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(54) **DRAIN CLEANING TOOLS**

(57) Drain cleaning tools (100) are described. The tools typically include a hollow drum (110, 140; 148) for housing a drain cleaning cable (170), an elongated cable guide (120), a locking nut engageable with the cable guide (120) for selectively engaging the cable (170), and a rotatable handle (160) on the cable guide (120). A par-

ticular configuration is used at an open end of the cable guide to facilitate engagement, i.e., selective locking and unlocking, of the cable. One or more flexible members (126, 164) are provided in the cable guide (120) for rotatably retaining the handle (160) about the cable guide.

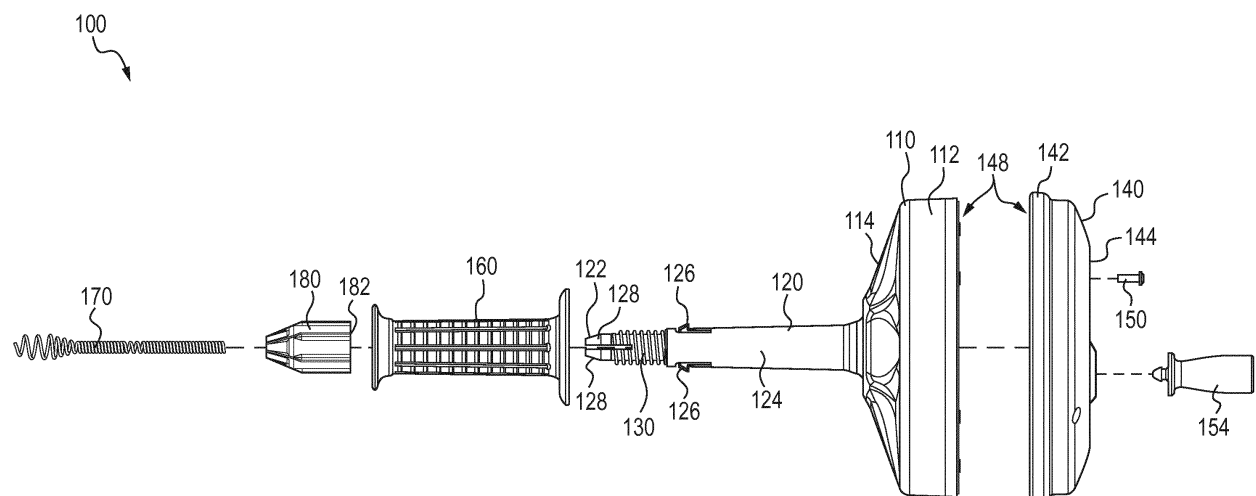


FIG. 5



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	US 4 218 802 A (BABB LARRY F [US] ET AL) 26 August 1980 (1980-08-26) * column 3, line 66 - column 5, line 6; figures 1-3 *	1-3,6	INV. E03F9/00 B08B9/045 E03C1/302
A,D	US 6 009 588 A (RUTKOWSKI MICHAEL J [US]) 4 January 2000 (2000-01-04) * column 4, lines 13,14; figures 1,2 *	4,5	
A	GB 2 340 422 A (POWER TOOL HOLDERS INC [US]) 23 February 2000 (2000-02-23) * figures 1-3 *	4,5	
A	US 4 763 374 A (KAYE PAUL S [US]) 16 August 1988 (1988-08-16) * column 3, line 59 - line 69; figures 3,4 *	4,5	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03F B08B E03C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 5 September 2018	Examiner Isailovski, Marko
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4218802 A	26-08-1980	AU 527583 B2	10-03-1983
		BE 881762 A	18-08-1980
		BR 8000947 A	29-10-1980
		CA 1141905 A	01-03-1983
		DK 71280 A	15-09-1980
		FR 2451231 A1	10-10-1980
		GB 2044386 A	15-10-1980
		IE 49161 B1	07-08-1985
		IT 1146955 B	19-11-1986
		JP S6159190 B2	15-12-1986
		JP S55121872 A	19-09-1980
		US 4218802 A	26-08-1980
US 6009588 A	04-01-2000	BR 9901371 A	21-03-2000
		CA 2246077 A1	16-01-2000
		CN 1242265 A	26-01-2000
		CN 1637214 A	13-07-2005
		DE 952264 T1	06-04-2000
		DE 69900223 D1	27-09-2001
		DE 69900223 T2	08-05-2002
		EP 0952264 A2	27-10-1999
		EP 1041207 A2	04-10-2000
		ES 2162513 T3	16-12-2001
		JP 4142206 B2	03-09-2008
		JP 2000042506 A	15-02-2000
		US 6009588 A	04-01-2000
		US 6243905 B1	12-06-2001
		US 6412136 B1	02-07-2002
GB 2340422 A	23-02-2000	CN 1249222 A	05-04-2000
		DE 19937819 A1	16-03-2000
		FR 2782285 A1	18-02-2000
		GB 2340422 A	23-02-2000
		TW 416879 B	01-01-2001
		US 6102411 A	15-08-2000
		US 6311988 B1	06-11-2001
		US 2002041072 A1	11-04-2002
US 4763374 A	16-08-1988	NONE	