FIG.1

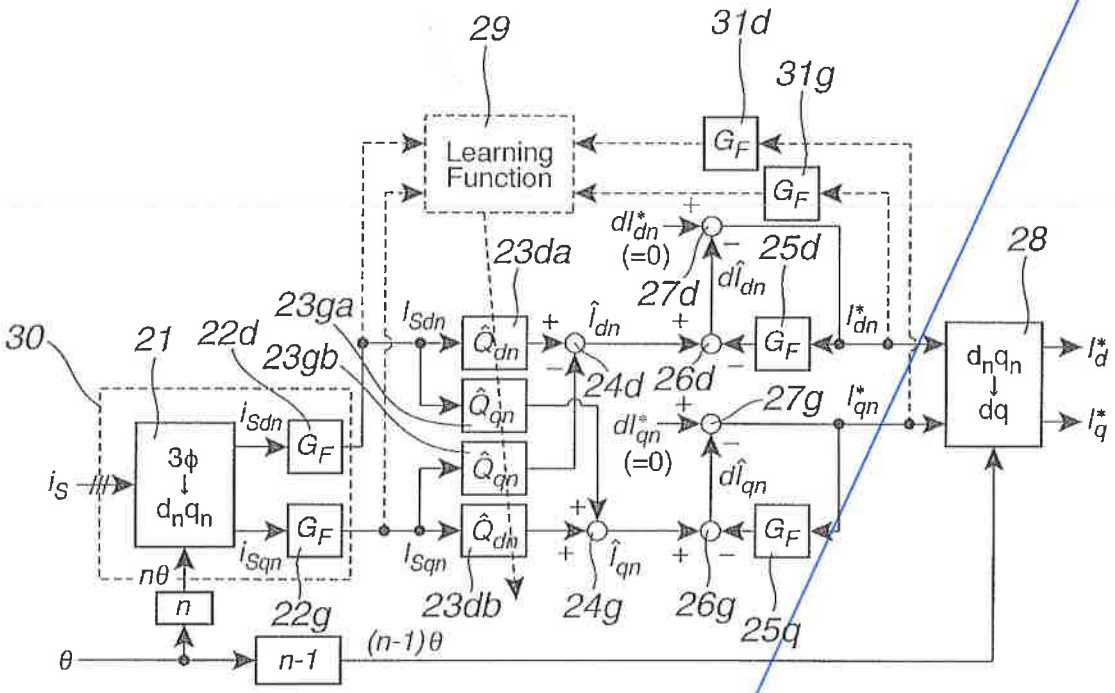

29
31d
31g
Learning Function
G_F
dI^*_{dn} (=0)
27d
$d\hat{I}_{dn}$
25d
23da
28
23ga
23gb
30
21
22d
i_{Sdn}
$\hat{Q}_{dn}$
$\hat{I}_{dn}$
24d
26d
I^*_{dn}
d_nq_n → dq
I^*_d
I^*_q
$\hat{Q}_{qn}$
dI^*_{qn} (=0)
27g
I^*_{qn}
i_S
3φ → d_nq_n
i_{Sqn}
$\hat{Q}_{dn}$
$\hat{I}_{qn}$
$d\hat{I}_{qn}$
I_{Sqn}
nθ
n
22g
23db
24g
26g
25g
θ
n-1
(n-1)θ

FIG.2

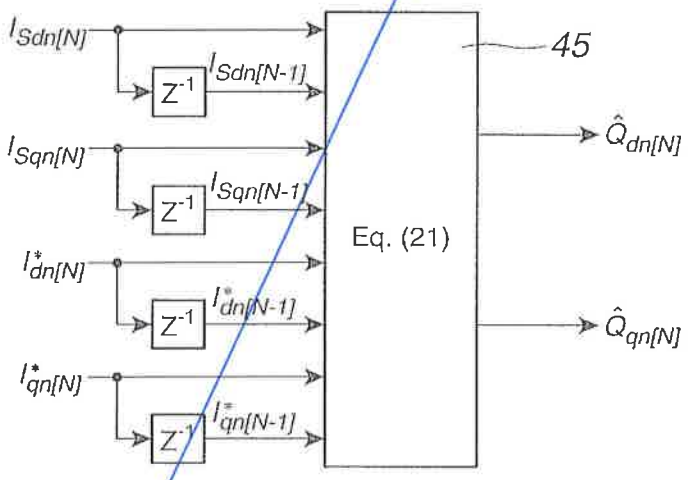

$I_{Sdn[N]}$
$I_{Sdn[N-1]}$
$I_{Sqn[N]}$
$I_{Sqn[N-1]}$
$I^*_{dn[N]}$
$I^*_{dn[N-1]}$
$I^*_{qn[N]}$
$I^*_{qn[N-1]}$
Z^{-1}
Eq. (21)
45
$\hat{Q}_{dn[N]}$
$\hat{Q}_{qn[N]}$

FIG.13

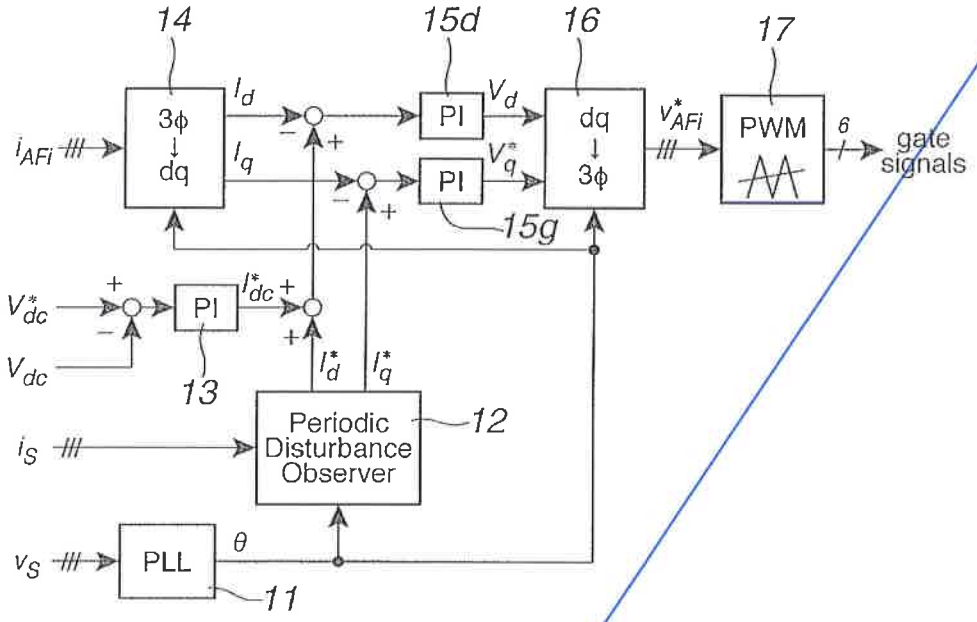

14
15d
16
17
3ϕ
dq
PI
PI
dq
3ϕ
PWM
6
gate signals
15g
PI
13
Periodic Disturbance Observer
12
PLL
11

FIG.14

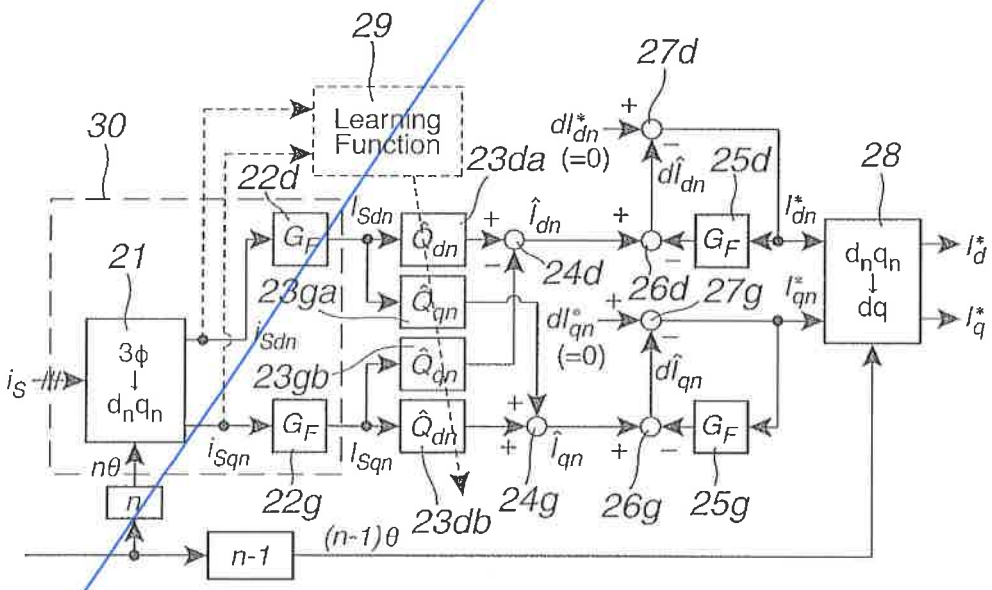

29
Learning Function
30
22d
23da
27d
25d
28
21
3ϕ
dnqn
23ga
23gb
24d
26d
27g
25g
24g
26g
22g
23db
22g
n
n-1
dq

FIG.1

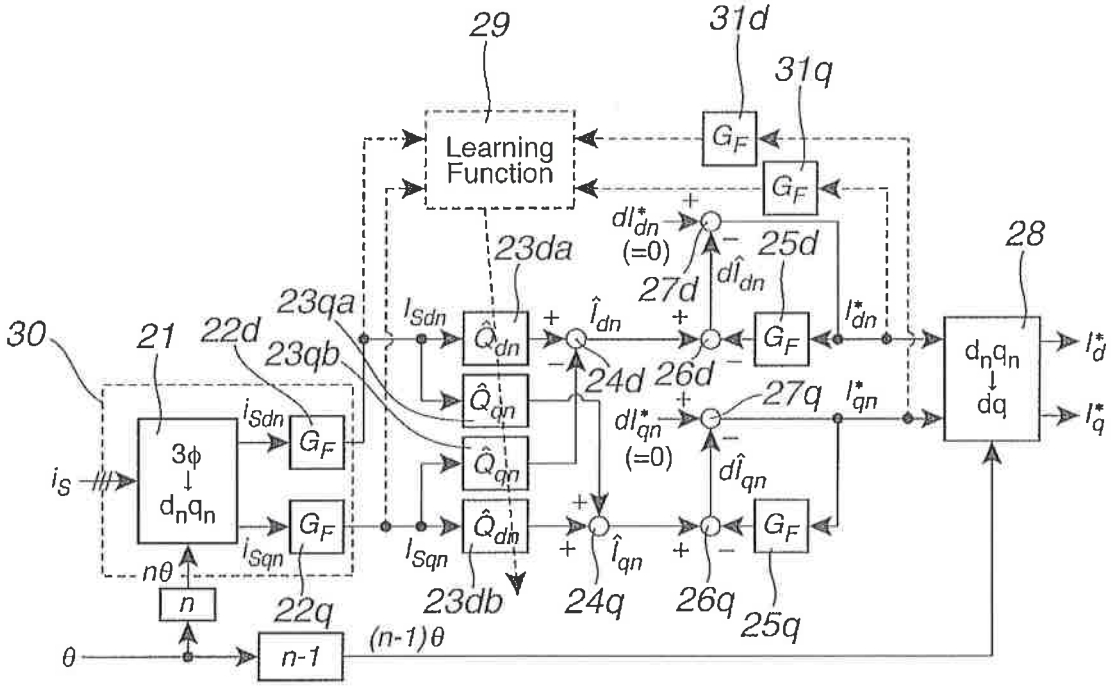

29
31d
31q
Learning Function
G_F
dI^*_{dn} (=0)
23da
25d
28
27d
$d\hat{I}_{dn}$
23qa
I_{Sdn}
$\hat{I}_{dn}$
I^*_{dn}
30
21
22d
23qb
$\hat{Q}_{dn}$
24d
26d
$\hat{Q}_{qn}$
dI^*_{qn} (=0)
27q
I^*_{qn}
d_nq_n ↓ dq
I^*_d
I^*_q
i_S
3φ ↓ d_nq_n
i_{Sdn}
i_{Sqn}
$\hat{Q}_{dn}$
I_{Sqn}
$\hat{I}_{qn}$
$d\hat{I}_{qn}$
nθ
n
22q
23db
24q
26q
25q
θ
n-1
(n-1)θ

FIG.2

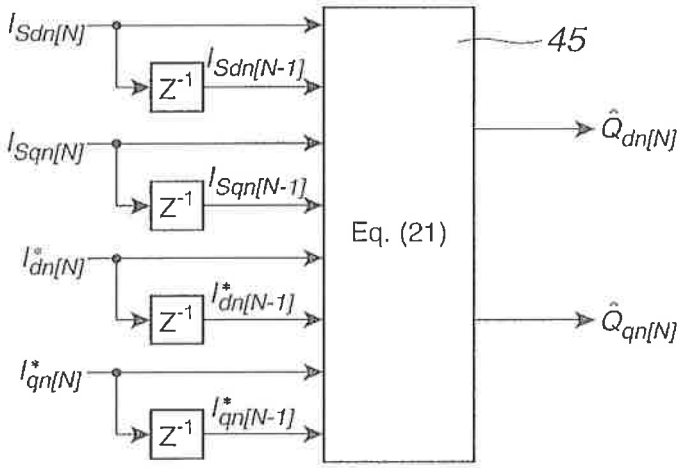

$I_{Sdn[N]}$
$I_{Sdn[N-1]}$
$I_{Sqn[N]}$
$I_{Sqn[N-1]}$
$I^*_{dn[N]}$
$I^*_{dn[N-1]}$
$I^*_{qn[N]}$
$I^*_{qn[N-1]}$
Z^{-1}
Eq. (21)
45
$\hat{Q}_{dn[N]}$
$\hat{Q}_{qn[N]}$

FIG.13

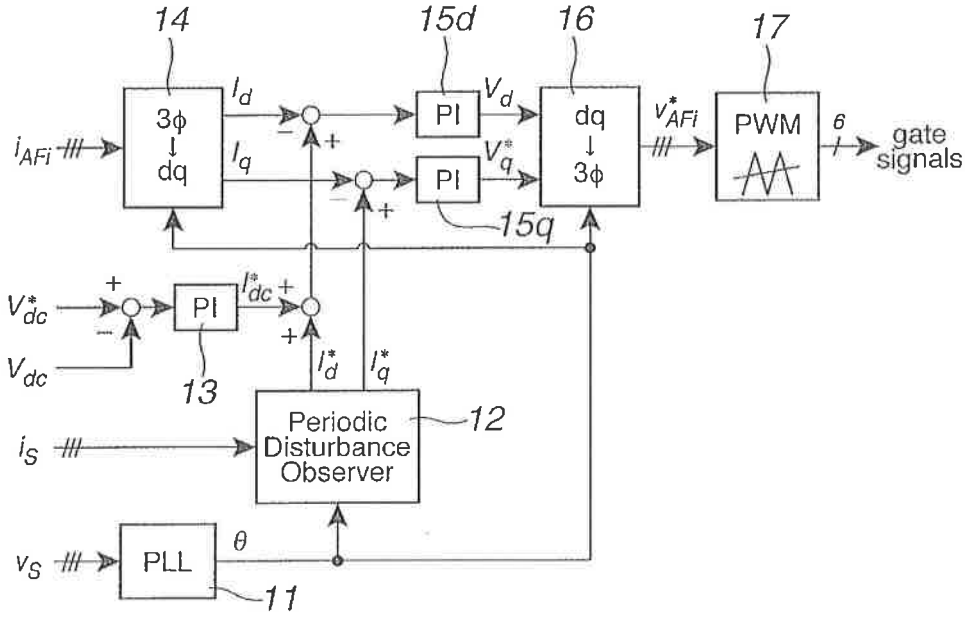
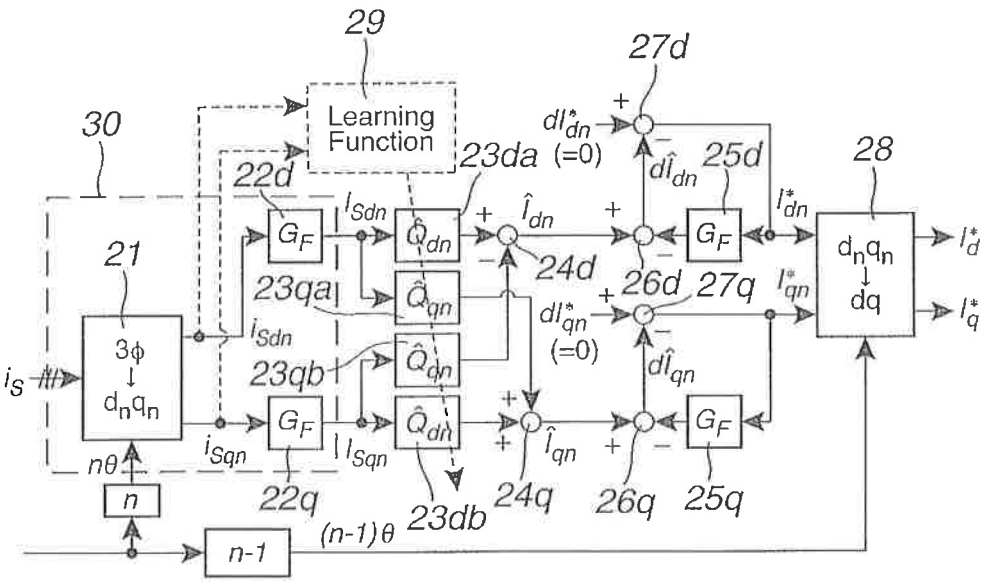

14
15d
16
17
3ϕ
dq
PI
dq
3ϕ
PWM
gate signals
15q
13
Periodic Disturbance Observer
12
PLL
11

FIG.14


29
27d
30
Learning Function
23da
22d
25d
28
21
24d
26d
27q
23qa
23qb
3ϕ
dnqn
dq
22q
24q
26q
25q
23db
n
n-1