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Europäisches Patentamt  
European Patent Office  
Office européen des brevets

(11) Publication number:

**0 293 101**  
**A3**

(12)

# EUROPEAN PATENT APPLICATION

(21) Application number: **88304090.9**

(51) Int. Cl.4: **B21D 31/02 , B21D 39/04 ,  
F16B 7/18**

(22) Date of filing: **06.05.88**(30) Priority: **06.05.87 GB 8710650**

(43) Date of publication of application:  
**30.11.88 Bulletin 88/48**

(84) Designated Contracting States:  
**BE CH DE ES FR GB IT LI NL SE**

(88) Date of deferred publication of the search report:  
**13.12.89 Bulletin 89/50**

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(54) **A method of making an angled joint.**

(57) A method of making a rigid angled joint between a first length (12) of metal tubing and a second length (18) comprises the steps of first applying a rotating piercing tool (not shown) under pressure, to the first tube's wall. The tool thus forms a hole (14) surrounded by an integral bush (16) which is formed from the displaced tube wall material, is at an angle to the axis of the tube (12) and has a diameter to closely fit the external diameter of the second tube (18). The second tube (18) is inserted through the bush (16) into the interior of the first tube (12) and is secured therein by, preferably a bolt or screw (not shown) extending through a second smaller concentric hole (26) and locating in threaded extension (22) of the second tube (18).

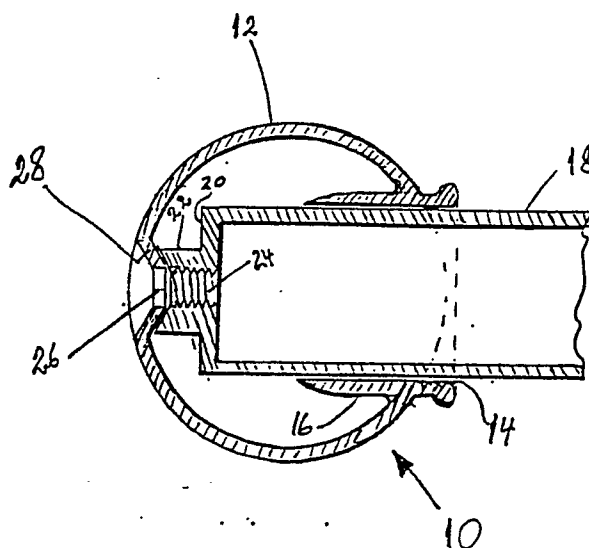


Fig. 1

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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 (Int. Cl.4)		
Y	DE-A-2 536 611 (ACKEL) * Page 5, lines 5-12; claim 1; figures * ---	1-6	B 21 D 31/02 B 21 D 39/04 F 16 B 7/18 B 21 C 37/29		
Y	US-A-2 575 965 (MALM) * Columns 2-3; figures 1-7 * ---	1,2,5,6			
Y	US-A-3 429 171 (FEHER) * Column 4, lines 30-47; figures 1-3 * ---	3			
Y	GB-A-1 285 752 (ERNST) * Figure 8 * -----	4			
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)		
			F 16 B B 21 C		
The present search report has been drawn up for all claims					
Place of search THE HAGUE		Date of completion of the search 29-09-1989	Examiner VOLLERING J.P.G.		
<table border="0"><tr><td><b>CATEGORY OF CITED DOCUMENTS</b> 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</td><td>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 ..... &amp; : member of the same patent family, corresponding document</td></tr></table>				<b>CATEGORY OF CITED DOCUMENTS</b> 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
<b>CATEGORY OF CITED DOCUMENTS</b> 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				