the polysilicon thin films on both ends of the element are connected to the polysilicon thin film of the substrate joining surfaces, the polysilicon thin films **31** on both sides may be separated at the lateral surfaces, from the polysilicon thin films **4** and **6** on the joining surfaces, as can be seen in **FIG. 7B**. In addition to the operation and effect of the micro fluid passage element **1** and **20**, the micro fluid passage element **40** of this embodiment has the windows **42** in both surfaces of the passage element, thus making it capable of detecting a substance passing through a particular site of the fluid pass.

[**0090**] It should be noted that the structural elements of this embodiment can be reformed or revised into various versions. For example, it is possible that the polysilicon thin films **31** and **41** can be replaced with some other films having a low light transmitting rate, and a metal thin film such as of aluminum, formed by, for example, sputtering, deposition or plating, can be used.

[**0091**] Further, although the windows **42** are provided in both surfaces of the element, they may be provided merely either one of the surfaces in the case where the reflection of light is utilized for the optical detection.

[**0092**] **FIG. 9** shows a schematic view of the structure of a micro fluid passage element having an electrophoresis observation window, according to the fifth embodiment.

[**0093**] **FIG. 10A** shows the upper surface of such a micro fluid passage element, and **FIG. 10** shows a cross section taken along the line A-A in **FIG. 10A**. It should be noted that the lower surface of the micro-fluid passage element has the same shape as that of the upper surface.

[**0094**] The micro fluid passage element **50** has a structure in which polysilicon thin films **51** and **52** are formed on the respective surfaces of the micro fluid passage element **20** of the second embodiment, and a plurality of windows **42** each having a rectangular shape elongated in the direction normal to the fluid passage **7**, are formed in a ladder-like manner with a certain interval between adjacent windows along the direction of the fluid passage **7**, in the polysilicon thin films **31** and **41**, which interpose the fluid passage **7** therebetween, to be symmetrical to each other. Further, scales **54** which sectionalize these windows **53** by a certain number, are provided.

[**0095**] The micro fluid passage element 50 can be prepared the same forming steps as those for the micro fluid passage element **40**, shown in **FIGS. 8A** to BE, except that the patterning shape of the resist mask formed on both surfaces of the element substrate is changed as described in this embodiment.

[**0096**] In addition to the operation and effect of the micro fluid passage element **1** and **20**, the micro fluid passage element **50** of this embodiment has the windows **53** and scales **54** arranged with a certain interval therebetween, in both surfaces of the passage element, and therefore these windows and scales serve as a scale for the observation of the electrophoretic state, thus making it capable of easily tracing the electrophoretic state of an object to be analyzed.

[**0097**] It should be noted that the structural elements of this embodiment are not limited to the types discussed, but can be reformed or revised into various versions as long as the essence remains within the scope of the invention. For example, it is possible that the polysilicon thin films **51** and **52** can be replaced with some other films having a low light transmitting rate, and a metal thin film such as of aluminum, formed by, for example, sputtering, deposition or plating, can be used.

[**0098**] Further, although the windows **53** are provided in both surfaces of the element, they may be provided merely either one of the surfaces in the case where the reflection of light is utilized for the optical detection.

[**0099**] Next, the sixth embodiment of the present invention, a micro fluid passage element having an extended optical path, will now be described with reference to **FIG. 11**.

[**0100**] **FIG. 11** is a cross sectional view showing a schematic view of the structure of this embodiment. The basis structure of the micro fluid passage element **60** is substantially the same as that of the micro fluid passage element **40** of the fourth embodiment, shown in FIGS. **6** and **FIGS. 7A and 7B**, expect that a plurality of recesses are made in the inner side of the quartz glass substrate **2** in this embodiment. It should be noted that the upper surface side (the polysilicon thin film **41**) and the lower surface (the polysilicon thin film **31**) of the micro fluid passage element **60** each have three windows **42***a* to **42***c* (the upper surface side) and **42***d* to **42***f* (the lower surface side) on the respective sides as in the fourth embodiment.

[**0101**] In the micro fluid passage element **60**, a plurality of recesses **61***a*, **61***b* and **61***c* are made in the inner side of one of the quartz glass substrates which constitute the fluid passage **7** thereof. These recesses **61***a*, **61***b* and **61***c* are arranged in the inner side to the windows **42**. In this embodiment, the number of the recesses is three; however the number is not limited to this.

[**0102**] In addition to the operation and effect of the micro fluid passage element **1** and **20**, the micro fluid passage element **60** of this embodiment has a plurality of recesses formed in the inner side of the windows **42** for the optical detection of the fluid passage **7**, and therefore the optical path of the detection region is elongated, thus making it possible to enhance the detection sensitivity.

[**0103**] It should be noted that the structural elements of this embodiment can be reformed or revised into various versions. For example, although the recesses **61***a*, **61***b* and **61***c* are provided in the inner side of one of the quartz glass substrates which constitute the fluid passage in this embodiment, the recesses may be formed in the inner side of both the quartz glass substrates. Further, it is possible that the polysilicon thin films **31** and **41** having windows **42** made in both surfaces of the element substrate, can be both omitted.

[**0104**] Next, the schematic structure of a micro fluid passage element having lenses, according to the seventh embodiment will now be described. **FIG. 12** shows a schematic view of the structure of a micro fluid passage element having lenses, of this embodiment. **FIG. 13A** shows the upper surface of the micro fluid passage element, and **FIG. 13B** shows a cross section taken along the line A-A in **FIG. 10A**. It should be noted that the lower surface of the micro-fluid passage element has the same shape as that of the upper surface.

[**0105**] The micro fluid passage element **70** has a structure in which a plurality of convex lens-shaped projecting por-