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(54)	SECURITY NUT AND TOOL ASSOCIATED THEREWITH					
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See application file for complete search history.						
(56) References Cited						
U.S. PATENT DOCUMENTS						
1,815,500 A * 7/1931 Doan						

3,104,569	A *	9/1963	Davis et al 81/53.2	
3,457,812	A *	7/1969	Wagner, Jr 81/52	
4,671,141	A *		Hanson 81/53.2	
5,065,649	A *	11/1991	Evers et al 81/458	
5,123,310	A *	6/1992	McManus 81/125	
5,832,796	A *	11/1998	Chopra 81/467	
6,189,416	B1 *	2/2001	Groom 81/53.2	
6,877,402	B1*	4/2005	Pigford et al 81/53.2	
2004/0182206	A1*		Korpi 81/121.1	

\* cited by examiner

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(57) ABSTRACT

A tool for tightening and loosening a security nut and the security nut associated with the aforementioned tool that allow easy tightening of the security nut, makes it difficult to remove the security nut when using ordinary tools, and makes it easy to remove the security nut if the dedicated tool is used. The security-nut tightening tool used for screwing and tightening the conical, trapezoidal security nut onto a bolt comprises a hollow section that covers and seats the tapered outer surface of the security nut, a rotation grip section that protrudes above the hollow section, a head female-thread section that is linked to a hollow space along the axis of the rotation grip section and screws onto the bolt, an inner tapered surface that is fixed to the inner wall surface of the tool and has the same slope angle as the tapered outer surface and an elastic friction part.

5 Claims, 9 Drawing Sheets

