which is resulted by surrounding a kind of fluid having no affinity to the inner wall on another kind fluid having affinity to the inner wall. Thus, each kind of fluid can be separated respectively without causing mutual contamination between adjacent flows of fluid and discharged more certainly from respective outlet ports.

[0084] Further, the fine channel device of the present invention has a feature that a plurality of projections are formed at the inner wall of the fine channel partitioned by partition walls to such an extent capable of maintaining a steady flow of fluid. By providing such projections, flowing directions of two kinds of fluid flowing adjacently in the channel are disturbed by the impinge of fluid to the projections whereby a stirring effect can be expected. According to the fine channel having the above-mentioned structure, it is unnecessary to provide a power source and accessories for stirring in comparison with a known stirring technique utilizing mechanical vibrations caused by a piezoelectric element or the like. Since each flow of fluid is disturbed in the fine channel while the fluid boundary formed by adjacent flows of fluid can be maintained stably by partition walls arranged with intervals in a flowing direction of fluid, materials contained in each flow of fluid are dispersed quickly and uniformly in each flow. Accordingly, a sufficient chemical reaction and solvent extraction can be conducted quickly.

[0085] Further, since adjacent flows of fluid can maintain the fluid boundary stably by the presence of partition walls arranged with intervals, each flow of fluid can easily be separated at the branch portion of the fine channel.

[0086] FIGS. **12**(*a*) to **12**(*d*) show diagrammatically several embodiments of projections formed in the fine channel. In **FIG. 12, a** case that two kinds of fluid are supplied, is shown. However, the present invention is not restricted to these embodiments but a modification can be made optionally as far as the split of the present invention is maintained.

[0087] **FIG. 12**(*a*) shows an embodiment that a plurality of projections **20** are formed in a bottom surface **18** at positions near the partition walls **22** in the fine channel **19**. There is in particular no limitation concerning the projections as long as they are extended to an extent capable of stirring a kind of or plural kinds of fluid in each flow while the fluid boundary is maintained keeping smooth flows of fluid, and they have a height and a width so as not to block substantially the fine channel. There is no limitation of the number of projections as long as the projections do not block substantially the fine channel and the shape of each projections can be maintained. There is also no limitation about the way of arranging the projections, and they may be arranged regularly or randomly. In **FIG. 12**(*a*), the projections are formed in a bottom surface **18** at positions near the partition walls **22** in the fine channel **19**. However, they may be formed in the entire bottom surface of the fine channel; they may be formed so as to project from an upper face **50** of the fine channel toward an inner side of the fine channel, or they may be formed to have both the above-mentioned arrangements. In a case that the projections are formed in a bottom surface of the fine channel and an upper face **50** of the fine channel, positions of projections may be the same or different at the bottom face and an upper face of the fine channel. In **FIG. 12**(*a*), numeral **51** designates a side face of the fine channel and numeral **52** designates a fine channel substrate.

[0088] **FIG. 12**(*b*) shows an embodiment that a plurality of projections **20** are formed extending from a side face **51** at one side of the fine channel **19**. There is in particular no limitation concerning the projections as long as they are extended to an extent capable of stirring a kind or plural kinds of fluid in each flow while the fluid boundary is maintained keeping a smooth flow of fluid, and they have a height and a width so as not to block substantially the fine channel **19**. There is also no limitation of the number of projections as long as they do not block substantially the fine channel and the shape of each projection can be maintained. There is also no limitation of the way of arranging the projections, and they may be arranged regularly or randomly. In **FIG. 12**(*b*), projections are formed only in a side face **51** at one side of the fine channel. However, projections may be formed in side faces at both sides of the fine channel. In a case that projections are formed in side faces at both sides of the fine channel, positions of the projections may be the same or different at both the side faces as long as the projections do not block substantially the fine channel.

[0089] FIGS. **12**(*c*) and **12**(*d*) show embodiments that walls **53** having an angle θ with respect to a flowing direction of fluid **27** are formed extending vertically from the bottom surface **18** of the fine channel **19**. The width of each wall **53** is determined to be the near same as the width **54** of the fluid boundary. There is in particular no limitation of the height of the walls unless they block substantially the fine channel **19**. Further, there is no limitation of the number of the walls as long as they do not block substantially the fine channel and the shape of each wall can be maintained. Further, there is in particular no limitation as to how the walls are arranged, and they may be arranged regularly with same intervals or may be arranged to have random intervals. There is in particular no limitation of the angle θ of the walls with respect to a flowing direction of fluid. The walls may be formed symmetrically at an angle θ with respect to a flowing direction of two kinds of fluid as shown in **FIG. 12**(*c*), or they may be formed at the same angle θ with respect to the flowing direction of two kinds of fluid as shown in **FIG. 12**(*d*). FIGS. **12**(*c*) and **12**(*d*) show the embodiments that walls **53** are formed in the bottom surface **18** at both sides of the fine channel. However, the walls may be formed at the bottom surface only at one side of the fine channel; an upper face **50** of the fine channel; a side face **51** at one side of the fine channel, or side faces at both sides of the fine channel.

[0090] In a case that the walls are formed at the bottom surface, upper face and the side faces of the fine channel, positions of the walls may be the same or different unless the walls do not block substantially the fine channel.

[0091] The fine channel device of the present invention is provided with at least two inlet ports for feeding fluid, inlet channels communicated with the inlet ports, at least two outlet channels, and outlet ports communicated with the outlet channels so that the flowing direction of either one of two kinds of fluid fed in the fine channel is opposite to the flowing direction of the other of two kinds of fluid fed in the fine channel. Accordingly, as shown in **FIG. 9**, it is possible to feed the two kinds of fluid flowing adjacent to each other as laminar flows in mutually opposite direction in the fine channel having, for example, a length of about several mm. Further, when the affinity of the inner wall at one side of the fine channel partitioned by the partition walls is modified to