

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

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(81) : , , , , , , , , , , , ,
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 EP : , , , , , , , , , , , , ,
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(30)	20003515.0	2000 02 28	(DE)
	10009250.0	2000 02 28	(DE)

(71)	- 53117	- - -	25
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(72)	53913	7
	35630	2
	53123	17

(74)

(54) - ,

(20), (21) (22)

가

가 / 가 , (5)
(4)

1

(空洞)

가 (workpiece)

(硬質) - (hard - material)

WO97/10067 , 3
가

, 0.1 1mm 3
가 . (bearing)

가 (clamping)

vior) 가 , (after - treatment) 가

, - 가 (blank) 가

1. (1) (3)

2. (3) $\alpha < 45^\circ$ (10), ,
3. (5) 가 (12) . , (3) (bore) (sp lit beam)
- (5) 가 ()
- a) 가 , 4mm ,
- b) 780 940nm ,
- c) 5,000 - 600,000 W/cm²
- d) 200 - 600 K/s
- Si (eutectically solidifying residual melt) 80μm
(phase diameter)
- e) (bath) 가 , (pore)
- f) 10,000mm/ , 40 - 60%
가 600K/s ,
200K/s ,
가 ,
가
가 160HV , (honing) (scoring) (smearing)
1μm
-) 가 , (coarsening) (precipitation) ,
1μm
, (gradient) 가 ,

가

DE 198 17 091 A1 ((NU TECH)/ (VAW motor GmbH))
 , 가 가
 , 가 () ()
 ,
 (slit) () 4mm , () 15mm .
 가 100 - 2500 μ m 가 /
 Si Si ,
 ,

1

2 4 - - (in-line)

3 5 2 X

6 2 1

7

8

9 8 AA

10 8 Y

11 1 (screw)

1 (1) 4 - (2) , - (in-serie
 s)
 (10) (3) (4) (2)

(4) , گ (heating zone)(11) , (melting zone)(12) (solidification zone)(13)

(5) (9)

가

$$2 \quad 4 \cdot - \quad , \quad 1 \quad (1b) \quad , \quad (1b) \quad (10) \quad (1) \quad . \quad (2) \\ (6) \quad . \quad (1a)$$

$$\text{가 } 2, \quad \text{(6a)} \quad X \quad , \quad \text{(2)} \quad . \quad \text{(4)} \quad . \quad \text{(5)}$$

(10)	(4)	(spindle)	
	가 (counterguides)		가 (carriage guide) (7a),

$$3 \quad 5 \quad \begin{matrix} \text{가} & (9/11) \\ & (2) \end{matrix}, \quad \begin{matrix} (12) \\ , \end{matrix} \quad (13)$$

5 2 (8a), (8b) 2 (12), (13)
. 14 6 . (9/11) 가
. . (4.1), (4.2) 가
. a₁ a₂

$$7 \quad , \quad \text{가} \quad (20), \quad (21) \\ (22)$$

가		가		(23)
7	780	940nm		
,	가			
7	(28)	가	가	가
.	10^4 W/cm^2	,	가	가
0K/s		(22)	가 500	10,000mm/ 200 60
가			,	,
2		1	가	가
.	가 6	.	.	,
	$< 1 \text{ kW/mm}^2$		가	
			(intermetallic phases)	
			0.01 1	
가		3kW		
		가		,
가		,	,	,
(34)	(33)	8 11	(31) ,	(32)
(41)				
.	(35)	HP	(30)	(34)
.	(HA)	,	(HF)	(30)
				(30)
(30)	(f)	(40)		(42)
	(30)	.	.	
(30)	(43)	(44)		
(45)		(45)	(mounting plate)	(46)
				8
9		(47)	(34)	
(30)	,		,	
(44)	,		(50)	
	(49)			(48)

가
, 8 (33) (index holes) /
(32) 가 (32)
(32) (44) 가 , (33)

가
가 (sweep) (delimiting)
/

1 6

(thermal radiation)

가

가

가

(堪耐)

(fatigue)

(34)

1 b)

(HP)

0.3 - 3mm

3mm

(skimmers)

가

0.3

가

가
(44)

(32)

(43) 가

(45)

(34)

가

(30)

8

(35) 9

(HA) 가

가 (45) (330), (31)
 10 11 , (30) (430)
 HA (34) (38) (HP)
 (48) (45) (44)

(hard phases)

(共融) (AISiCu AISiMg 1 μm) (hypoeutectic) 200% AlSi
 , , 20 μm
 가 가

(57)

1.

- , 가 , 가 , ;
- a) 가 , ;
- b) 가 , 0.3 - 3mm ;
- c) 가 , 가 , 780 - 940nm ;
- d) 가 10^4 W/cm^2 ;
- e) ; ;
- f) ; 200 - 600K/s
 , 500 - 10,000mm/
 ;

2.

1 , b) - f) $40 - 90 \mu\text{m}$

3.

, 1 가
2 ,

4.

3 , 2 $< 1 \text{kW/mm}^2$
가 ,

5.

2 , Si
0.01 1 , ,

6.

, 4 - 15mm , 가
3kW 가 ,

7.

가 , ,

8.

, 가 , ,

9.

, , , , , ,
가 ,

10.

, , , ,
0 , ,

11.

, 60 - 120mm

Al Mg

20

0mm

12.

13.

12 , , (8b, 8a)가
(sweep) - , 가

14.

15.

가 가

가

16.

17.

18.

(4) , (2) ג (1) ,
 (10) (3) , (6) (2) ,
 (1) (3)
 (10) (3) (1) ,
 $\pm a = 0 - 45^\circ$,
 (12) (5) (3) () ,

19.

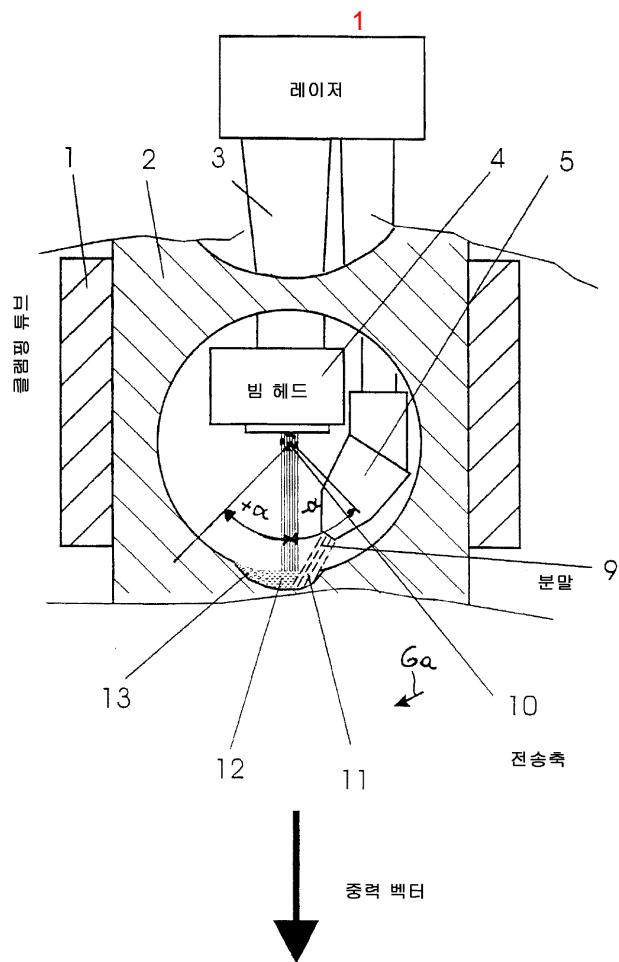
, (3) () ,

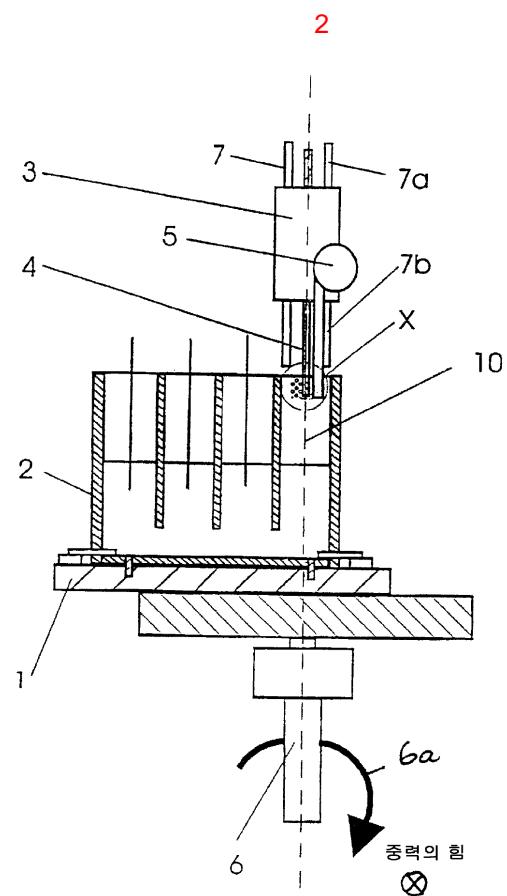
20.

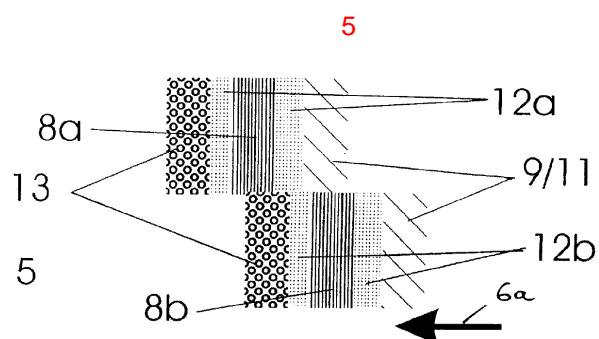
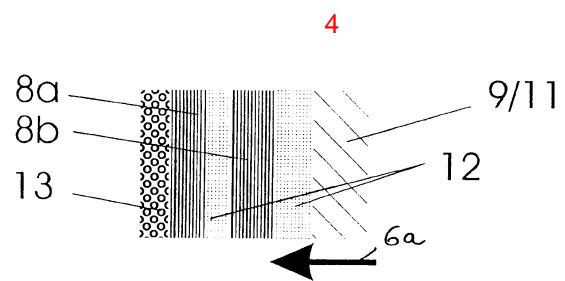
, (5) (one bvehind the other) () ,

21.

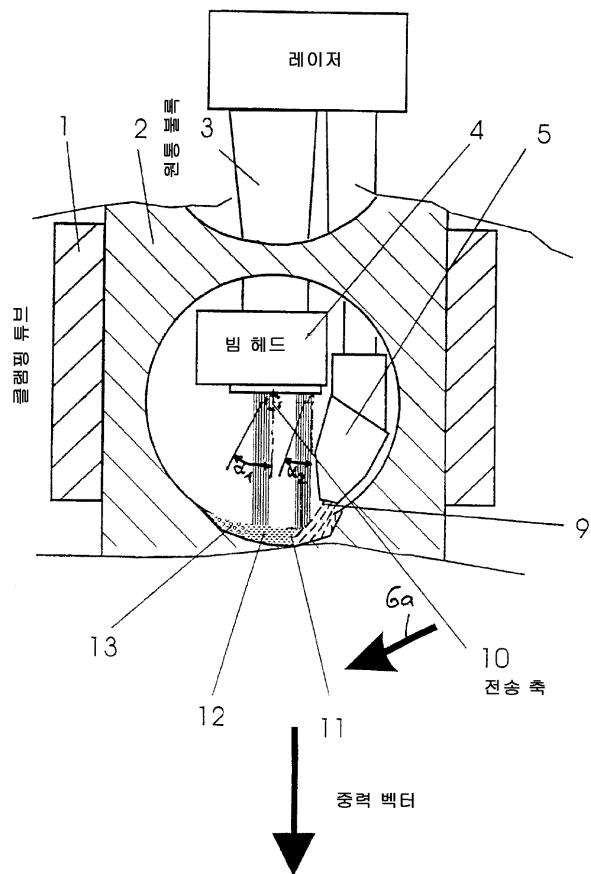
, , , ,



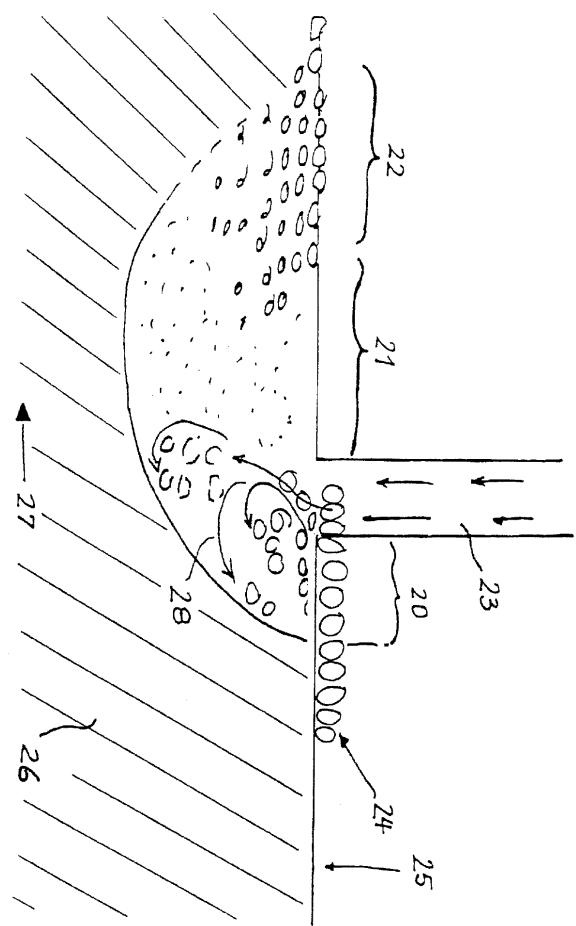


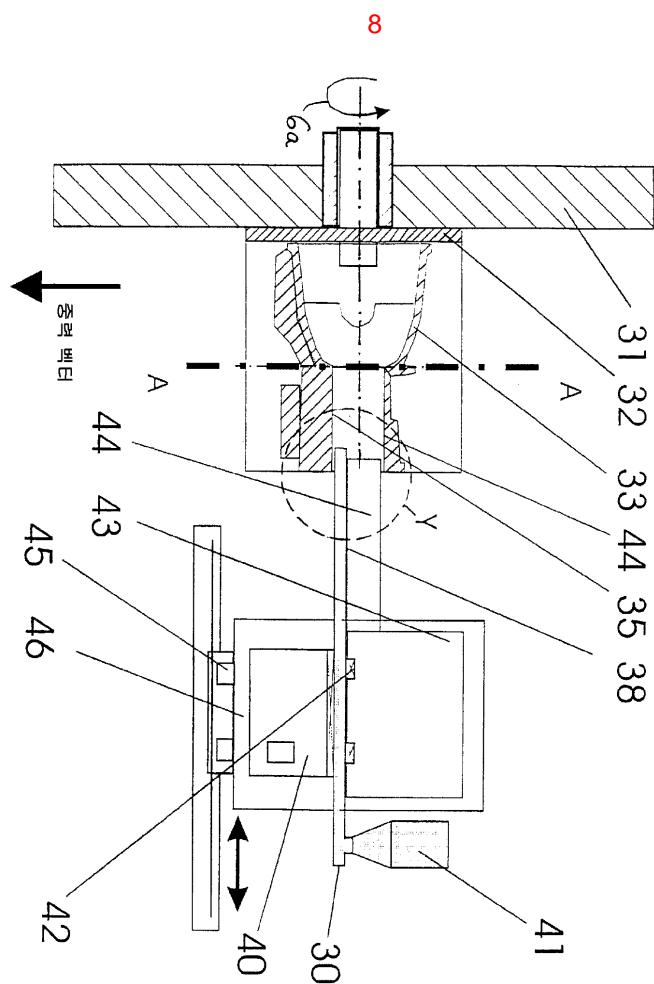


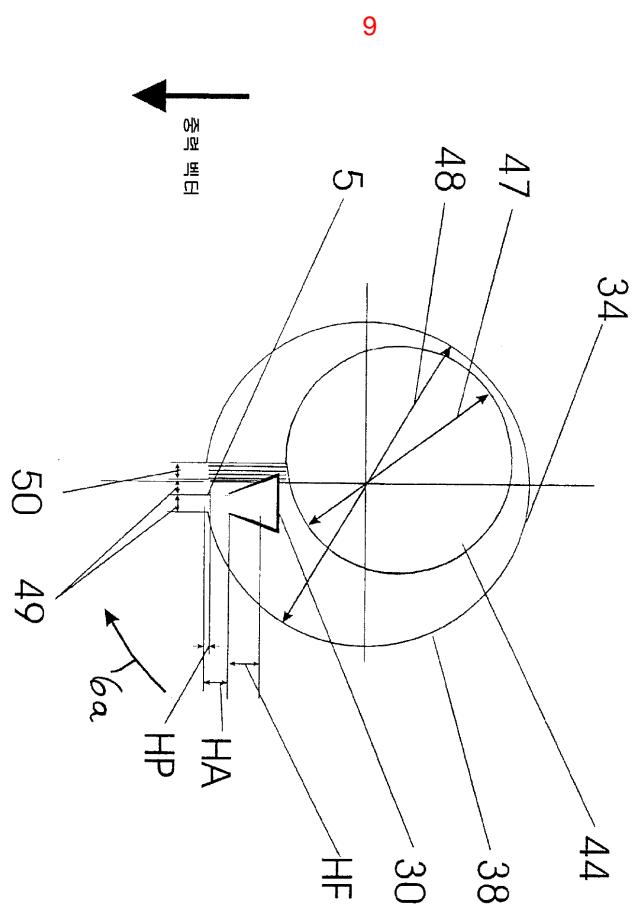
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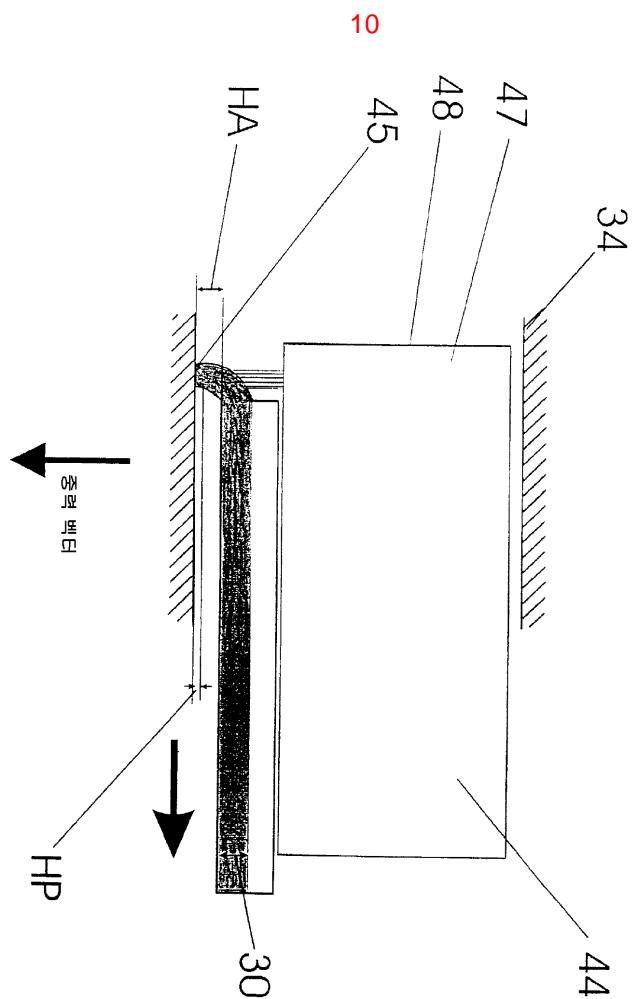


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11

