[0192] In a fourth accompanying effect, it is possible to supply at least two kinds of fluid adjacently flowing as laminar flows in the fine channel in mutually opposite directions. Accordingly, an experiment for verification as to whether or not an equilibrium of a chemical reaction or solvent extraction can be changed, can be conducted only by using the fine channel. Further, modification of the inner wall of the fine channel can be conducted at the same time of forming the shape of the fine channel by using a method of etching, mechanically processing or molding without requiring a large number of processes as in the conventional channel modification method, the time and cost for forming the fine channel can remarkably be reduced in comparison with the channel modification method. In particular, when the fine channel substrate of the present invention is fabricated by molding a material such as a resin, ceramics or glass, the maximum effect of reducing the time and cost for forming the fine channel can be obtained. Further, the above-mentioned effects are basically obtainable depending on the shape of the fine channel formed in the fine channel device of the present invention. Accordingly, such effects can be realized only by the fine channel device of the present invention in which the fine channel providing semipermanent services is formed in comparison with the fine channel formed according to the conventional channel modification method.

[0193] In a fifth accompanying effect, since a plurality of projections projecting to such an extent capable of maintaining a flow of fluid are formed in the fine channel, or fine particles are mixed in a kind of fluid, it is possible to stir each kind of fluid while the fluid boundary formed by laminar flows of fluid can be kept stably, and a material contained in each flow of fluid can uniformly be dispersed in each flow.

[0194] The entire disclosures of Japanese Patent Application No. 2002-204271 filed on Jul. 12, 2002, Japanese Patent Application No. 2002-206745 filed on Jul. 16, 2002, Japanese Patent Application No. 2002-279149 filed on Sep. 25, 2002, and Japanese Patent Application No. 2003-032532 filed on Feb. 10, 2003 including specifications, claims, drawings and summaries are incorporated herein by reference in their entireties.

1. In a fine channel device comprising a fine channel provided with at least two inlet ports for feeding fluid, inlet channels communicated with the inlet ports, a confluent portion communicated with the inlet channels, a branch portion communicated with the fine channel, from which at least two outlet channels are branched to feed predetermined amounts of fluid, and outlet ports communicated with the outlet channels, the fine channel device being characterized in that the fine channel is provided with a plurality of partition walls arranged along a boundary formed by at least two kinds of fluid fed from the inlet ports so as not to cause mutual contamination of fluid.

2. The fine channel device according to claim 1, wherein the plurality of partition walls are arranged with intervals in a flowing direction of fluid.

3. The fine channel device according to claim 1 or **2**, wherein the height of partition walls is substantially the same as the depth of the fine channel.

4. The fine channel device according to any one of claims 1 to 3, wherein partition walls are provided at positions apart from the confluent portion and the branch portion.

5. The fine channel device according to any one of claims 1 to 3, wherein in the plurality of partition walls, the partition wall located closest to the branch portion of the fine channel is connected to the branch portion.

6. The fine channel device according to any one of claims 1 to 3, wherein in the plurality of partition walls, there is at least one absent location of partition wall except the vicinity of the confluent portion and the vicinity of the branch portion of the fine channel.

7. The fine channel device according to any one of claims 1 to 6, wherein the maximum length of a partition wall in a flowing direction of fluid in the plurality of partition walls is less than any distance between adjacent partition walls in the flowing direction of fluid.

8. The fine channel device according to any one of claims 1 to 7, wherein a portion of the fine channel has a shape other than a straight shape, and the partition wall in said portion extends from the vicinity of a portion originating a non-straight portion of fine channel to the vicinity of a portion ending the non-straight portion of fine channel.

9. The fine channel device according to any one of claims 1 to 8, wherein in the vicinity of the inlet channels and/or the outlet channels of the fine channel, a distance between adjacent partition walls in a flowing direction of fluid is smaller than a distance between adjacent partition walls in the flowing direction of fluid in a portion other than the vicinity of the inlet channels and/or the outlet channels of the fine channel.

10. The fine channel device according to any one of claims 1 to 8, wherein in the vicinity of the inlet channels and/or the outlet channels of the fine channel, at least two partition walls are connected continuously in a flowing direction of fluid.

11. The fine channel device according to any one of claims 1 to 10, wherein 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 flow of fluid.

12. The fine channel device according to any one of claims 1 to 11, wherein said at least two inlet ports for feeding fluid, the inlet channels communicated with the inlet ports, said at least two outlet channels and outlet ports communicated with the outlet channels are arranged so that the flowing direction of either one of at least two kinds of fluid fed in the fine channel is opposite to the flowing direction of the other of said at least two kinds of fluid fed adjacently in the fine channel.

13. The fine channel device according to any one of claims 1 to 12, wherein the inner wall at one side of the fine channel partitioned by partition walls has amicability to hydrophilic/hydrophobic properties to a kind of fluid fed into the fine channel.

14. The fine channel device according to claim 13, wherein hydrophilic properties of a material for the inner wall at one side of the fine channel partitioned by partition walls are different from hydrophilic properties of the fluid fed into the fine channel.

15. The fine channel device according to any one of claims 1 to 14, wherein a film having fine pores a diameter of which is smaller than any distance between adjacent partition walls is provided between adjacent partition walls in a flowing direction of fluid.

16. The fine channel device according to claim 15, wherein the film is made of a polymeric material and/or an inorganic material.