

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
A63B 53/04

(11)
(43)

2001 - 0109213
2001 12 08

(21)

10 - 2001 - 0030579

(22)

2001 05 31

(30)

09/584,920

2000 05 31

(US)

(71)

92008 - 8815

2285

(72)

,
,92057

, ,

833

,
,92131

, ,

11562

,
,92009

, ,

6847

(74)

:

(54)

1 .

2 1 .

3 1 .

4 1 .

5 1 .

6 1 .

7a 7c 1 7 - 7 .

8 .

9 8 9 - 9 .

10 .

11 가 .

12 11 12 - 12 가 .

13 11 가 .

14 11 가 .

15 .

16 .

,

.

, (forgiveness) .

.

가 가 ,

가 . ,

()

19.3g/cm³

가 GREAT BIG BERTHA? TUNGSTEN - TITANIUM™

GREAT BIG BERTHA? TUNGSTEN - INJECTED™ HAWK EYE?

" 1999 6 11

09/330,292

가 GREAT

BIG BERTHA? HAWK EYE?

가

가
가
가
가
가

가 (base metal) - (co - casting) 가
가 가
가 (re - shafting) 가
()

가

가

(cavity back golf club head)

2

2

2

1 7c , 가 20 .
 (20) (22) (24) - (cavity - back iron) . (20)
 (26), (28) (29) . (22) (32) (30)
 . (36) (34) (20) (26) . (20)
 (40), (42), (44) (46) (38) . ,
 (20) (38) (48) .

(24) (22) (25; 11) ,
 . (25) (29) (42) . , (25)
 (24)가 . 7a
 , (24) (20)
 , (20) .

7c - (20a)가 8 9 . (20a) 1
 . 8 9 (20a) (38)
 (48) . (24a) (22) (39)
 . , (24a) (25a) (39)
 . (24a) , (20a) -
 가 , 가 가
 . (24a) 1 7c (24) (20a)
 , , (20a) % 가 .
 (25b) (47) 가 , (25c) 7b 7c ,
 (47) (25b 25c) (24) (47a 47b) 가 .

10 (24 24a) (20 20a)
 . (200) 202 (20 20a)가
 (20) . (20)
 , , (20) (25) . (25) (20) 11 (24)
 . 204 ,

(25) , (24) (0.01mm 1.0mm)
 (16.7g/cm³), (21.4g/cm³), (12.4 g/cm³) 19.3g/cm³, (10.2g/cm³),
 (24) 5wt% 95wt%
 t% .

1g/cm³) (8.93g/cm³), (7.3
 (7.19g/cm³), - (binding component)
 (8.2g/cm³), - (7.87g/cm³)
 (24) 4wt% 49wt% (24) 0.5wt%
 30wt% (24) 11.0g/cm³ 17.5g/cm³ 90wt% , 8wt% 2wt%
 (24) 12.5g/cm³ 15.9g/cm³ ,
 가 15.4g/cm³ 1

10 , (24) 가

(25) (24) , (24)
 13
 206 (25) 10,000psi 100,000psi , (25)
 i , 가 50,000psi (25) 20,000psi 60,000psi

208 , 가 (20b)가 (25) ,

1 30 , 2 10 , 가 5 ,
 900 1400 , 1200
 가 14
 , 1200 가 가 ,
 , (24) 가 가 ,
 , (3400),

210 , (24) 가 가 ,
 가 (24) 가 1

1

(1)

70% 85%

[1]

1.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	12.595
2.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	12.595
3.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	12.375
4.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	12.815
5.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	13.002
6.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	12.386
7.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	13.123
8.	85.0 W + 7.5 Cu + 7.5 Ni - Cr	1200	17.72	14.069
9.	80.0 W + 10 Cu + 10 Ni - Cr	1200	17.19	11.935
10.	80.0 W + 7 Cu + 7 Ni - Cr + 6 Sn	1200	17.1	12.815
11.	80.0 W + 10 Bronze + 8 Ni - Cr + 2 Sn	1200	17.16	12.452
12.	85.0 W + 15 Sn	300	17.49	14.454
13.	84.0 W + 14 Sn + 2 Ni - Cr	300	17.4	14.295
14.	82.0 W + 12 Sn + 6 Ni - Cr	300	17.21	13.695
15.	80.0 W + 18 Cu + 2 Fe - Cr	1200	17.19	12.75
16.	80.0 W + 16 Cu + 4 Fe - Cr	1200	17.16	12.254
17.	80.0 W + 16 Cu + 4 Fe	1200	17.18	12.518
18.	80.0 W + 17 Cu + 3 Cr	1200	17	12.98
19.	90.0 W + 8.75 Cu + 1.25 Ni - Cr	1200	18.26	14.157
20.	60.0 W + 35 Cu + 5 Ni - Cr	1200	15.13	12.991
21.	70.0 W + 26.25 Cu + 3.75 Ni - Cr	1200	16.18	14.3
22.	80.0 W + 17.5 Cu + 2.5 Ni - Cr	1200	17.22	14.41
23.	90.0 W + 8.75 Cu + 1.25 Ni - Cr	1200	18.26	14.63
24.	90.0 W + 8.75 Cu + 1.25 Ni - Cr	1200	18.25838	14.12
25.	92.0 W + 7 Cu + 1 Ni - Cr	1200	18.4667	14.34
26.	94.0 W + 5.25 Cu + 0.75 Ni - Cr	1200	18.67503	14.53
27.	96.0 W + 3.5 Cu + 0.5 Ni - Cr	1200	18.88335	14.63
28.	90.0 W + 8.75 Cu + 1.25 Ni - Cr	1200	18.25838	14.64
29.	92.0 W + 7 Cu + 1 Ni - Cr	1200	18.4667	14.85
30.	94.0 W + 5.25 Cu + 0.75 Ni - Cr	1200	18.67503	15.04
31.	96.0 W + 3.5 Cu + 0.5 Ni - Cr	1200	18.88335	15.22

15 16

(91)

(93)

가

가

가

가

가

(57)

1.

, , ;

, ,
.

2.

1 , , .

3.

2 , , - , ,
.

4.

2 , - .

5.

1 , 가 .

6.

1 , 가 , .

7.

1 , 가 , 가
.

8.

2 , %가 % .

9.

1 , 가 20V% , 20wt%
.

10.

2 , 5 - 90wt% , 5
- 40wt% , 0.5 - 10wt% .

11.

1 , , , .

12.

, , , , 2 , ; , 2 2 , , .

13.

12 , , .

14.

13 , , - , , .

15.

12 , , , 가 .

16.

13 , %가 % .

17.

12 , 가 20V% , 20wt% .

18.

12 , 가 , , , .

19.

;

.

20.

19 , 가

21.

19 , 가

22.

19 , 가 1

23.

19 , 가

24.

19 ,

25.

19 , ,

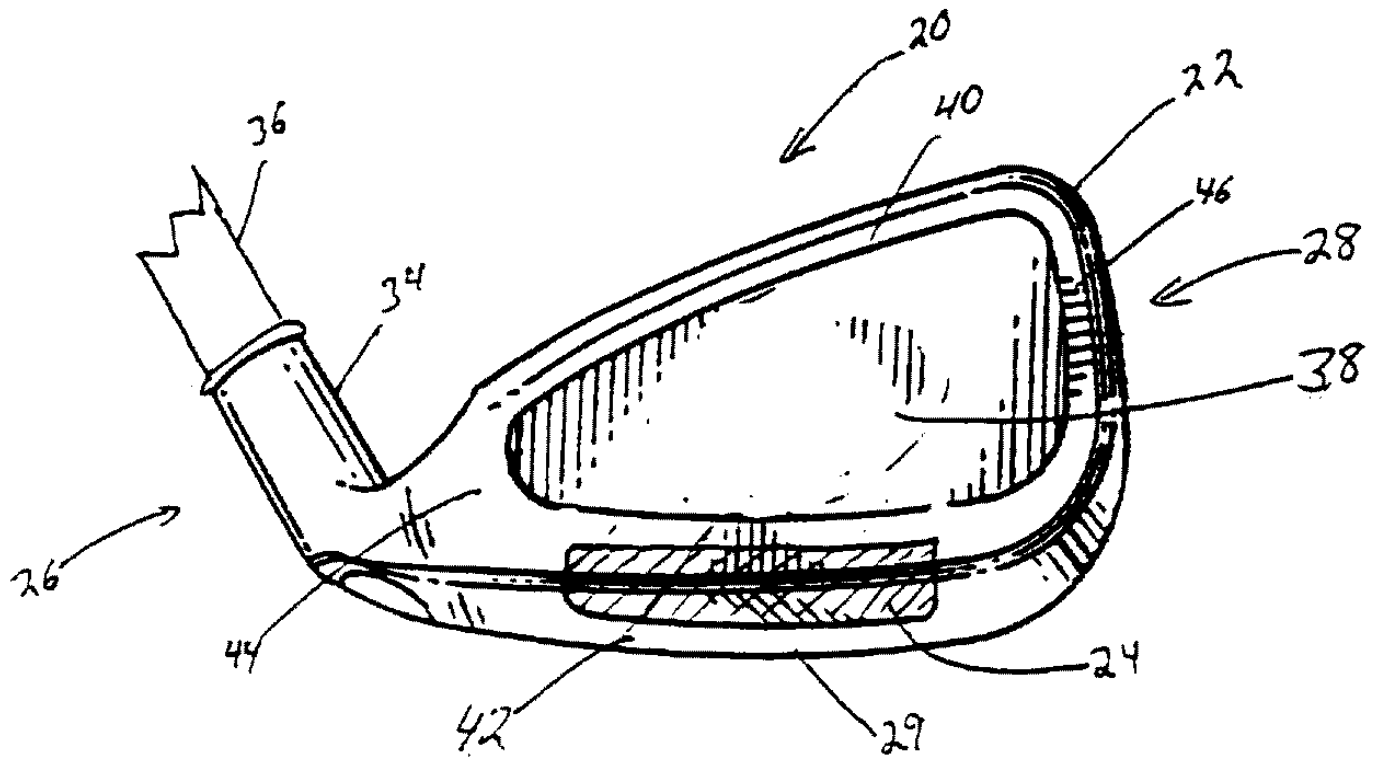
26.

25 , , - , ,

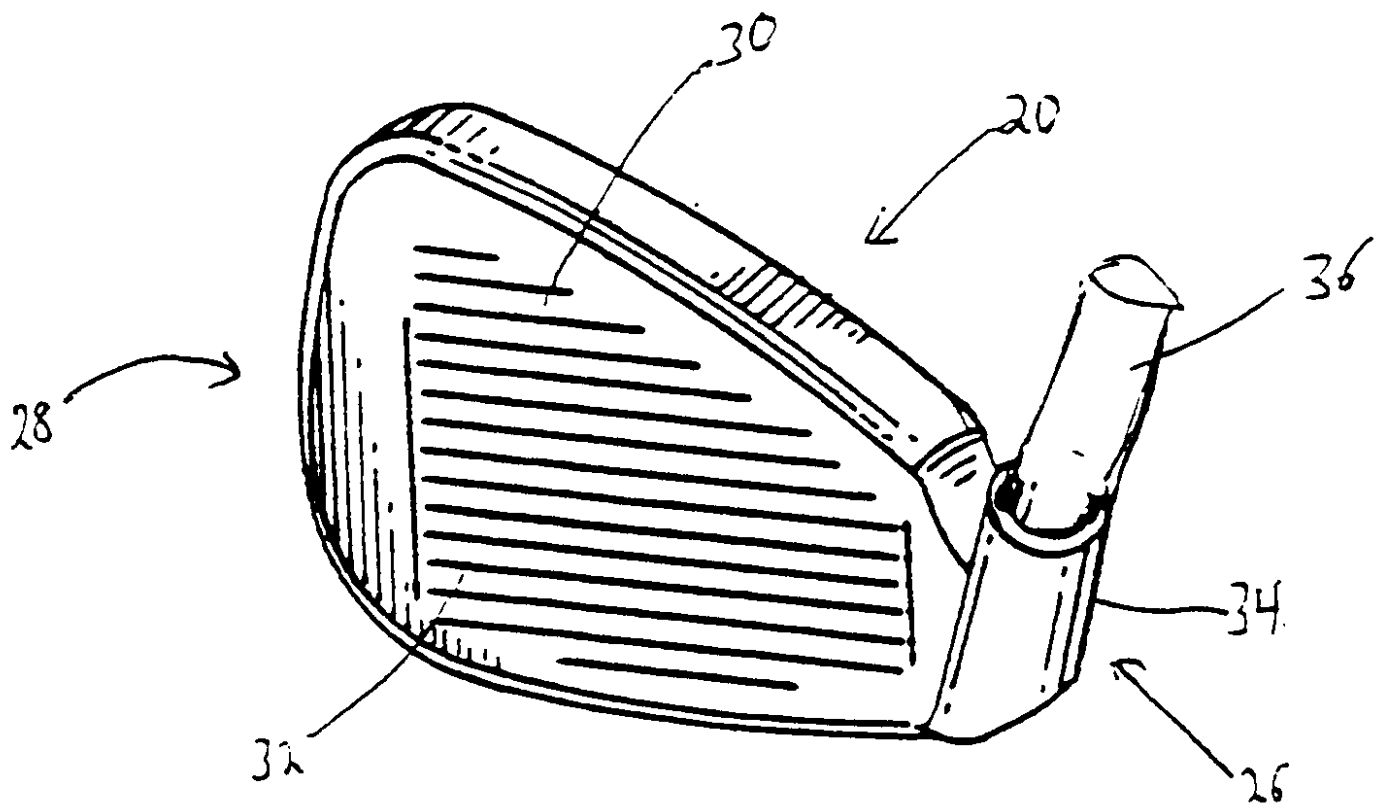
27.

19 , 가 , ,

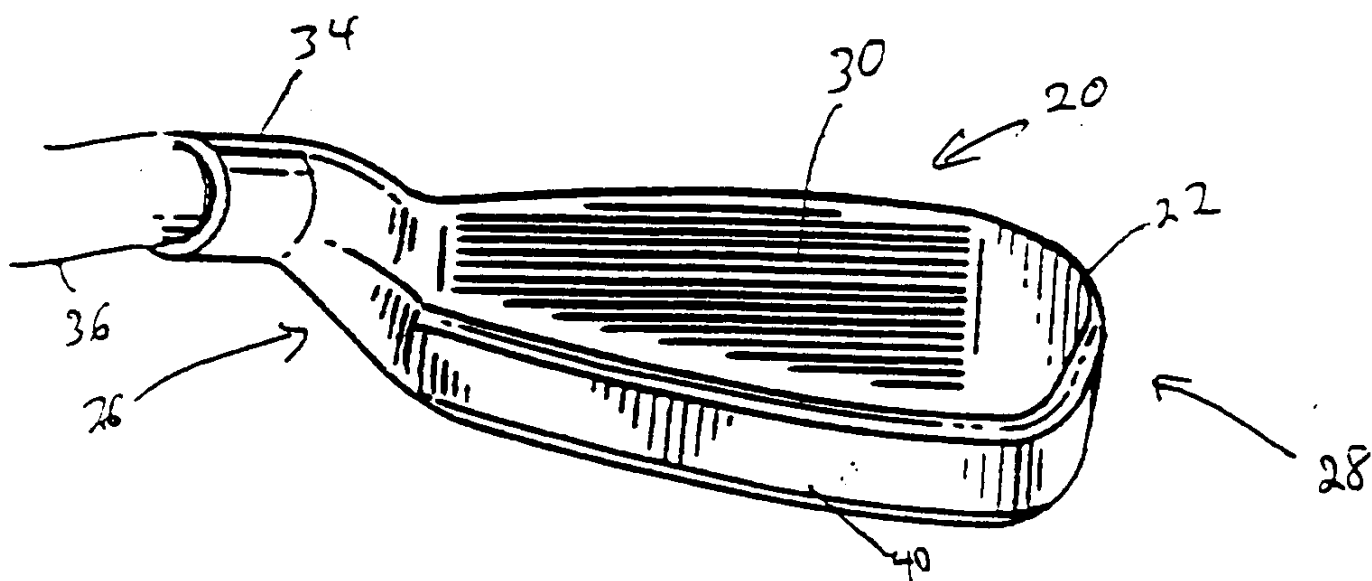
1

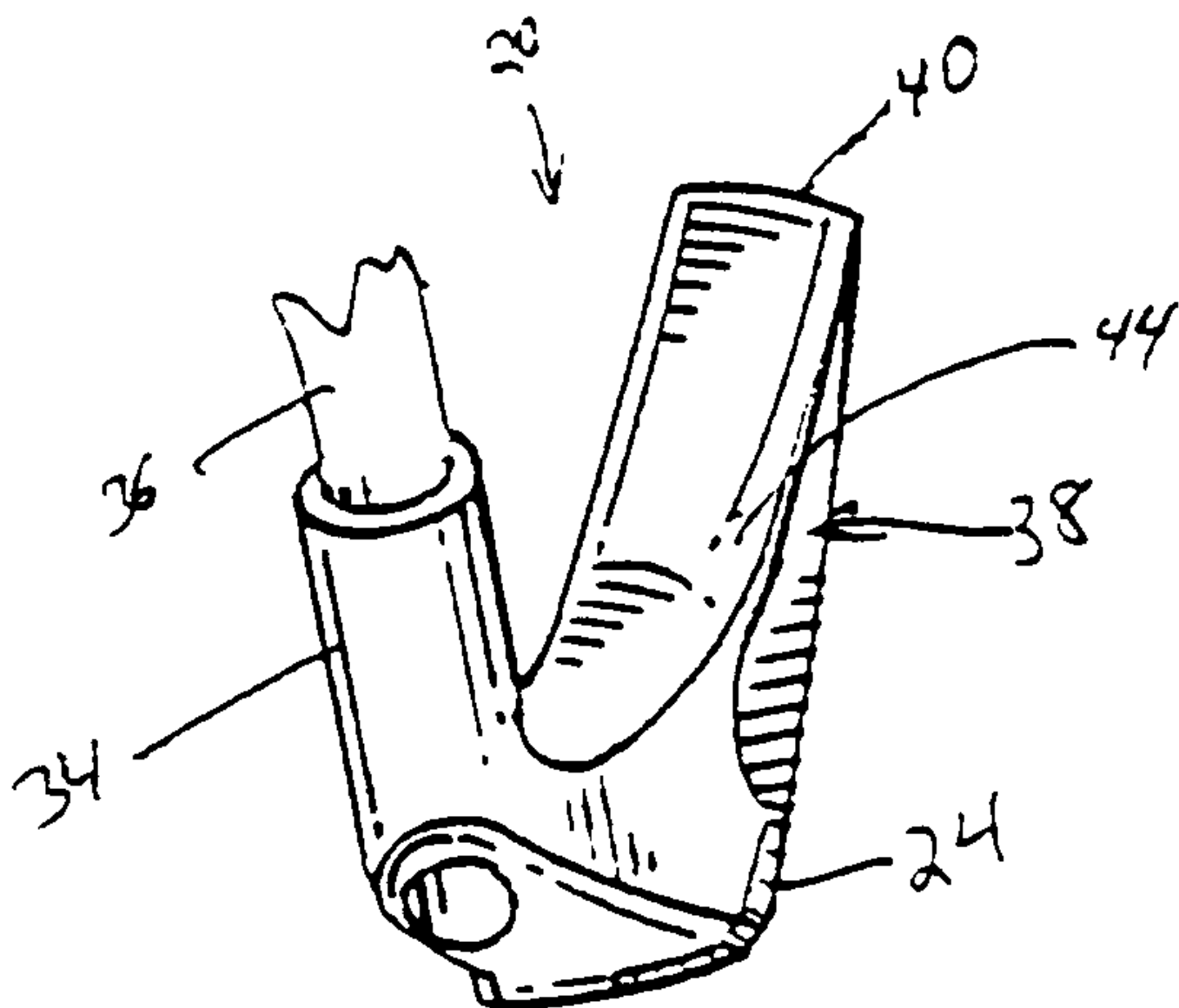


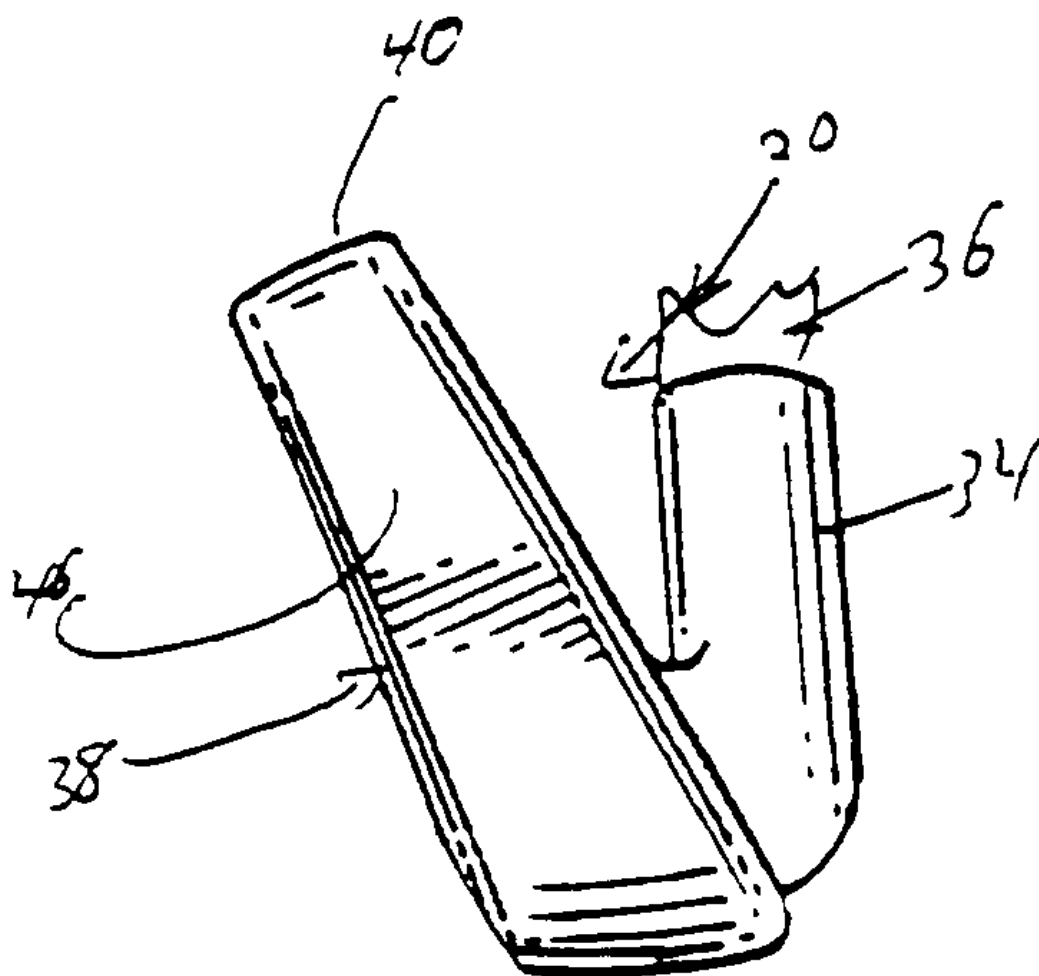
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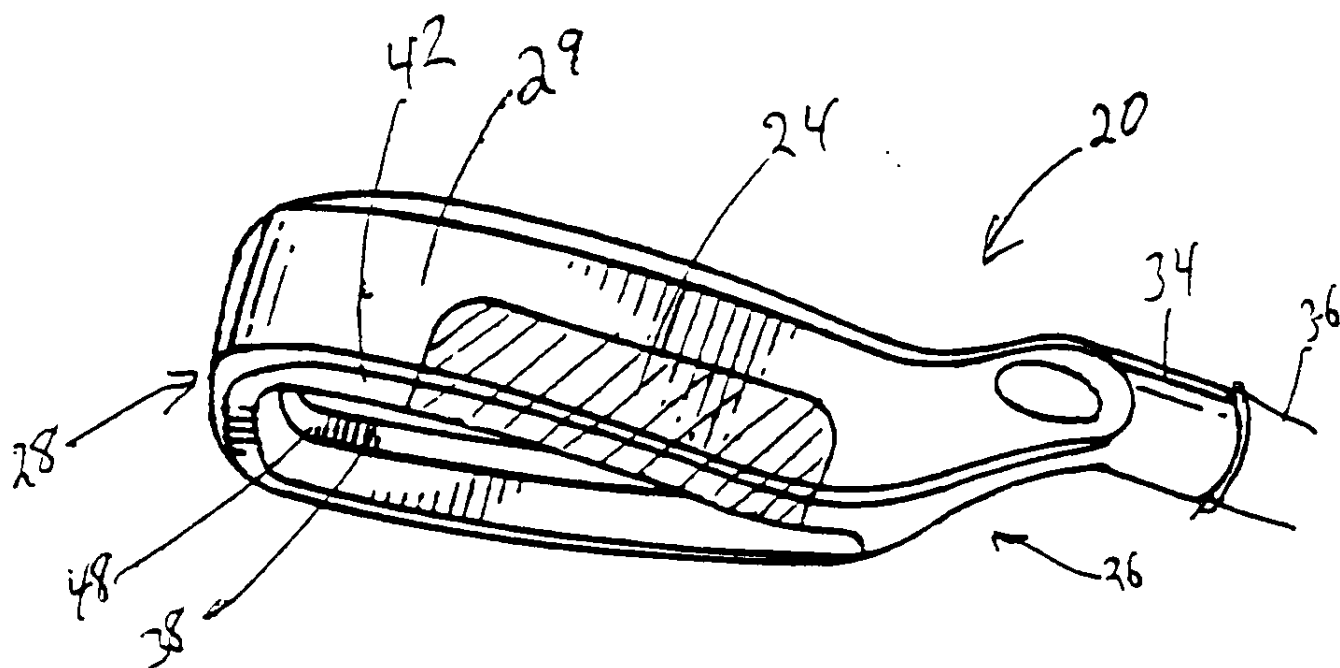
3



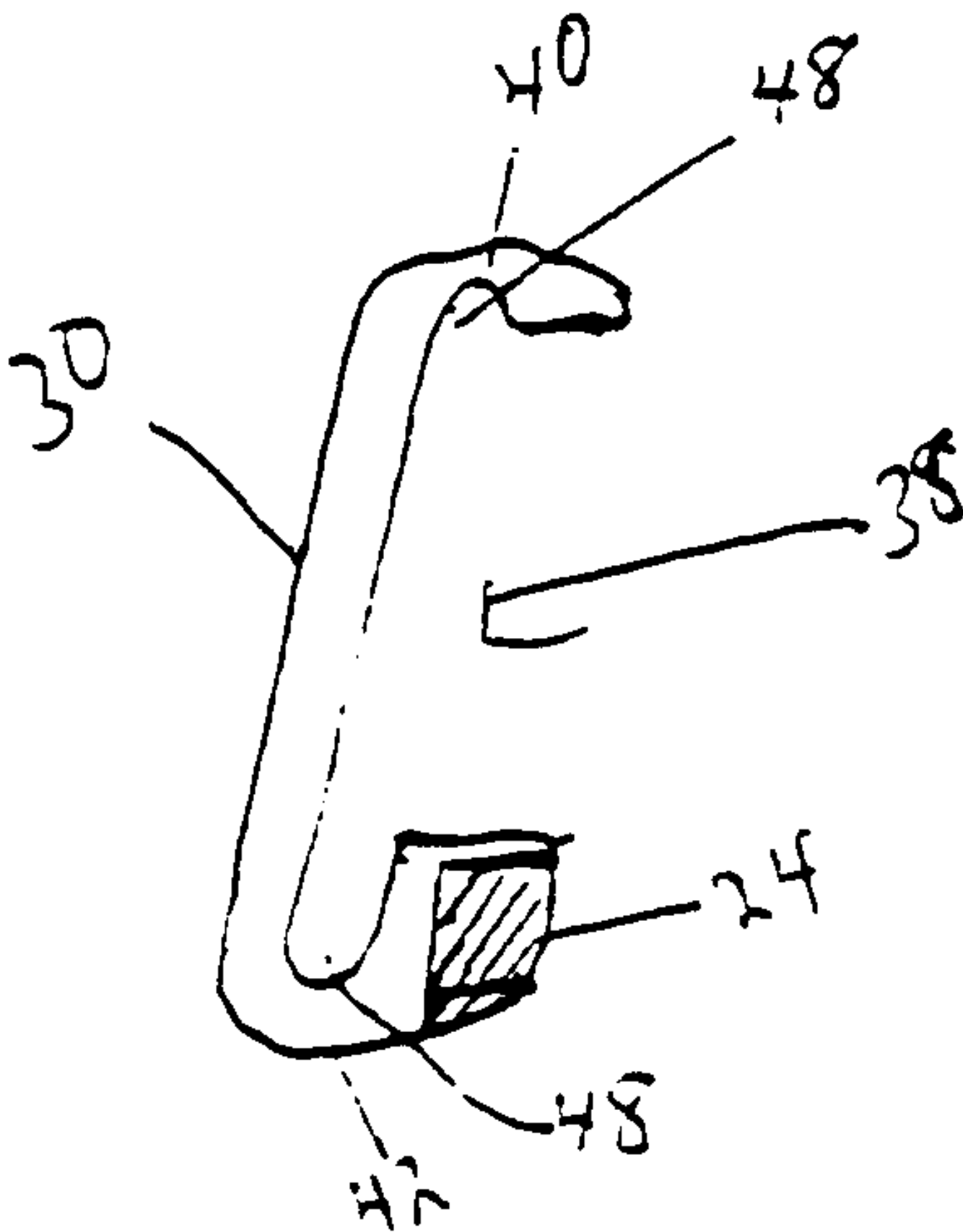




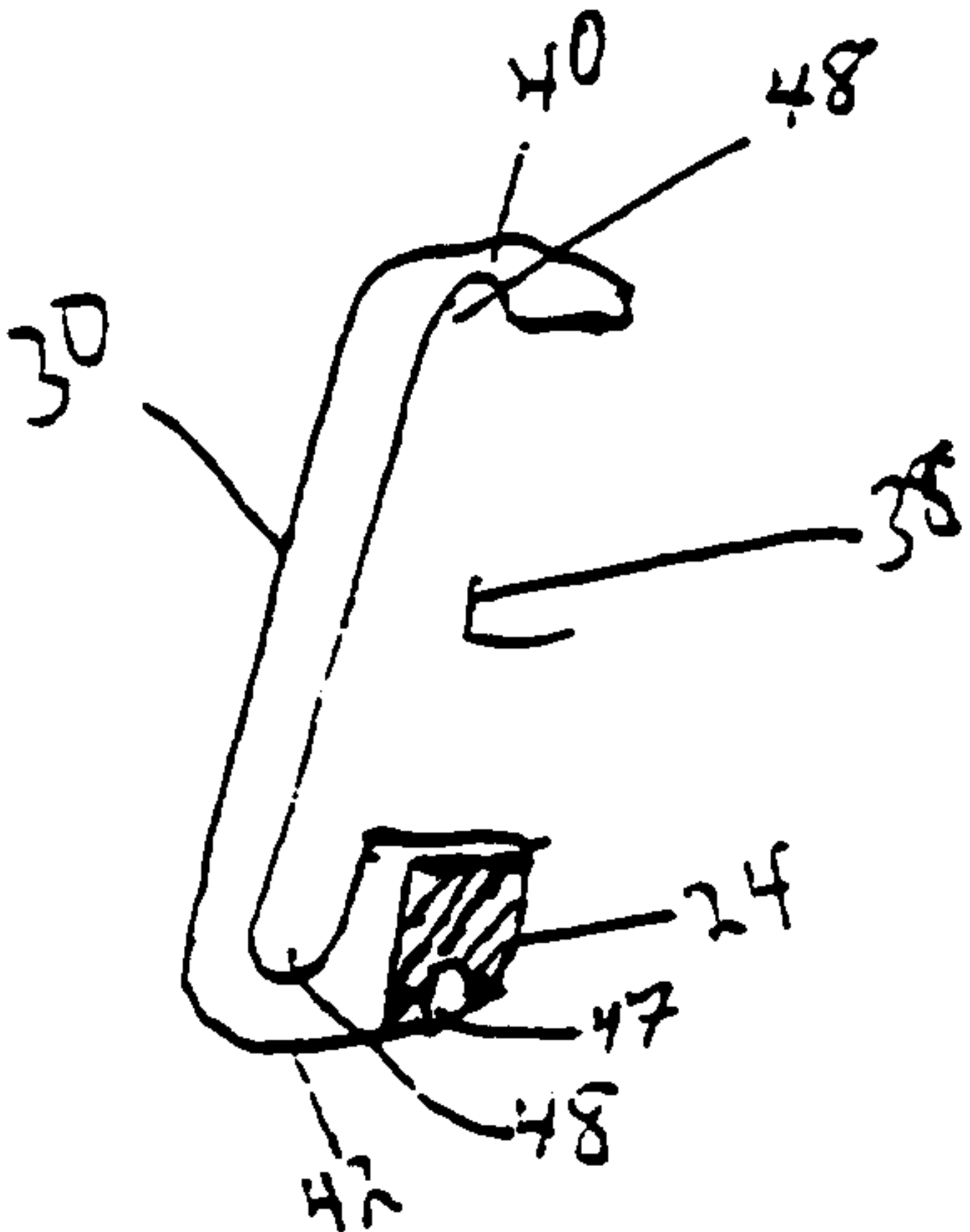
6



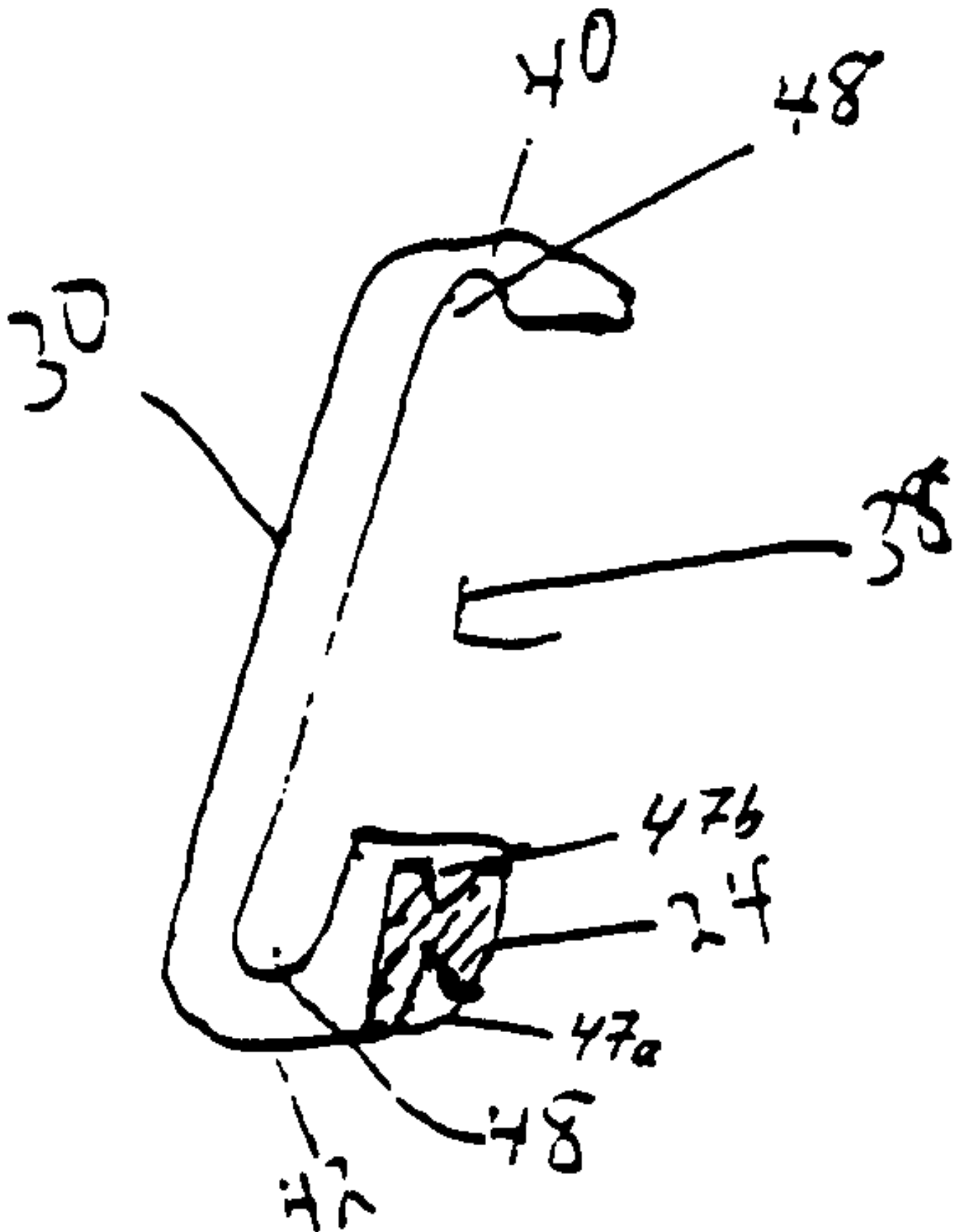
7a

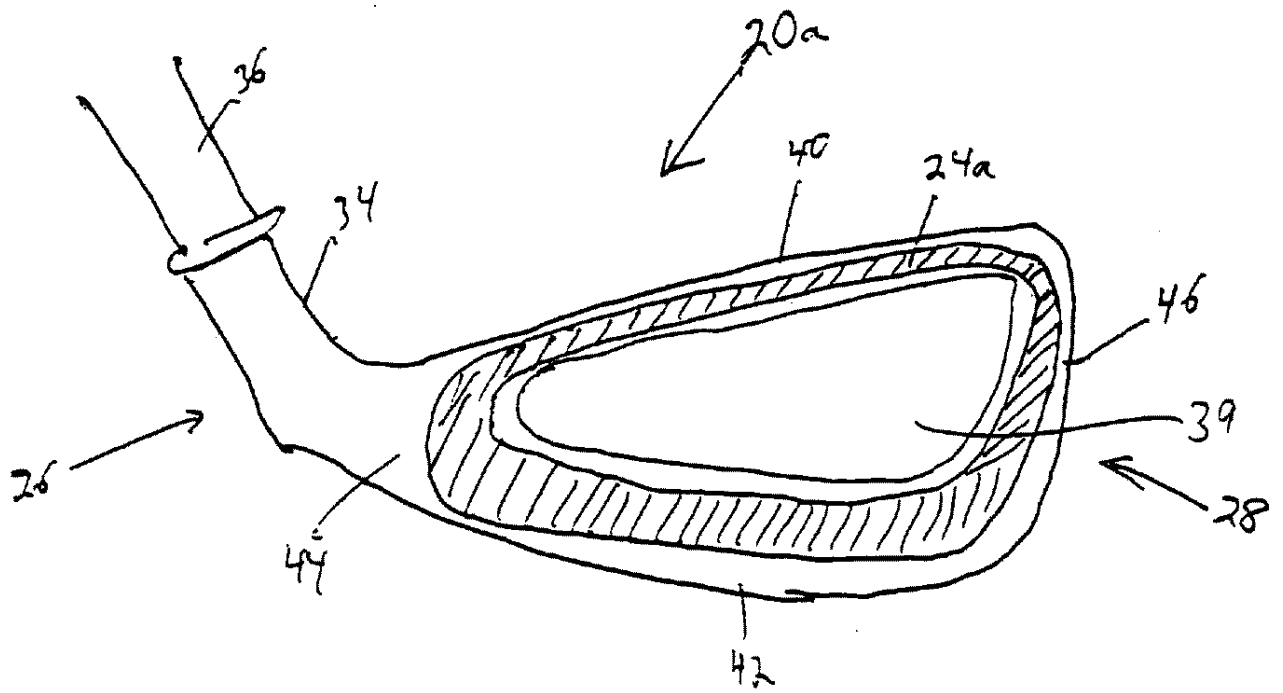


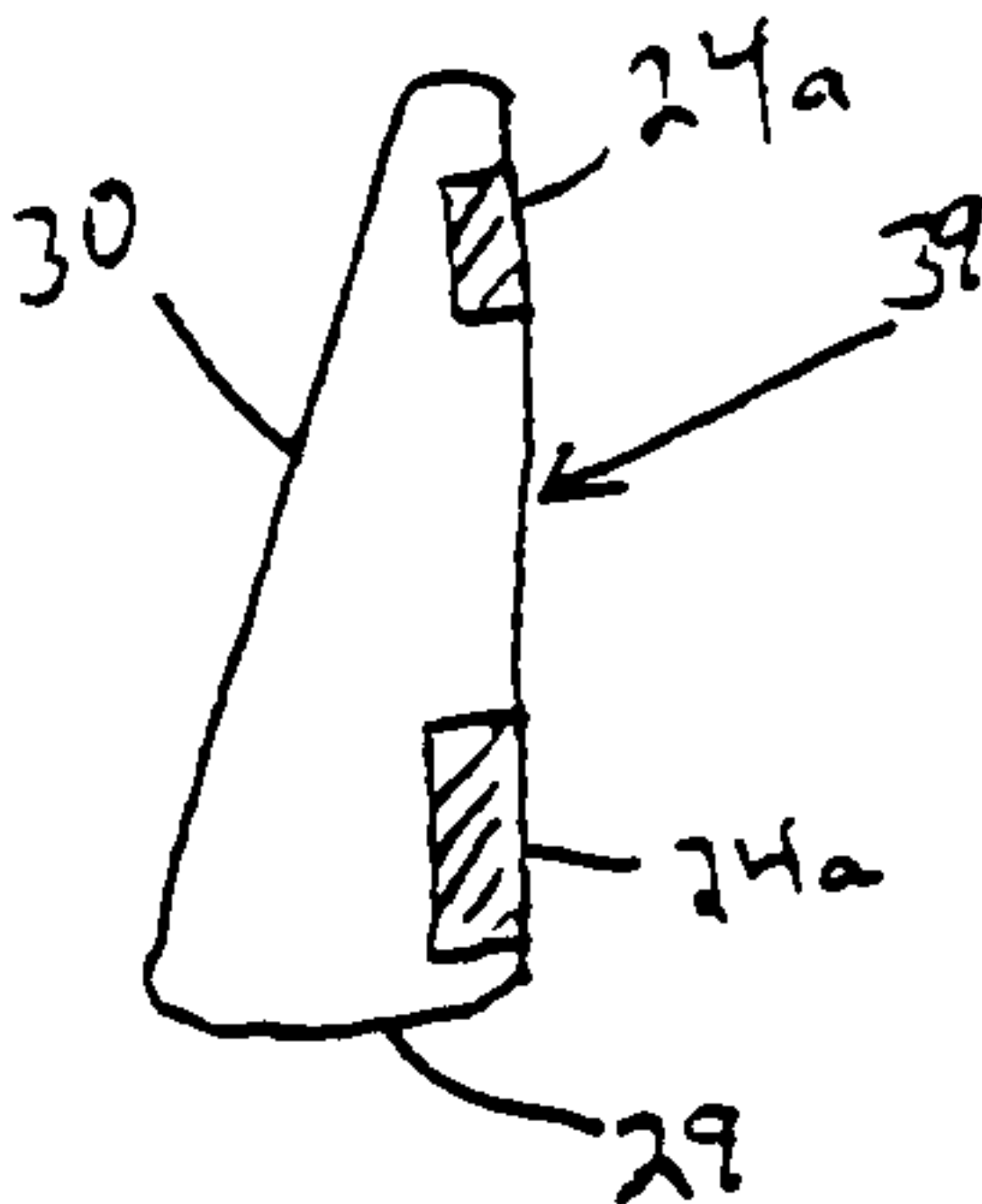
7b



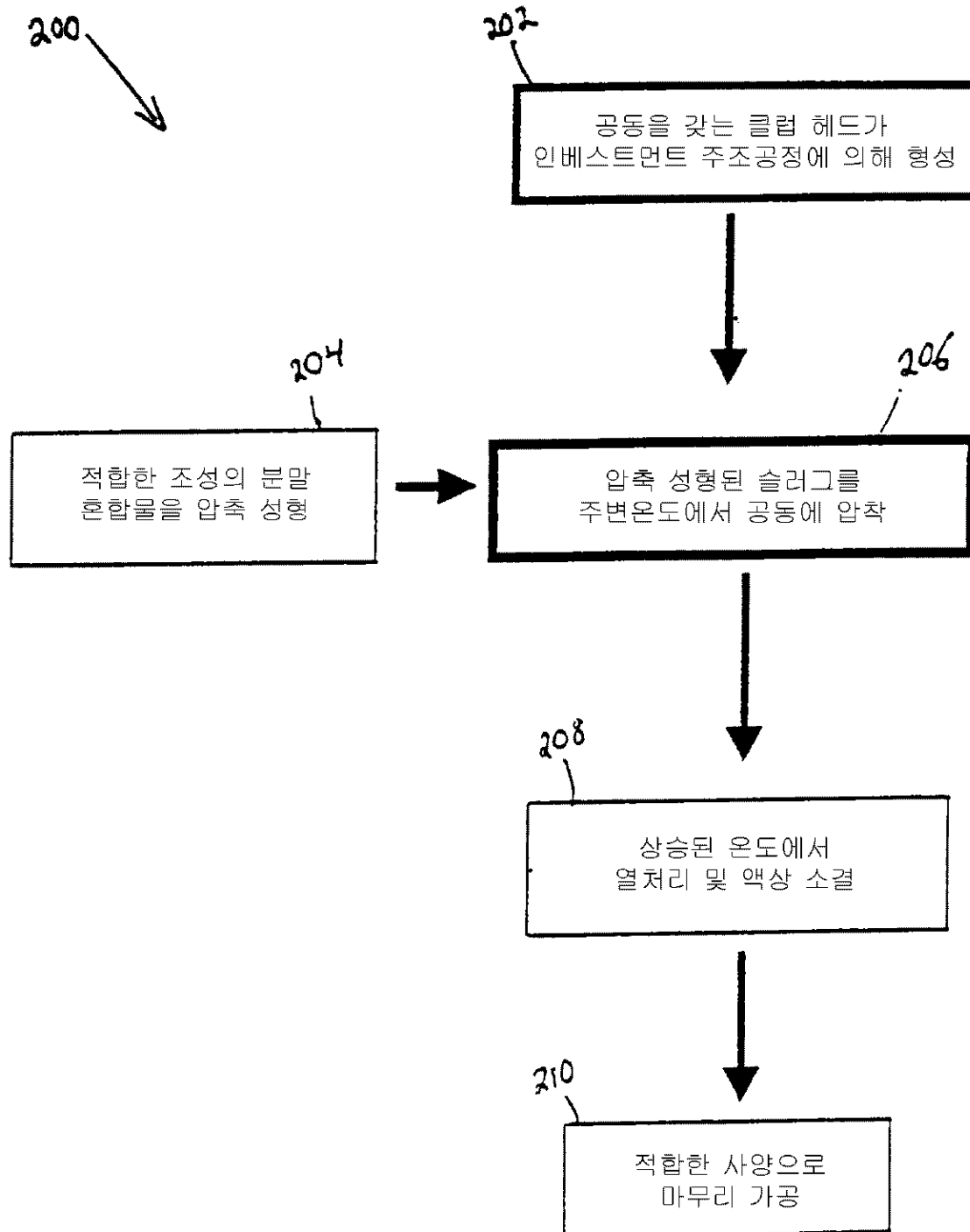
7c



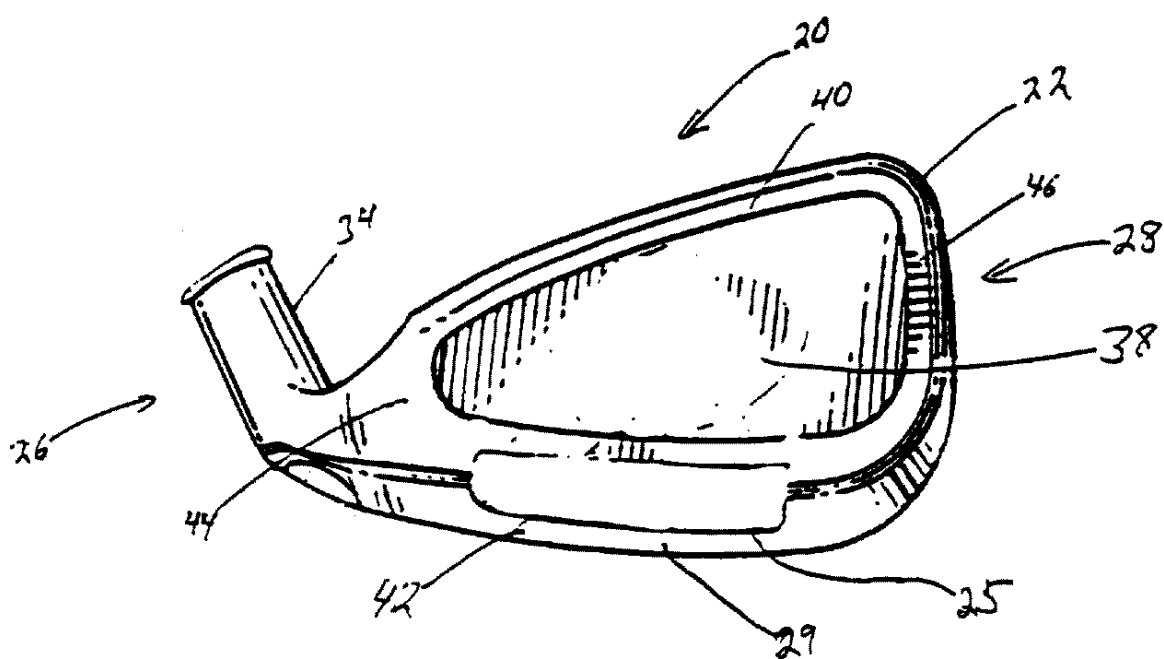




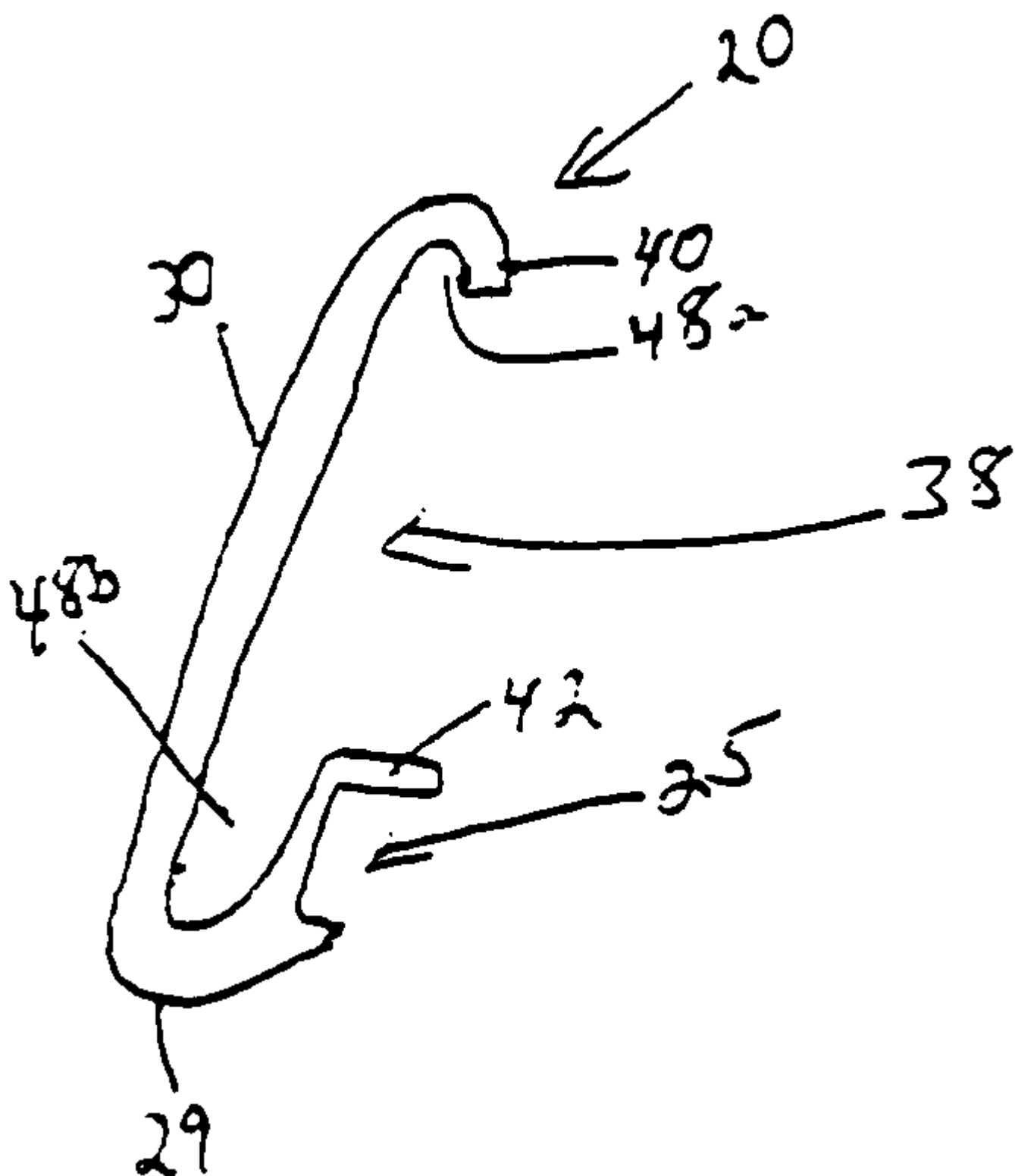
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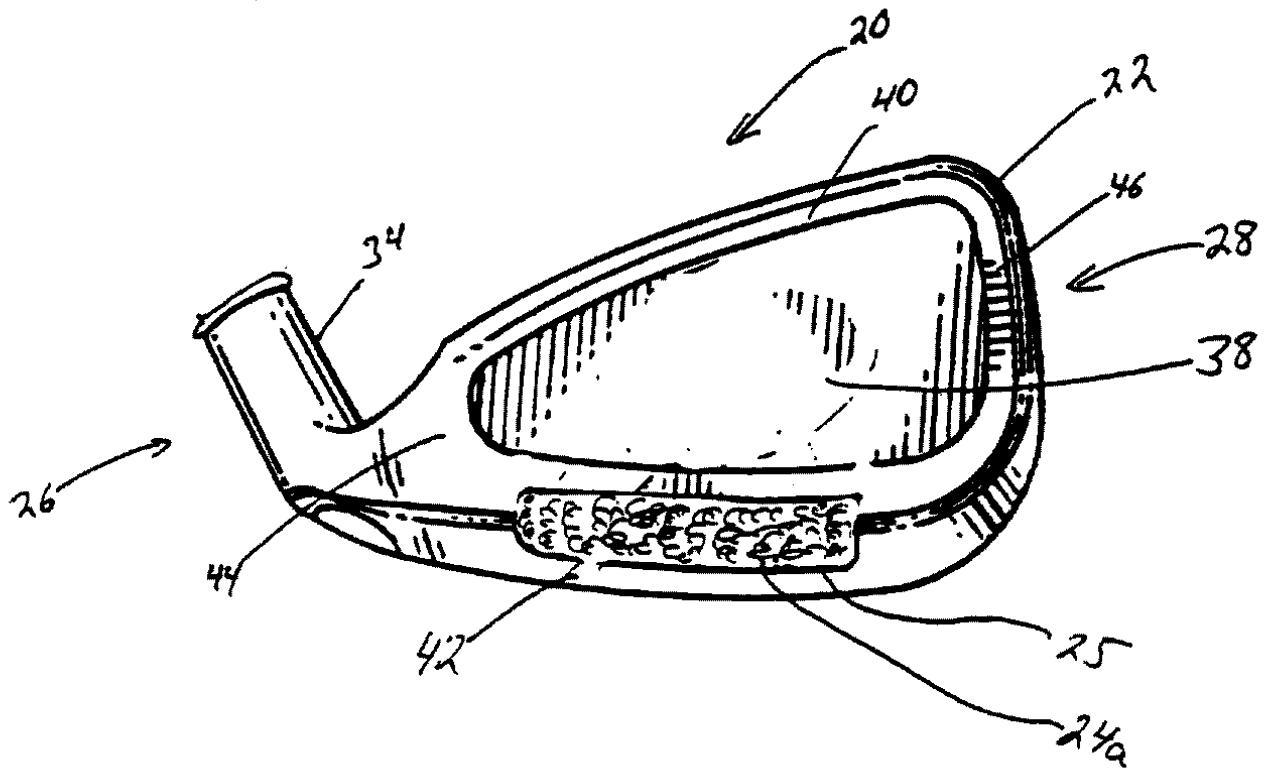
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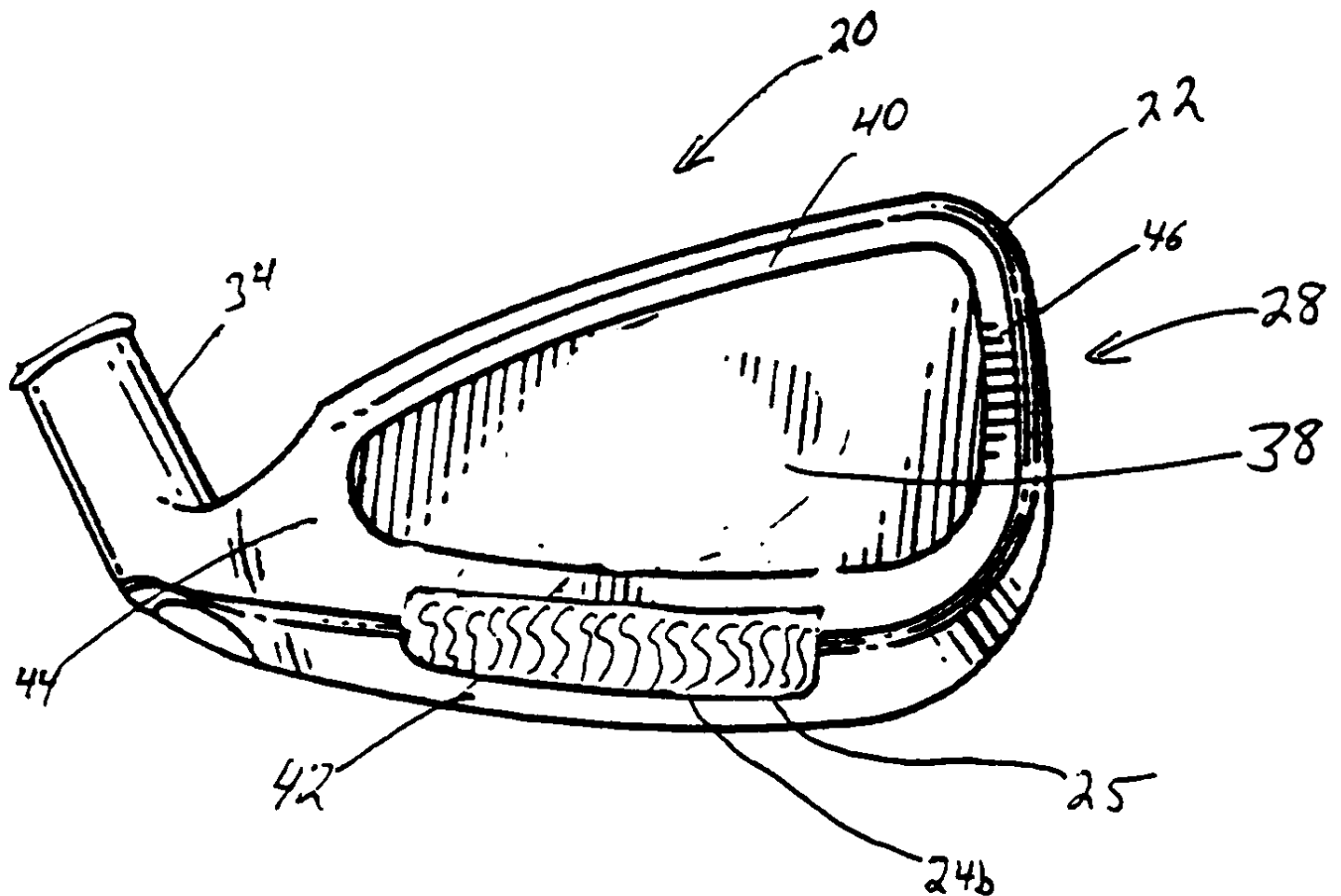
12



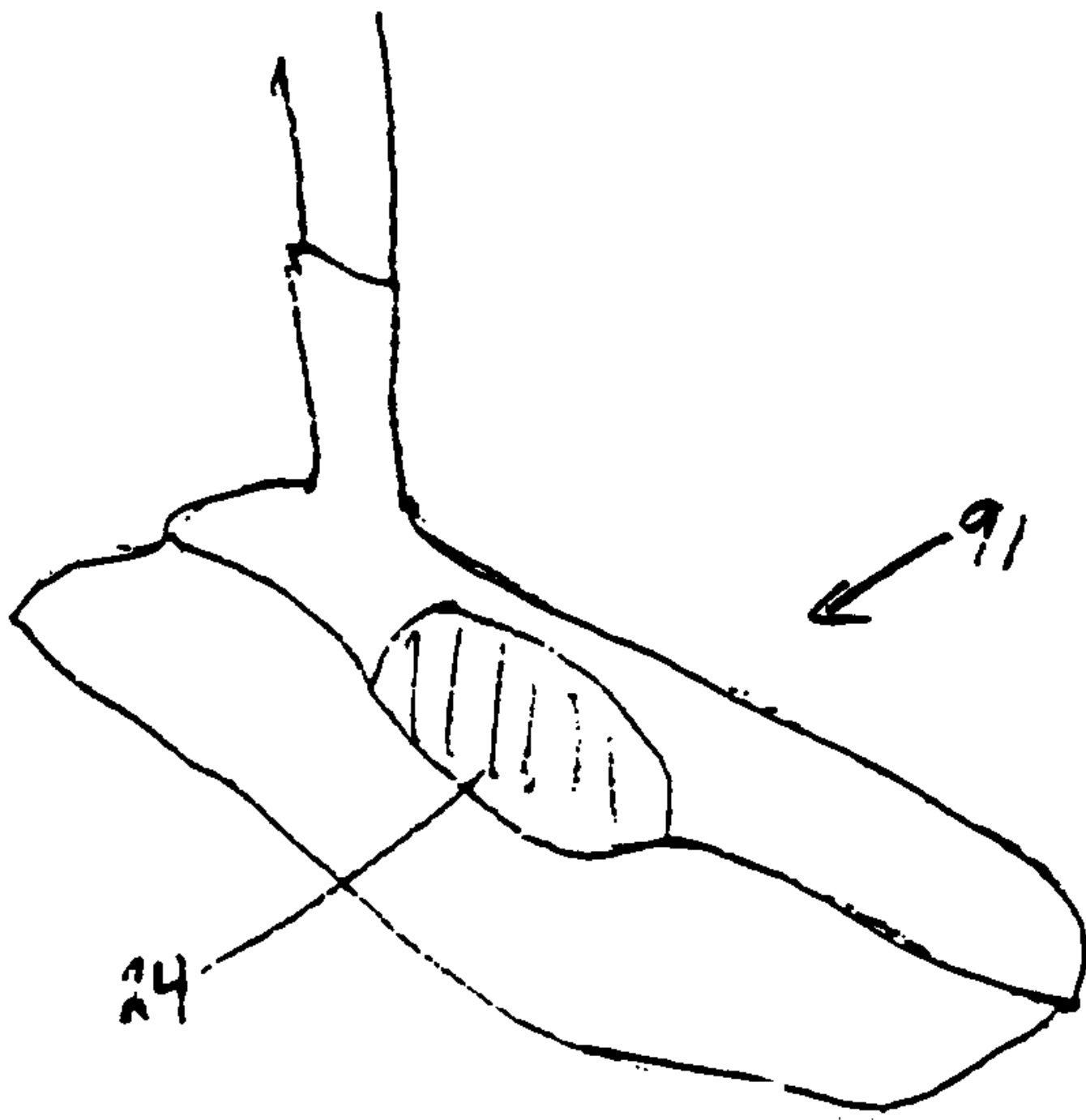
13



14



15



16

