *	1	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B25G F16B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 July 2004	Examiner Chariot, D
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)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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