

(19) (KR)  
 (12) (A)

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 F16B 19/04

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 (43) 2004 10 08

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|      |            |            |      |
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| (30) | 60/359,497 | 2002 02 25 | (US) |
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|      |  |    |
|------|--|----|
| (71) |  | 40 |
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|      |       |   |
|------|-------|---|
| (72) | 92604 | 2 |
|------|-------|---|

(74)

(54)

가

(honeycomb)

가

가

가

가

가

가

1            1      2

2    1      2

3    1      2

4            7

8            11

1

2

가

|   |  |   |   |   |   |  |   |
|---|--|---|---|---|---|--|---|
| 1<br>(300)  | 7<br>2   | 가<br>1  | (honeycomb rivet)(100)<br>100<br>100                                      | 1<br>200<br>200   | 가<br>2  | ,<br>8<br>300<br>300   | 11<br>400<br>400  |
| ,<br>1<br>(100)<br>06),   | 7<br>1<br>(100)<br>(internal locking collar)(108)                                  | ,<br>1<br>(back side sleeve)(102),<br>(102)<br>(102)<br>(D1)<br>(114)     | ,<br>1<br>(100)<br>(116)<br>(118)<br>(102)<br>(112)<br>(D1)<br>(114)      | ,<br>1<br>(102)<br>(112)<br>(114)<br>(102)<br>(116)<br>(D2)<br>(102)      | ,<br>1<br>(102)<br>(112)<br>(114)<br>(116)<br>(114)<br>(116)<br>(114)     | ,<br>1<br>(100)<br>(front side sleeve)(104),<br>(driving anvil)(110)<br>(104)<br>(104)<br>(104)<br>(120) | ,<br>1<br>(stem)<br>(114)<br>(116)<br>(120)                               |
| 1<br>(112)<br>(D1)<br>(114)   | 1<br>(102)<br>(112)<br>(D1)  | 1<br>(118)<br>(118)<br>(D2)   | 1<br>(102)<br>(102)<br>(D2)   | 1<br>(116)<br>(116)<br>(D2)   | 1<br>(112)<br>(112)<br>(114)<br>(114)                                     | ,<br>1<br>(102)<br>(114)<br>(114)  | ,<br>1<br>(116)<br>(116)<br>(120)   |
| 2<br>(122)<br>(D4)<br>(126)<br>(132)<br>(132)<br>24<br>2<br>(138)                     | ,<br>(104)<br>(104)<br>(124)<br>(134)<br>(134)                                     | ,<br>(100)<br>(126)<br>(128)<br>(132)<br>(138)                            | ,<br>(104)<br>(122)<br>(128)<br>(132)<br>(138)                            | ,<br>(104)<br>(122)<br>(128)<br>(130)<br>(138)                            | ,<br>(104)<br>(122)<br>(126)<br>(126)<br>(136)                            | ,<br>(122)<br>(104)<br>(104)<br>(124)<br>(124)   | ,<br>(124)<br>(104)<br>(126)<br>(124)<br>(104)                            |
| 28)<br>,<br>2<br>(146)<br>(D7)<br>(104)<br>0)<br>2<br>(146)<br>(140)<br>(D8)<br>(140) | 3<br>(148)<br>(140)<br>(126)<br>(140)<br>(104)<br>(146)<br>(148)<br>(D9)<br>(152)가 | 2<br>(124)<br>(126)<br>(140)<br>(146)<br>(122)<br>(122)<br>(124)<br>(124) | 2<br>(138)<br>(138)<br>(140)<br>(146)<br>(122)<br>(122)<br>(124)<br>(124) | 2<br>(138)<br>(144)<br>(144)<br>(144)<br>(140)<br>(140)<br>(140)<br>(140) | 2<br>(142)<br>(140)<br>(144)<br>(144)<br>(144)<br>(144)<br>(140)<br>(140) | ,<br>(104)<br>(104)<br>(104)<br>(104)<br>(104)<br>(104)<br>(132)<br>(132)                                | ,<br>(104)<br>(104)<br>(122)<br>(122)<br>(140)<br>(140)<br>(132)<br>(132) |
| 3<br>(154)<br>(D3)<br>(160)<br>40)<br>(D9)  | ,<br>(D10)<br>(D11)<br>(D10)   | (106)<br>(158)<br>(158)<br>(158)  | (106)<br>(154)<br>(154)<br>(158)  | 1<br>(156)<br>(154)<br>(154)<br>(158)                                     | ,<br>(156)<br>(154)<br>(154)<br>(158)                                     | ,<br>(154)<br>(154)<br>(158)<br>(148)  | ,<br>(154)<br>(154)<br>(158)<br>(148)                                     |
| 2)<br>(158)<br>(D12)<br>(104)   | 2<br>(162)<br>(164)<br>(146)   | (158)<br>(158)<br>(158)   | 1<br>(160)<br>(160)<br>(140)  | (160)<br>(160)<br>(160)   | 2<br>(162)<br>(162)<br>(162)  | ,<br>(162)<br>(162)<br>(162)   | ,<br>(D11)<br>(D11)<br>(D11)  |
| (158)<br>(D13)<br>3<br>가  | 3<br>(166)<br>(168)  | (158)<br>(158)  | 2<br>(162)<br>(162)   | 2<br>(162)<br>(162)   | 3<br>(166)<br>(166)   | ,<br>(166)<br>(166)  | ,<br>(D12)<br>(D12)   |

8) (158) 3 (166) 3 (158) 2 (162) (168) 2 (174) (15  
 (170) . (162) (168) , 3 (166) (172, pulling portion) (106) (178) 3 (166)  
 (176) , , (166) (170) (172) (170) (179) 3 (166) 가  
  
 4 (180) , (108) (108) 3 (166) (170) (182) (158) 3 (166) 가  
 (106) 2 (174) (158) (166) (108) (158) 2 (162) (158) 3 (166)  
 (108) 가 (D12) Inco Alloys International, Inc. A-286 (precipit  
 ation hardening) INCONEL  
 ,  
 4 , (110) (158) 3 (166) (D13)  
  
 196) (186) (100) 1 (186) 2 (188) (188) 1 (194) 1  
 (190) , (184) (198) (200) (184) , (192) (196) , 1 (194) (190)  
 (192) 2 (198) (200) (198) 2 (192) (196) , 1 (194) (202)  
 1 1 (196) (204) (198) (206) (198) 1 (186) (206) 2 (184)  
 8) , 2 (196) (188) (208) (208) (190) (194) 2 (188) (20)  
 (190) , 1 (184) (186) (188) (188) (184)  
 4 7 (100) 1 (186) 2 (188) (184)  
  
 1 (186), (184) 2 (188) (188) (212) (212) (212)  
 (D6) (102) , 1 (114) 2 (D2) (186, 188) (104) (124) 2 (138)  
 . (216) (104) (102) (122) (212) (212) (214, 216) 가  
 (102) (112) ,  
  
 (100) (184) 1 2 (186, 188) (212) (214, 216) 가 ,  
  
 1 (186) (202) (212) (102) (184) 2 (196) (102) (186) (184)  
 (204) , (102) (112) (114) (214) (114) (D2) 1 (212) (212)  
 , (102) (212) .  
  
 (154) (104) (104) (104) (104) (104) (104) (104) (104) (104)  
 (158) (158) 1 (160) (140) (140) (140) (140) (140) (140)  
 (158) 2 (162) (160) (140) (140) (140) (140) (140) (140)  
 . (158) 3 (166) (166) (140) (140) (140) (140) (140) (140)  
 144) (D13) (D13) (158) 3 (166) (166) (140) 2 (146) (140)  
 . (104) (104) (122) (122) (140) 2 (146) (140) 2 (146) (140)  
 (140) 1 (146) (146) (140) 2 (146) (140) 2 (146) (140) 1 (146)

(212) (102)가 (184) 1 (212) (190), , 2 (188) (202)  
 (104) (106) (106) (154) 1 (212) (188), (104) (124) (104), (122)가 (106) (21  
 6) (122)가 2 (104) (104) (124) 2 (210) (138) 가 (104)가 (102) (212  
 (114) (154) (120) . (104) (124) 2 (138) (124)가 1 (132) 2 (138) (114) (120  
 ) , (104) (218) (102) (104) (102) (114) (106) (218) ,  
 . (110) (158) 3 (166), , (104) 1 (126)  
 . (100) (212), , (178) (178)가 (110) (158) 3 (166)  
 , 4 (110) 가 (104) (122)가 (212) (178) (216)  
 (110)  
 5 (104), , (178), (110) (F1) 가 (106) (158) (102)  
 2) 가 (F2) (124) 2 (138) (154) (104) 2 (128) (102) 2 (118) (124,  
 (104) (102) (114) 가 (114) 가 (upset), , (104, 102) (184) (100)  
 114)  
 6 , , (178)가 (F2) (182)가 (106) (158) (172)  
 가 , (182) (108) (104) (140) (110), , (104) (104) (108)  
 1 (144) (108) (108) (106) , , (104) (104) (140)  
 108) (106)가 , , , , (100)  
 .  
 7 (178) (F2) 가 , (106) (burr) (158)가 (179)  
 ,  
 8 11 , , (300) 2 (300) 2 (309) 2 (311) (300)  
 (302), (304), (306), (306), (309), (306) (100)  
 .  
 (102), (300) (302), (104) (106) (304) (306) (100)  
 .  
 .  
 8 , (309) (309) (309) (306) 3 (309) (379) (379) (372) (366) (D13) (306) 3 (300) (366)  
 .  
 (304) (340) 1 (344) (344) (D7) Inco Alloys International, Inc.가 (309)  
 A-286 , , , , INCONEL  
 .  
 8 , , (311) (420) (422) (422) (424) , , (4)  
 20) , , , ,  
 .

|       |         |             |               |            |                  |              |
|-------|---------|-------------|---------------|------------|------------------|--------------|
| (420) | ,       | (424)       |               | (422)      |                  |              |
| 가     |         |             | .             |            |                  |              |
| 11    |         | (300)       | 1 2           | (386, 388) | (384)            | 8            |
| 1     | (386),  | (384)       | 2 (314) (388) | (D2)       | (412)            |              |
| 8)    | (D6)    | (302)       | (414, 416) 1  | 2 (322)    | (304) (386, 388) | (324) 2, (33 |
|       | (416)   |             | (304)         |            | (412)            |              |
|       | (302)   | (312)       |               |            | (414)            |              |
| ,     |         |             |               |            |                  |              |
| (414) |         | (414, 416)가 |               | (384)      | (386, 388)       | ,            |
| (412) |         | (414, 416)  | .             | .          | .                | (300)        |
|       |         |             |               |            |                  |              |
|       | (302)   | (314)       | 1 (402) (386) |            | (384) 2 (302)가   | (396)        |
|       | (384)   |             | (402) (414)   |            | (312) 1 (412)    | ,            |
| 4)    | (302)   | (312)       | (302) (314)   |            | (D2) (412)       | (386)        |
|       |         |             |               |            |                  | ,            |
|       | (302)가  | (412)       | .             | .          | .                |              |
|       |         |             |               |            |                  |              |
|       | (306)   | (358)       | 3 (366)       |            | (304) (340)      | 3 (348)      |
|       |         | (306)       | (304)         | .          | (354) (340)      | (D10) (340)  |
|       | (348)   | ,           | (354)         | .          | (304) (D11)      | 3 (348)      |
|       | (304)   | 2 (328)     | .             | ,          | (D12) (358)      | 1 (360)      |
| D8)   | (340)   | 3 (348)     | .             | .          | (358) 2 (362)    | (35          |
| 8)    | 3 (366) | 2 (346)     | (340)         | 3 (348)    | (D13) (362)      | (35          |
| )     | (322)   | 2 (346)     | (346)         | 1 (340)    | .                | (304)        |
|       |         | .           | .             |            |                  |              |
|       |         |             |               |            |                  |              |
| 4)    | 1 (306) | (354)       |               | (304)      | (324) 2 (402)    | (388)        |
|       | (390)   | (412)       | .             | (384)      | (304) (306)      | ,            |
|       |         | (302)가      | (412)         | .          | .                | 가            |
|       |         | ,           | .             | .          | .                | 2            |
|       | (412)   | ,           | .             | .          | .                |              |
|       | (388)   | (410)       | ,             | .          | (416) (304)      |              |
|       | (324)   | 2 (338)     | ,             | .          | (354) (320)      |              |
|       | (304)   | .           | .             | .          | .                |              |
|       | (324)가  | 1 (332)     | 2 (338)       | .          | (304) (302)      | (304)        |
|       | (314)   | (320)       | .             | .          | (314) (306)      |              |
|       | (354)   | (418)       | .             | .          | (304, 302)       | (306)        |
| 418)  | ,       | .           | .             | .          | .                | (            |
|       |         |             |               |            |                  |              |
|       |         |             |               |            |                  |              |
|       | (308)가  | (358)       | 3 (366)       | .          | (308)            | (304)        |
|       | (340)   | 1 (340)     | .             | .          | .                |              |
|       |         |             |               |            |                  |              |
|       |         |             |               |            |                  |              |
|       | (310)가  | (358)       | 3 (366)       | ,          | (422) (426)      |              |
|       | (304)   | 1 (326)     | ,             | .          | (308)            | .            |
|       |         |             |               |            |                  |              |
|       |         |             |               |            |                  |              |
|       | (300)   | (412)       | ,             | .          | (378)가 (311)     | (358)        |
|       | 8       | .           | .             | .          | (311) 가          | 3 (366)      |
| (430) | .       | .           | .             | .          | .                | (420)        |
| 12)   |         | (416)       | .             | .          | .                | (322)        |
|       |         |             | .             | .          | .                | (4           |
|       |         |             |               | .          | .                |              |
|       |         |             |               | .          | .                |              |
| 9     |         | ,           | .             | .          | .                |              |
|       | (311)   | (F1)        | 가             | (378)      | (302, 304)       |              |
|       |         |             | .             | .          | (358)            |              |
|       |         |             | .             | .          | (372)            |              |
|       |         |             | .             | .          | .                | (F2)         |



2 , 2 가

5.  
4 , 2  
가 2 2

7. , 가

8. 4 , , 가 가

9.  
3 , 1 2 ,  
1 , 2 가 ,  
 , 2 , 가 2  
2 , 가 2 .  
2

$$10. \quad \begin{matrix} 9 & , & 2 \\ & 2 & \end{matrix} \quad \begin{matrix} 2 \\ , \end{matrix}$$

12. 11 , 가

13. 가 가

14. 가 , 가 가 1

가 가 , 1

, 1 가 ,  
2 가

가 , , 가 2  
2 , 2 1 . 1

15. 가 2 , 14

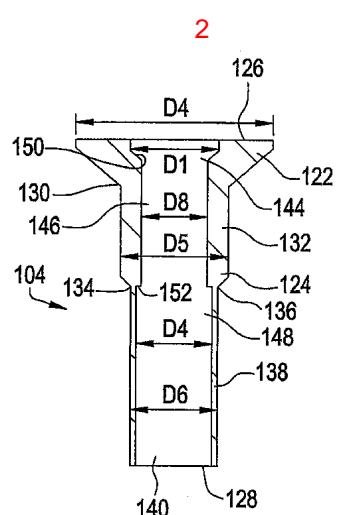
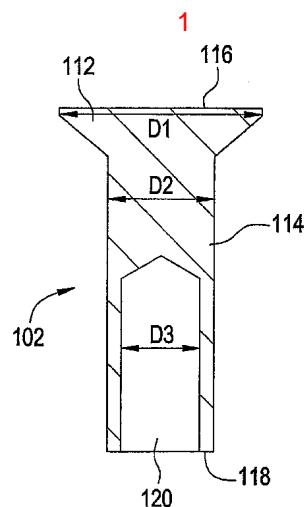
17. 16 , 2 가  
, 2 , 2

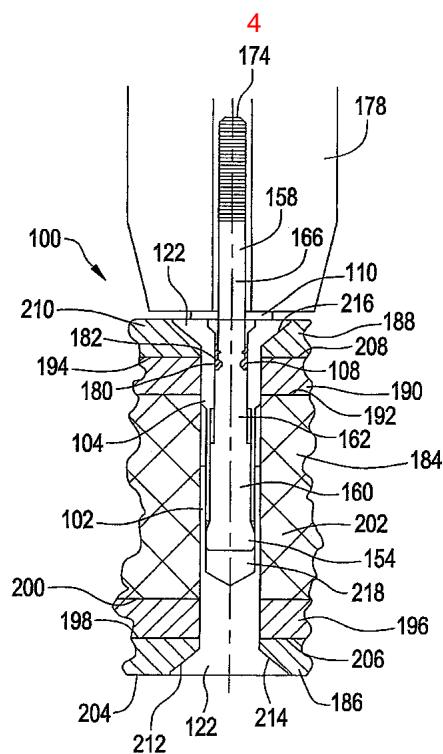
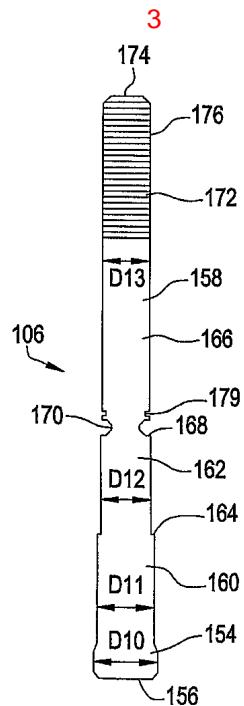
18. 17 , 1 2 2 가 , 1 2 1 2 1 가

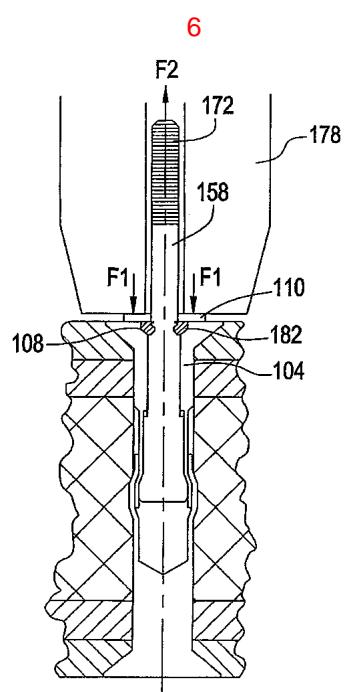
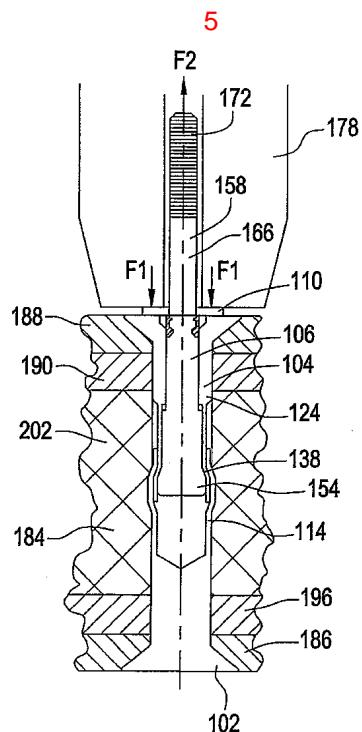
19.  
18 . . . 2

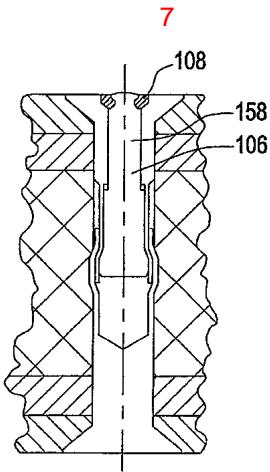
20. 1 2 ,  
1 1 , 2 , 1 2  
1 가 2

a) 1 ,  
b) 2 ,  
c) ,  
d) 2 , 가 , 2  
e) 2 , 가 , 1 ,  
f) 1 , , 1 2 , 가 , 2 , 1  
g) , 2









8

