z>0 in the coordinate system in **FIG. 4**; therefore, the light emitting element **302** is shown therein by a black-colored point. A light irradiated from the light emitting element **302** is reflected by the reflecting section **103**, and then, a reflection light is returned along the same path. Subsequently, the reflection light arrives at different positions on the line sensor **403** by the light receiving lens **304**.

[**0046**] Therefore, when the pointing stick **108** or finger is inserted into a certain position B on the coordinate input plane **101** and the irradiation light is shielded, the reflection light does not arrive at a point on the line sensor **403** corresponding to the shielded direction. In the case where no obstacle shielding light exist on the coordinate input plane **101**, a receiving light distribution on the line sensor **403** becomes approximately constant in the symmetry with respect to the optical axis. However, as shown in **FIG. 4**, the pointing stick **108** or finger is inserted into a certain position B on the coordinate input plane **101**, the light passing there through is shielded, and then, on the line sensor **403**, a area (dark point) having a weak receiving light intensity is generated in a position D.

[**0047**] The above position D makes one-to-one correspondence with an angle of the shielded light, that is, a detection angle θd measured from the optical axis of the pointing stick **108**, finger or the like. Therefore, if the position D of being a dark point on the line sensor **403** is found, θd can be seen. More specifically, assuming that a distance from the light receiving lens **402** to the line sensor **403** is set as f, θd is obtained as a function of D from the following equation (1).

$$\theta d = arc\ \tan\ (D/f) \tag{1}$$

[**0048**] In this case, strictly, a relation of tan (**0***d*)=D/f is not established due to the light refraction by the light receiving lens **402**. However, the relation between θd and D/f is uniquely determined; therefore, for simplification, it is assumed that the above equation (1) is formed. Further, the above optical axis denotes an optical axis of the light receiving lens **402**. Furthermore, the emission light mouth **106** of the optical unit **102** is arranged parallel with the light receiving lens **402**.

[**0049**] **FIG. 5** is a view schematically showing the whole construction of an apparatus for inputting coordinates **10**, and shows a coordinate point B, a distance w between the point B and the optical unit, and a relation between calculation angles θcR and θcL used for calculating the coordinate point B. In **FIG. 5**, the optical unit **102** is arranged at a position relevant to one corner portion of the rectangular coordinate input plane **101**; therefore, there is no need of providing the reflecting section **103** arranged along one side of the rectangular coordinate input plane **101**. Thereinafter, a capital letter L is used as an index for identifying various parameters employed in a left-side optical unit **102**L; on the other hand, a capital letter R is used as an index for identifying various parameters employed in a right-side optical unit **102**R. Although the detailed calculating process is omitted, the coordinate point B (x, y) is obtained from the following equation **(2)**

$$x = w\cdot\tan\ \theta cR/(\tan\ \theta cL+\tan\ \theta cR)$$

$$y = w\cdot\tan\ \theta cL\cdot\tan\ \theta cR/(\tan\ \theta cL+\tan\ \theta cR) \tag{2}$$

[**0051**] Therefore, if the position of the dark point on the line sensor **403** is found, a calculation angle θc is calculated on the basis of θd, and thereafter, the coordinate point is calculated by the above equation (2). The calculation is made by a computing section (not shown) in **FIG. 1**A and **FIG. 1B**. In this case, depending upon the situation, a PC (personal computer) is provided outside the apparatus for inputting coordinates **100**, and then, the PC may calculate the above coordinate point.

[**0052**] In the apparatus for inputting coordinates **100**, the emission light mouth **106** of the optical unit **102** is arranged so as to be situated under the coordinate input plane **101**. In this case, the emission light mouth **106** is situated under the coordinate input plane **101** in order to reduce a convex portion with respect to the coordinate input plane of the optical unit **102** and the support plate **104**. In the above manner, the emission light mouth **106** is arranged at a height position lower than the coordinate input plane **101**, and thereby, it is possible to reduce a convex portion, that is, a projection of the optical unit **102**. As a result, a user, who inputs a coordinate point, has no hindrance, and therefore, an availability is improved.

[**0053**] Moreover, in the optical unit **102**, a height from the coordinate input plane **101** is adjustable by the height adjusting screw **109**. Thus, an irradiation light is emitted just from the height of the coordinate input plane **101** by the height adjusting screw **109**. Therefore, it is possible to make the correspondence of the position of the pointing stick **108** of the coordinate input plane **101** or finger with the position of irradiation light contacting with the pointing stick or finger. Further, it is possible to improve a detection accuracy in a predetermined area causing a large error in the prior art. In this case, the height adjusting screw **109** is provided at three portions on the optical unit retaining plate **110**, and thereby, it is possible to adjust a distortion of a sector irradiation light.

[**0054**] As described above, the height of the optical unit **102** is adjustable, and in the same manner, it is possible to adjust a height of the reflecting section **103** from the coordinate input plane **101**. **FIG. 6** is a view to explain one example of adjusting the height of the reflecting section **103**. The reflecting section **103** is provided with an engaging hook **601**, and the frame **105** is formed with a plurality of holes **602** into which the engaging hook **601** is fitted. The hole **602** is properly selected, and thereby, it is possible to adjust the height of the reflecting section **103**. In this case, this embodiment is not limited to the engaging hook **601**. The reflecting section **103** is provided with a screw; on the other hand, the frame **105** is formed with a screw hole, and thereby, the height of the reflecting section **103** may be adjusted.

[**0055**] In the above manner, the height of the reflecting section **103** is adjusted, and thereby, it is possible to reduce a projection from a circumferential edge of the apparatus for inputting coordinates **100**. As a result, a user, who inputs a coordinate point, has no hindrance, and therefore, an availability is improved. Moreover, the height of the reflecting section **103** is made low; therefore, it is possible to improve a visibility of a person who views the apparatus for inputting coordinates **100** from an oblique direction.

[**0056**] An end portion of the frame **105** is provided with a joint member so as to be joined together with a frame of another apparatus for inputting coordinates. **FIG. 7** is a view to explain one example of a joint member for joining a frame of another apparatus for inputting coordinates. As seen from