Fig. 1

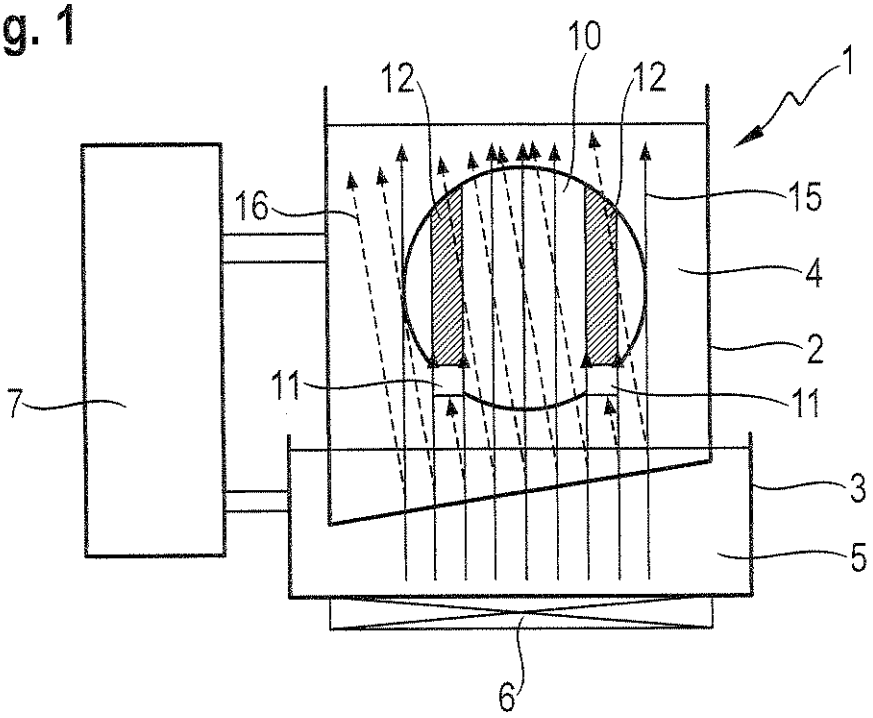

10
12
12
1
16
15
4
2
7
11
11
3
5
6

Fig. 2

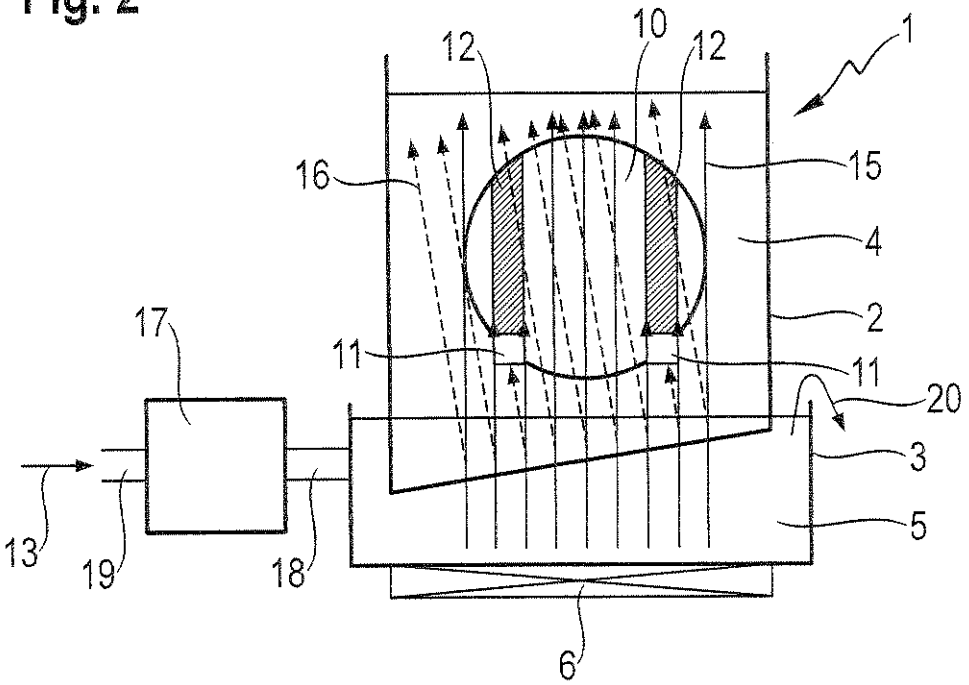

10
12
12
1
16
15
4
2
17
11
11
20
3
5
13
19
18
6

Fig. 3

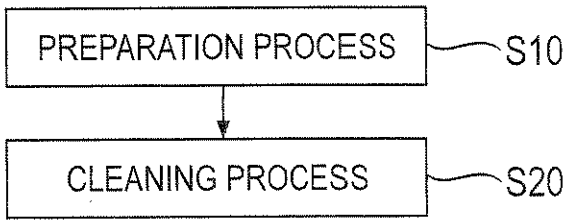


Fig. 4

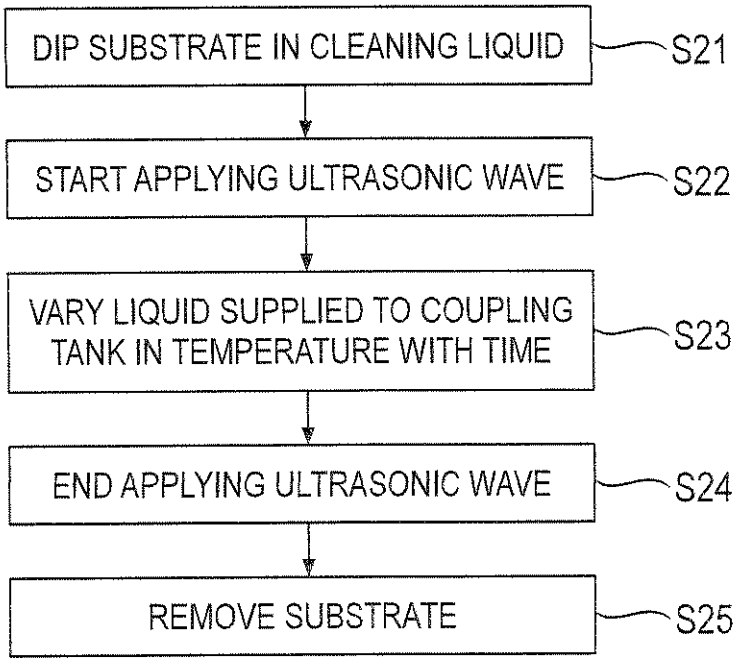


Fig. 5

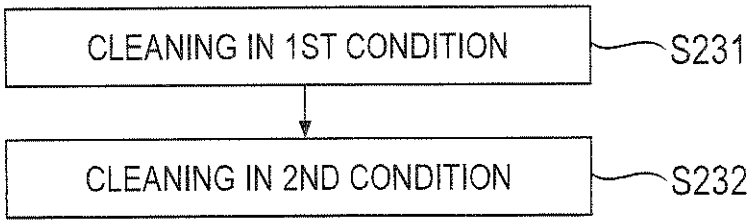


Fig. 6

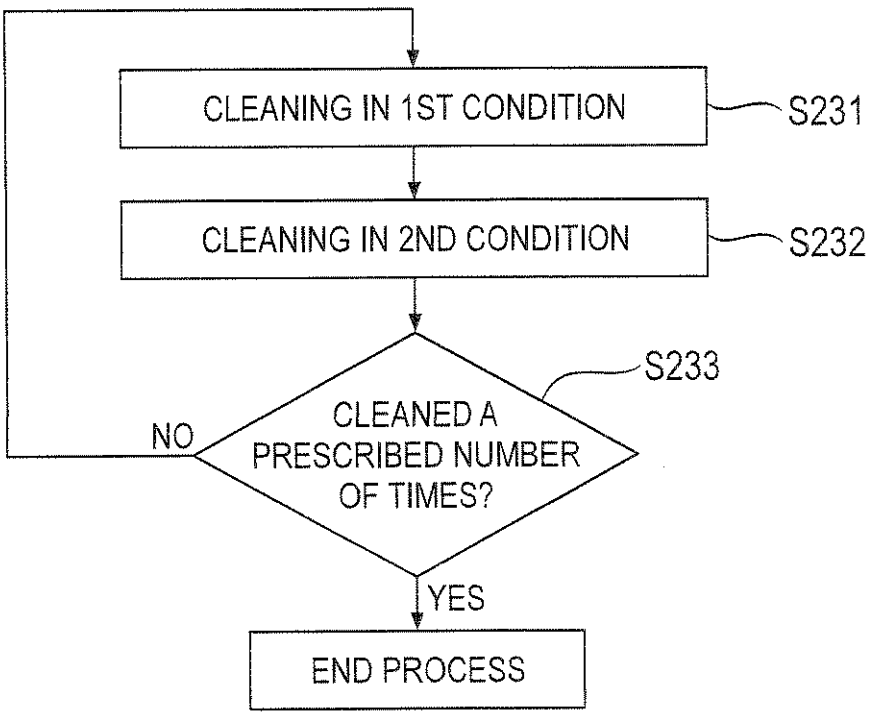
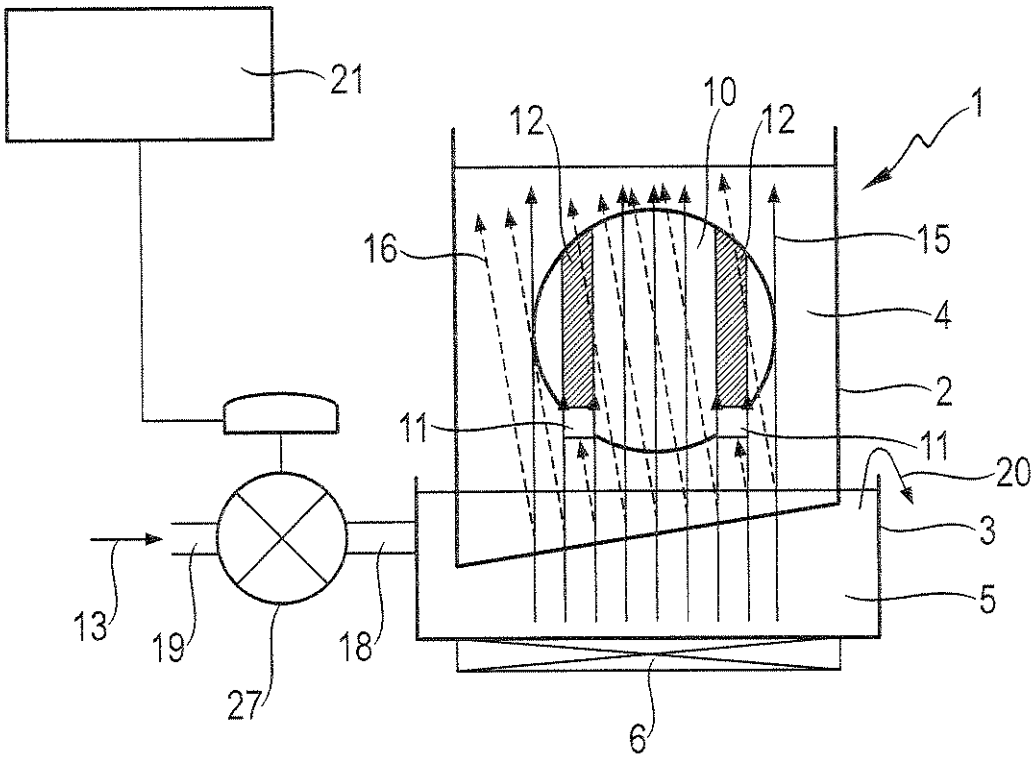

CLEANING IN 1ST CONDITION
S231
CLEANING IN 2ND CONDITION
S232
S233
CLEANED A PRESCRIBED NUMBER OF TIMES?
NO
YES
END PROCESS

Fig. 7


21
1
10
12
12
16
15
4
2
11
11
20
3
5
13
19
18
27
6

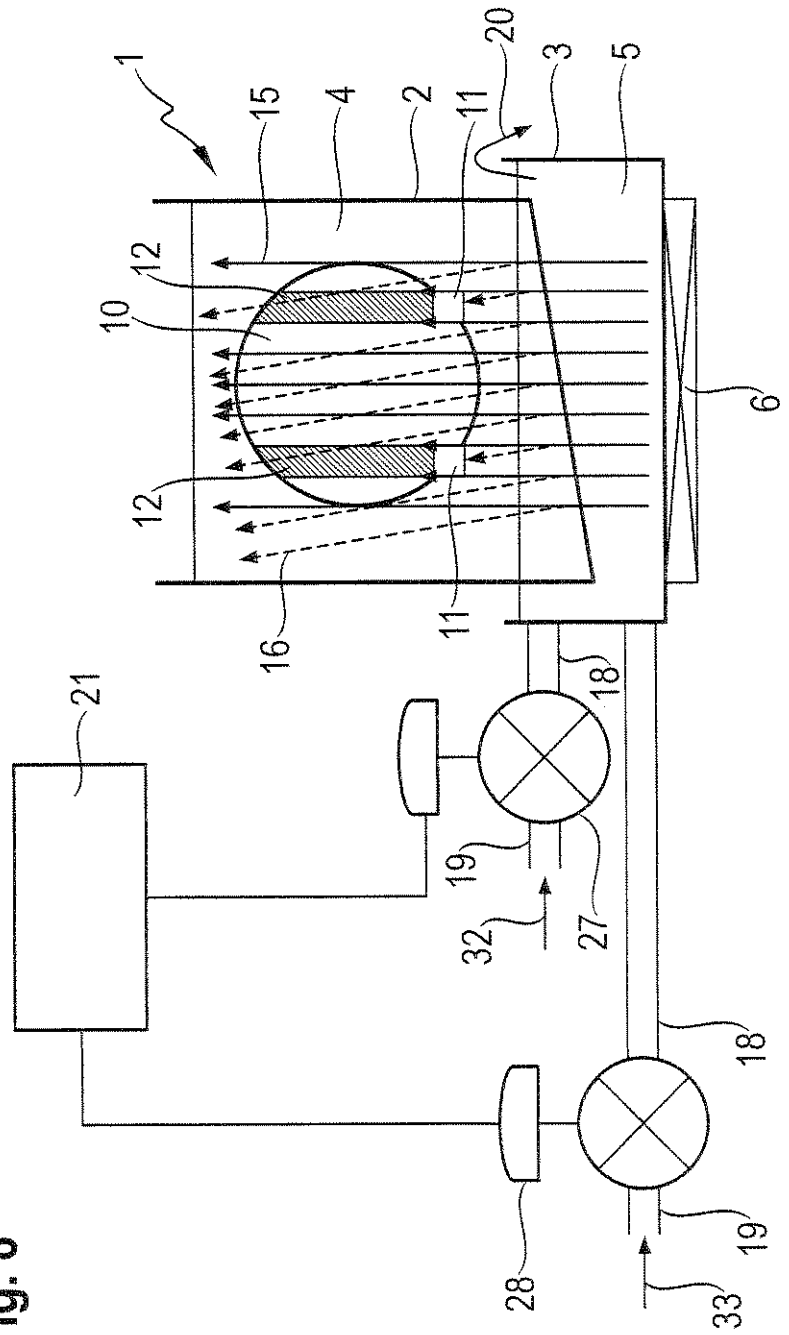
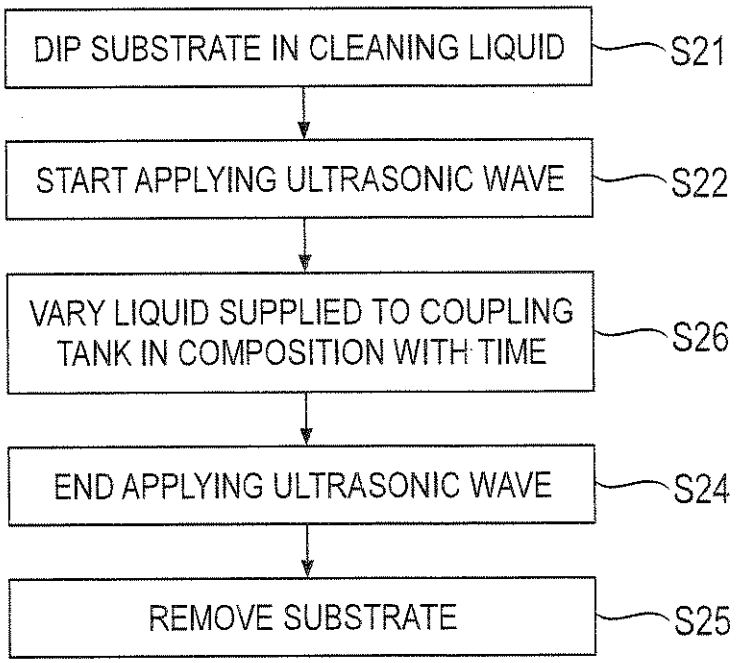


Fig. 8

Fig. 9


DIP SUBSTRATE IN CLEANING LIQUID
S21
START APPLYING ULTRASONIC WAVE
S22
VARY LIQUID SUPPLIED TO COUPLING TANK IN COMPOSITION WITH TIME
S26
END APPLYING ULTRASONIC WAVE
S24
REMOVE SUBSTRATE
S25

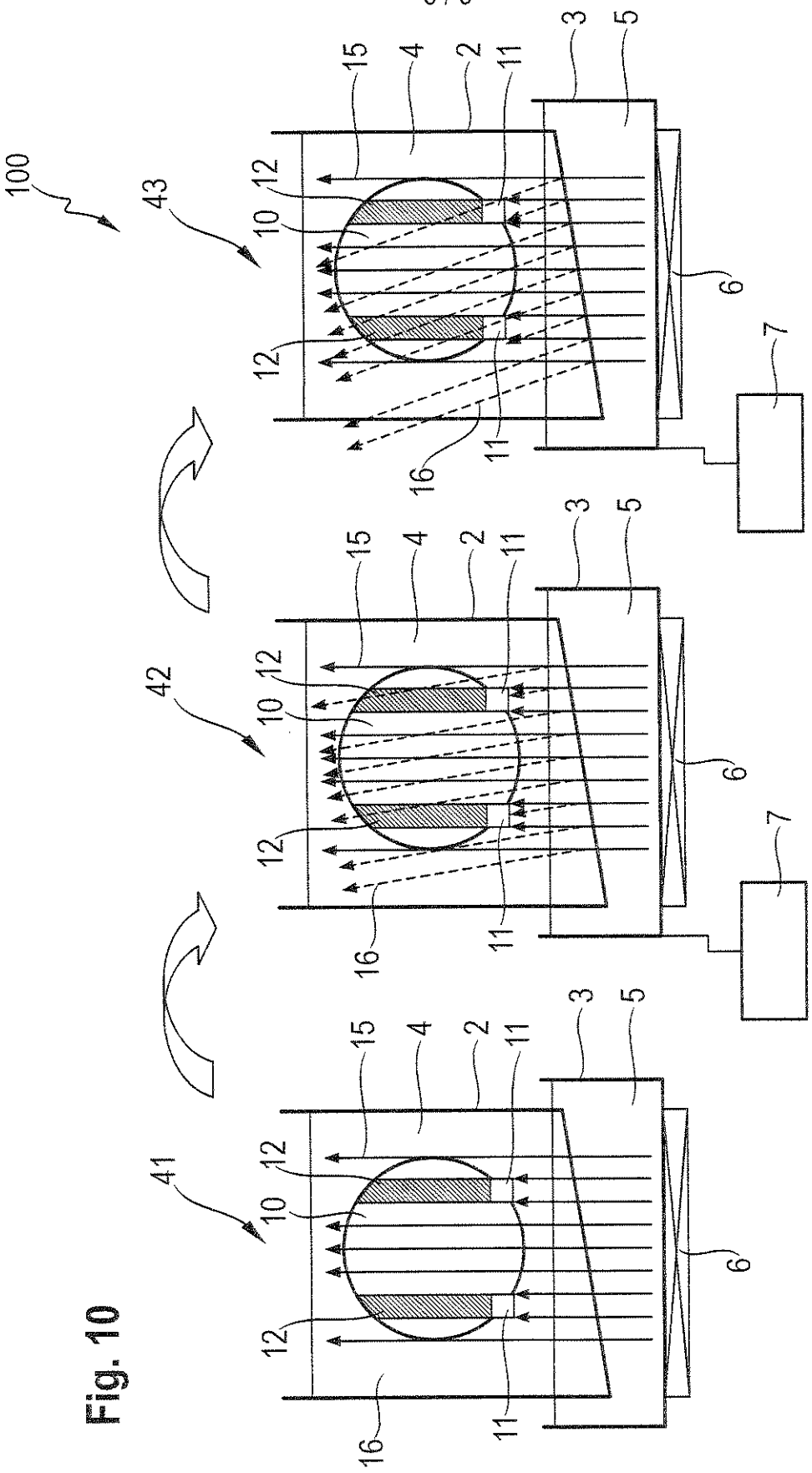


Fig. 10

Fig. 11

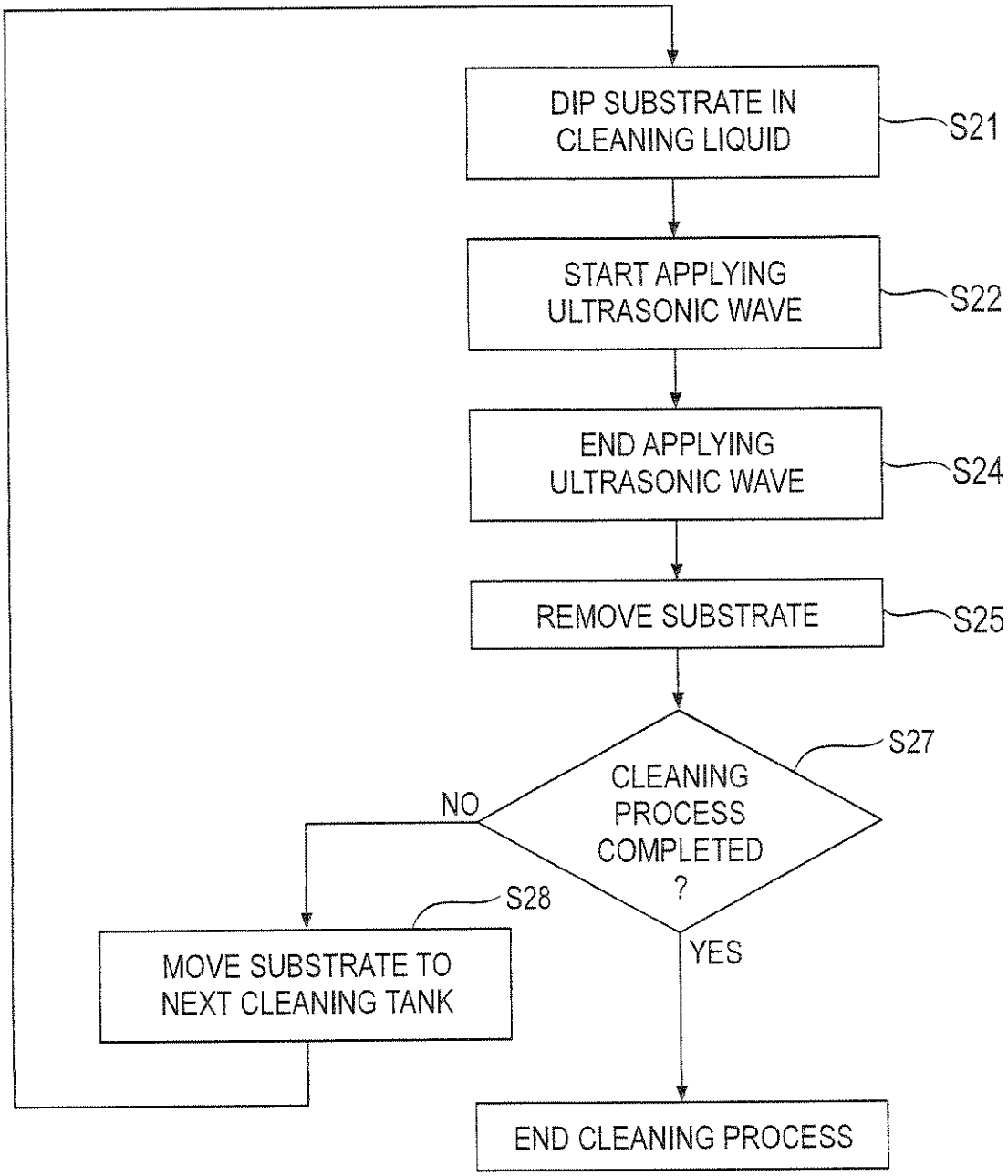

DIP SUBSTRATE IN CLEANING LIQUID
S21
START APPLYING ULTRASONIC WAVE
S22
END APPLYING ULTRASONIC WAVE
S24
REMOVE SUBSTRATE
S25
CLEANING PROCESS COMPLETED ?
S27
NO
YES
MOVE SUBSTRATE TO NEXT CLEANING TANK
S28
END CLEANING PROCESS

Fig. 12

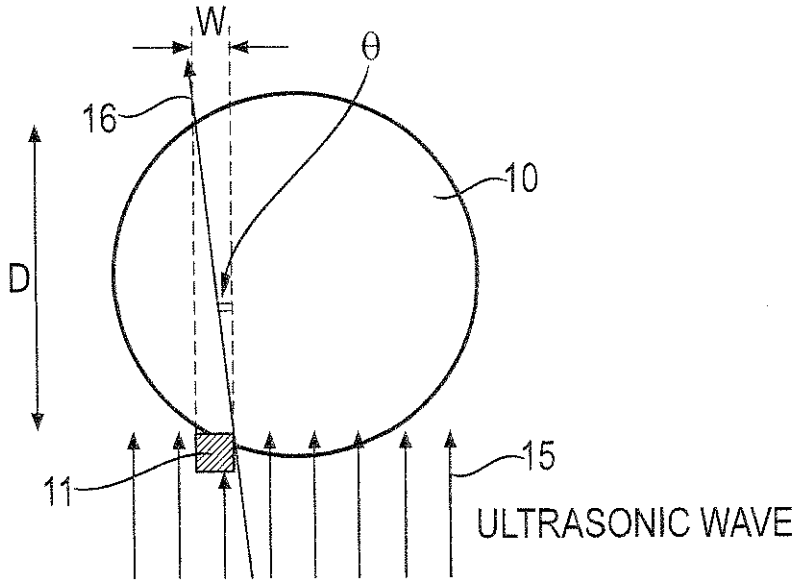

W
θ
16
10
D
11
15
ULTRASONIC WAVE

Fig. 13

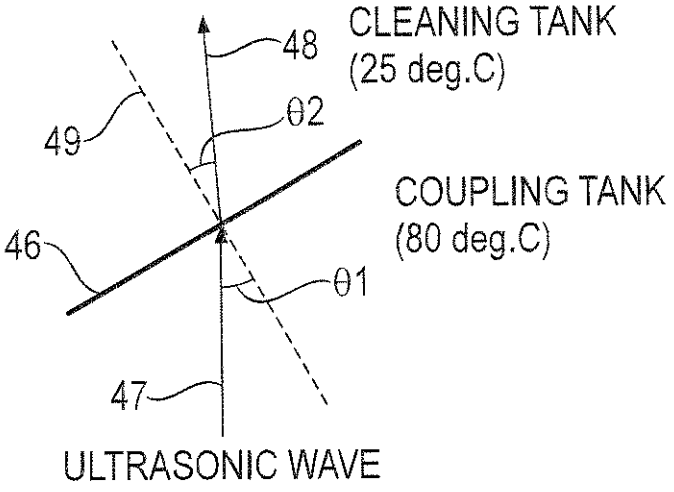
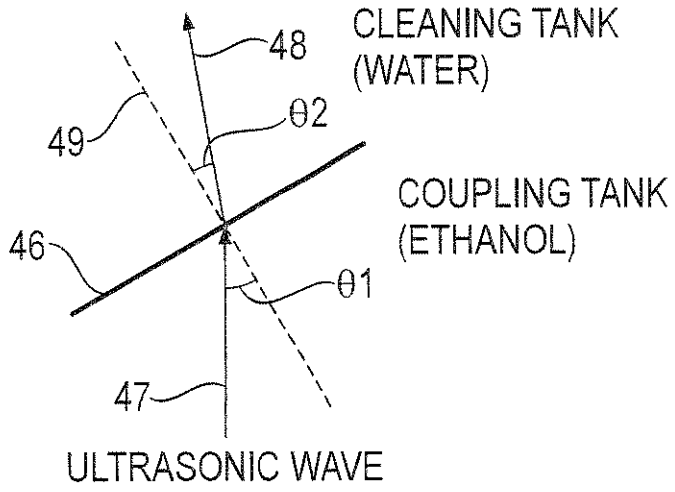

CLEANING TANK
(25 deg.C)
48
θ2
49
COUPLING TANK
(80 deg.C)
46
θ1
47
ULTRASONIC WAVE

Fig. 14


48
CLEANING TANK
(WATER)
49
θ2
COUPLING TANK
(ETHANOL)
46
θ1
47
ULTRASONIC WAVE