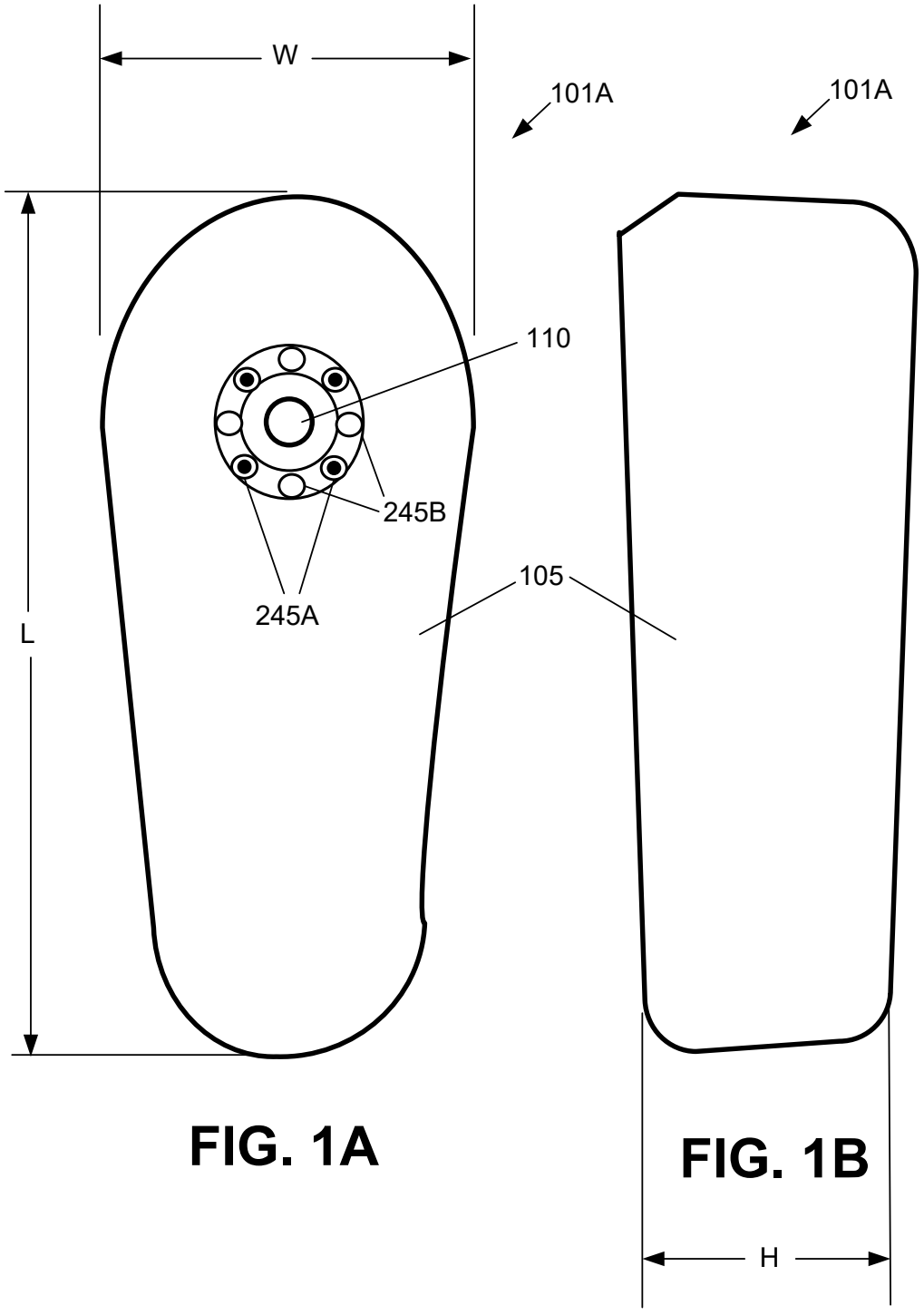


FIG. 1A

FIG. 1B

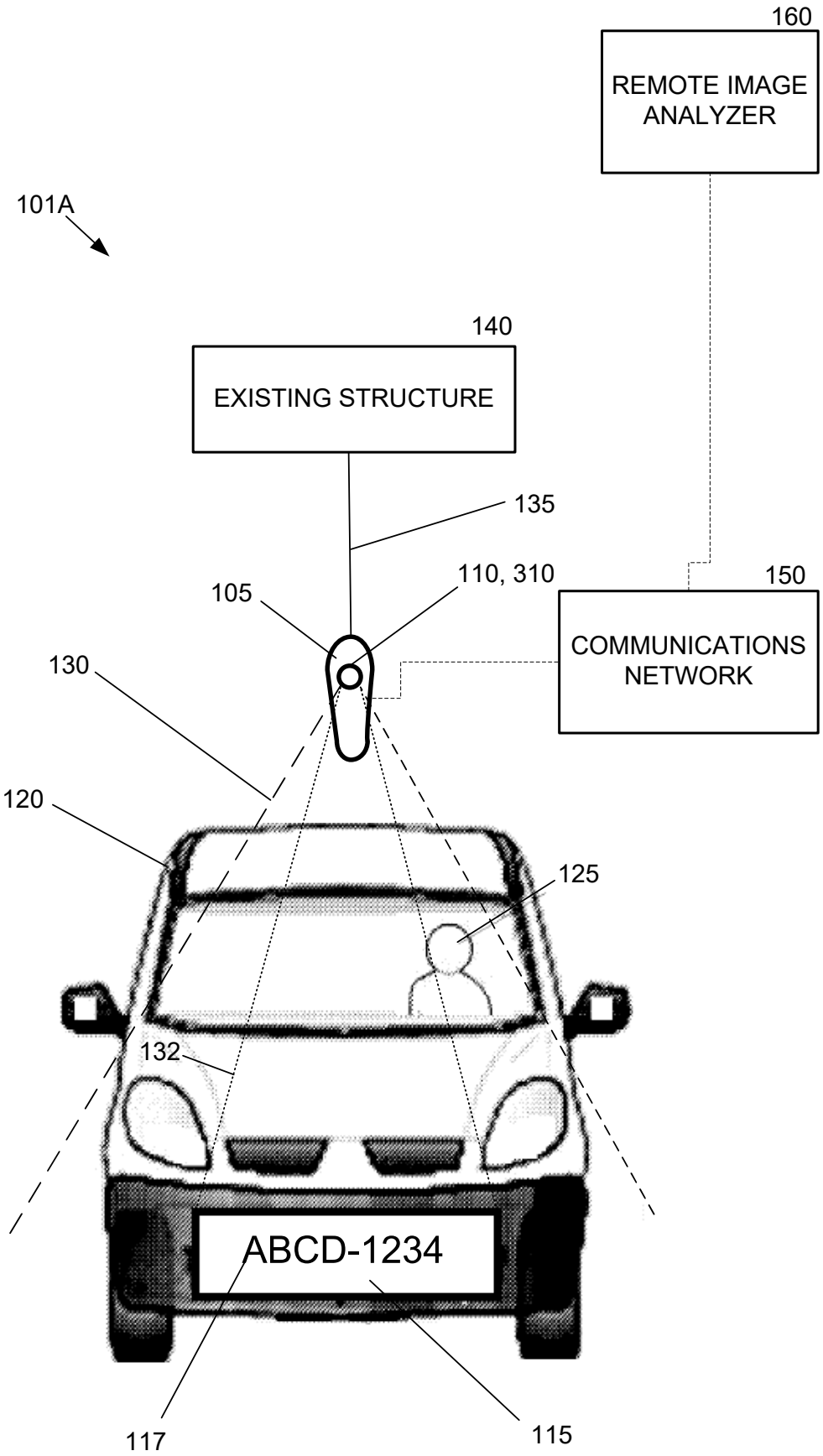

160
REMOTE IMAGE ANALYZER
101A
140
EXISTING STRUCTURE
135
110, 310
105
150
COMMUNICATIONS NETWORK
130
120
125
132
ABCD-1234
117
115

FIG. 1C

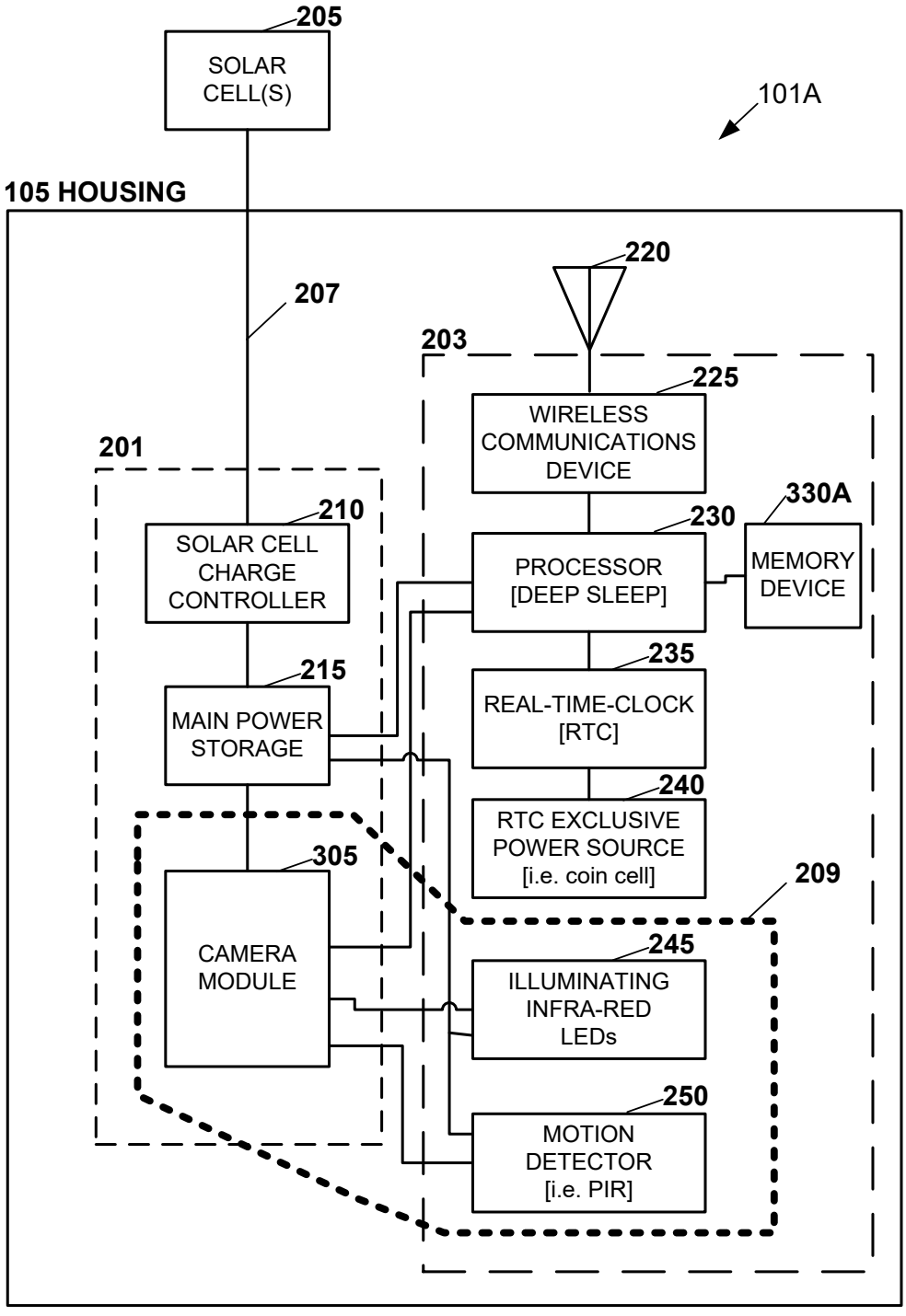

205
SOLAR CELL(S)
101A
105 HOUSING
220
207
203
225
WIRELESS COMMUNICATIONS DEVICE
201
210
SOLAR CELL CHARGE CONTROLLER
330A
230
PROCESSOR [DEEP SLEEP]
MEMORY DEVICE
235
215
MAIN POWER STORAGE
REAL-TIME-CLOCK [RTC]
240
RTC EXCLUSIVE POWER SOURCE [i.e. coin cell]
305
209
CAMERA MODULE
245
ILLUMINATING INFRA-RED LEDs
250
MOTION DETECTOR [i.e. PIR]

FIG. 2

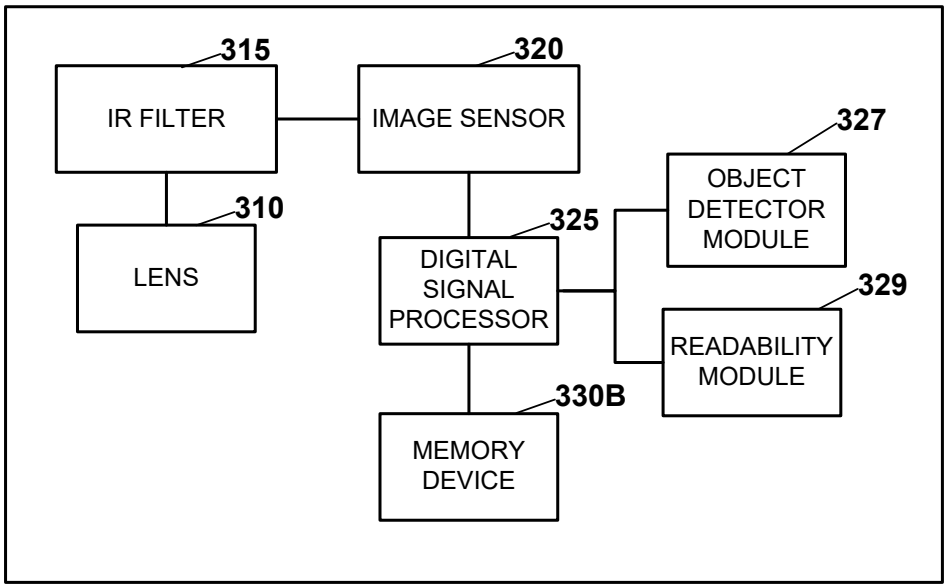

CAMERA MODULE 305
315
IR FILTER
320
IMAGE SENSOR
327
OBJECT DETECTOR MODULE
310
LENS
325
DIGITAL SIGNAL PROCESSOR
329
READABILITY MODULE
330B
MEMORY DEVICE

FIG. 3

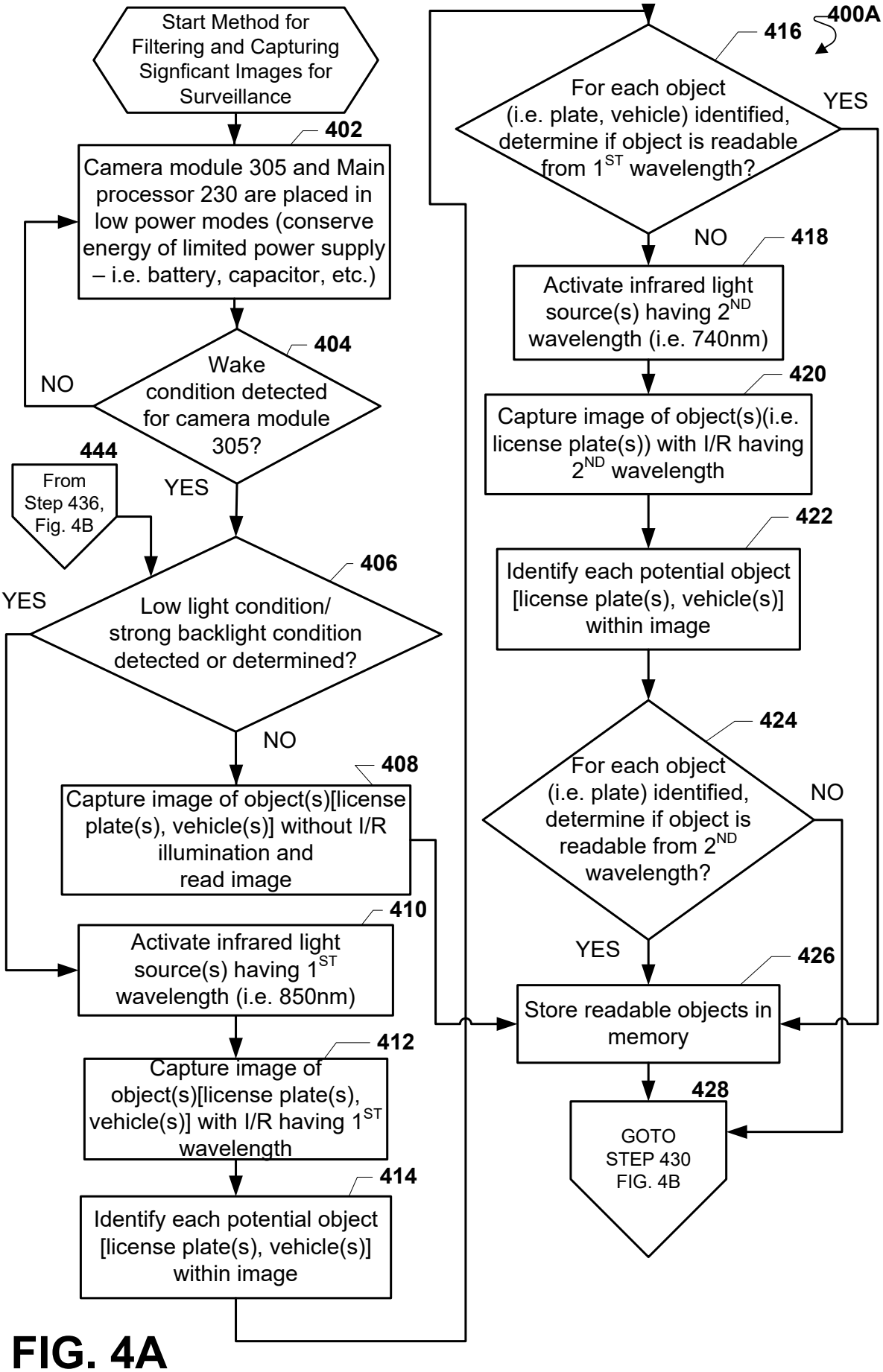

Start Method for Filtering and Capturing Signficant Images for Surveillance
402
Camera module 305 and Main processor 230 are placed in low power modes (conserve energy of limited power supply – i.e. battery, capacitor, etc.)
404
Wake condition detected for camera module 305?
NO
YES
444
From Step 436, Fig. 4B
406
Low light condition/ strong backlight condition detected or determined?
YES
NO
408
Capture image of object(s)[license plate(s), vehicle(s)] without I/R illumination and read image
410
Activate infrared light source(s) having 1ST wavelength (i.e. 850nm)
412
Capture image of object(s)[license plate(s), vehicle(s)] with I/R having 1ST wavelength
414
Identify each potential object [license plate(s), vehicle(s)] within image
400A
416
For each object (i.e. plate, vehicle) identified, determine if object is readable from 1ST wavelength?
YES
NO
418
Activate infrared light source(s) having 2ND wavelength (i.e. 740nm)
420
Capture image of object(s)(i.e. license plate(s)) with I/R having 2ND wavelength
422
Identify each potential object [license plate(s), vehicle(s)] within image
424
For each object (i.e. plate) identified, determine if object is readable from 2ND wavelength?
NO
YES
426
Store readable objects in memory
428
GOTO STEP 430 FIG. 4B

FIG. 4A

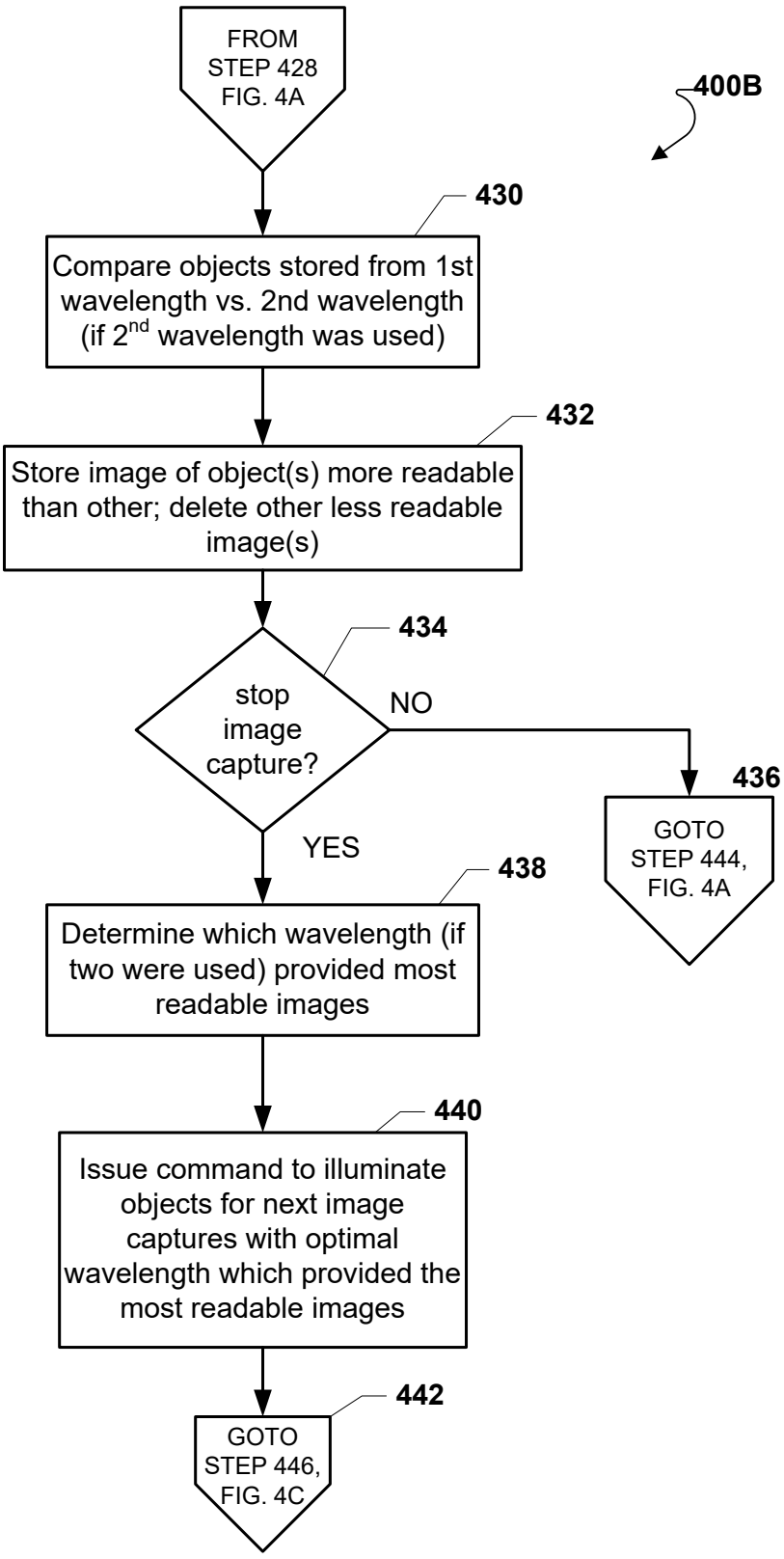

FROM STEP 428 FIG. 4A
400B
430
Compare objects stored from 1st wavelength vs. 2nd wavelength (if 2nd wavelength was used)
432
Store image of object(s) more readable than other; delete other less readable image(s)
434
stop image capture?
NO
436
GOTO STEP 444, FIG. 4A
YES
438
Determine which wavelength (if two were used) provided most readable images
440
Issue command to illuminate objects for next image captures with optimal wavelength which provided the most readable images
442
GOTO STEP 446, FIG. 4C

FIG. 4B

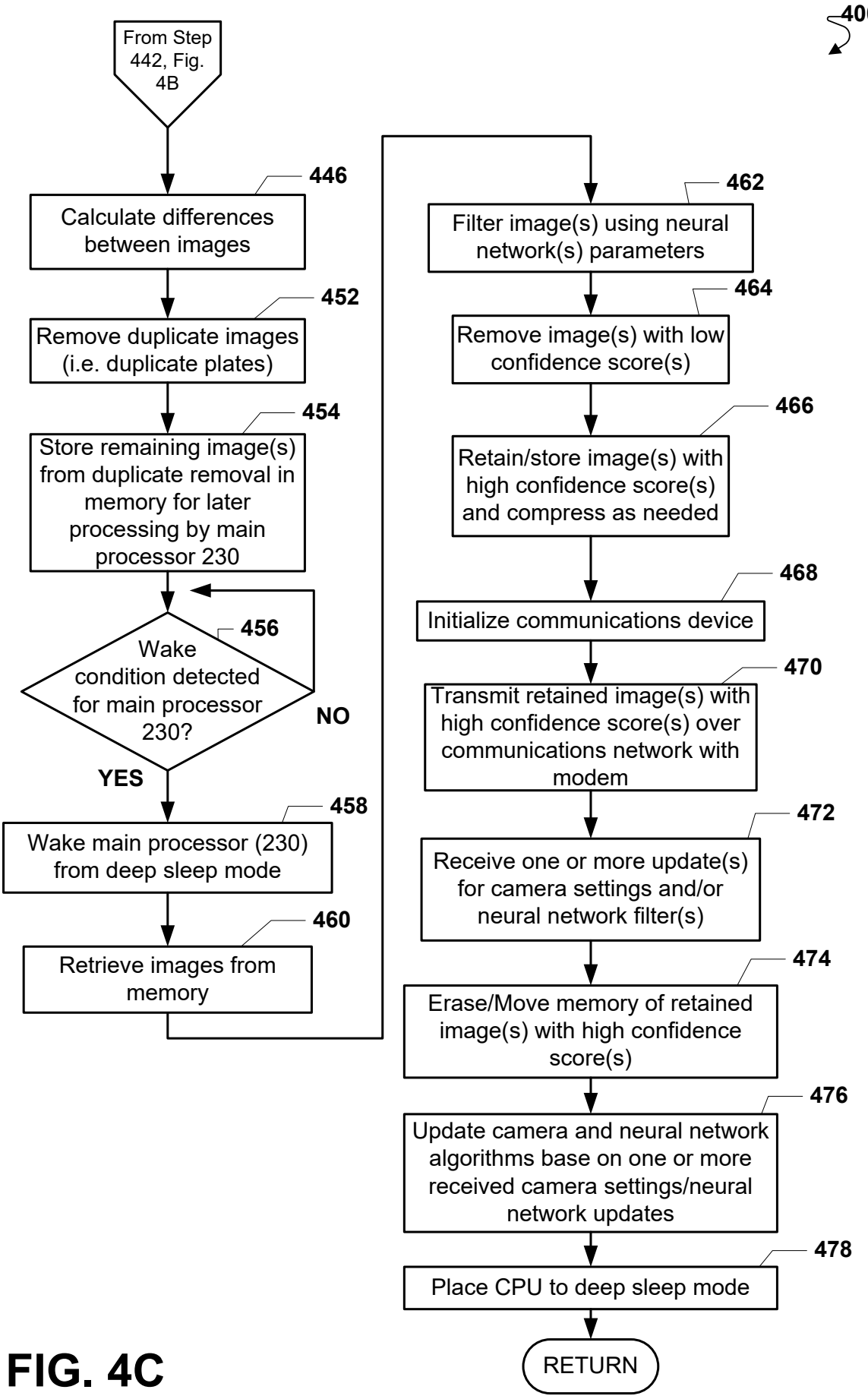

400C
From Step 442, Fig. 4B
446
Calculate differences between images
452
Remove duplicate images (i.e. duplicate plates)
454
Store remaining image(s) from duplicate removal in memory for later processing by main processor 230
456
Wake condition detected for main processor 230?
NO
YES
458
Wake main processor (230) from deep sleep mode
460
Retrieve images from memory
462
Filter image(s) using neural network(s) parameters
464
Remove image(s) with low confidence score(s)
466
Retain/store image(s) with high confidence score(s) and compress as needed
468
Initialize communications device
470
Transmit retained image(s) with high confidence score(s) over communications network with modem
472
Receive one or more update(s) for camera settings and/or neural network filter(s)
474
Erase/Move memory of retained image(s) with high confidence score(s)
476
Update camera and neural network algorithms base on one or more received camera settings/neural network updates
478
Place CPU to deep sleep mode
RETURN

FIG. 4C

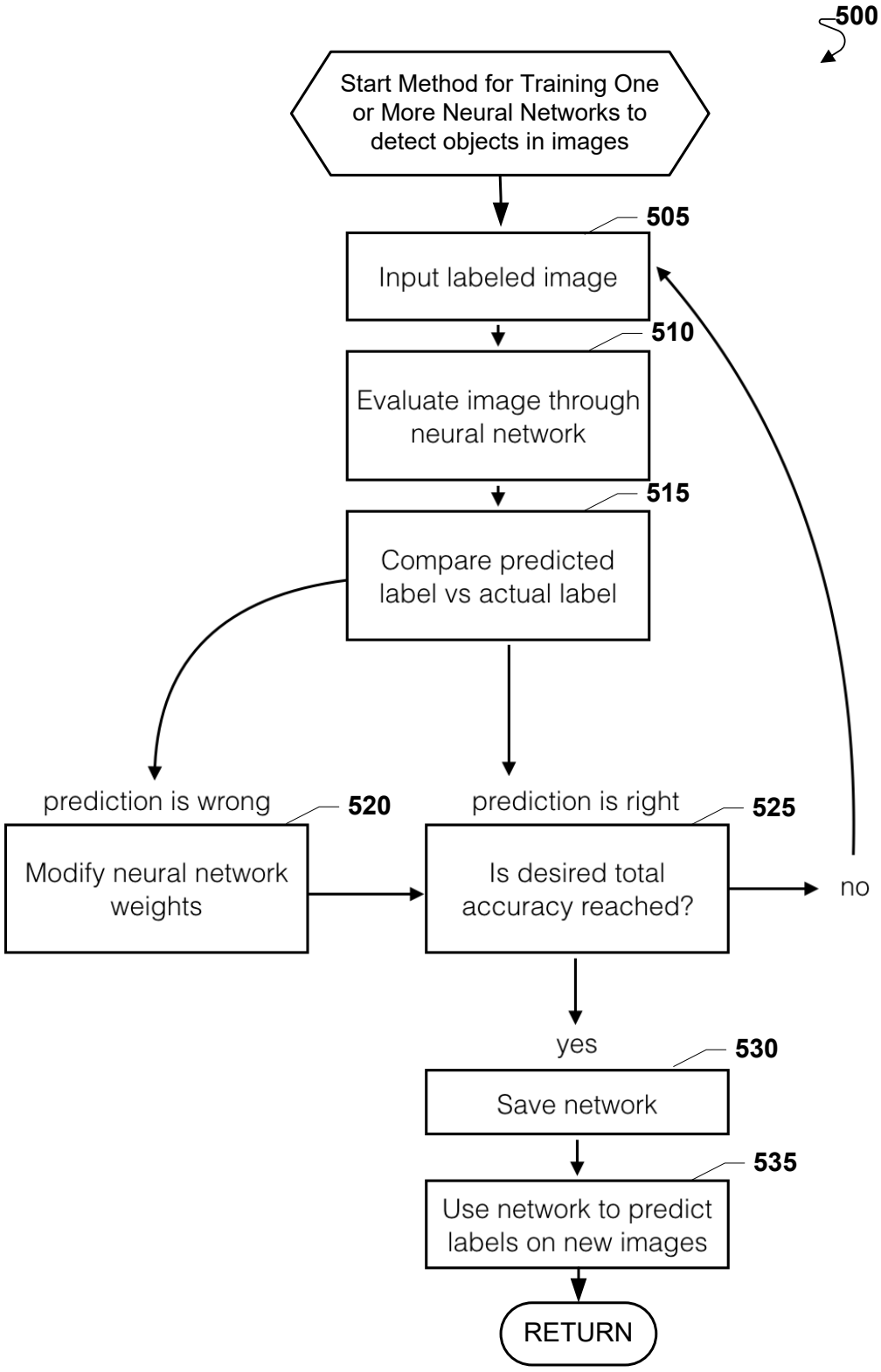

500
Start Method for Training One or More Neural Networks to detect objects in images
505
Input labeled image
510
Evaluate image through neural network
515
Compare predicted label vs actual label
prediction is wrong
520
Modify neural network weights
prediction is right
525
Is desired total accuracy reached?
no
yes
530
Save network
535
Use network to predict labels on new images
RETURN

FIG. 5