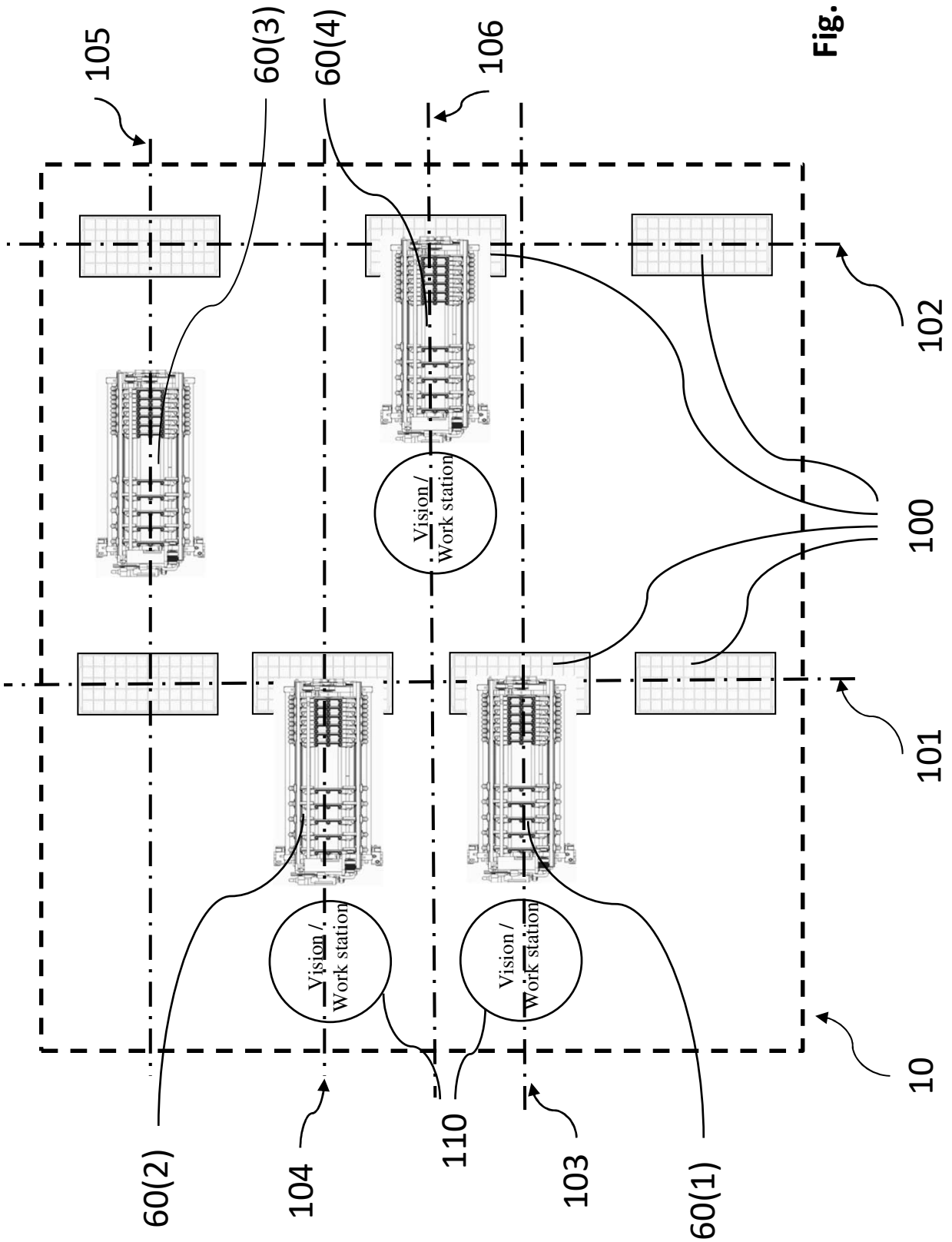

105
60(3)
60(4)
106
102
100
101
10
60(2)
104
110
103
60(1)
Vision / Work station
Vision / Work station
Vision / Work station

Fig. 1

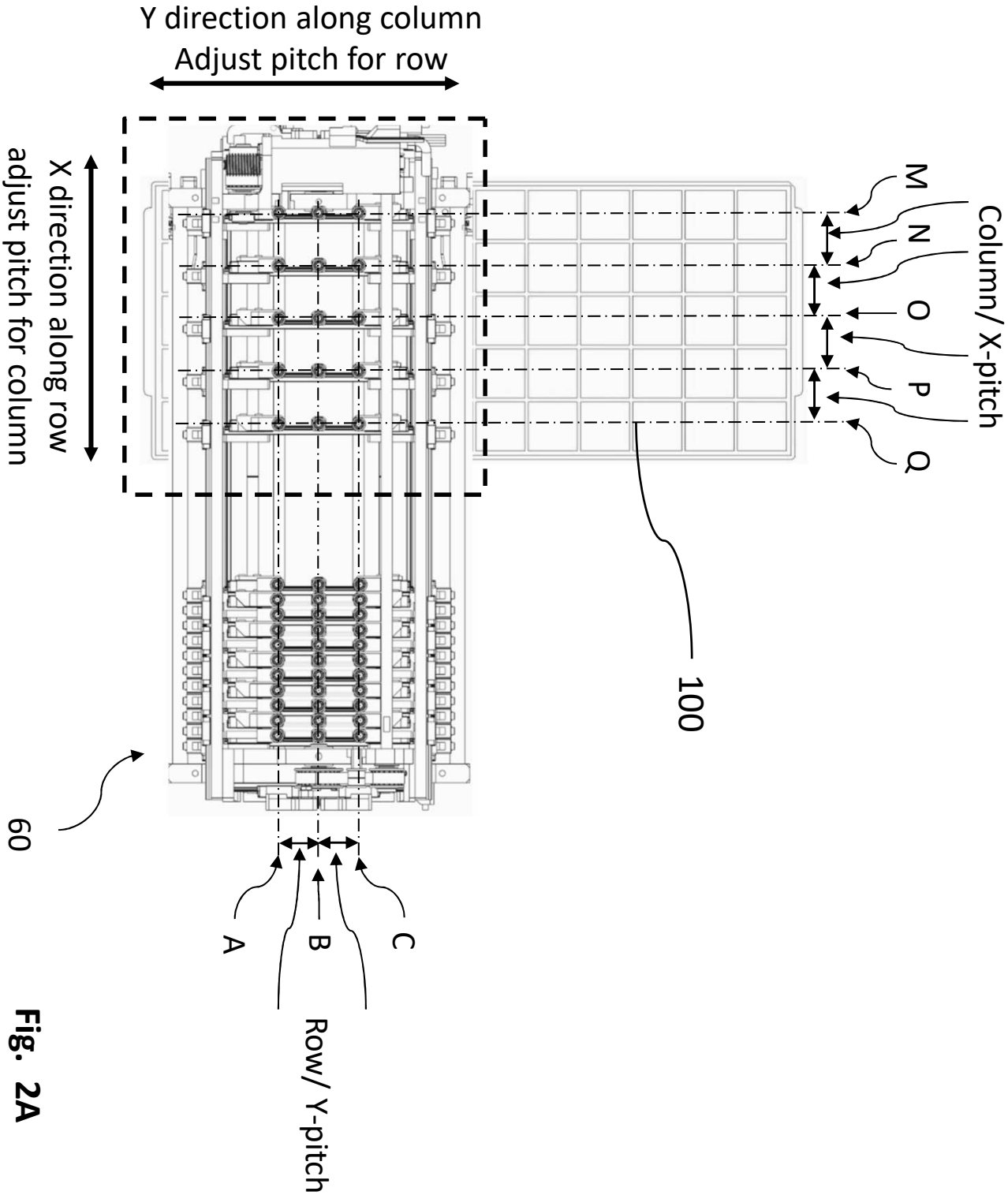

Y direction along column
Adjust pitch for row
X direction along row
adjust pitch for column
M
N
O
P
Q
Column/ X-pitch
100
60
A
B
C
Row/ Y-pitch

Fig. 2A

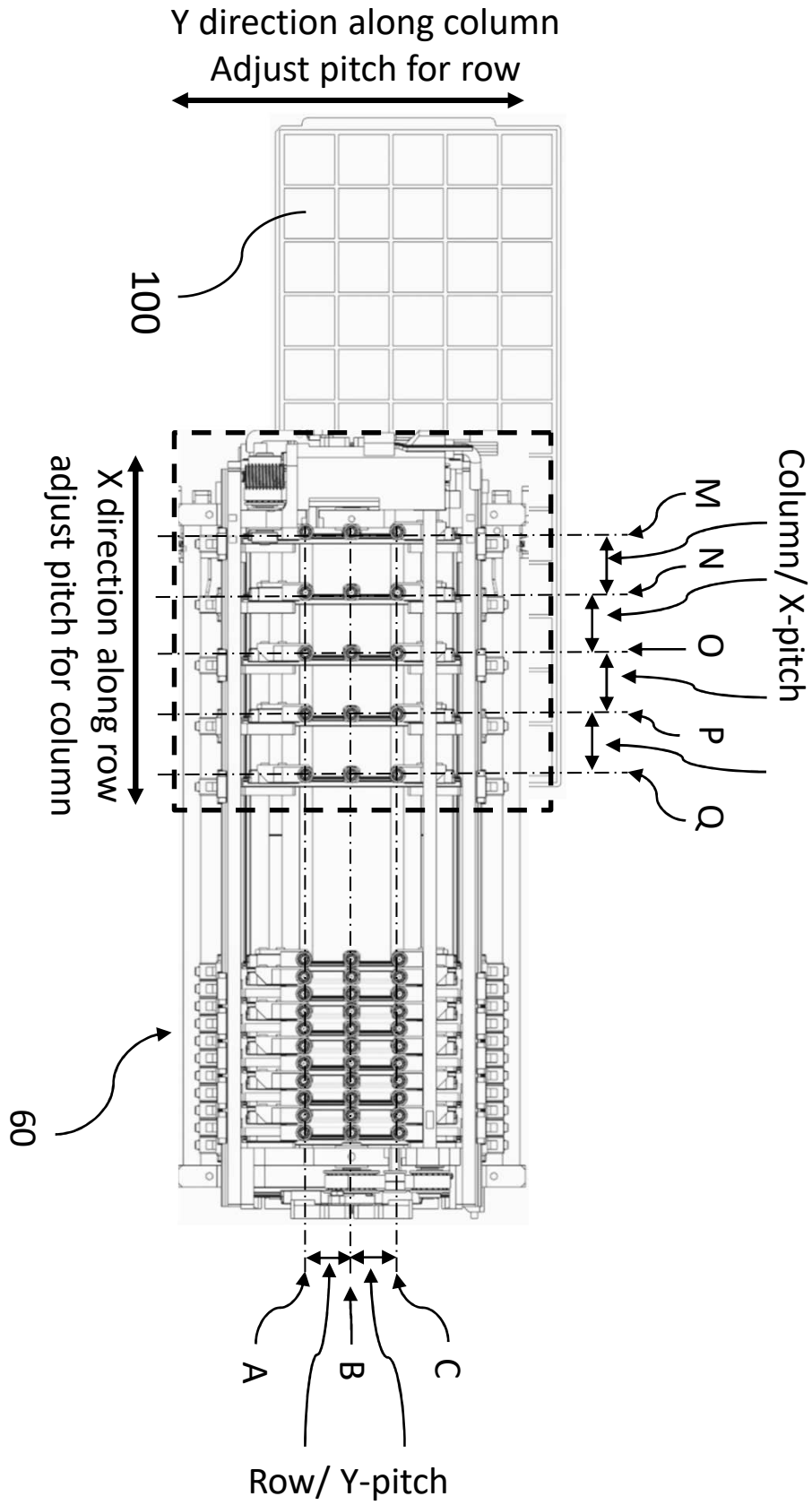

Y direction along column
Adjust pitch for row
100
X direction along row
adjust pitch for column
Column/ X-pitch
M
N
O
P
Q
60
A
B
C
Row/ Y-pitch

Fig. 2B

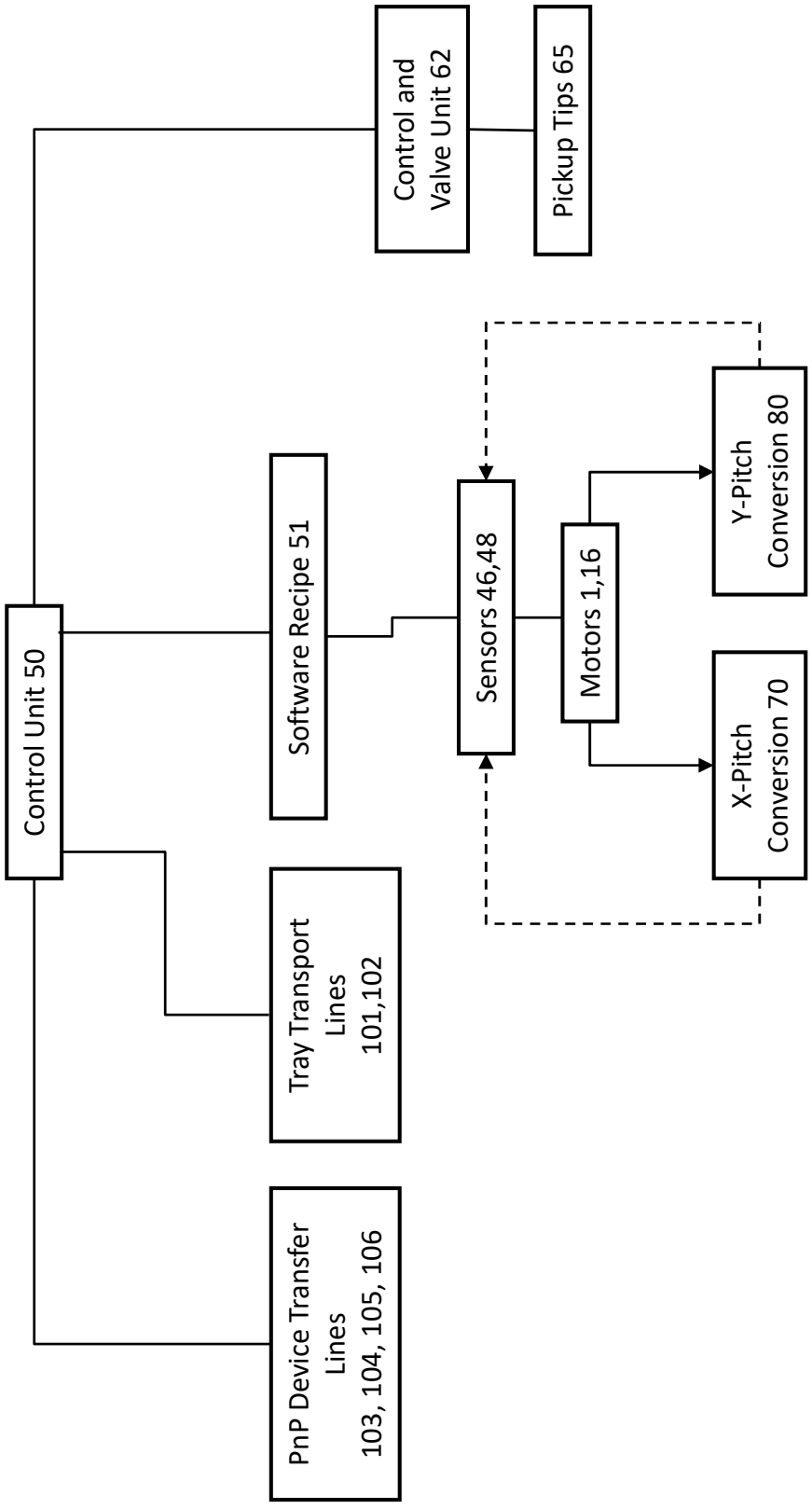

Control Unit 50
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X-Pitch Conversion 70
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Pickup Tips 65
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PnP Device Transfer Lines 103, 104, 105, 106

FIG. 3

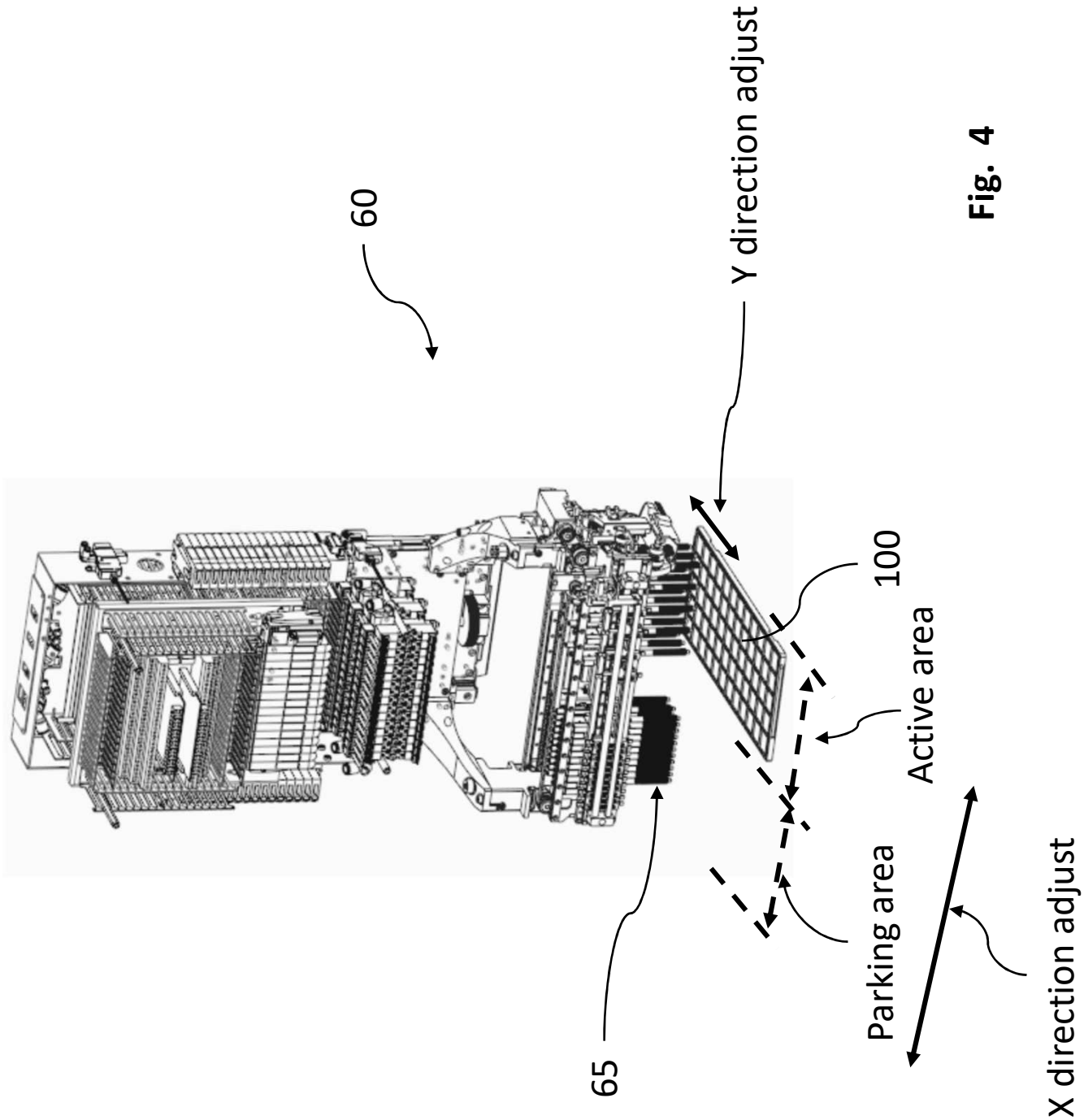

60
Y direction adjust
100
Active area
Parking area
65
X direction adjust

Fig. 4

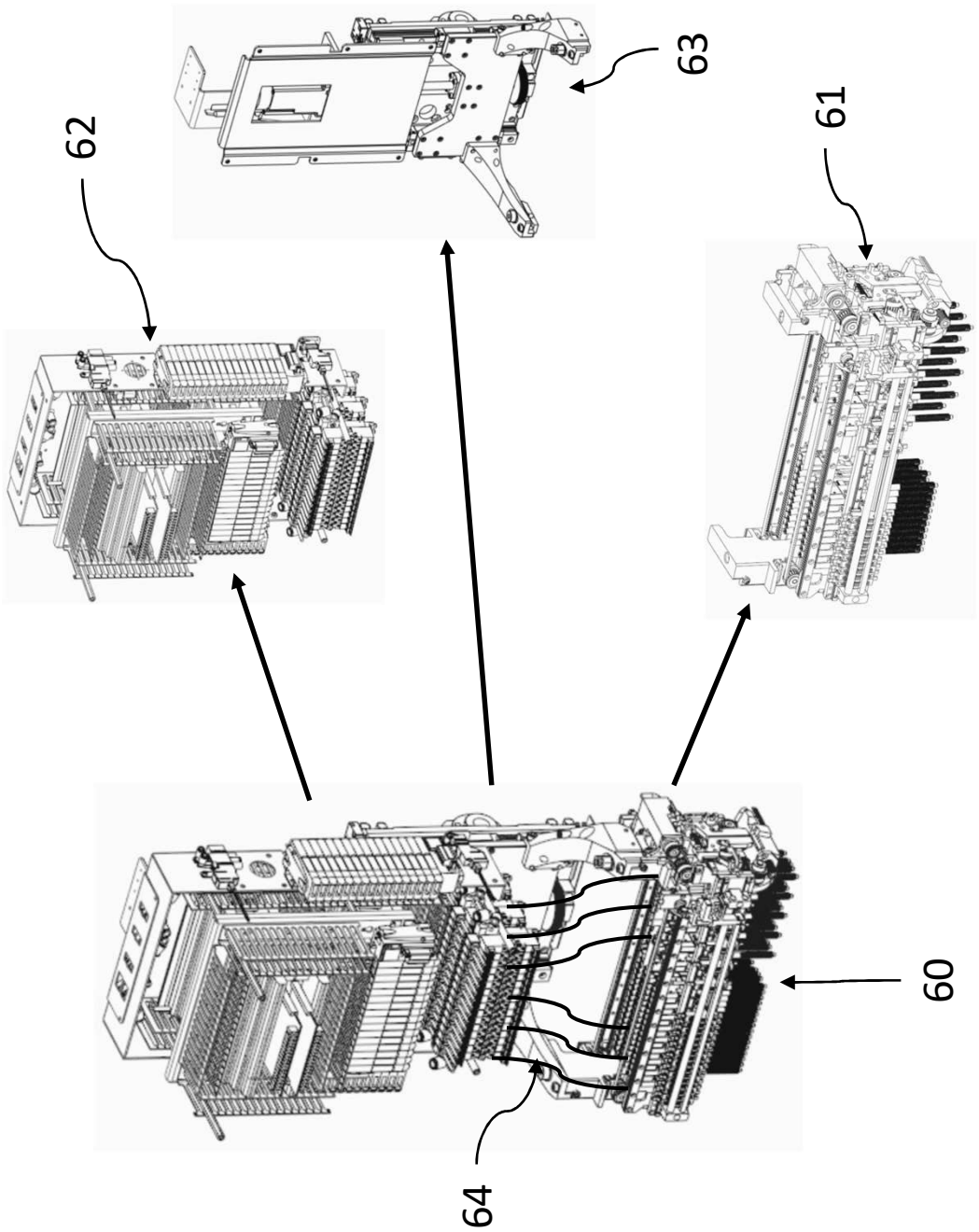


Fig. 5

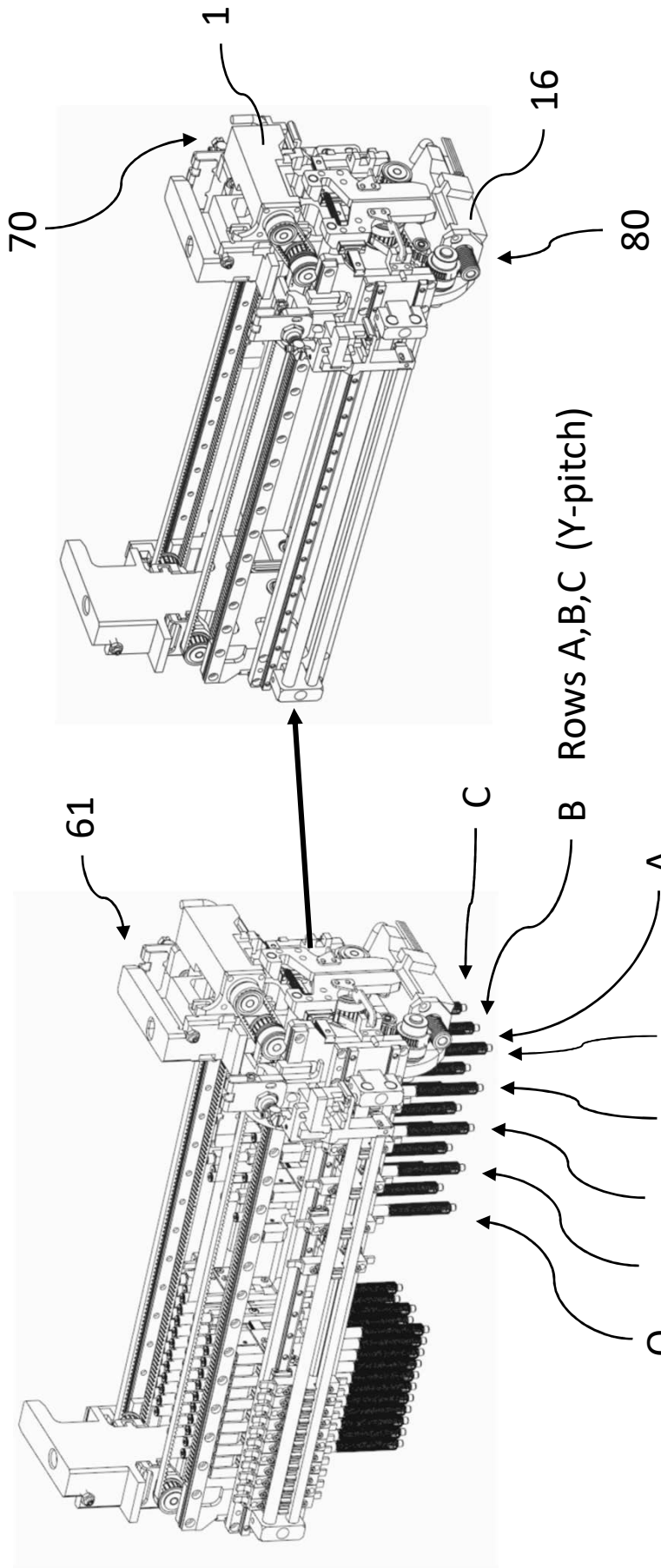


Fig. 6

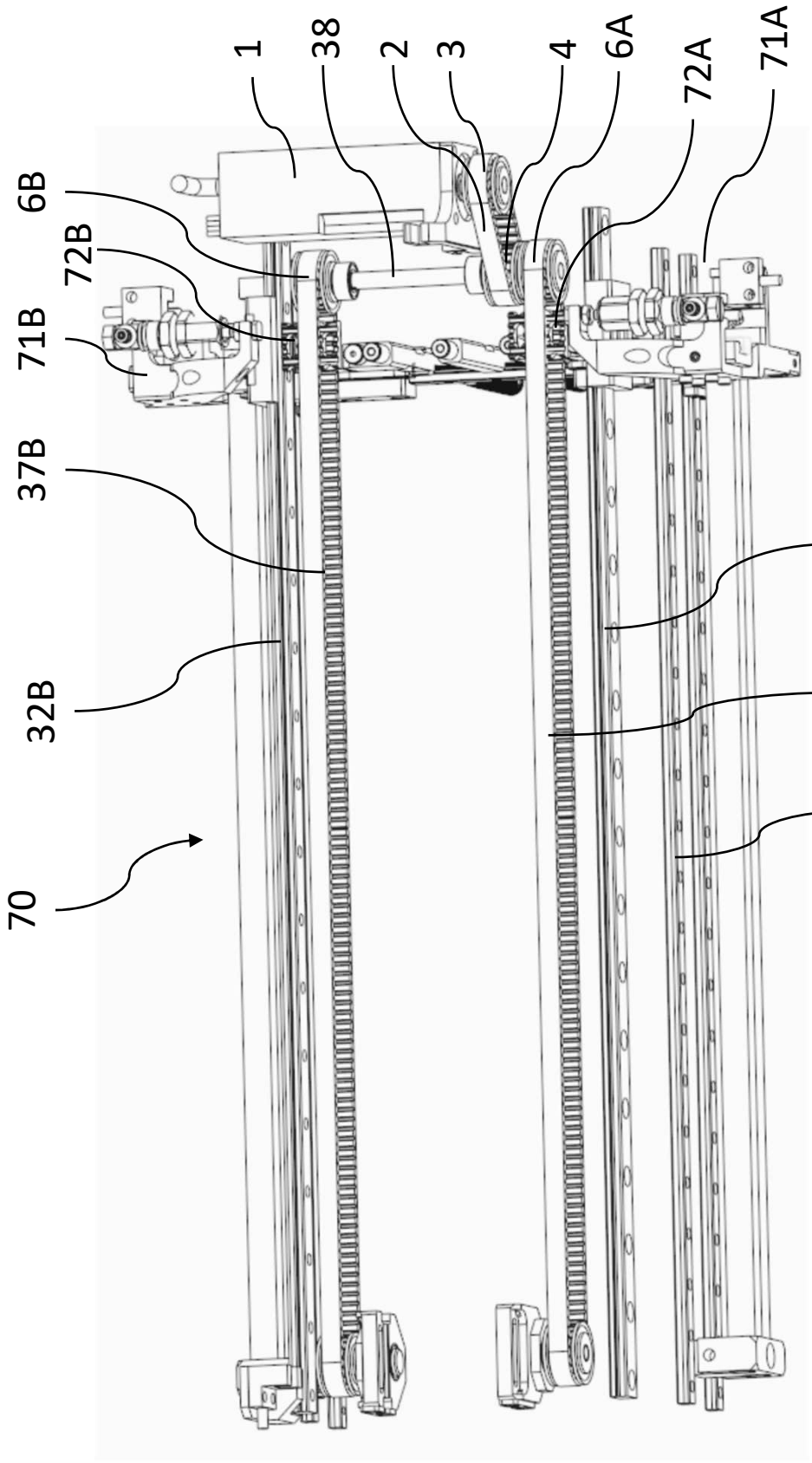


Fig 7

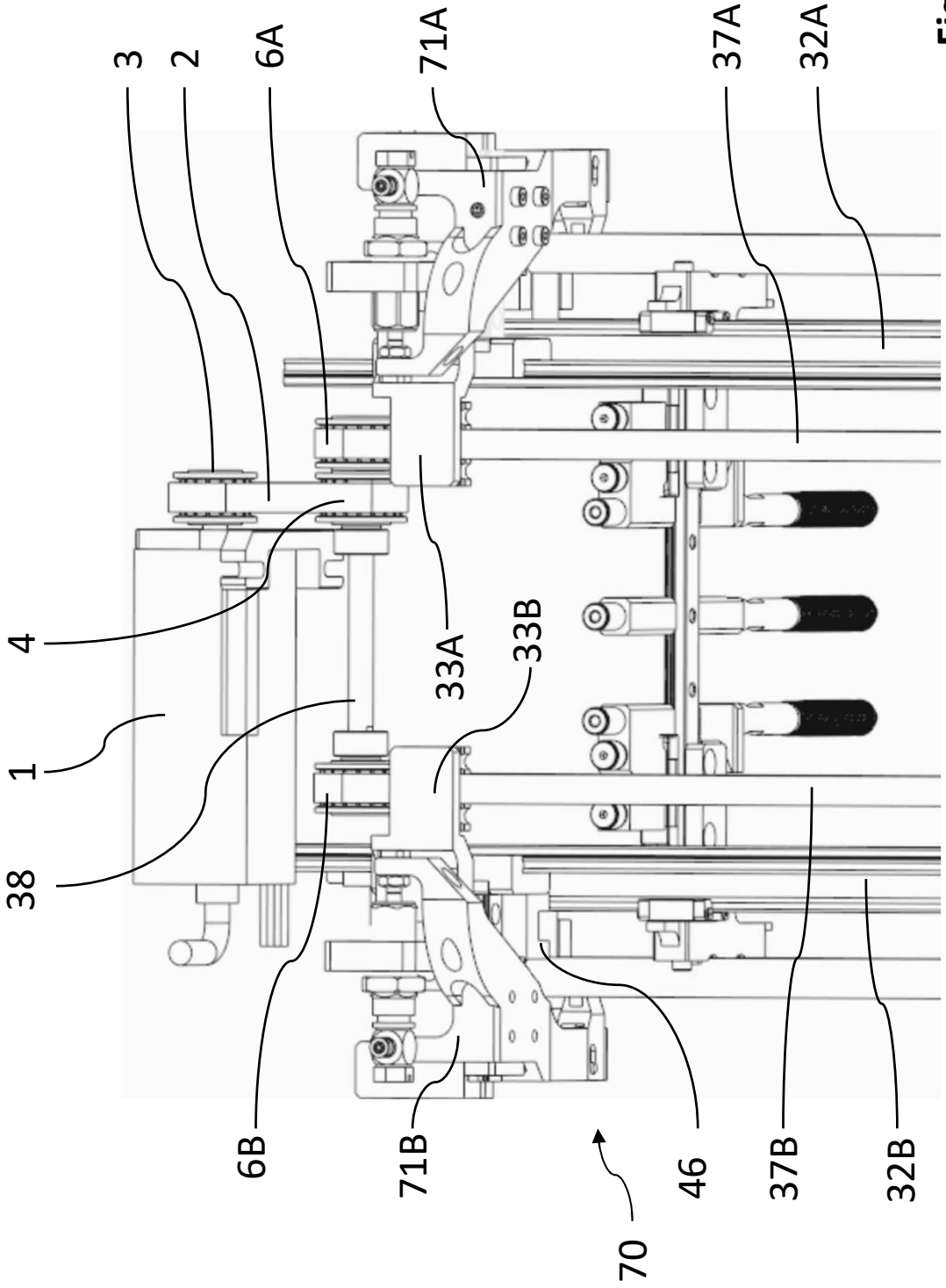


Fig. 8

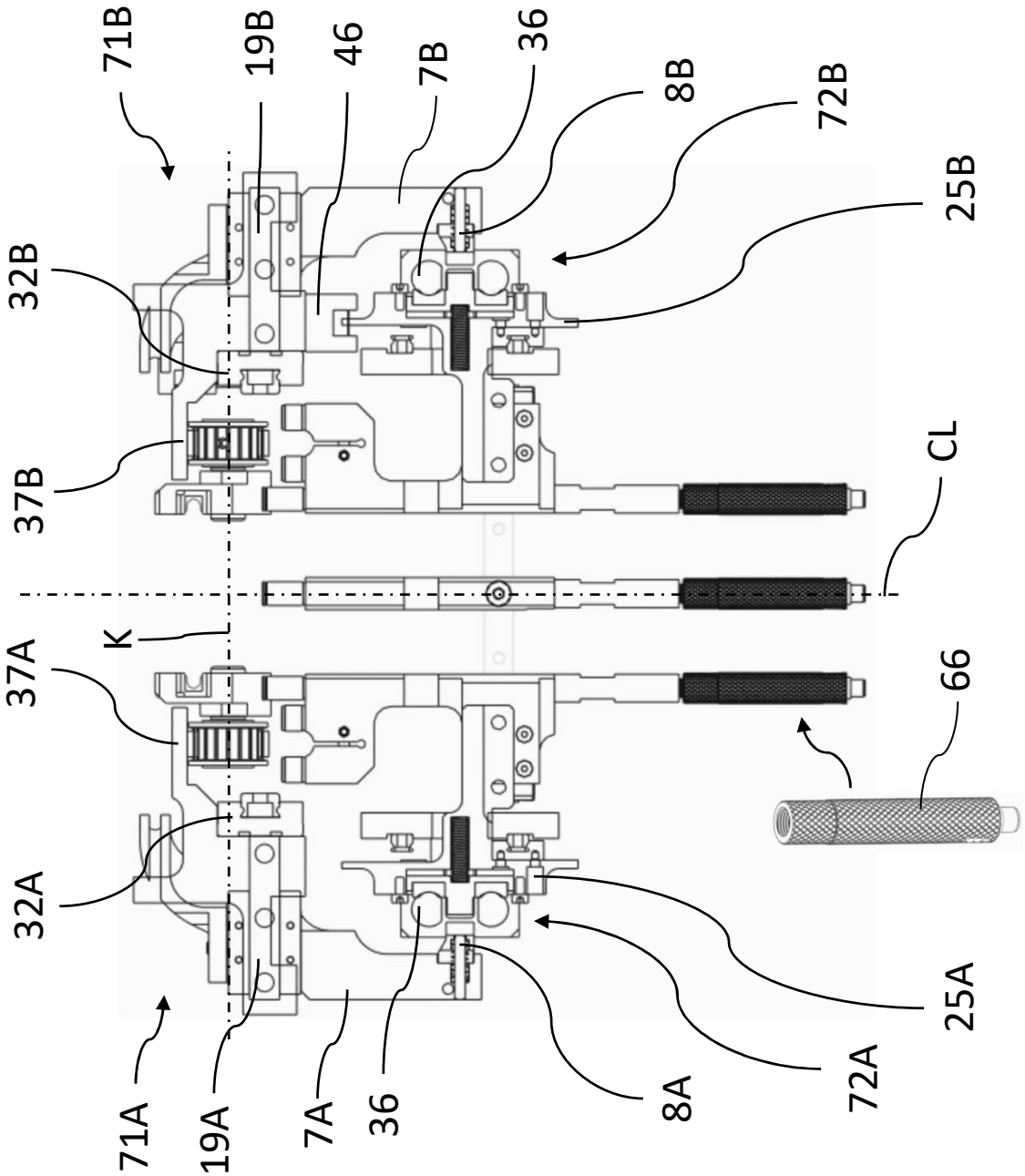

71B
19B
46
7B
36
8B
72B
25B
32B
37B
CL
K
37A
66
32A
25A
71A
19A
7A
36
8A
72A

Fig. 9

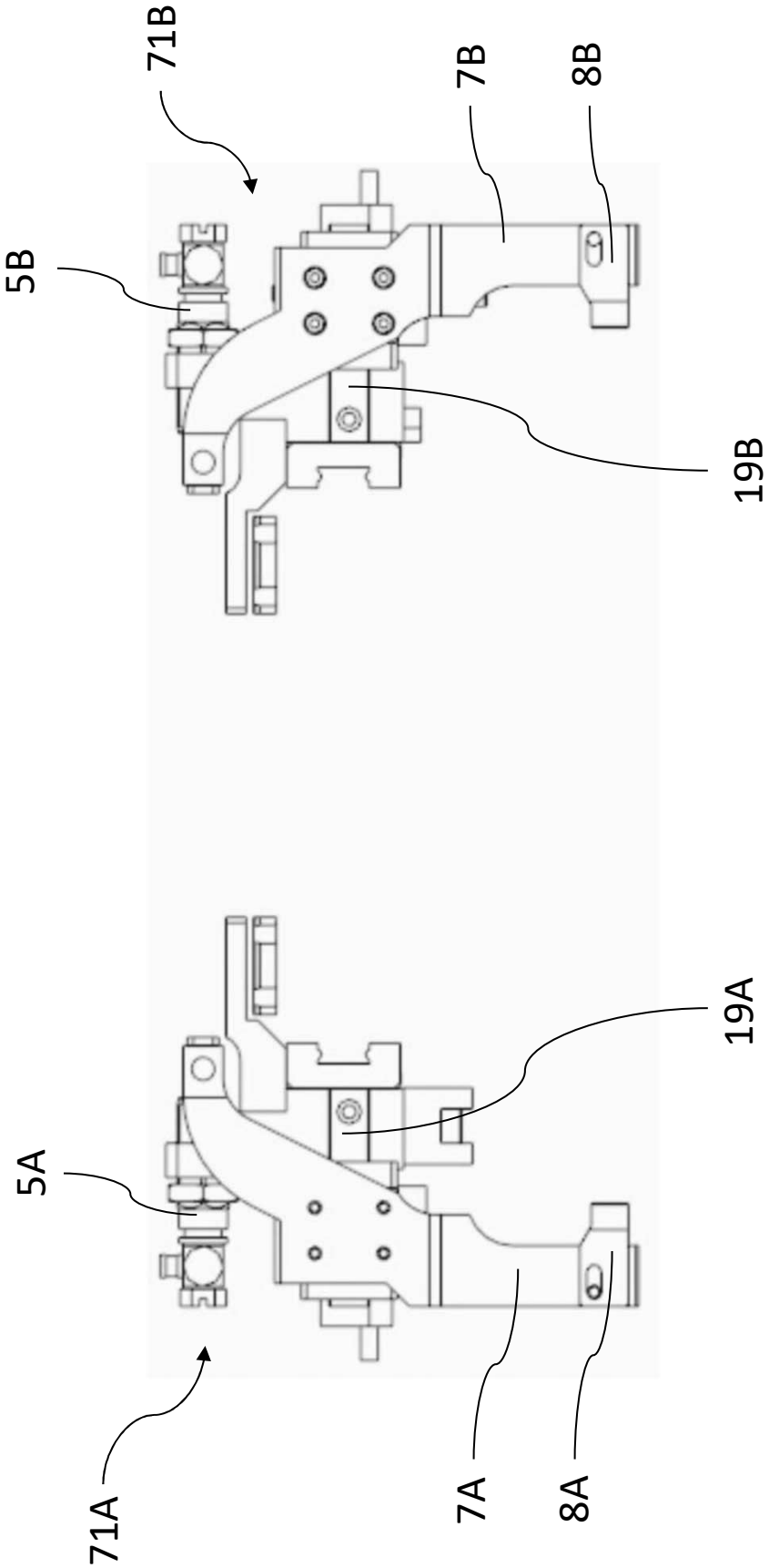


Fig. 10A

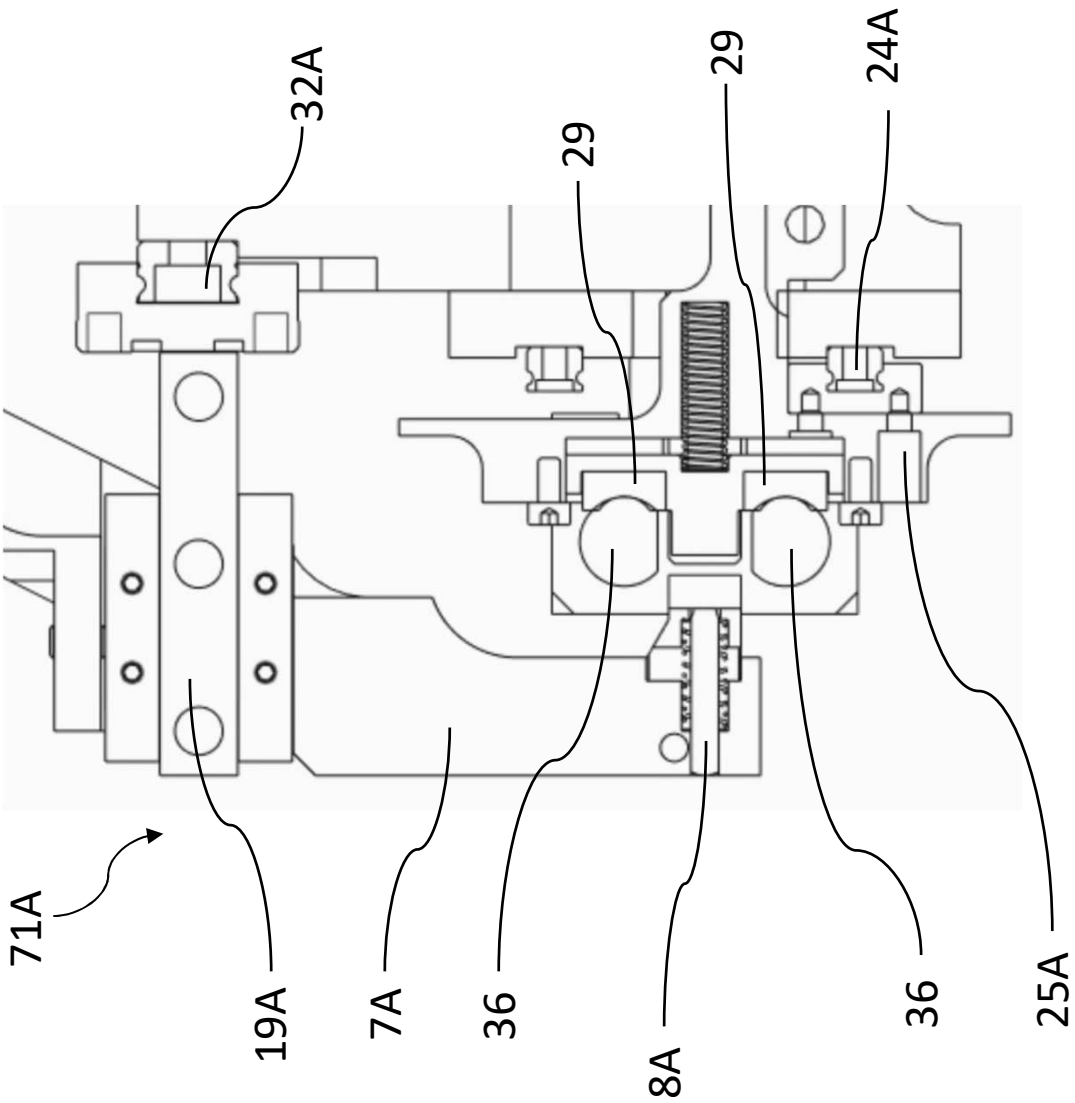


Fig. 10B

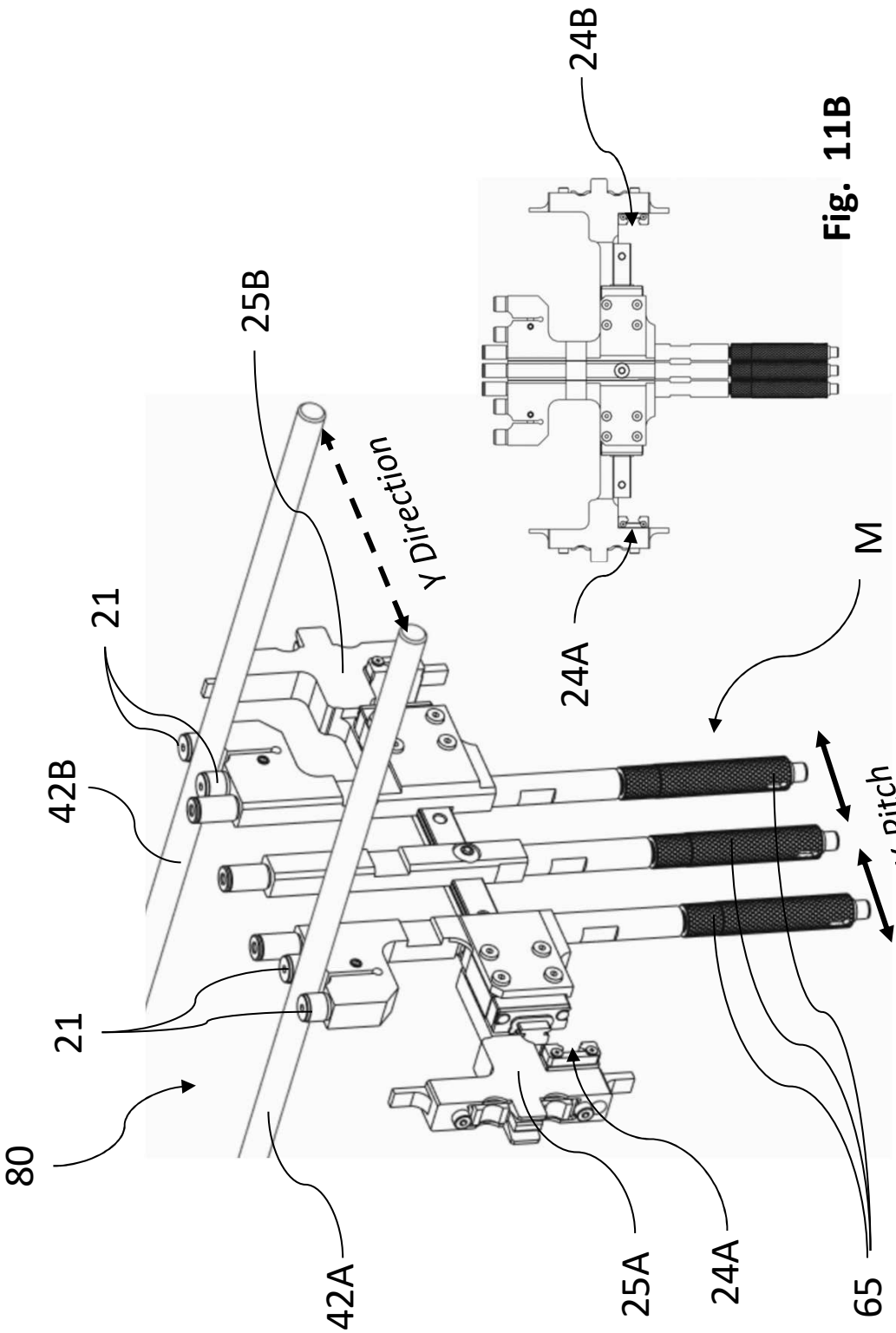


Fig. 11A

Fig. 11B

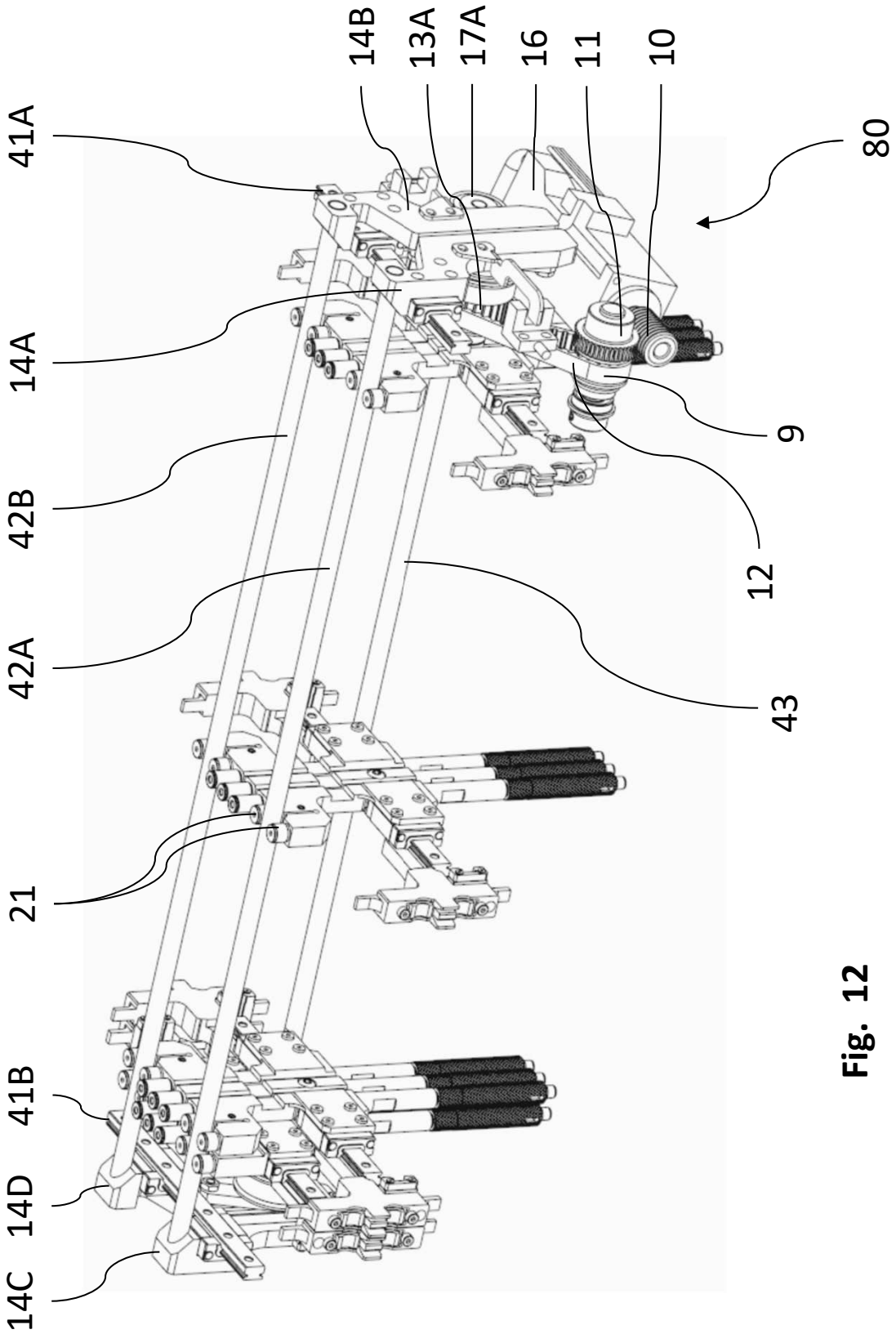


Fig. 12

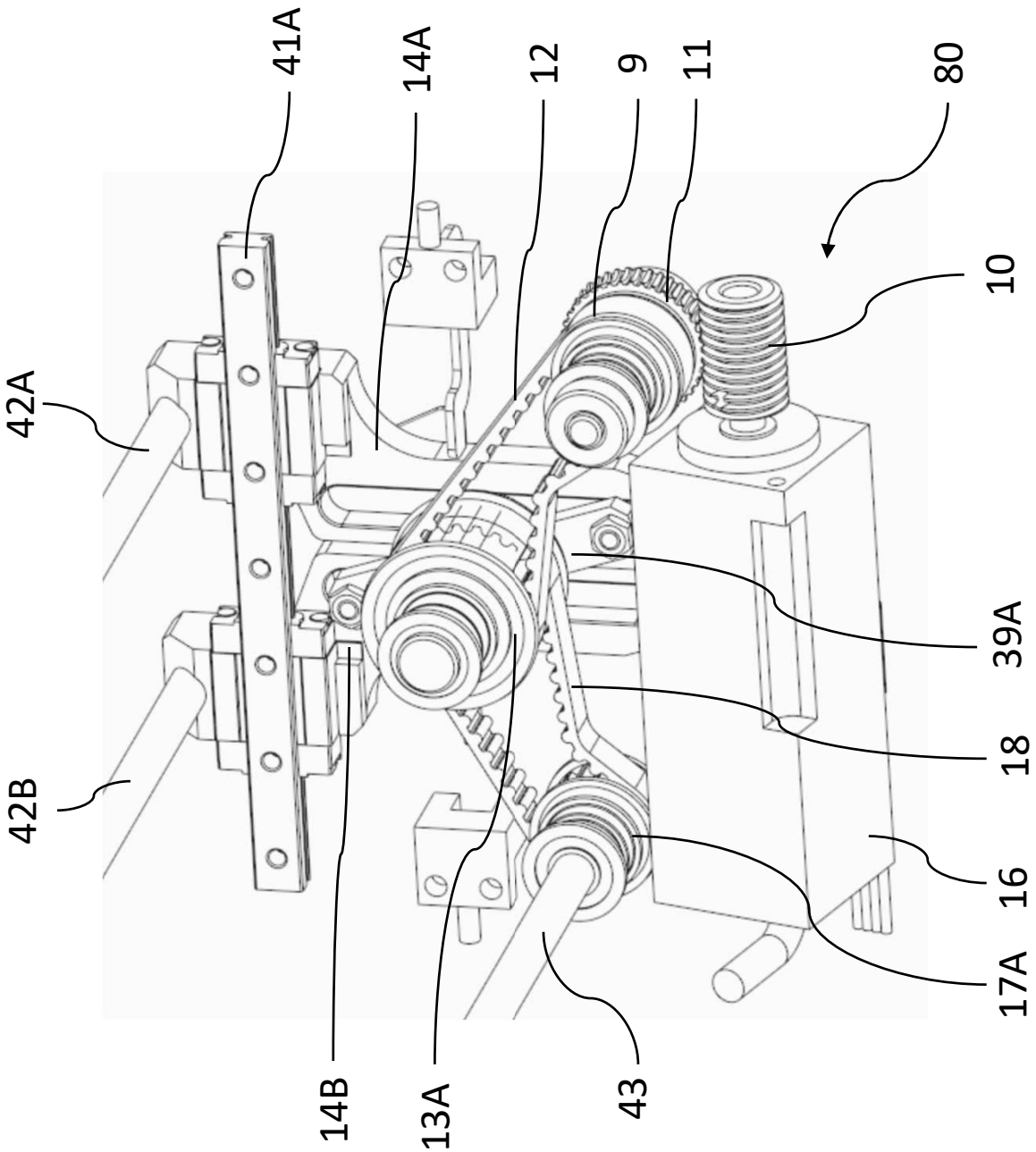


Fig. 13

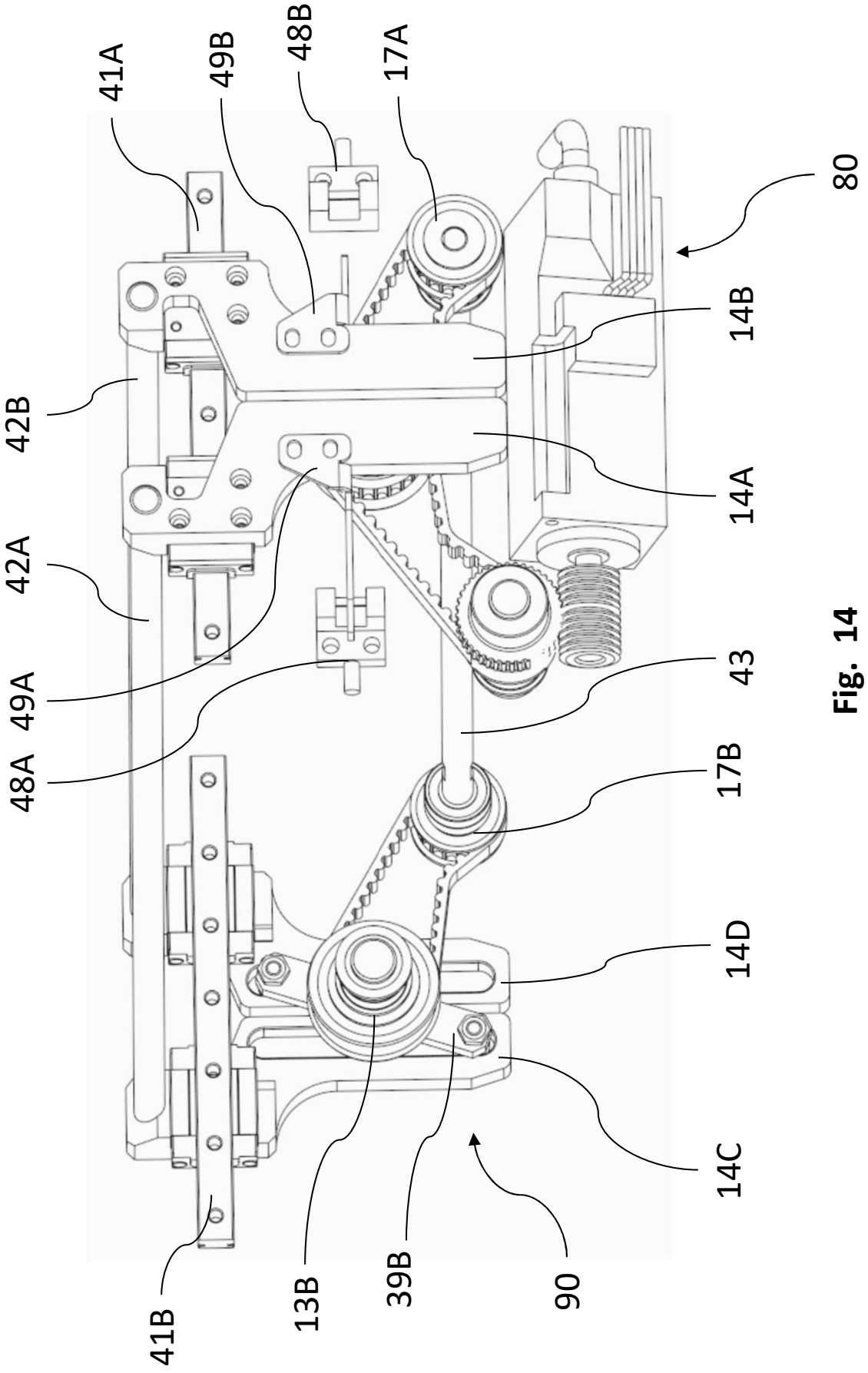

41A
49B
48B
17A
80
14B
42B
14A
42A
49A
43
48A
17B
14D
14C
41B
13B
39B
90

Fig. 14

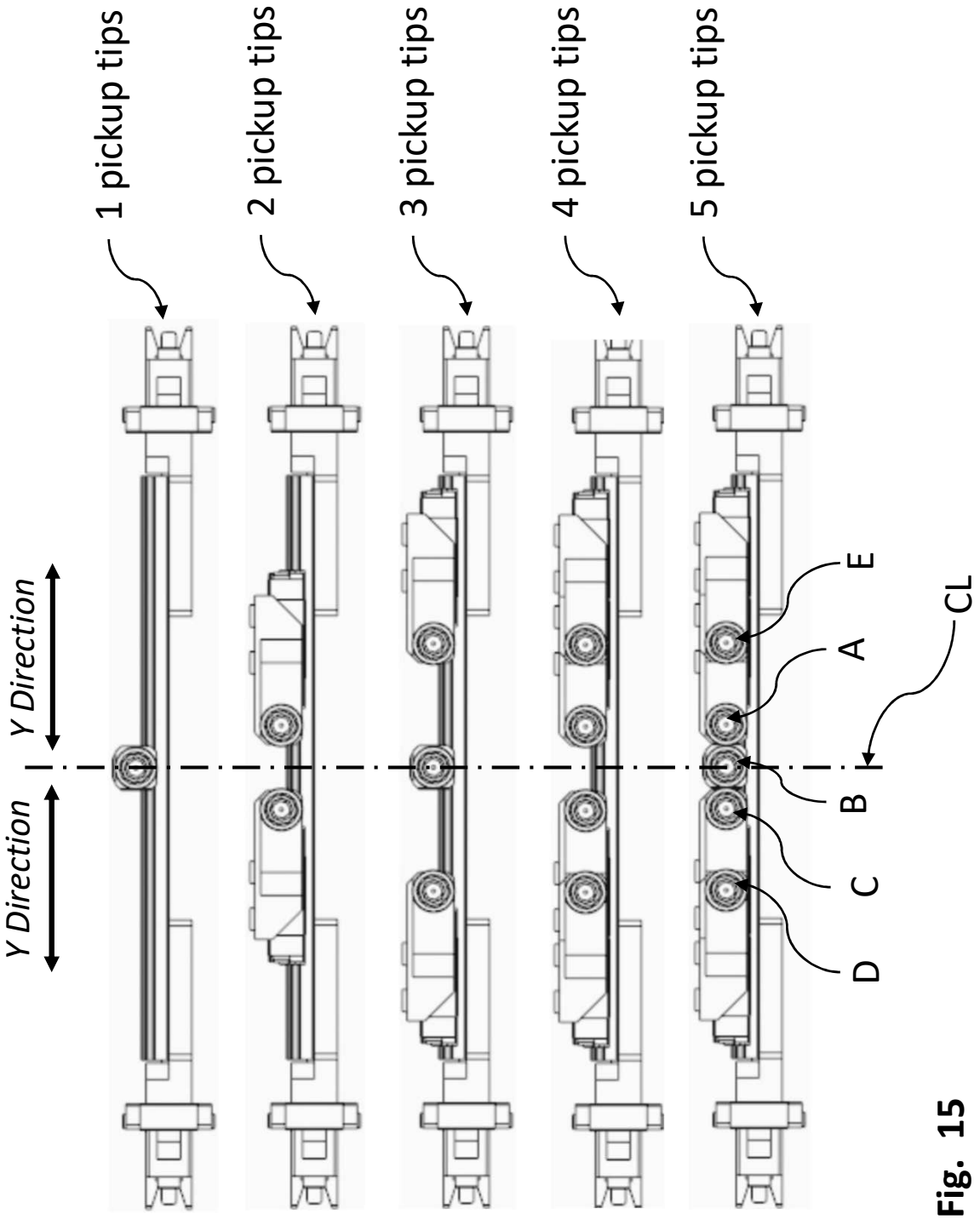

1 pickup tips
2 pickup tips
3 pickup tips
4 pickup tips
5 pickup tips
Y Direction
Y Direction
E
A
B
C
D
CL

Fig. 15

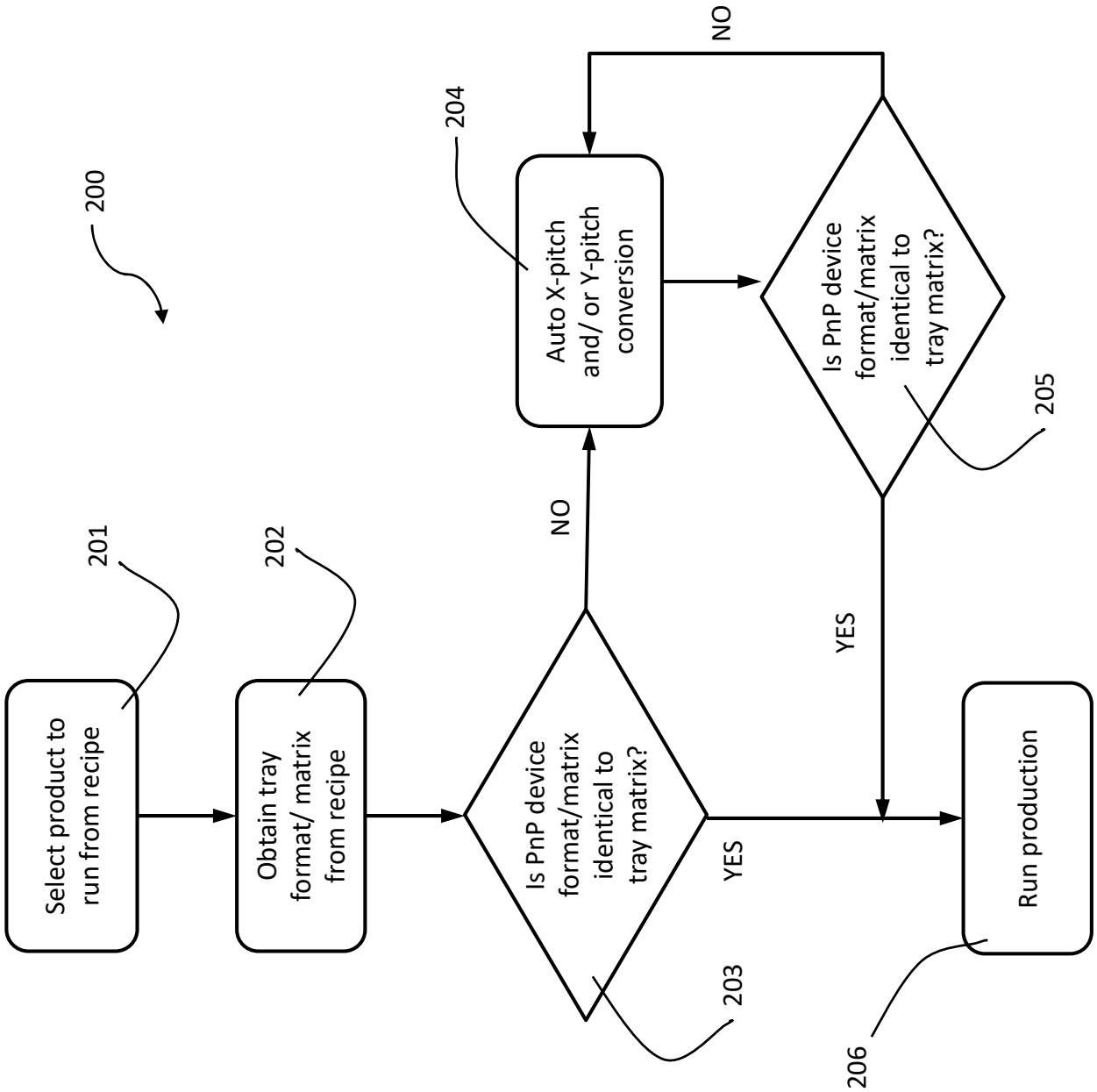

200
Select product to run from recipe
201
Obtain tray format/ matrix from recipe
202
Is PnP device format/matrix identical to tray matrix?
203
NO
Auto X-pitch and/ or Y-pitch conversion
204
Is PnP device format/matrix identical to tray matrix?
205
NO
YES
YES
Run production
206

Fig. 16

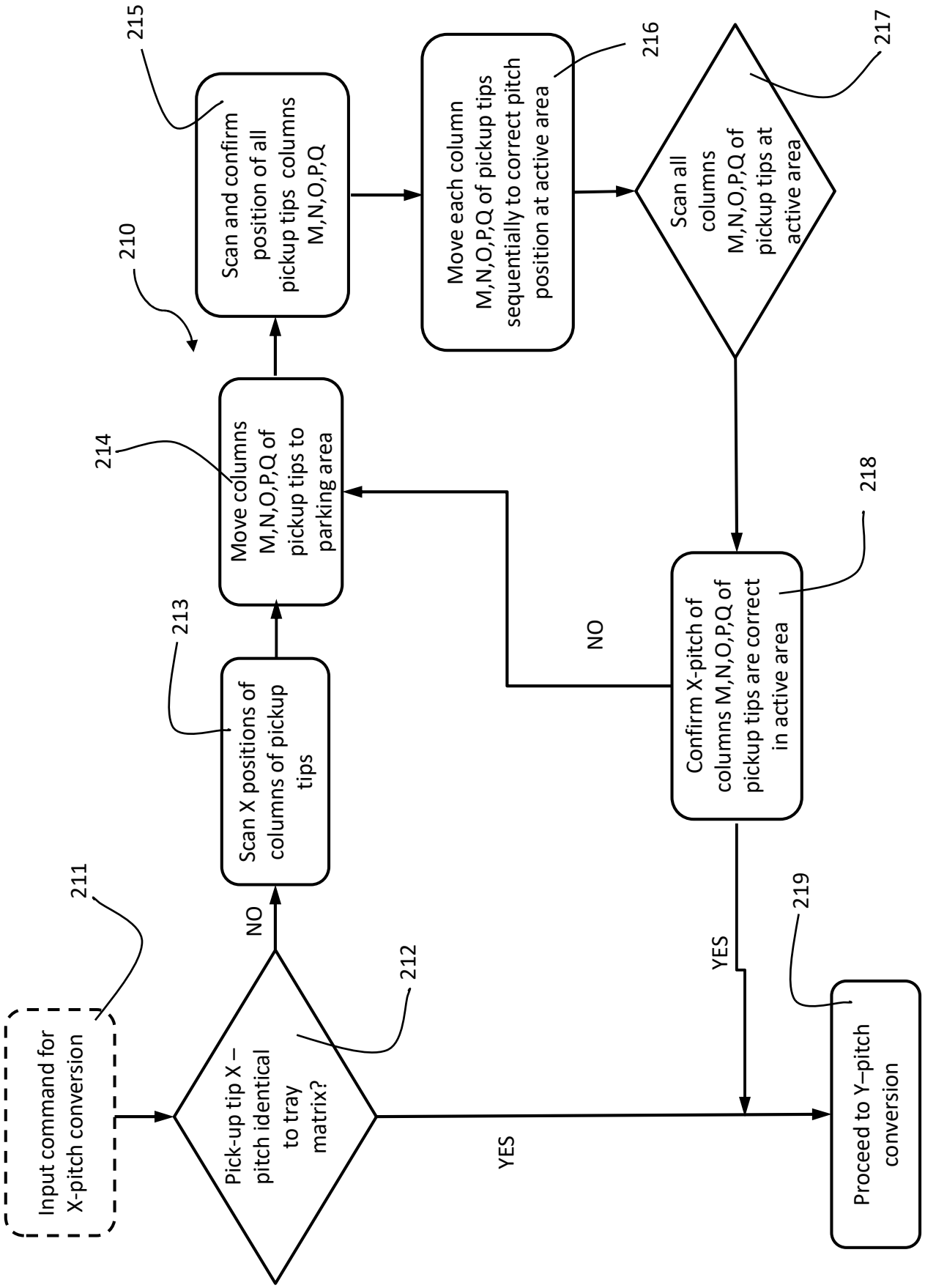

Input command for X-pitch conversion
211
Pick-up tip X – pitch identical to tray matrix?
212
NO
YES
Scan X positions of columns of pickup tips
213
Move columns M,N,O,P,Q of pickup tips to parking area
214
210
Scan and confirm position of all pickup tips columns M,N,O,P,Q
215
Move each column M,N,O,P,Q of pickup tips sequentially to correct pitch position at active area
216
Scan all columns M,N,O,P,Q of pickup tips at active area
217
Confirm X-pitch of columns M,N,O,P,Q of pickup tips are correct in active area
218
NO
YES
Proceed to Y–pitch conversion
219

Fig. 17

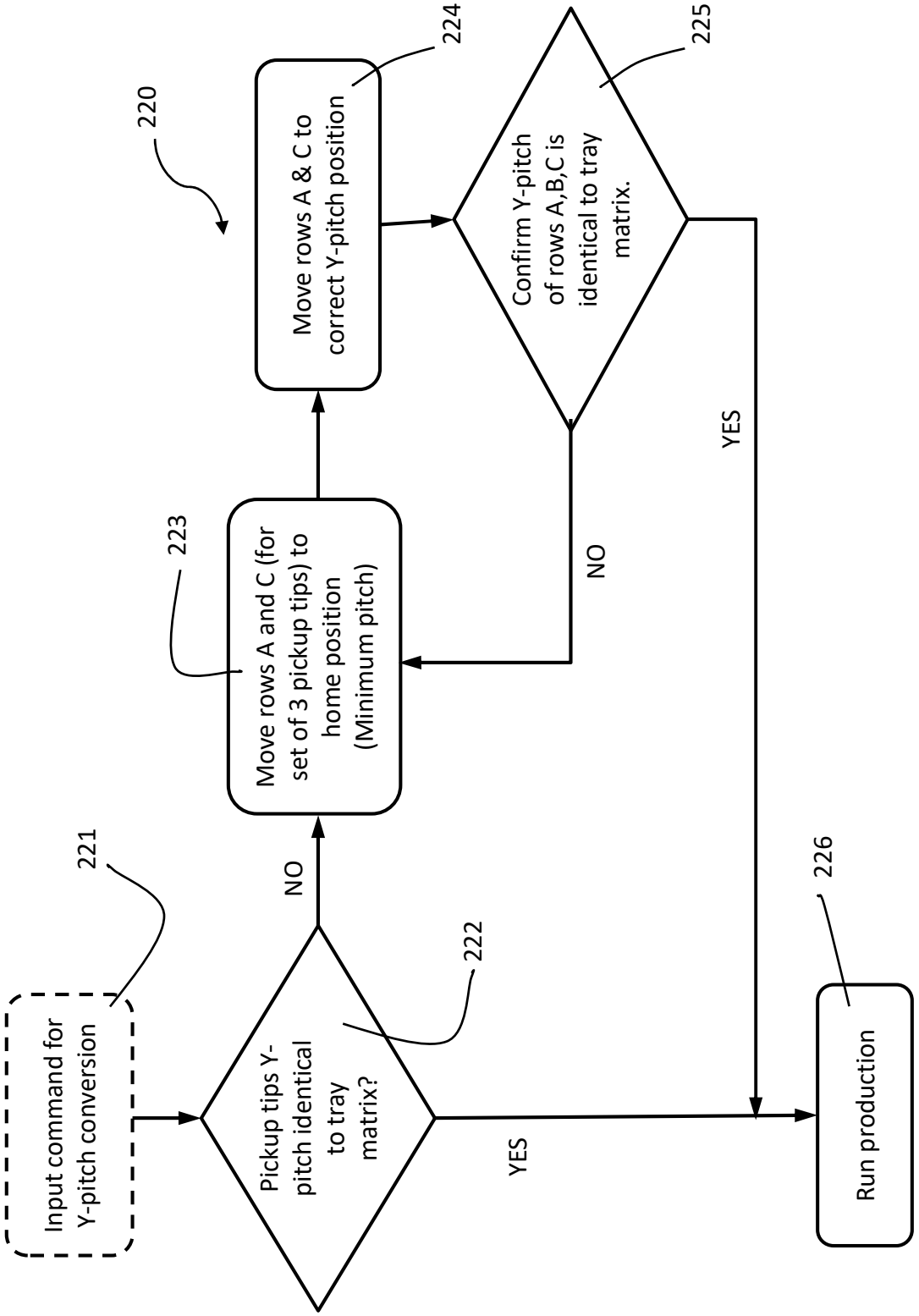

Input command for Y-pitch conversion
221
Pickup tips Y-pitch identical to tray matrix?
222
NO
YES
Move rows A and C (for set of 3 pickup tips) to home position (Minimum pitch)
223
220
Move rows A & C to correct Y-pitch position
224
Confirm Y-pitch of rows A,B,C is identical to tray matrix.
225
NO
YES
Run production
226

Fig. 18