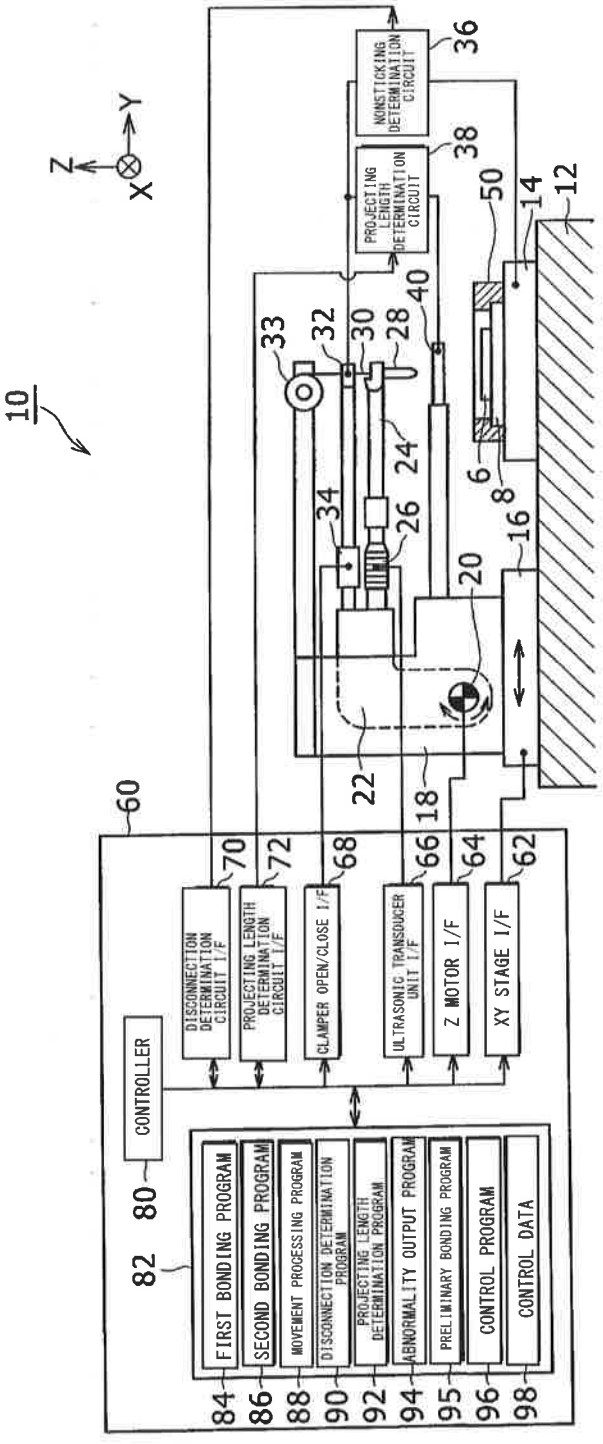

10
Z
X
Y
60
CONTROLLER
80
82
FIRST BONDING PROGRAM
SECOND BONDING PROGRAM
MOVEMENT PROCESSING PROGRAM
DISCONNECTION DETERMINATION PROGRAM
PROJECTING LENGTH DETERMINATION PROGRAM
ABNORMALITY OUTPUT PROGRAM
PRELIMINARY BONDING PROGRAM
CONTROL PROGRAM
CONTROL DATA
84
86
88
90
92
94
95
96
98
DISCONNECTION DETERMINATION CIRCUIT I/F
PROJECTING LENGTH DETERMINATION CIRCUIT I/F
CLAMPER OPEN/CLOSE I/F
ULTRASONIC TRANSDUCER UNIT I/F
Z MOTOR I/F
XY STAGE I/F
70
72
68
66
64
62
NONSTICKING DETERMINATION CIRCUIT
PROJECTING LENGTH DETERMINATION CIRCUIT
36
38
12
14
16
18
20
22
24
26
28
30
32
33
34
40
50
6
8

FIG. 1

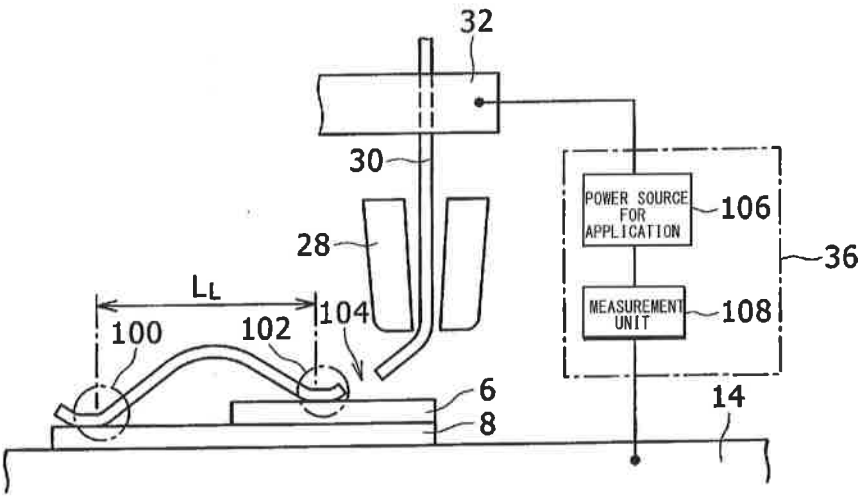

32
30
28
L_L
100
102
104
6
8
14
POWER SOURCE FOR APPLICATION
106
MEASUREMENT UNIT
108
36

FIG. 2

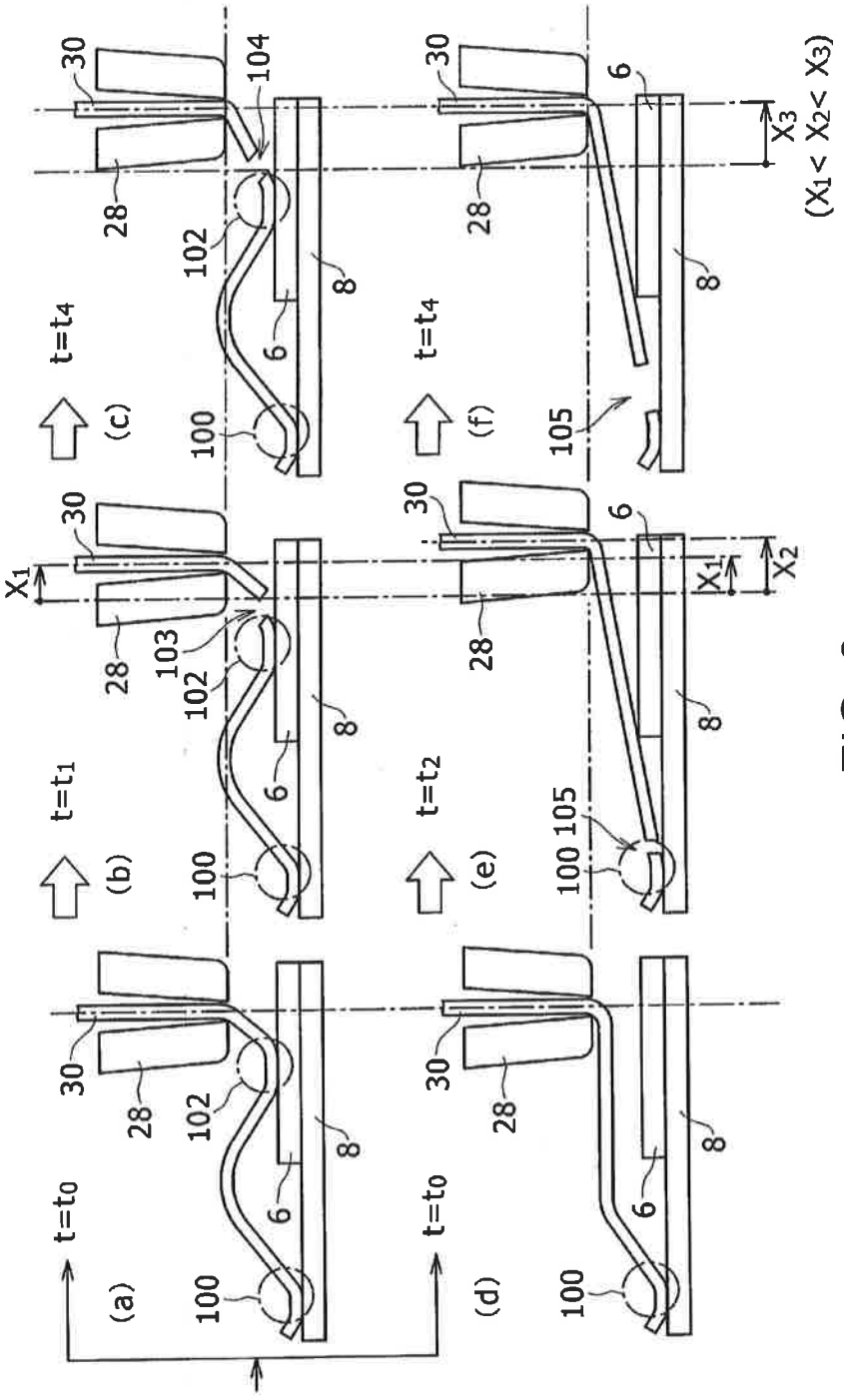

t=t0
(a)
t=t1
(b)
t=t4
(c)
t=t0
(d)
t=t2
(e)
t=t4
(f)
30
28
102
103
104
100
105
6
8
X1
X2
X3
(X1< X2< X3)

FIG. 3

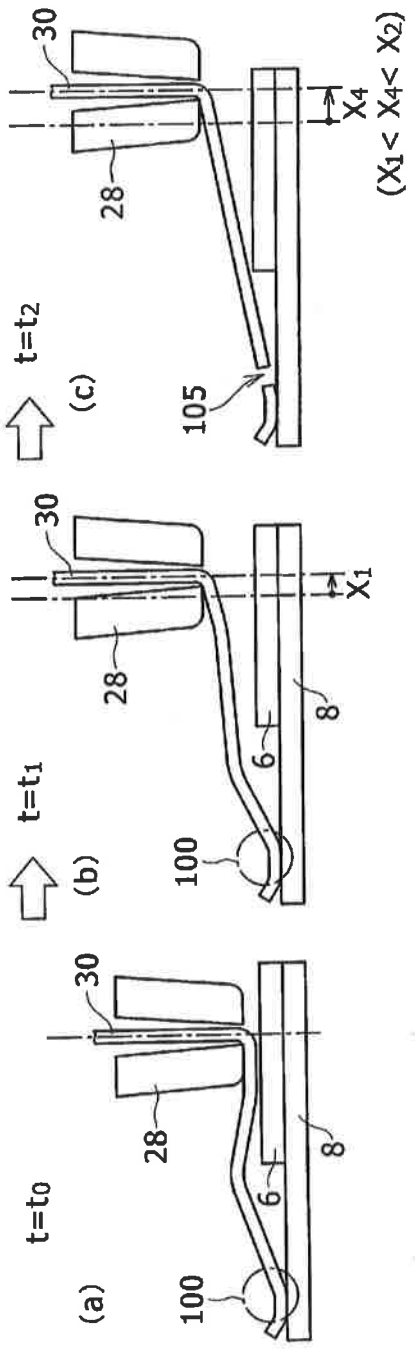


FIG. 4

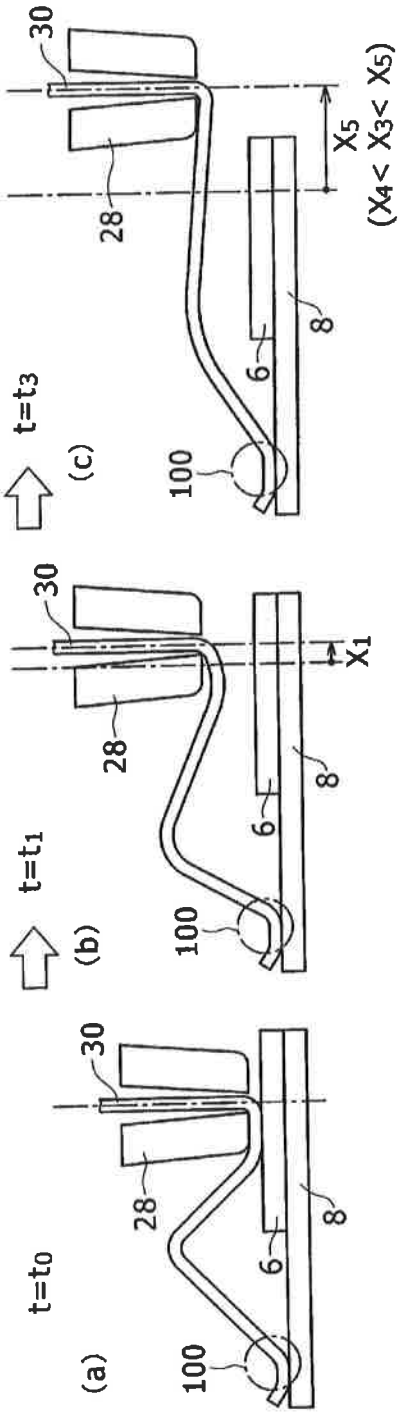


FIG. 5

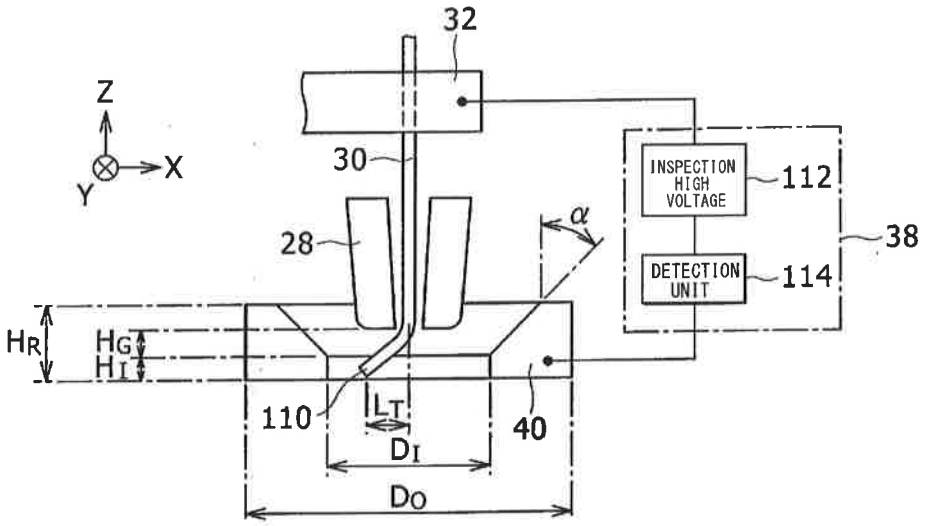

32
Z
X
Y
30
28
α
INSPECTION HIGH VOLTAGE
112
38
DETECTION UNIT
114
HR
HG
HI
110
LT
DI
DO
40

FIG. 6

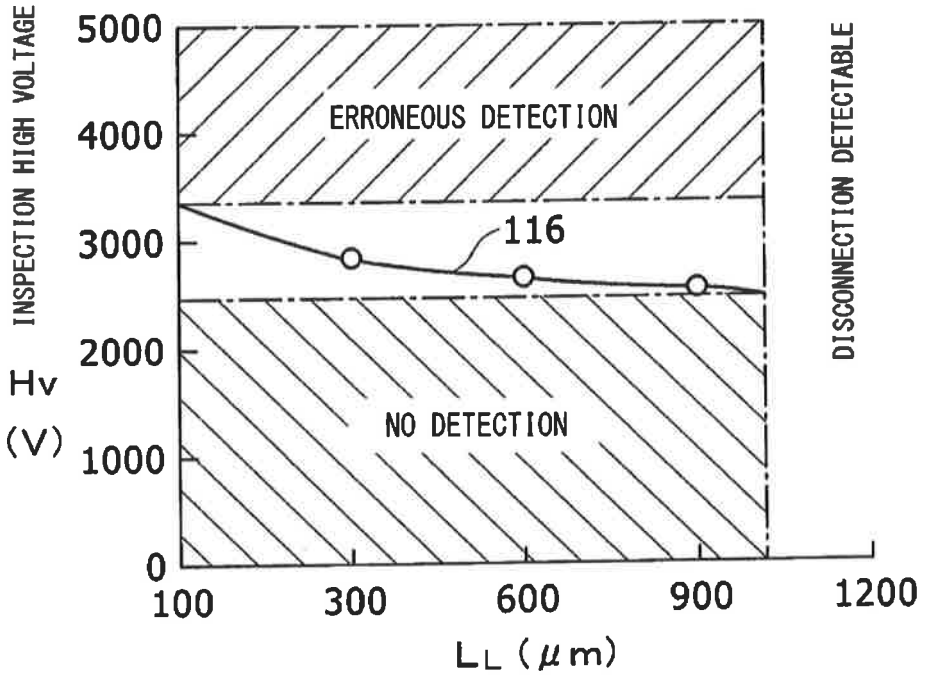

INSPECTION HIGH VOLTAGE
Hv
(V)
5000
4000
3000
2000
1000
0
ERRONEOUS DETECTION
116
NO DETECTION
DISCONNECTION DETECTABLE
100
300
600
900
1200
LL (μm)

FIG. 7

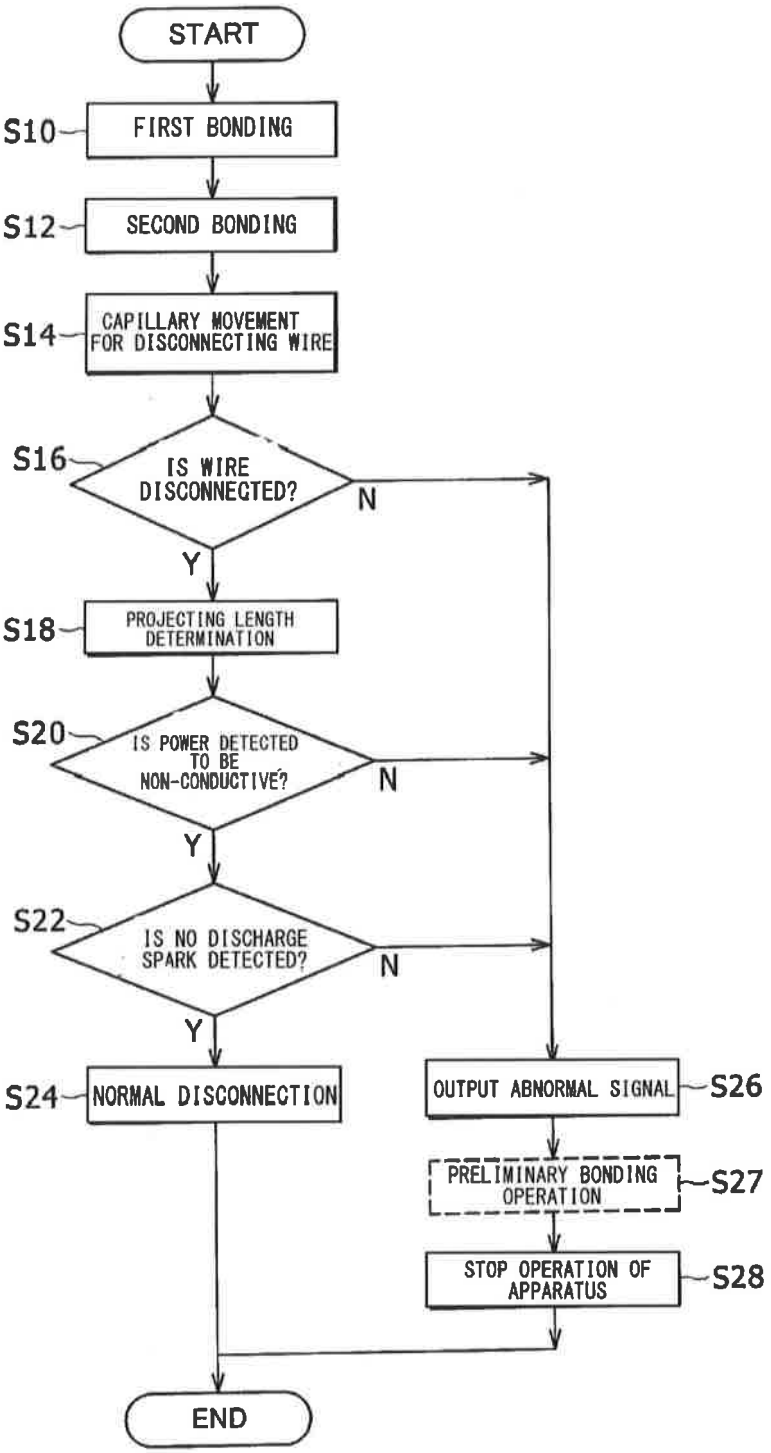

START
S10
FIRST BONDING
S12
SECOND BONDING
S14
CAPILLARY MOVEMENT FOR DISCONNECTING WIRE
S16
IS WIRE DISCONNECTED?
N
Y
S18
PROJECTING LENGTH DETERMINATION
S20
IS POWER DETECTED TO BE NON-CONDUCTIVE?
N
Y
S22
IS NO DISCHARGE SPARK DETECTED?
N
Y
S24
NORMAL DISCONNECTION
S26
OUTPUT ABNORMAL SIGNAL
S27
PRELIMINARY BONDING OPERATION
S28
STOP OPERATION OF APPARATUS
END

FIG. 8

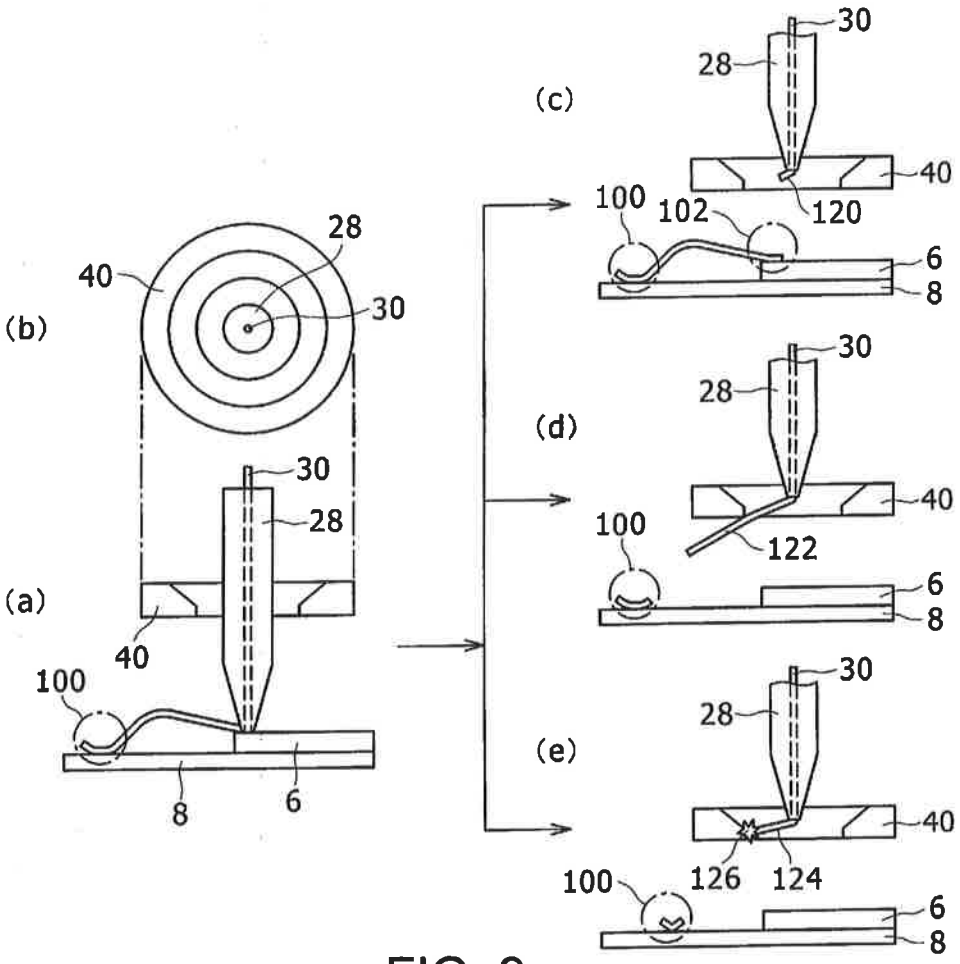


FIG. 9

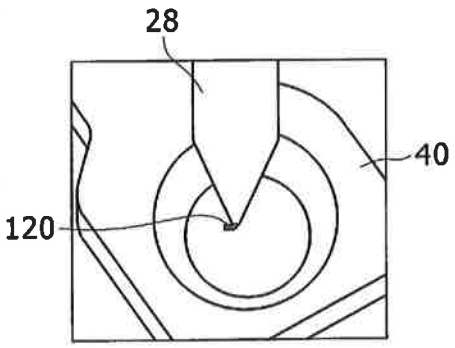


FIG. 10

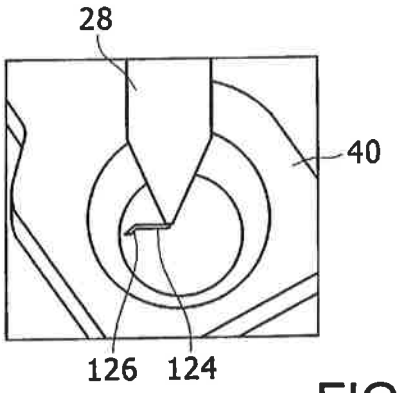


FIG. 11

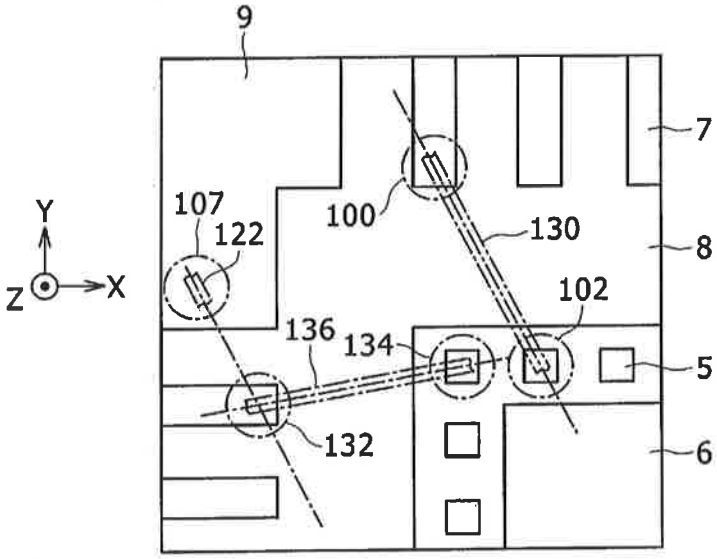


FIG. 12

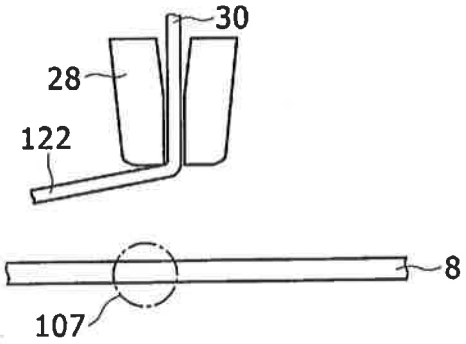


FIG. 13

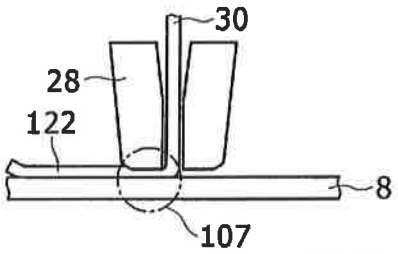


FIG. 14

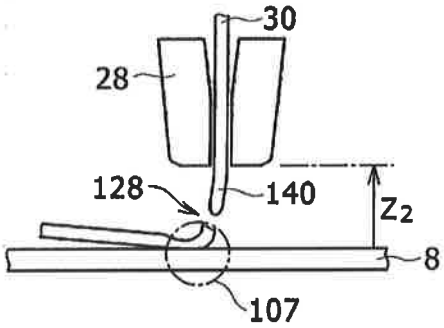


FIG. 15