FIG. 1

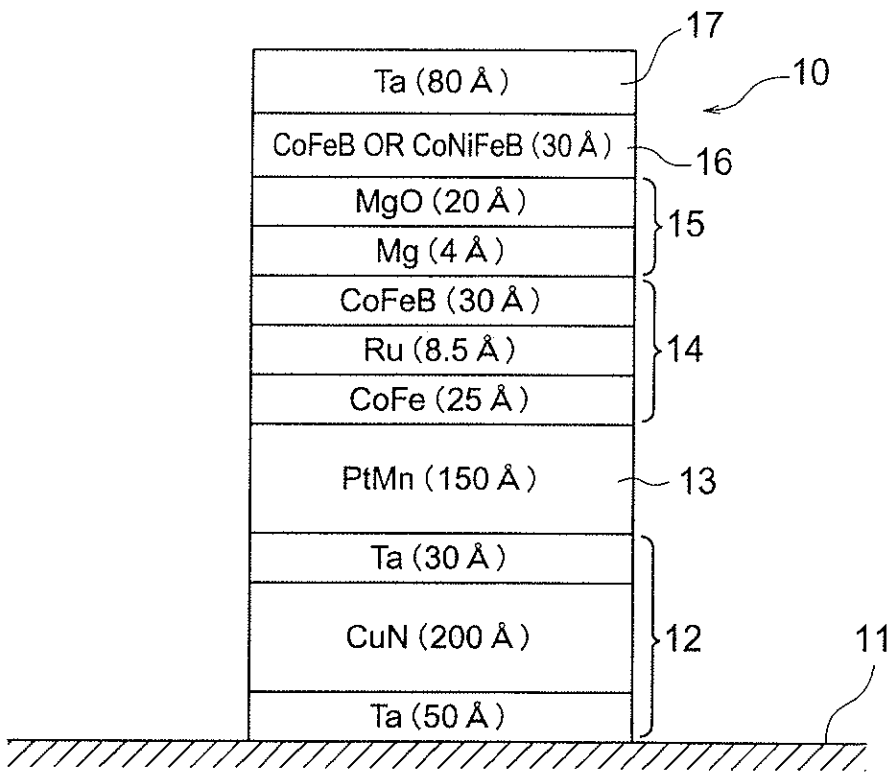

17
Ta (80 Å)
10
CoFeB OR CoNiFeB (30 Å)
16
MgO (20 Å)
15
Mg (4 Å)
CoFeB (30 Å)
14
Ru (8.5 Å)
CoFe (25 Å)
PtMn (150 Å)
13
Ta (30 Å)
CuN (200 Å)
12
11
Ta (50 Å)

FIG. 2

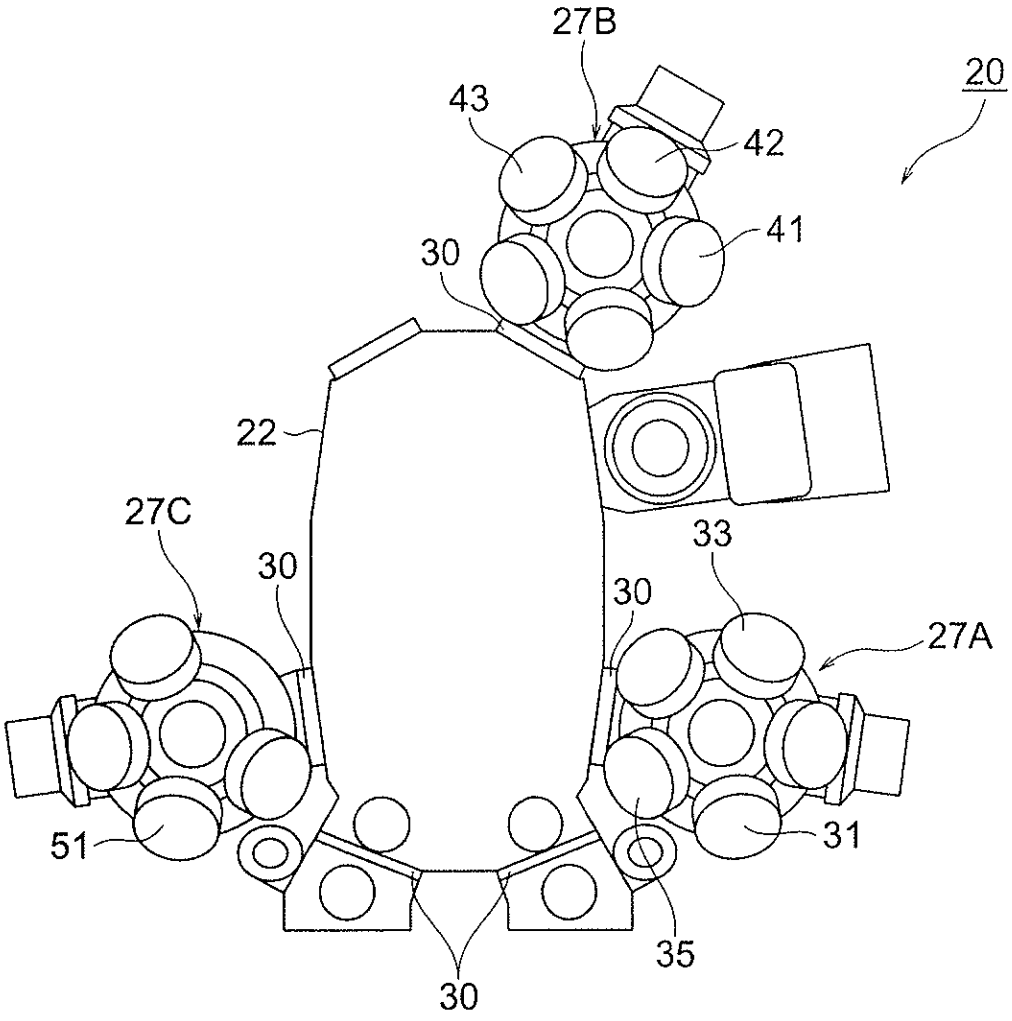


FIG. 3

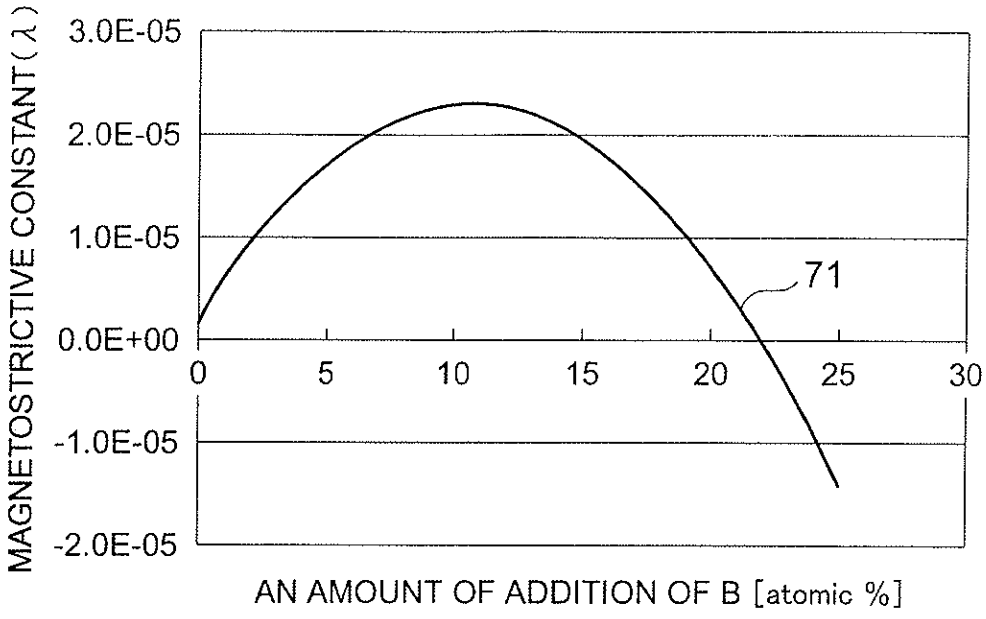

MAGNETOSTRICTIVE CONSTANT (λ)
3.0E-05
2.0E-05
1.0E-05
0.0E+00
-1.0E-05
-2.0E-05
0
5
10
15
20
25
30
71
AN AMOUNT OF ADDITION OF B [atomic %]

FIG. 4

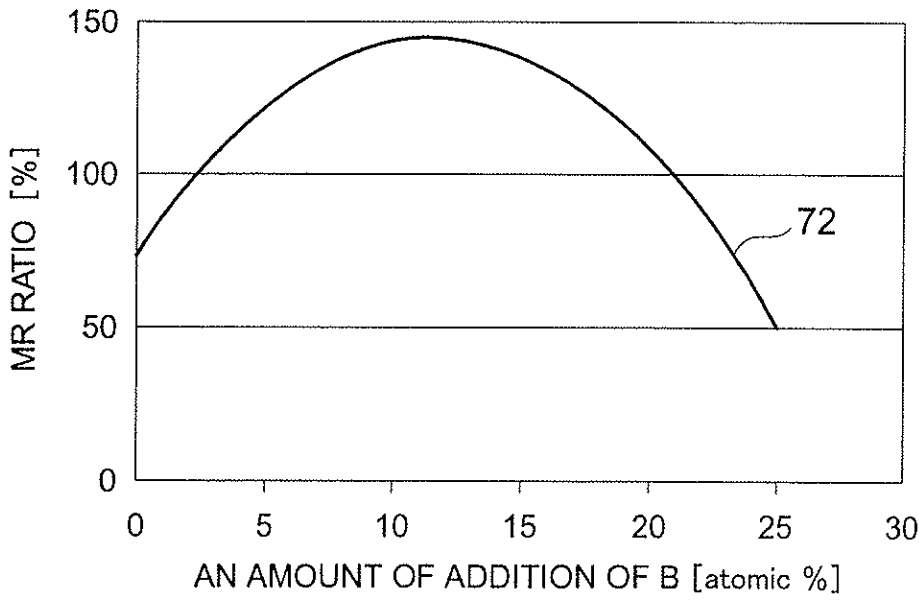

MR RATIO [%]
150
100
50
0
0
5
10
15
20
25
30
72
AN AMOUNT OF ADDITION OF B [atomic %]

FIG. 5

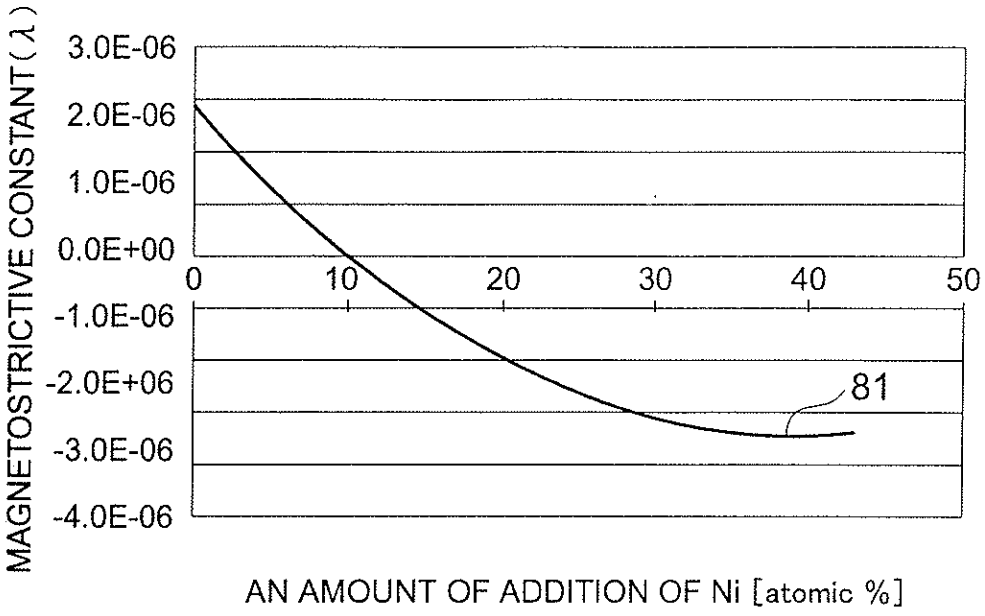

MAGNETOSTRICTIVE CONSTANT (λ)
3.0E-06
2.0E-06
1.0E-06
0.0E+00
-1.0E-06
-2.0E+06
-3.0E-06
-4.0E-06
0
10
20
30
40
50
81
AN AMOUNT OF ADDITION OF Ni [atomic %]

FIG. 6

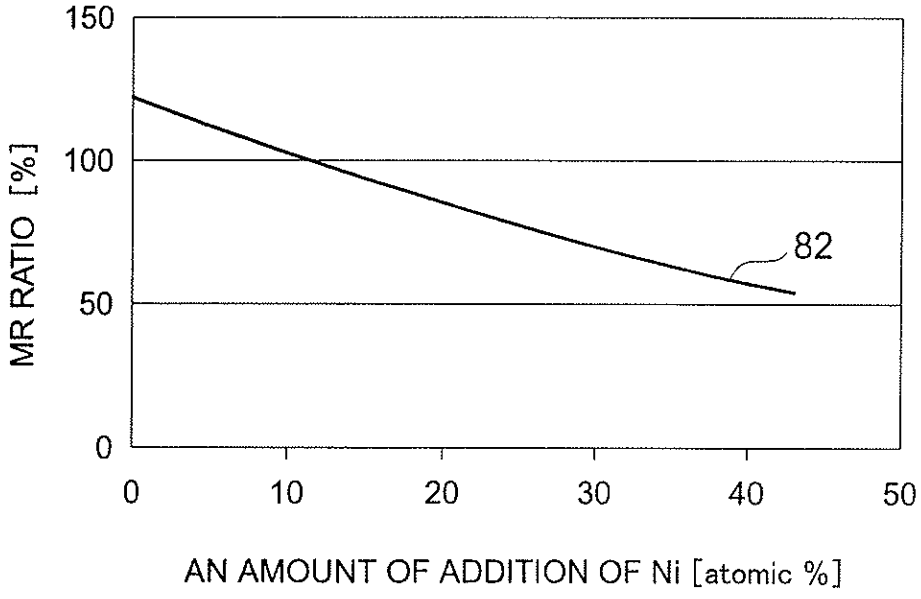

MR RATIO [%]
150
100
50
0
0
10
20
30
40
50
82
AN AMOUNT OF ADDITION OF Ni [atomic %]

FIG. 7

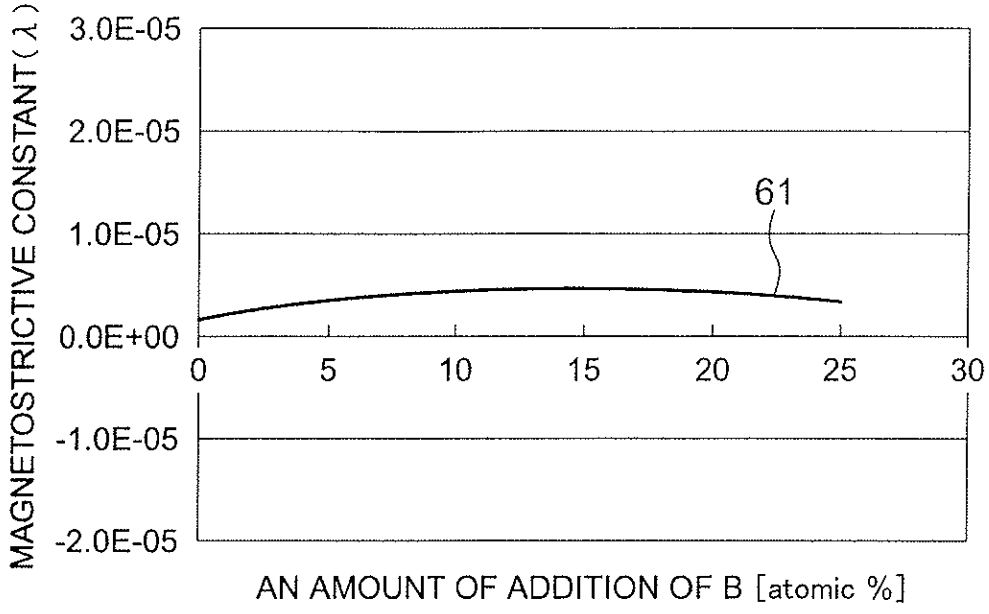
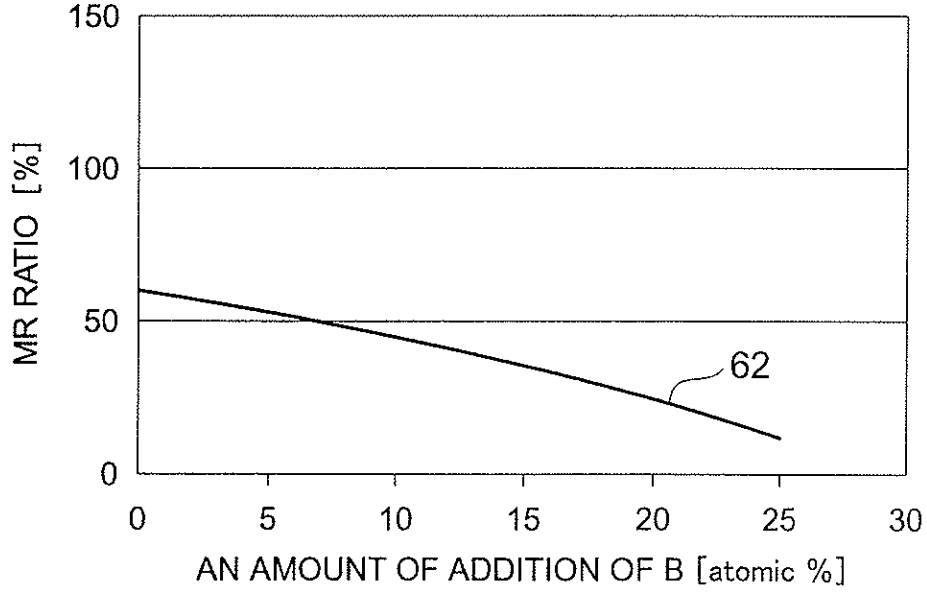

MAGNETOSTRICTIVE CONSTANT(λ)
3.0E-05
2.0E-05
1.0E-05
0.0E+00
-1.0E-05
-2.0E-05
61
0
5
10
15
20
25
30
AN AMOUNT OF ADDITION OF B [atomic %]

FIG. 8


MR RATIO [%]
150
100
50
0
62
0
5
10
15
20
25
30
AN AMOUNT OF ADDITION OF B [atomic %]