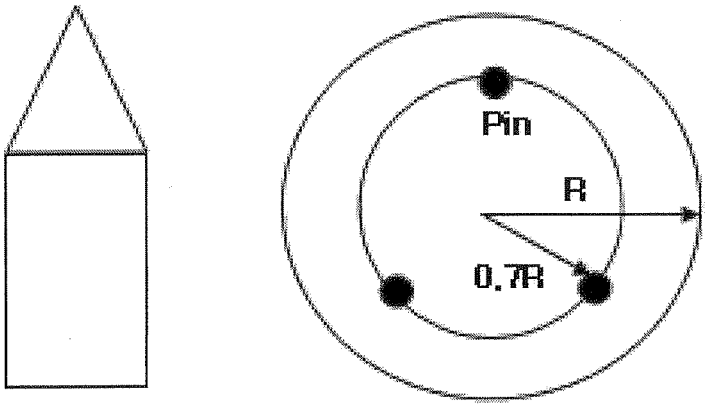
FIG. 1



(a) (b)

FIG. 2

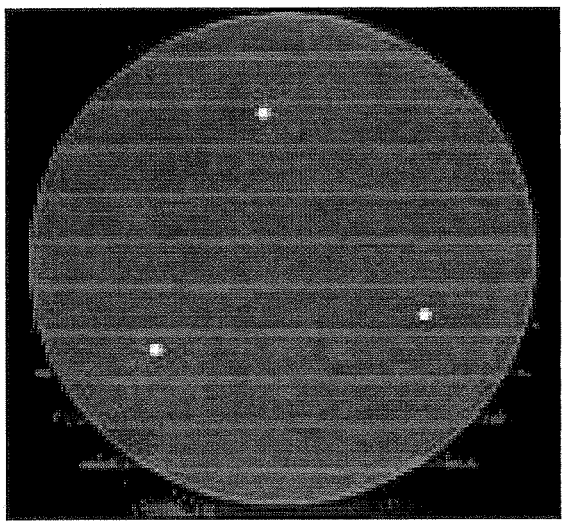


FIG. 3

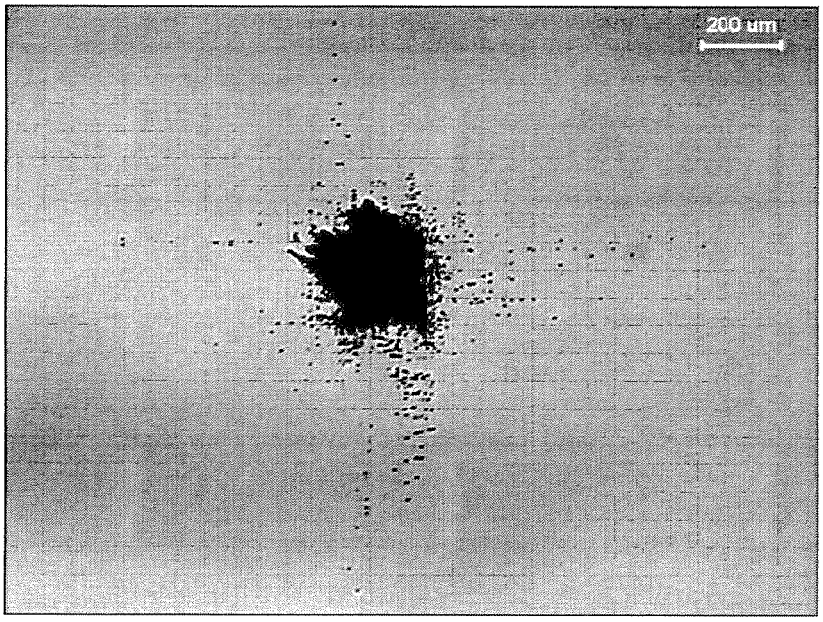


FIG. 4

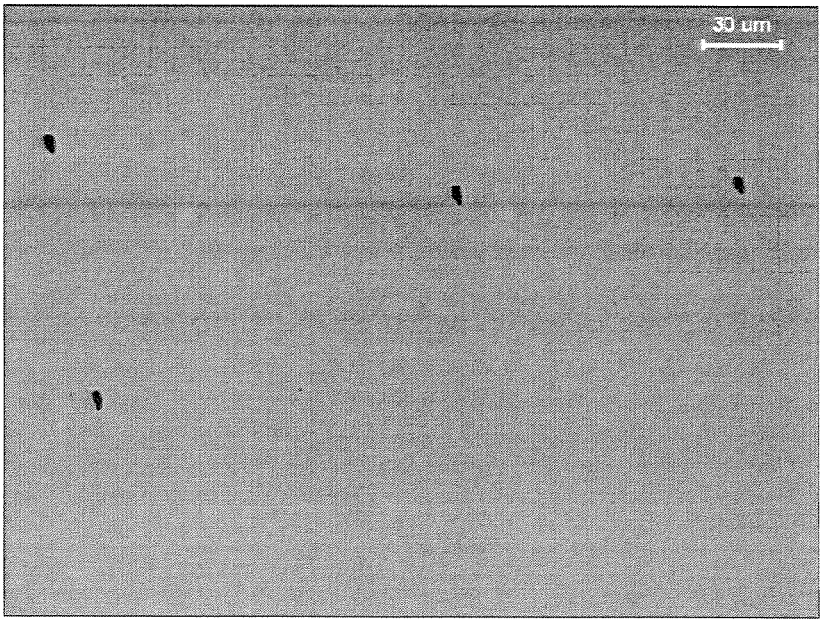


FIG. 5

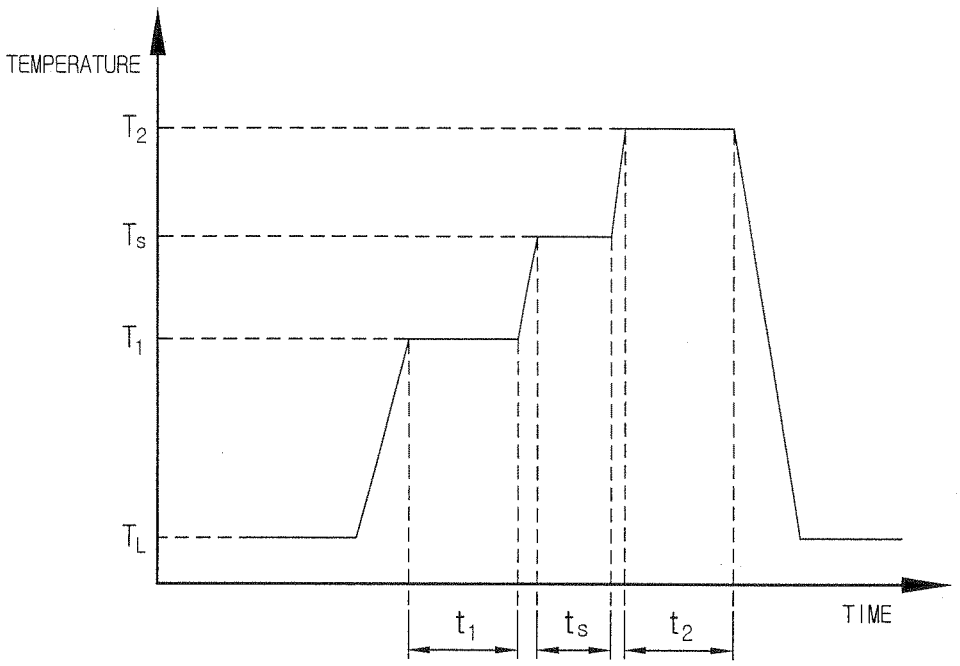


FIG. 6

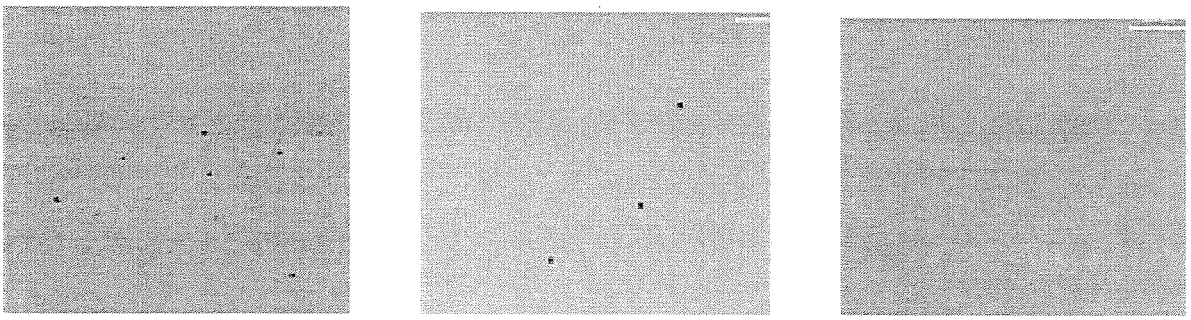


FIG. 7

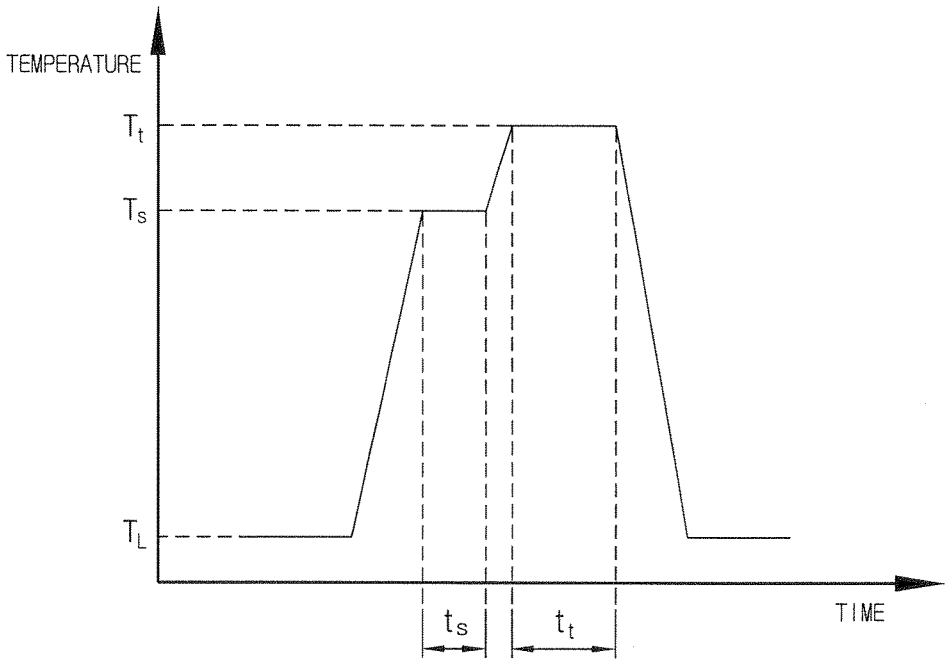


FIG. 8

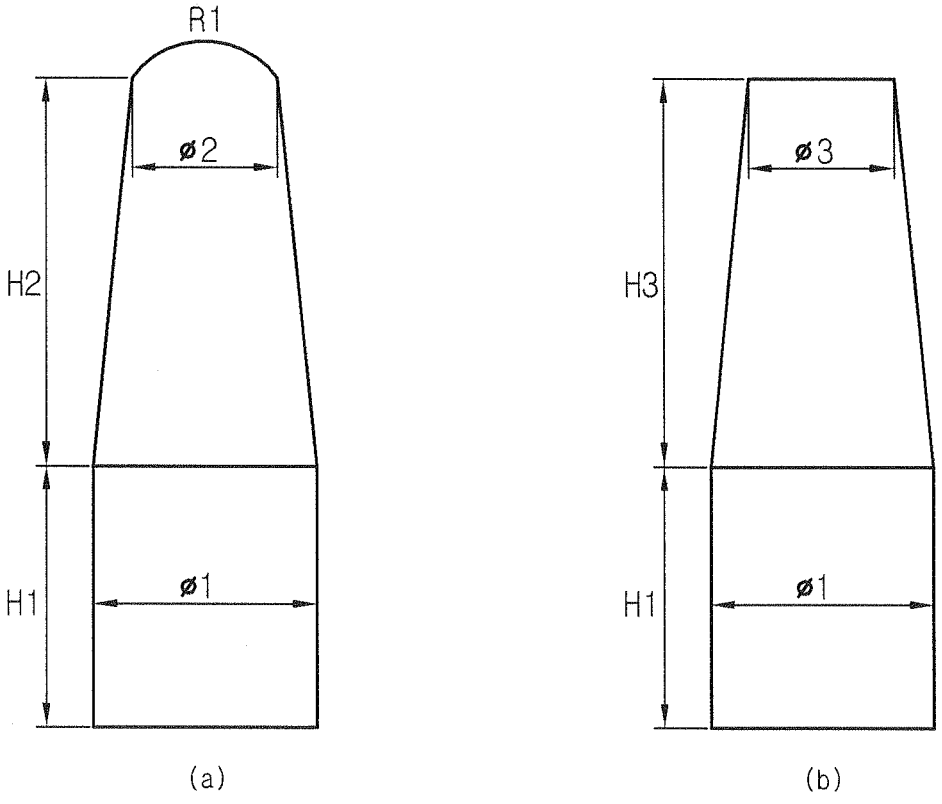


FIG. 9

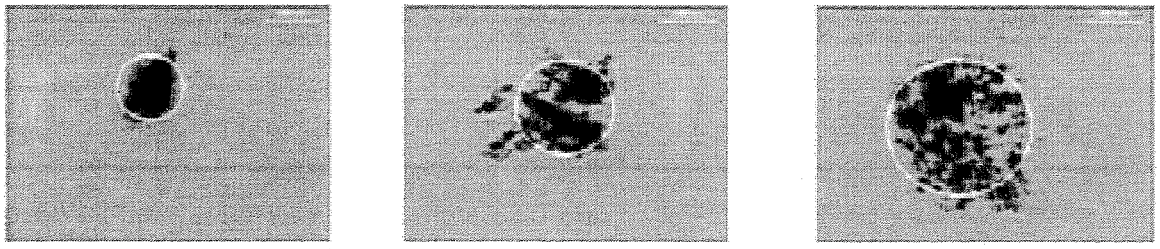

(a)
(b)
(c)

FIG. 10

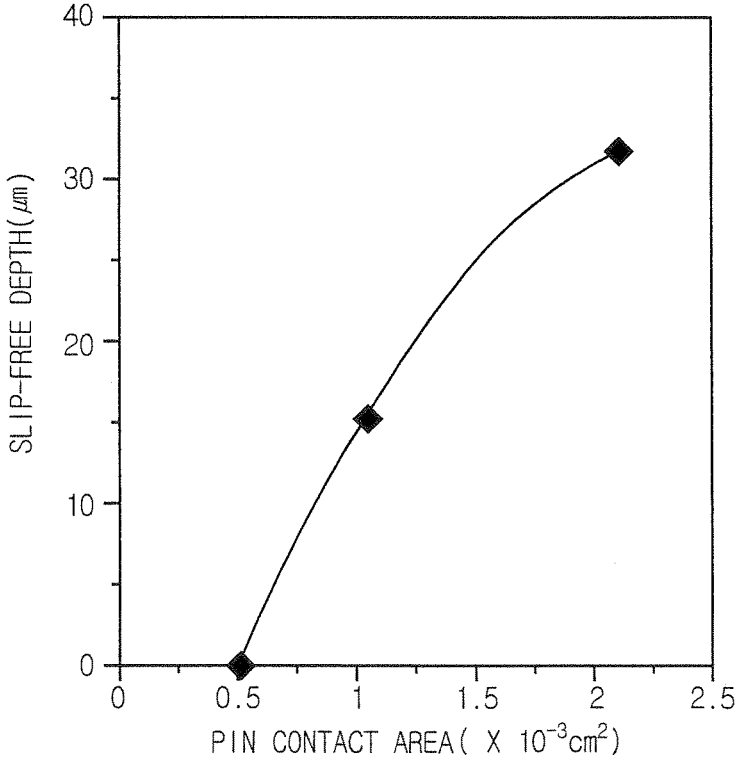

40
30
20
10
0
SLIP-FREE DEPTH(㎛)
0
0.5
1
1.5
2
2.5
PIN CONTACT AREA(X 10^{-3}cm^2)

FIG. 11



FIG. 12

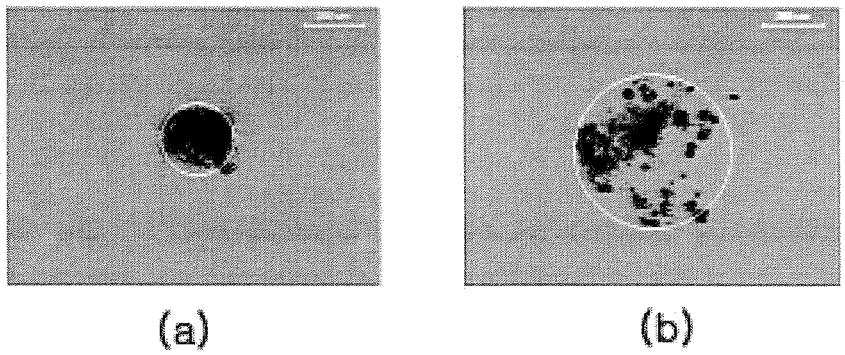
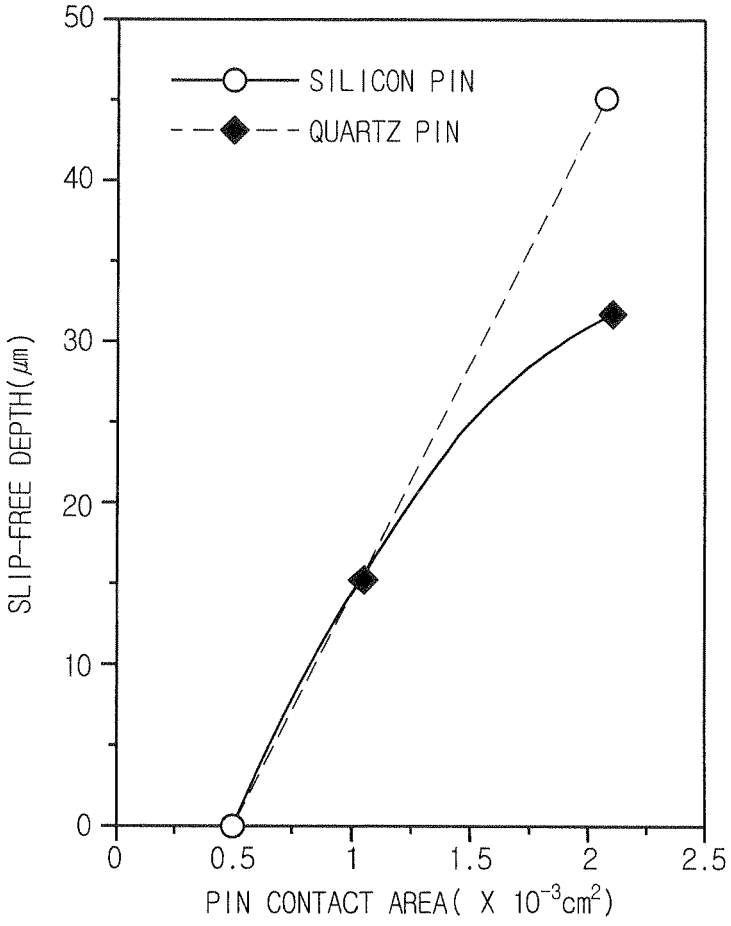


FIG. 13


50
40
30
20
10
0
SILICON PIN
QUARTZ PIN
SLIP-FREE DEPTH(㎛)
0
0.5
1
1.5
2
2.5
PIN CONTACT AREA(X 10^{-3}cm^2)