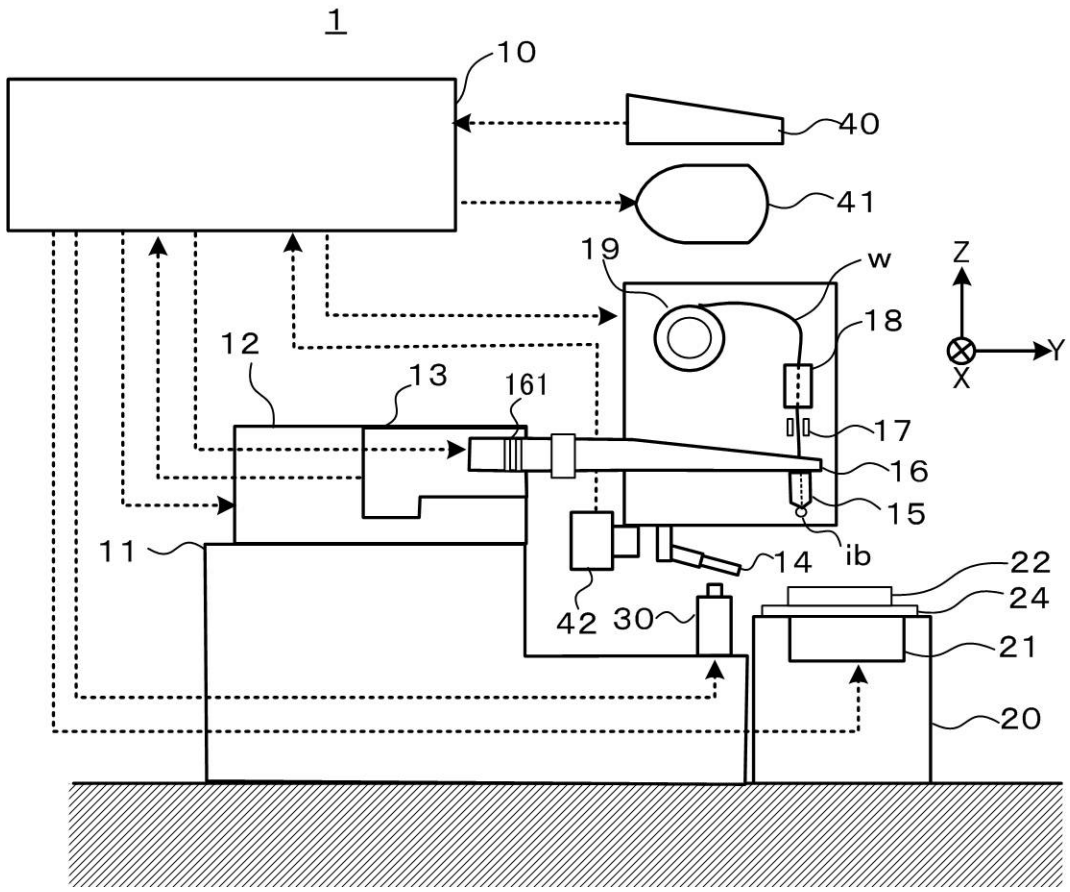


FIG. 1

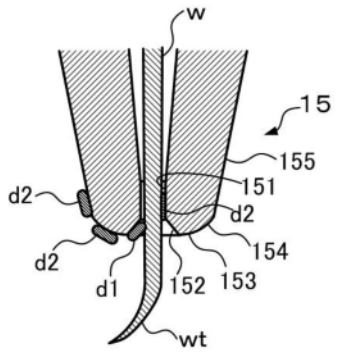

w
15
155
151
d2
d2
d2
154
d1
152
153
wt

FIG. 2A

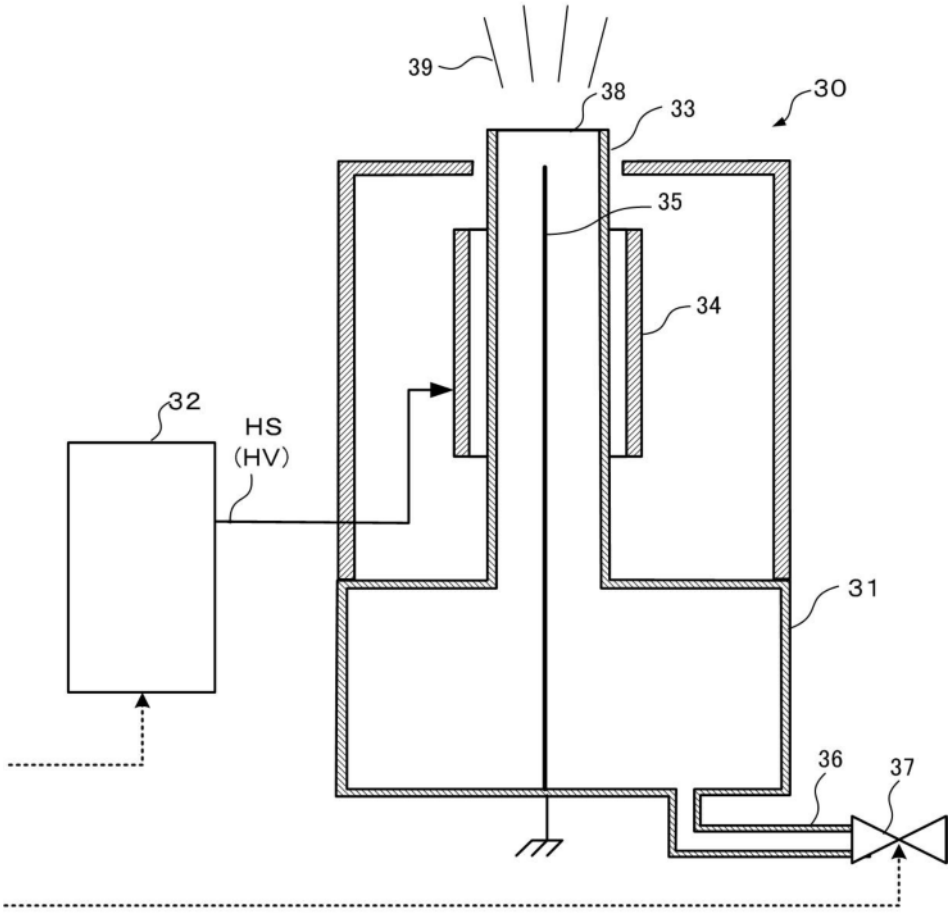

39
38
33
30
35
34
32
HS
(HV)
31
36
37

FIG. 2B

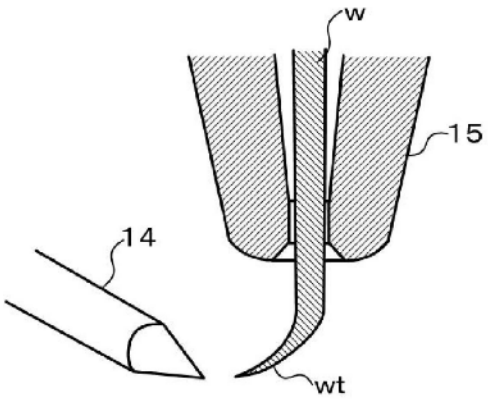


FIG. 3A

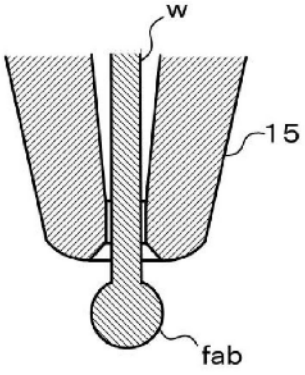


FIG. 3B

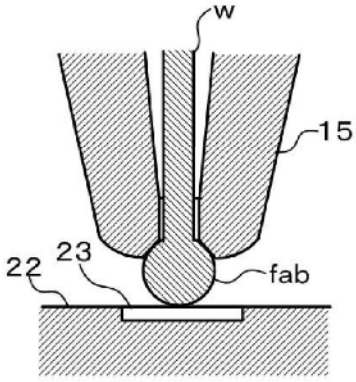


FIG. 3C

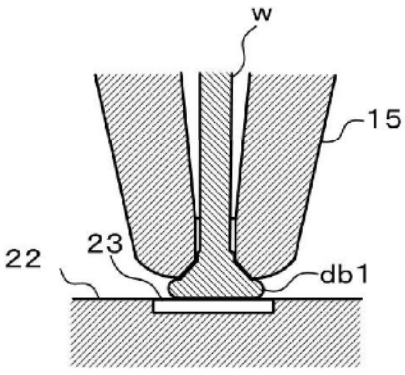


FIG. 3D

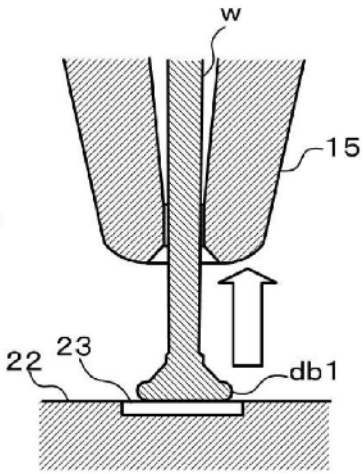


FIG. 3E

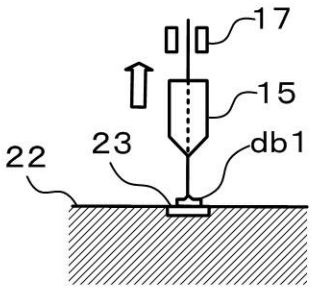


FIG. 4A

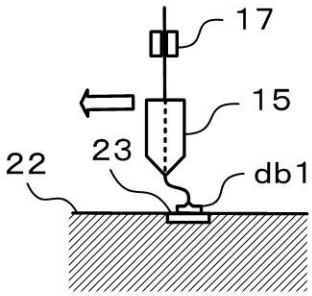


FIG. 4B

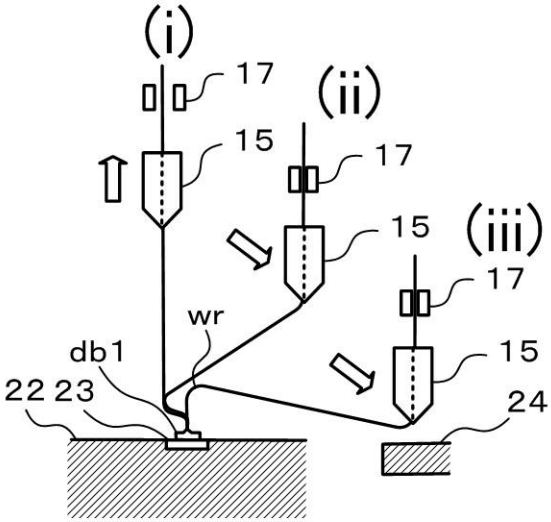


FIG. 4C

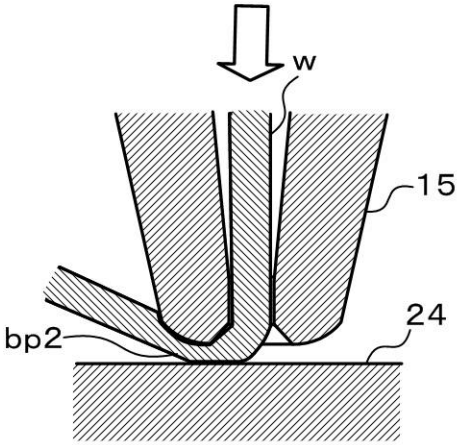


FIG. 4D

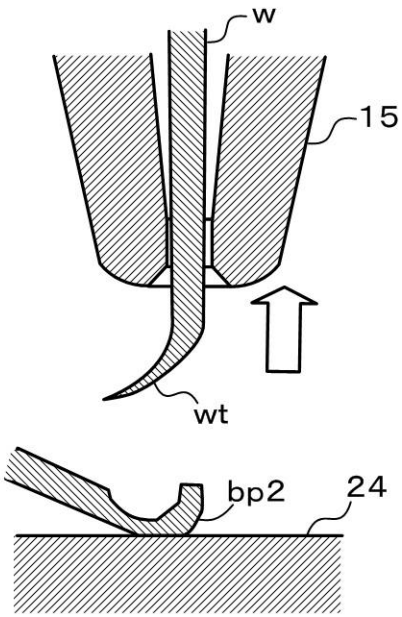


FIG. 4E

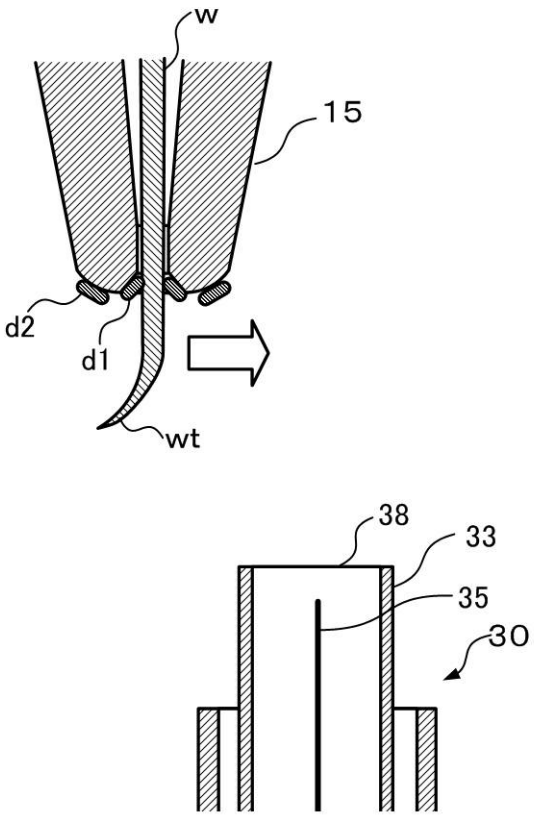


FIG. 5A

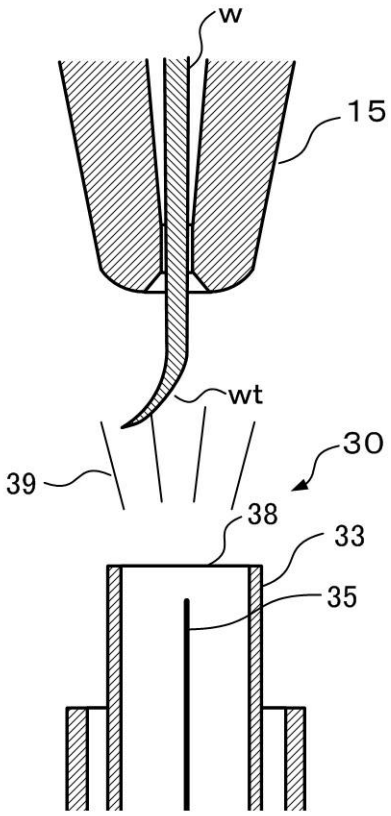


FIG. 5B

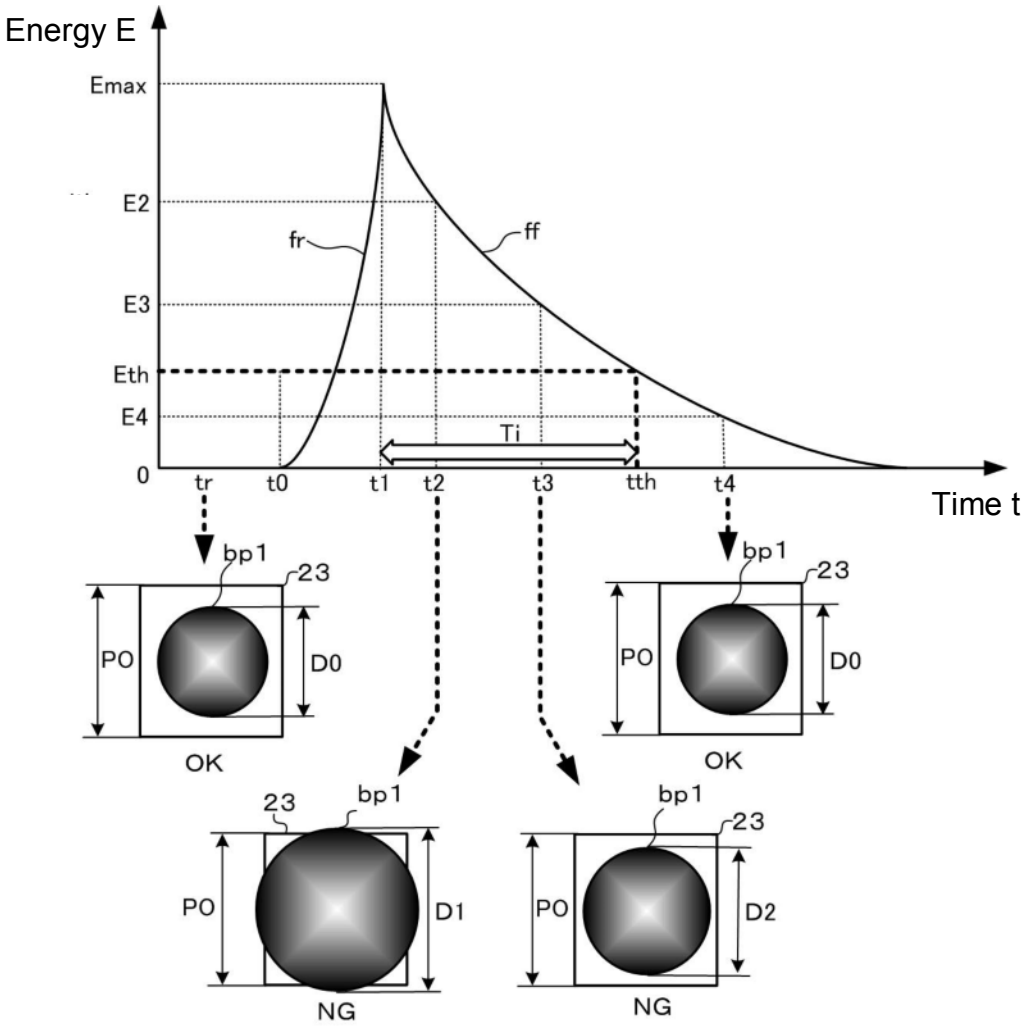

Energy E
Emax
E2
E3
Eth
E4
0
fr
ff
Ti
tr
t0
t1
t2
t3
tth
t4
Time t
bp1
23
PO
D0
OK
bp1
23
PO
D0
OK
23
bp1
PO
D1
NG
bp1
23
PO
D2
NG

FIG. 6

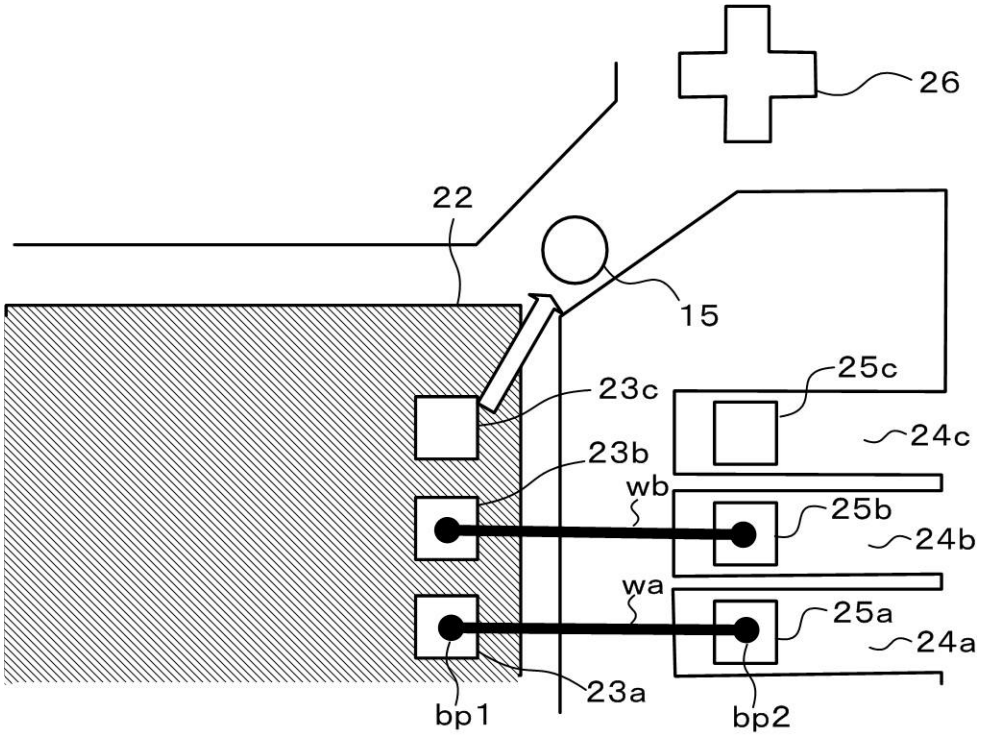


FIG. 7

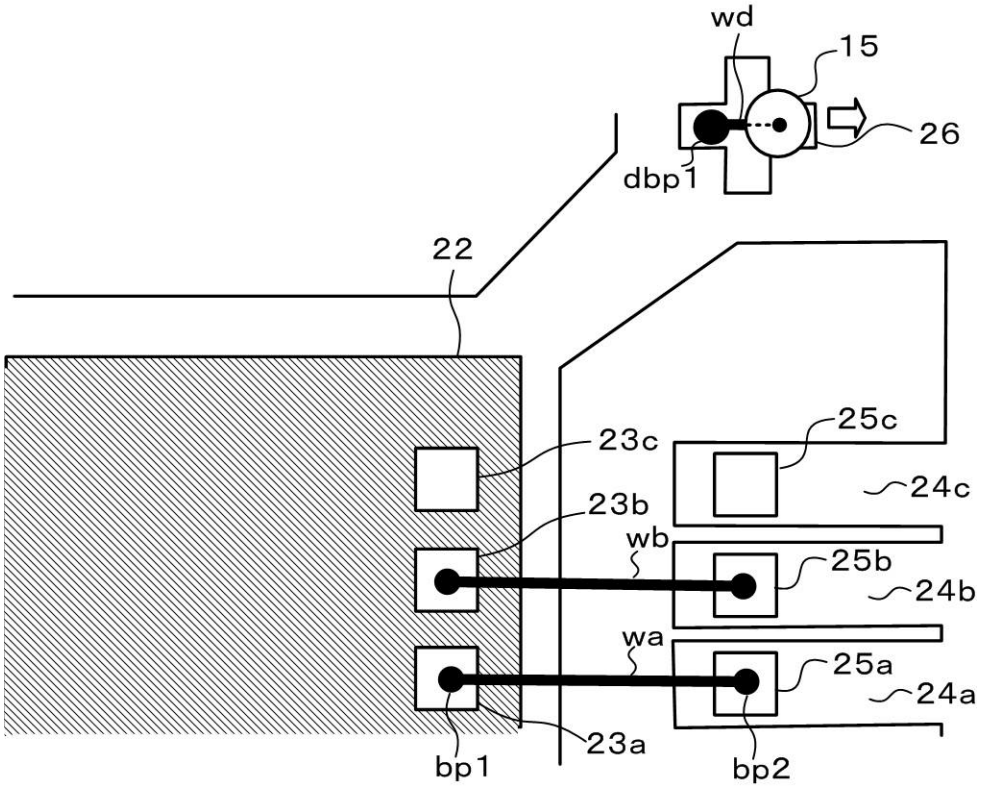


FIG. 8

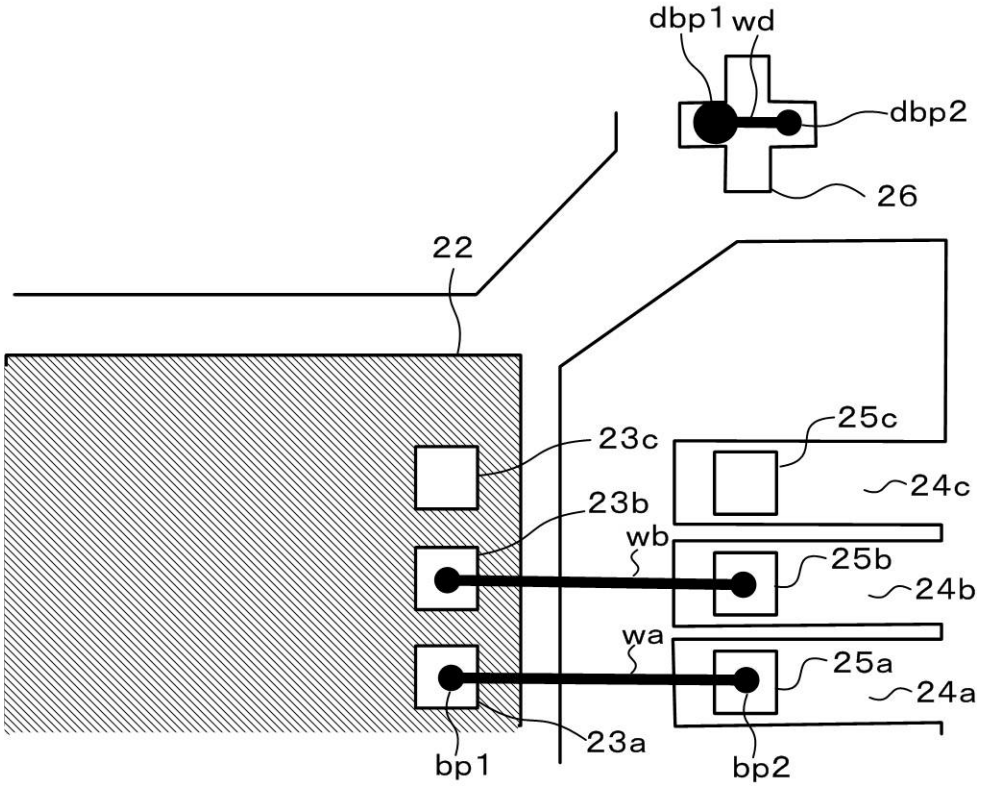

dbp1
wd
dbp2
26
22
25c
23c
24c
23b
wb
25b
24b
wa
25a
24a
23a
bp1
bp2

FIG. 9

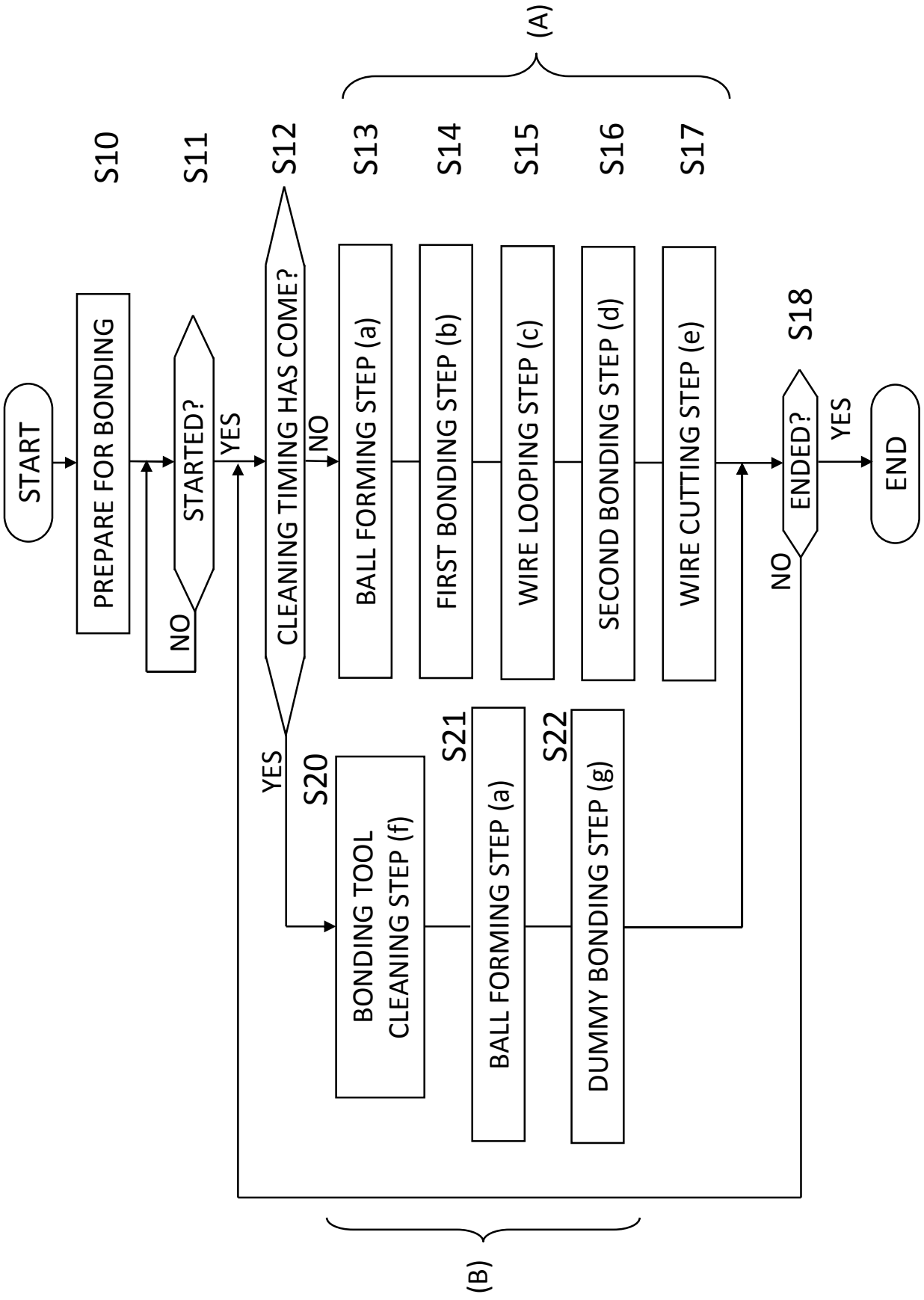

START
PREPARE FOR BONDING
S10
STARTED?
S11
NO
YES
CLEANING TIMING HAS COME?
S12
NO
YES
(A)
BALL FORMING STEP (a)
S13
FIRST BONDING STEP (b)
S14
WIRE LOOPING STEP (c)
S15
SECOND BONDING STEP (d)
S16
WIRE CUTTING STEP (e)
S17
ENDED?
S18
NO
YES
END
BONDING TOOL CLEANING STEP (f)
S20
BALL FORMING STEP (a)
S21
DUMMY BONDING STEP (g)
S22
(B)

FIG. 10

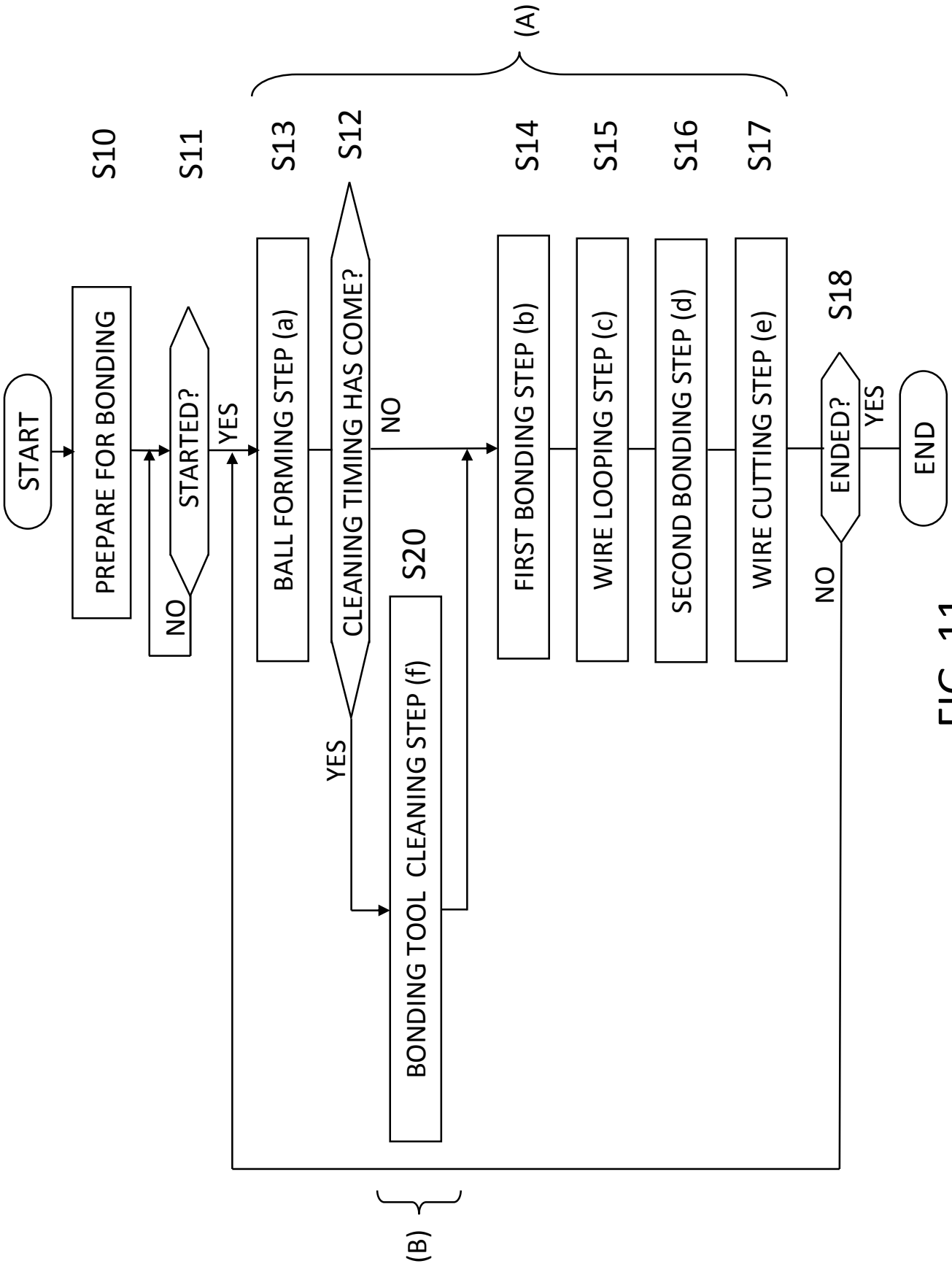

START
PREPARE FOR BONDING
S10
STARTED?
S11
NO
YES
BALL FORMING STEP (a)
S13
CLEANING TIMING HAS COME?
S12
YES
NO
BONDING TOOL CLEANING STEP (f)
S20
FIRST BONDING STEP (b)
S14
WIRE LOOPING STEP (c)
S15
SECOND BONDING STEP (d)
S16
WIRE CUTTING STEP (e)
S17
ENDED?
S18
NO
YES
END
(A)
(B)

FIG. 11

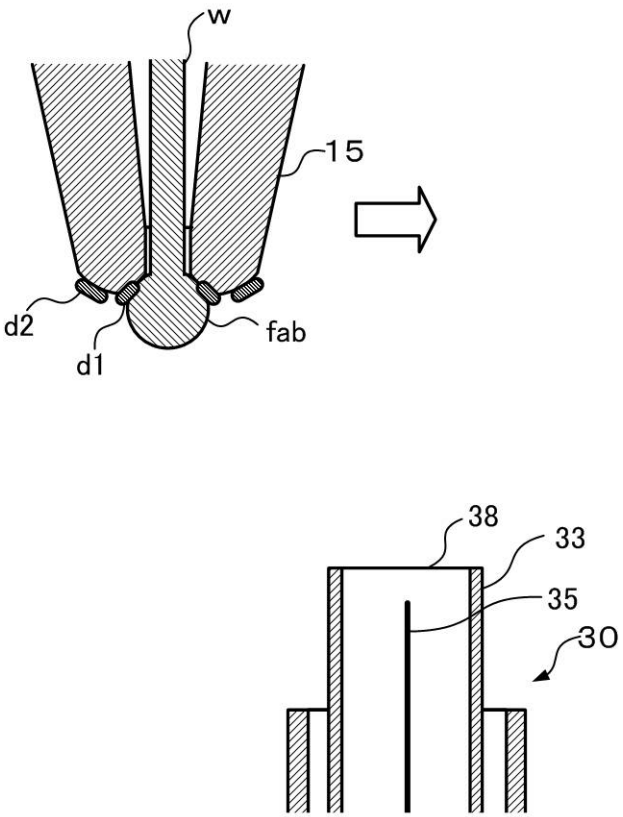


FIG. 12A

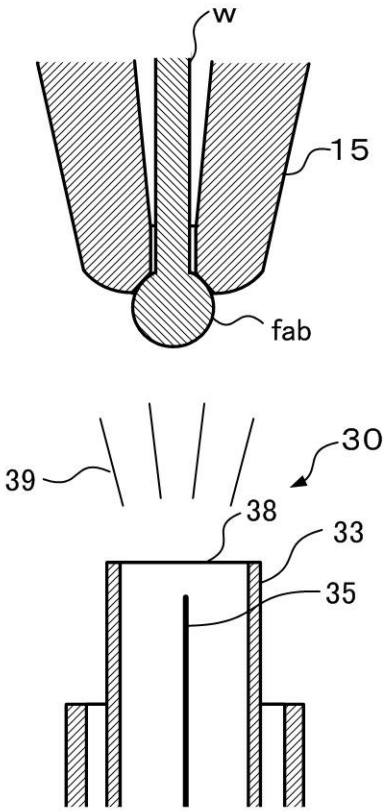


FIG. 12B

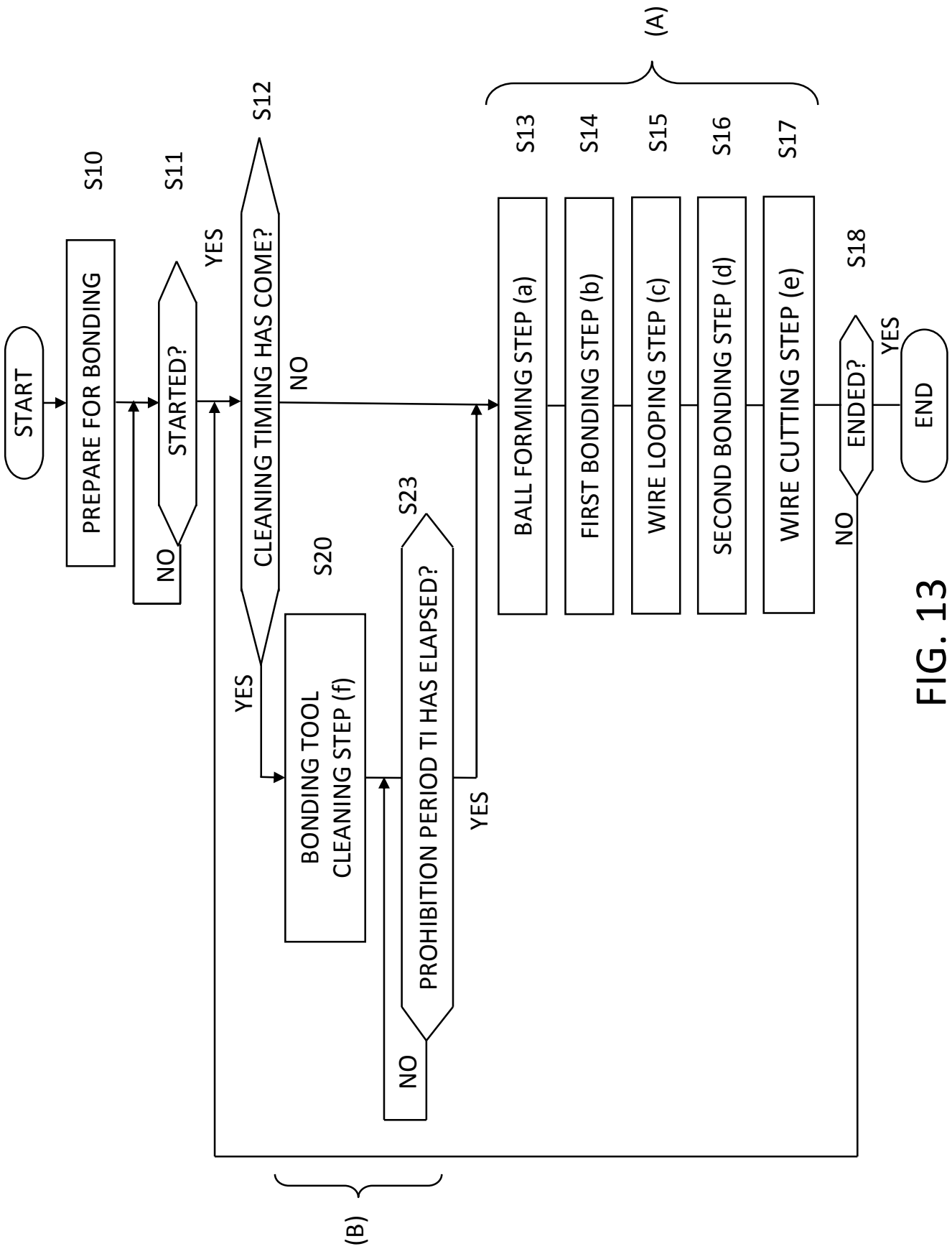

START
PREPARE FOR BONDING
S10
STARTED?
S11
NO
YES
CLEANING TIMING HAS COME?
S12
NO
YES
BONDING TOOL CLEANING STEP (f)
S20
PROHIBITION PERIOD TI HAS ELAPSED?
S23
NO
YES
(B)
(A)
BALL FORMING STEP (a)
S13
FIRST BONDING STEP (b)
S14
WIRE LOOPING STEP (c)
S15
SECOND BONDING STEP (d)
S16
WIRE CUTTING STEP (e)
S17
ENDED?
S18
NO
YES
END

FIG. 13