[1/6] 1/4

IPEA

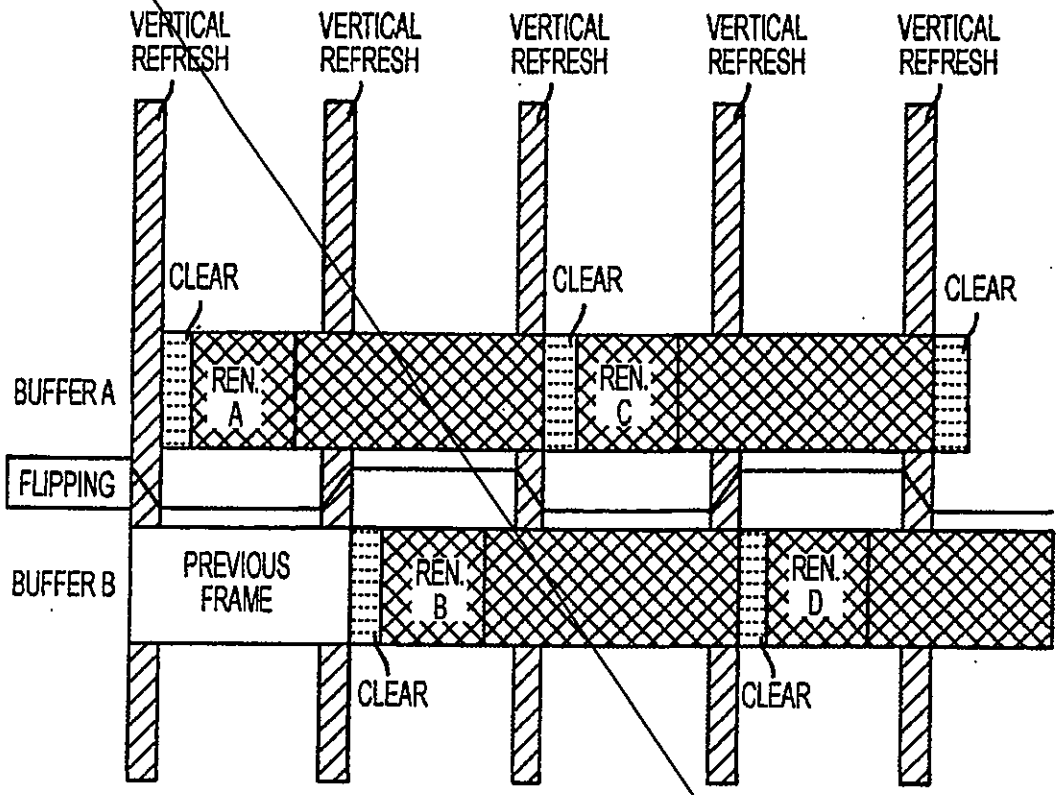

FIG. 1

[2/6] 1/4/1
▲IPEA

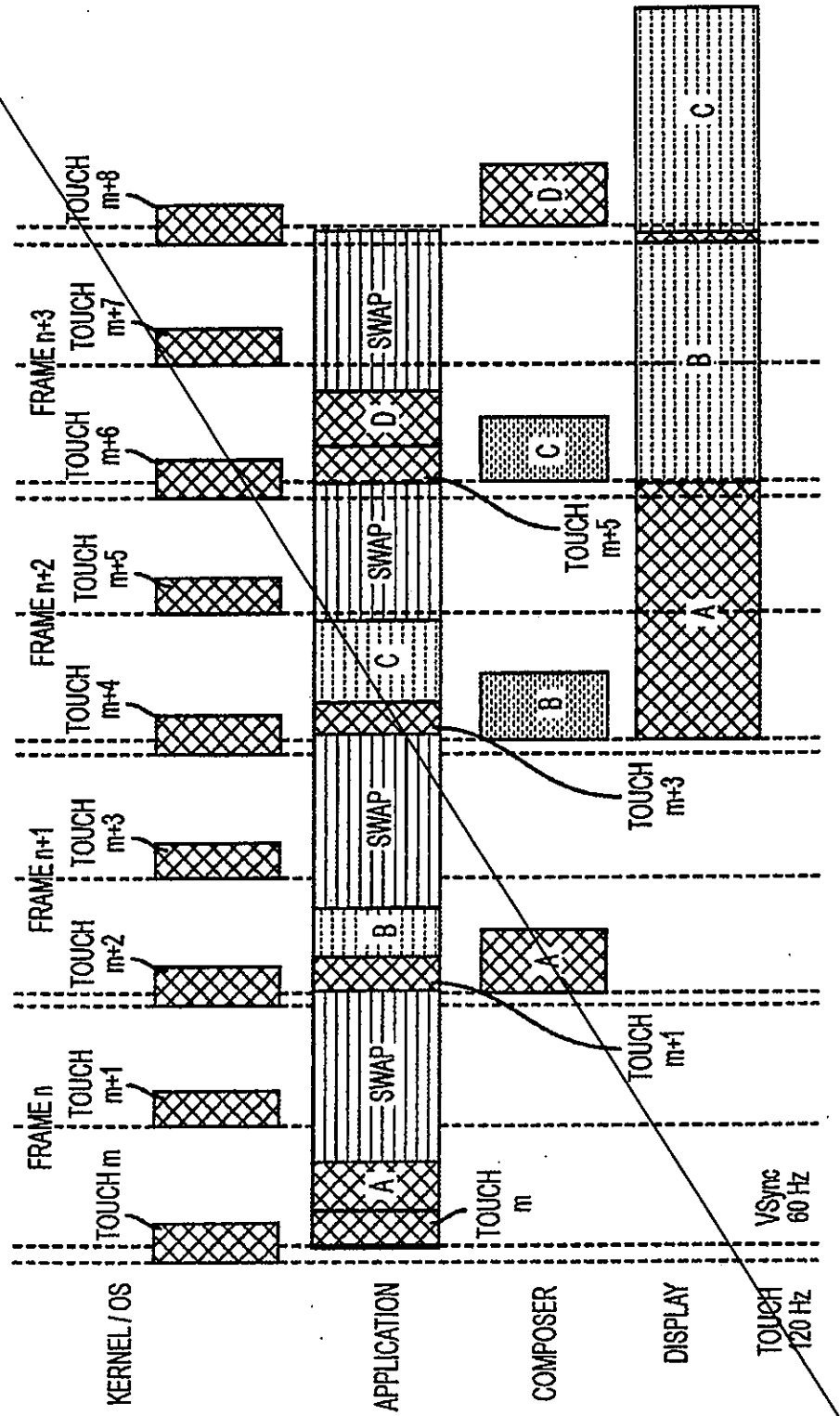

FIG. 2

[3/6] 2/4

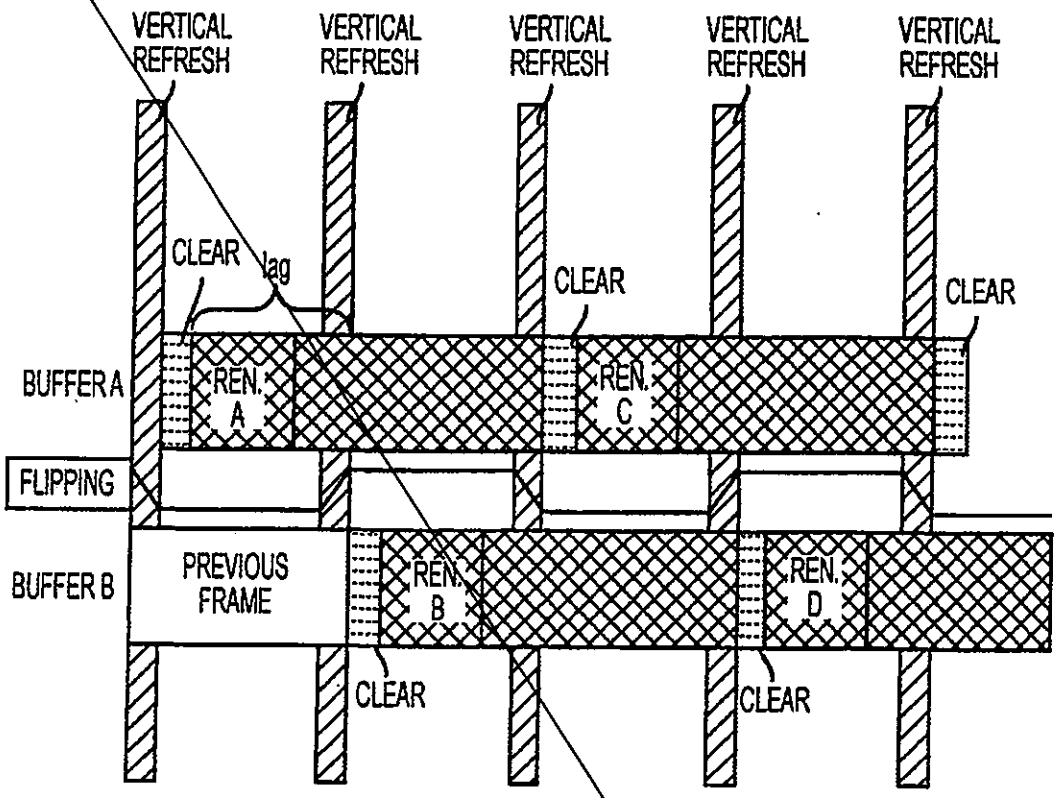
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
CLEAR
lag
CLEAR
CLEAR
BUFFER A
REN. A
REN. C
FLIPPING
BUFFER B
PREVIOUS FRAME
REN. B
REN. D
CLEAR
CLEAR

FIG. 3

[4/6] 2/4/1

IPEA

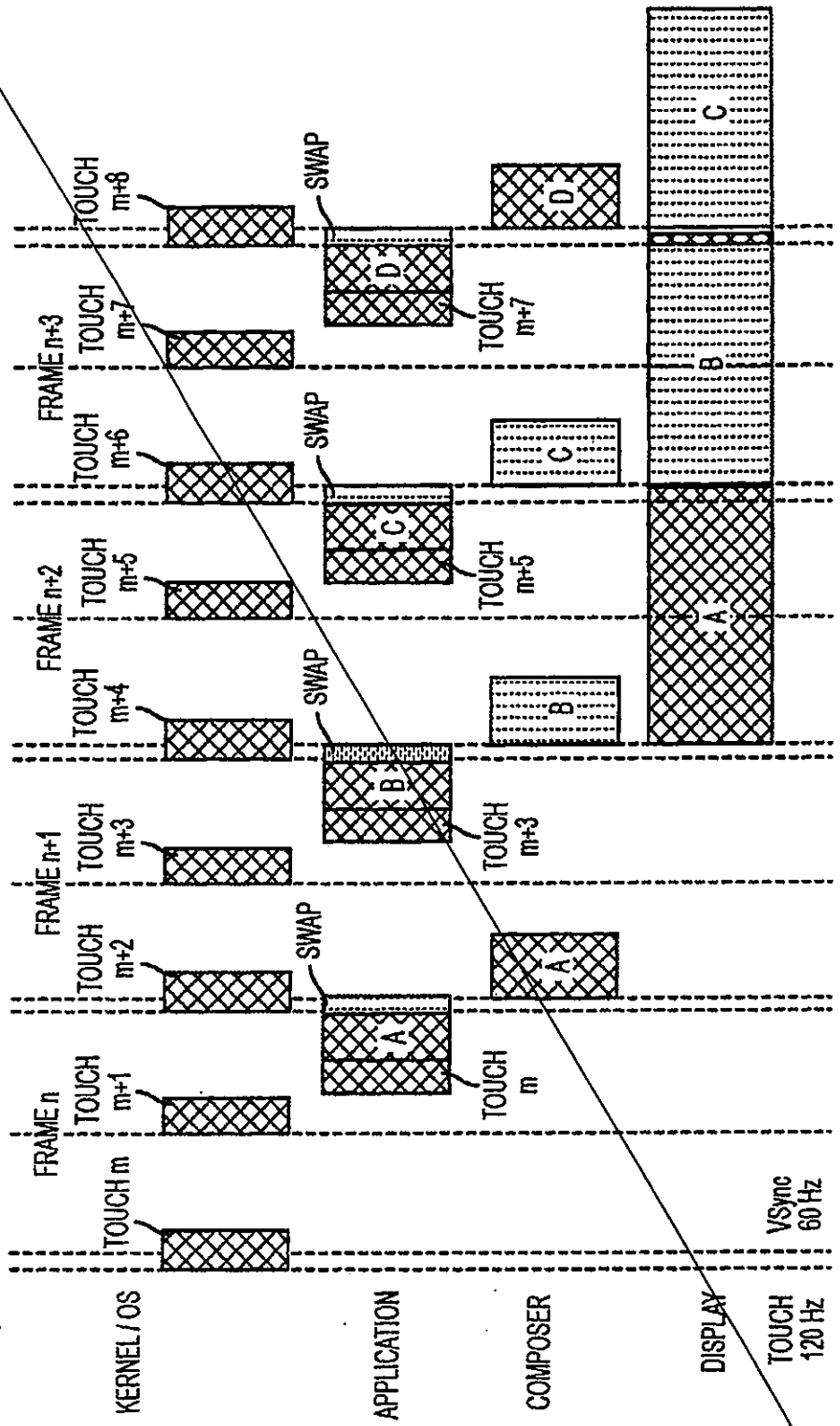

FIG. 4

[5/6] 3/9

IPEA

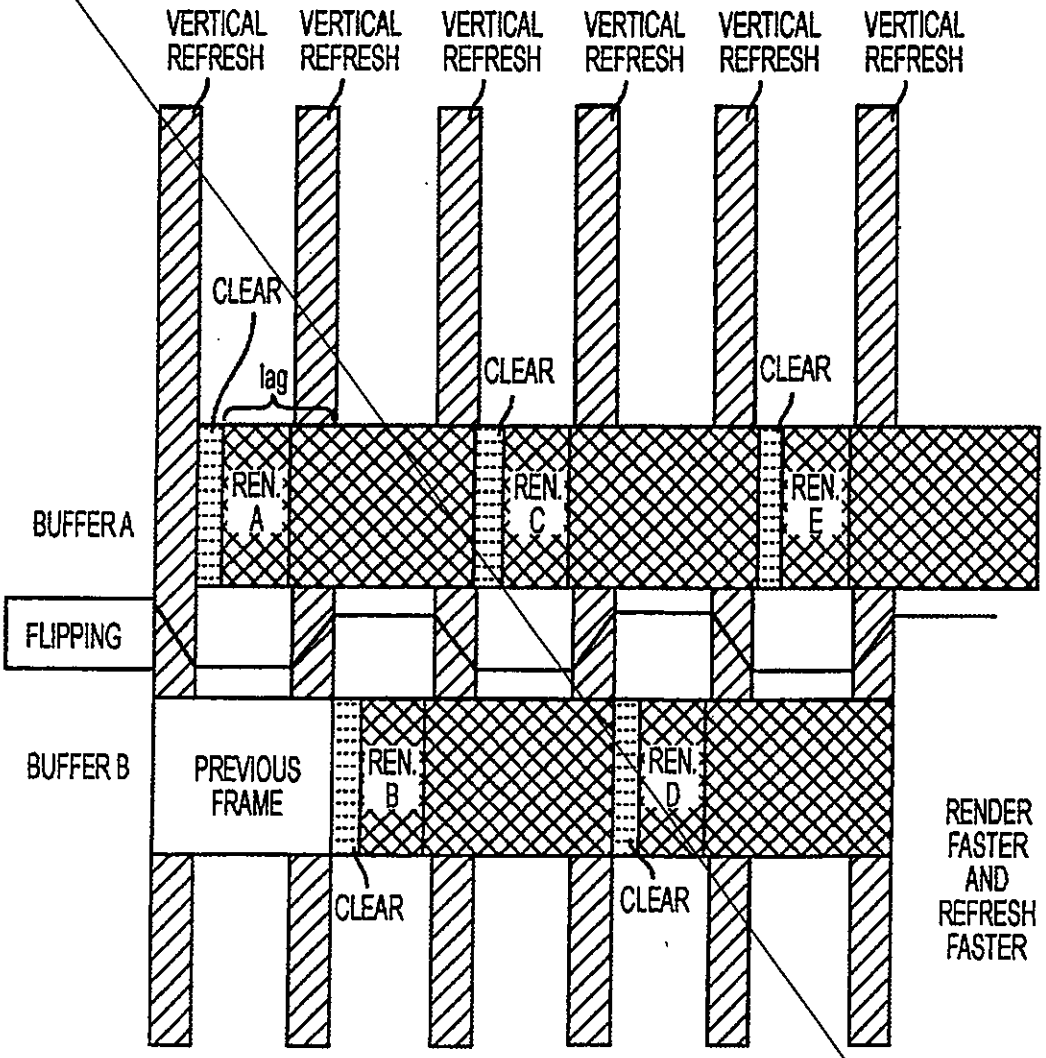

FIG. 5

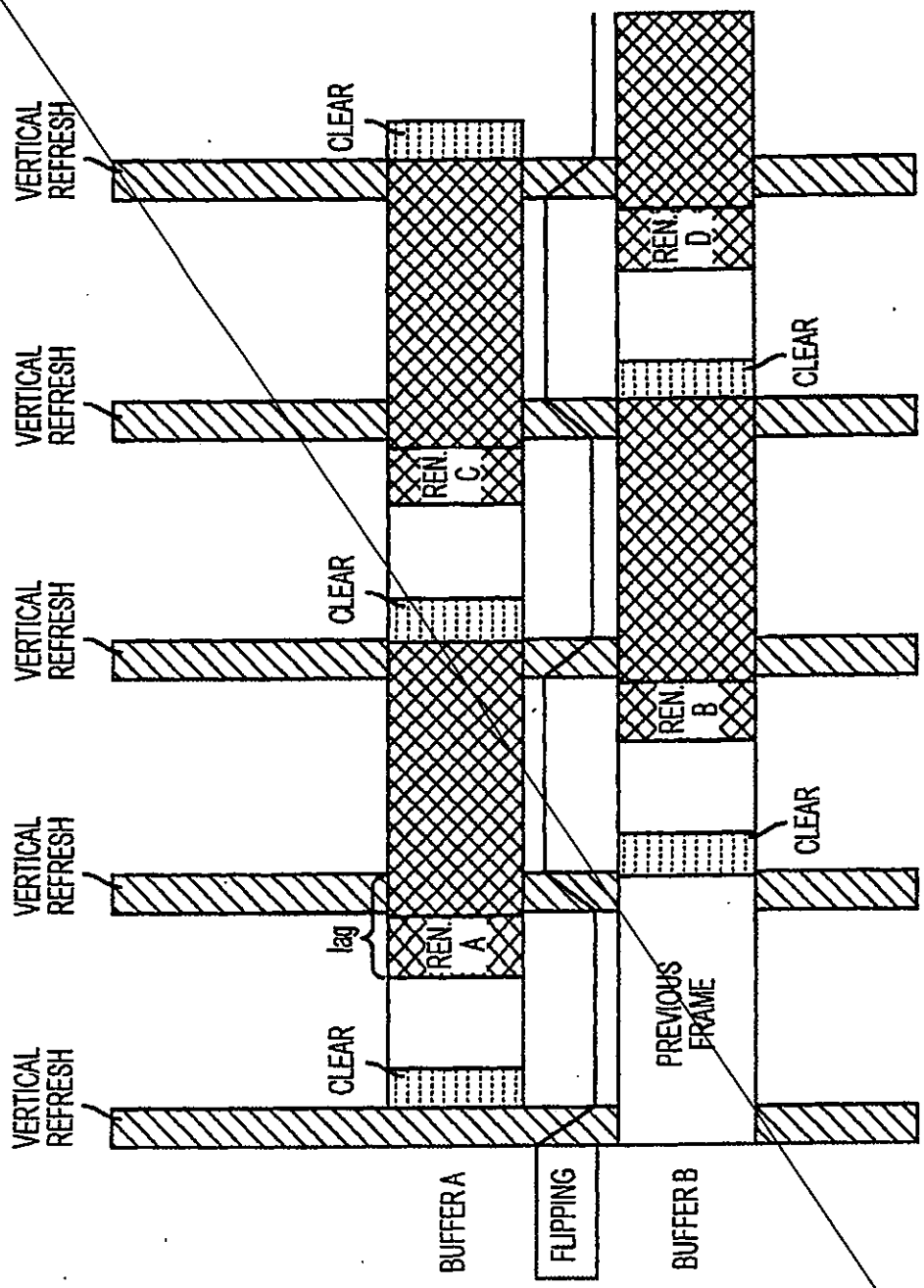
VERTICAL REFRESH
CLEAR
REN. A
REN. B
REN. C
REN. D
lag
PREVIOUS FRAME
BUFFER A
FLIPPING
BUFFER B
RENDER FASTER WITH MORE TIMELY INFORMATION

FIG. 6

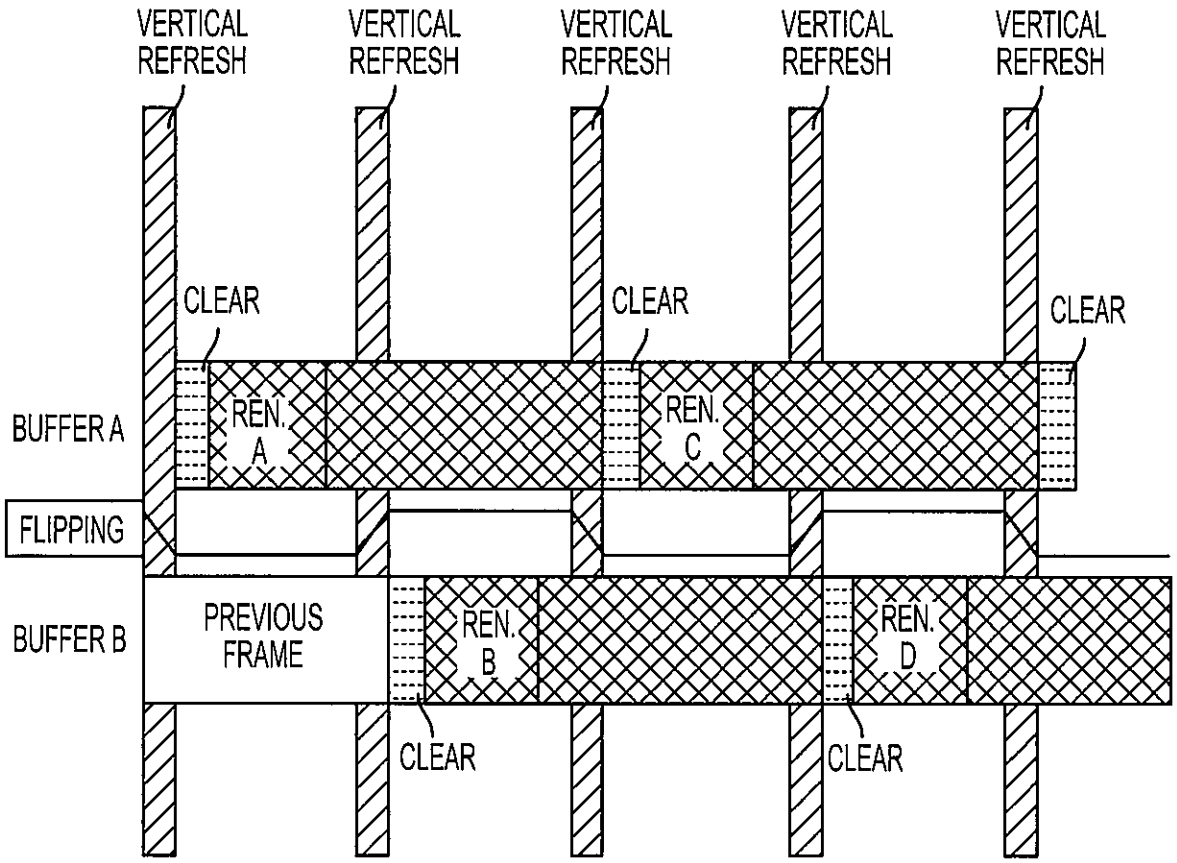
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
CLEAR
CLEAR
CLEAR
BUFFER A
REN. A
REN. C
FLIPPING
BUFFER B
PREVIOUS FRAME
REN. B
REN. D
CLEAR
CLEAR

FIG. 1

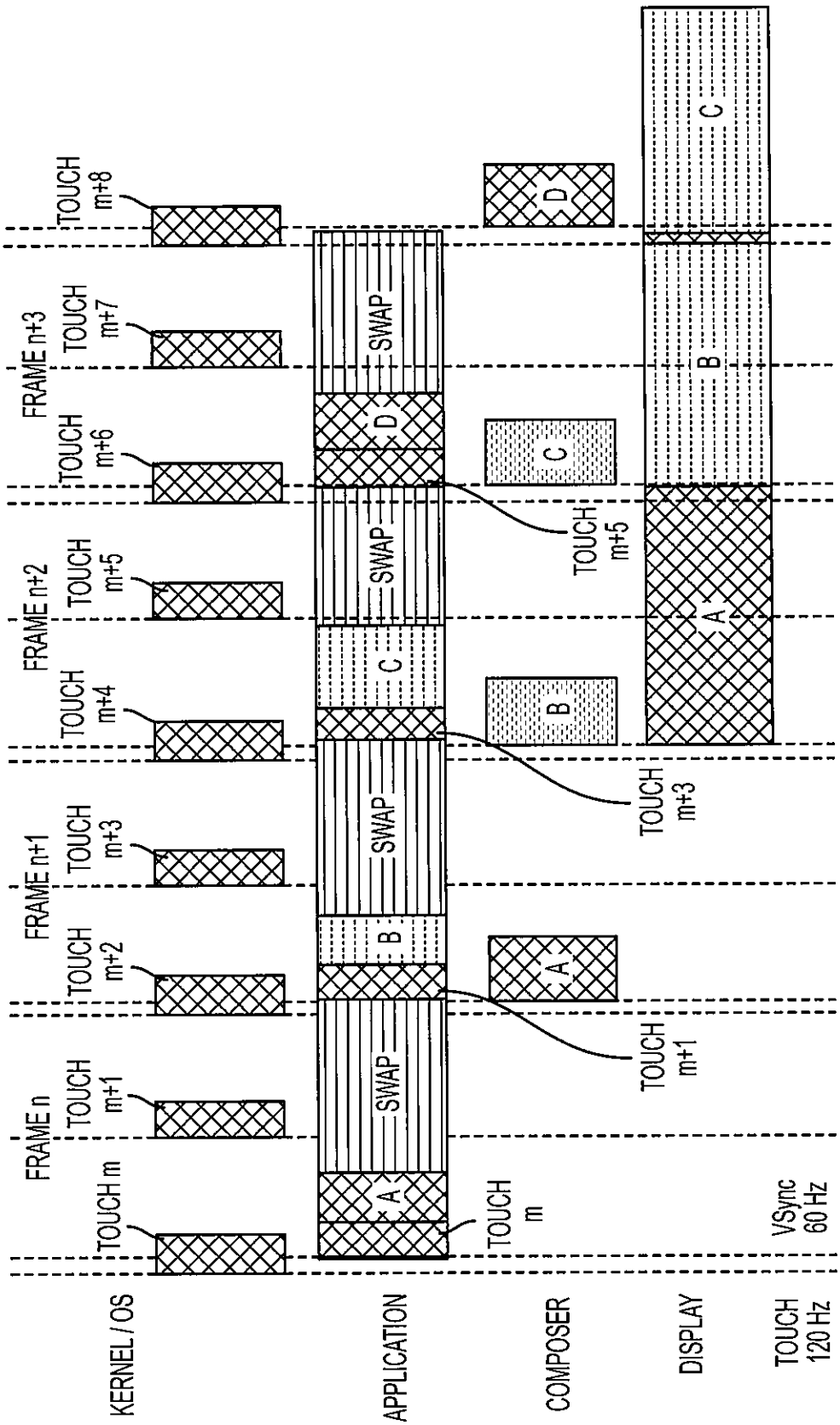
KERNEL / OS
APPLICATION
COMPOSER
DISPLAY
TOUCH 120 Hz
VSync 60 Hz
TOUCH m
FRAME n
TOUCH m+1
FRAME n+1
TOUCH m+2
TOUCH m+3
FRAME n+2
TOUCH m+4
TOUCH m+5
FRAME n+3
TOUCH m+6
TOUCH m+7
TOUCH m+8
SWAP
A
B
C
D
TOUCH m+1
TOUCH m+3
TOUCH m+5

FIG. 2

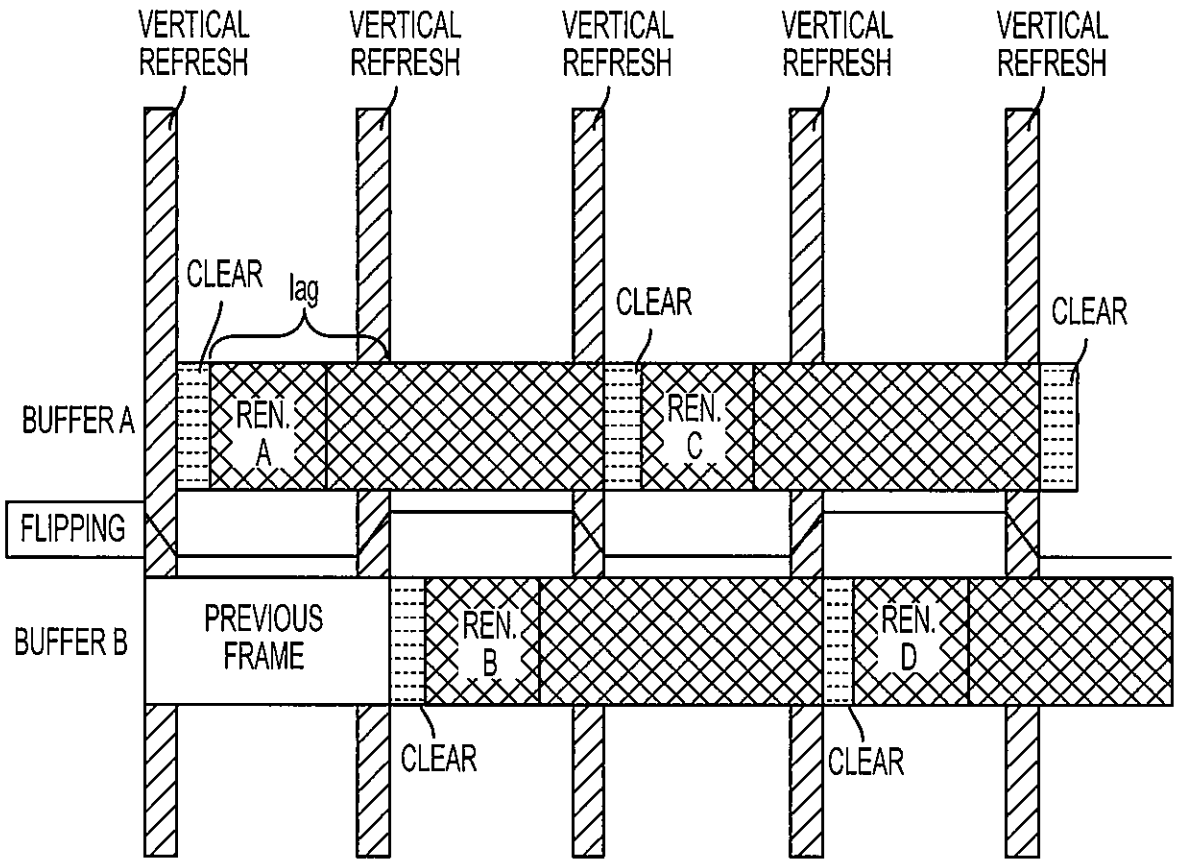
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
CLEAR
lag
CLEAR
CLEAR
BUFFER A
REN. A
REN. C
FLIPPING
BUFFER B
PREVIOUS FRAME
REN. B
REN. D
CLEAR
CLEAR

FIG. 3

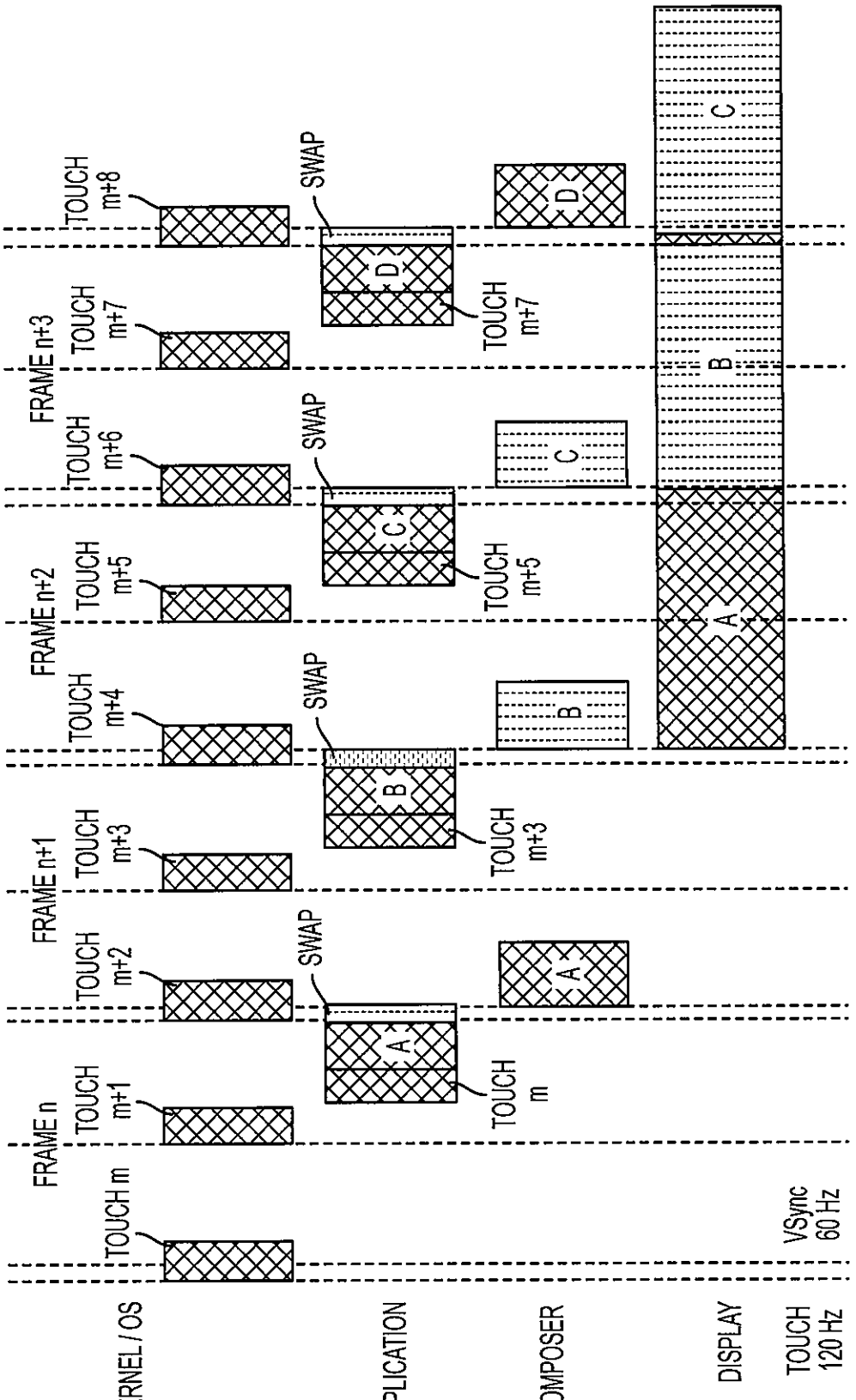
KERNEL / OS
APPLICATION
COMPOSER
DISPLAY
TOUCH 120 Hz
VSync 60 Hz
TOUCH m
FRAME n
TOUCH m+1
TOUCH m+2
FRAME n+1
TOUCH m+3
TOUCH m+4
FRAME n+2
TOUCH m+5
TOUCH m+6
FRAME n+3
TOUCH m+7
TOUCH m+8
SWAP
A
B
C
D

FIG. 4

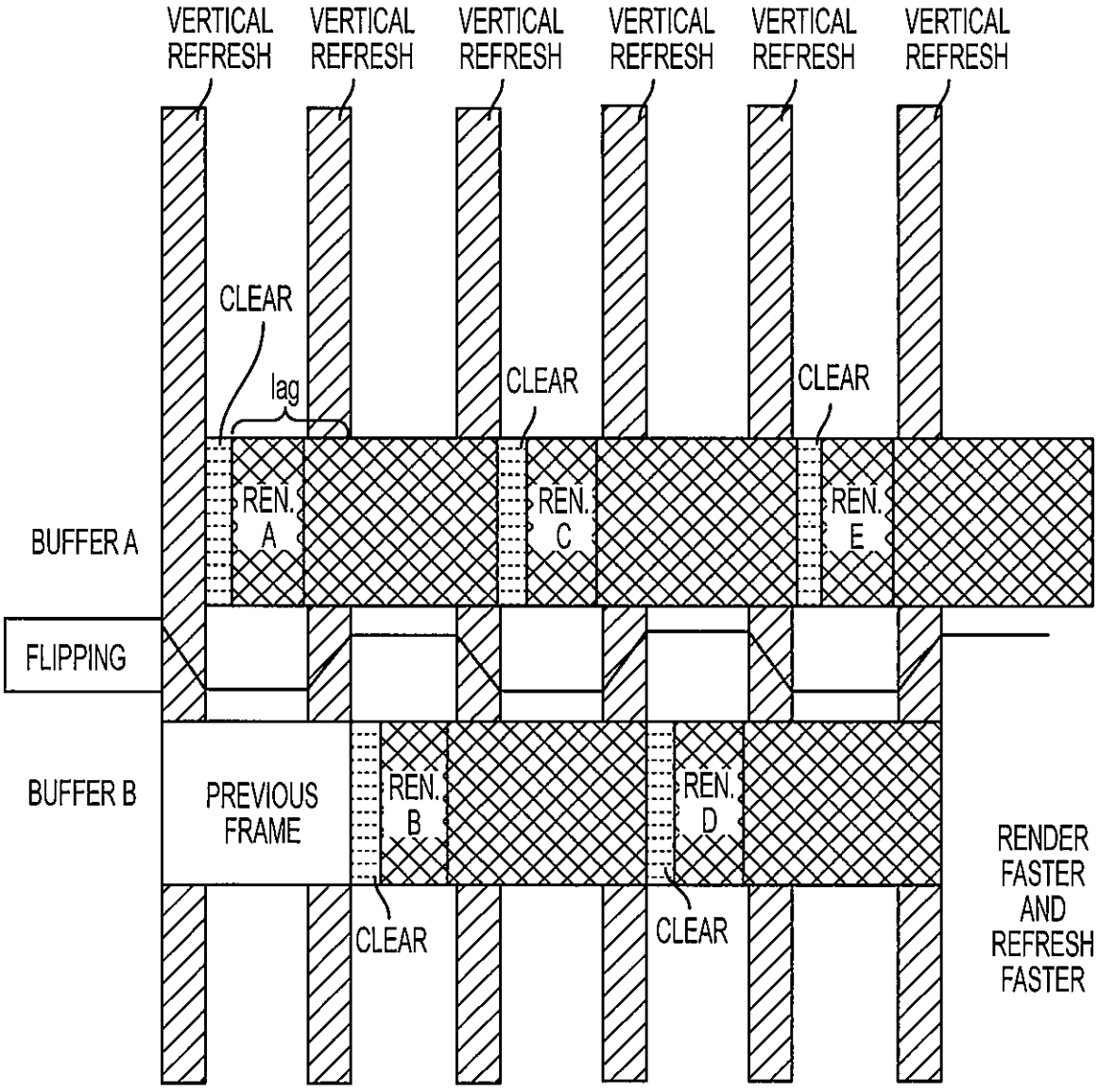
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
CLEAR
lag
CLEAR
CLEAR
BUFFER A
REN. A
REN. C
REN. E
FLIPPING
BUFFER B
PREVIOUS FRAME
REN. B
REN. D
CLEAR
CLEAR
RENDER FASTER AND REFRESH FASTER

FIG. 5

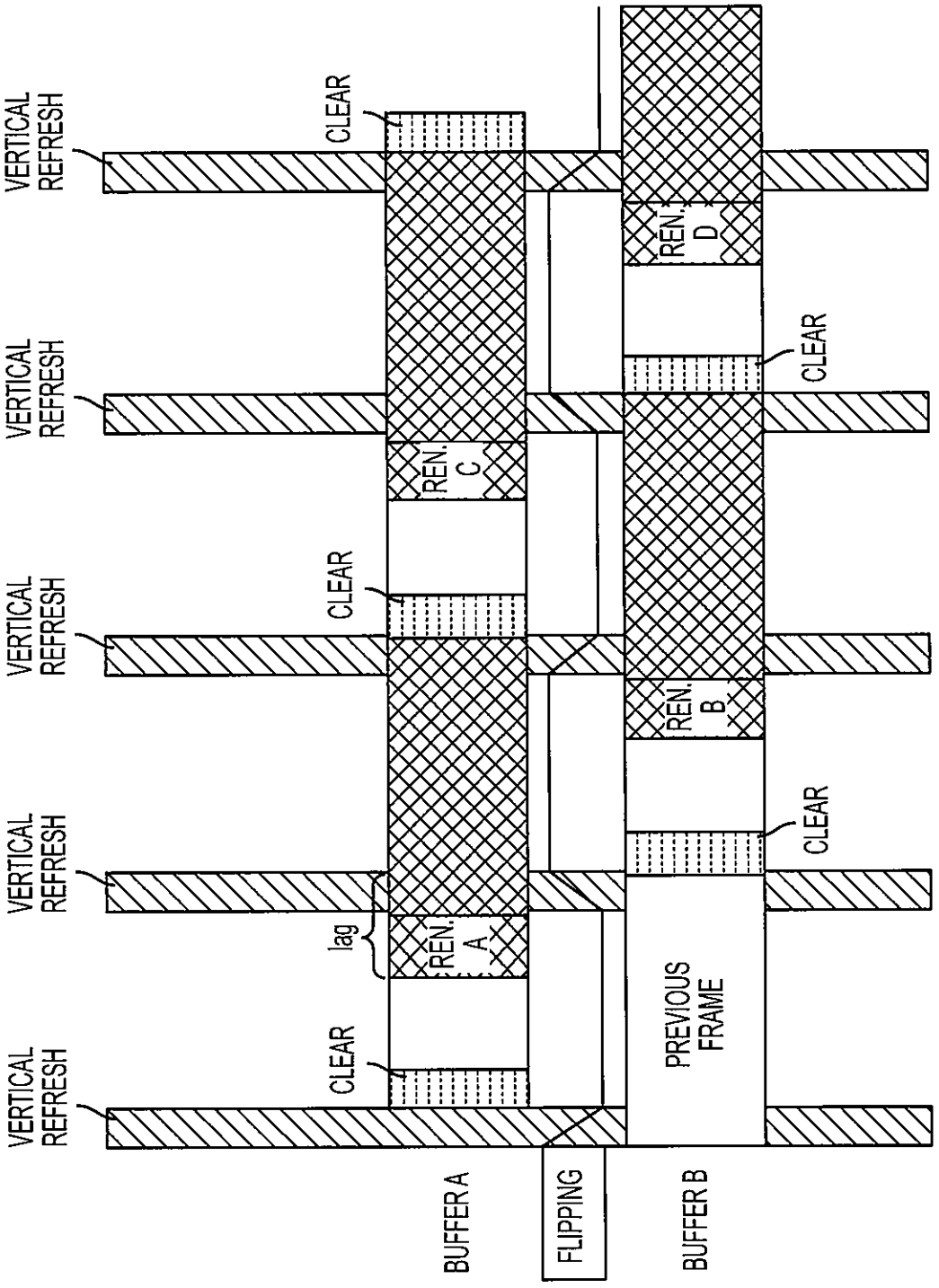
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
VERTICAL REFRESH
CLEAR
CLEAR
CLEAR
CLEAR
lag
REN. A
REN. B
REN. C
REN. D
PREVIOUS FRAME
BUFFER A
FLIPPING
BUFFER B
RENDER FASTER WITH MORE TIMELY INFORMATION

FIG. 6