to the side on which both of the light send/receive units **1***a* and **1***b* are positioned, which portions are far from both of the light receive/send units **1***a* and **1***b*.

[**0040**] Due to such sawtooth portions **7***a* and **7***b* of the recurrence reflection sheet, for example, as the scanning proceeds from the position Ps to position **P3** on one end of the sawtooth portion **7***b* of the recurrence reflection sheet, the angle of incidence of the projected light from the light receiving unit **1***b* to the recurrence reflection sheet **7** becomes smaller gradually, and consequently the amount of the reflected light becomes smaller. However, since the projected light enters the sawtooth portion **7***b* of the recurrence reflection sheet **7** at substantially right angles during the scanning from the position **P3** of one end of the sawtooth portion **7***b* of the recurrence reflection sheet **7** to position **P4** of the other end, it is possible to avoid a further lowering of the recursive reflection factor.

[**0041**] **FIG. 3** is a block diagram showing the relationship between the MPU **5** and another circuit. The polygon controller **4** has a pulse motor **21** for rotating the polygon mirrors **16***a* and **16***b*, and a pulse motor driver **22** for driving the pulse motor **21**.

[**0042**] The MPU **5** transmits driving control signals to the light emitting element drivers **2***a* and **2***b*, and then the light emitting element drivers **2***a* and **2***b* are driven according to the driving control signals, so that the light emitting operation of the light emitting elements **11***a* and **11***b* is controlled. The light receiving signal detectors **3***a* and **3***b* transmit light receiving signals of the reflected light of the light receiving elements **13***a* and **13***b* to the MPU **5**. The MPU **5** calculates the position and size of the indicator S based on the light receiving signals from the light receiving elements **13***a* and **13***b*, and displays the results of the calculation on the display device **6**. Here, the display device **6** may also serve as the display screen **10**. Moreover, the MPU **5** transmits a driving control signal for driving the pulse motor **21** to the pulse motor driver **22**.

[**0043**] In addition, the MPU **5** includes therein a read only memory (ROM) **25** for storing algorithms of the procedure of calculating a plurality of threshold values according to scanning angles for measuring a scanning light cut-off region, and the position and size of the indicator S; and a random access memory (RAM) **26** for storing the intermediate values in the calculation procedure and the calculated values for the position and size of the indicator S.

[**0044**] **FIG. 4** is a block diagram showing an example of the structure of the light receiving signal detector **3***a*. Note that the light receiving signal detector **3***b* has the same structure as the light receiving signal detector **3***a*, and the light receiving signal detector **3***b* will be explained, if necessary, by replacing the character "a" at the end of the reference code with "b".

[**0045**] Since the light receiving element **13***a* outputs the amount of the received light as a light receiving signal proportional to the current value, an output signal (current) from the light receiving element **13***a* is converted into a voltage signal by a current/voltage (I/V) converter **30***a*. The voltage signal output from the current/voltage converter **30***a* passes through a low-pass filter **31***a* and is input as a signal to be subjected to comparison to one of the input terminals of a comparator **33***a* from an amplifier **32***a*. The output of the comparator **33***a* is input to a first timer **34***a*, and the output of the first timer **34***a* is input to the MPU **5**. The output of the amplifier **32***a* is also supplied to an A/D converter **36***a* where it is converted into a digital signal, and then input to the MPU **5**. Besides, the digital signal output from the MPU **5** is converted into an analog signal by a D/A converter **35***a* and input as a comparative threshold value Ref to the other input terminal of the comparator **33***a*. The size of this threshold value Ref is not constant, and is varied according to the scanning angle.

[**0046**] Moreover, the output of the low-pass filter **31***a* is input as a signal to be subjected to comparison to one of the input terminals of a comparator **38***a* via an amplifier **37***a*. The output of this comparator **38***a* is input to a second timer **39***a*, and the output of the second timer **39***a* is input to the MPU **5**. Further, a comparative threshold value TH of the comparator **38***a* is set at a suitable level between the maximum output during the detection of timing and the maximum output during the detection of an indicated position.

[**0047**] The following description will explain the operations of the light receiving signal detector **3***a* (also **3***b*) having such a structure and the MPU **5**. Since the comparative threshold value TH in the comparator **38***a* is of a level between the maximum output during the detection of timing and the maximum output during the detection of a indicated position, the comparator **38***a* outputs a signal "1" only in a period during which the light receiving element **13***a* is receiving the directly reflected light from the polygon mirror **16***a*, and outputs a signal "0" in other periods. Therefore, the timing of a rise of the output signal of the comparator **38***a* to "1" from "0" is the optical scanning start timing.

[**0048**] The second timer **39***a* starts a measuring operation at the timing of a rise of the output signal of the comparator **38***a* to "1" from "0" (the optical scanning start timing), and continues to perform the measuring operation until the next timing of a rise of the output signal to "1" from "0" (the optical scanning start timing). In other words, the second timer **39***a* is reset at each optical scanning start timing, so as to measure the elapsed time from the start of optical scanning in each optical scanning, and outputs the result of the measurement to the MPU **5**. Moreover, by measuring the time interval between the rises of the output signal of the comparator **38***a* to "1" from "0", it is possible to monitor a rotation state of the polygon mirror **16***a*.

[**0049**] Since the output of the amplifier **32***a* is converted into a digital signal by the A/D converter **36***a* and then input to the MPU **5**, the MPU **5** can monitor the output signal of the light receiving element **13***a* for a certain period of time as the digital signal.

[**0050**] The MPU **5** is capable of supplying the comparative threshold value Ref to the other input terminal of the comparator **33***a* by outputting the digital signal to the D/A converter **35***a* to convert the digital signal into an analog signal. Here, the threshold value Ref to be added to the comparator **33***a* is not constant, and is varied according to the scanning angle. The MPU **5** recognizes the elapsed time from the start of optical scanning from the result of the measurement performed by the second timer **39***a*, reads a threshold value corresponding to the elapsed time from the ROM **25**, and inputs to the comparator **33***a* a threshold value Ref obtained by the digital conversion of the threshold value. Further, since the angular velocity of the rotation of