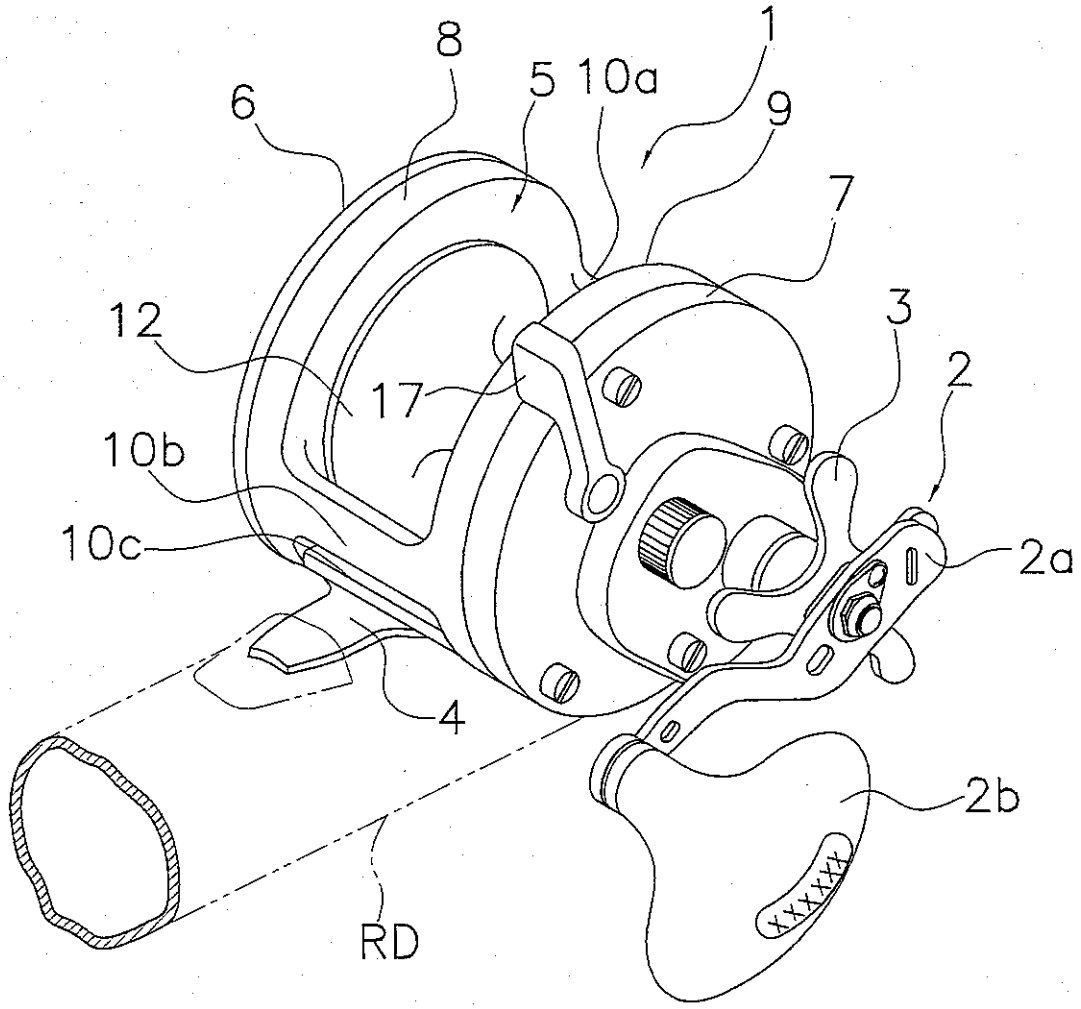

Figure 1

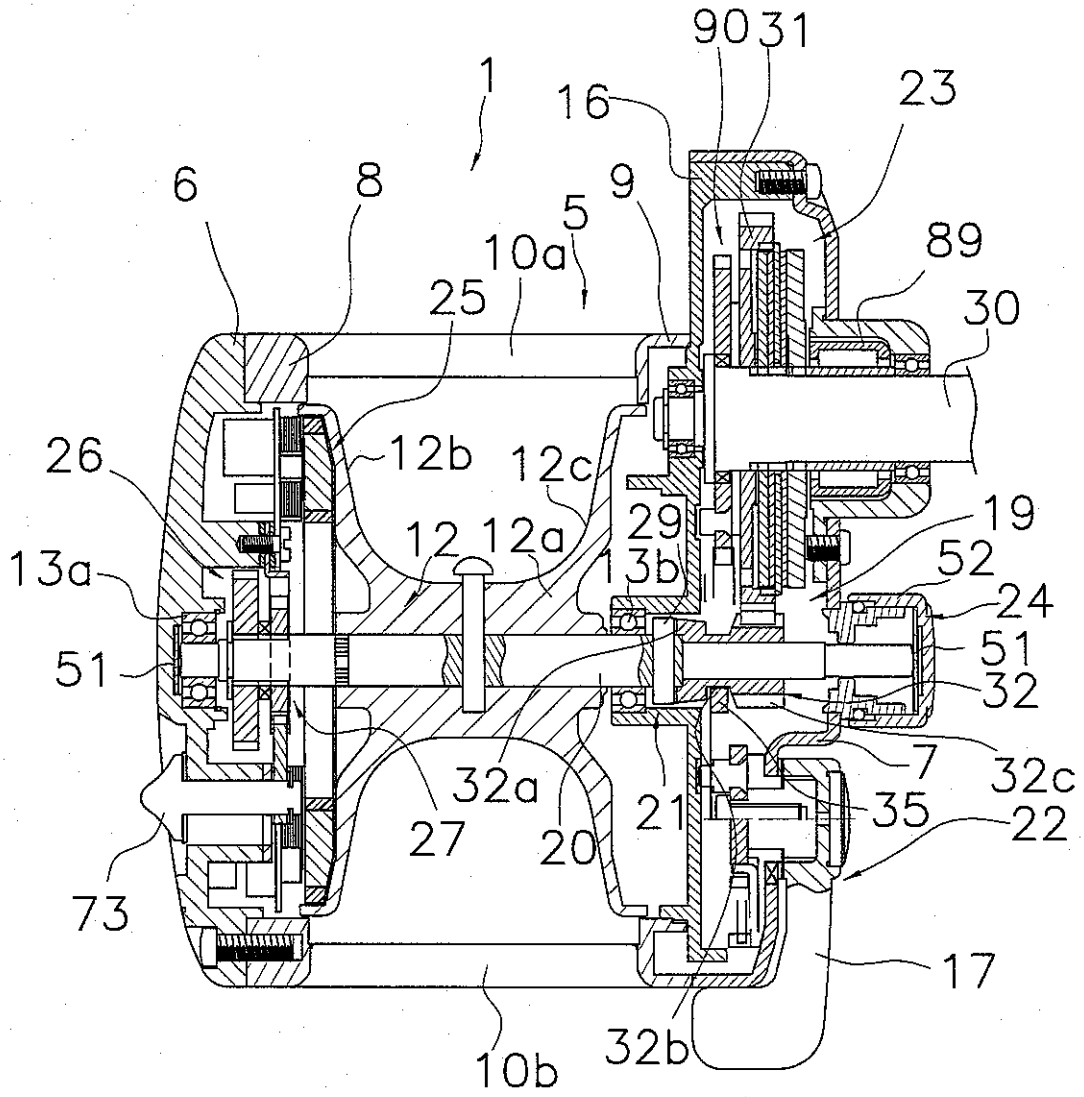
90
31
1
16
23
6
8
9
5
10a
89
25
30
26
12b
12c
29
19
12
12a
13b
52
13a
24
51
51
32
7
32c
32a
21
35
22
27
20
73
17
10b
32b

Figure 2

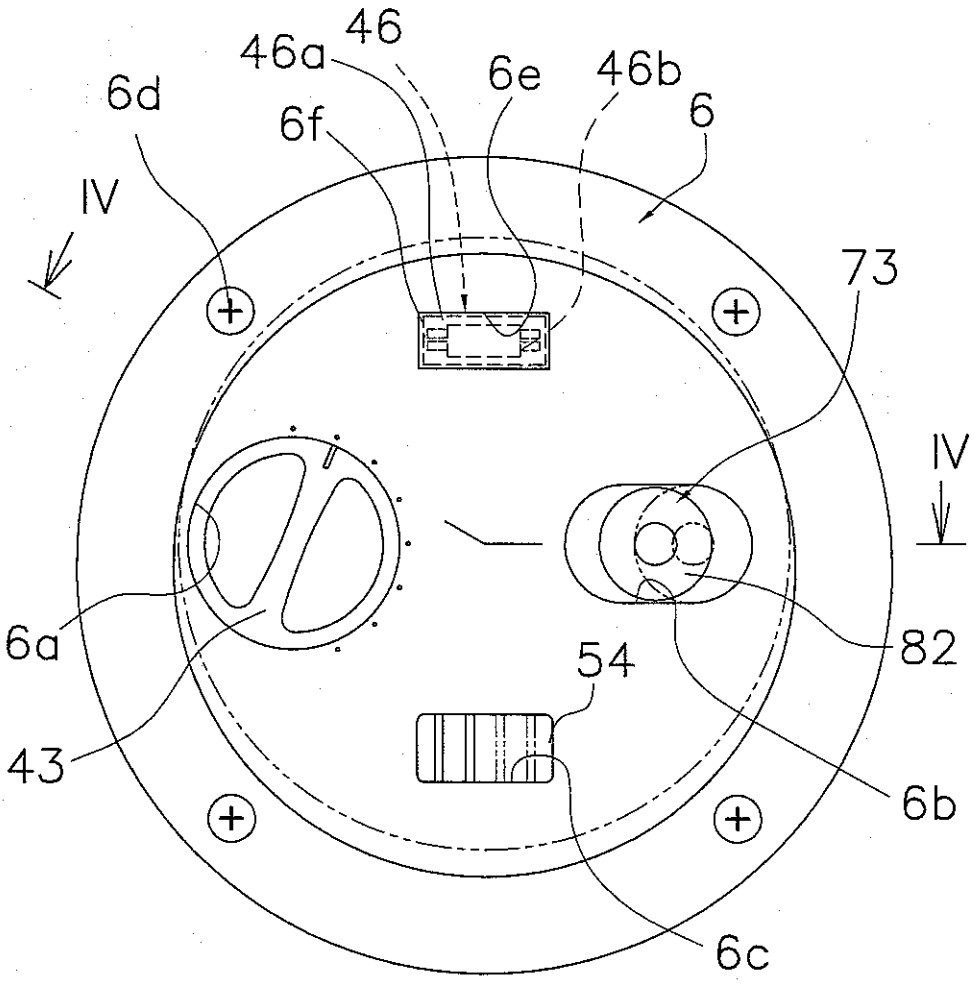

Figure 3

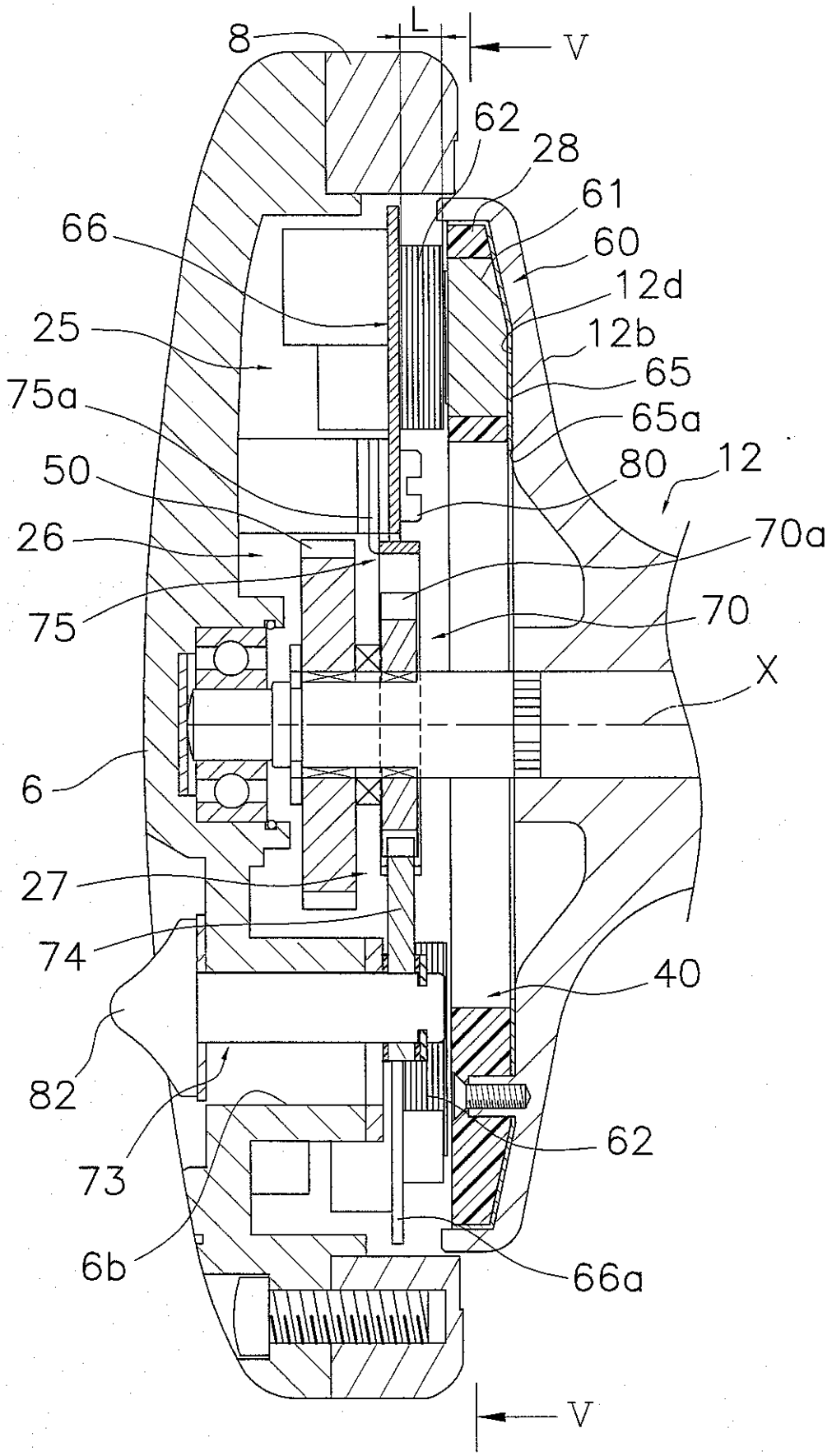
L
V
8
62
28
61
66
60
12d
25
12b
65
75a
65a
50
80
12
26
70a
75
70
X
6
27
74
40
82
62
73
6b
66a
V

Figure 4

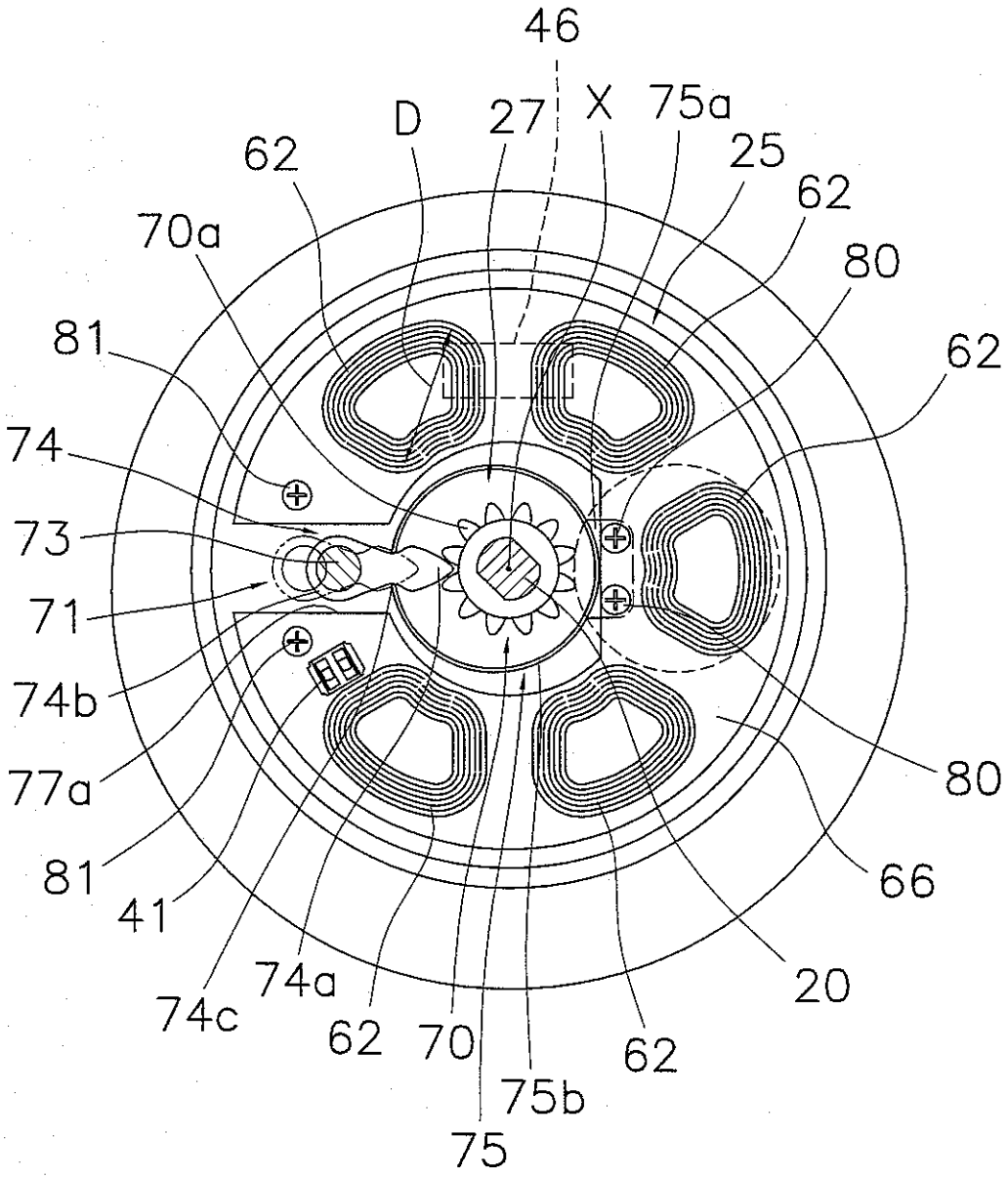
46
D
27
X
75a
25
62
62
70a
80
81
62
74
73
71
74b
77a
80
81
66
41
74a
74c
62
70
62
20
75b
75

Figure 5

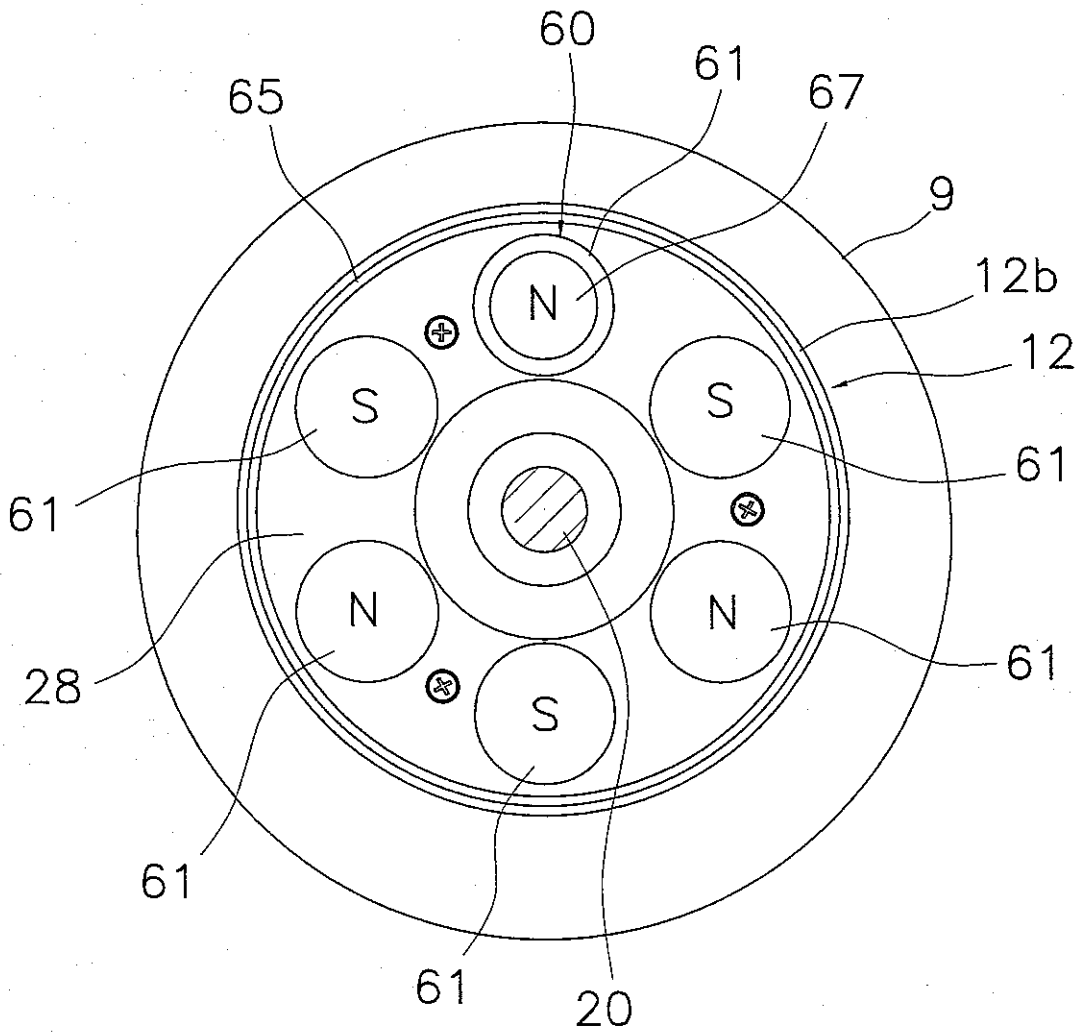

Figure 6

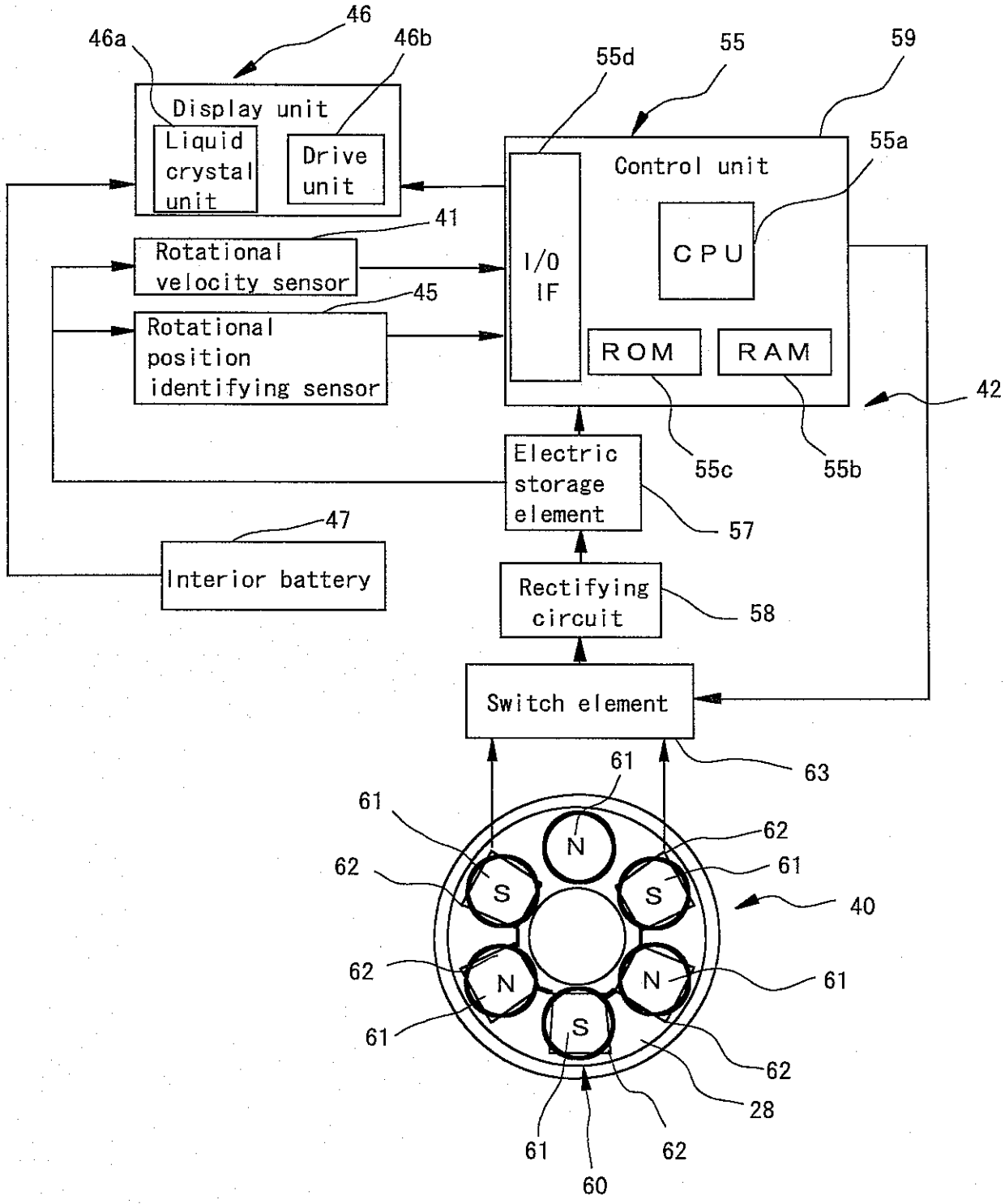
46
46a
46b
Display unit
Liquid crystal unit
Drive unit
55d
55
59
55a
Control unit
I/O IF
CPU
ROM
RAM
41
Rotational velocity sensor
45
Rotational position identifying sensor
42
55c
55b
Electric storage element
57
47
Interior battery
Rectifying circuit
58
Switch element
63
61
62
N
S
40
28
60

Figure 7

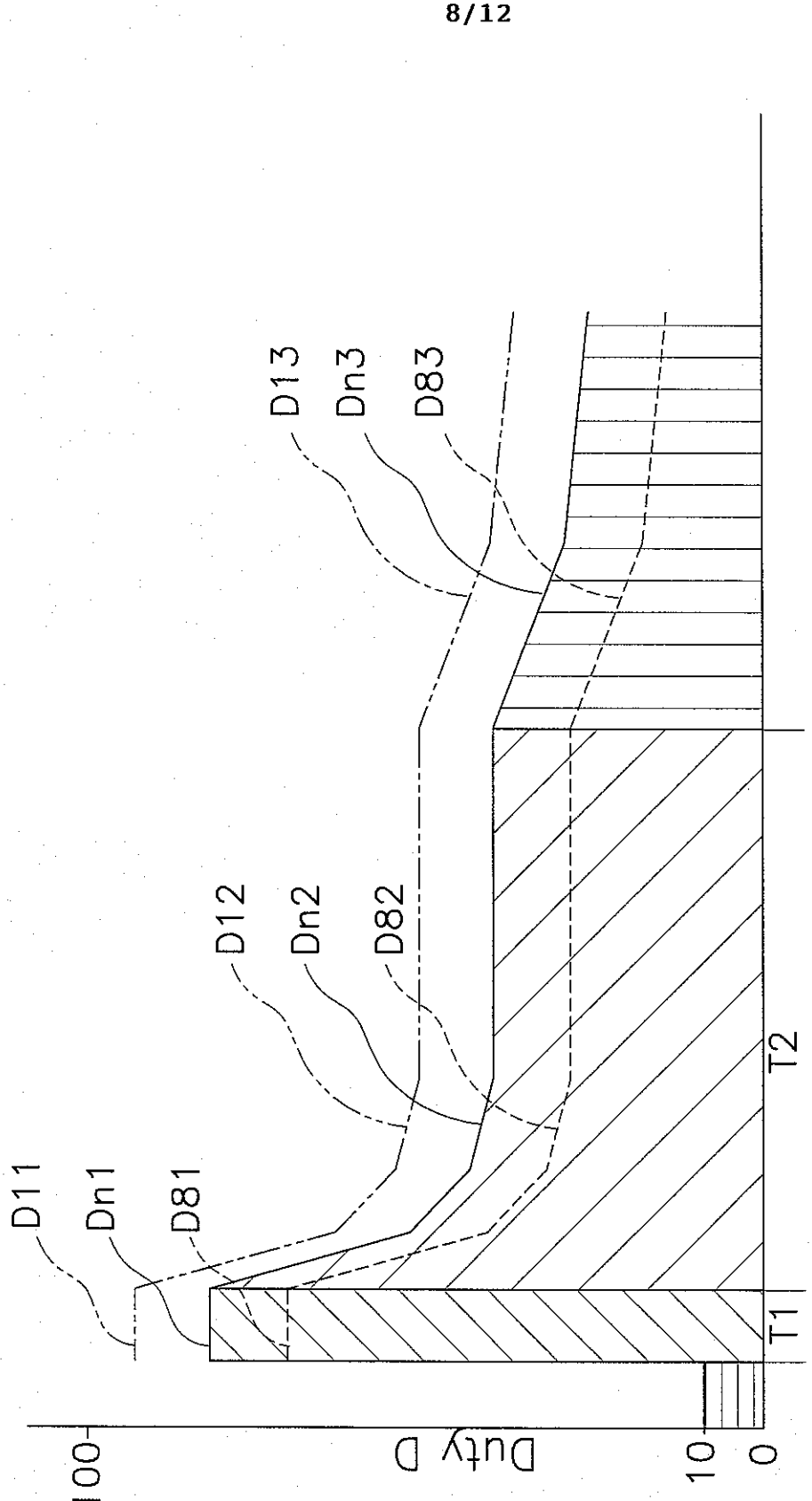

Figure 8

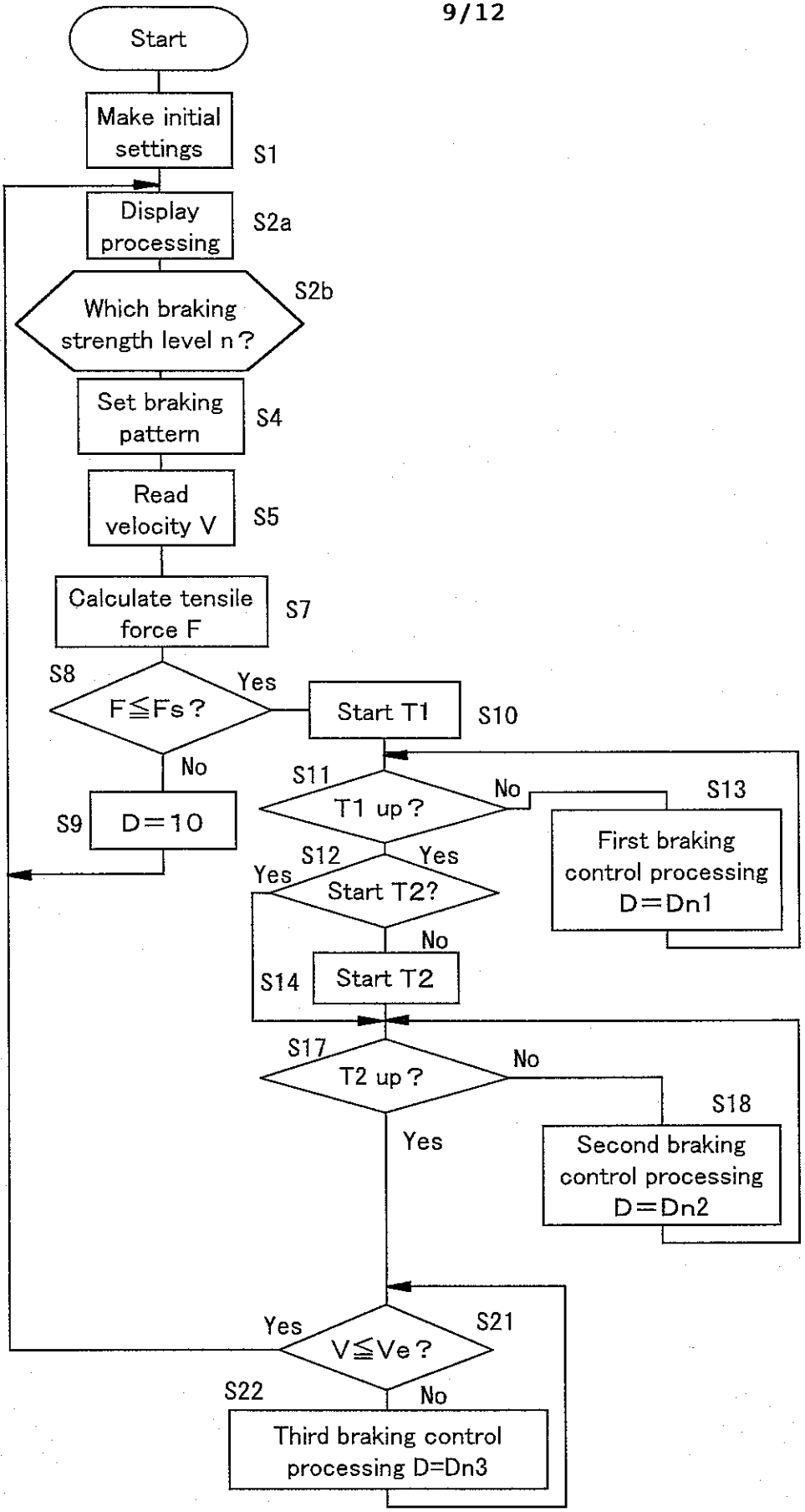
Start
Make initial settings
S1
Display processing
S2a
Which braking strength level n?
S2b
Set braking pattern
S4
Read velocity V
S5
Calculate tensile force F
S7
S8
F≦Fs?
Yes
No
S9
D=10
Start T1
S10
S11
T1 up?
No
S13
First braking control processing D=Dn1
S12
Start T2?
Yes
Yes
No
S14
Start T2
S17
T2 up?
No
S18
Second braking control processing D=Dn2
Yes
Yes
V≦Ve?
S21
S22
No
Third braking control processing D=Dn3

Figure 9

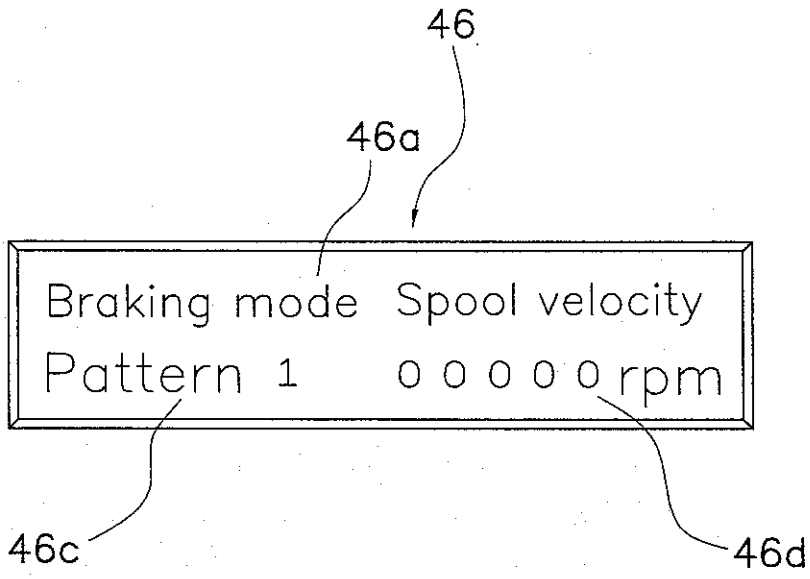
46
46a
Braking mode
Spool velocity
Pattern 1
0 0 0 0 0 rpm
46c
46d

Figure 10

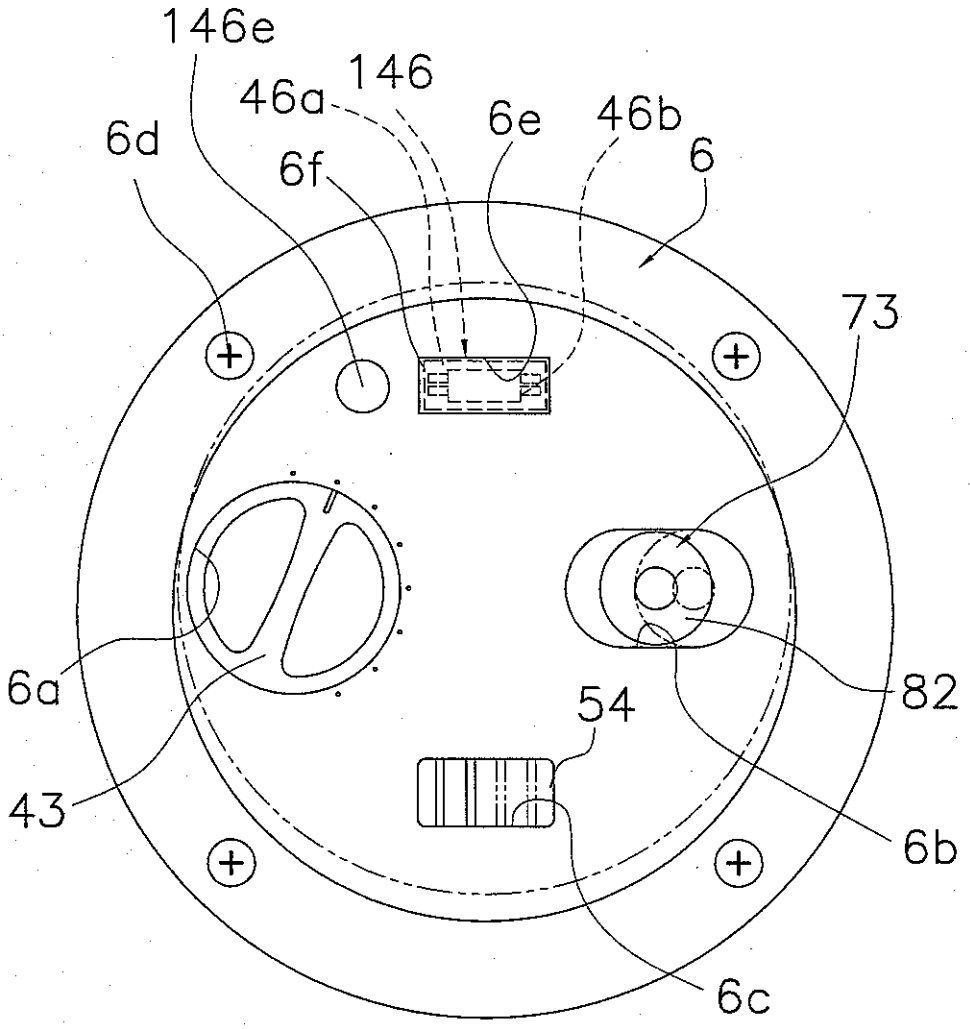

Figure 11

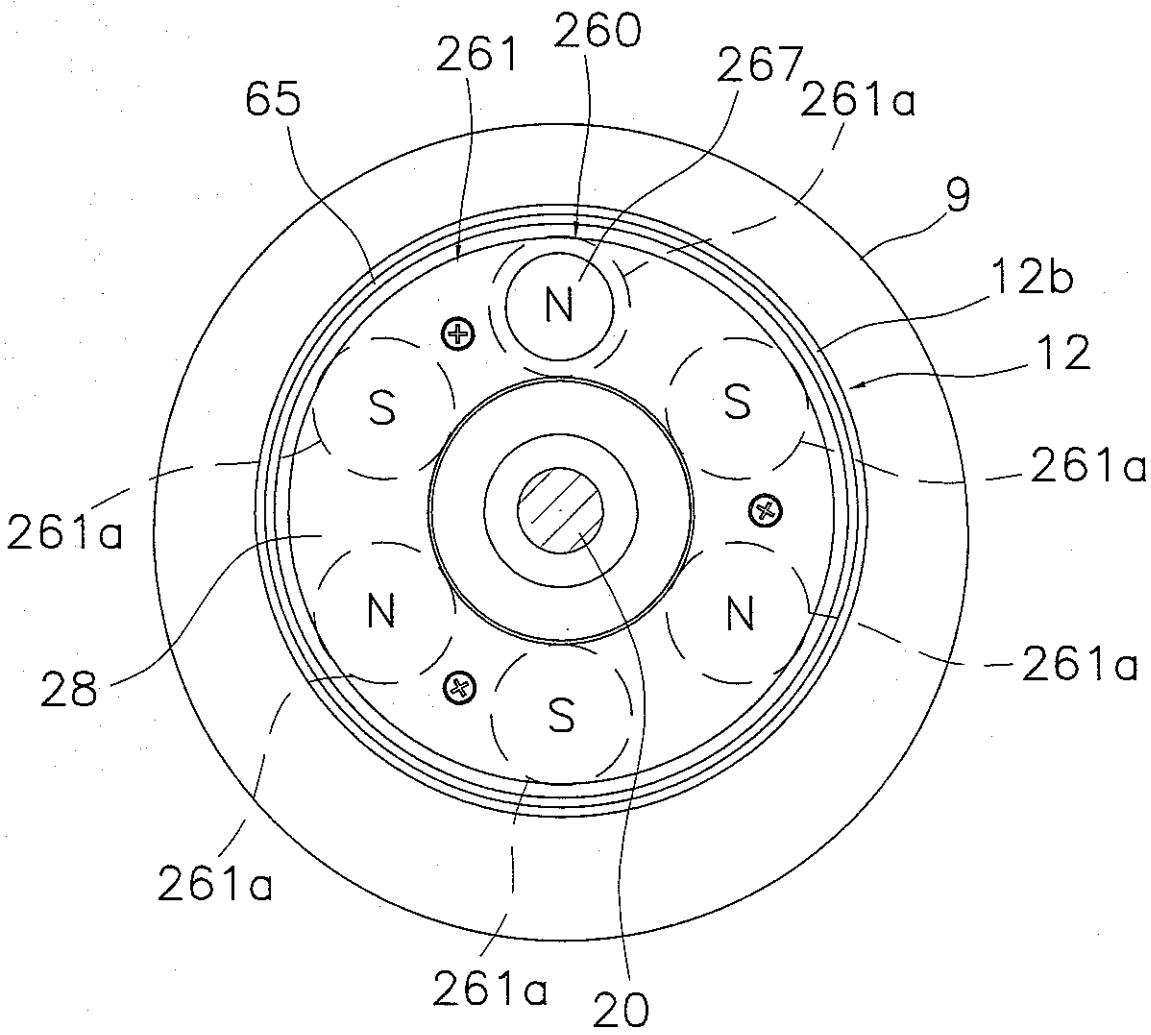
65
261
260
267
261a
9
12b
12
261a
261a
28
261a
261a
261a
20
N
S
S
N
N
S

Figure 12