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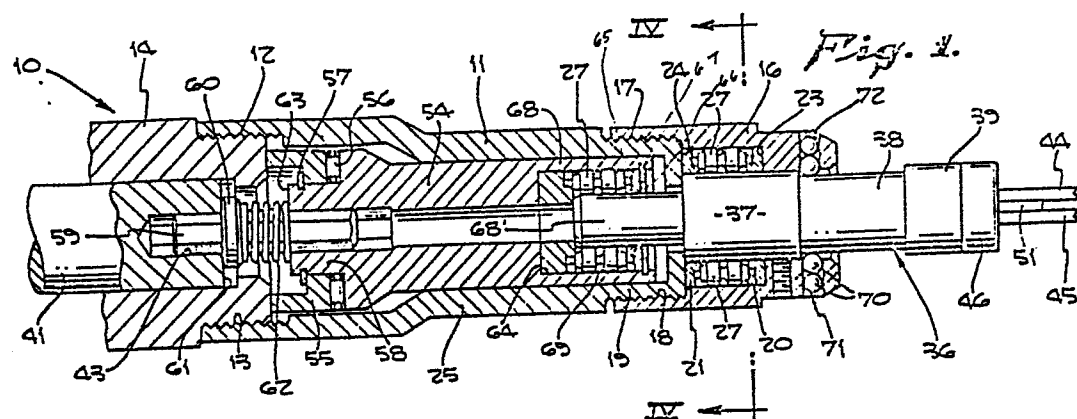
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54 **Installing tool for wedging-type fasteners.**

57 An installing tool having two way drive wrench portion particularly suited for installing wedge-locking type aircraft fasteners. The wrench portion is adapted to be installed on a driving tool. The wrench portion has at least a forwardly and a rearwardly mounted polygonally-shaped opening with a cage in each opening, each cage having a plurality of rollers mounted therein and loosely mounted within the polygonally shaped openings but retained therein. In operation, the wrench portion is placed over the fastener it is desired to install, the main body of the fastener, which may be cylindrical, entering the forward polygonally-shaped opening in the wrench portion and abutting against the rollers thereon which protrude inwardly toward the fastener. A nut portion of the fastener, which may be cylindrical, enters the rear opening. Rotation of the nut portion while holding the main body portion results in installation of the fastener without need for precise alignment of the wrench to the fastener. This is because the loosely mounted cage adjusts for any misalignment and the rollers abut against the walls of the polygonally-shaped opening to wedge or lock the wrench to the fastener. After installation, the relaxation of the engagement of the tool to the fastener allows for easy withdrawal.





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.4)
D,Y	US-A-3 331 268 (JONES et al.) * Figure 1 *	1-3,5,6 ,9-11, 13,14	B 25 B 31/00
Y	US-A-2 408 335 (OLIVER et al.) * Figures 2,3; page 2, lines 1-51 *	1,2,9, 10	
A	GB-A-2 126 146 (DESCOUTTER LTD) * Figures 2,3; page 2, lines 20-39 *	1-3,5,6 ,9-11, 13,14	
A	EP-A-0 092 127 (WAGNER) * Figures 2,3 *	1,2,9, 10	
A	US-A-2 743 804 (ROBERTS) * Figure 2 *	1,2,9, 10	
A	FR-A- 561 562 (ELLIS et al.) * Figure 9 *	4,7,12, 15	
A	FR-A- 506 483 (BOULISSIERE) * figure 4 *	4,7,12, 15	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	US-A-2 273 895 (ROTBERG) * Figure 8 *	4,7,12, 15	B 25 B F 16 D F 16 C
D,A	US-A-2 613 565 (SAUNDERS)		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22-11-1987	Examiner SCHOOFS G.G.
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			