

17. The fine channel device according to any one of claims 1 to 16, wherein a metallic film is disposed in the entire or a part of the inner surface of the fine channel and/or the wall surface of the partition walls.

18. The fine channel device according to claim 17, which further comprises a current supply means and/or a voltage supply means for the metallic film.

19. The fine channel device according to any one of claims 1 to 18, which further comprises a circulating channel to feed fluid discharged from an outlet port to an inlet port.

20. The fine channel device according to claim 19, which further comprises a reservoir tank communicated with the circulating channel and a pump in order to store the supplied fluid temporarily.

21. The fine channel device according to any one of claims 1 to 20, which further comprises means for supplying energy to fluid flowing the fine channel.

22. The fine channel device according to claim 21, wherein said means for supplying energy to fluid is a heating device and/or a light irradiation device.

23. A fine channel device characterized in that a plurality of fine channels each as described in any one of claims 1 to 17 are formed in a two-dimensionally or a three dimensionally.

24. 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, each having a height substantially the same as the depth of the fine channel, 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, wherein 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.

25. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24

is used to mix by molecular diffusion at least two kinds of fluid contacting through the partition walls in the fine channel.

26. The chemically operating method according to claim 25, wherein fine particles are mixed to at least one of said at least two kinds of fluid, and the fluid is stirred while the fluid boundary is maintained to accelerate the mixing.

27. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24 is used to cause a chemical reaction of at least two kinds of fluid contacting through the partition walls in the fine channel.

28. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24 is used to make an extracted solvent contact with an extracting solvent through the partition walls in the fine channel to extract an extracted substance by phase transfer.

29. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24 is used to separate at least two kinds of fluid contacting through the partition walls in the fine channel.

30. The chemically operating method according to claim 29, wherein at least one kind of separated fluid is circulated to feed it again to an inlet port.

31. The chemically operating method according to claim 30, wherein the separated fluid is discharged from an outlet port through an outlet channel, and the discharged fluid is fed again to an inlet port.

32. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24 is used to supply energy to fluid flowing in the fine channel.

33. The chemically operating method according to claim 32, wherein said energy is heat and/or light.

34. A chemically operating method characterized in that a fine channel device described in any one of claims 1 to 24 is used, and at least two chemically operating methods each described in any one of claims 25 to 33 are conducted in an arbitrary combination.

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