



US006769329B1

(12) **United States Patent**
Gao et al.

(10) **Patent No.:** **US 6,769,329 B1**
(45) **Date of Patent:** **Aug. 3, 2004**

(54) **RELEASABLE SOCKET RATCHET WRENCH**

(75) Inventors: **Hua Gao**, Foxpoint, WI (US); **James A. Rinner**, Racine, WI (US)

(73) Assignee: **Pilling Weck Incorporated**, Horsham, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 11 days.

(21) Appl. No.: **10/151,327**

(22) Filed: **May 21, 2002**

(51) **Int. Cl.**⁷ **B25B 13/46**

(52) **U.S. Cl.** **81/60; 81/61**

(58) **Field of Search** 81/60-63.2

4,080,851 A	3/1978	Rogers	
4,151,763 A	5/1979	Colvin	
4,308,768 A	1/1982	Wagner	
4,515,044 A	5/1985	Harstad	
4,592,255 A	6/1986	Mayer	
4,703,676 A	11/1987	Mayer	
4,934,220 A	6/1990	Slusar	
5,197,358 A *	3/1993	Hsu	81/60
5,507,208 A	4/1996	Pratt	
5,636,557 A	6/1997	Ma	
5,713,251 A	2/1998	Zurbuchen	
5,927,158 A	7/1999	Lin	
5,979,274 A	11/1999	Hsieh	
6,050,165 A	4/2000	Hall	
6,070,502 A	6/2000	Chang	
6,282,993 B1	9/2001	Forman	
6,289,771 B1	9/2001	Hsieh	
6,516,689 B1 *	2/2003	Bates	81/60

* cited by examiner

(56) **References Cited**

U.S. PATENT DOCUMENTS

61,340 A	1/1867	Jackson	
193,301 A	7/1877	Vassar	
556,151 A *	3/1896	Johnson	81/61
627,269 A *	6/1899	Polliard	81/61
810,599 A	1/1906	Ansorge	
864,007 A	8/1907	Lyon	
896,607 A	8/1908	Zeller	
1,157,427 A *	10/1915	Seivert	81/60
1,350,315 A	8/1920	Katzmarek	
1,868,840 A	7/1932	McNaught et al.	
2,300,479 A	11/1942	Wilson	
2,735,324 A	2/1956	Goldwater	
2,757,564 A *	8/1956	Reaves	81/61
2,805,589 A *	9/1957	Barber	81/61
2,810,313 A *	10/1957	Hermanson	81/61
3,838,614 A	10/1974	O'Donnell	

Primary Examiner—Debra Meislin
(74) *Attorney, Agent, or Firm*—Arthur J. Hansmann

(57) **ABSTRACT**

A ratchet wrench with a releasable socket which is rotatable in a handle circular pocket and the socket extends on the wrench for only the thickness of the handle and does not protrude beyond the handle. The socket is symmetrical in its configuration and is therefore reversible in its position in the pocket and it still produces the same rotational drive. A pawl and spring are on the handle, and the pawl is snug with the socket to hold the socket in an axially fixed position on the handle. The pawl protrudes from the handle and indicates the rotational drive direction required of the handle. Fluid clean-out holes extend into the pocket.

9 Claims, 3 Drawing Sheets

