FIG. 1A

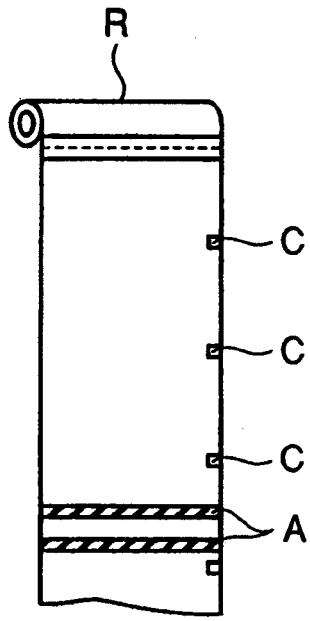


FIG. 1B

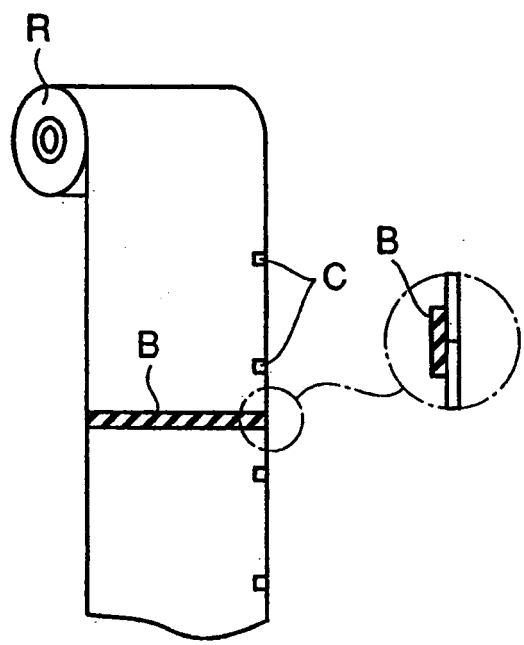


FIG. 2

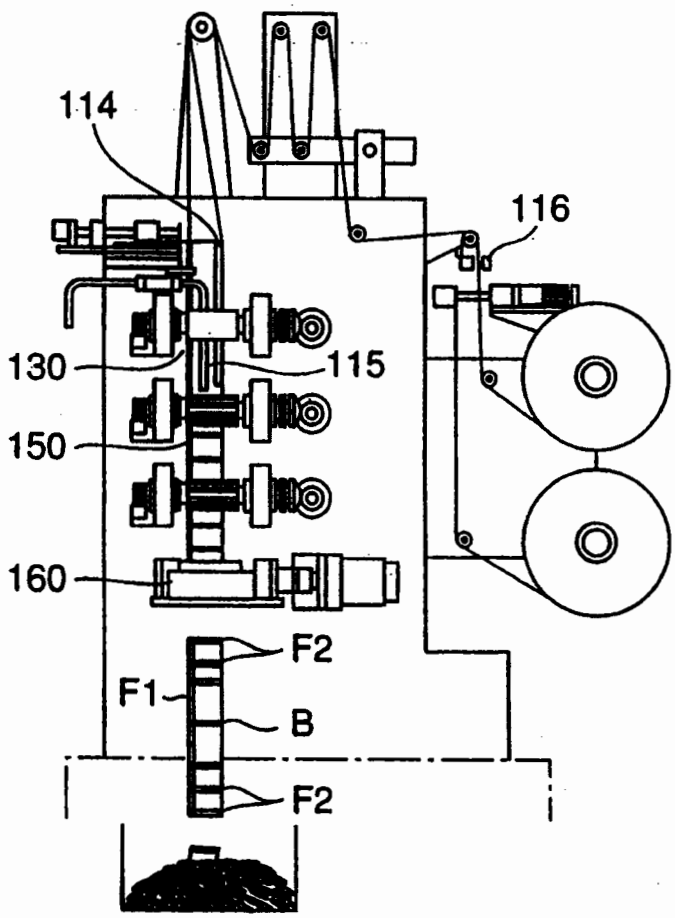


FIG. 3

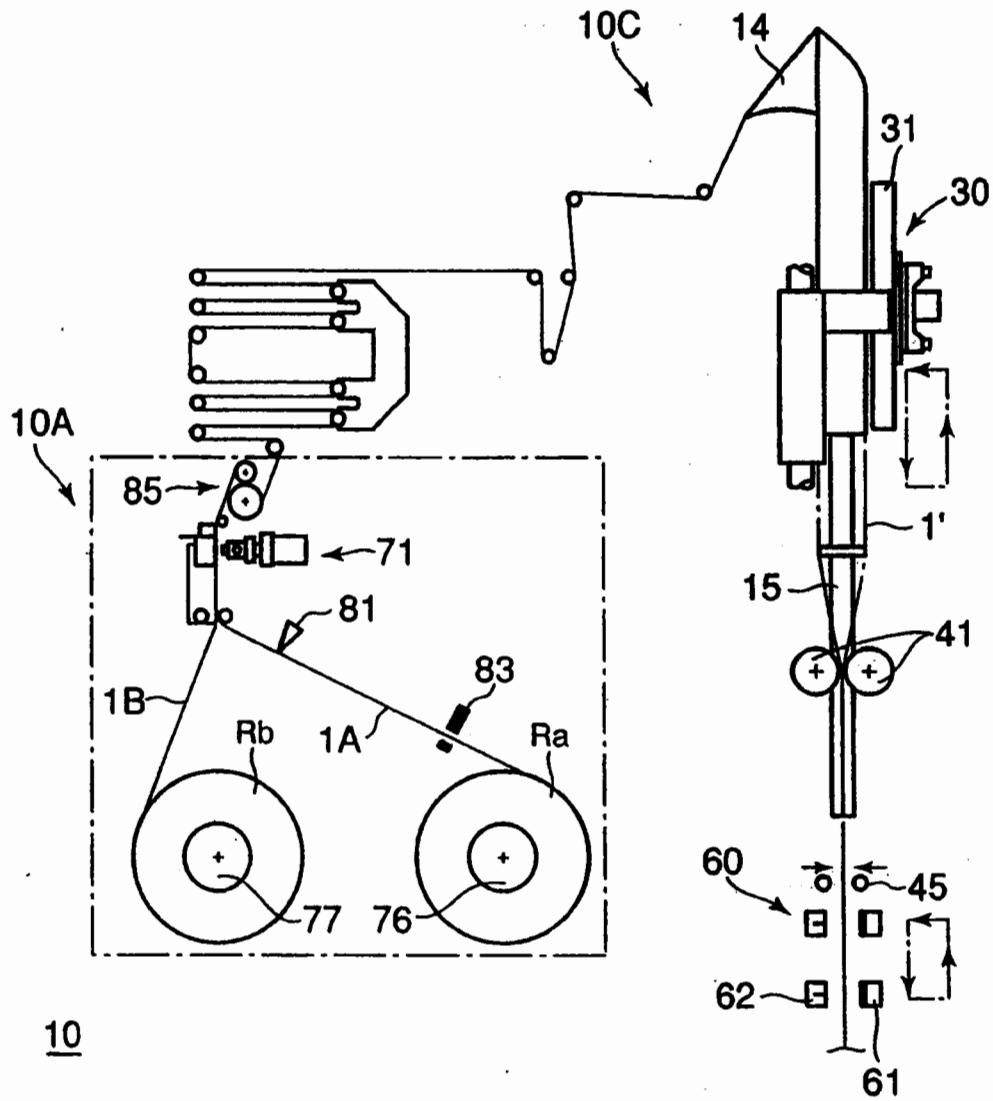

10C
14
31
30
10A
85
71
81
83
1B
Rb
1A
Ra
1'
15
41
60
45
62
77
76
61
10

FIG. 4

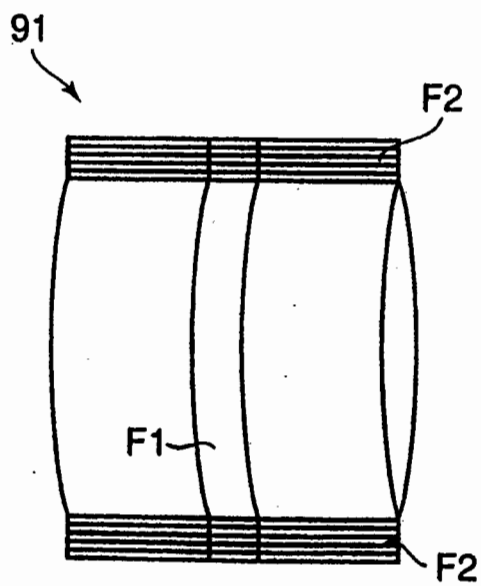

91
F2
F1
F2

FIG. 5

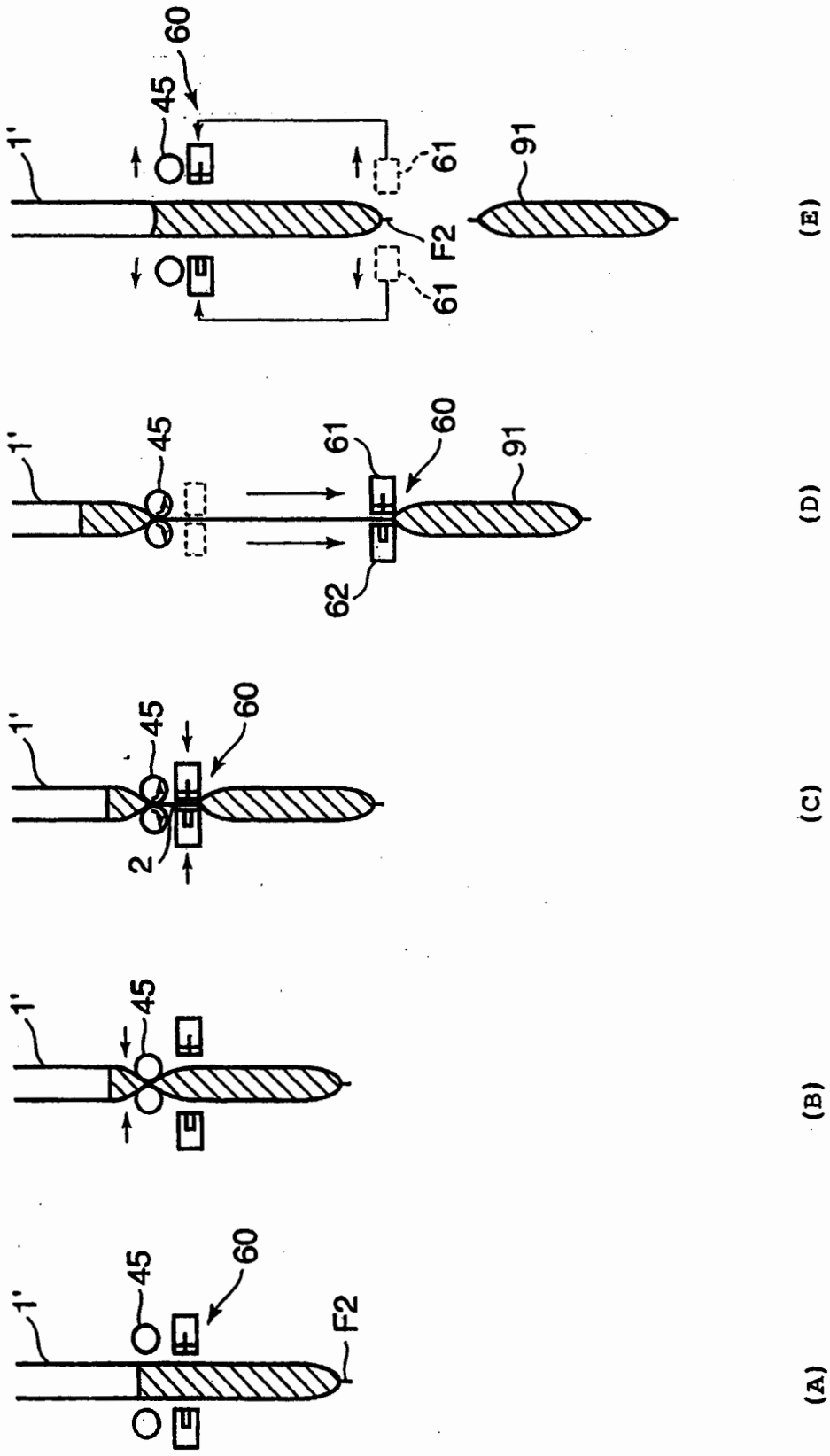


FIG. 6

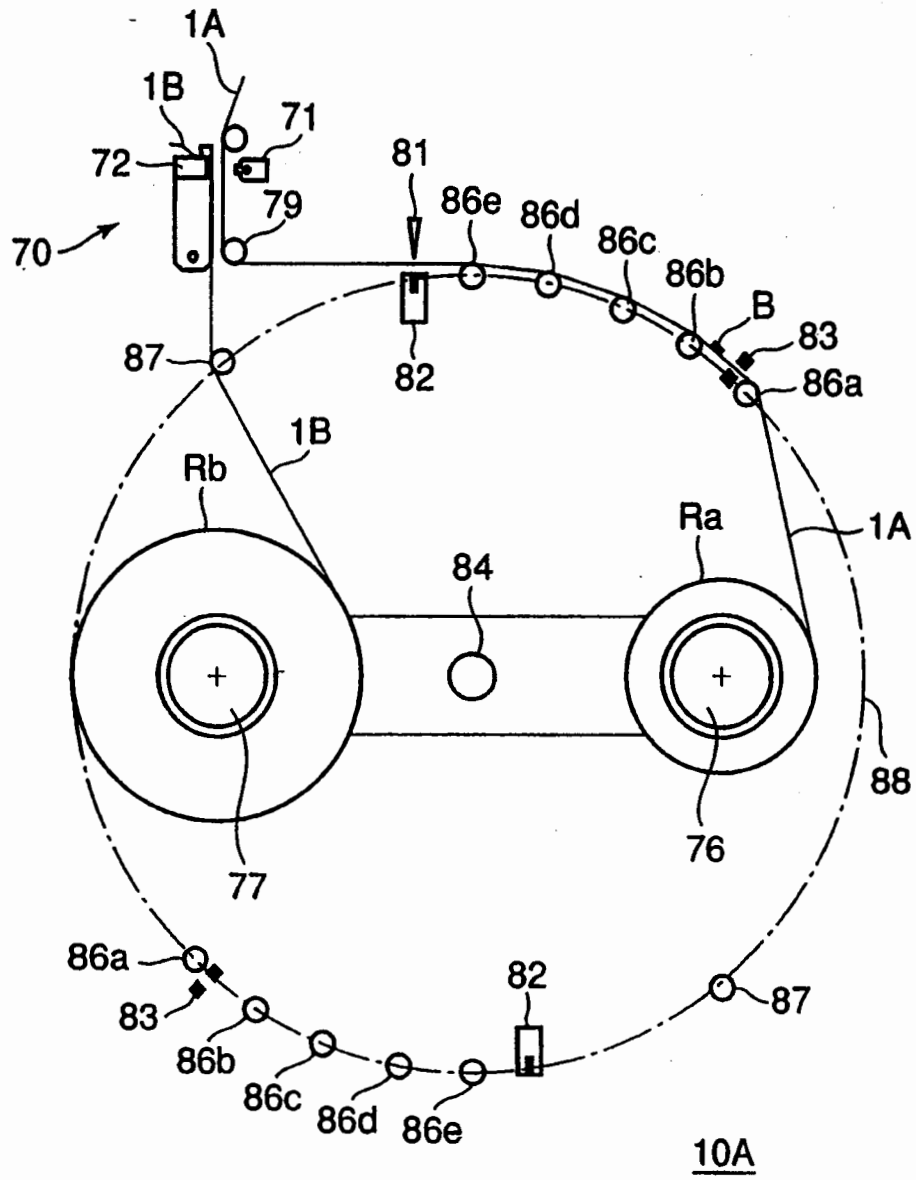

1A
1B
71
72
81
79
86e
86d
86c
86b
B
83
70
87
82
86a
1B
Rb
Ra
1A
84
88
77
76
86a
82
83
87
86b
86c
86d
86e
10A

FIG. 7

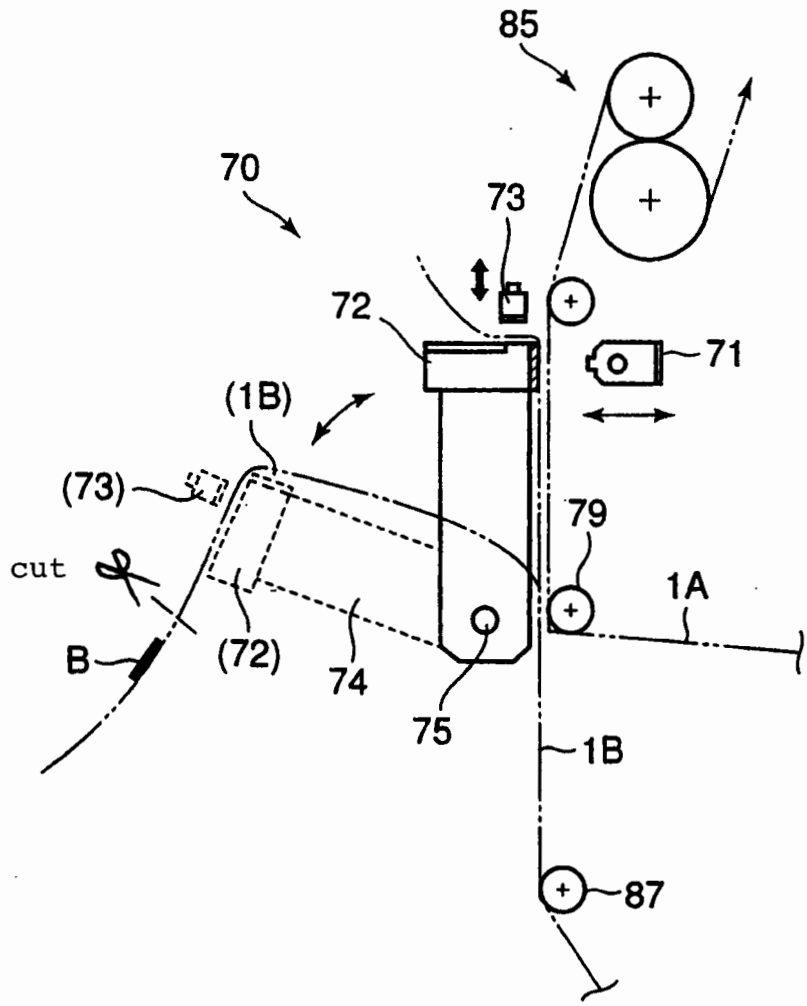


FIG. 8

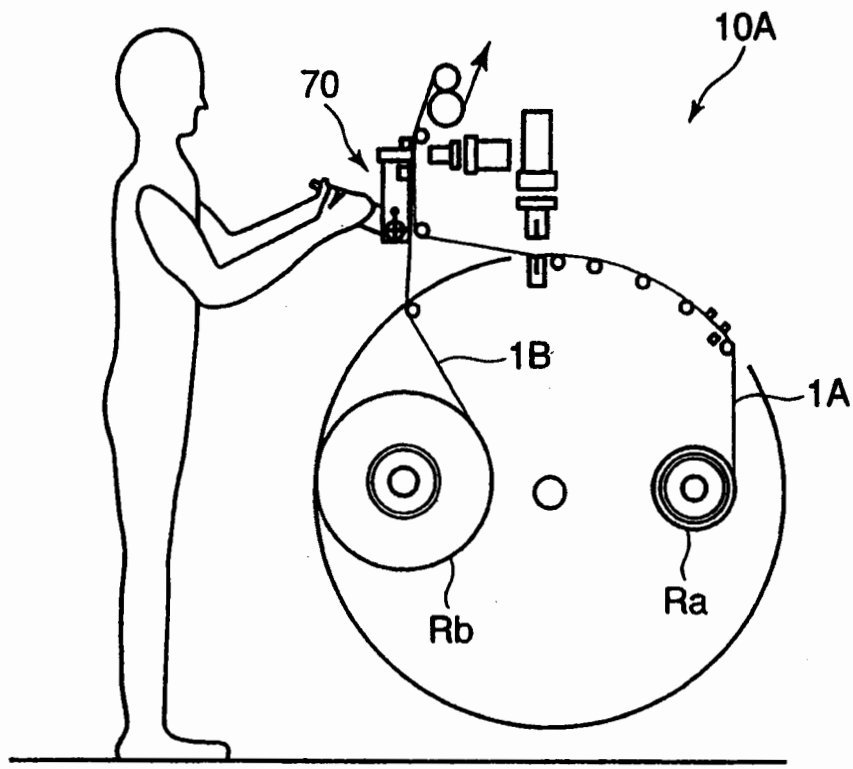


FIG. 9

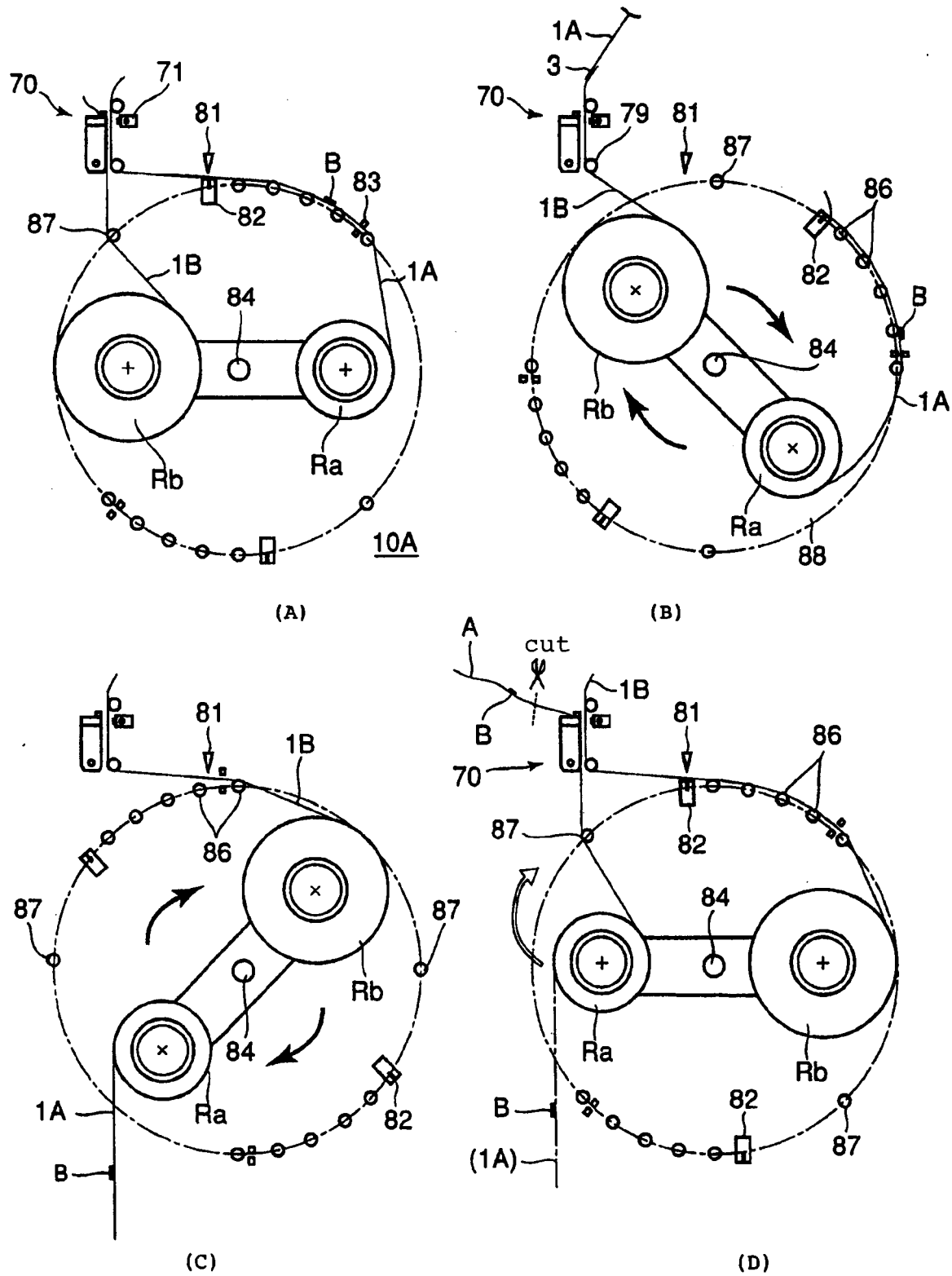

70
71
81
B
83
82
87
1B
1A
84
Rb
Ra
10A
(A)
1A
3
70
79
81
87
86
1B
82
B
84
Rb
1A
Ra
88
(B)
81
1B
86
87
87
Rb
84
1A
Ra
82
B
(C)
A
cut
1B
B
81
86
70
87
82
84
Ra
Rb
B
82
(1A)
87
(D)

FIG. 10

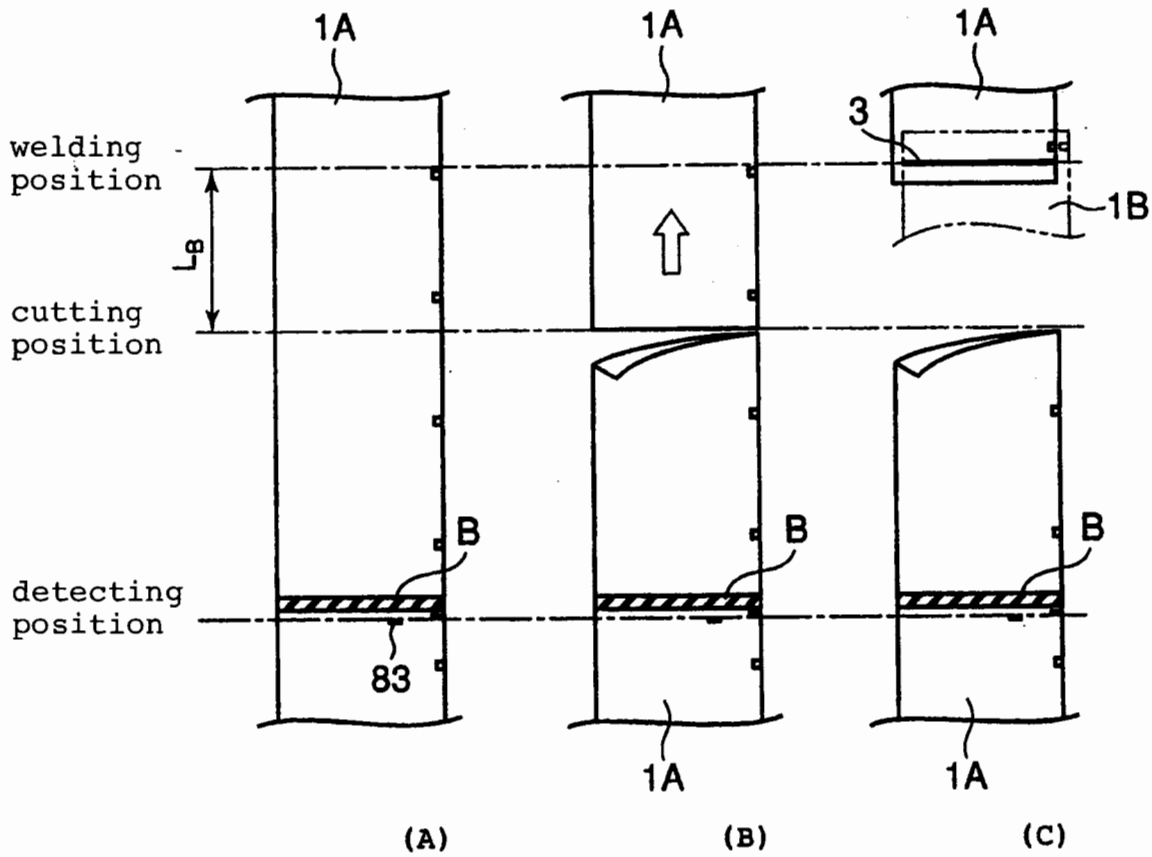

1A
1A
1A
welding position
3
1B
Lg
cutting position
B
B
B
detecting position
83
1A
1A
(A)
(B)
(C)

FIG. 11

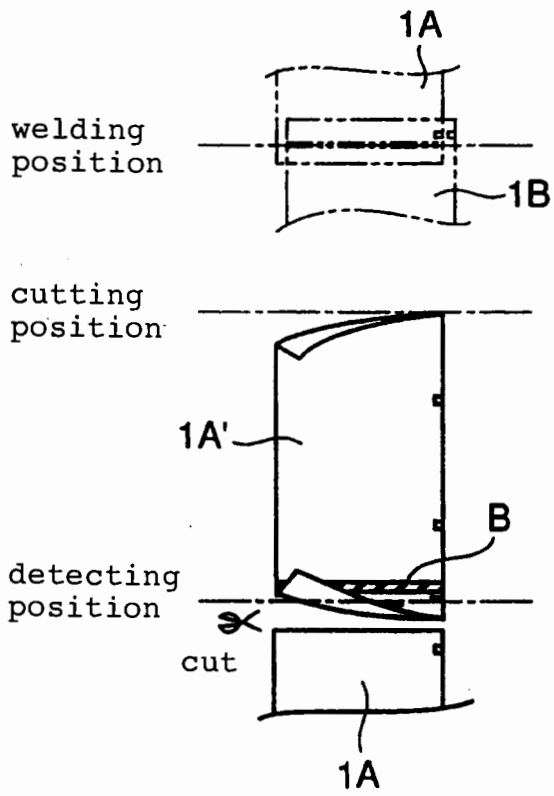

1A
welding position
1B
cutting position
1A'
B
detecting position
cut
1A

FIG. 12

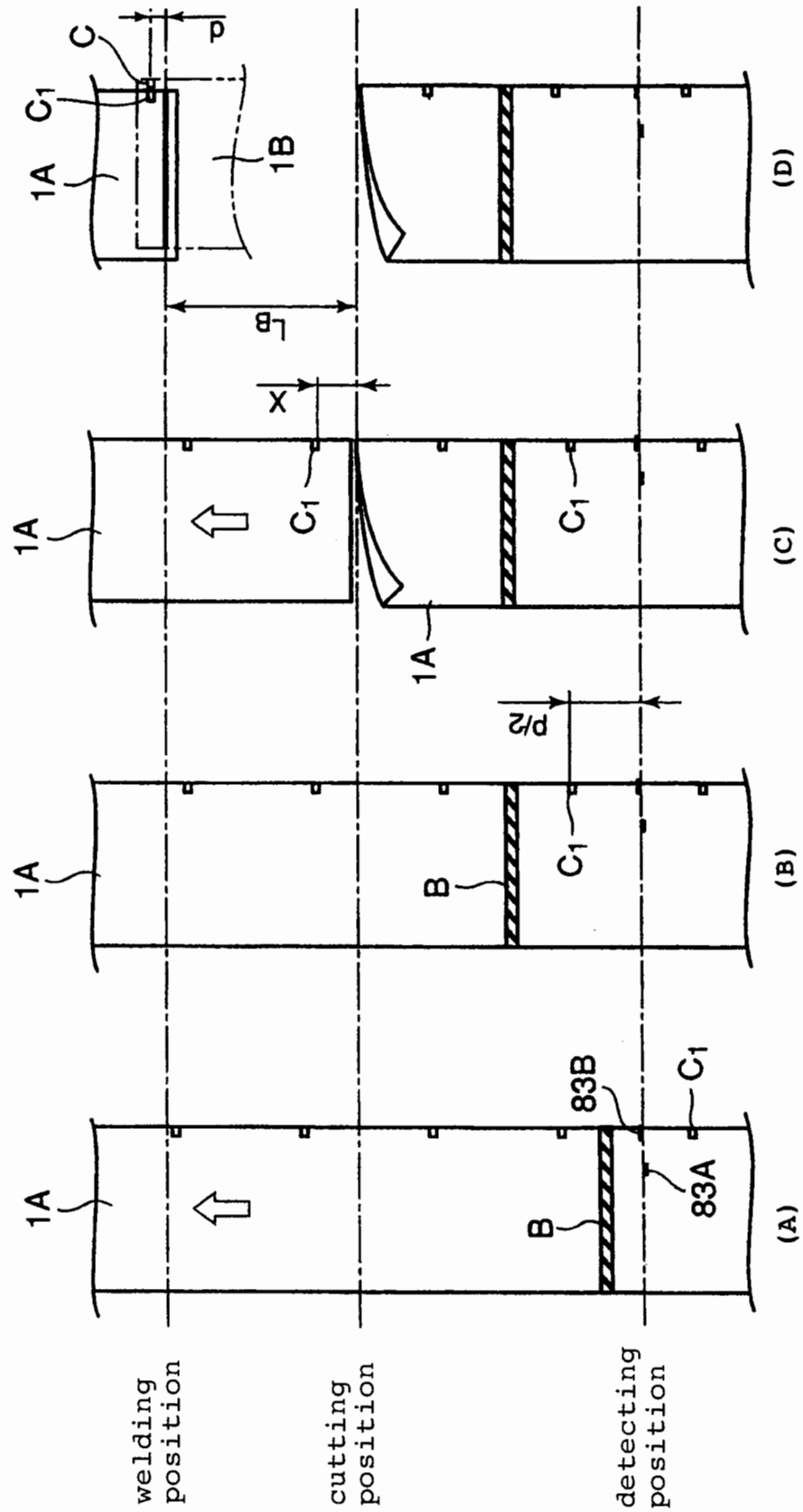

C
p
C1
1A
1B
(D)
LB
X
C1
1A
C1
(C)
1A
p/2
1A
B
C1
(B)
1A
83B
C1
B
83A
(A)
welding position
cutting position
detecting position

FIG. 13

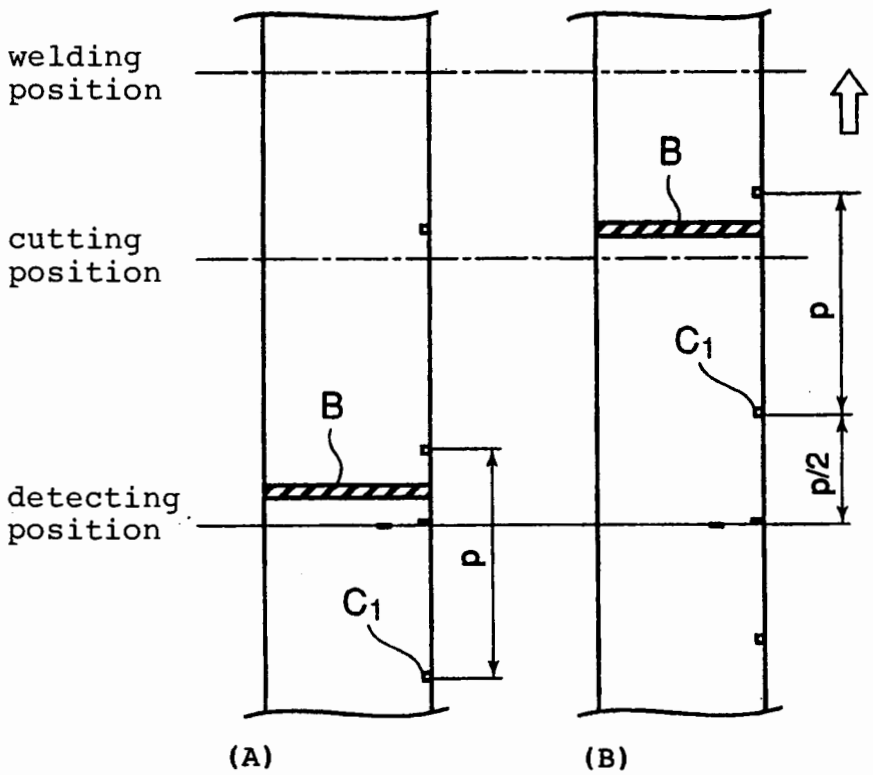

welding position
cutting position
detecting position
B
B
C1
C1
p
p
p/2
(A)
(B)

FIG. 14

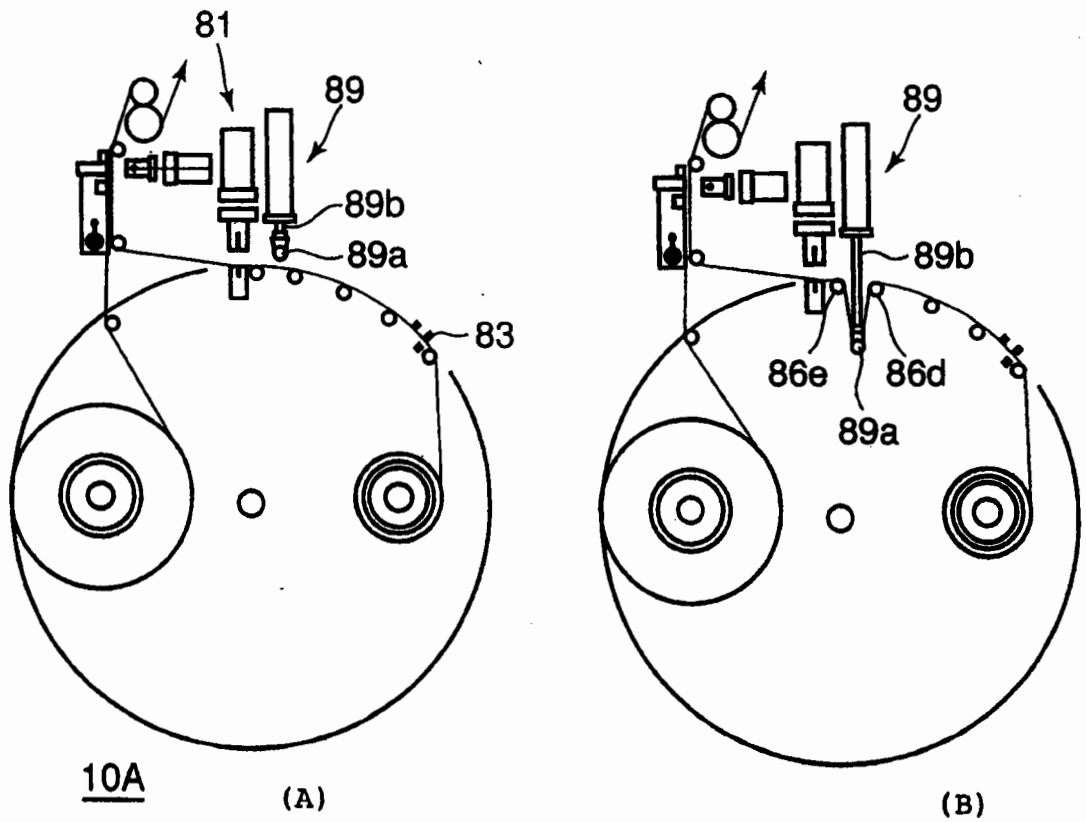

81
89
89b
89a
83
10A
(A)
89
89b
86e
86d
89a
(B)

FIG. 15

