

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

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 (22) 2001 05 31

(30) 09/584,920 2000 05 31 (US)

(71) 92008 - 8815 2285

(72) , , , , 833
 , , , , , 11562
 , , , , , 6847

(74)

(54)

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

13

14

15

16

(forgiveness)

가

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 - (re-shafting)
 () ,

가

가

(cavity back golf club head)

2

2

2

		(20a)가	8	9	.		(20a)	1
7c	-			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

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

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

10 , (24) 가

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

208 , 가 (20b) 가 (25)

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

210 , (24) 가 ,
 가 (24) 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

(57)

1.

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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.

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2

2 , ,

13.

12 , ,

14.

13 , , - , ,

15.

12 , , , , ,

16.

13 , %가 %

17.

12 , 가 20V% , 20wt%

18.

12 , 가 , , ,

19.

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20.

19

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가

21.

19

,

가

22.

19

,

가 1

23.

19

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가

24.

19

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25.

19

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26.

25

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27.

19

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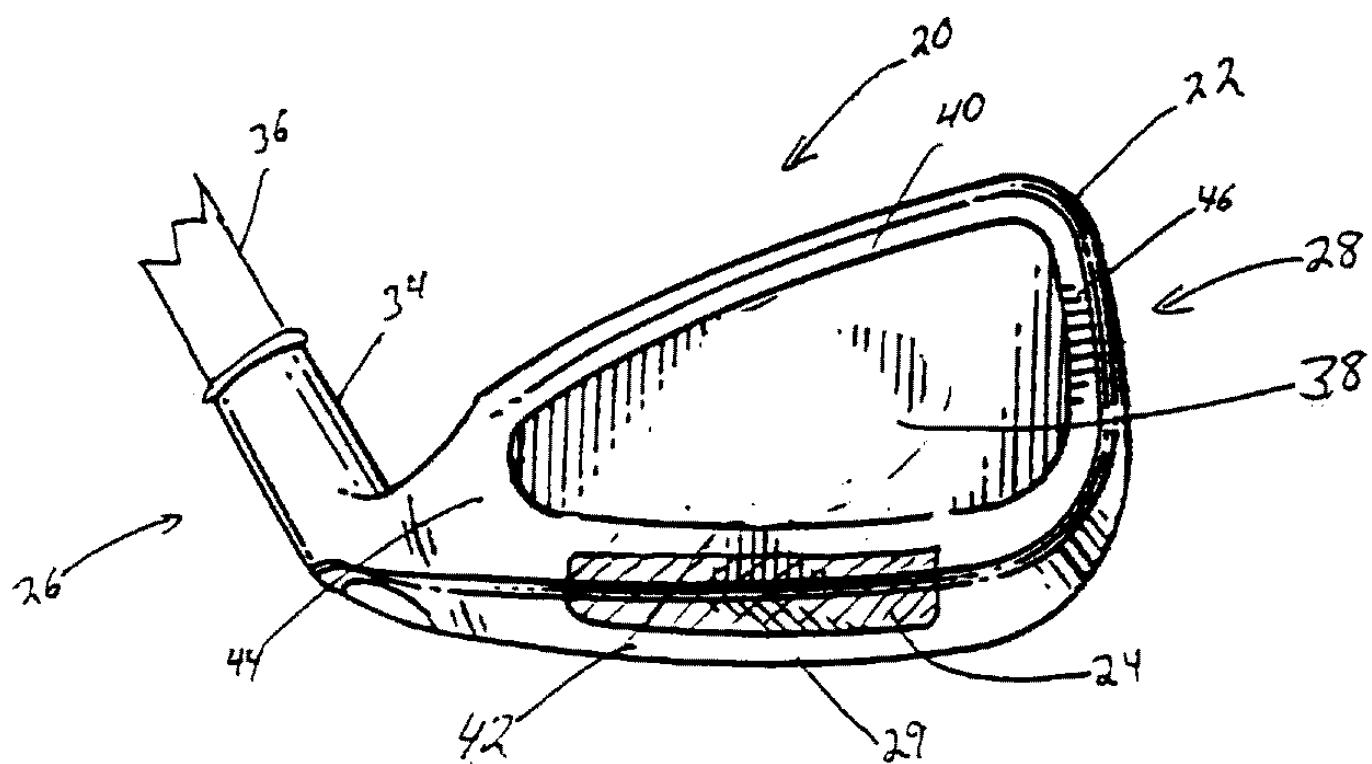
가

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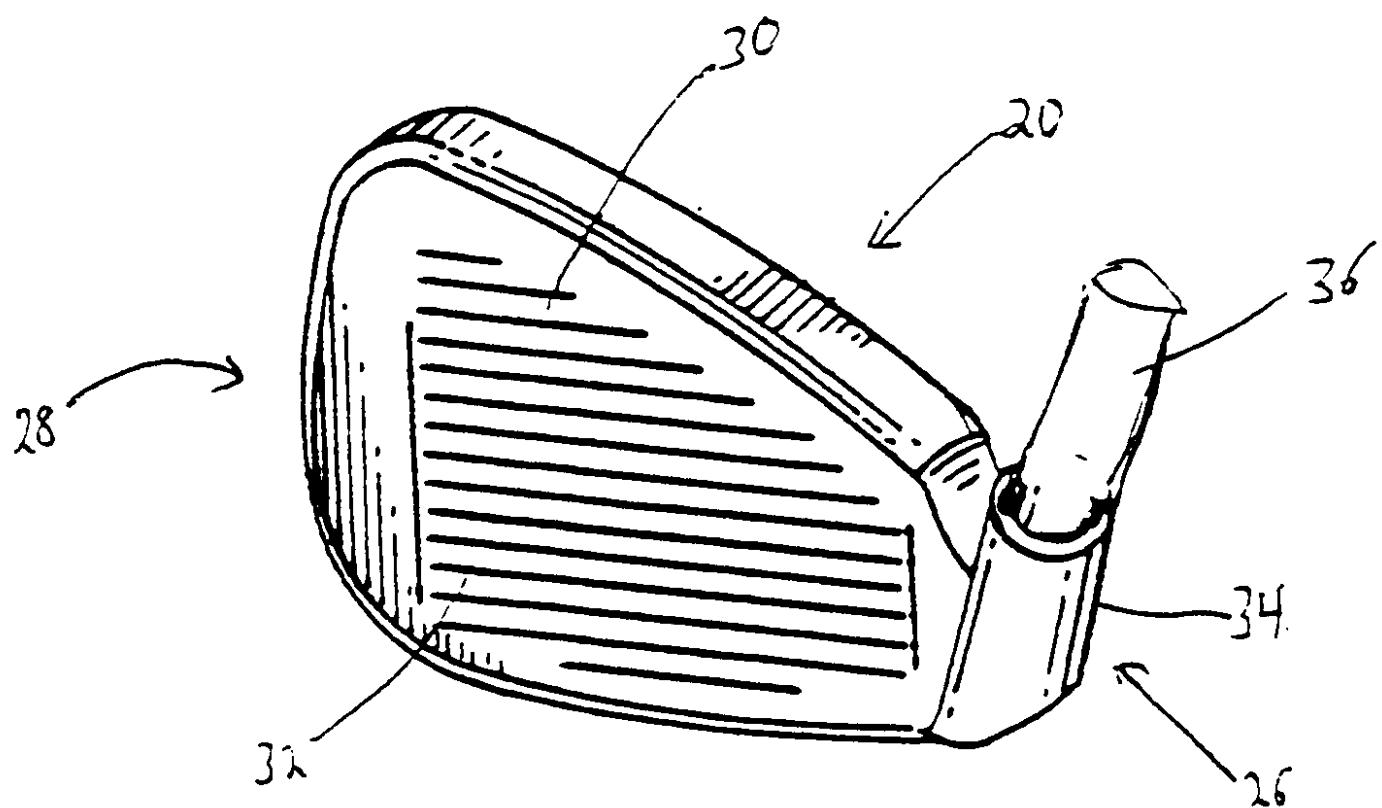
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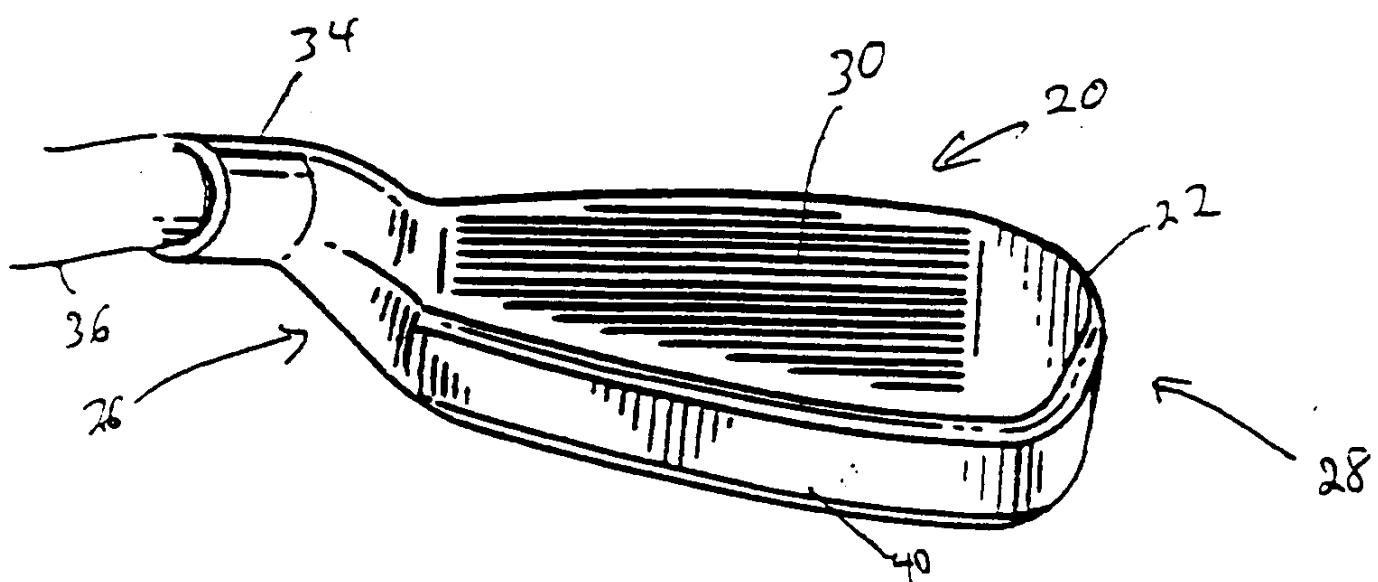
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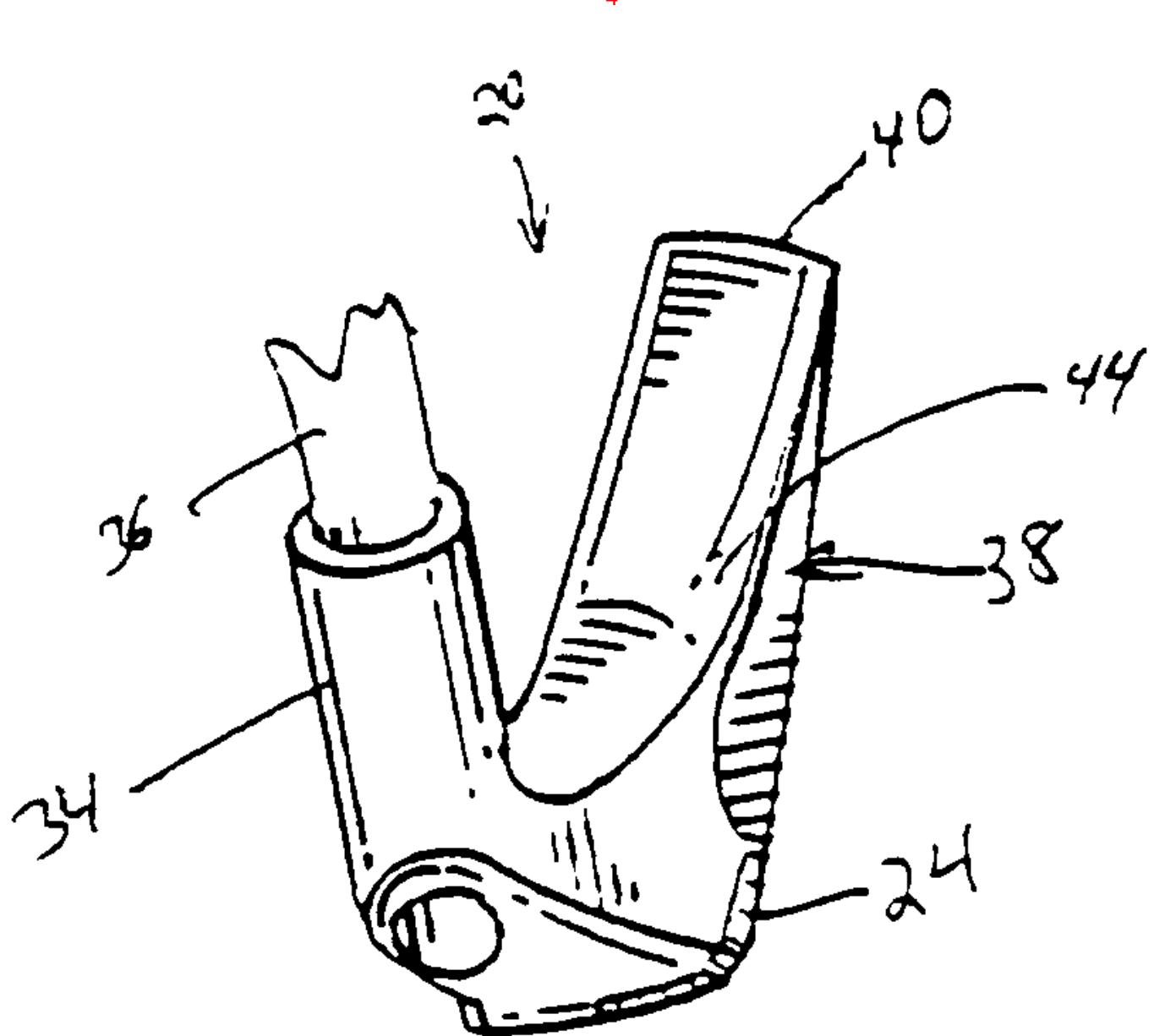


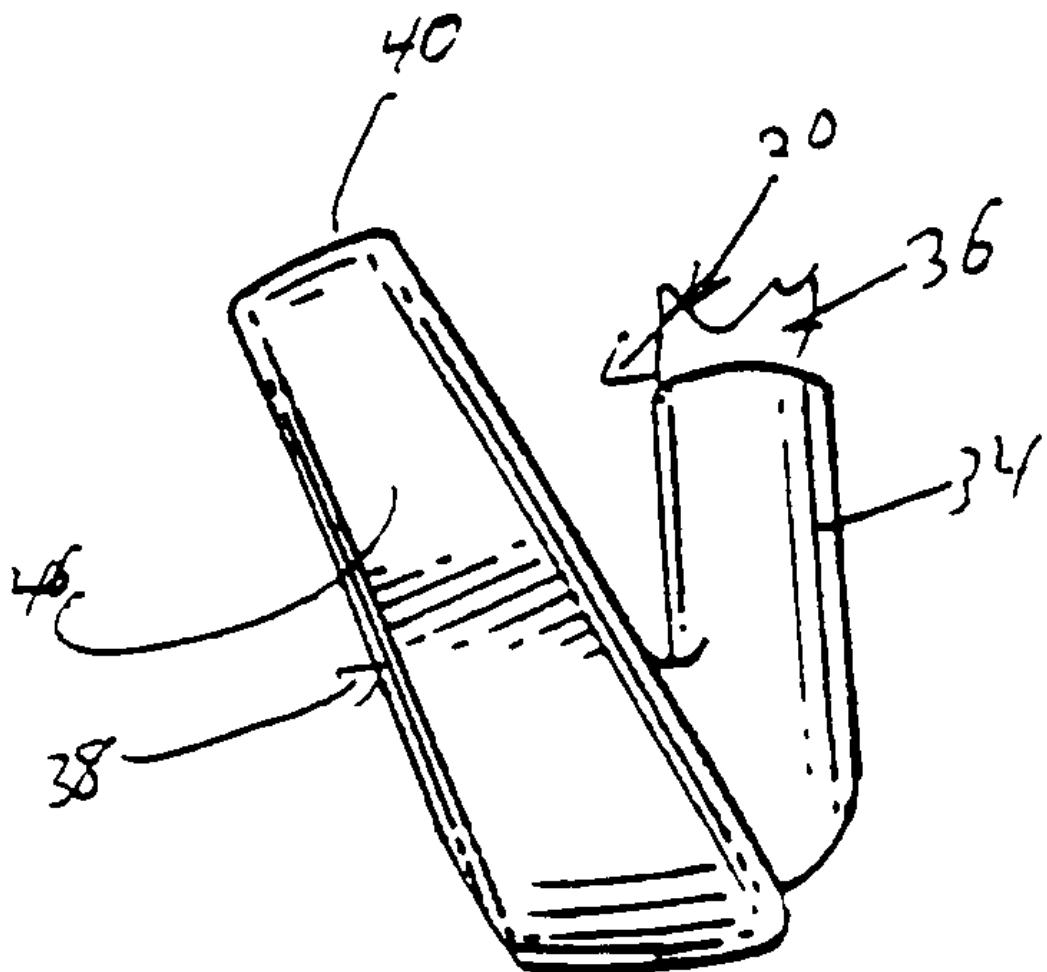
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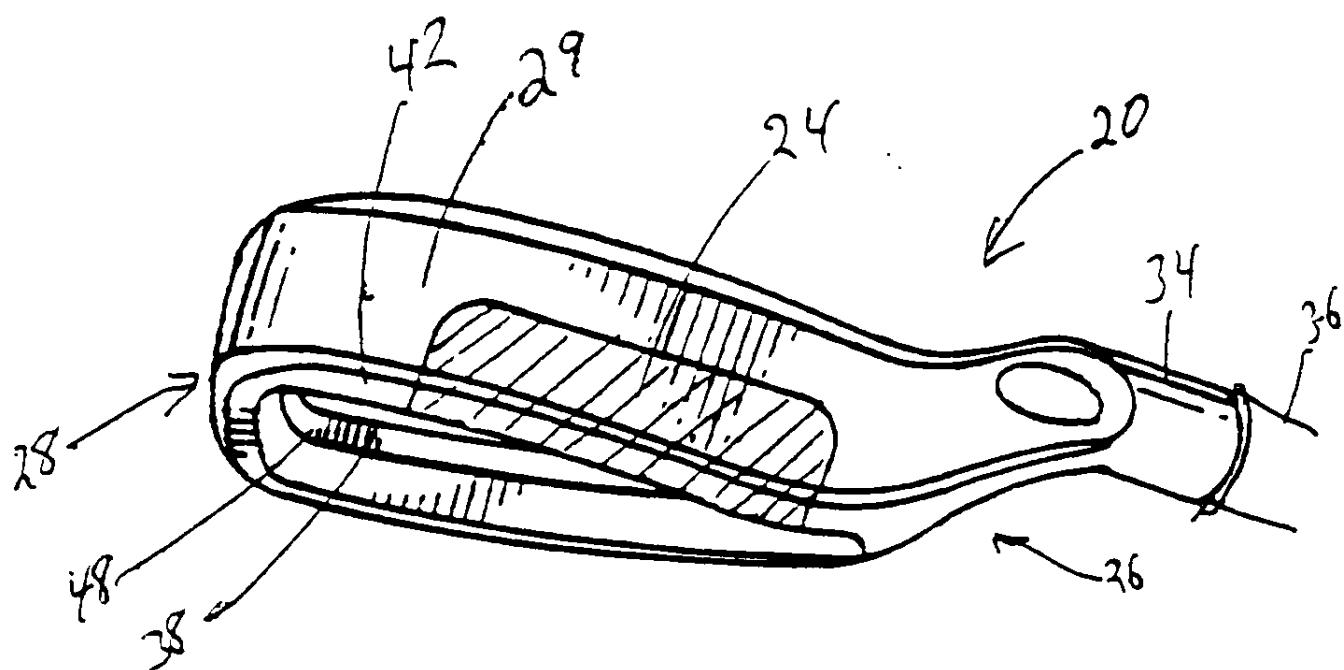
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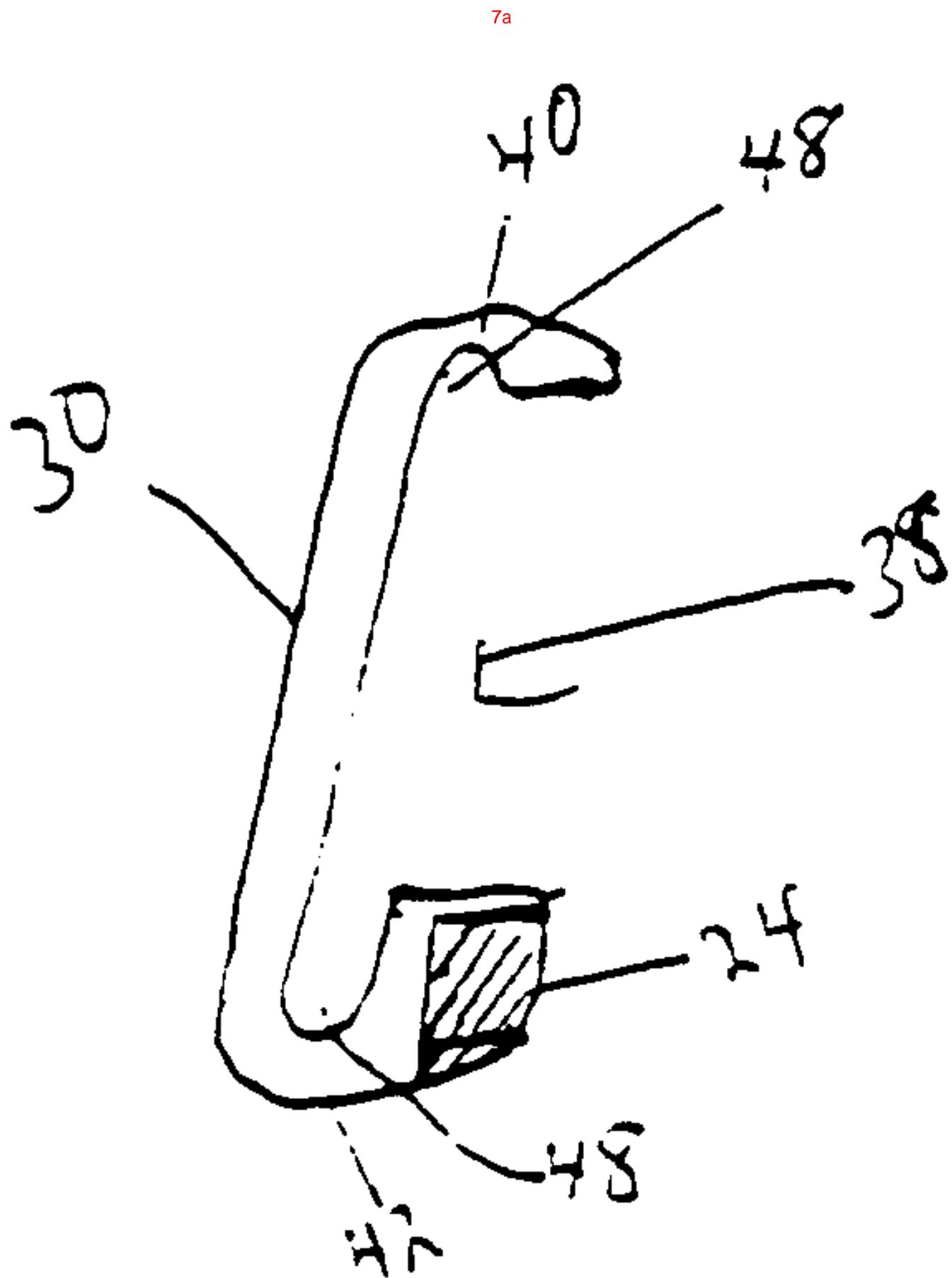


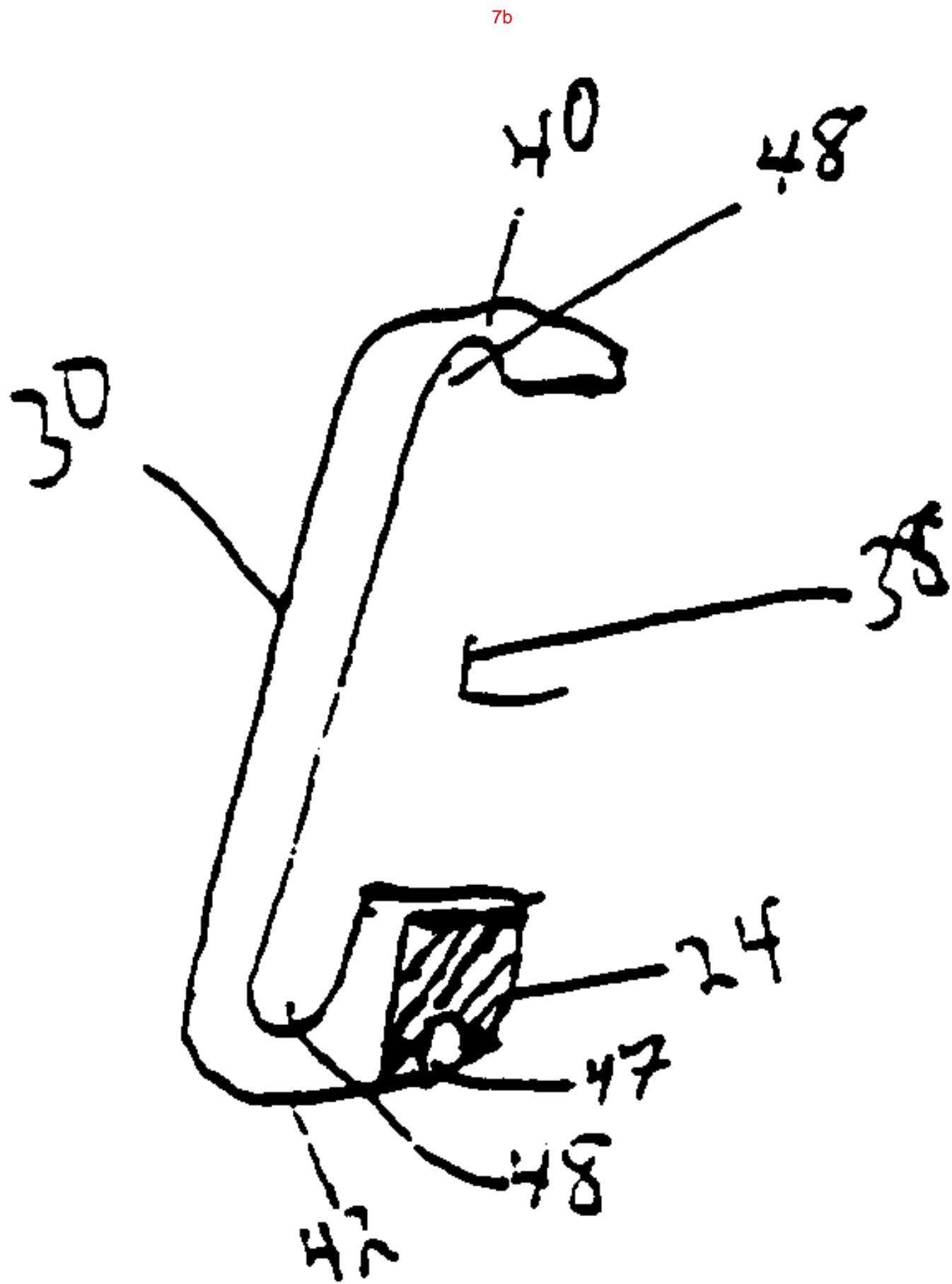


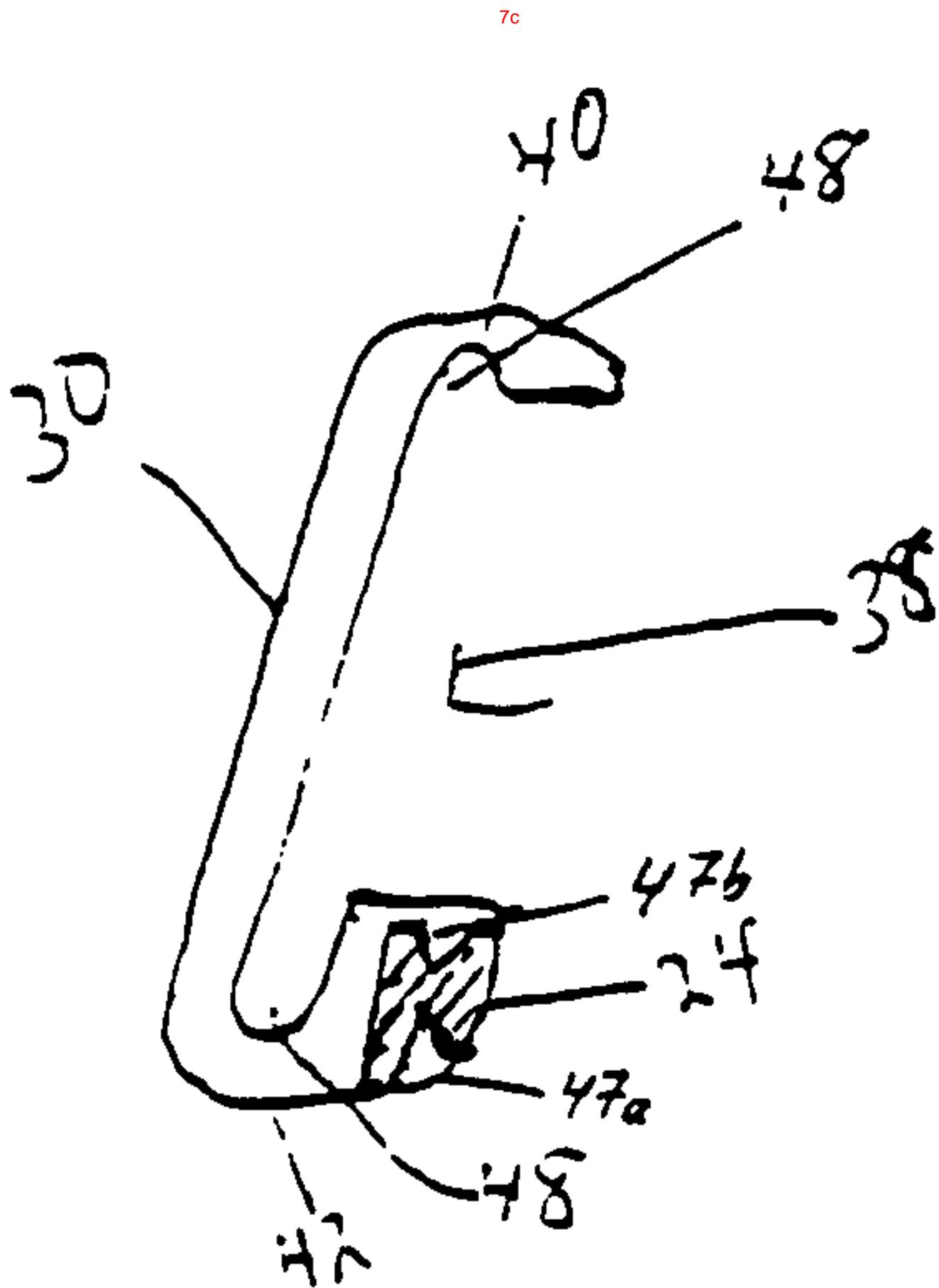


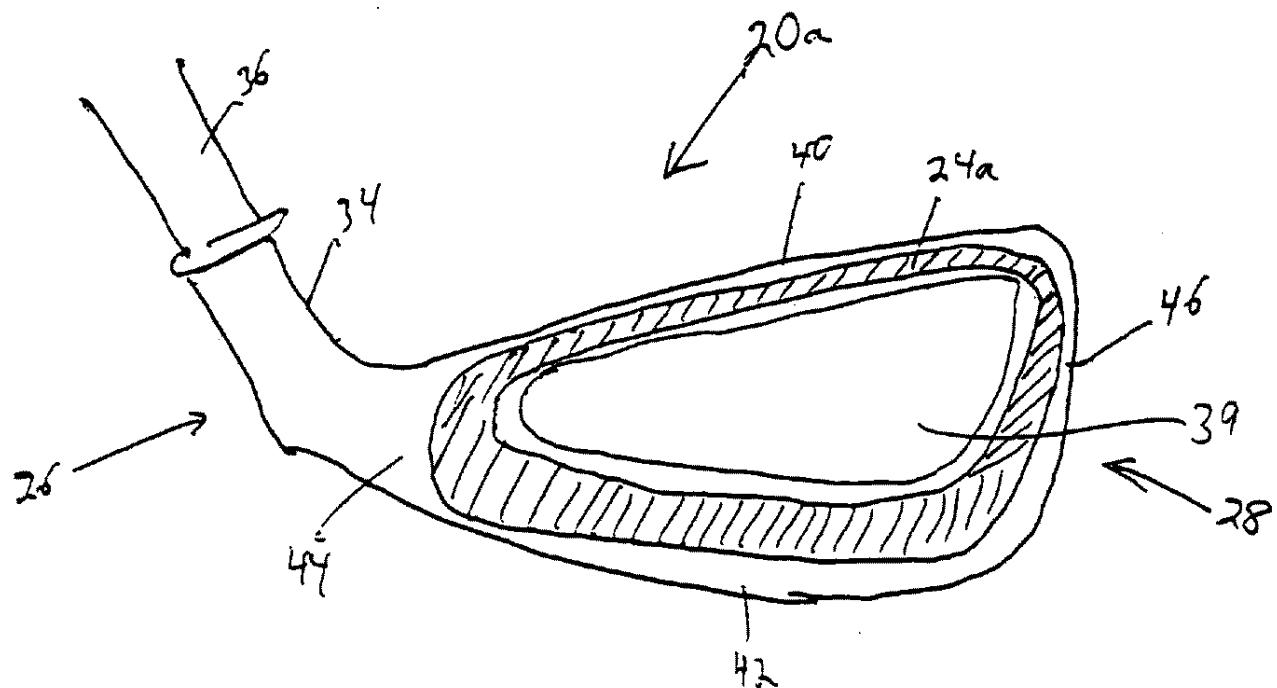
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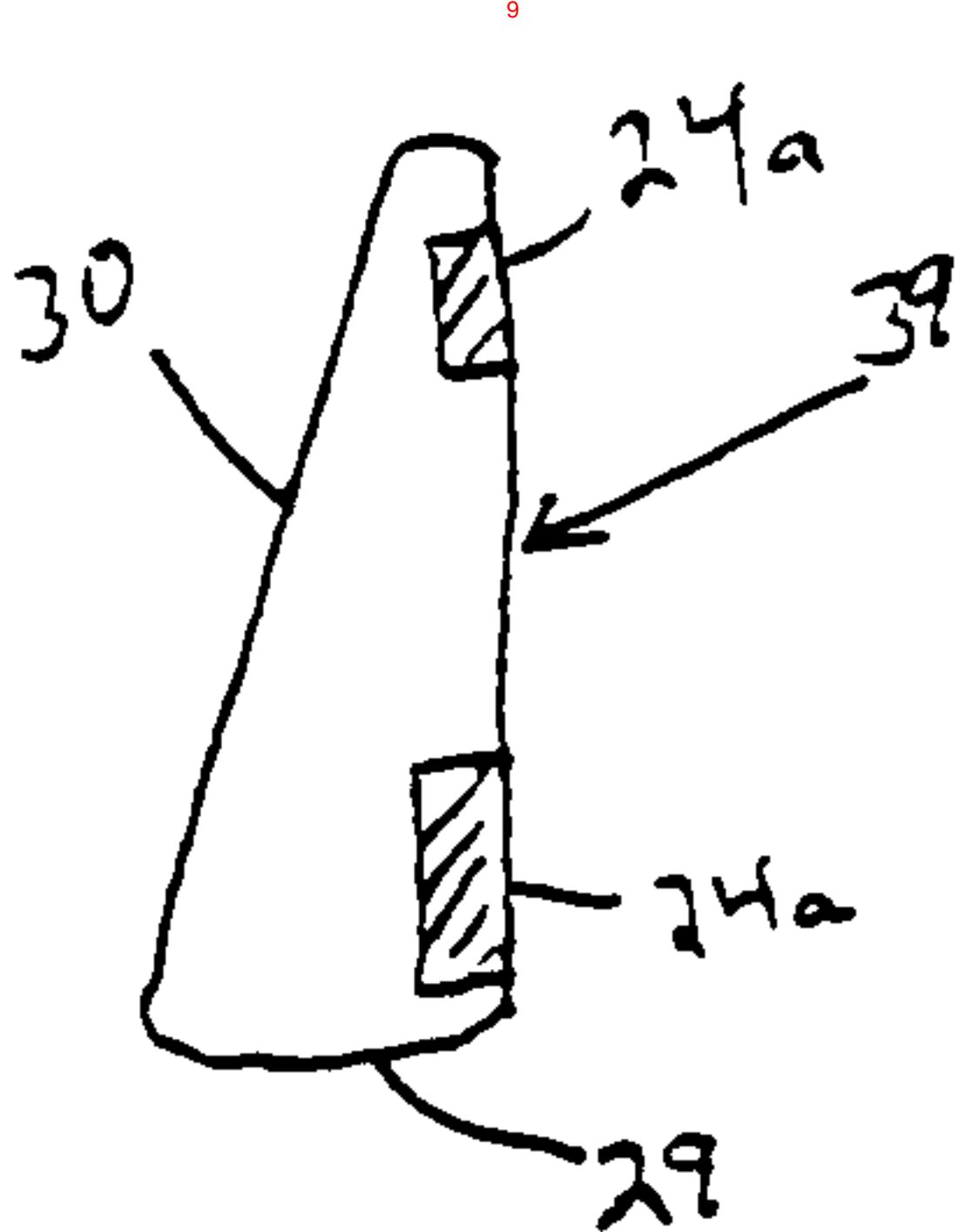


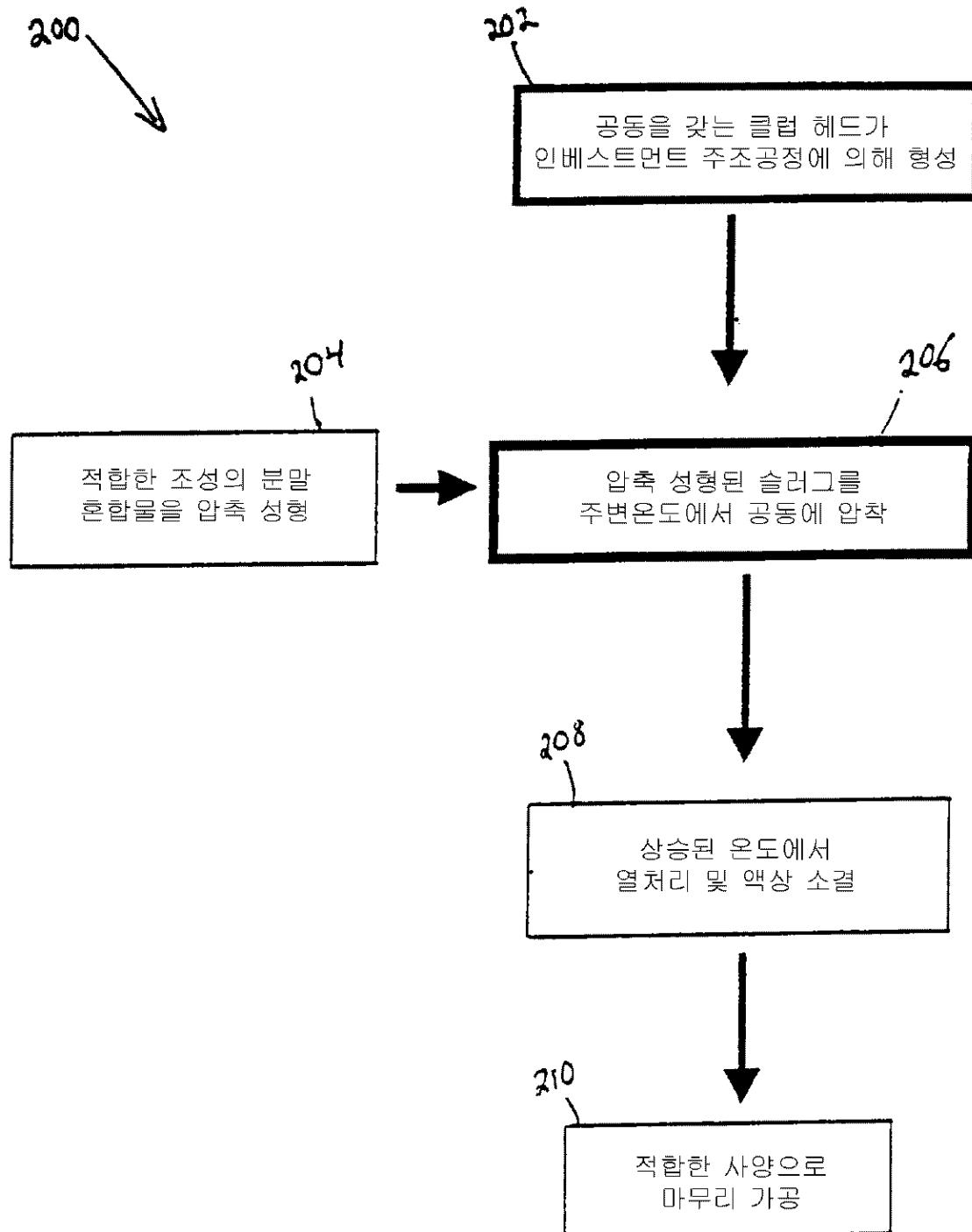




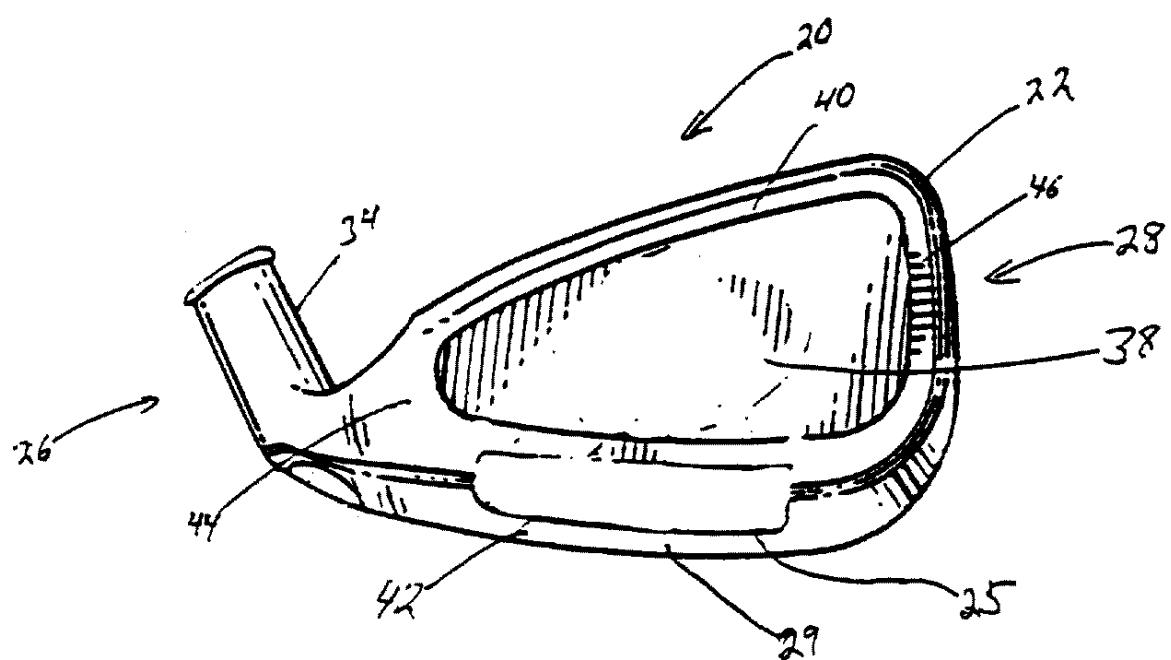




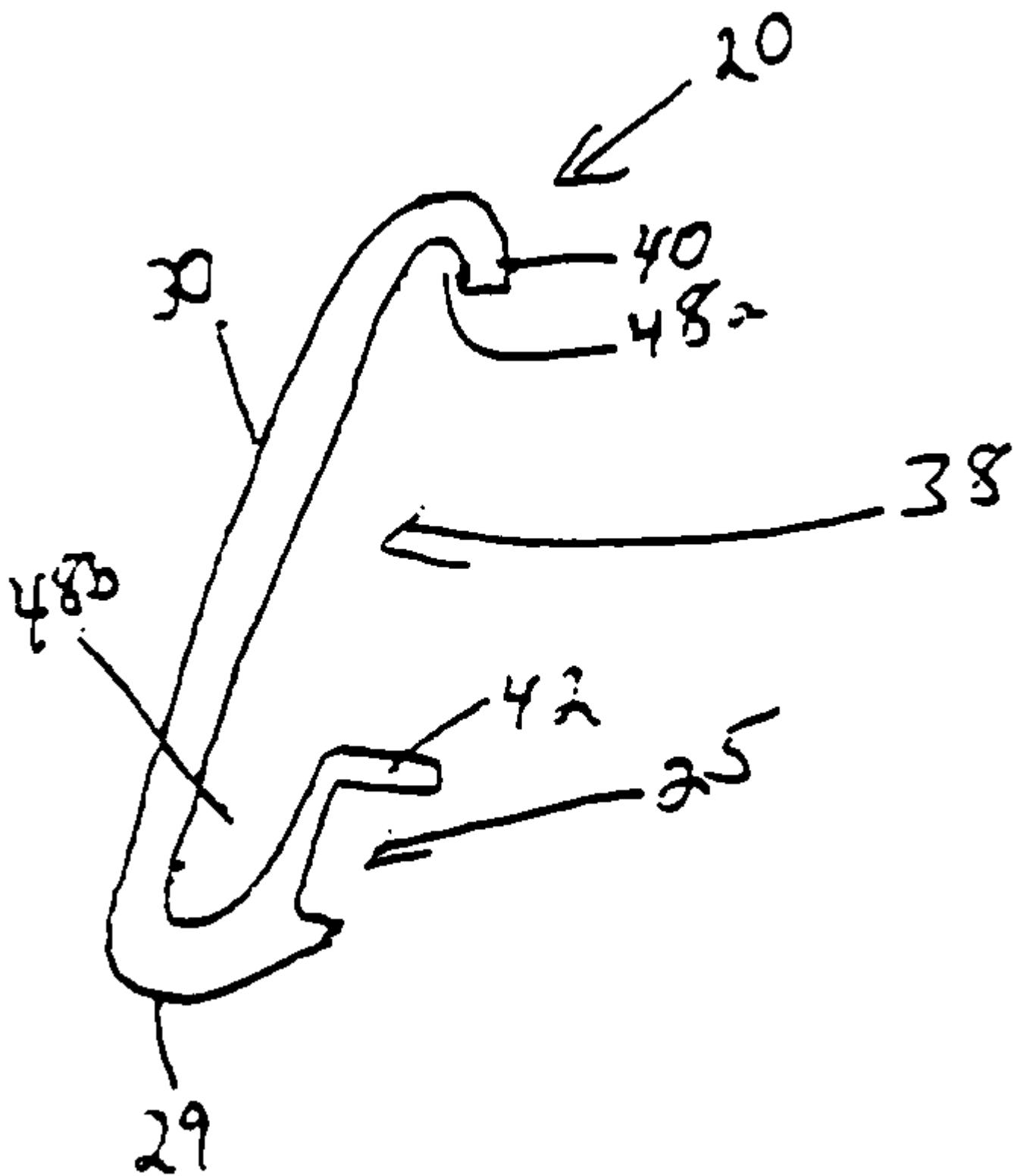




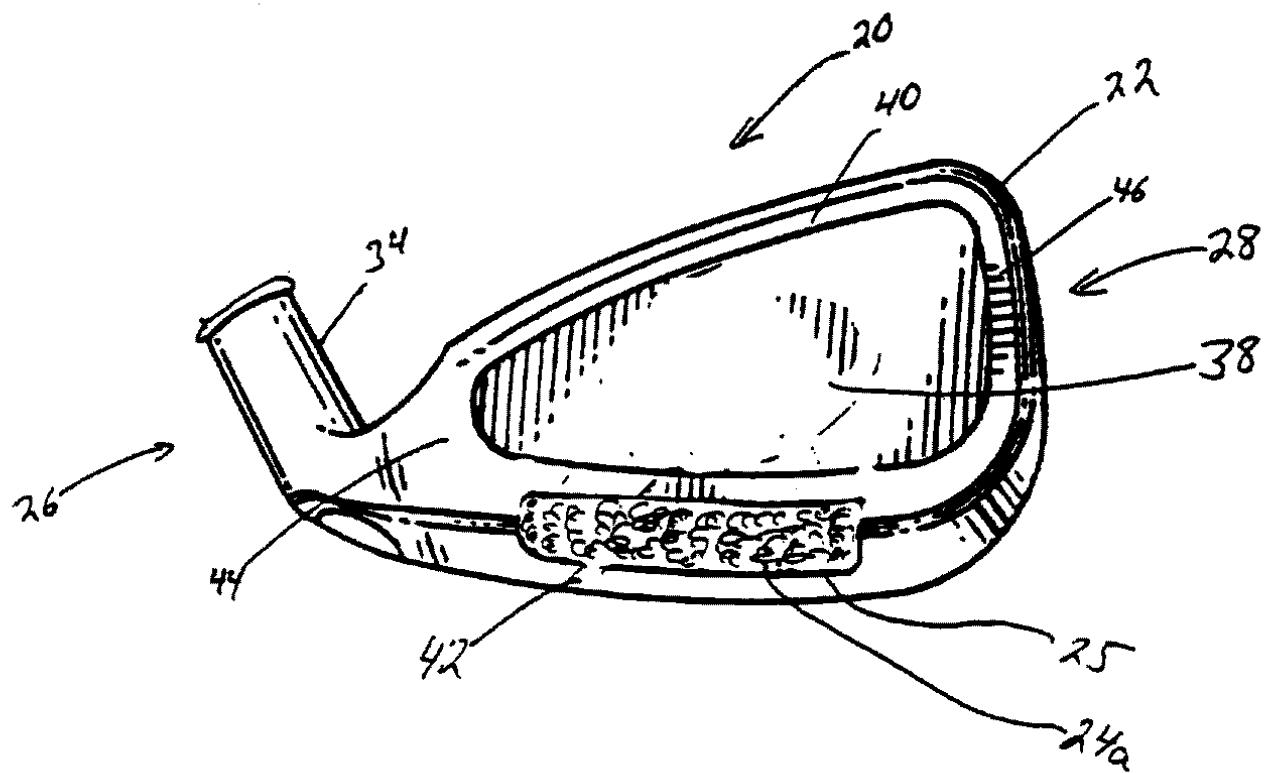
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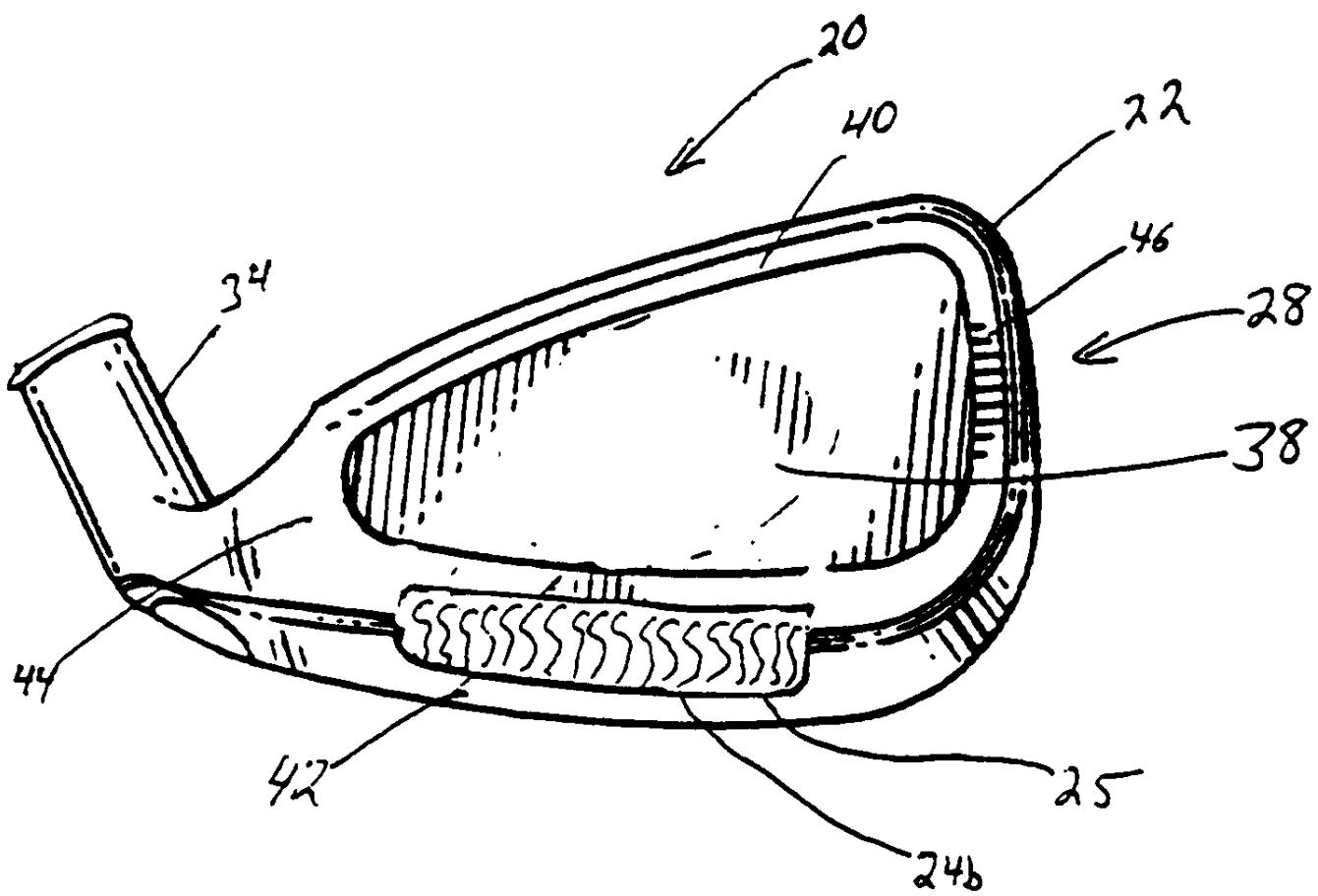
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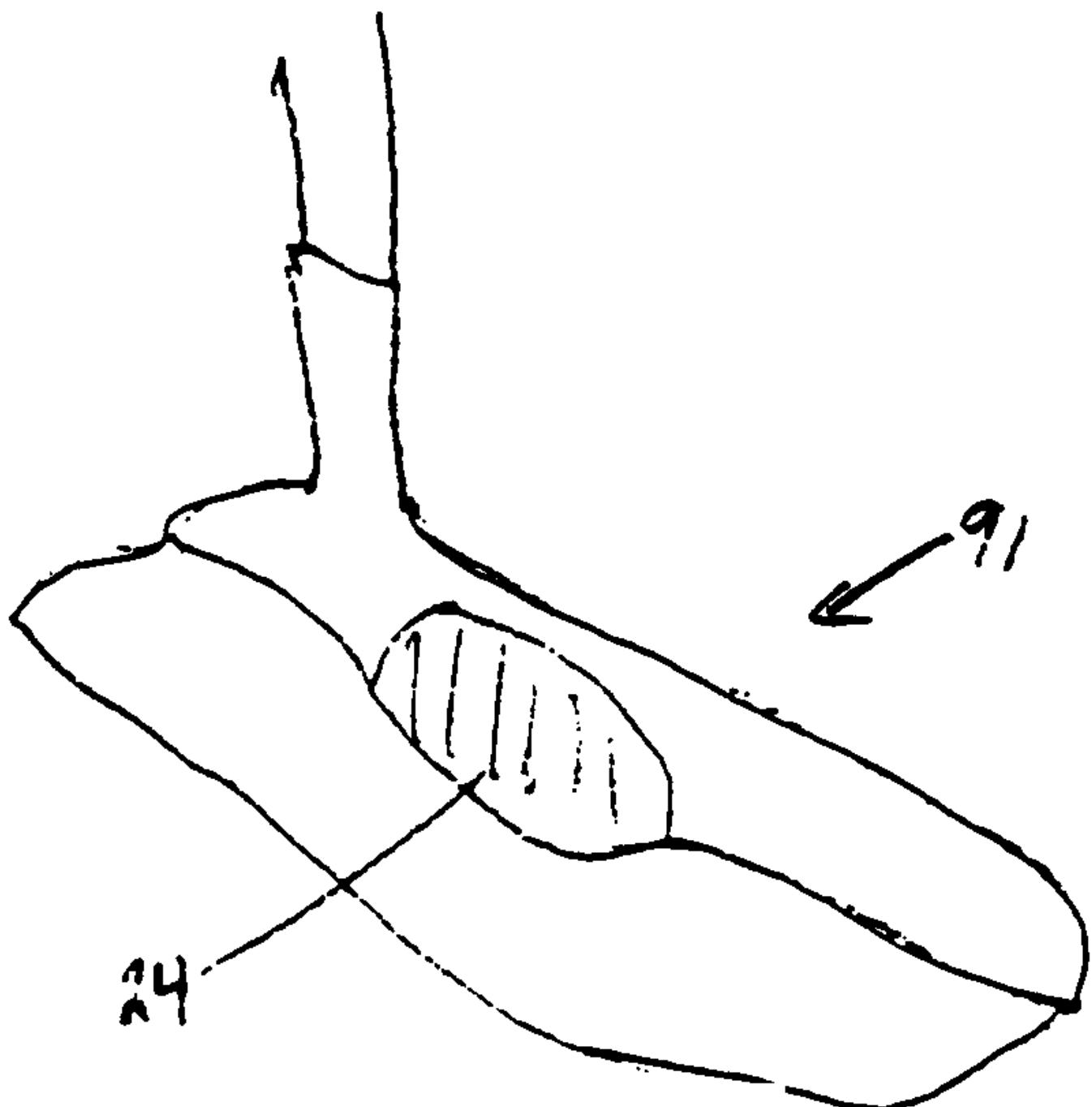
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14



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16

