channel so as not to be an obstacle to fluid supply. The height **24** of each partition wall is not in particular limited as long as it is not more than the depth **17** of the fine channel. In the most preferable case, the height is the same as the depth **17** of the fine channel. Further, the shortest distance **25** of adjacent partition walls in a flowing direction of fluid is not in particular limited as far as partition walls **22** are formed with intervals. However, if the distance **25** is too small, a contact time of fluid becomes short whereby it is difficult to conduct a chemical reaction or solvent extraction sufficiently. Accordingly, the distance is preferably at least about 50 μm.

[**0073**] In the fine channel device of the present invention, when plural kinds of fluid are supplied to the fine channel at the same flow rate, the shortest distance between adjacent partition walls in a flowing direction of fluid is preferably less than 800 μm, more preferably, 400 μm or less.

[**0074**] If the shortest distance between adjacent partition walls is 800 μm as described in the below-mentioned Example, it is difficult to discharge each kind of fluid from an outlet port via an outlet channel without causing mutual contamination between adjacent flows of fluid. It is because if the shortest distance exceeds 800 μm, the position of the fluid boundary becomes unstable due to a change of the flow rate per time because of using a fluid supply pump or a difference of affinity between the inner wall of the fine channel and the supplied fluid which may cause a wraparound phenomenon of fluid. In Examples according to the present invention, each kind of fluid can be discharged from an outlet port via an outlet channel without causing the mutual contamination between adjacent flows of fluid when the shortest distance between adjacent partition walls in a flowing direction of fluid is 400 μm or less.

[**0075**] These conditions are determined on the assumption that viscosity coefficients of two kinds of fluid to be supplied are equal and the position of the partition walls with respect to a width direction of the fine channel is the center. However, when viscosity coefficients of two kinds of fluid to be fed adjacently are different, the value of d_A or d_B at the same flow rate should be calculated by using Formula 7 and Formula 8, and the position of partition walls can be determined according to similar relational formulas.

[**0076**] Further, in the fine channel device of the present invention, when products of a flow rate of a kind of fluid flowing adjacently in the fine channel and a viscosity coefficient are different, the shortest distance between adjacent partition walls in a flowing direction of fluid is preferably not more than 400 μm, more preferably, not more than 200 μm. By determining the shortest distance as described above, each kind of fluid can be discharged from a predetermined outlet port via an outlet channel without causing mutual contamination between adjacent flows of fluid even though the ratios of products of the flow rate of fluid and the viscosity coefficient vary in a range of from 0.625 to 1.25.

[**0077**] Namely, when viscosity coefficients of two kinds of fluid are the same, the flow rate of a kind of fluid having a relatively low affinity to the inner wall of the fine channel should be 10 μL/min, whereby each kind of fluid can be discharged from an outlet port via an outlet channel without causing mutual contamination between adjacent flows of fluid even though the flow rate of the other kinds of fluid having a relatively high affinity to the inner wall of the fine channel varies in a range of from 6.25 to 12.5 μL/min.

[**0078**] Or, when flow rates of two kinds of fluid are the same, and the viscosity coefficient of the fluid having a relatively low affinity to the inner wall of the fine channel is 1 mPa·s, each kind of fluid can be discharged from an outlet port via an outlet channel without causing mutual contamination between adjacent flows of fluid even when the viscosity of the fluid having a relatively high affinity to the inner wall of the fine channel varies in a range of from 0.625 to 1.25 mPa·s. These conditions are determined on the assumption that viscosity coefficients of two kinds of fluid are the same and the position of the partition walls with respect to a width direction of the fine channel is at the center. However, when viscosity coefficients of two kinds of fluid flowing adjacently are different, the value of d_A or d_B at the same flow rate should be calculated by using Formula 7 and Formula 8, and the position of the partition walls can be determined according to similar formulas.

[**0079**] As shown in **FIG. 6**(*a*), the maximum length **26** of each partition wall in a flowing direction of fluid in a straight portion of the fine channel of the present invention is preferably smaller than the minimum distance **25** between adjacent partition walls in a flowing direction of fluid. Namely, by determining the maximum length of each partition wall in a flowing direction of fluid to be smaller than the minimum distance between adjacent partition walls in a flowing direction of fluid, a contact time of fluid, i.e. a time of chemical reaction or a time of solvent extraction can be prolonged in consideration of the length of the fine channel. The maximum length of the partition wall in a flowing direction of fluid should be at least 50 μm whereby the fluid boundary can be formed stably and each kind of fluid can be separated at an outlet channel and discharged from an outlet port without causing mutual contamination between adjacent flows of fluid.

[**0080**] In **FIG. 6**(*a*), reference numeral **22** designates a projection.

[**0081**] Further, it is preferable that as shown in FIGS. **8**(*a*) to **8**(*d*), in the vicinity of inlet channels **38** and/or in the vicinity of outlet channels **39** in the fine channel **19**, the minimum distance **25** between adjacent partition walls **22** in a flowing direction of fluid is smaller than the minimum distance between partition walls in a flowing direction of fluid in the vicinity of a central portion **40** of the fine channel. The vicinity of inlet channels **38** means a distance of 5,000 μm or less from a confluent portion **37**, and the vicinity of outlet channels **39** means a distance of 5,000 μm or less from a branch portion **4**. Thus, the fluid boundary **3** can be stable in the vicinity of inlet channels and/or in the vicinity of outlet channels whereby each kind of fluid can be separated at the confluent portion, and the branch portion, and discharged more certainly without causing mutual contamination between two adjacent flows of fluid.

[**0082**] In FIGS. **8**(*a*) to **8**(*d*), numeral **1** designates an aqueous phase, **2** an organic phase, **11** fluid inlet ports, **12** fluid outlet ports. **42** the vicinity of the confluent portion and **43** the vicinity of the branch portion.

[**0083**] The fine channel device of the present invention has a feature that the affinity of the inner wall of the fine channel at one side defined by the partition walls is different from the affinity of the inner wall at the other side defined by the partition walls. By providing such feature, it is possible to suppress effectively a wraparound phenomenon