

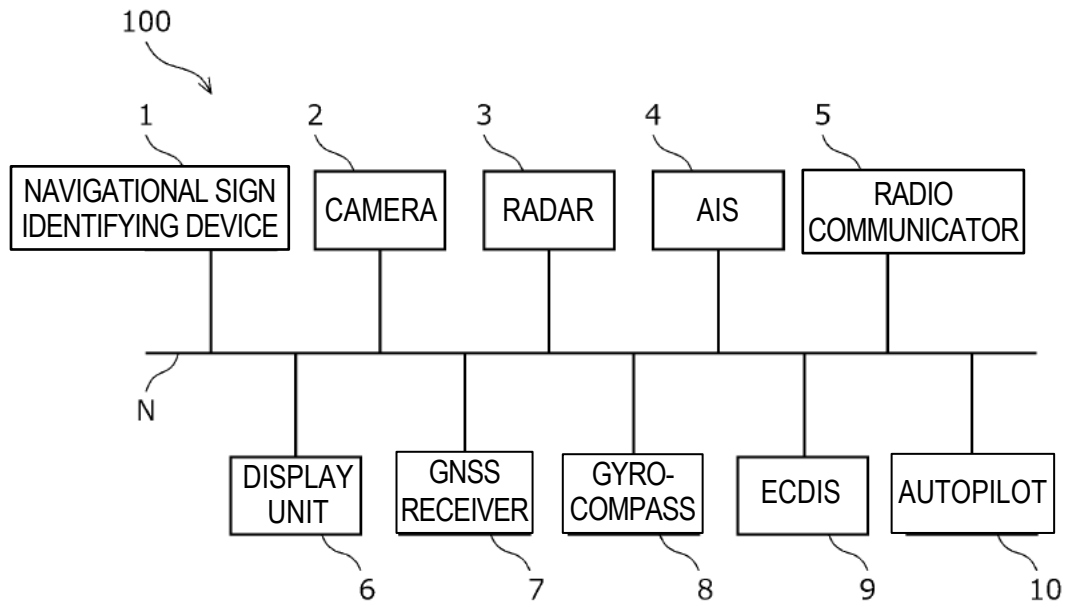


FIG. 1

| CLASSIFICATION            | BODY           |                             | TOP MARK  |                                          | ILLUSTRATION                                                                          |                                                                                       | COL OF LIGHT |
|---------------------------|----------------|-----------------------------|-----------|------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|
|                           | DESCRIPTION    | PAINT COLOR                 | PAINT COL | SHAPE                                    | LIGHT BUOY                                                                            | BUOY                                                                                  |              |
| LATERAL SIGN              | PORT SIGN      | GREEN                       | GRN       | 1 CYLINDER                               |    |    | GRN          |
|                           | STARBOARD SIGN | RED                         | RED       | 1 CONE                                   |    |    | RED          |
| DIRECTION-AL SIGN         | NORTH SIGN     | BLACK ABOVE YELLOW          | BLACK     | 2 CONES, ONE ABOVE OTHER, POINTS UP      |    |    | WHITE        |
|                           | EAST SIGN      | 1 YELLOW BAND ON BLACK      | BLACK     | 2 CONES, ONE ABOVE OTHER, BASE TO BASE   |   |   | WHITE        |
|                           | SOUTH SIGN     | YELLOW ABOVE BLACK          | BLACK     | 2 CONES, ONE ABOVE OTHER, POINTS DOWN    |  |  | WHITE        |
|                           | WEST SIGN      | 1 BLACK BAND ON YELLOW      | BLACK     | 2 CONES, ONE ABOVE OTHER, POINT TO POINT |  |  | WHITE        |
| ISOLATED OBSTRUCTION SIGN |                | 1 OR MORE RED BAND ON BLACK | BLACK     | 2 SPHERES, ONE ABOVE OTHER               |  |  | WHITE        |
| SAFE WATER AREA SIGN      |                | RED x WHITE STRIPE          | RED       | 1 SPHERE                                 |  |  | WHITE        |
| SPECIAL SIGN              |                | YELLOW                      | YEL       | 1 CROSS                                  |  |  | YEL          |

FIG. 2

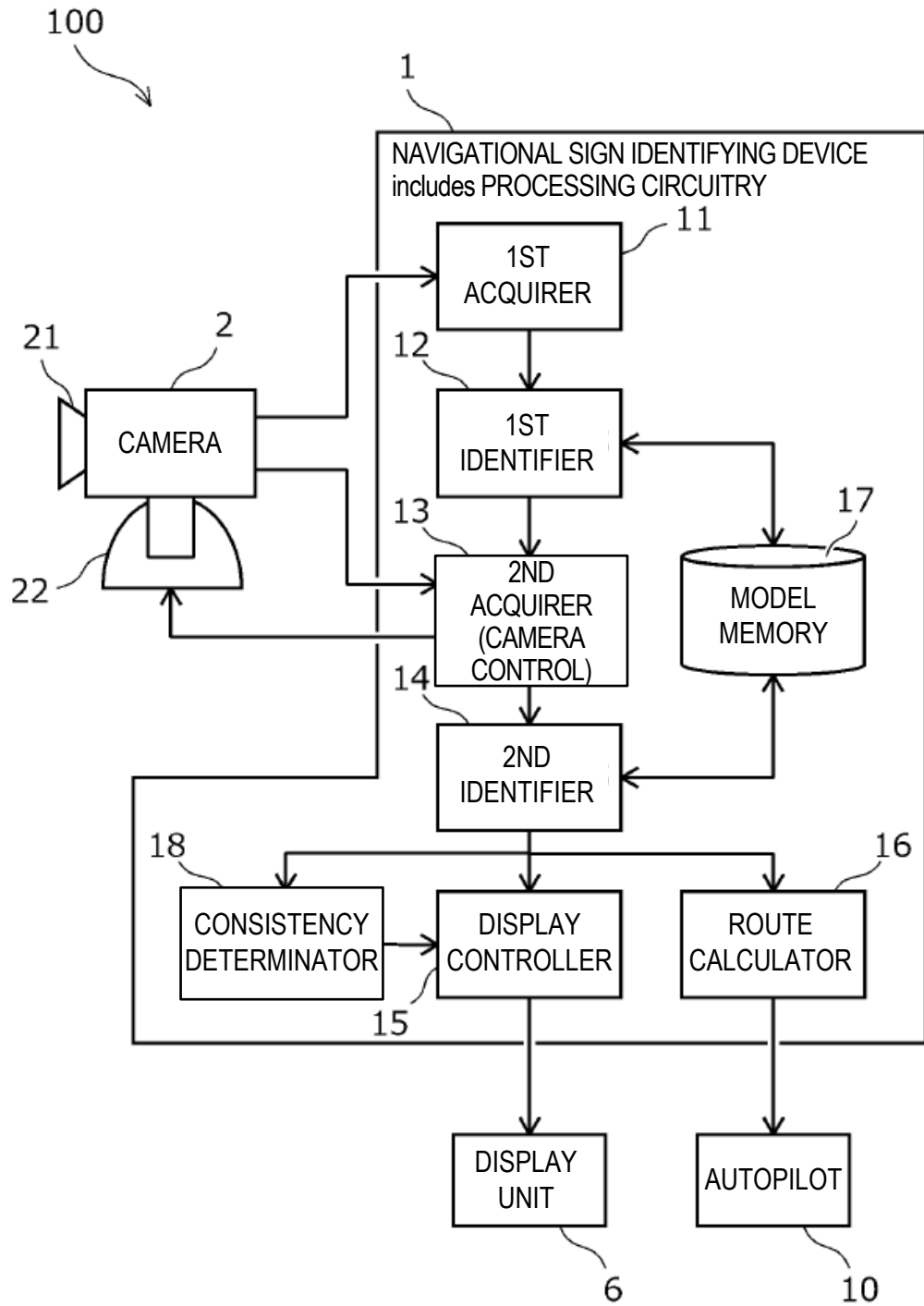


FIG. 3

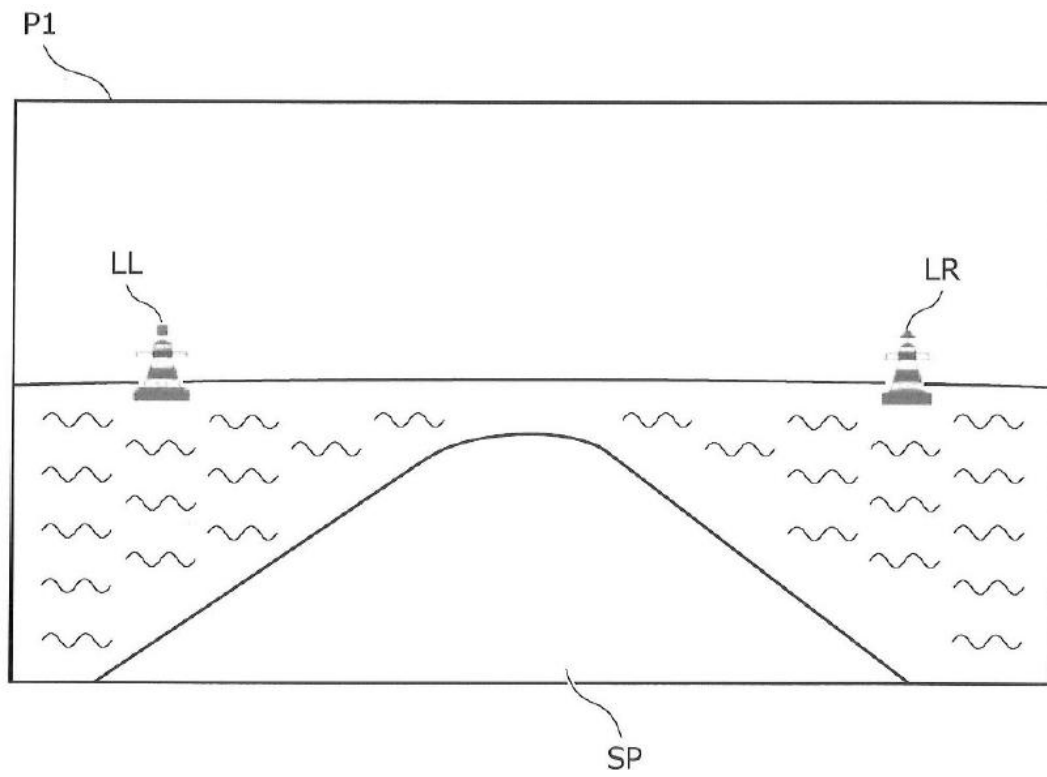


FIG. 4

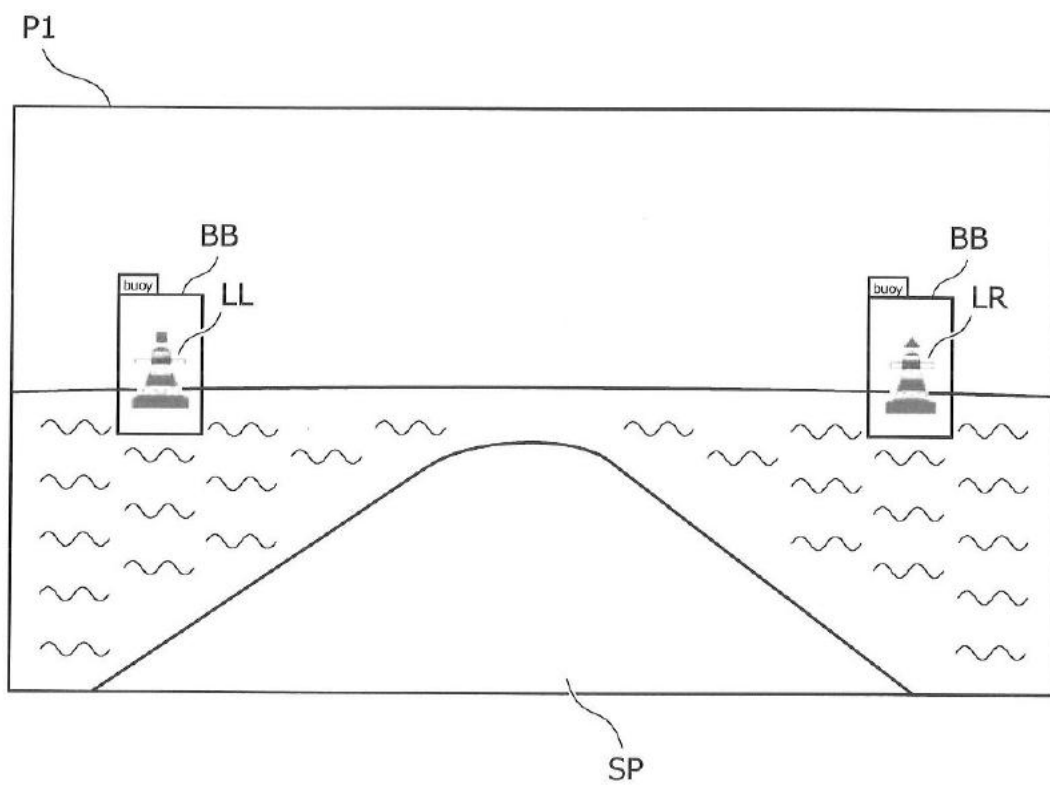


FIG. 5

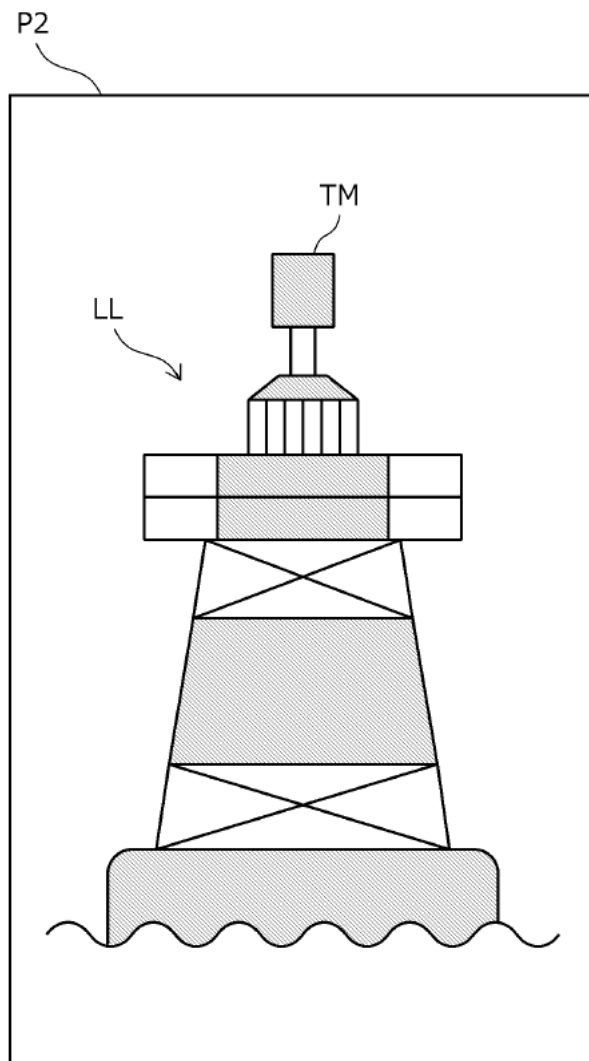


FIG. 6

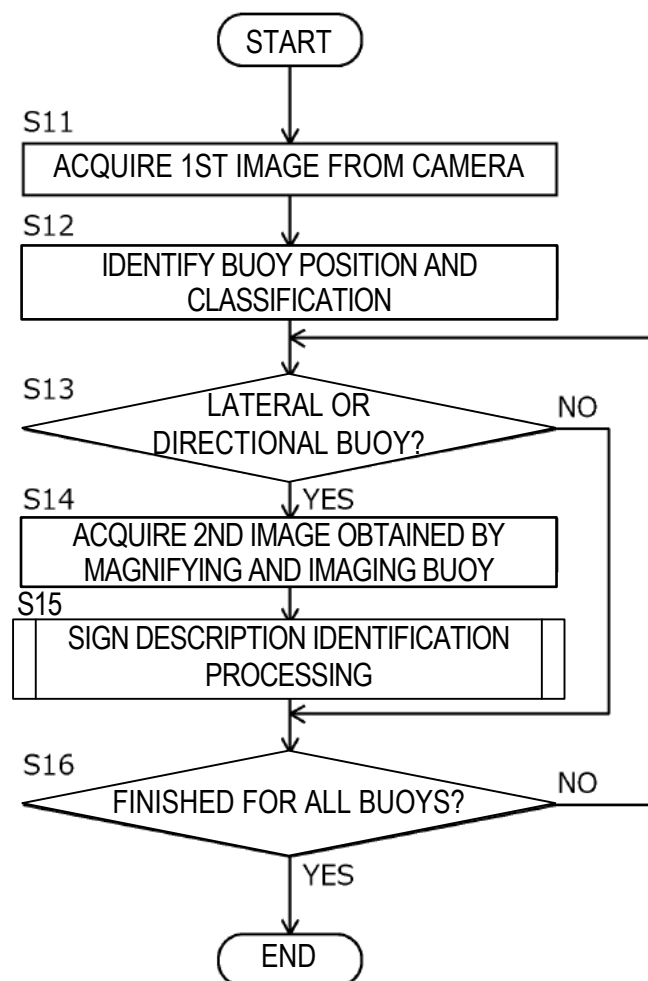


FIG. 7

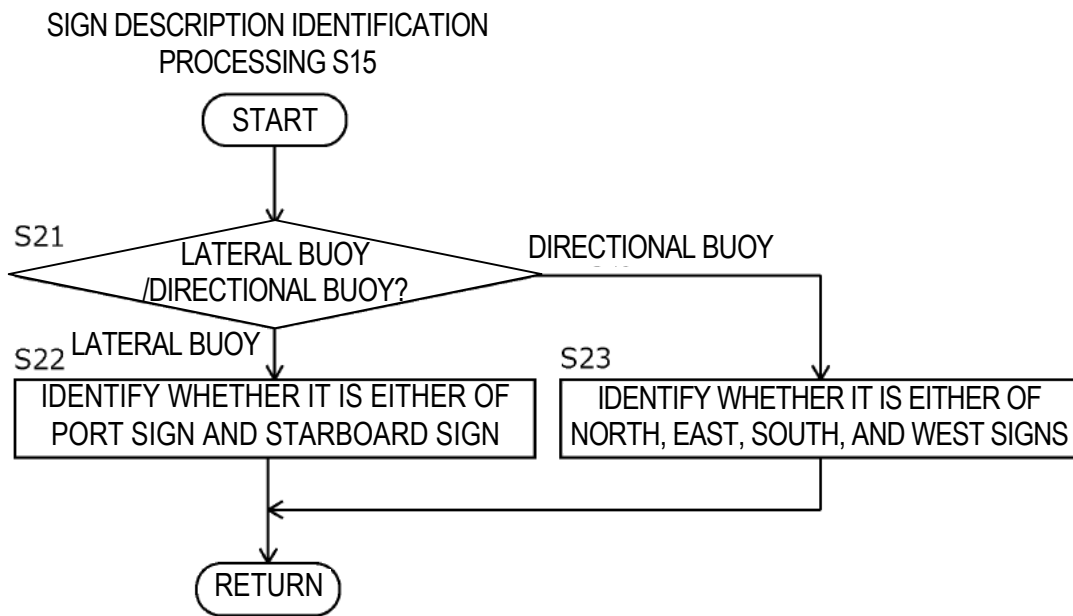


FIG. 8

BUOY MANAGEMENT DATABASE

| ID  | CLASSIFI-<br>CATION     | DESCRIPTION<br>OF SIGN | POSITION<br>IN IMAGE | ACTUAL<br>POSITION | VIRTUAL<br>BUOY |
|-----|-------------------------|------------------------|----------------------|--------------------|-----------------|
| 001 | LATERAL<br>SIGN         | PORT SIGN              | x1 , y1              | X1 , Y1            | —               |
| 002 | LATERAL<br>SIGN         | STARBOARD<br>SIGN      | x2 , y2              | X2 , Y2            | —               |
| 003 | DIRECTION-<br>AL SIGN   | NORTH SIGN             | x3 , y3              | X3 , Y3            | —               |
| 004 | SAFE WATER<br>AREA SIGN | —                      | x4 , y4              | X4 , Y4            | —               |
| 005 | LATERAL<br>SIGN         | PORT SIGN              | —                    | X5 , Y5            | ○               |
| 005 | LATERAL<br>SIGN         | PORT SIGN              | —                    | X6 , Y6            | ○               |
|     |                         |                        |                      |                    |                 |

FIG. 9

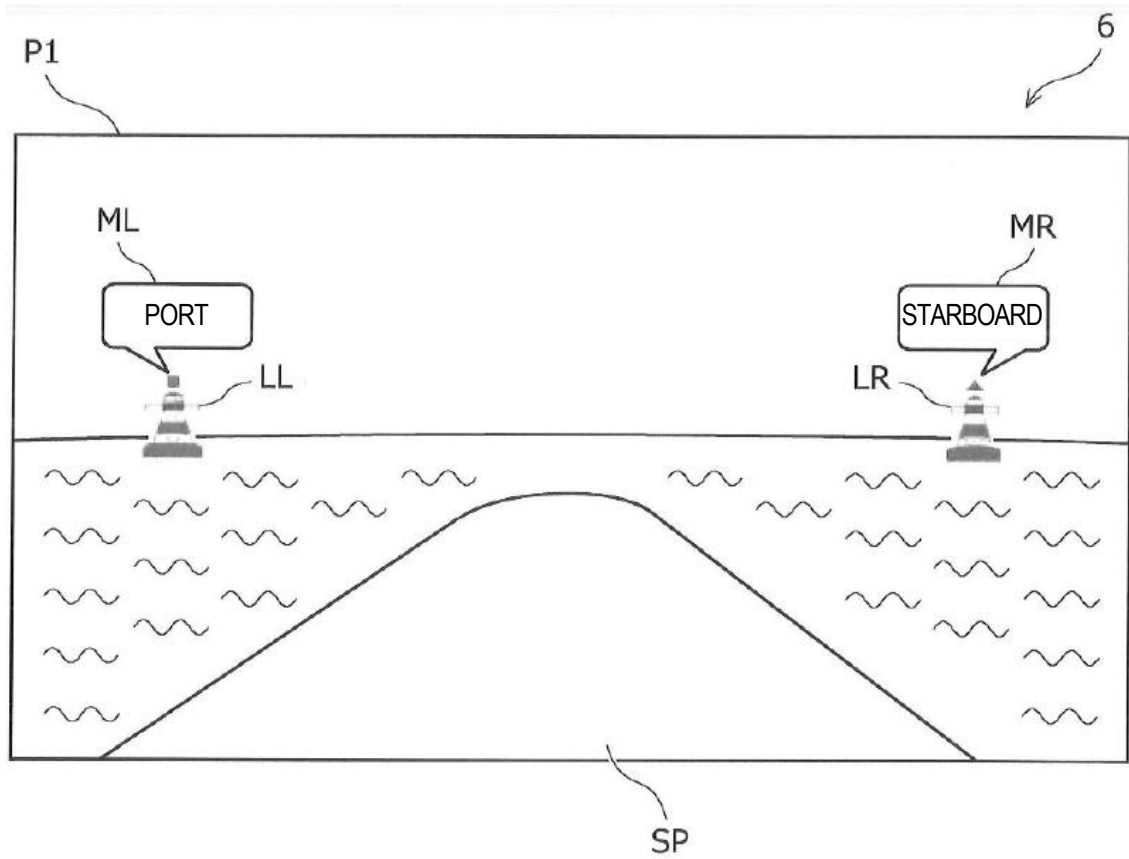


FIG. 10

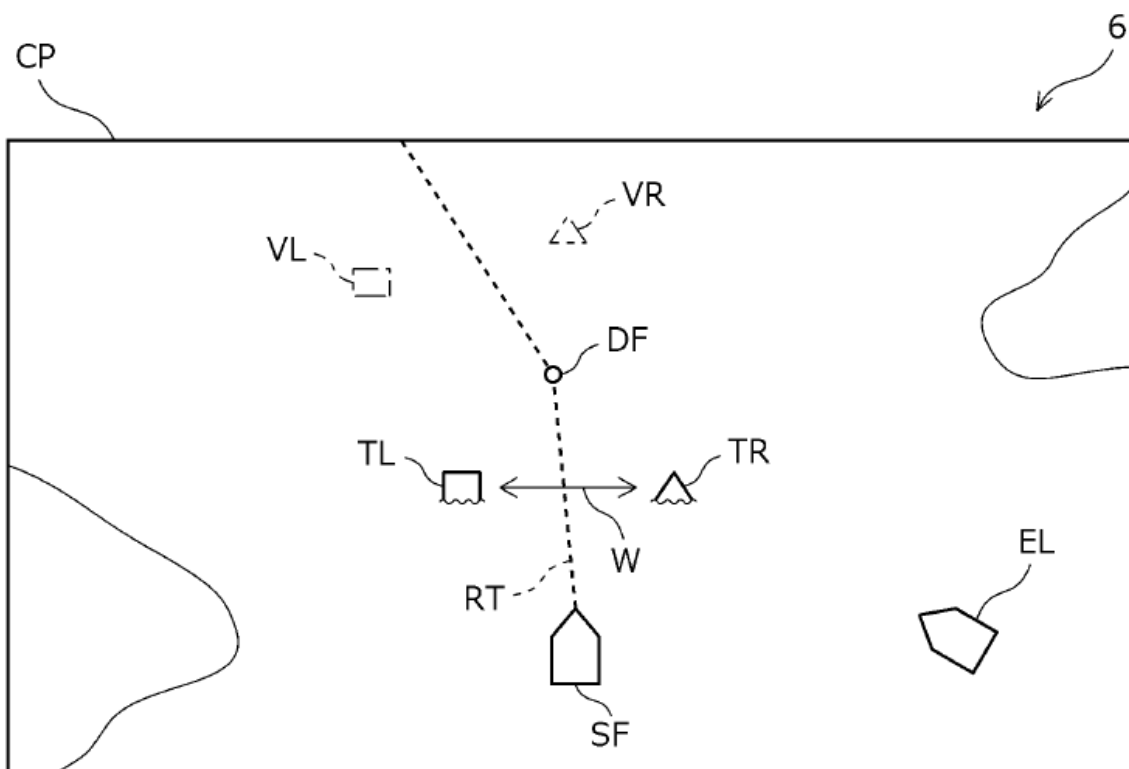


FIG. 11

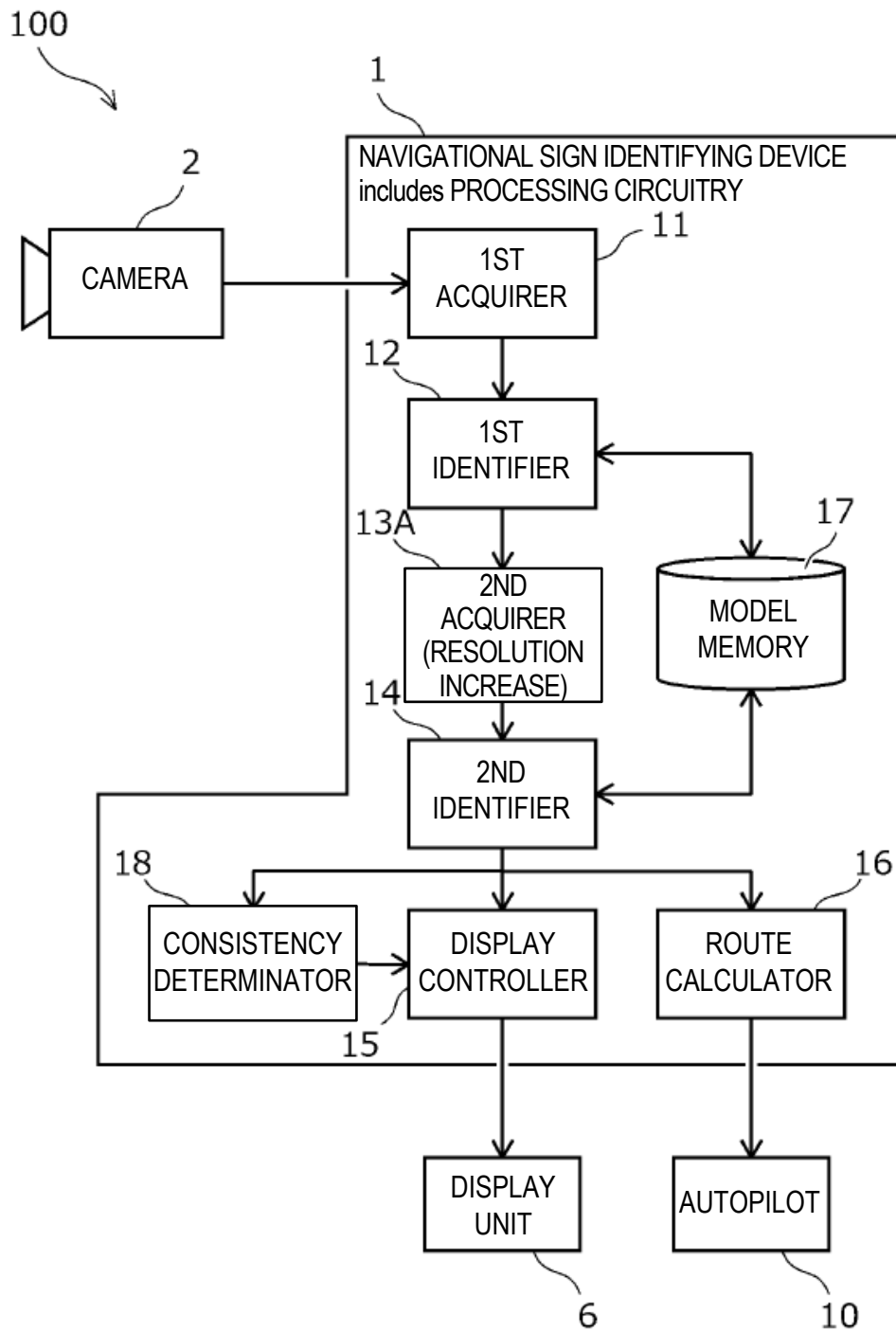


FIG. 12

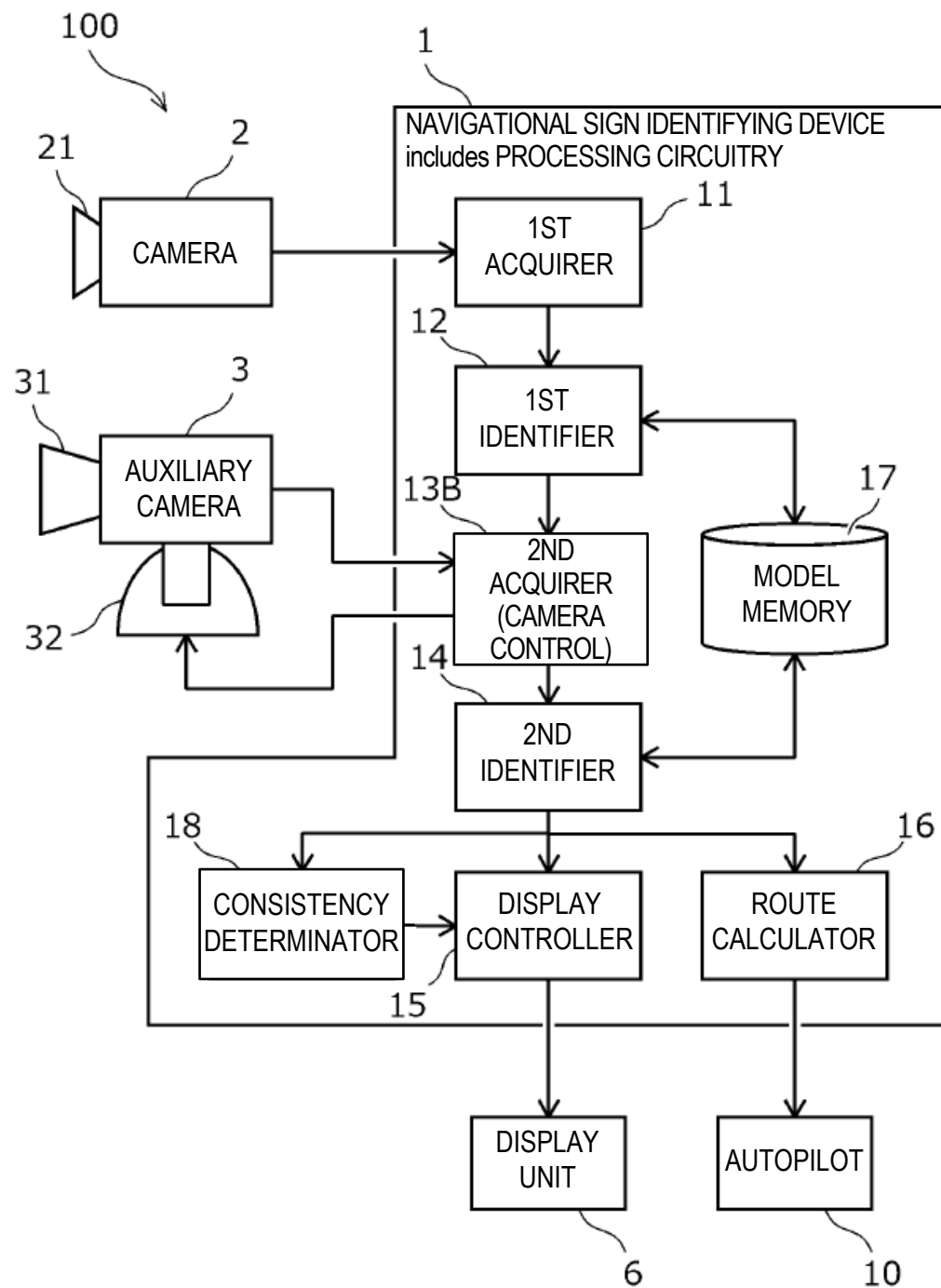


FIG. 13

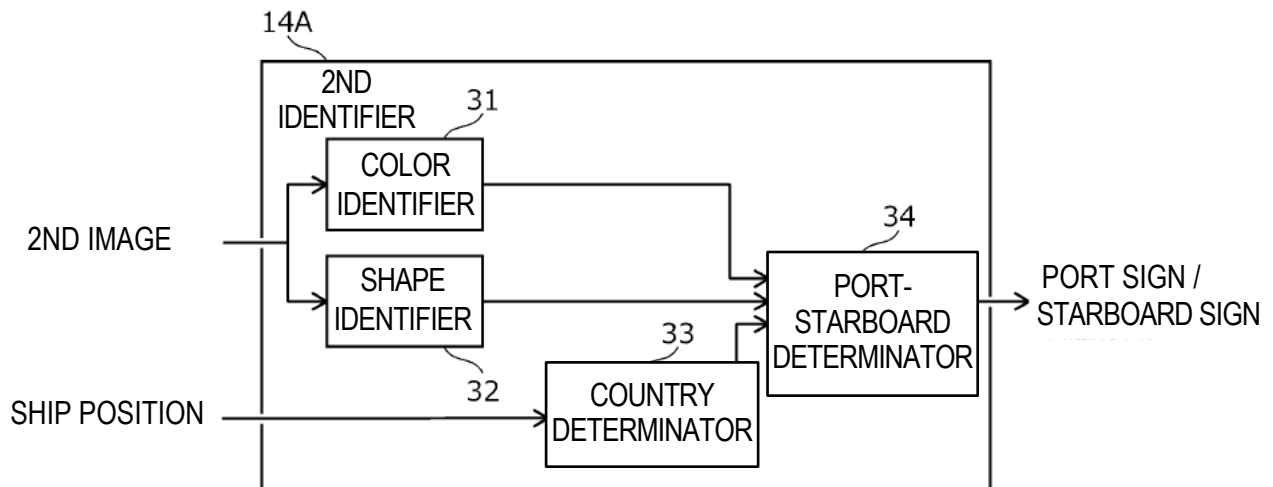


FIG. 14

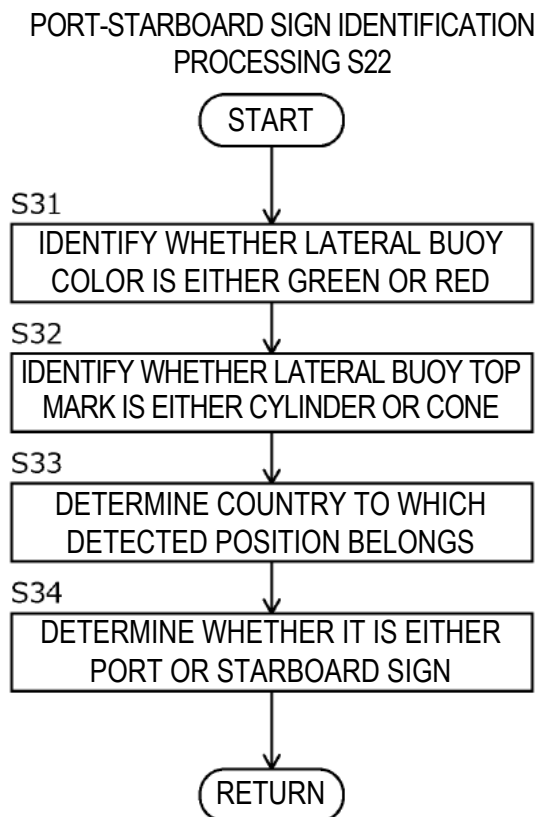


FIG. 15

BY-COUNTRY PORT-STARBOARD MODE TABLE

| COUNTRY   | DESCRIP-<br>TION OF SIGN | COLOR | SHAPE    |
|-----------|--------------------------|-------|----------|
| COUNTRY A | PORT SIGN                | GREEN | CYLINDER |
|           | STARBOARD<br>SIGN        | RED   | CONE     |
| COUNTRY B | PORT SIGN                | RED   | CONE     |
|           | STARBOARD<br>SIGN        | GREEN | CYLINDER |
|           |                          |       |          |

FIG. 16

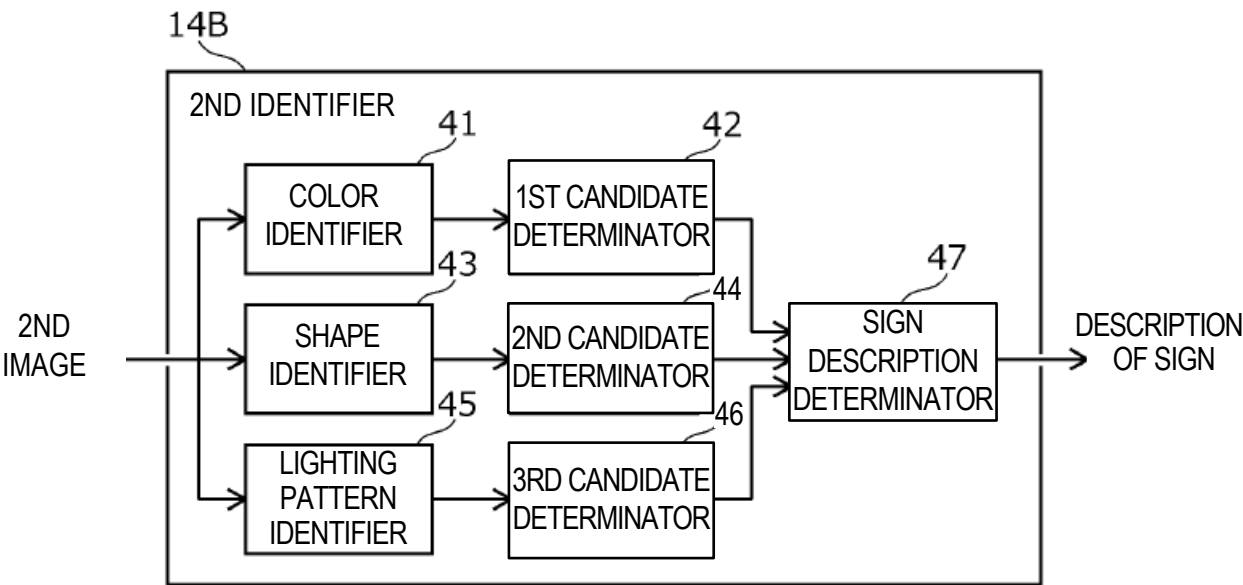


FIG. 17

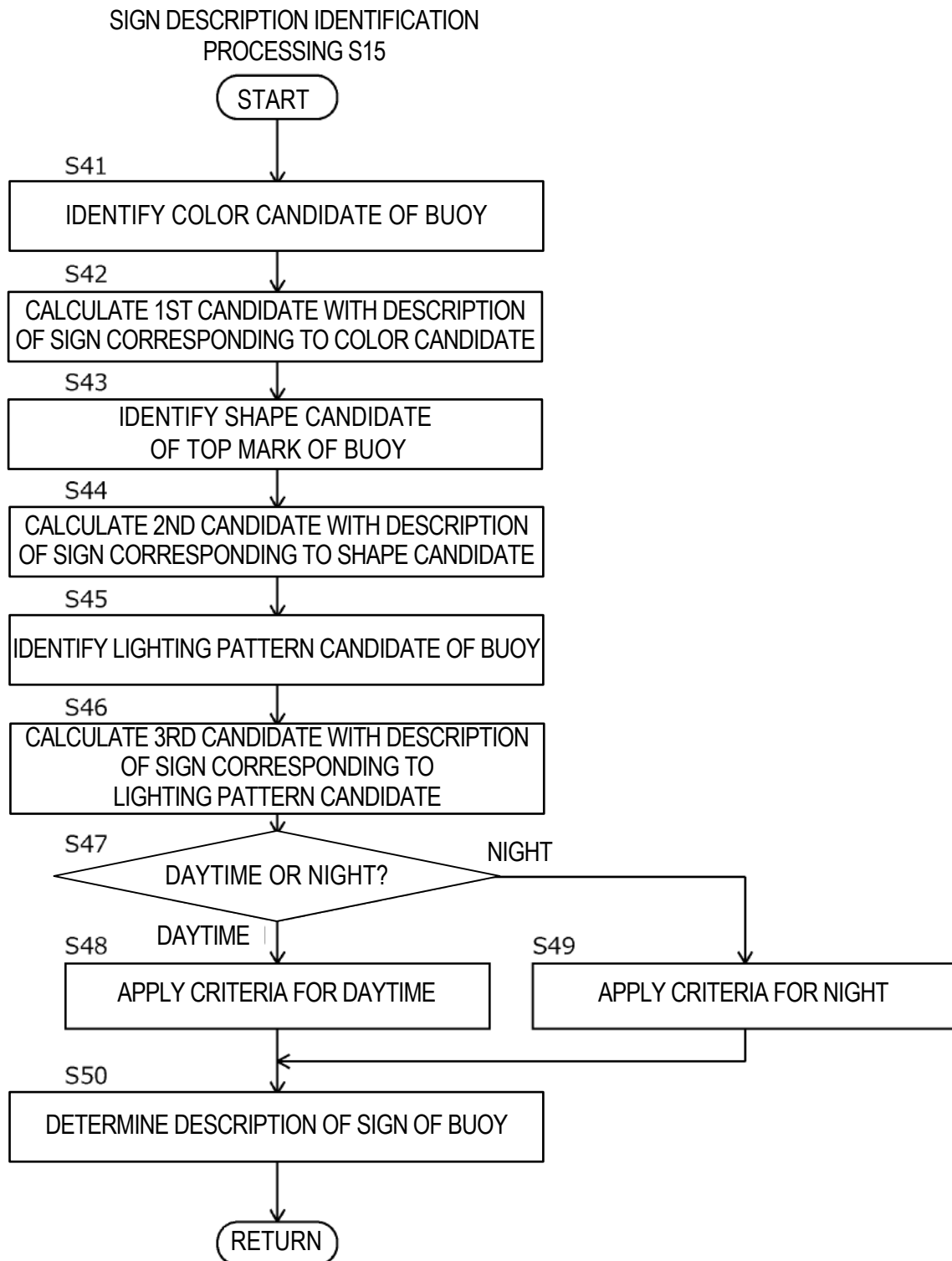


FIG. 18

| CLASSIFICATION               | DESCRIP-<br>TION  | COLOR                             | TOP MARK<br>SHAPE                              | LIGHTING PATTERN                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LIGHT<br>COL |
|------------------------------|-------------------|-----------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|                              |                   |                                   |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |
| LATERAL<br>SIGN              | PORT SIGN         | GREEN                             | 1 CYLINDER                                     | SINGLE FLASHING (PERIOD:3-5 SEC)<br><br>GROUP FLASHING (2 PER 6 SEC)<br><br>MORSE CODE<br><br>CONTINUOUS SCINTILLATING<br> | GRN          |
|                              | STARBOARD<br>SIGN | RED                               | 1 CONE                                         | SINGLE FLASHING (PERIOD:3-5 SEC)<br><br>GROUP FLASHING (2 PER 6 SEC)<br><br>MORSE CODE<br><br>CONTINUOUS SCINTILLATING<br> | RED          |
| DIRECTION-<br>AL SIGN        | NORTH<br>SIGN     | BLACK<br>ABOVE<br>YELLOW          | 2 CONES, ONE<br>ABOVE OTHER,<br>POINTS UP      | CONTINUOUS SCINTILLATING<br>                                                                                                                                                                                                                                                                                                                                                    | WHITE        |
|                              | EAST SIGN         | 1 YELLOW<br>BAND ON<br>BLACK      | 2 CONES, ONE<br>ABOVE OTHER,<br>BASE TO BASE   | GROUP FLASHING<br>(3 QUICK FLASHES PER 10 SEC)<br>                                                                                                                                                                                                                                                                                                                             | WHITE        |
|                              | SOUTH SIGN        | YELLOW<br>ABOVE<br>BLACK          | 2 CONES, ONE<br>ABOVE OTHER,<br>POINTS DOWN    | GROUP SCINTILLATING (6 QUICK<br>AND 1 LONG FLASHES PER 15 SEC)<br>                                                                                                                                                                                                                                                                                                             | WHITE        |
|                              | WEST SIGN         | 1 BLACK<br>BAND ON<br>YELLOW      | 2 CONES, ONE<br>ABOVE OTHER,<br>POINT TO POINT | GROUP SCINTILLATING<br>(9 QUICK FLASHES PER 15 SEC)<br>                                                                                                                                                                                                                                                                                                                        | WHITE        |
| ISOLATED<br>OBSTRUCTION SIGN |                   | 1 OR MORE<br>RED BAND<br>ON BLACK | 2 SPHERES,<br>ONE ABOVE<br>OTHER               | GROUP FLASHING (2 PER 5 OR 10<br>SEC)<br>                                                                                                                                                                                                                                                                                                                                      | WHITE        |
| SAFE WATER AREA SIGN         |                   | RED<br>x WHITE<br>STRIPE          | 1 SPHERE                                       | ISOPHASE (2 SEC LIGHT, 2 SEC DARK)<br><br>MORSE CODE<br><br>LONG FLASHING (1 PER 10 SEC)<br>                                                                                                           | WHITE        |
| SPECIAL SIGN                 |                   | YELLOW                            | 1 CROSS                                        | SINGLE FLASHING (PERIOD:3-5 SEC)<br><br>GROUP FLASHING (5 PER 20 SEC)<br><br>MORSE CODE<br>                                                                                                            | YEL          |

FIG. 19