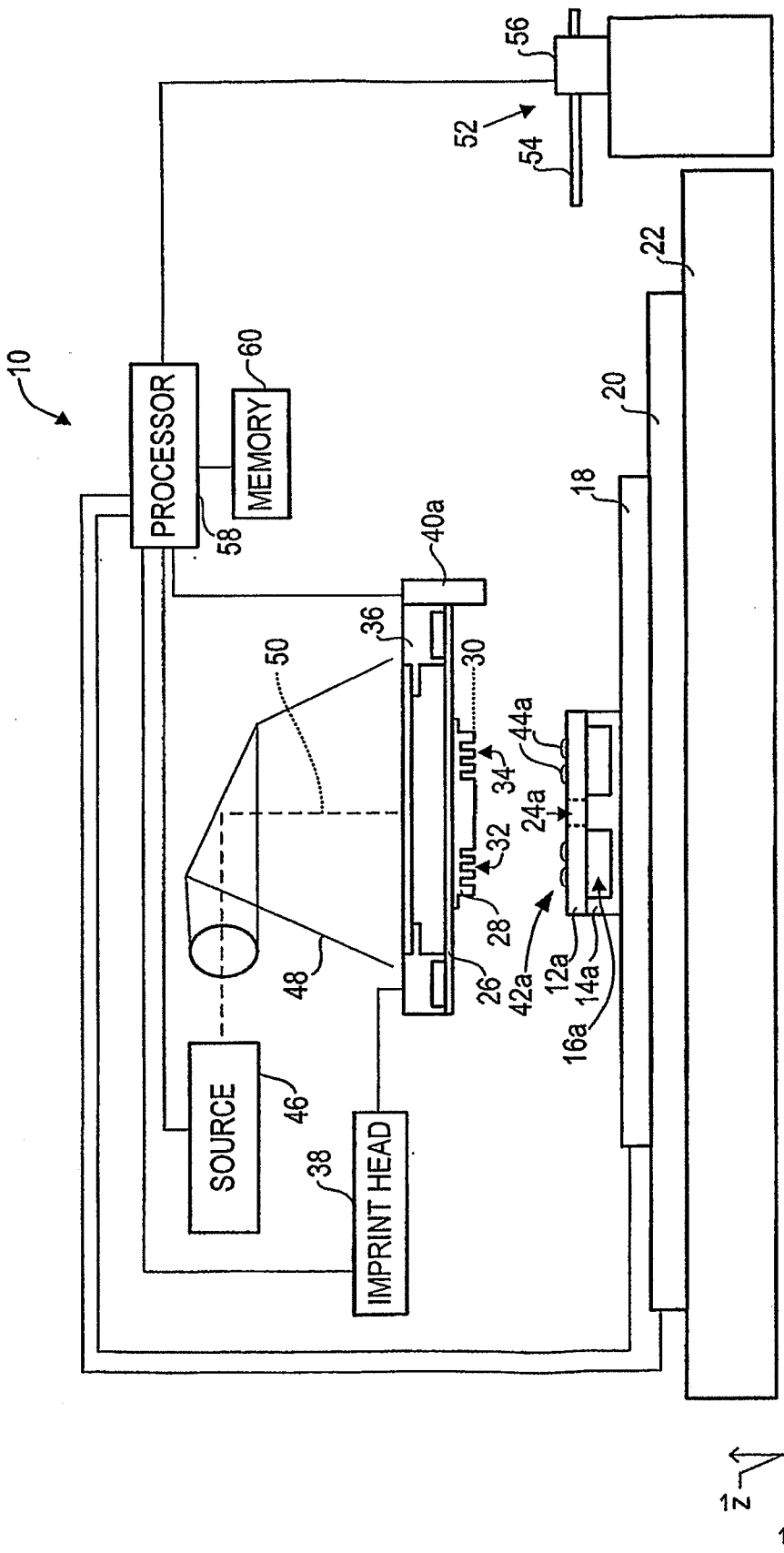

10
PROCESSOR
MEMORY
60
58
56
52
54
22
20
18
40a
36
30
50
44a
34
24a
32
28
26
42a
12a
14a
16a
48
SOURCE
46
38
IMPRINT HEAD
z
x
y

FIG. 1

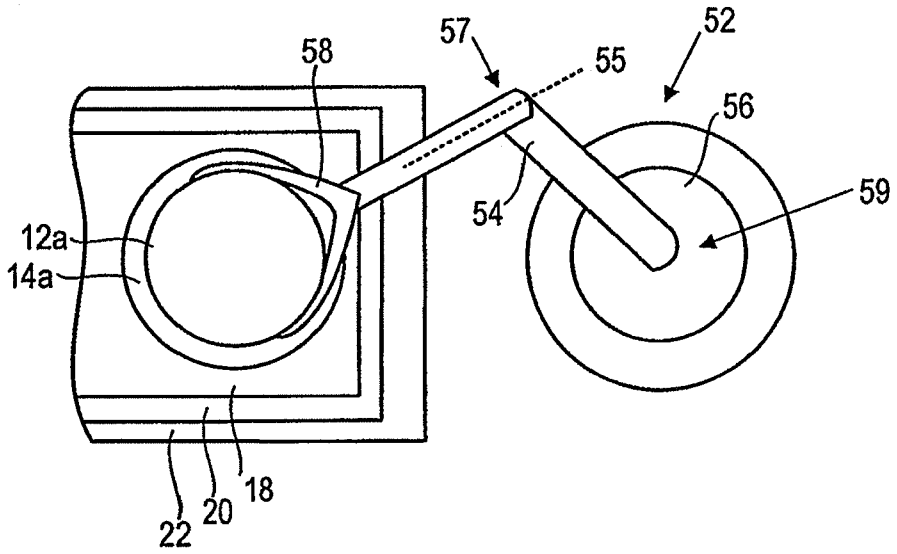

58
57
55
52
56
59
54
12a
14a
18
20
22

FIG. 2

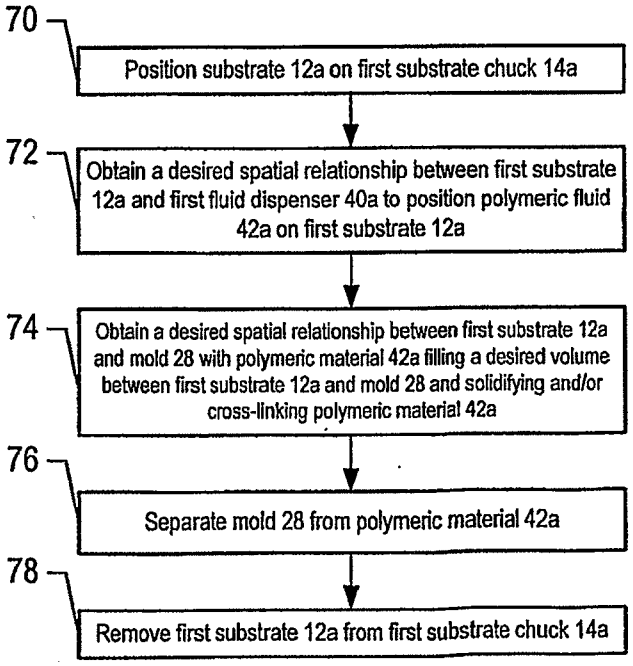

70
Position substrate 12a on first substrate chuck 14a
72
Obtain a desired spatial relationship between first substrate 12a and first fluid dispenser 40a to position polymeric fluid 42a on first substrate 12a
74
Obtain a desired spatial relationship between first substrate 12a and mold 28 with polymeric material 42a filling a desired volume between first substrate 12a and mold 28 and solidifying and/or cross-linking polymeric material 42a
76
Separate mold 28 from polymeric material 42a
78
Remove first substrate 12a from first substrate chuck 14a

FIG. 3

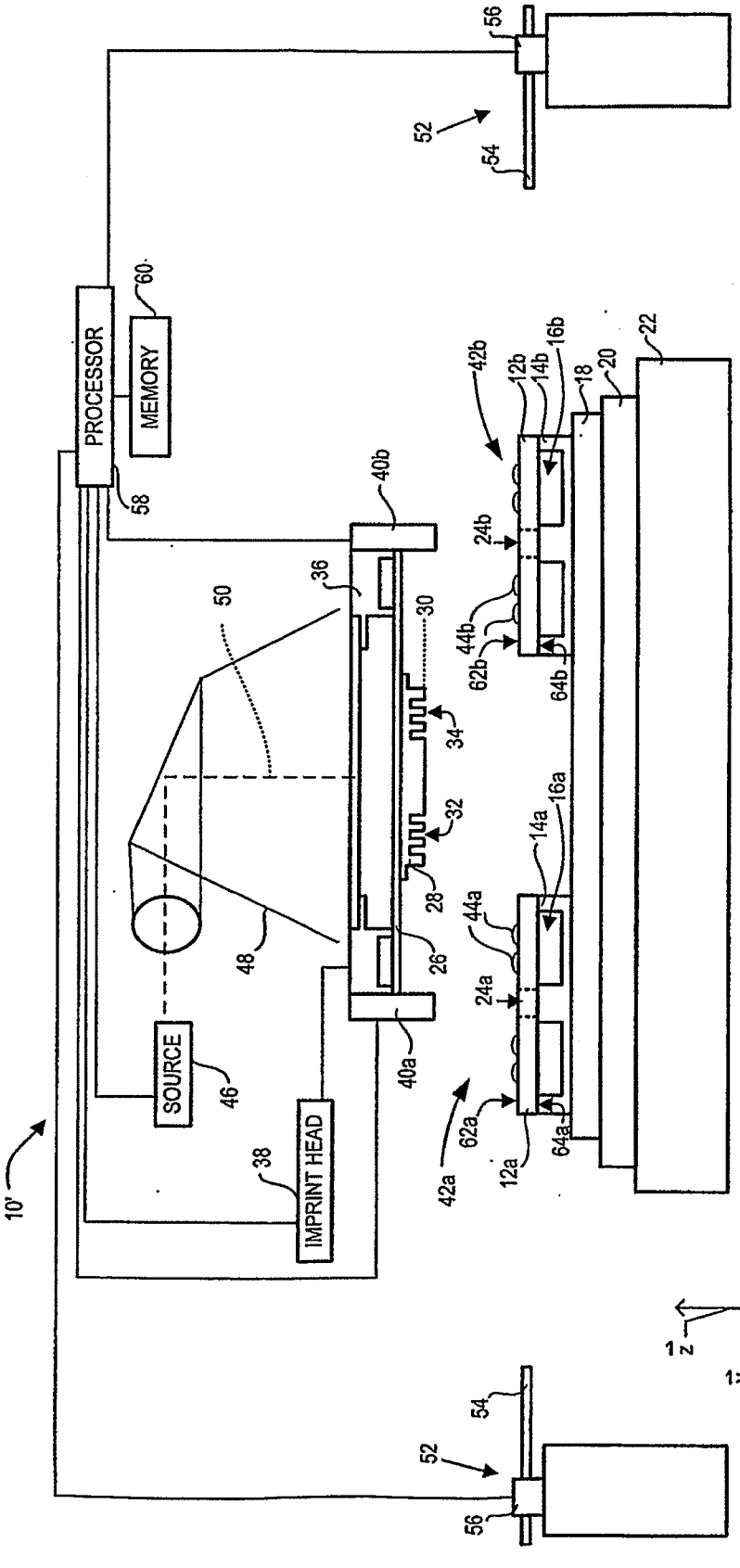

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
30
34
32
28
26
42b
42a
12b
14b
16b
18
20
22
24b
44b
62b
64b
12a
14a
16a
24a
44a
62a
64a
52
54
56
z
x
y

FIG. 4

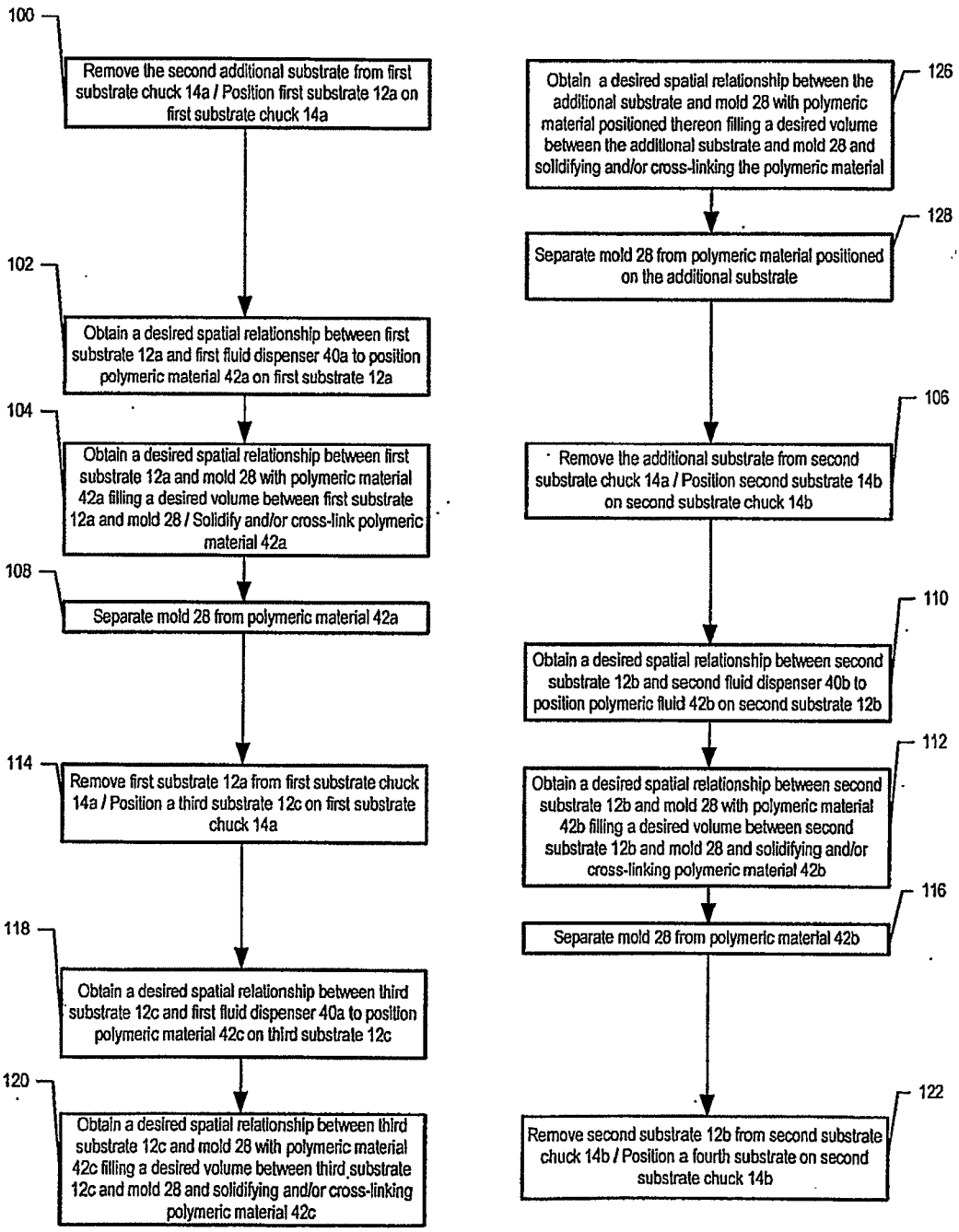

100
Remove the second additional substrate from first substrate chuck 14a / Position first substrate 12a on first substrate chuck 14a
102
Obtain a desired spatial relationship between first substrate 12a and first fluid dispenser 40a to position polymeric material 42a on first substrate 12a
104
Obtain a desired spatial relationship between first substrate 12a and mold 28 with polymeric material 42a filling a desired volume between first substrate 12a and mold 28 / Solidify and/or cross-link polymeric material 42a
108
Separate mold 28 from polymeric material 42a
114
Remove first substrate 12a from first substrate chuck 14a / Position a third substrate 12c on first substrate chuck 14a
118
Obtain a desired spatial relationship between third substrate 12c and first fluid dispenser 40a to position polymeric material 42c on third substrate 12c
120
Obtain a desired spatial relationship between third substrate 12c and mold 28 with polymeric material 42c filling a desired volume between third substrate 12c and mold 28 and solidifying and/or cross-linking polymeric material 42c
126
Obtain a desired spatial relationship between the additional substrate and mold 28 with polymeric material positioned thereon filling a desired volume between the additional substrate and mold 28 and solidifying and/or cross-linking the polymeric material
128
Separate mold 28 from polymeric material positioned on the additional substrate
106
Remove the additional substrate from second substrate chuck 14a / Position second substrate 14b on second substrate chuck 14b
110
Obtain a desired spatial relationship between second substrate 12b and second fluid dispenser 40b to position polymeric fluid 42b on second substrate 12b
112
Obtain a desired spatial relationship between second substrate 12b and mold 28 with polymeric material 42b filling a desired volume between second substrate 12b and mold 28 and solidifying and/or cross-linking polymeric material 42b
116
Separate mold 28 from polymeric material 42b
122
Remove second substrate 12b from second substrate chuck 14b / Position a fourth substrate on second substrate chuck 14b

FIG. 5

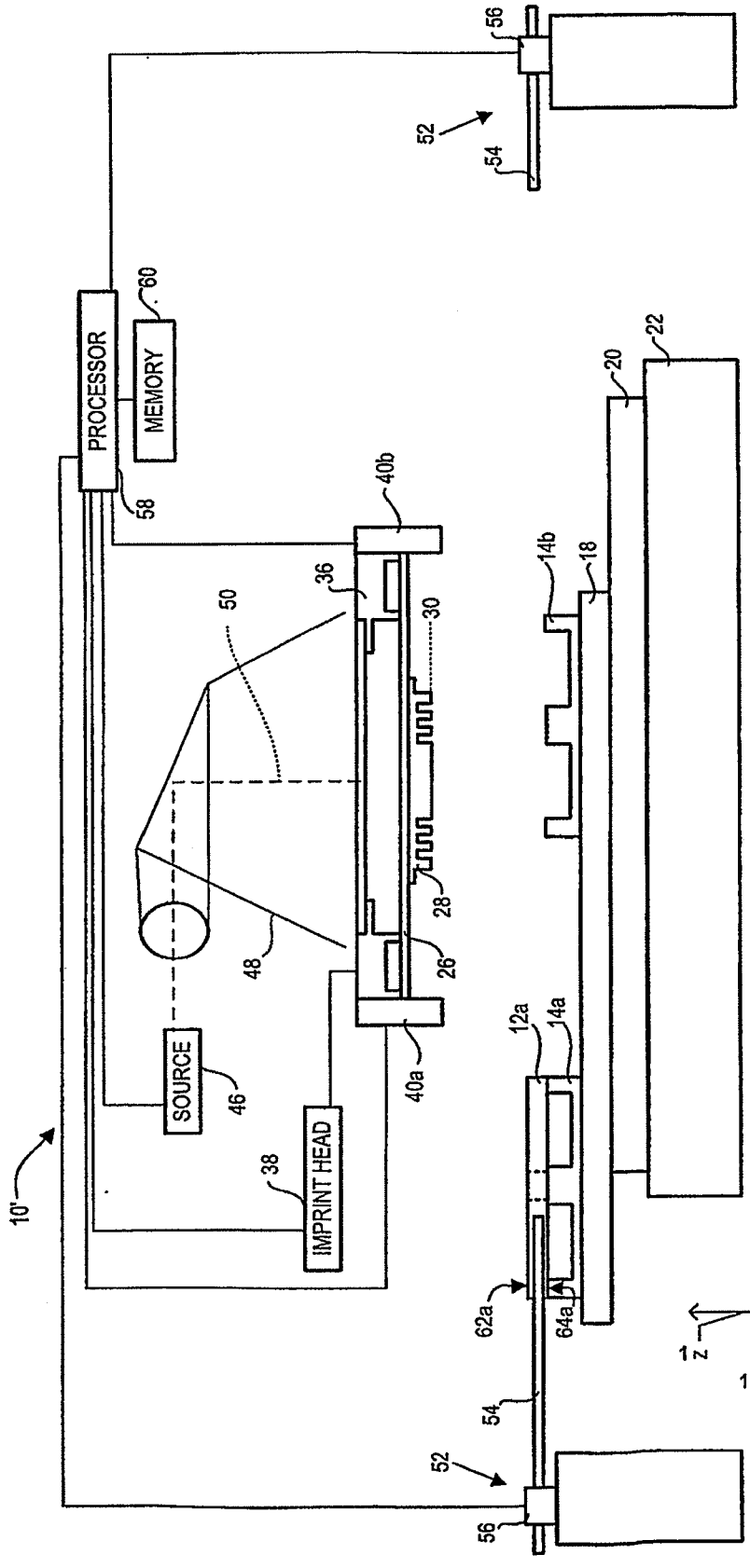

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
30
28
26
12a
14a
14b
18
20
22
52
54
56
62a
64a
z
x
y

FIG. 6

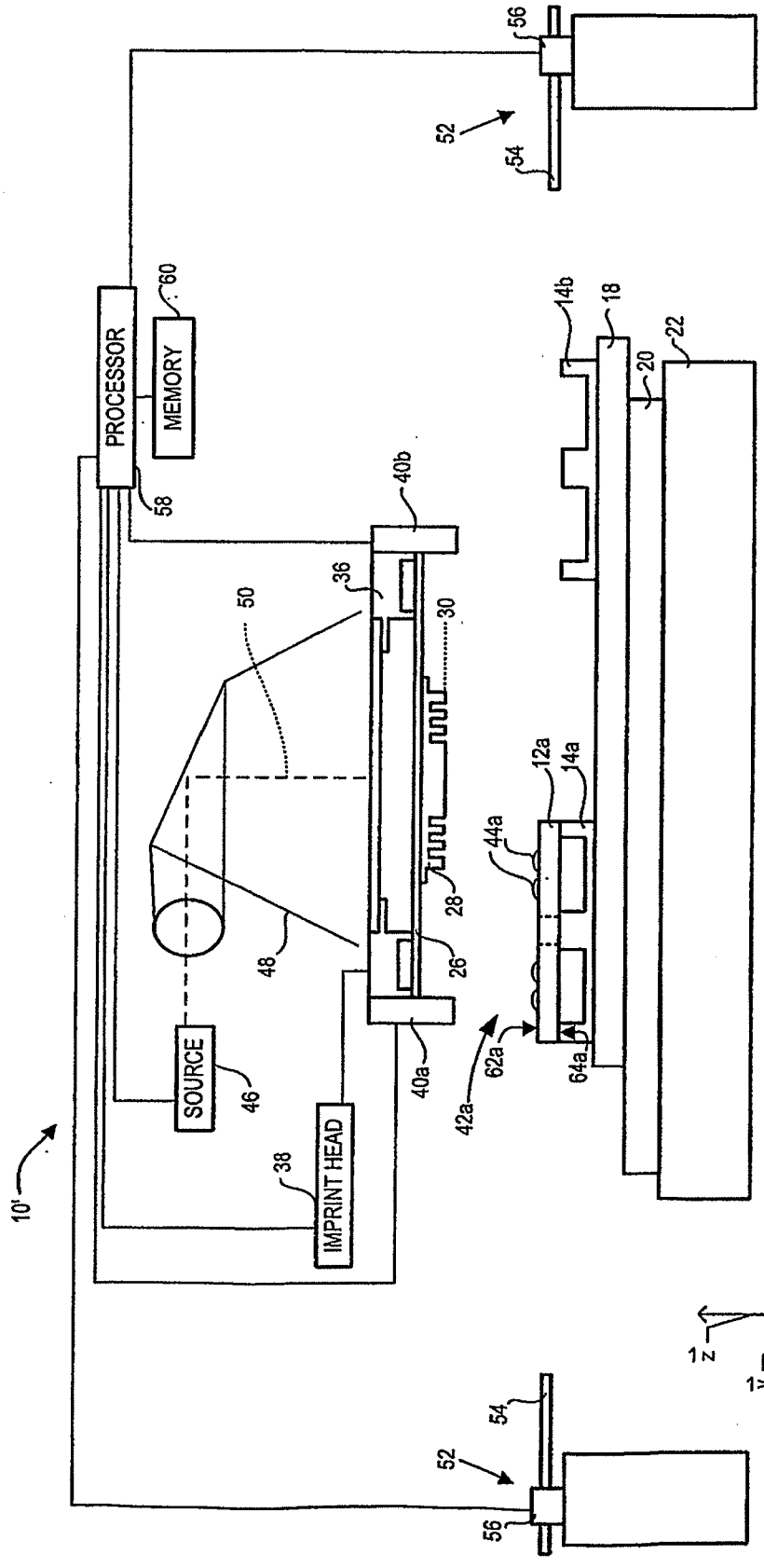

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
30
28
26
42a
62a
64a
44a
12a
14a
14b
18
20
22
52
54
56
z
x
y

FIG. 7

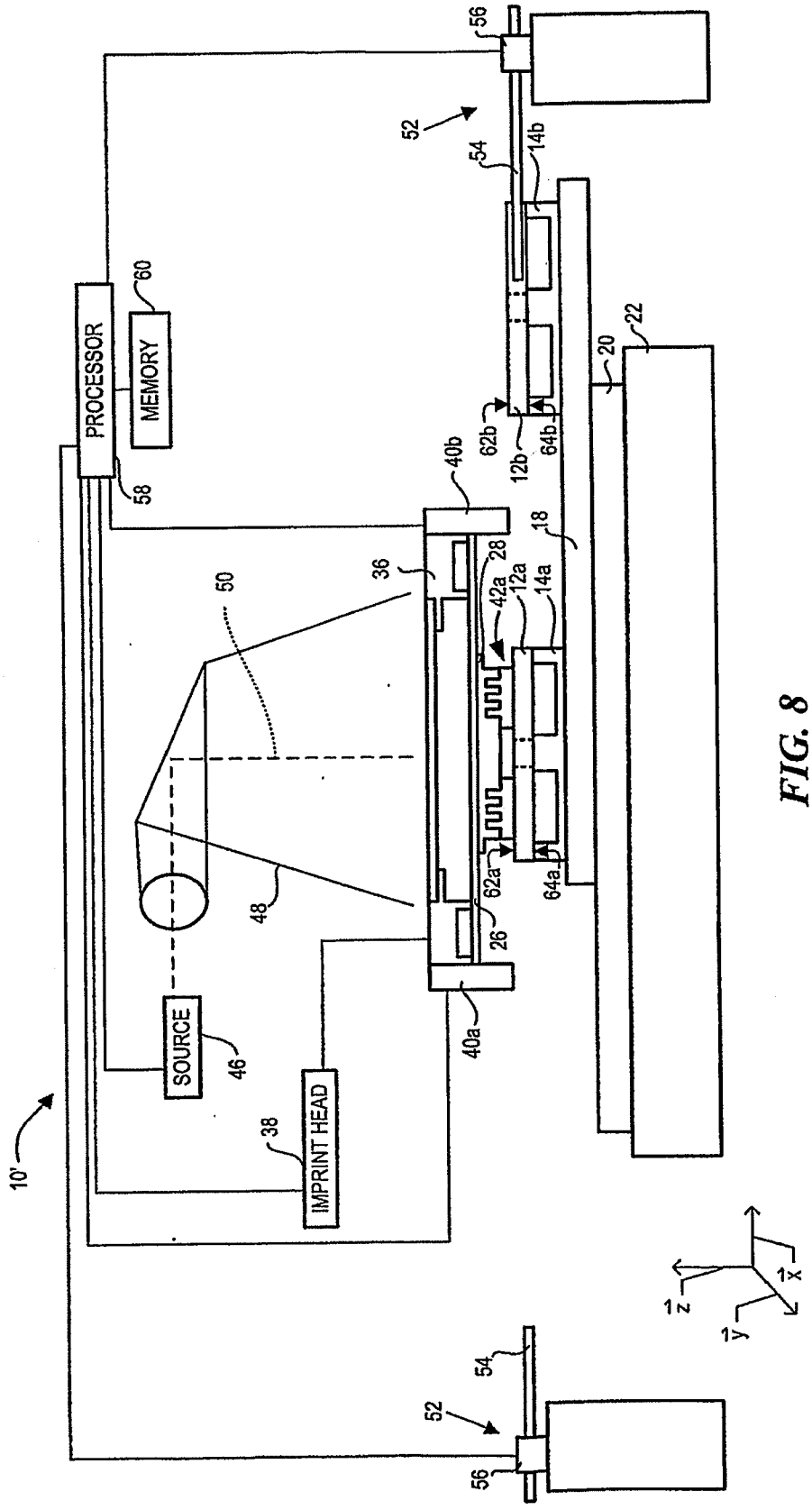

10'
PROCESSOR
MEMORY
58
60
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
18
20
22
52
54
56
14b
12b
62b
64b
28
42a
12a
14a
62a
64a
26
z
x
y

FIG. 8

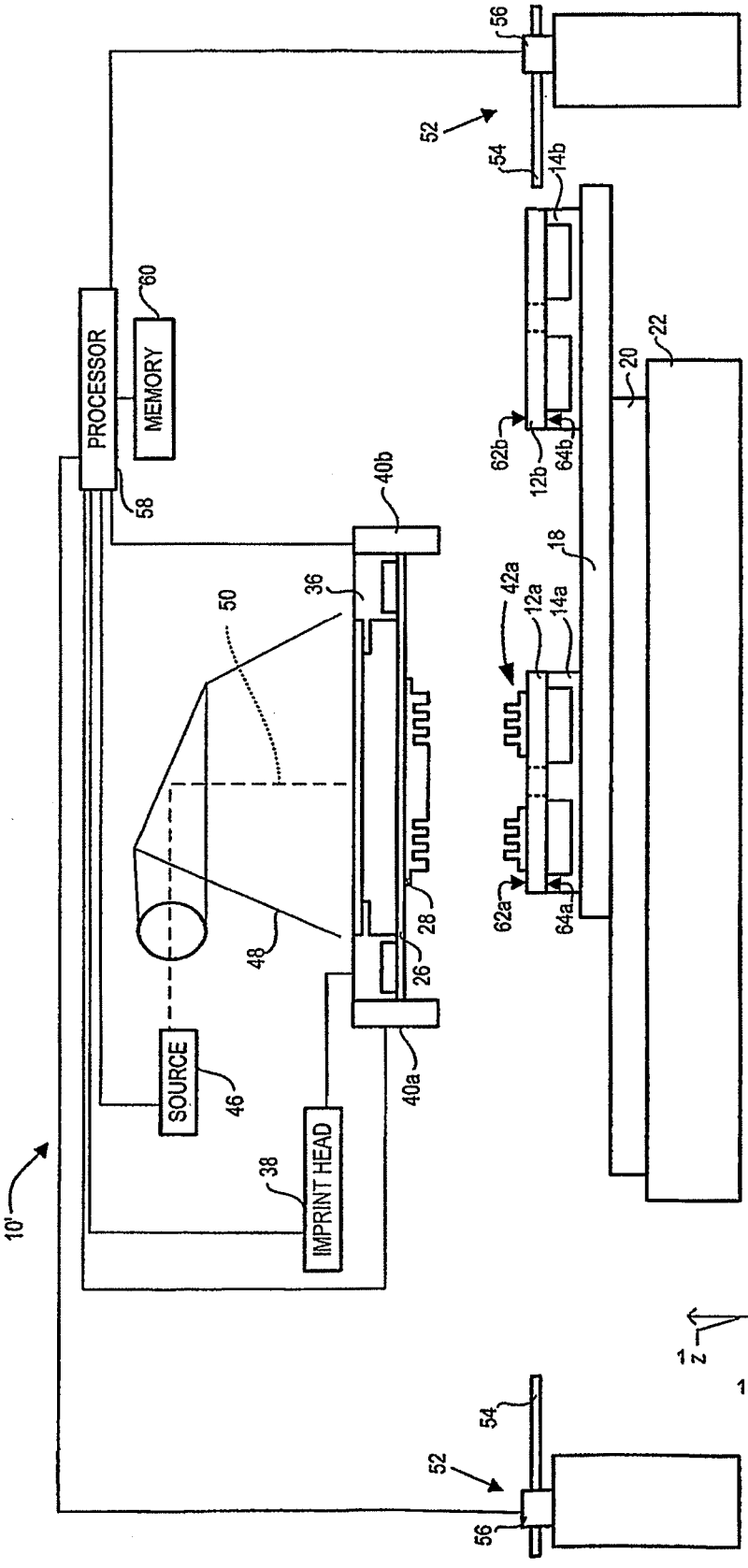

10'
PROCESSOR
MEMORY
58
60
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
52
54
56
14b
12b
64b
62b
20
22
18
42a
12a
14a
62a
64a
z
x
y

FIG. 9

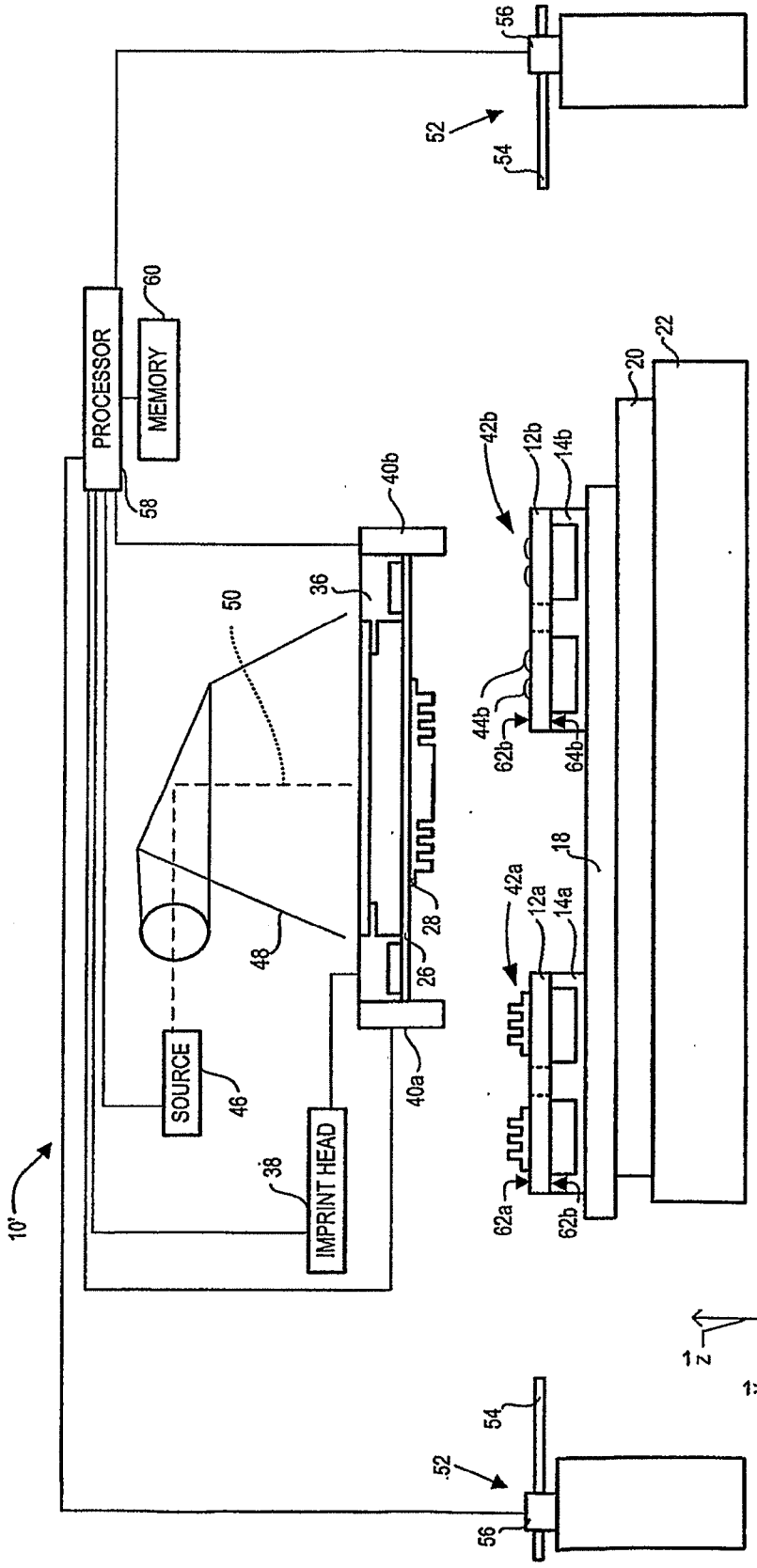

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
52
54
56
42b
12b
14b
44b
62b
64b
42a
12a
14a
62a
18
20
22
z
x
y

FIG. 10

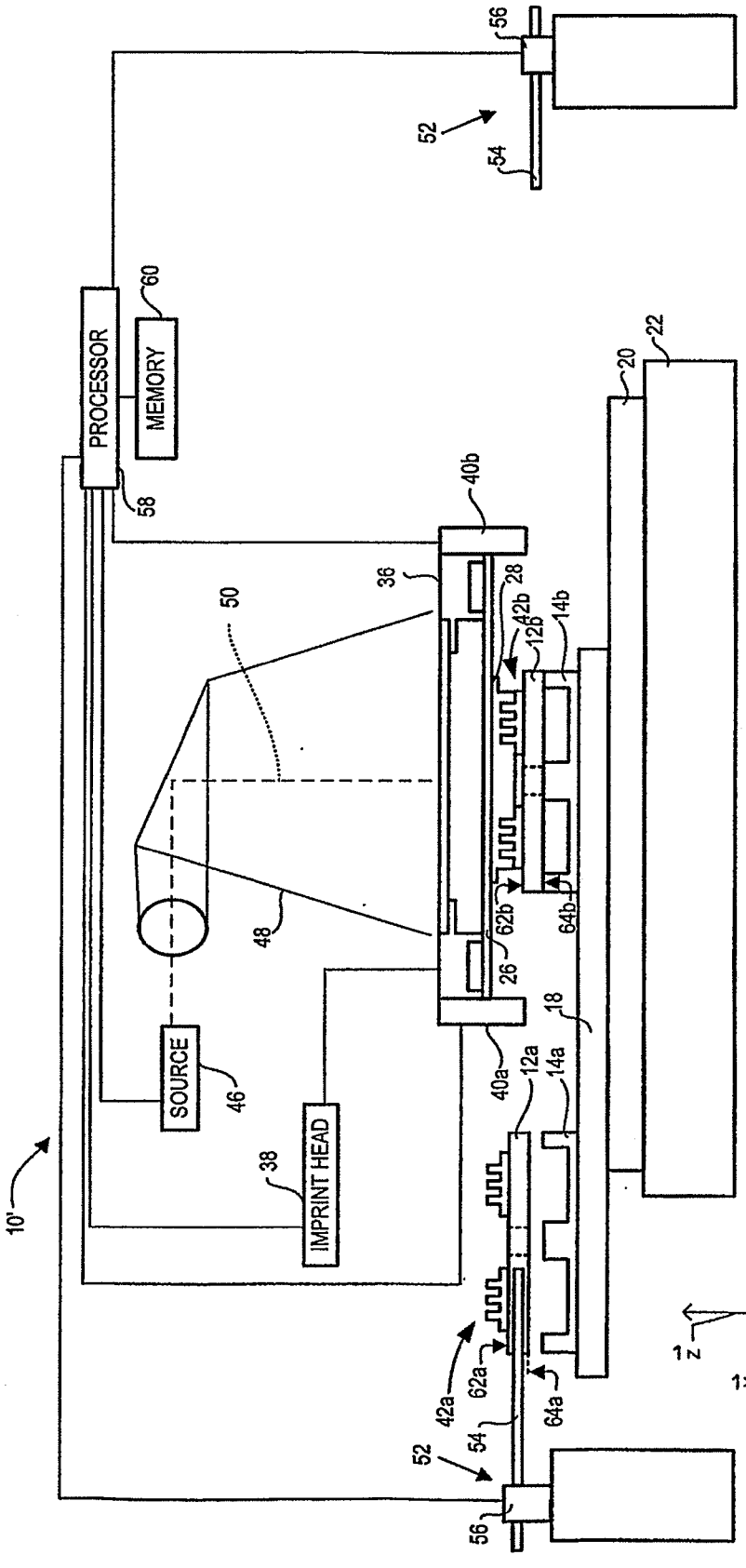

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
42b
12b
14b
62b
64b
26
18
12a
14a
62a
64a
42a
52
54
56
20
22
z
x
y

FIG. 11

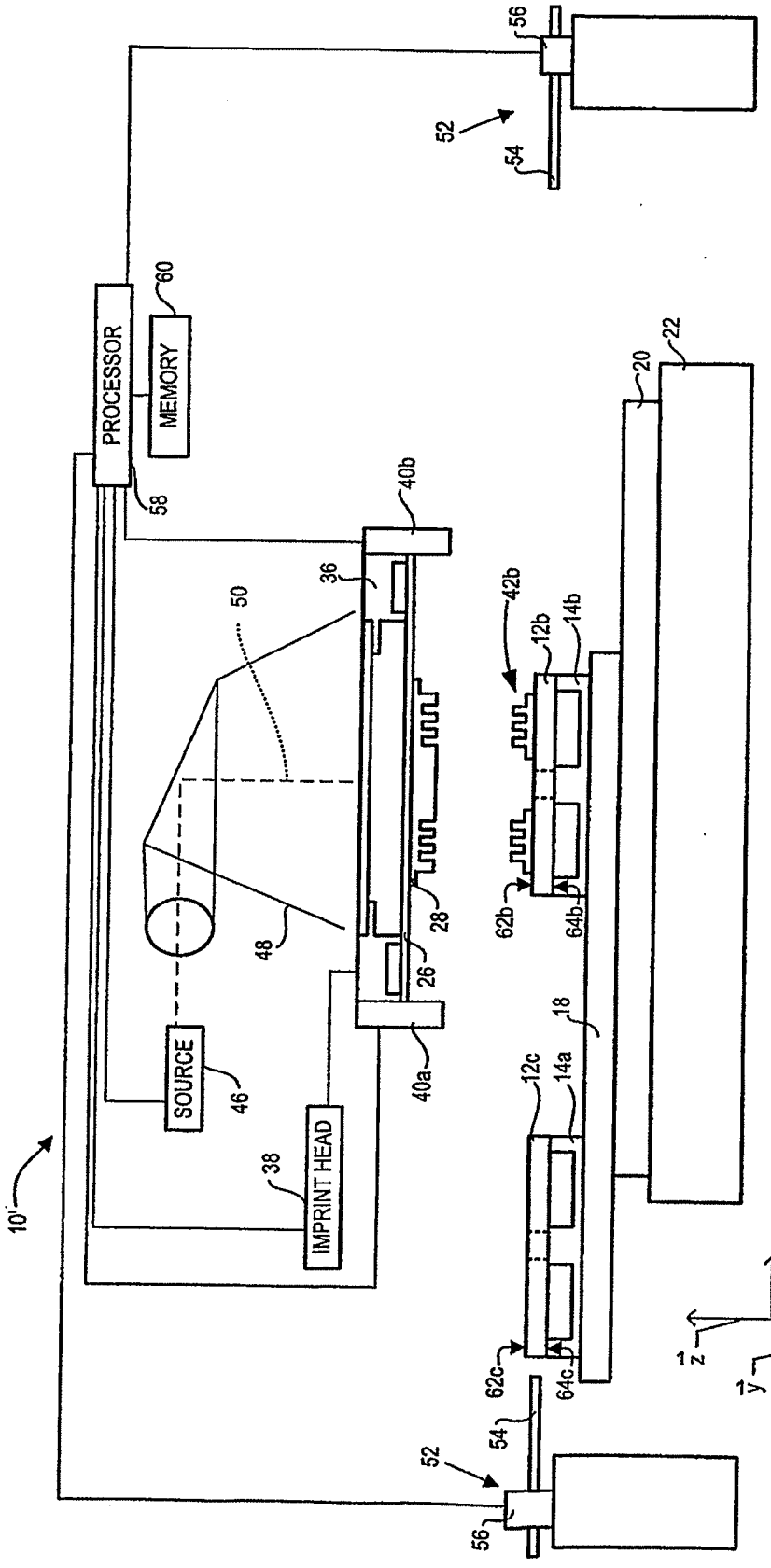

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
26
42b
12b
14b
62b
64b
12c
14a
62c
64c
18
20
22
52
54
56
z
x
y

FIG. 12

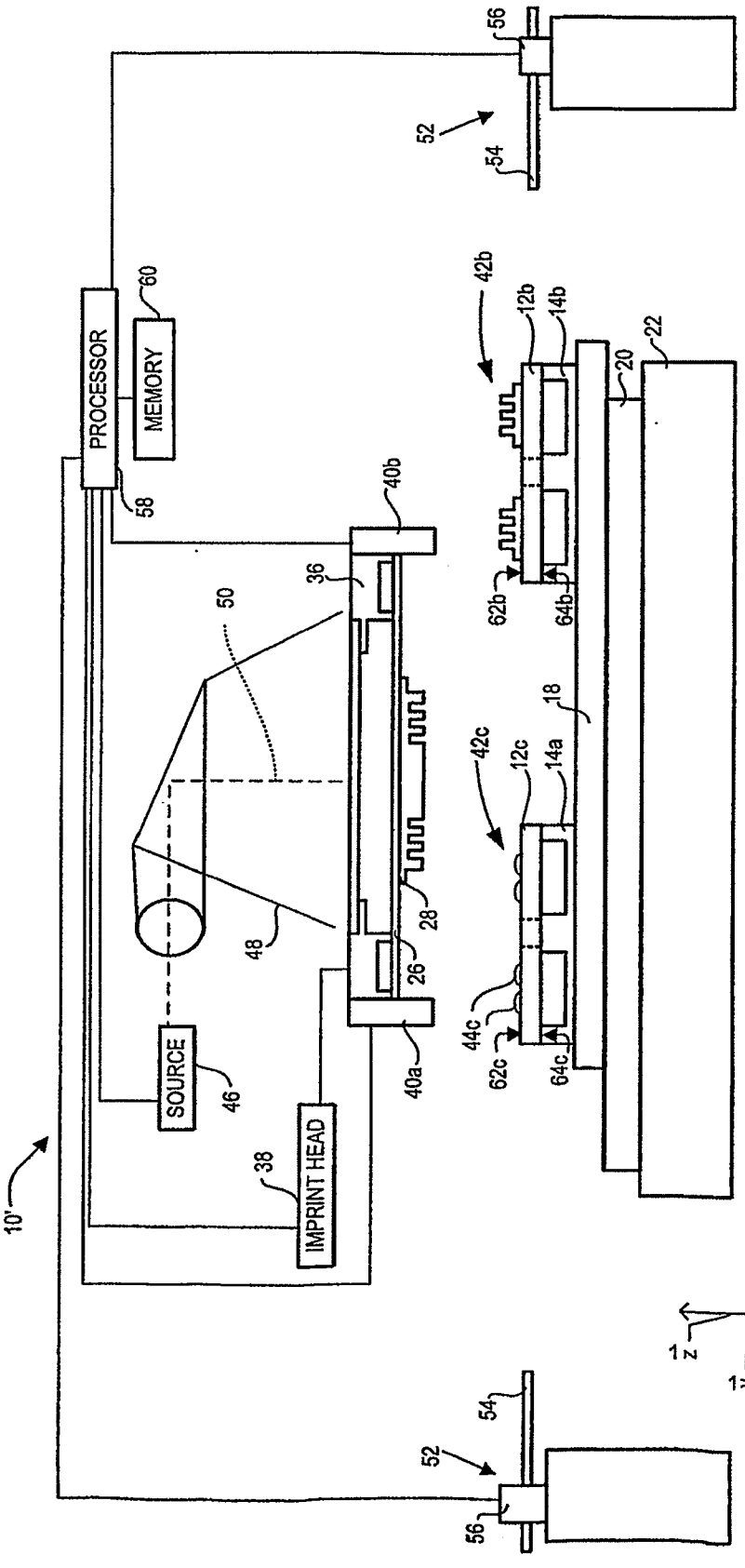

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
40a
40b
36
50
48
28
26
42b
12b
14b
22
20
62b
64b
18
42c
12c
14a
44c
62c
64c
52
54
56
z
x
y

FIG. 13

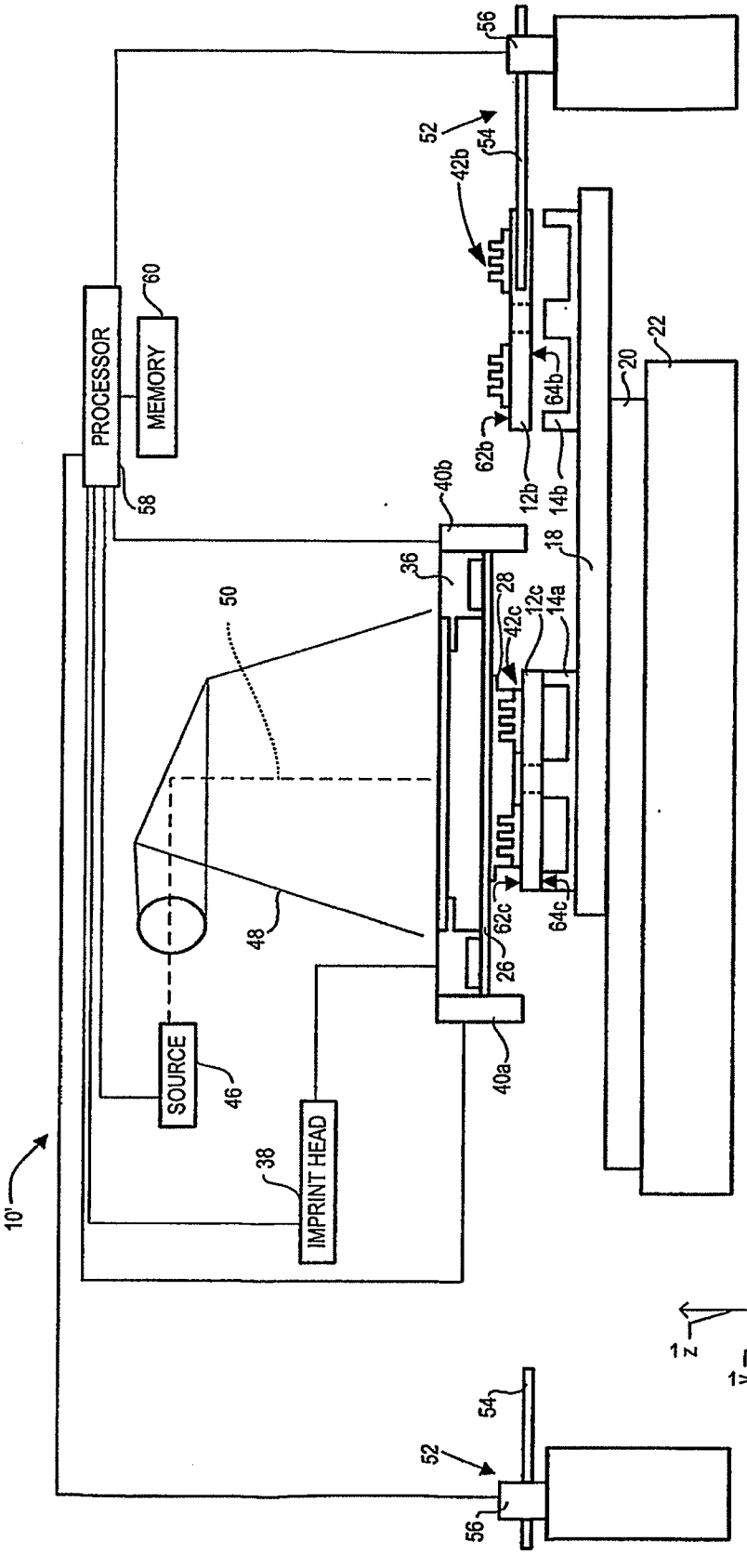

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
18
20
22
52
54
56
42b
42c
62b
62c
64b
64c
12b
12c
14b
14a
z
y
x

FIG. 14

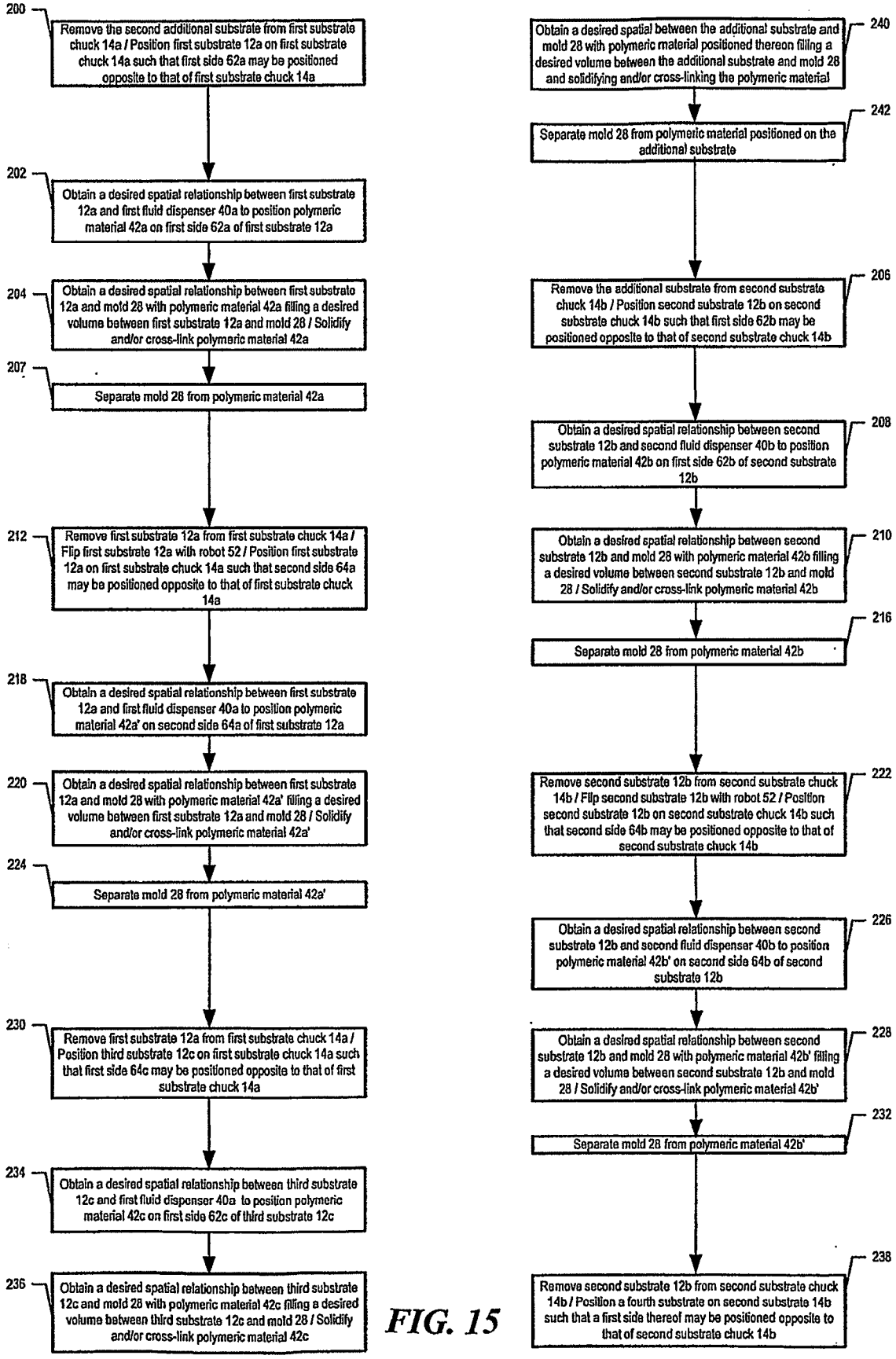

200
Remove the second additional substrate from first substrate chuck 14a / Position first substrate 12a on first substrate chuck 14a such that first side 62a may be positioned opposite to that of first substrate chuck 14a
202
Obtain a desired spatial relationship between first substrate 12a and first fluid dispenser 40a to position polymeric material 42a on first side 62a of first substrate 12a
204
Obtain a desired spatial relationship between first substrate 12a and mold 28 with polymeric material 42a filling a desired volume between first substrate 12a and mold 28 / Solidify and/or cross-link polymeric material 42a
207
Separate mold 28 from polymeric material 42a
212
Remove first substrate 12a from first substrate chuck 14a / Flip first substrate 12a with robot 52 / Position first substrate 12a on first substrate chuck 14a such that second side 64a may be positioned opposite to that of first substrate chuck 14a
218
Obtain a desired spatial relationship between first substrate 12a and first fluid dispenser 40a to position polymeric material 42a' on second side 64a of first substrate 12a
220
Obtain a desired spatial relationship between first substrate 12a and mold 28 with polymeric material 42a' filling a desired volume between first substrate 12a and mold 28 / Solidify and/or cross-link polymeric material 42a'
224
Separate mold 28 from polymeric material 42a'
230
Remove first substrate 12a from first substrate chuck 14a / Position third substrate 12c on first substrate chuck 14a such that first side 64c may be positioned opposite to that of first substrate chuck 14a
234
Obtain a desired spatial relationship between third substrate 12c and first fluid dispenser 40a to position polymeric material 42c on first side 62c of third substrate 12c
236
Obtain a desired spatial relationship between third substrate 12c and mold 28 with polymeric material 42c filling a desired volume between third substrate 12c and mold 28 / Solidify and/or cross-link polymeric material 42c
240
Obtain a desired spatial between the additional substrate and mold 28 with polymeric material positioned thereon filling a desired volume between the additional substrate and mold 28 and solidifying and/or cross-linking the polymeric material
242
Separate mold 28 from polymeric material positioned on the additional substrate
206
Remove the additional substrate from second substrate chuck 14b / Position second substrate 12b on second substrate chuck 14b such that first side 62b may be positioned opposite to that of second substrate chuck 14b
208
Obtain a desired spatial relationship between second substrate 12b and second fluid dispenser 40b to position polymeric material 42b on first side 62b of second substrate 12b
210
Obtain a desired spatial relationship between second substrate 12b and mold 28 with polymeric material 42b filling a desired volume between second substrate 12b and mold 28 / Solidify and/or cross-link polymeric material 42b
216
Separate mold 28 from polymeric material 42b
222
Remove second substrate 12b from second substrate chuck 14b / Flip second substrate 12b with robot 52 / Position second substrate 12b on second substrate chuck 14b such that second side 64b may be positioned opposite to that of second substrate chuck 14b
226
Obtain a desired spatial relationship between second substrate 12b and second fluid dispenser 40b to position polymeric material 42b' on second side 64b of second substrate 12b
228
Obtain a desired spatial relationship between second substrate 12b and mold 28 with polymeric material 42b' filling a desired volume between second substrate 12b and mold 28 / Solidify and/or cross-link polymeric material 42b'
232
Separate mold 28 from polymeric material 42b'
238
Remove second substrate 12b from second substrate chuck 14b / Position a fourth substrate on second substrate 14b such that a first side thereof may be positioned opposite to that of second substrate chuck 14b

FIG. 15

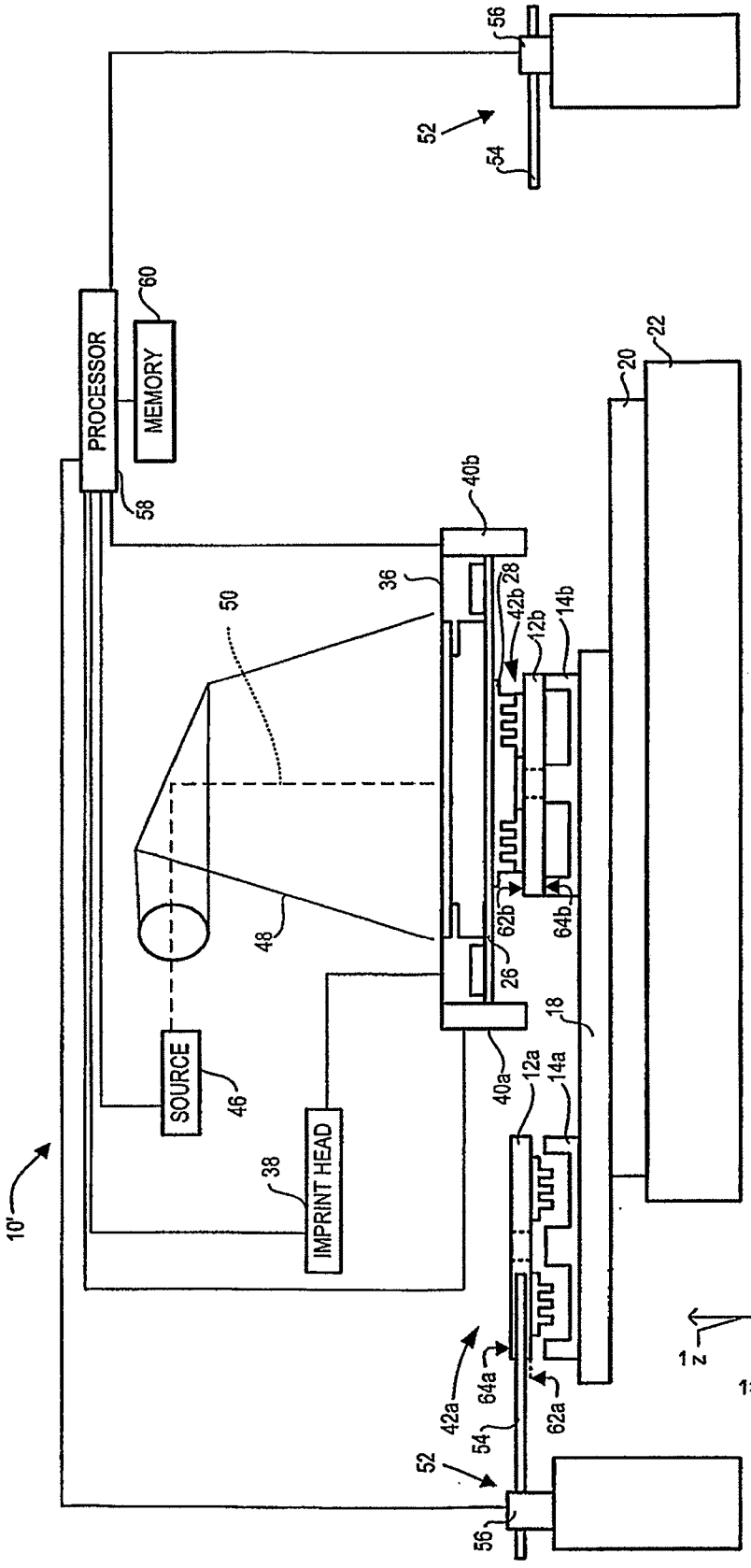

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
26
42b
42a
12b
12a
14b
14a
18
20
22
62b
62a
64b
64a
52
54
56
z
x
y

FIG. 16

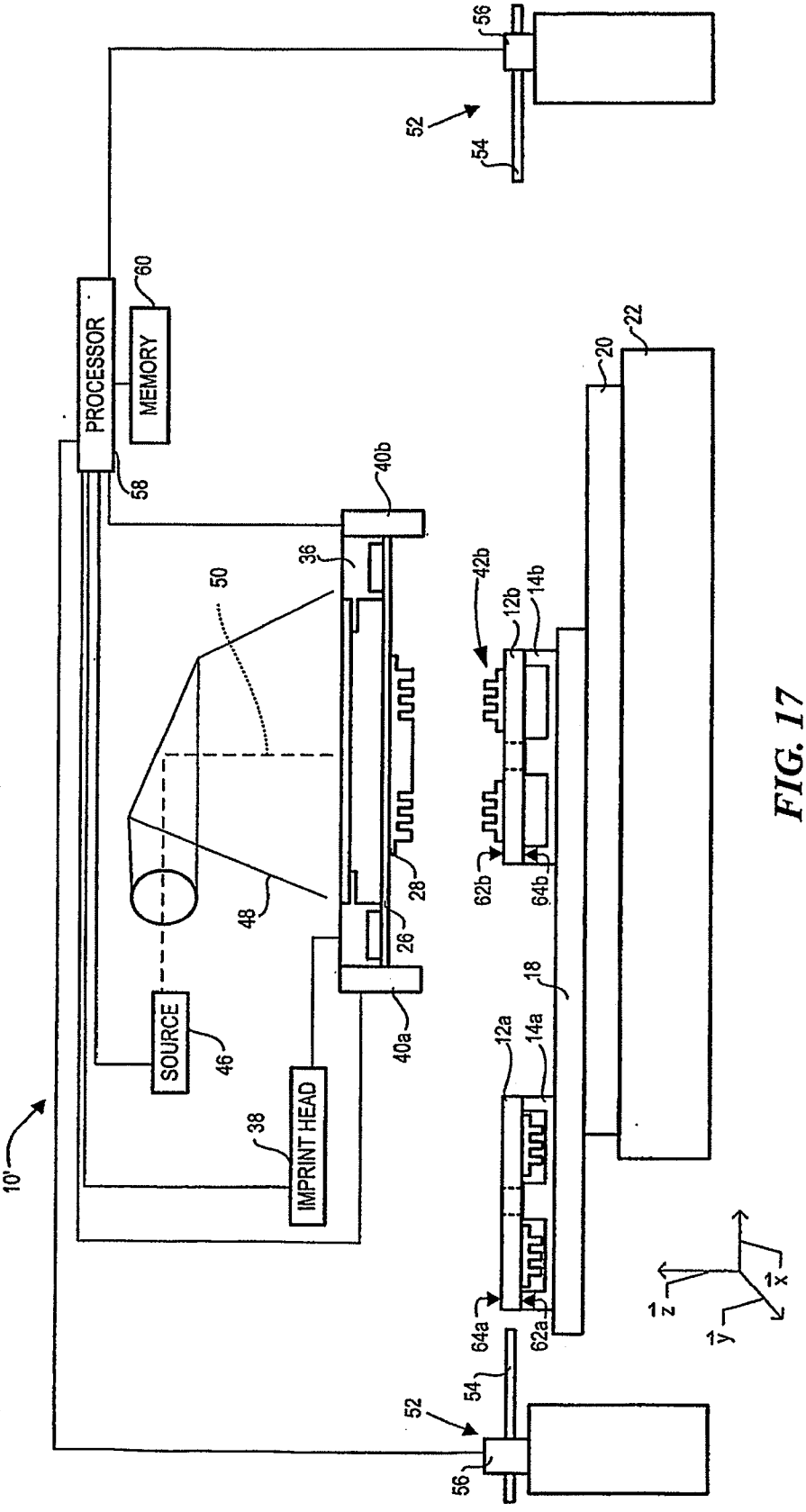

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
42b
12b
14b
62b
64b
18
12a
14a
64a
62a
20
22
52
54
56
z
x
y

FIG. 17

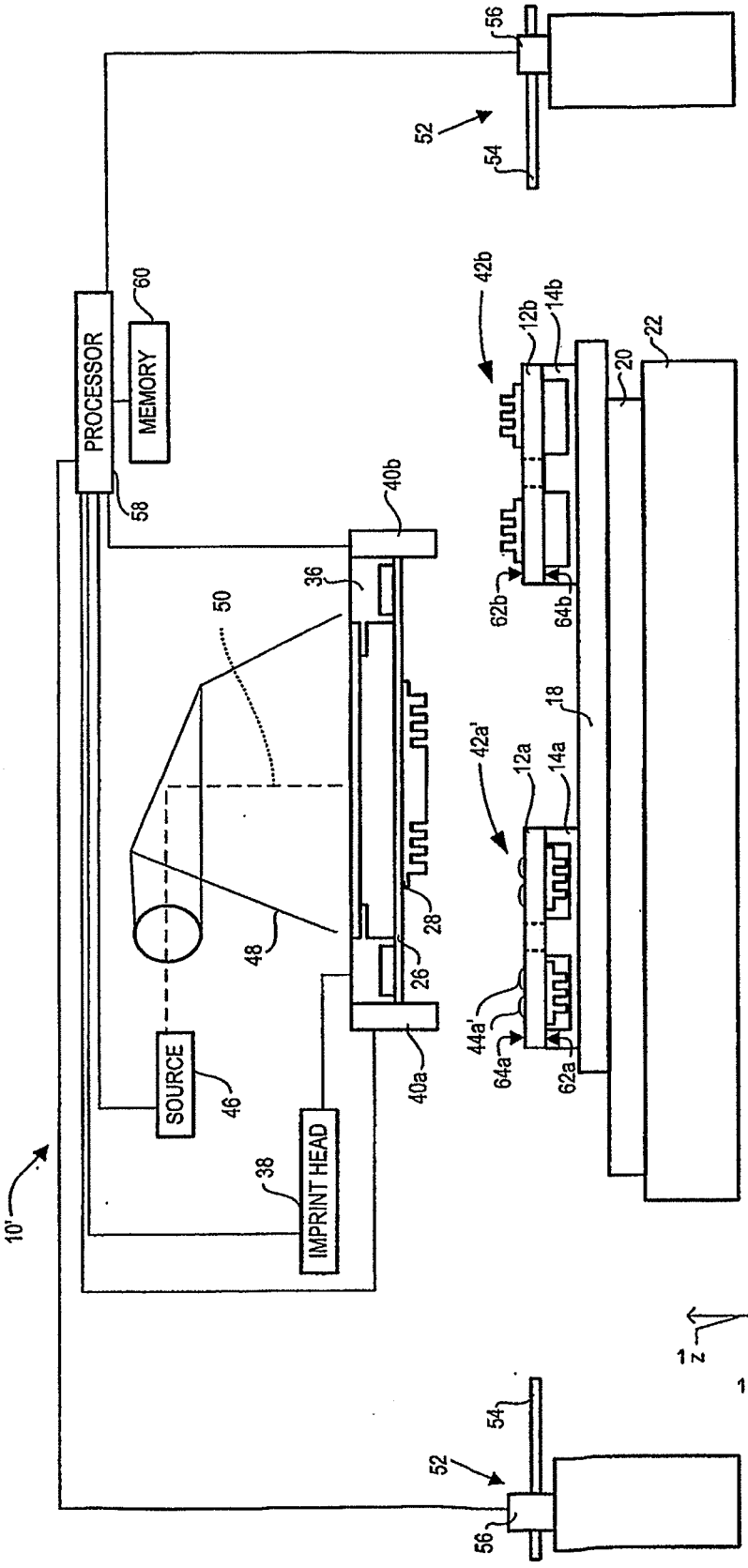

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
26
42b
12b
14b
22
20
62b
64b
18
42a'
12a
14a
44a'
64a
62a
52
54
56
z
x
y

FIG. 18

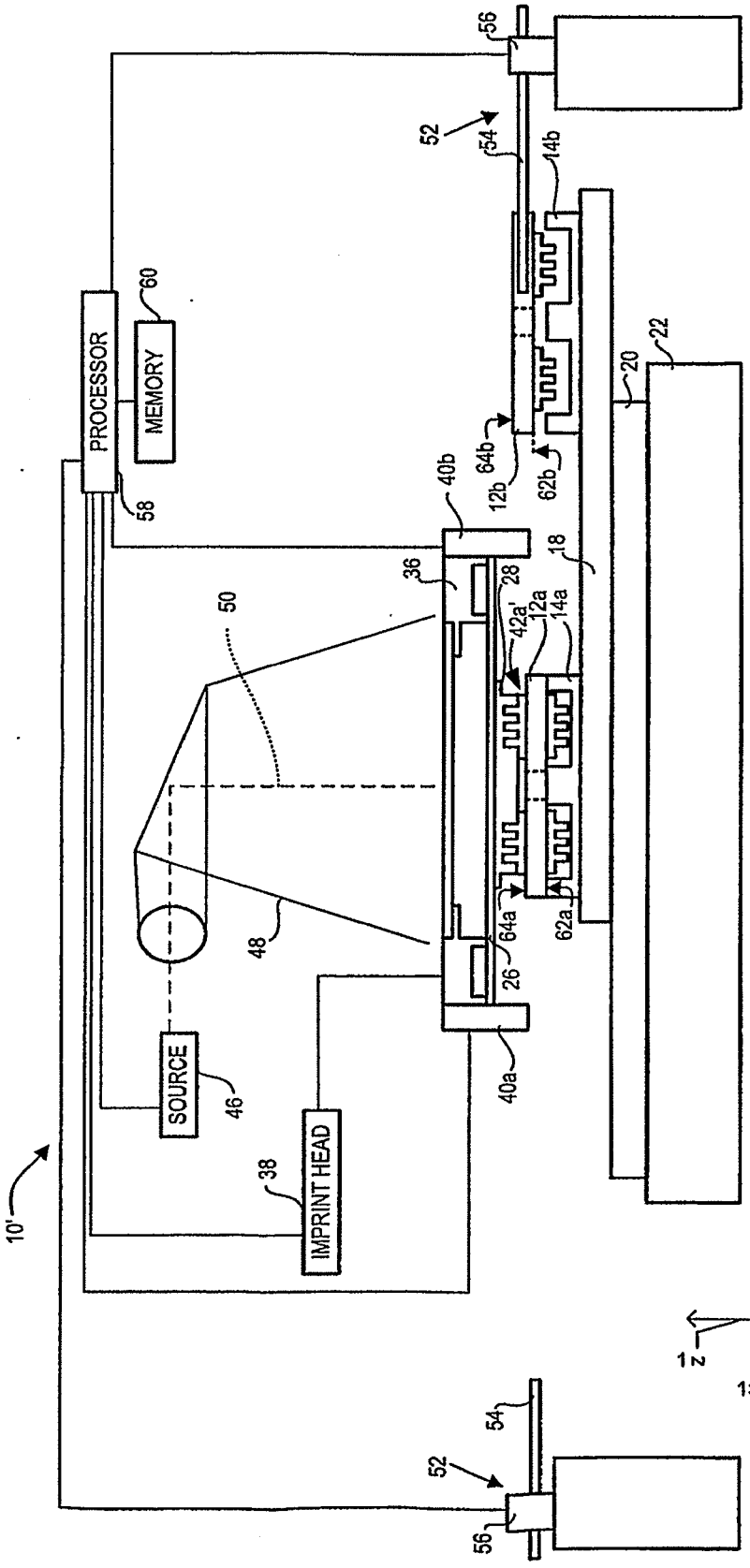

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
28
26
40a
40b
42a'
12a
14a
64a
62a
12b
64b
62b
14b
18
20
22
52
54
56
z
x
y

FIG. 19

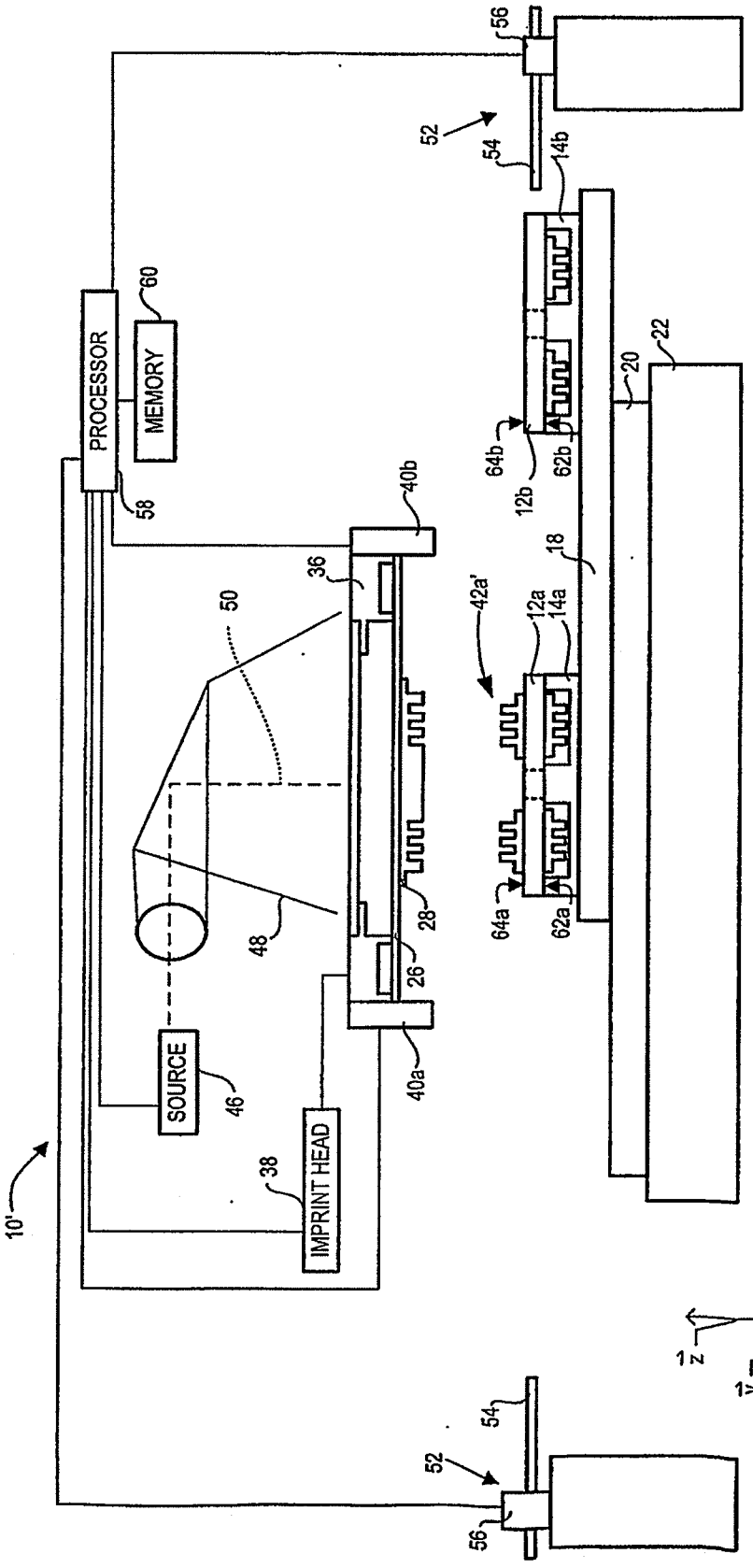

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
42a'
12a
14a
64a
62a
18
12b
64b
62b
20
22
52
54
56
14b
z
x
y

FIG. 20

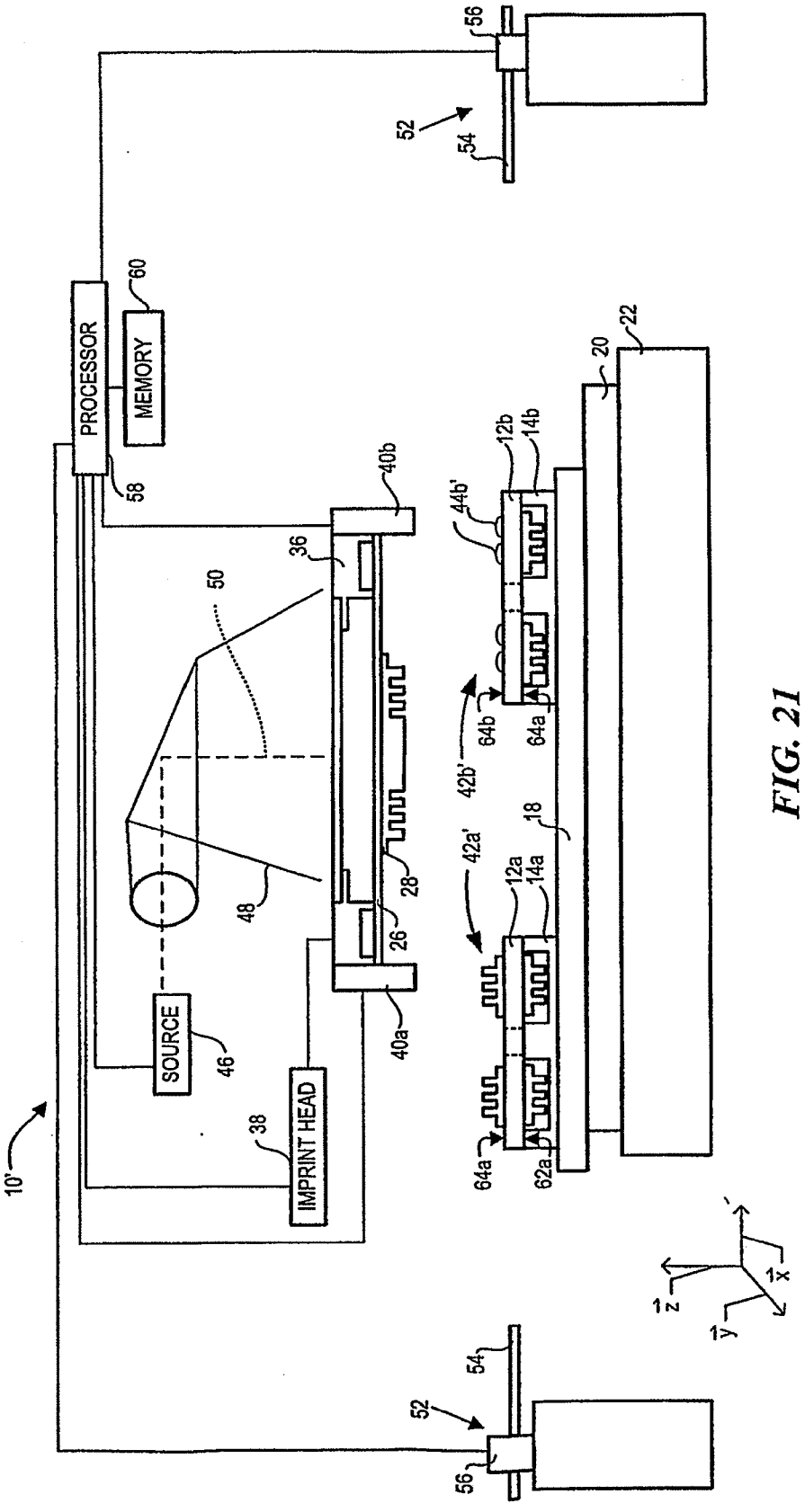

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
52
54
56
22
20
18
12b
14b
44b'
64b
64a
42b'
42a'
12a
14a
62a
z
x
y

FIG. 21

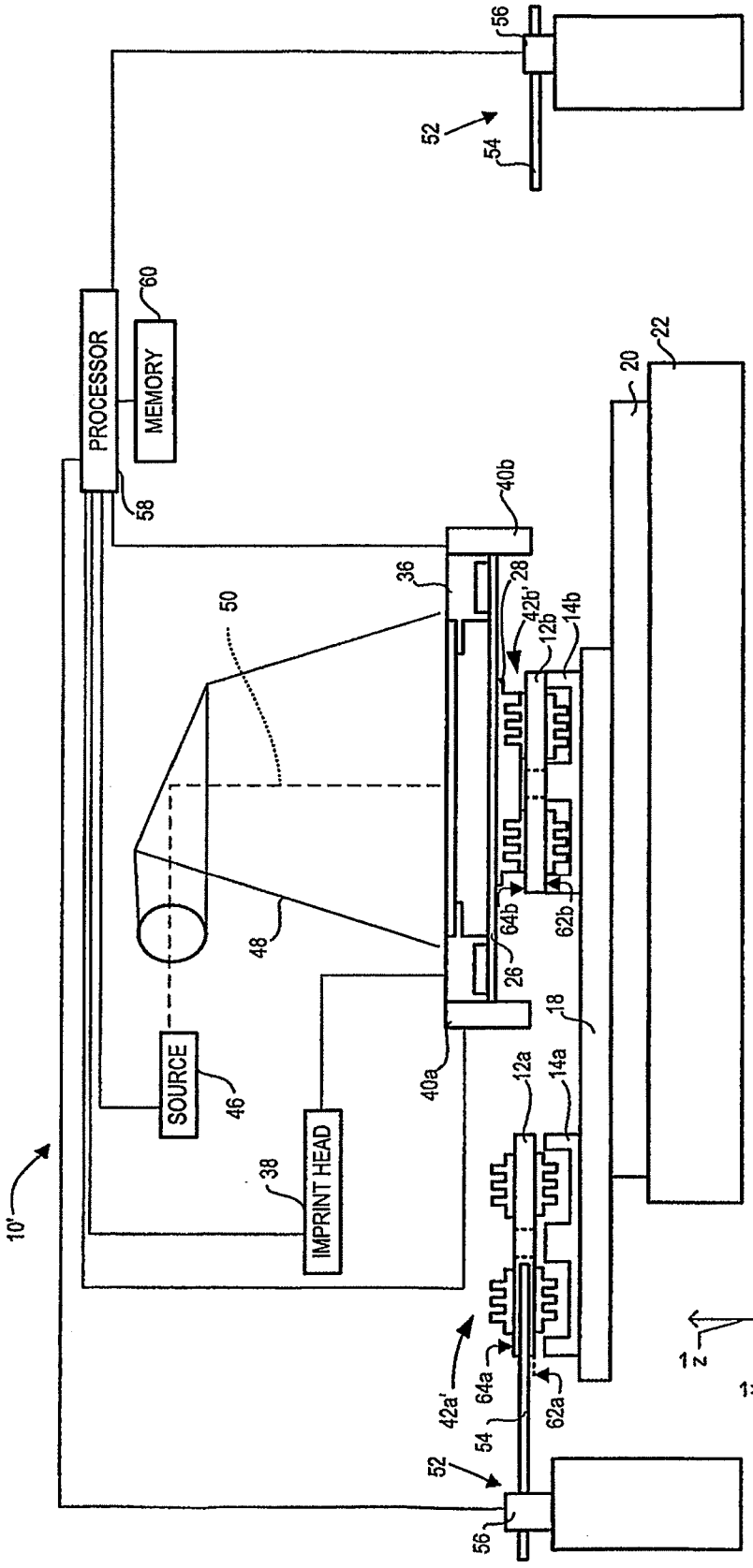

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
42b'
12b
14b
64b
62b
26
18
12a
14a
64a
62a
42a'
54
52
56
20
22
z
x
y

FIG. 22

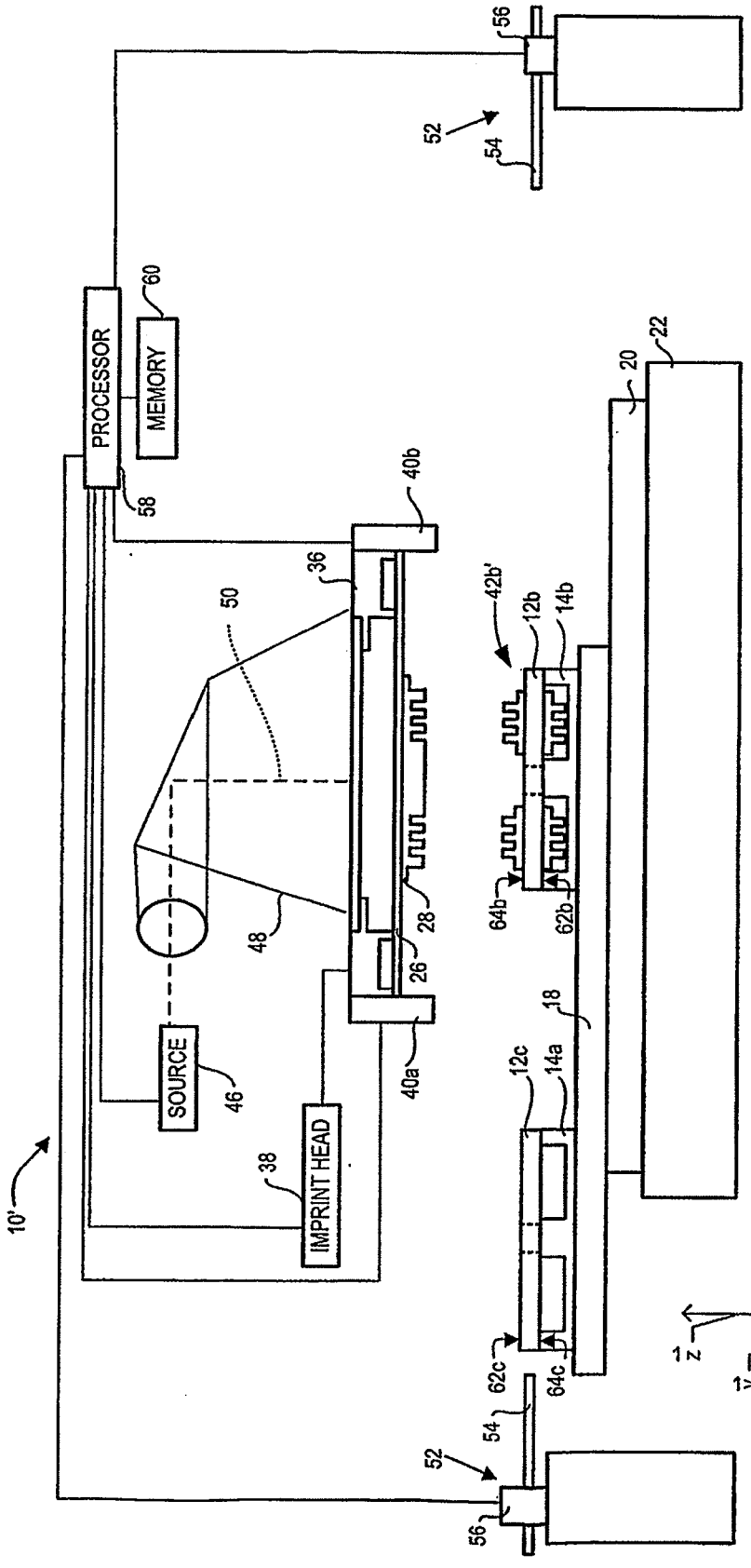

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
28
26
42b'
12b
14b
64b
62b
18
12c
14a
62c
64c
54
52
56
20
22
z
x
y

FIG. 23

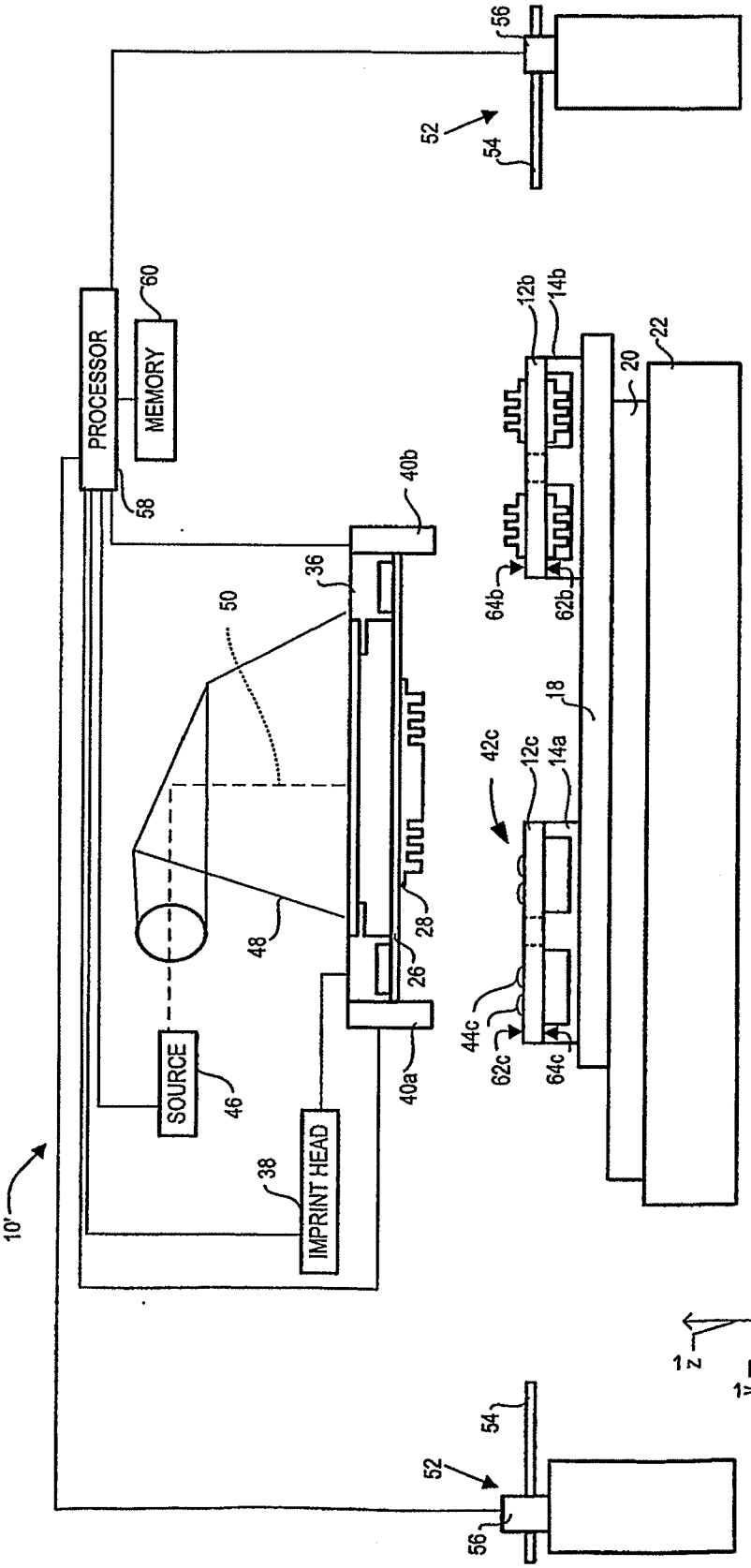

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
40a
40b
36
50
48
28
26
42c
12c
14a
18
44c
62c
64c
12b
14b
20
22
64b
62b
52
54
56
z
x
y

FIG. 24

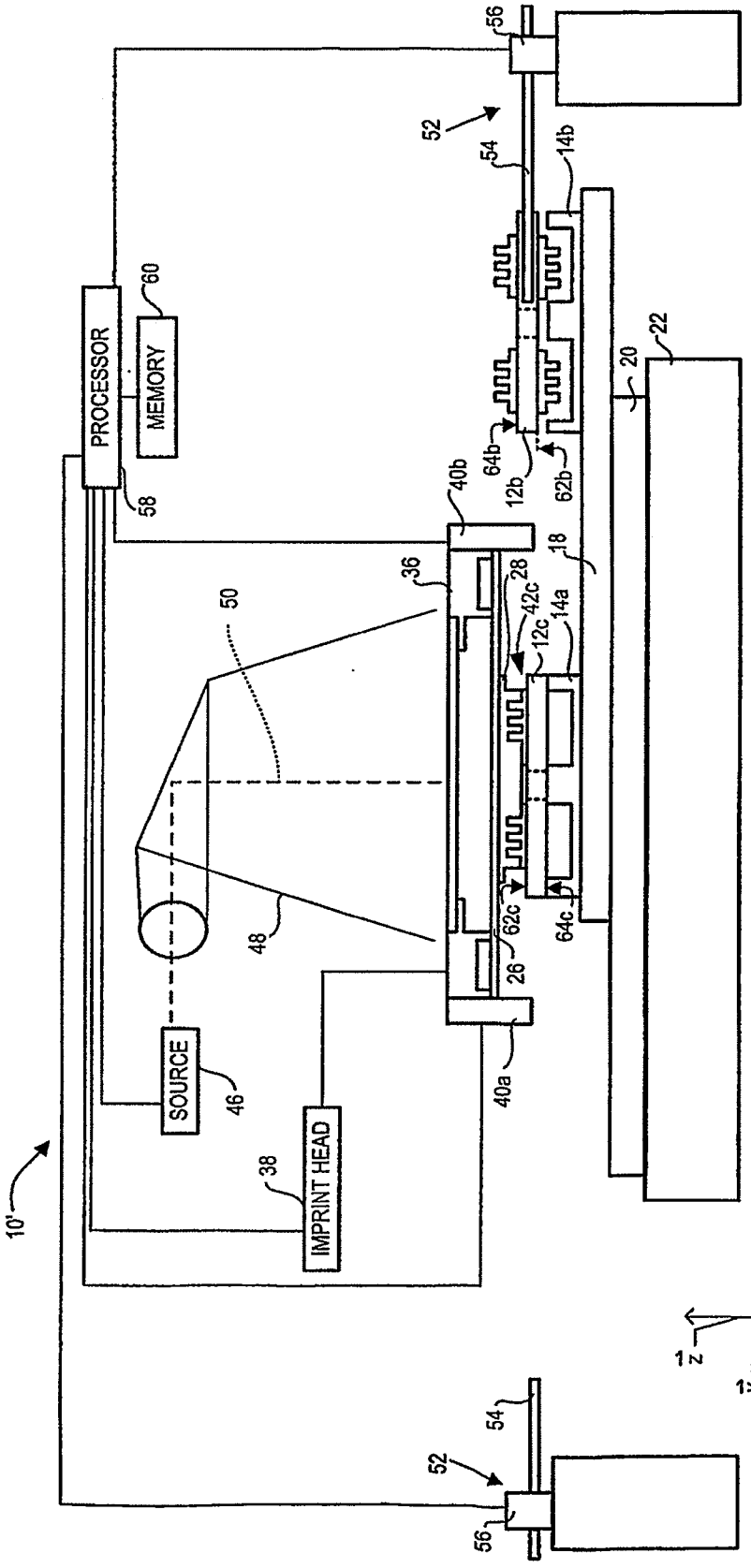

10'
PROCESSOR
MEMORY
60
58
SOURCE
46
IMPRINT HEAD
38
48
50
36
40b
40a
26
28
42c
12c
14a
18
12b
64b
62b
62c
64c
14b
22
20
52
54
56
z
x
y

FIG. 25

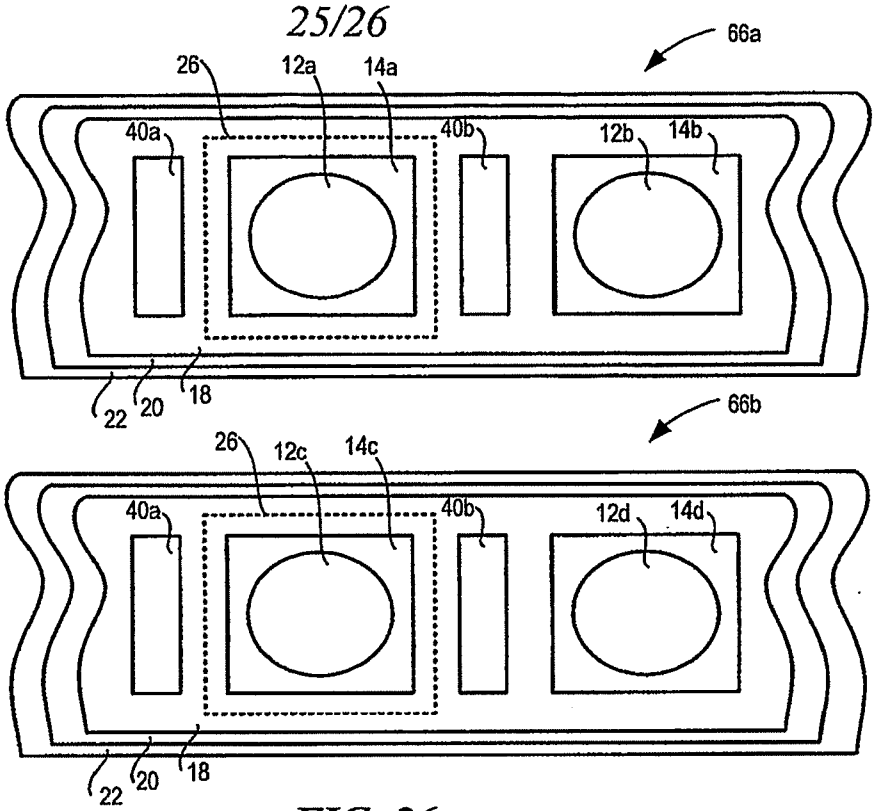

66a
26
12a
14a
40a
40b
12b
14b
22
20
18
66b
26
12c
14c
40a
40b
12d
14d
22
20
18

FIG. 26

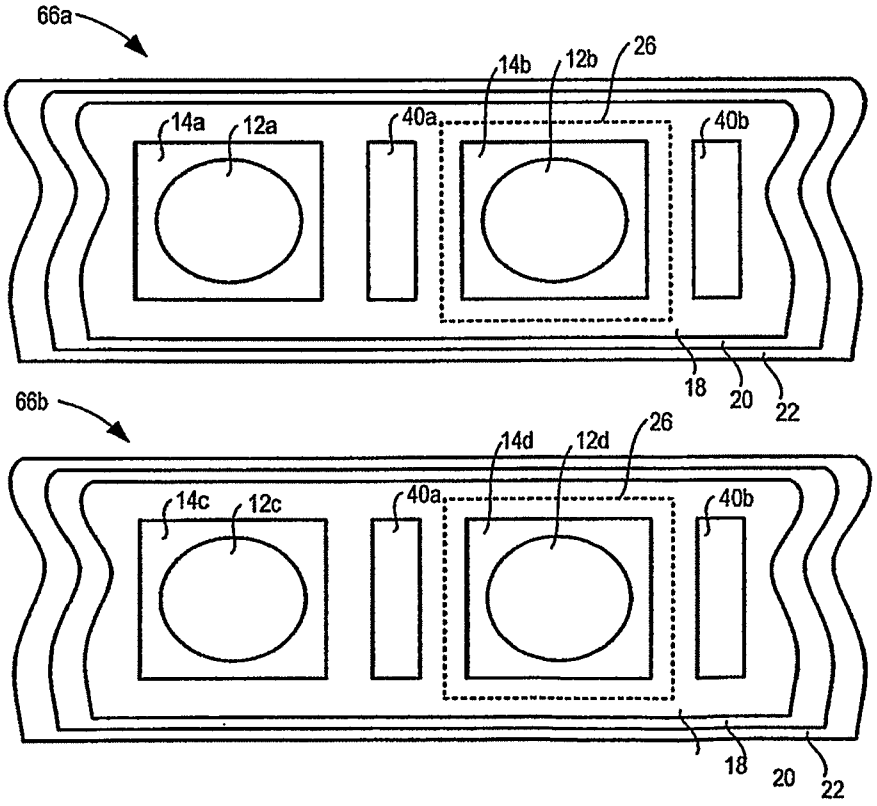

66a
14b
12b
26
14a
12a
40a
40b
18
20
22
66b
14d
12d
26
14c
12c
40a
40b
18
20
22

FIG. 27

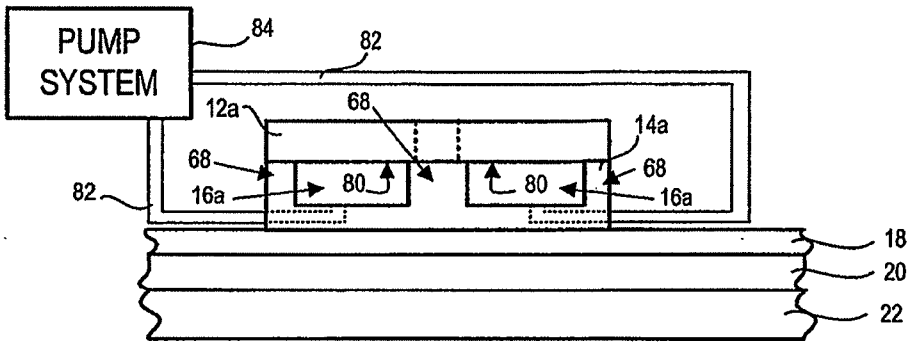


FIG. 28

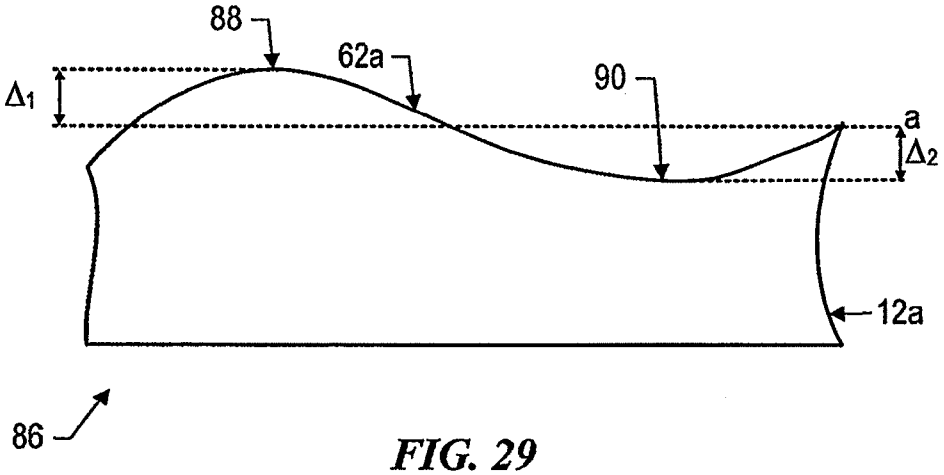


FIG. 29

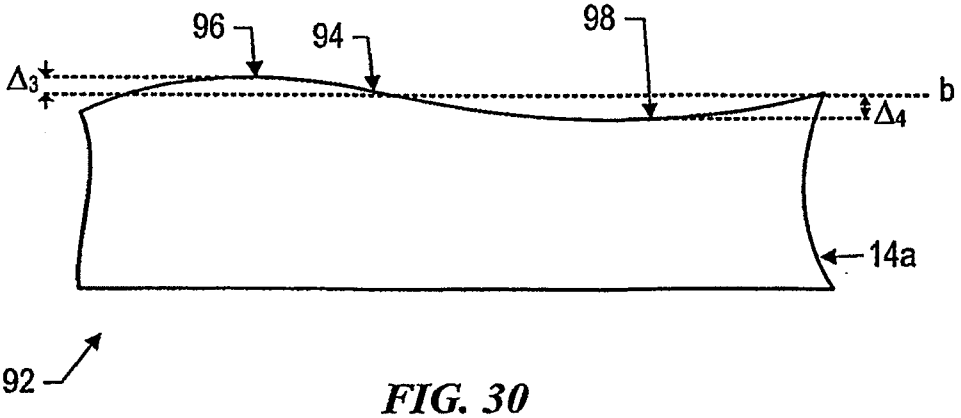


FIG. 30