

O₂), TEOS, PSG, BPSG, USG(; undoped spin - on - glass), LTO, (Si

가

가,

가

(sputtering)

가

()

가

(, 가 /)

가

가

(Al₂O₃)

가

(;

(down side)

(,)

가

가

(, , ,

)

(in - situ)

(clean)

" (ash)"

C, A

L, O F

DRAM

가

(pitting)

(spalling)

(;)

) , () , (,
가

가 (chuck) 가
()

(baffle) 가
가

가 (SiC), (Si₃
N₄), (B₄C) / (BN)

가
(SiC) , (Si₃N₄) , (B₄C) (BN)

(SiC) , (Si₃N₄) , (B₄C) (BN)
가
(B₄C) / (BN) 가 (SiC), (Si₃N₄),

가 가

가 , / ,
 가 ,
 4), (B₄C) (BN) / (SiC), (Si₃N₄)
 () RF 가 가
 / / (SiC), (Si₃N₄), (B₄C) (BN)
 RF RF RF

가

가

(batch)

가

1 ;

2a 2c ;

3a ;

3b 3a A - A ;

3c ;

4 가 ;

5a , ;

5b ;

6 , 3 ;

7 , 3 ;

8 1 .

(,) . , () , ,

. ,

, , 가 , ,

- (Si), (C), (N) (O) . -

) , 가 (,

, 가 .

(BN) , (SiC), (Si₃N₄), (B₄C)

. 가 , -

() (SiC) ,

/ (132) (130) SiC

RF , SiC 가 (" GDP")(, 1 120) SiC

, SiC 가

, SiC

SiC

(grounded) SiC (potential) SiC 가 (reference)가 " 09/050,9

02 " 1998 3 31

1 8

1 (104) (100) (102)

(104) (104) (104) (104)

가 80 mTorr (10¹¹ - 10¹² ions/cm³ 1 mTorr 40 mTorr)

(104) (106) (106) (106) (106)

(104) (114) (108) (106) (112)

(114) , (a) (SiC), (b) (Si₃N₄), (c) (B₄C) (d) (BN) (112)

(114) , Si₃N₄가 (112)

(112) (116) (118) (108) (

(132) (130) (132) (132a)

(132) 2a 2c (teeth)(132b)

(104) 가 가 가

(GDP)(120)가 .가 (120) (122)가 (122)

RF (120)(, RF) , RF R

F (120) RF (126) (122) 가 (120) 가

, 가 TCP 9100TM 가

, LAM 가 .

RF (127) RF (122) (122)

(power) (124) 가 (124)

(100) (102), (124), GDP(120), (122)

RF (127) O .

, 가 (130) (132)

(100) (134)가 , (134)

(130) (134b), (134c) (134d) (134) (134a),
 34b) (132) (130) (140) (134) (134c) (134a) (1
 29) (140) (142)가 (1
 32) 가 (130) (132) (130) (130) (1

(131)가 (134) (134c)
 5a 5b (124) (121)
 (130) (131) (131) (;)
 가 (121)

가 (130) (132)
 (120), (114) (112)
 (Si), (C), (N) 가
 가 (가) 가 가

2a 2c (132) 1
 (132) 가 (102)
 (132) (102) (132b)
 (130) (104) (132a)

2b (132b) 3 (132c) (102)
 가 가 50 70
 2c (132c) (SiC) 1.5
 (縱橫比)가 가 (132c)
 0.13 0.28 2.0

200mm (132) (; ID) 10.75 , 1/16
 가 1 (112) (ID)
 , 300mm 14

(132b)가 (132)
 가 (132b) , 50 70 ()
 ,) (132) (132a)
 (150) . 1 , (150) (132)
 (130) (134) 가 가
 (fastener)가

3a (134) , (140)가 (134)
 (134b) , 가 (slot)
 , (134b) 가 (140) 가 (134c) (13
 0) (132) , (141) (140) (134a)
 가 3c (134c)

(140) (141)가 (134a)
 (144) (134a) , (144)
 1,000 (134a) (140)

(100)가 8 (, 200mm) ()
 134) 14 1/2 가 (134b) (170) 1/16 3/32
 . 1/16 300 , 3/32 1,000

(134c) (134a) (176) 2 1/2
 , (176) (134) 가 300
 , (134a) (172) 가 9/16 , (134c)
 5/8

3b 3a A - A (134)
 (134) , (134) (152)
 . (152) (134b) (134c) (134)
 (unit) , (152) (134)
 b) , (152) 15
 , (152) (134)
 , (134c) (150)

(134) , 3c (133) Y (X
) 1/16
 (132) (134) (130)
 (134) 가 .
 4 (130)가 (134)
 , (130)가 () 가 (108)()
 RF RF .
 RF 가 , SiC .
 , SiC (130) 가 .
 , SiC SiC가 (130)
 (132) , SiC RF .
 DP)(120) , SiC RF 가 , (G
 SiC 가 .
 4) 가 (150) (130) 가 (13
 가 (134) (130) (134) (156)가 .
 (134) (130) (132) .
 , (134) (154) (130) (13
 4)가 3c (154) 1/16 .
 (130) (179) 14 . 200mm (13) .
 0.3 (130) (130) 0.1
 77) 3 12 , 0.2 5 가 (1
 , (131)가 , (134) (134c)
 (131) (123') , (134b) (124)
 (130) , 5a (121)
 (130) , (140) (121)
 (130) 가 ± 10
 ± 10
 5a (130), (134) (132)
 (156) (130) (134)

(131a) 가 5b , (131) (135) (131a) (131c) (134c) (124) (131) (121) (124) (124) (top lip) (124)

가 , (140) (121) (130) 200 가 . 가 , (130) (130) 가 (130) (131) (131) 가 (121) (134) (131) (134) (131) (124)

34) (132a), (130) (132) (132), (157) (130) (1) (150') (131a') (130) (150') (132) (spacer) (131b)

(131b) (131a') (150') 가 (132) (130) (132) (130) 가 (130) (150')가 (100) 가 (,) 1 (,) 가 가) , (,) 가 가

34) 가 , (,) (130) (132) (1)) , (134) 가 (-) 가

6 (130), (132) (134) 3
 가 (134) (134a) (140)
 (160)가 (152) 가 (100) (160)
 60) (130) (arm) (106) (160)
 4C / BN 가 7 가 (160) SiC, Si₃N₄, B
 (134) (130) (162) (162)
 (134) (134a) (140) (144)
 (161)

7 (130), (134) (132) 3
 (106) (pass) (160)
 (132) (132b)가 (132b) 1
 (112) 가

8 1 (100)
 (132), (130) (134) (131b)
 (140)가 (134) (134a)
 (140) (134) (104)가

(124) (124a) (142)가 가
 (120) (124)가 가 (120) 가 (100)
 가 (126) (120a) 가
 (122)가 가 (120)

가

(100) ,
 (SiO₂), TEOS, PSG, BPSG, USG(; undoped spin - on - g
 lass), LTO, (100)
 80 mTorr , RF ()
 128)(,) 2,500 400 ,가 1,500
 (108) 2,500 700 ,가 1,000
 , CHF₃, C₂HF₅ / C₂F₆ 가 가

(112) (, (130), (132), GDP(120), (114)
) (104)
 (,)

(100)

(104)

가 ,

가

SiC가 (SiC)

0% Si가 가 SiC (Si₃N₄), 10 2

(BN) SiC (B₄C)

가 ,

(57)

1.

2.

1

3.

1

4.

3

가

5.

4

6.

- 1 , ,
- 7.
- 6 , (SiC), (Si₃N₄), (B₄C) (BN)
- 8.
- 1 , (SiC), (Si₃N₄), (B₄C) (BN)
- 9.
- 1 , , RF
- 10.
- 1 , 가 ,
- 가
- 11.
- 10 , 가 (SiC), (Si₃N₄), (B₄C)
(BN)
- 12.
- 1 ,
- 13.
- 12 , (SiC), (Si₃N₄), (B₄C)
(BN)
- 14.
- 1 , (SiC), (Si₃N₄), (B₄C) (BN)
, / 가
- 15.

11 , 가 RF

16.

1 , RF

17.

1 ,

18.

1 ,

19.

1 , , ,

20.

1 , ,

21.

1 ,

가 ,

22.

21 , ,

(batch)

23.

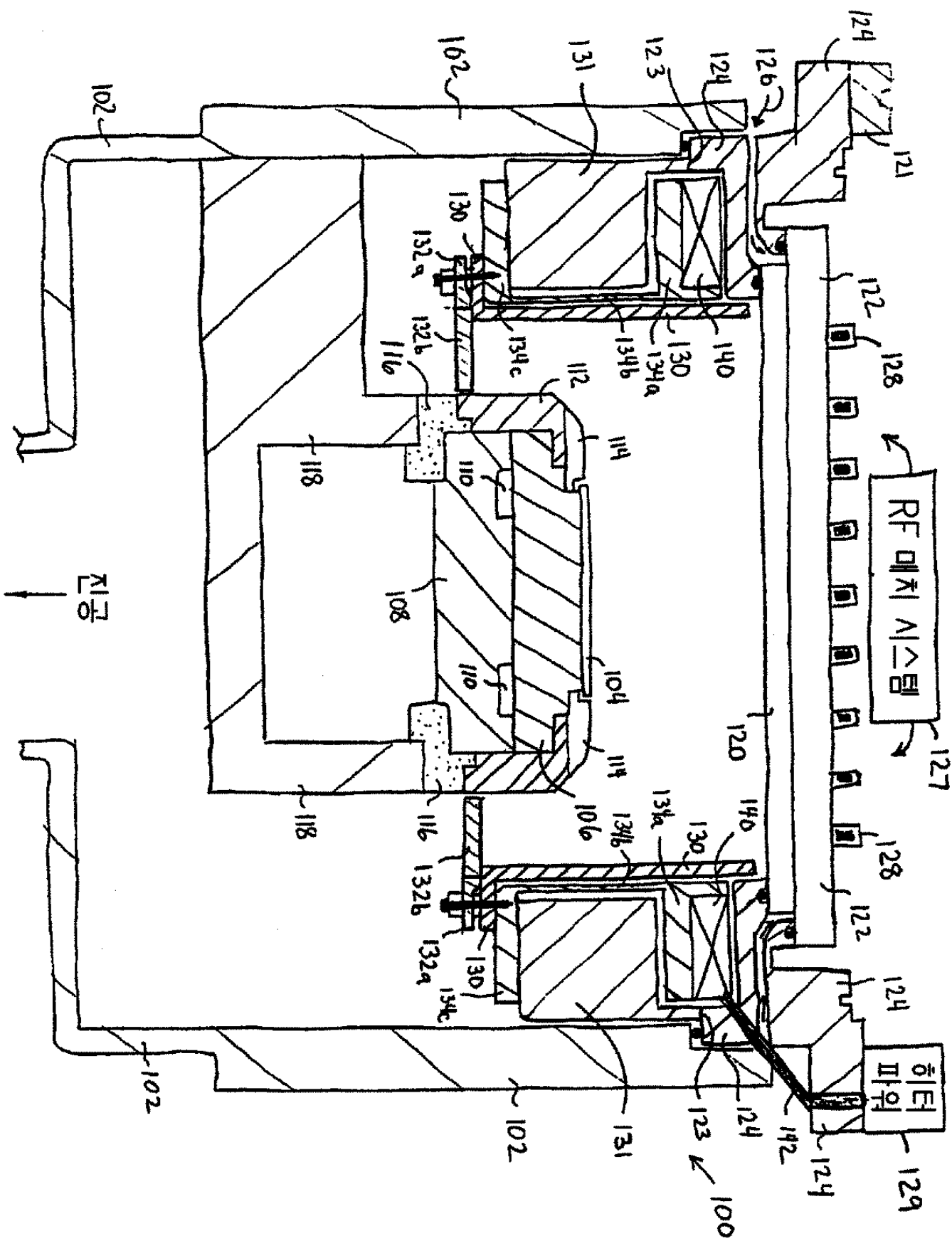
21 ,

24.

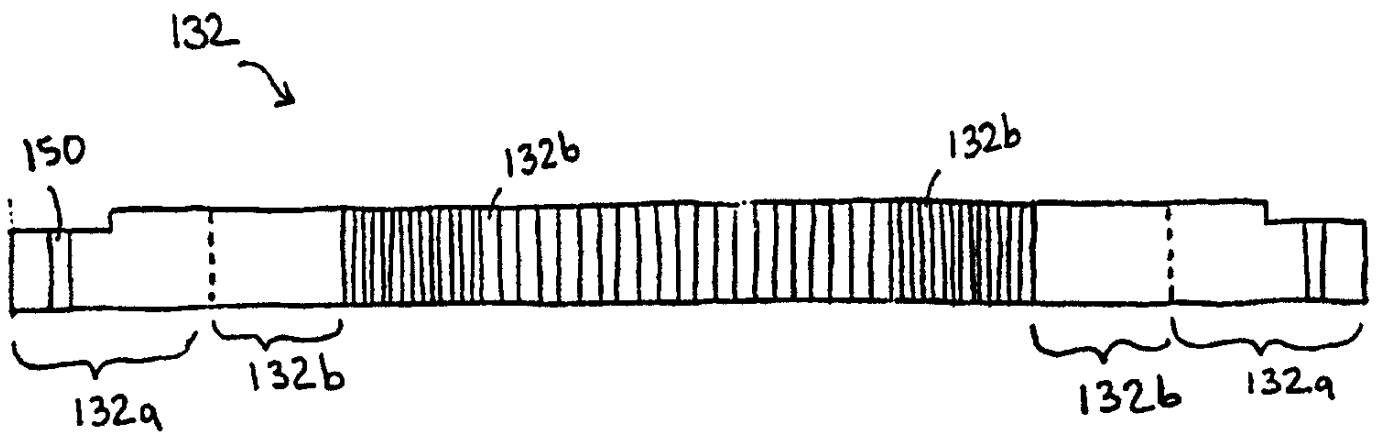
1 ,

(water)

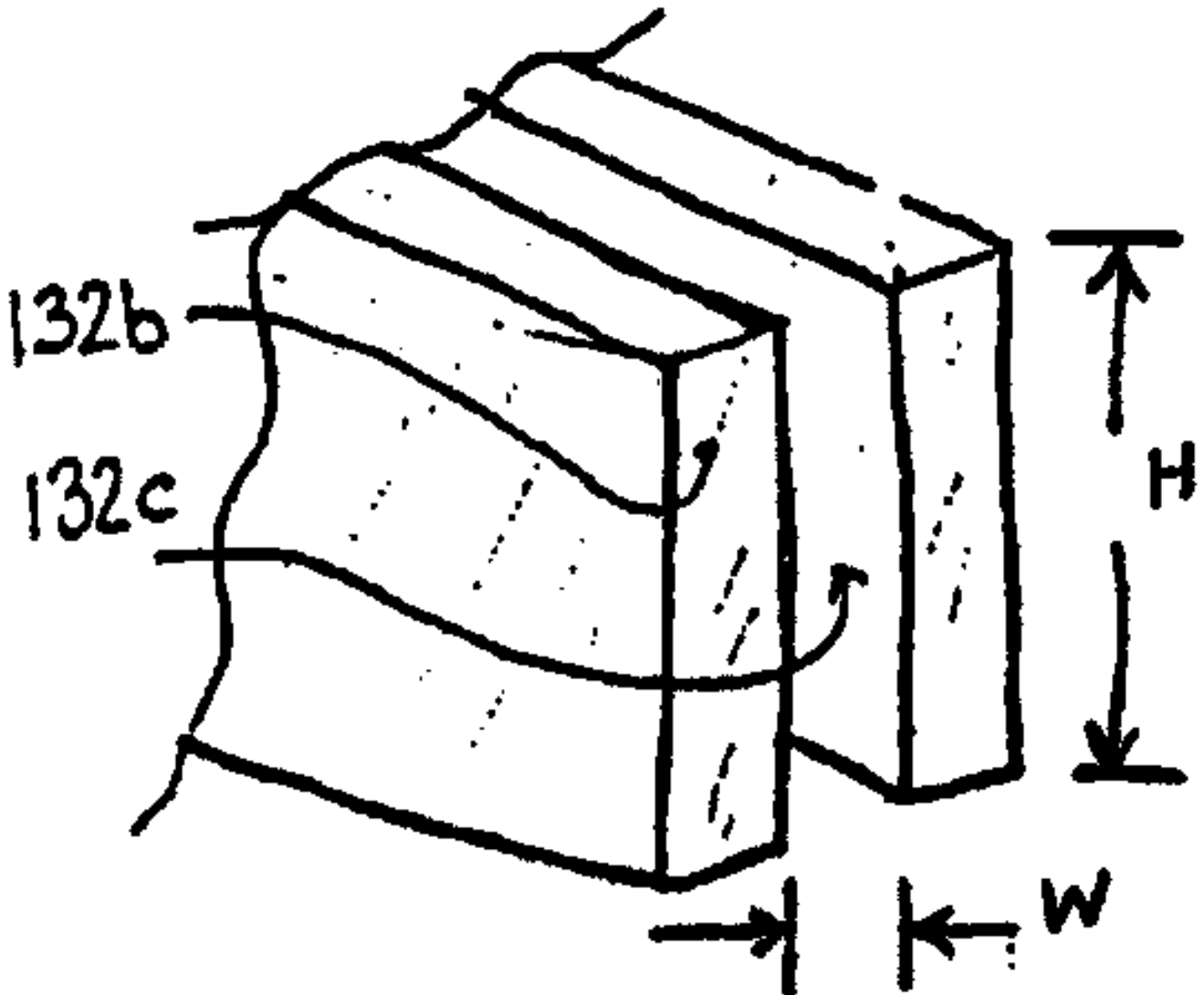
1



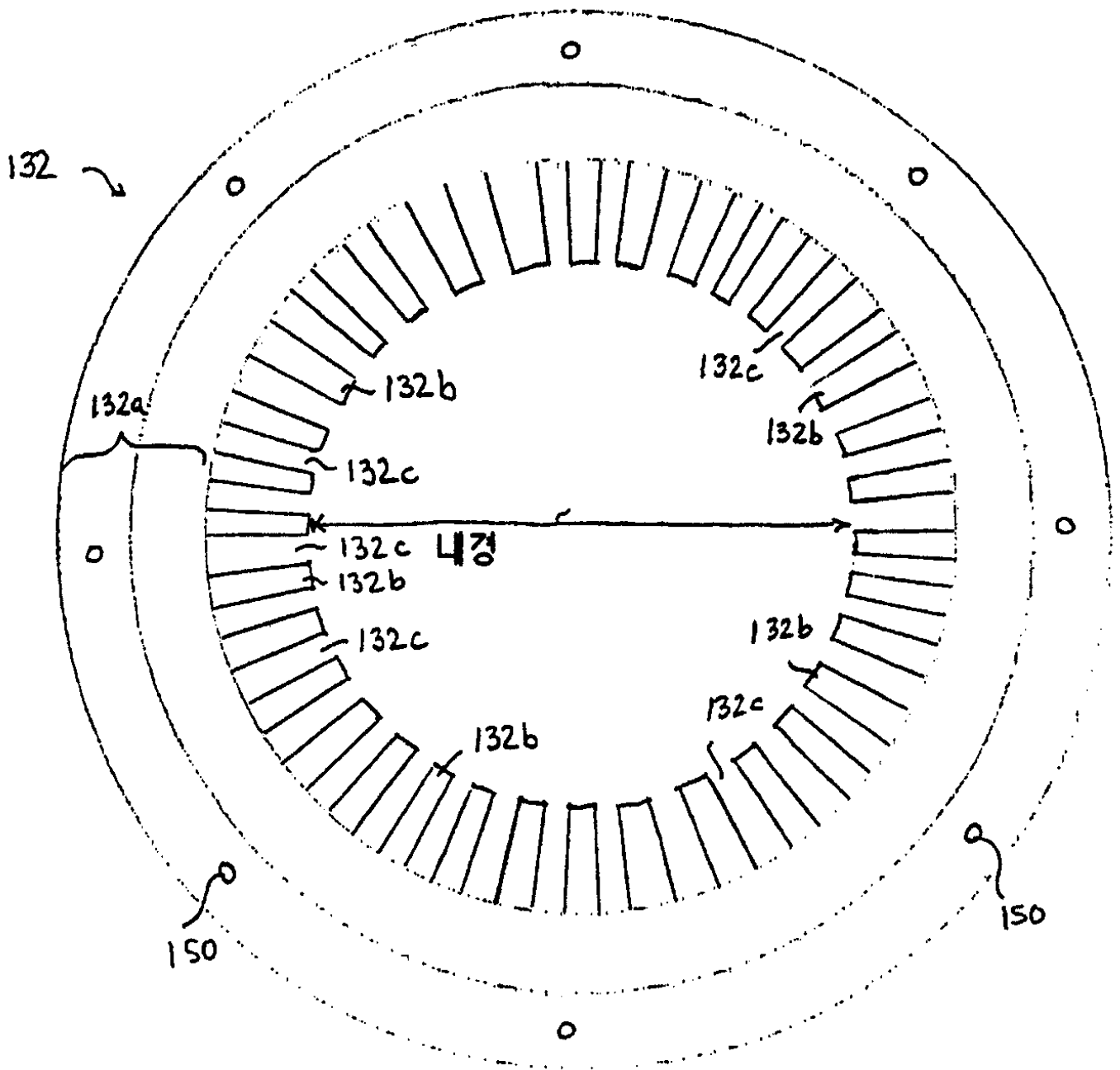
2a



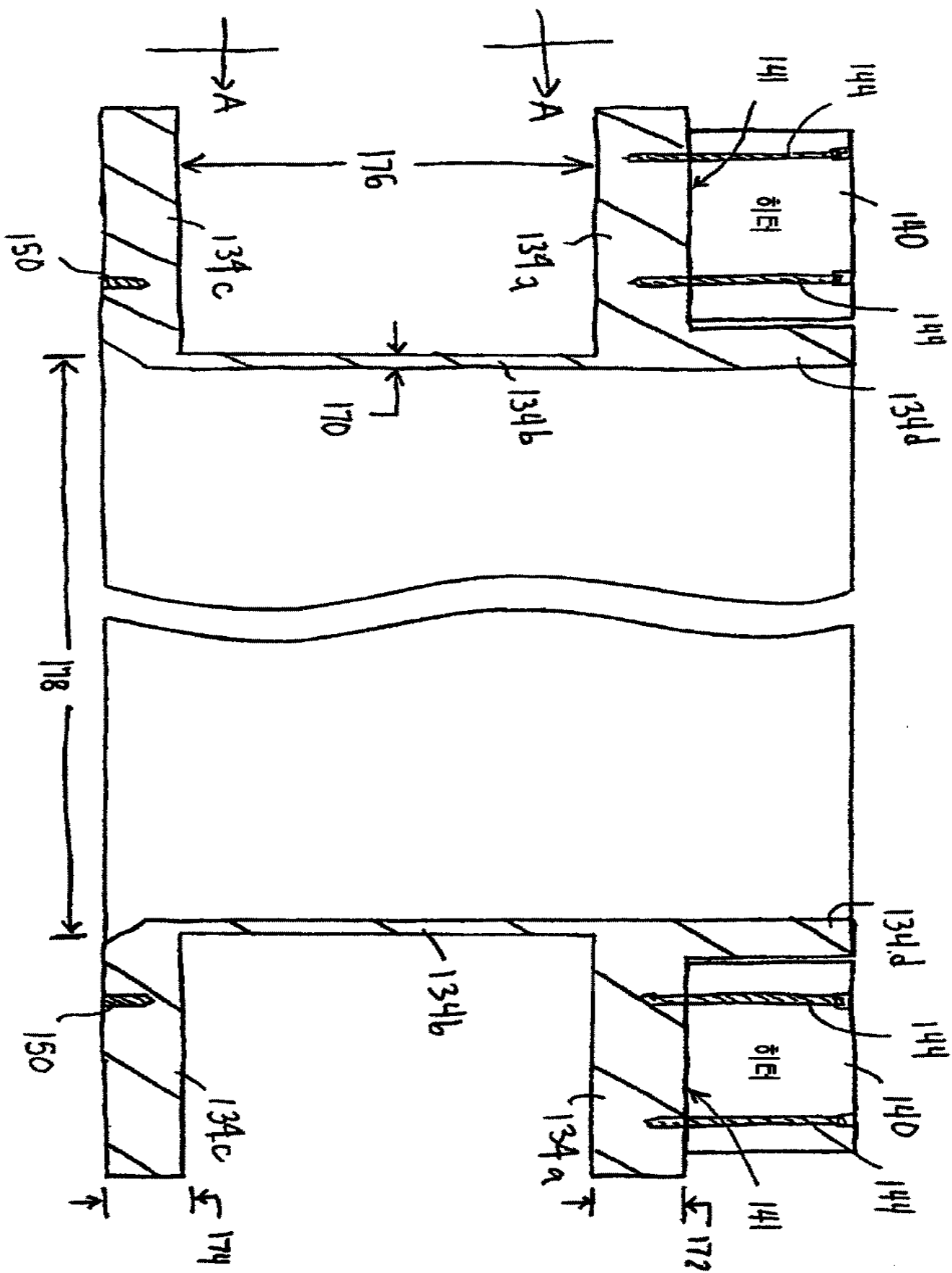
2b



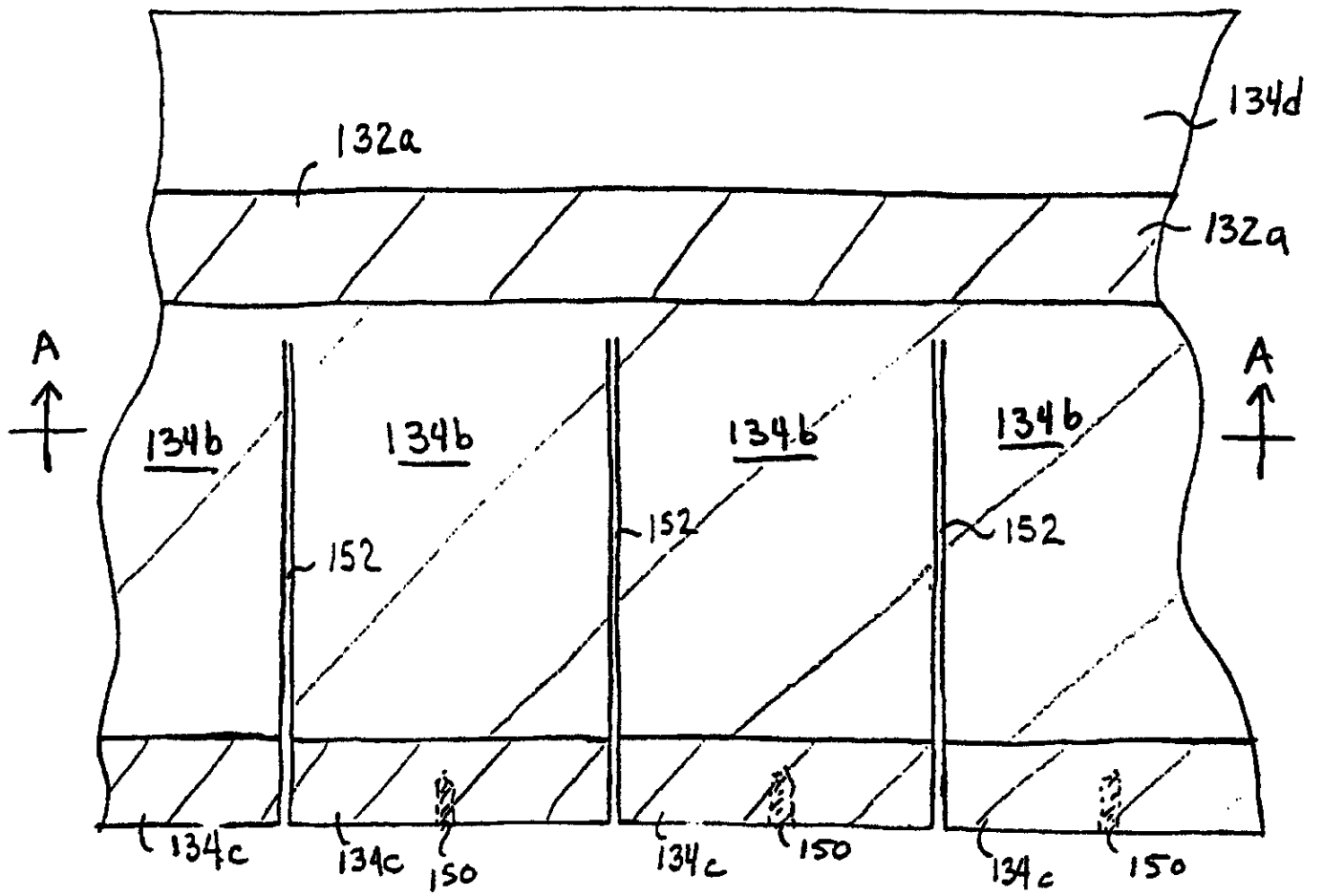
2c



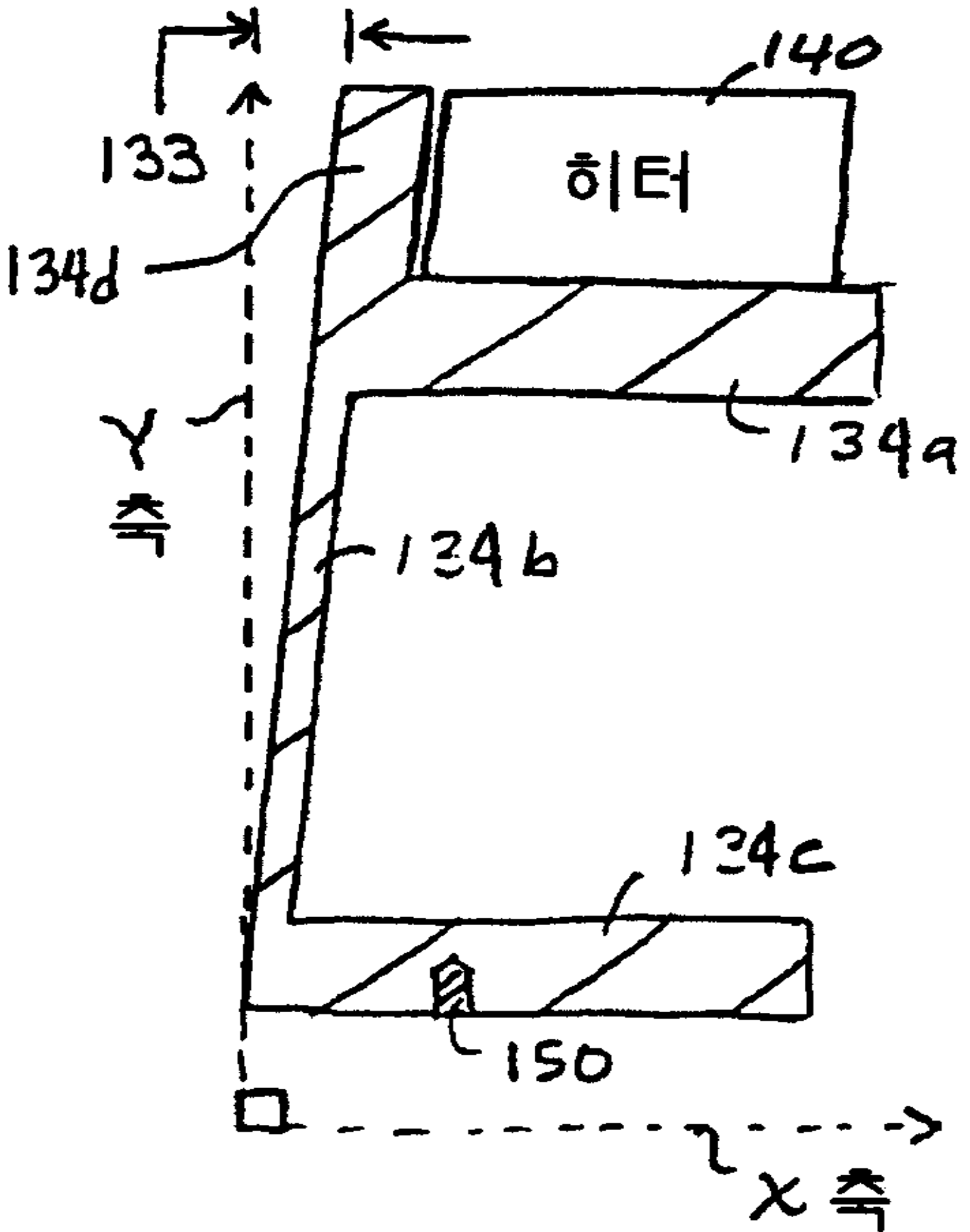
3a

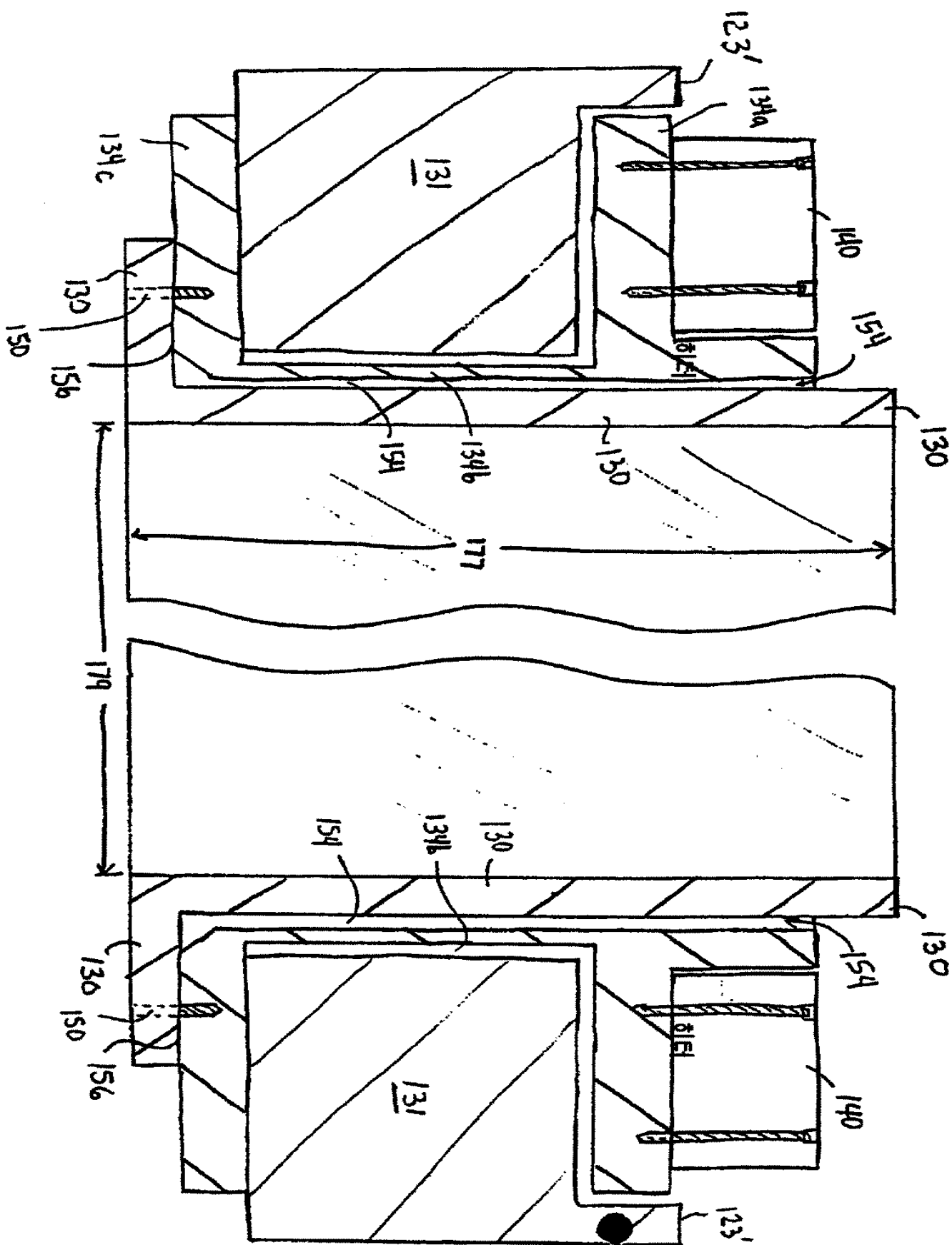


3b

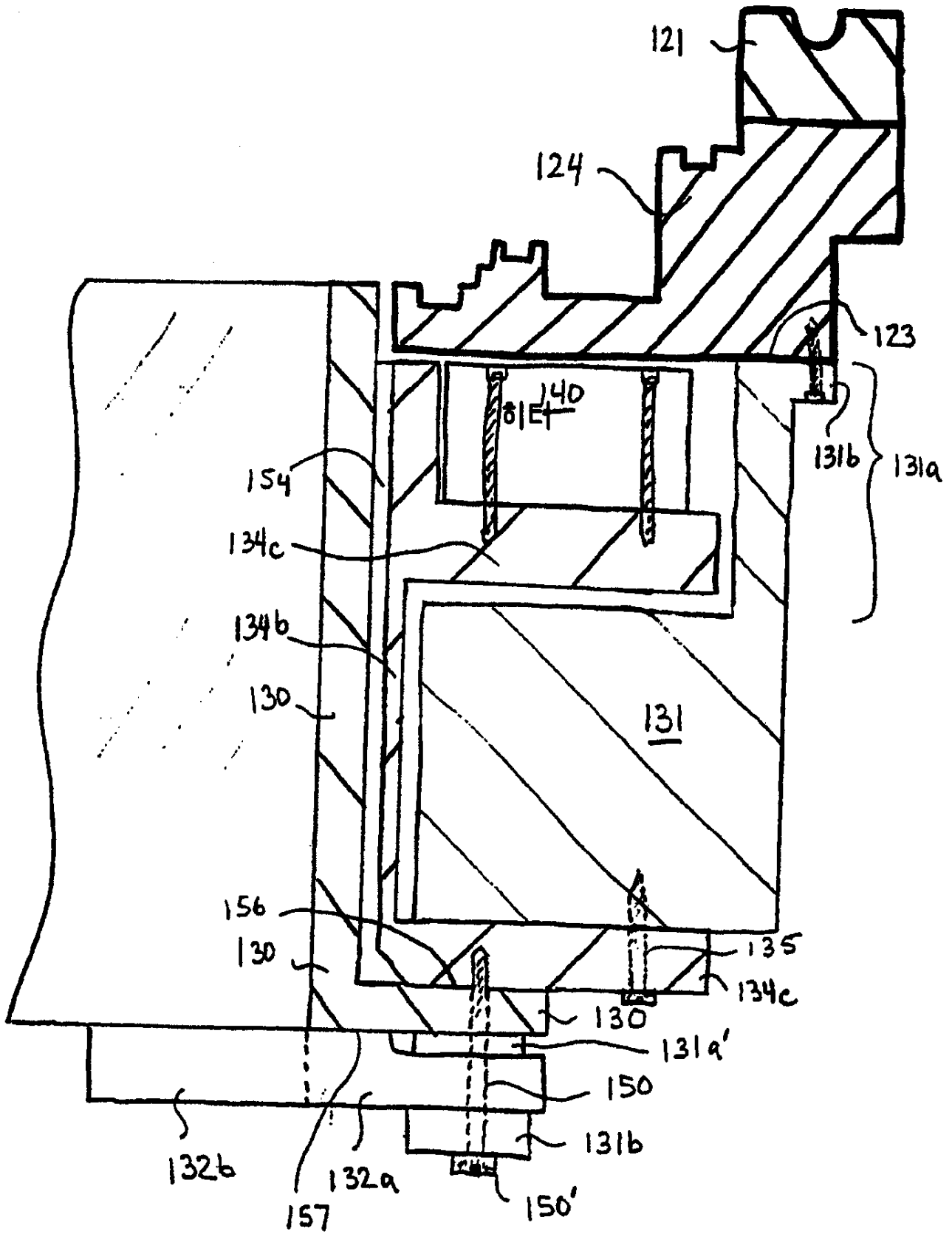


3c

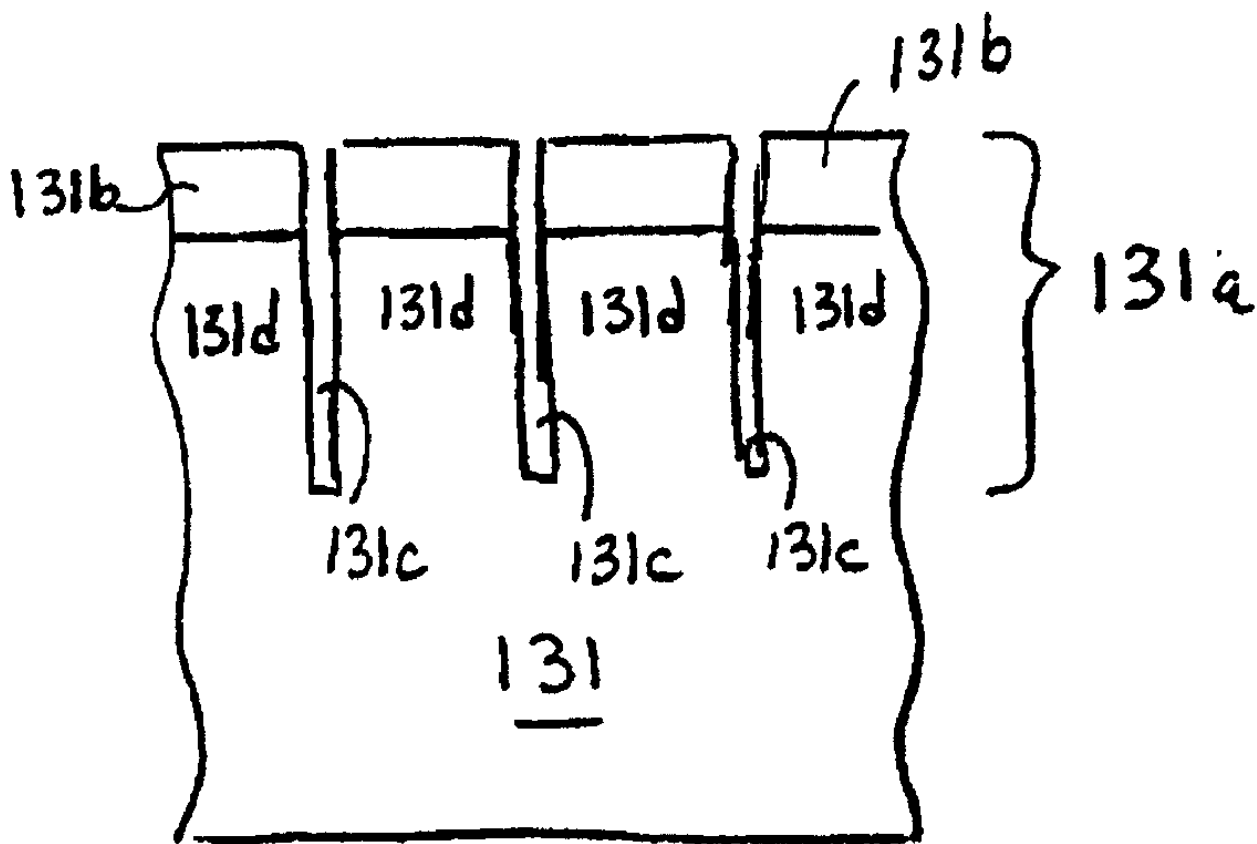




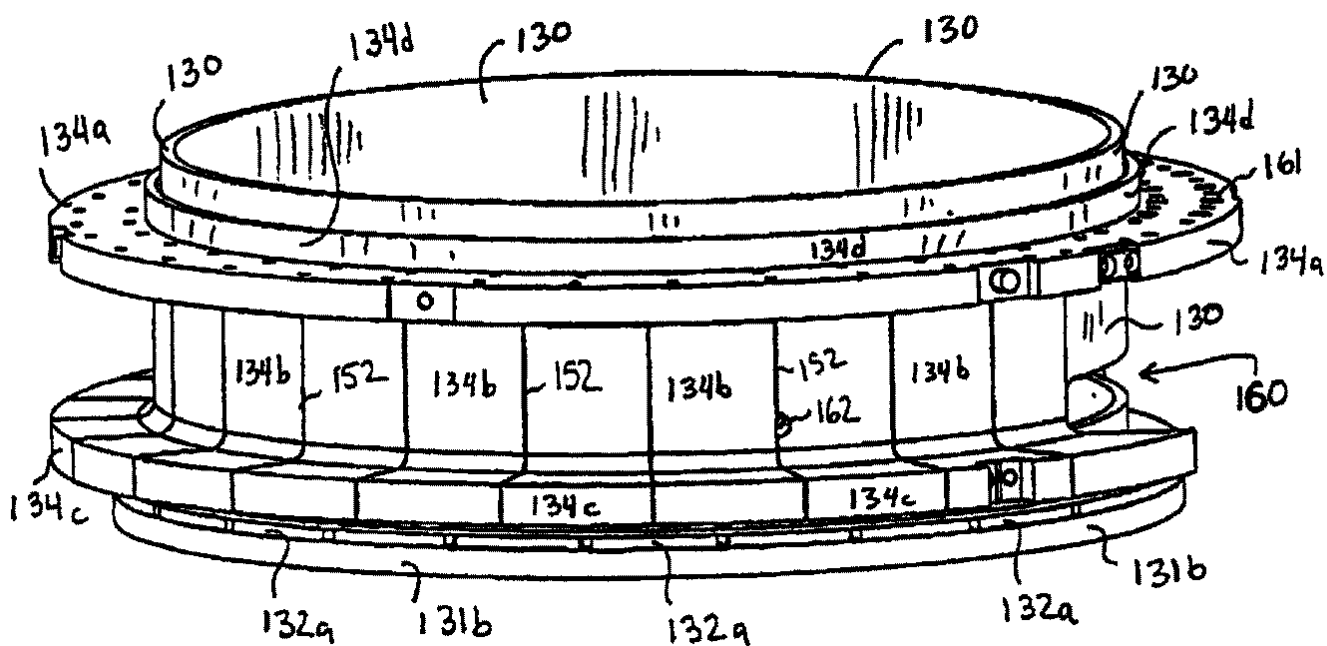
5a



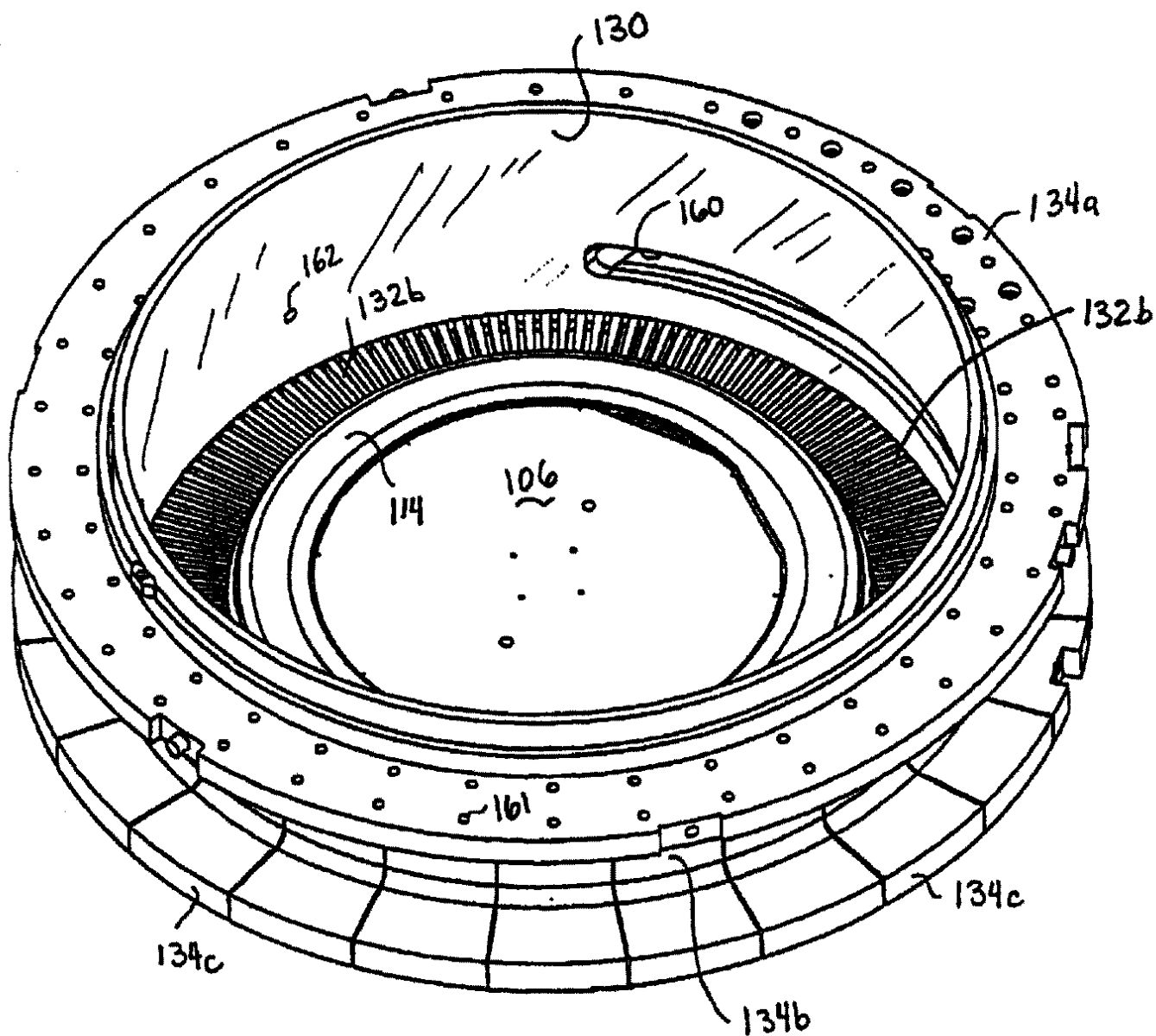
5b



6



7



8

