FIG.1

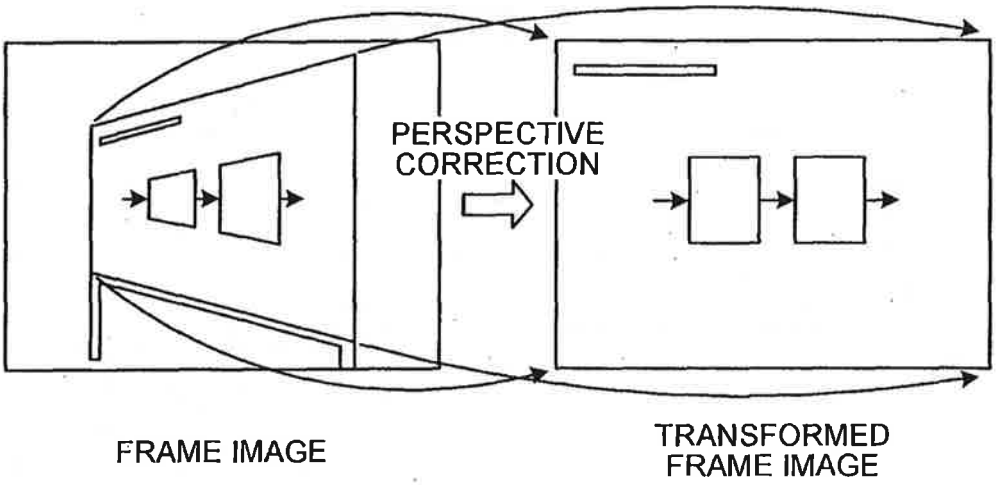


FIG.2

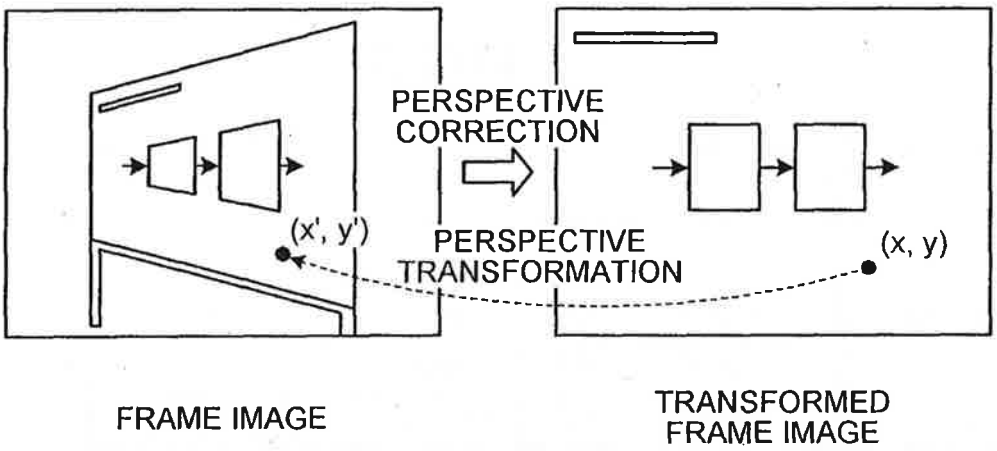


FIG.3

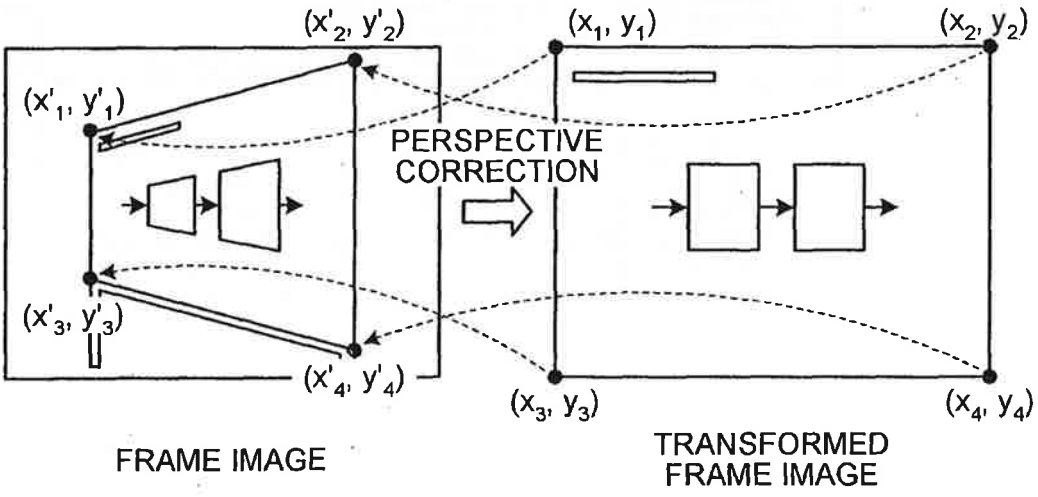


FIG.4

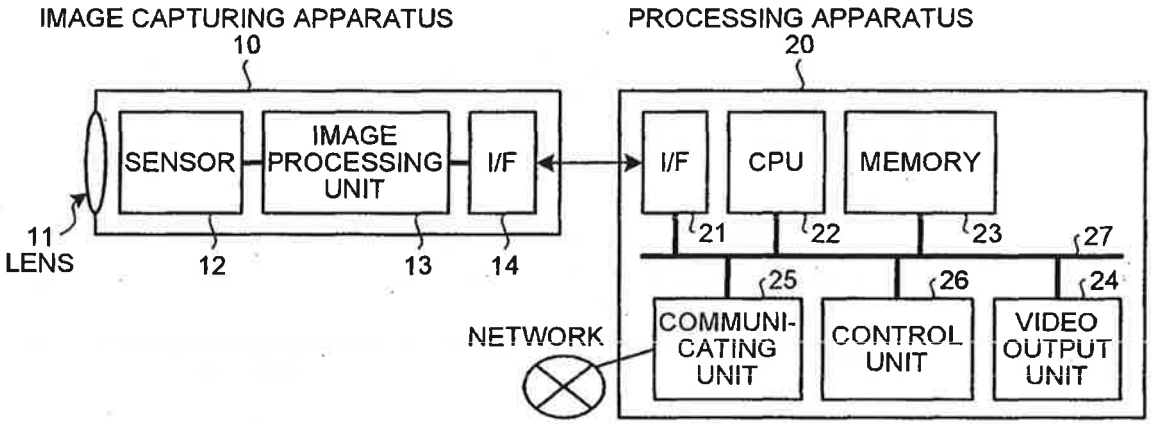

IMAGE CAPTURING APPARATUS
10
PROCESSING APPARATUS
20
SENSOR
IMAGE PROCESSING UNIT
I/F
I/F
CPU
MEMORY
11
LENS
12
13
14
21
22
23
27
25
26
24
NETWORK
COMMUNI-CATING UNIT
CONTROL UNIT
VIDEO OUTPUT UNIT

FIG.5

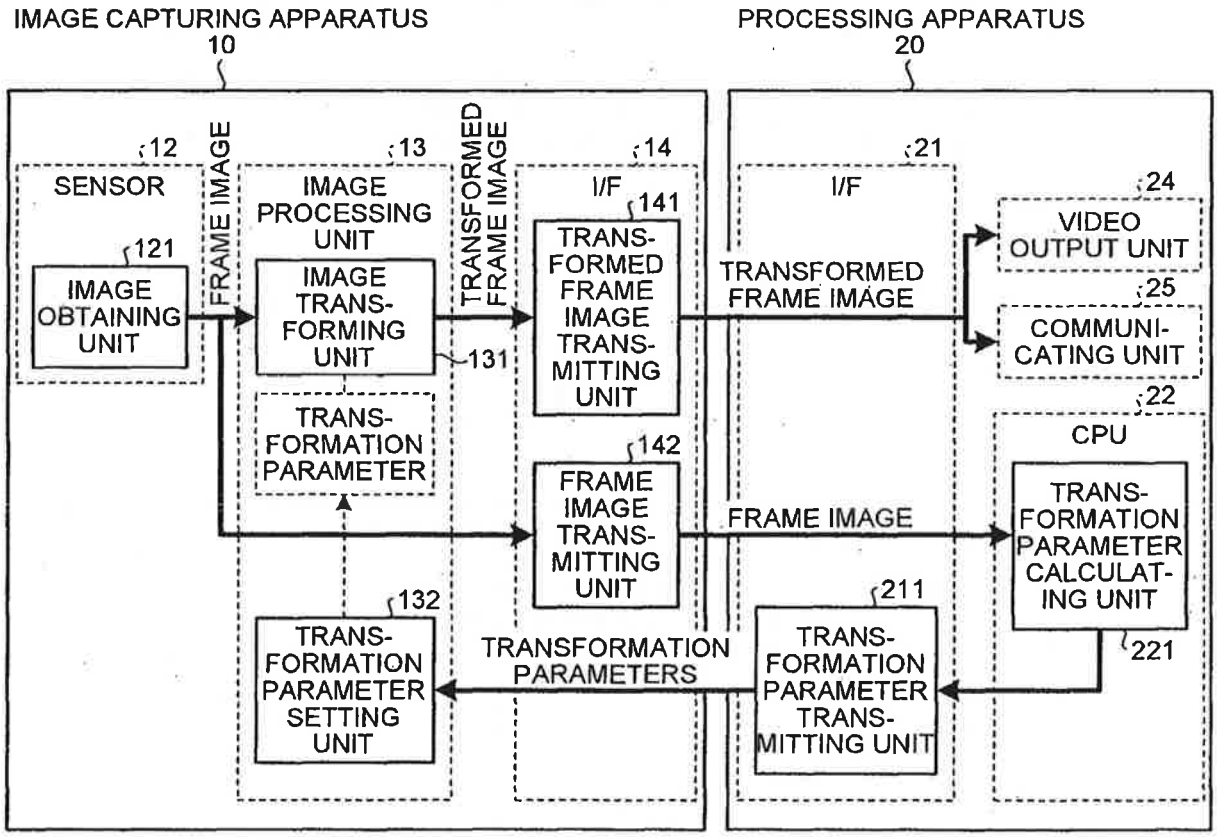

IMAGE CAPTURING APPARATUS
10
PROCESSING APPARATUS
20
12
SENSOR
121
IMAGE OBTAINING UNIT
FRAME IMAGE
13
IMAGE PROCESSING UNIT
IMAGE TRANS-FORMING UNIT
131
TRANS-FORMATION PARAMETER
TRANSFORMED FRAME IMAGE
14
I/F
141
TRANS-FORMED FRAME IMAGE TRANS-MITTING UNIT
142
FRAME IMAGE TRANS-MITTING UNIT
132
TRANS-FORMATION PARAMETER SETTING UNIT
TRANSFORMATION PARAMETERS
21
I/F
TRANSFORMED FRAME IMAGE
FRAME IMAGE
211
TRANS-FORMATION PARAMETER TRANS-MITTING UNIT
24
VIDEO OUTPUT UNIT
25
COMMUNI-CATING UNIT
22
CPU
TRANS-FORMATION PARAMETER CALCULAT-ING UNIT
221

FIG.6

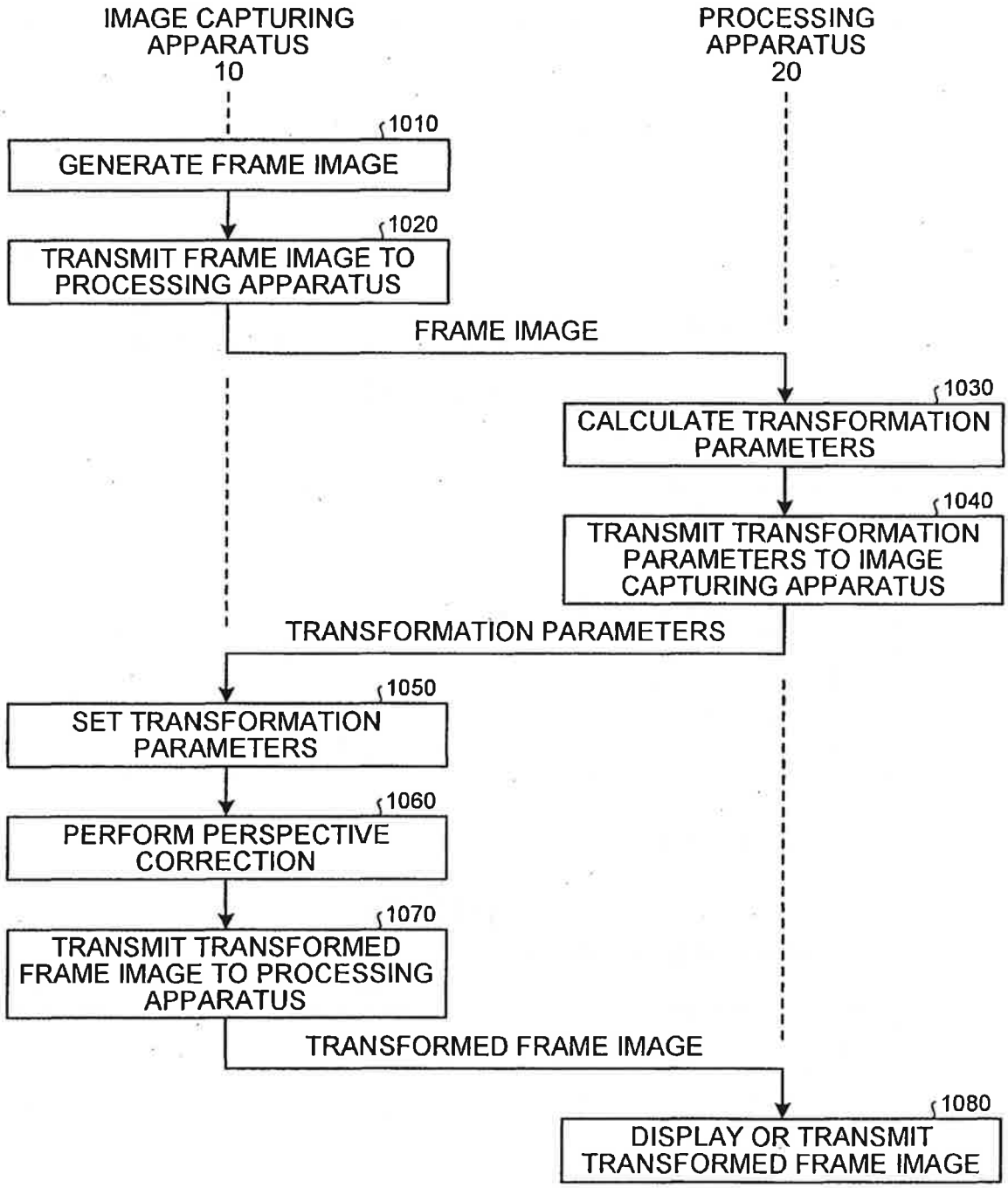

IMAGE CAPTURING APPARATUS 10
PROCESSING APPARATUS 20
1010
GENERATE FRAME IMAGE
1020
TRANSMIT FRAME IMAGE TO PROCESSING APPARATUS
FRAME IMAGE
1030
CALCULATE TRANSFORMATION PARAMETERS
1040
TRANSMIT TRANSFORMATION PARAMETERS TO IMAGE CAPTURING APPARATUS
TRANSFORMATION PARAMETERS
1050
SET TRANSFORMATION PARAMETERS
1060
PERFORM PERSPECTIVE CORRECTION
1070
TRANSMIT TRANSFORMED FRAME IMAGE TO PROCESSING APPARATUS
TRANSFORMED FRAME IMAGE
1080
DISPLAY OR TRANSMIT TRANSFORMED FRAME IMAGE

FIG.7

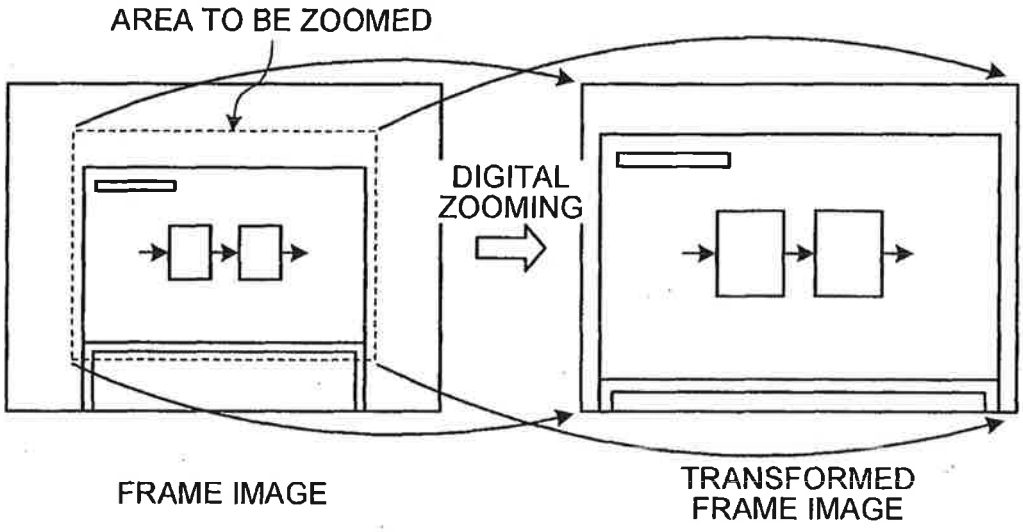


FIG.8

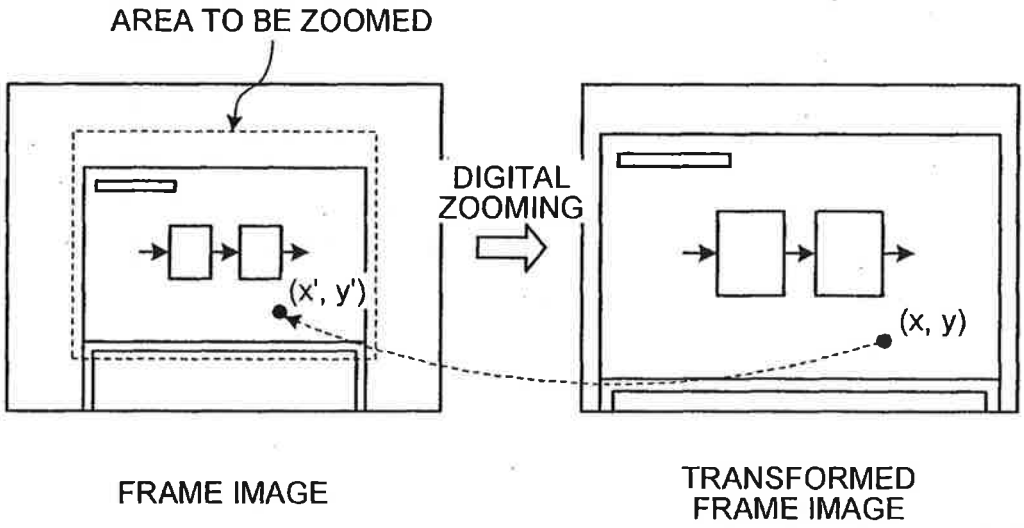


FIG.9

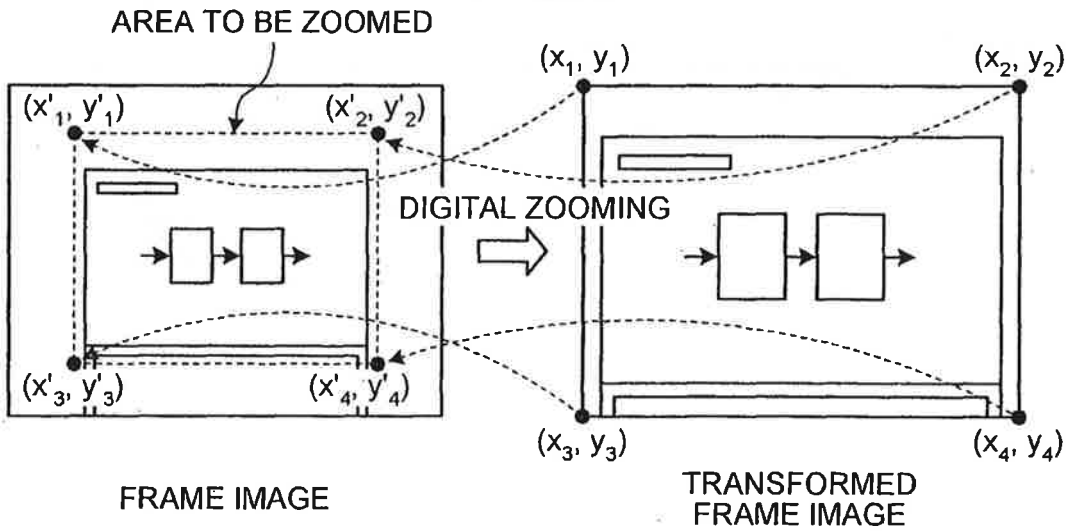


FIG.10

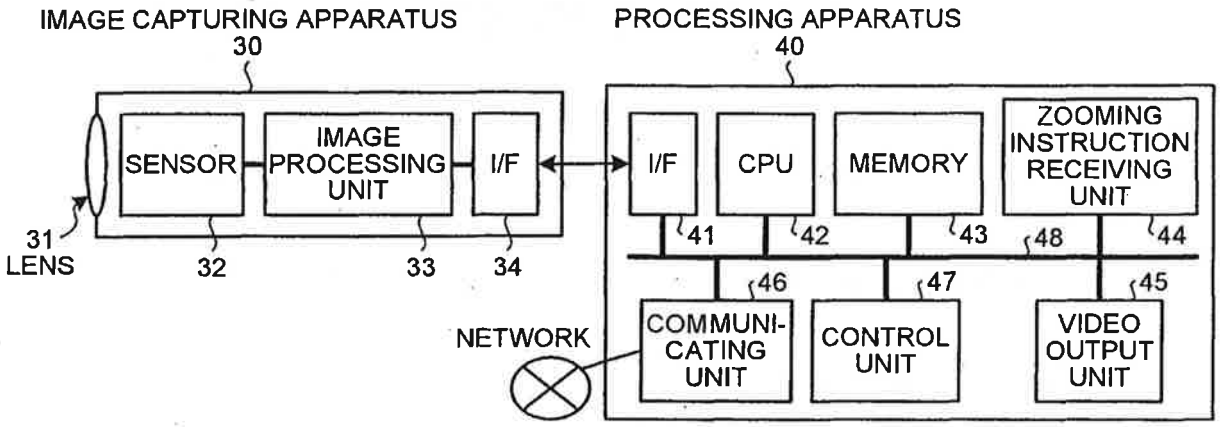

IMAGE CAPTURING APPARATUS
30
PROCESSING APPARATUS
40
SENSOR
IMAGE PROCESSING UNIT
I/F
I/F
CPU
MEMORY
ZOOMING INSTRUCTION RECEIVING UNIT
31
LENS
32
33
34
41
42
43
48
44
46
47
45
NETWORK
COMMUNI-CATING UNIT
CONTROL UNIT
VIDEO OUTPUT UNIT

FIG.11

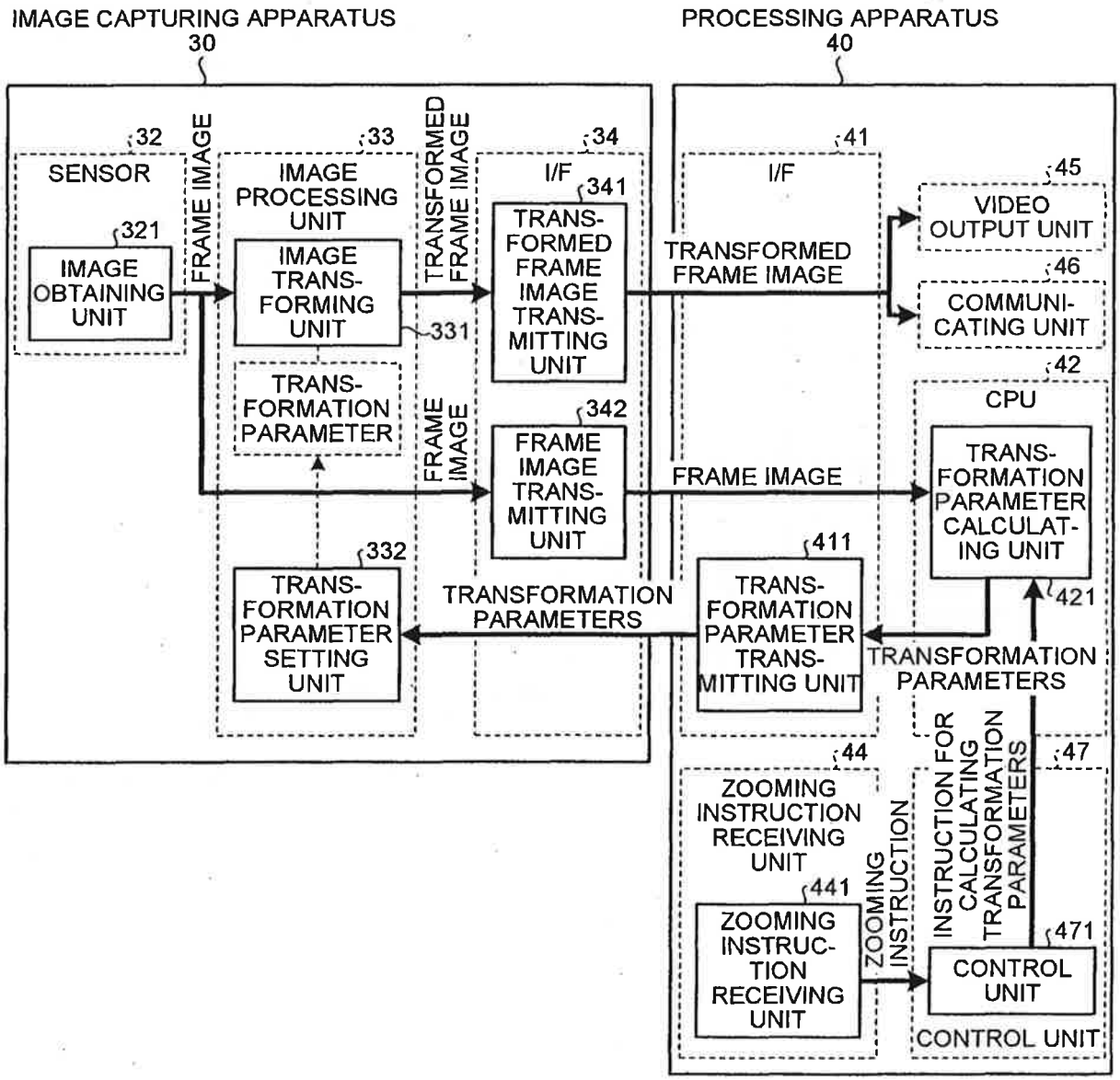

IMAGE CAPTURING APPARATUS
30
PROCESSING APPARATUS
40
32
SENSOR
321
IMAGE OBTAINING UNIT
FRAME IMAGE
33
IMAGE PROCESSING UNIT
IMAGE TRANS-FORMING UNIT
331
TRANS-FORMATION PARAMETER
TRANSFORMED FRAME IMAGE
34
I/F
341
TRANS-FORMED FRAME IMAGE TRANS-MITTING UNIT
FRAME IMAGE
342
FRAME IMAGE TRANS-MITTING UNIT
332
TRANS-FORMATION PARAMETER SETTING UNIT
TRANSFORMATION PARAMETERS
41
I/F
TRANSFORMED FRAME IMAGE
FRAME IMAGE
411
TRANS-FORMATION PARAMETER TRANS-MITTING UNIT
TRANSFORMATION PARAMETERS
45
VIDEO OUTPUT UNIT
46
COMMUNI-CATING UNIT
42
CPU
TRANS-FORMATION PARAMETER CALCULAT-ING UNIT
421
INSTRUCTION FOR CALCULATING TRANSFORMATION PARAMETERS
44
ZOOMING INSTRUCTION RECEIVING UNIT
441
ZOOMING INSTRUC-TION RECEIVING UNIT
ZOOMING INSTRUCTION
47
471
CONTROL UNIT
CONTROL UNIT

FIG.12

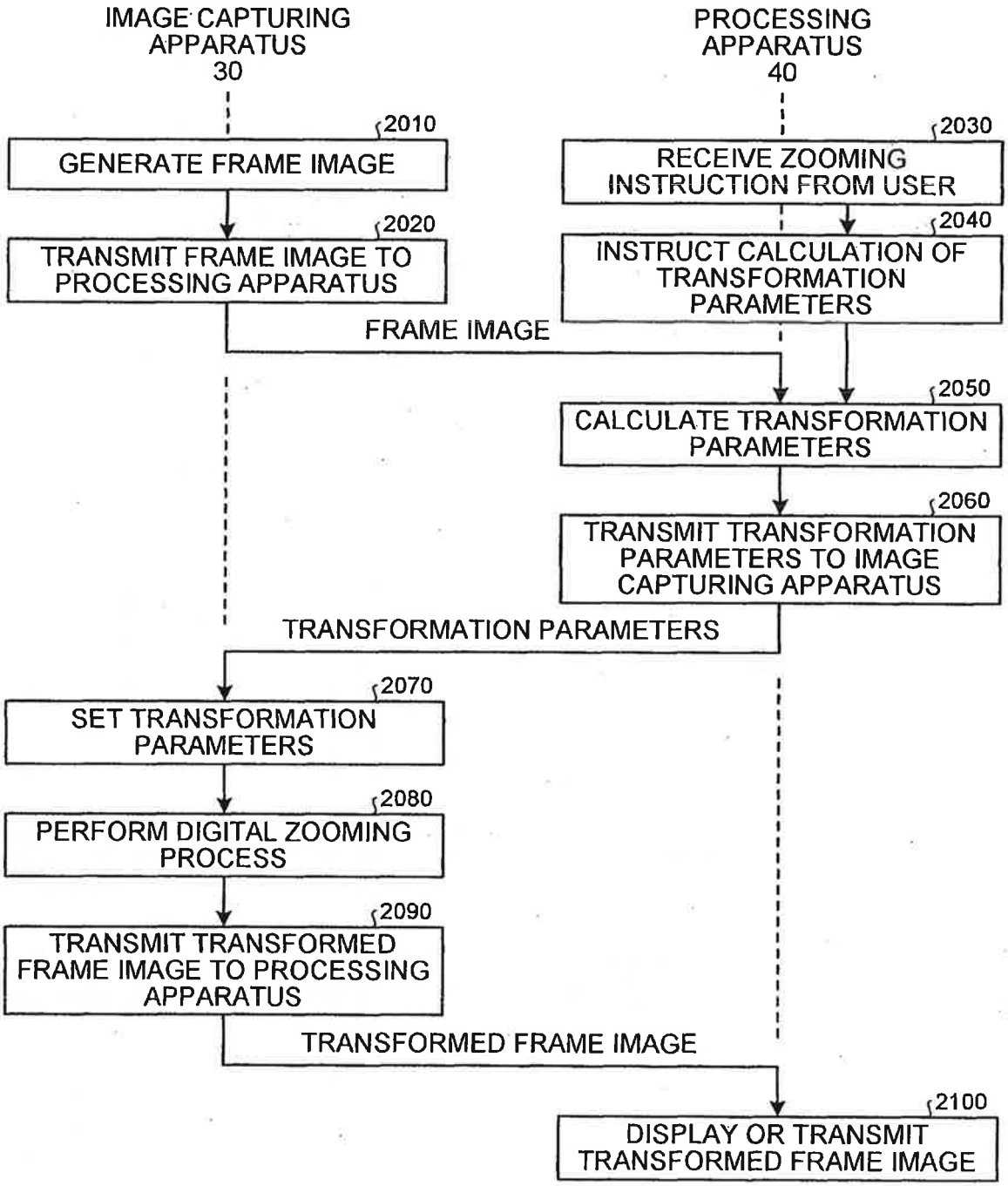

IMAGE CAPTURING APPARATUS 30
PROCESSING APPARATUS 40
2010
GENERATE FRAME IMAGE
2020
TRANSMIT FRAME IMAGE TO PROCESSING APPARATUS
2030
RECEIVE ZOOMING INSTRUCTION FROM USER
2040
INSTRUCT CALCULATION OF TRANSFORMATION PARAMETERS
FRAME IMAGE
2050
CALCULATE TRANSFORMATION PARAMETERS
2060
TRANSMIT TRANSFORMATION PARAMETERS TO IMAGE CAPTURING APPARATUS
TRANSFORMATION PARAMETERS
2070
SET TRANSFORMATION PARAMETERS
2080
PERFORM DIGITAL ZOOMING PROCESS
2090
TRANSMIT TRANSFORMED FRAME IMAGE TO PROCESSING APPARATUS
TRANSFORMED FRAME IMAGE
2100
DISPLAY OR TRANSMIT TRANSFORMED FRAME IMAGE

FIG.13

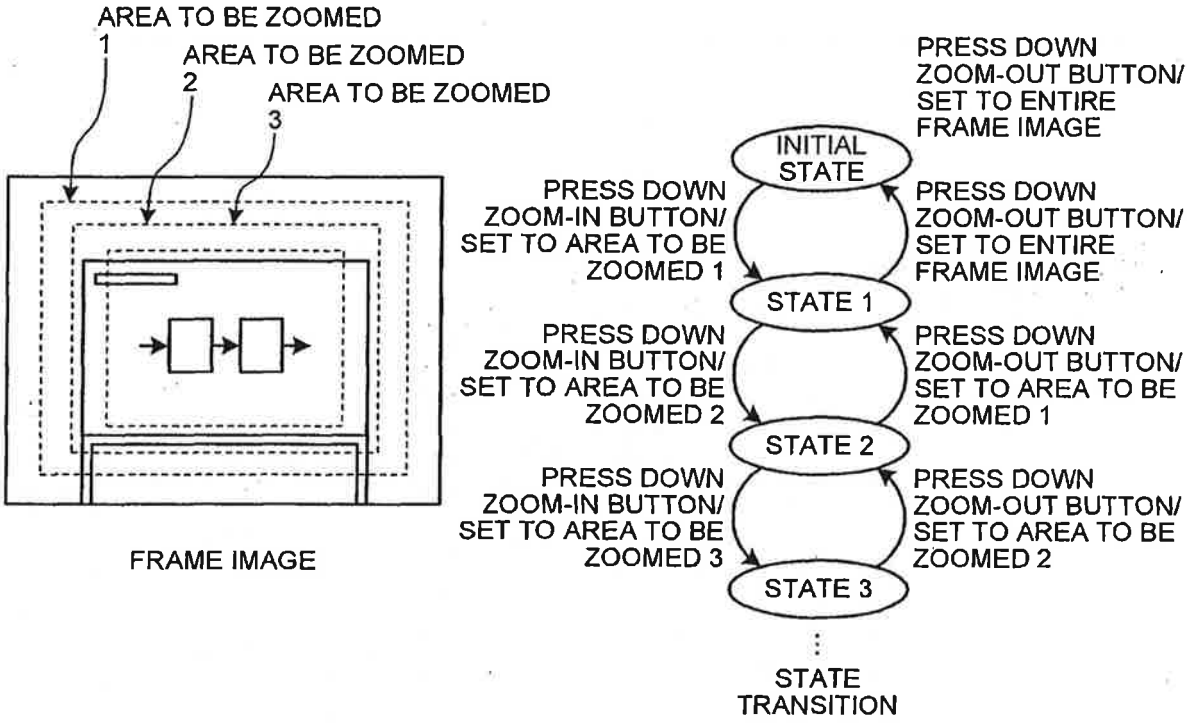

AREA TO BE ZOOMED 1
AREA TO BE ZOOMED 2
AREA TO BE ZOOMED 3
FRAME IMAGE
PRESS DOWN ZOOM-OUT BUTTON/ SET TO ENTIRE FRAME IMAGE
INITIAL STATE
PRESS DOWN ZOOM-IN BUTTON/ SET TO AREA TO BE ZOOMED 1
PRESS DOWN ZOOM-OUT BUTTON/ SET TO ENTIRE FRAME IMAGE
STATE 1
PRESS DOWN ZOOM-IN BUTTON/ SET TO AREA TO BE ZOOMED 2
PRESS DOWN ZOOM-OUT BUTTON/ SET TO AREA TO BE ZOOMED 1
STATE 2
PRESS DOWN ZOOM-IN BUTTON/ SET TO AREA TO BE ZOOMED 3
PRESS DOWN ZOOM-OUT BUTTON/ SET TO AREA TO BE ZOOMED 2
STATE 3
STATE TRANSITION

FIG.14

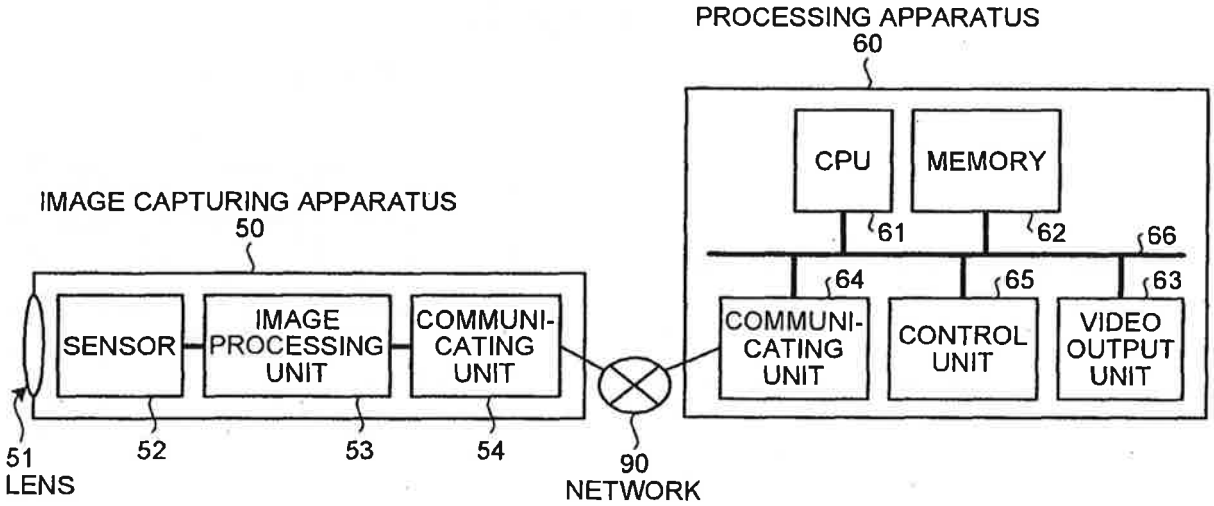

PROCESSING APPARATUS 60
CPU
MEMORY
61
62
66
64
65
63
COMMUNI-CATING UNIT
CONTROL UNIT
VIDEO OUTPUT UNIT
IMAGE CAPTURING APPARATUS 50
SENSOR
IMAGE PROCESSING UNIT
COMMUNI-CATING UNIT
51 LENS
52
53
54
90 NETWORK

FIG.15

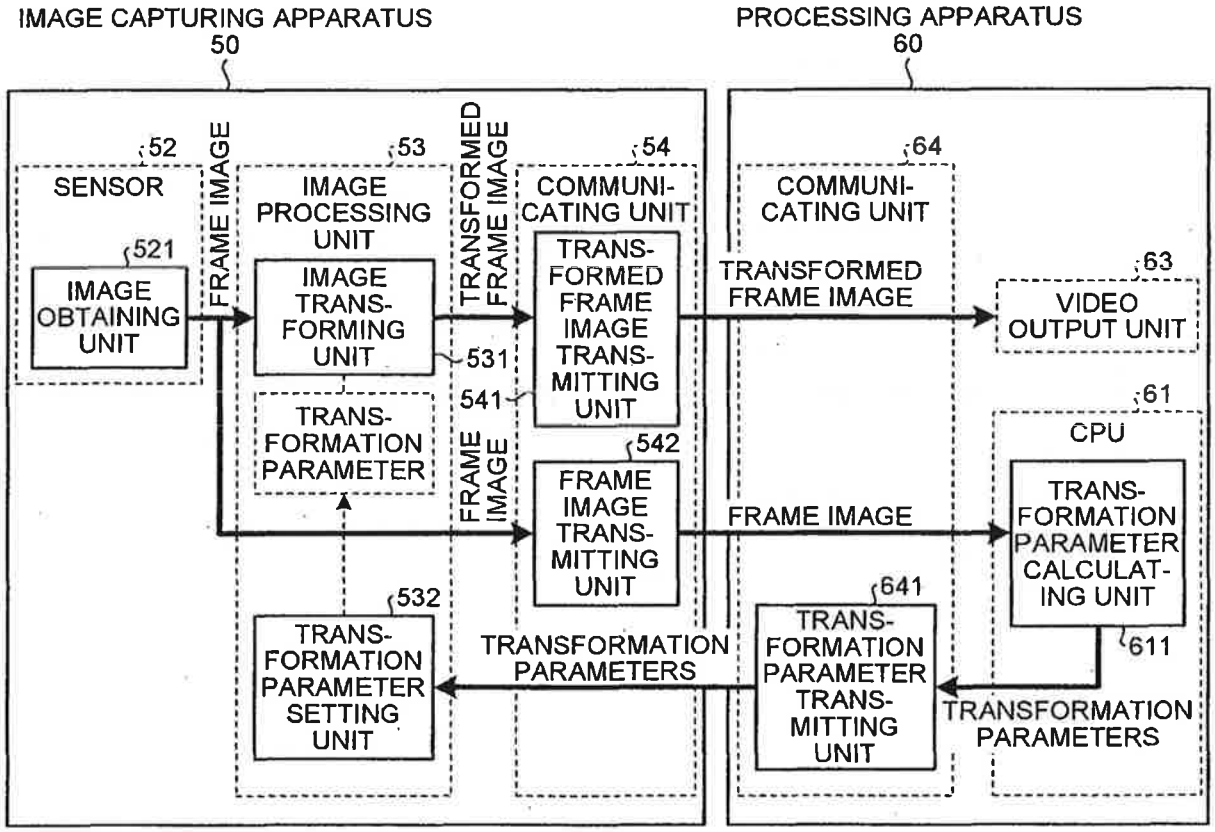

IMAGE CAPTURING APPARATUS
50
PROCESSING APPARATUS
60
52
SENSOR
521
IMAGE OBTAINING UNIT
FRAME IMAGE
53
IMAGE PROCESSING UNIT
IMAGE TRANS-FORMING UNIT
531
TRANS-FORMATION PARAMETER
532
TRANS-FORMATION PARAMETER SETTING UNIT
TRANSFORMED FRAME IMAGE
FRAME IMAGE
54
COMMUNI-CATING UNIT
TRANS-FORMED FRAME IMAGE TRANS-MITTING UNIT
541
542
FRAME IMAGE TRANS-MITTING UNIT
TRANSFORMATION PARAMETERS
64
COMMUNI-CATING UNIT
TRANSFORMED FRAME IMAGE
63
VIDEO OUTPUT UNIT
61
CPU
TRANS-FORMATION PARAMETER CALCULAT-ING UNIT
611
FRAME IMAGE
641
TRANS-FORMATION PARAMETER TRANS-MITTING UNIT
TRANSFORMATION PARAMETERS

FIG.16

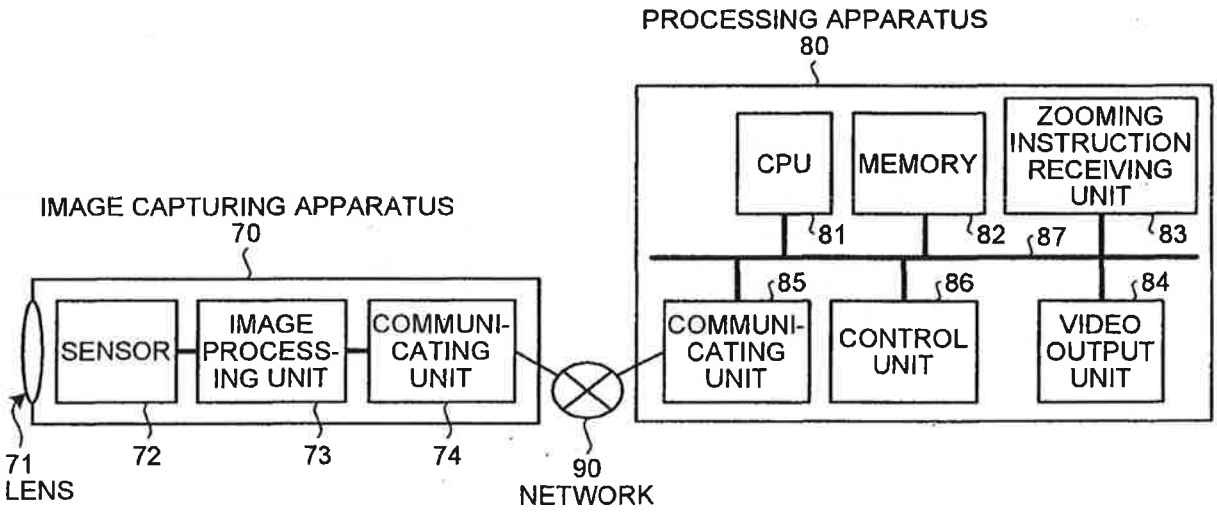

PROCESSING APPARATUS
80
CPU
81
MEMORY
82
ZOOMING INSTRUCTION RECEIVING UNIT
87
83
85
86
84
COMMUNI-CATING UNIT
CONTROL UNIT
VIDEO OUTPUT UNIT
IMAGE CAPTURING APPARATUS
70
SENSOR
IMAGE PROCESS-ING UNIT
COMMUNI-CATING UNIT
71
LENS
72
73
74
90
NETWORK

FIG.17

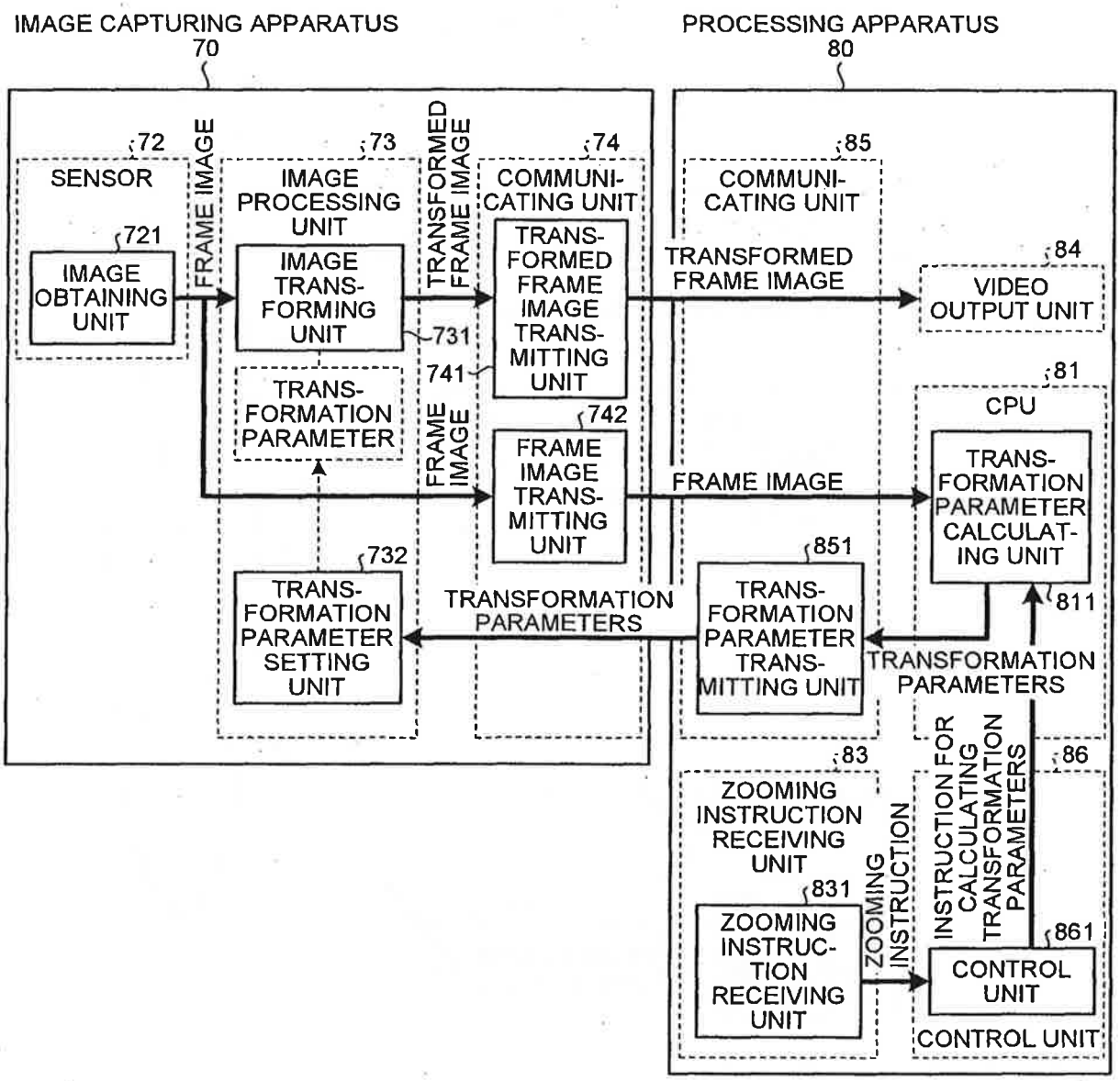

IMAGE CAPTURING APPARATUS
70
PROCESSING APPARATUS
80
72
SENSOR
721
IMAGE OBTAINING UNIT
FRAME IMAGE
73
IMAGE PROCESSING UNIT
IMAGE TRANS-FORMING UNIT
731
TRANS-FORMATION PARAMETER
732
TRANS-FORMATION PARAMETER SETTING UNIT
TRANSFORMED FRAME IMAGE
74
COMMUNI-CATING UNIT
TRANS-FORMED FRAME IMAGE TRANS-MITTING UNIT
741
FRAME IMAGE
742
FRAME IMAGE TRANS-MITTING UNIT
TRANSFORMATION PARAMETERS
85
COMMUNI-CATING UNIT
TRANSFORMED FRAME IMAGE
FRAME IMAGE
851
TRANS-FORMATION PARAMETER TRANS-MITTING UNIT
TRANSFORMATION PARAMETERS
84
VIDEO OUTPUT UNIT
81
CPU
TRANS-FORMATION PARAMETER CALCULAT-ING UNIT
811
INSTRUCTION FOR CALCULATING TRANSFORMATION PARAMETERS
83
ZOOMING INSTRUCTION RECEIVING UNIT
831
ZOOMING INSTRUC-TION RECEIVING UNIT
ZOOMING INSTRUCTION
86
861
CONTROL UNIT
CONTROL UNIT

FIG.18

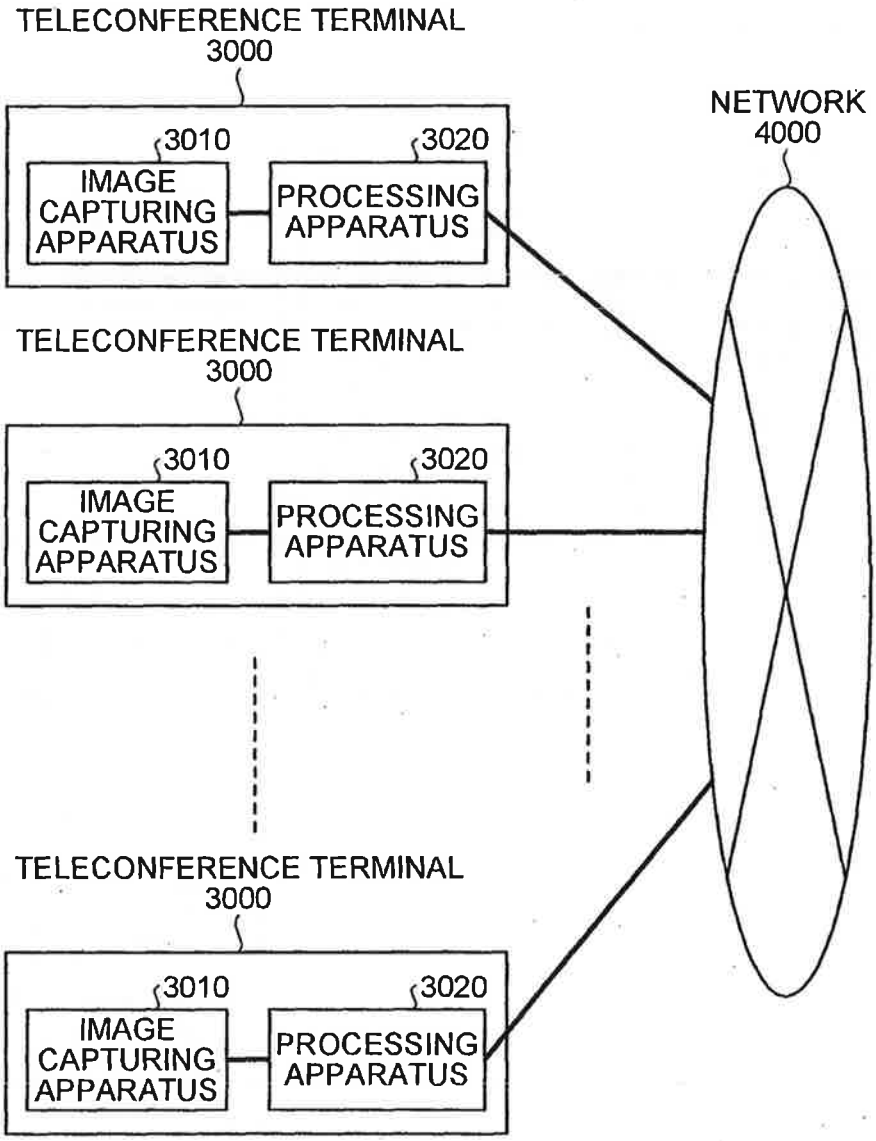
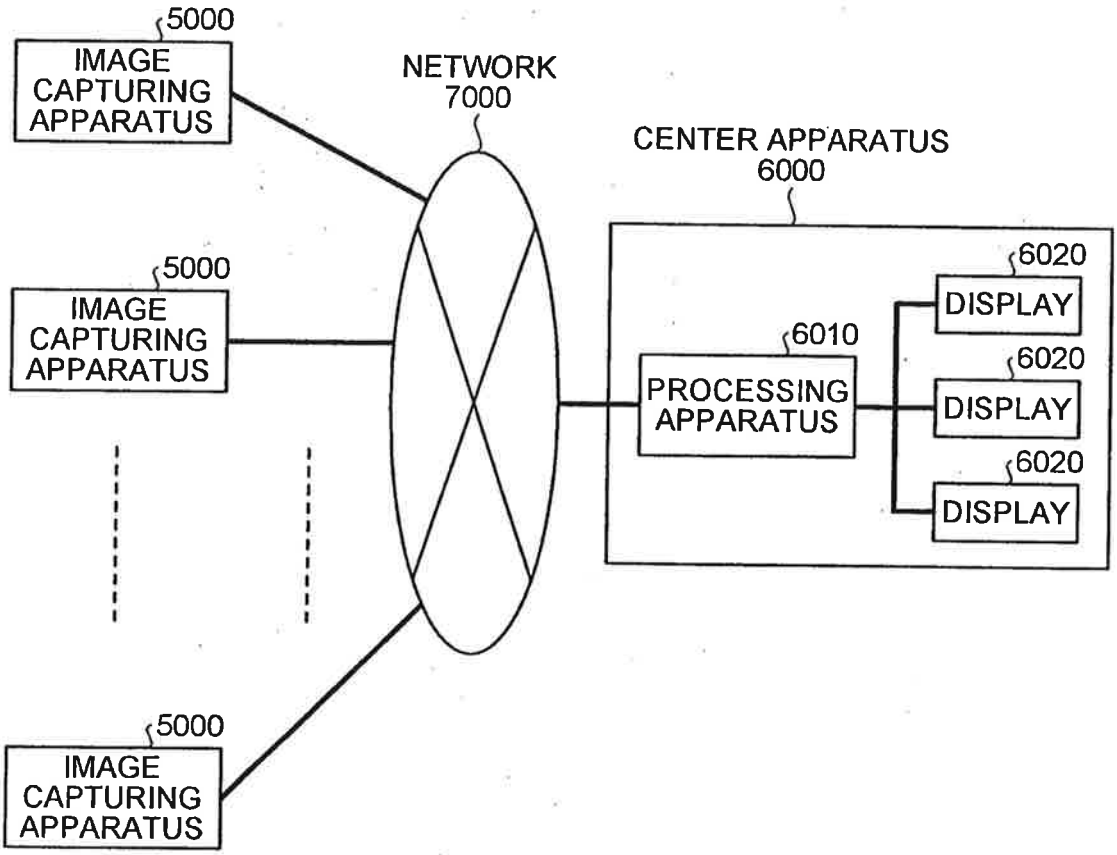

TELECONFERENCE TERMINAL
3000
3010
IMAGE CAPTURING APPARATUS
3020
PROCESSING APPARATUS
NETWORK
4000
TELECONFERENCE TERMINAL
3000
3010
IMAGE CAPTURING APPARATUS
3020
PROCESSING APPARATUS
TELECONFERENCE TERMINAL
3000
3010
IMAGE CAPTURING APPARATUS
3020
PROCESSING APPARATUS

FIG.19


5000
IMAGE CAPTURING APPARATUS
5000
IMAGE CAPTURING APPARATUS
5000
IMAGE CAPTURING APPARATUS
NETWORK
7000
CENTER APPARATUS
6000
6010
PROCESSING APPARATUS
6020
DISPLAY
6020
DISPLAY
6020
DISPLAY