image sensor 12 held on the cleaning stage 10 along the front surface 15.

[0033] At this time, the movement mechanism 30 is operated so that a height h2 of the low pressure region 40 from the front surface 15 of the image sensor 12 is equal to or less than a half of the wavelength of the ultrasonic wave 24, and the acoustic head 20 scans and moves in XY direction above the image sensor 12. As described above, in the case where the frequency of the ultrasonic wave 24 is 40 kHz, a half of the wavelength is 4.25 mm. Therefore, the control part 50 holds so that the height of the low pressure region 40 from the front surface 15 of the image sensor 12 is at a location of about 1 to 5 mm and scans the acoustic head 20 in XY direction. Accordingly, since the low pressure region 40 is close to the front surface 15 of the image sensor 12, as shown in a hollow arrow sign 91 of FIG. 5, the foreign matter 90 peeled off from the front surface 15 of the image sensor 12 and the cleaning liquid 61 can be attracted to the low pressure region 40 together to be removed from the front surface 15. The foreign matter 90 and the cleaning liquid 61 attracted to the low pressure region 40 move together with the acoustic head 20 in a state of being captured in the low pressure region 40 and floating.

[0034] If the control part 50 scans the acoustic head 20 in XY direction above the image sensor 12, as shown in Step S105 of FIG. 2 and FIG. 6, the acoustic head 20 is moved to the above of the foreign matter discarding part 16. Then, the control part 50 operates the vacuum attraction mechanism, which faces downward, of the foreign matter discarding part 16 as shown in Step S106 of FIG. 2, and, as shown in Step S107 of FIG. 2, the driving of the ultrasonic speakers 21 by the drive units 23 stops. Then, as shown in FIG. 7, the low pressure region 40 disappears, and the foreign matter 90 and the cleaning liquid 61 captured in the low pressure region 40 are attracted, in a direction of an arrow sign 92, through vacuum attraction to the foreign matter discarding part 16 on the lower side and be discarded to the outside (discarding step).

[0035] As described above, the ultrasonic cleaning method according to the embodiment can remove the foreign matter 90 without contacting the front surface 15 of the image sensor 12 and