CLAIMS:

1. A membrane vesicle recovery device, comprising:

a filler which is liquid state;

a reaction base having a surface on which a plurality of holding sections which is configured to be filled with the filler and hold the filler are formed; and

a fused membrane including a lipid bilayer membrane which covers at least a part of an outer periphery of the filler, wherein

the membrane vesicle recovery device configured such that a content of a membrane vesicle is mixed into the filler through fusing of the membrane vesicle and the fused membrane.

2. The membrane vesicle recovery device according to Claim 1, wherein

the filler is covered with the fused membrane in each of the holding sections.

3. The membrane vesicle recovery device according to Claim 2, wherein

the holding sections are recessed sections formed in the reaction base,

in the recessed sections, the fused membrane comes into contact with an opening end forming a boundary between the surface and each of the recessed sections and is provided in the reaction base so as to block the recessed sections, and

the recessed sections are filled with the filler.

4. The membrane vesicle recovery device according to Claim 3, wherein

a plurality of the fused membranes are provided in the reaction base so as to come into contact with a part along the opening end in the inner wall surface of the recessed sections and to individually block each of the plurality of recessed sections.

5. The membrane vesicle recovery device according to Claim 4, wherein

in the reaction base, at least a part of the inner wall surface is hydrophobic and a hydrophobic section of the fused membrane is coupled to the inner wall surface.

6. The membrane vesicle recovery device according to Claim 3, wherein

the fused membrane is formed in a planar shape along the surface as a one membrane which blocks recessed sections.

7. The membrane vesicle recovery device according to Claim 3, wherein

the fused membrane contains a membrane charge adjustment substance promoting membrane fusion between the fused membrane and the membrane vesicle which is derived from a living body or an artificial vesicle and which is covered by the lipid bilayer membrane.

8. The membrane vesicle recovery device according to Claim 7, wherein

the membrane charge adjustment substance contains at least one of a membrane-destroying peptide, a membrane fusogenic polymer, a pH-sensitive polymer, and virus-derived membrane fusion protein.

9. The membrane vesicle recovery device according to any one of Claims 1 to 8, wherein

the filler contains a solvent and a reaction reagent for biochemical analysis contained in the solvent.

10. The membrane vesicle recovery device according to Claim 9, wherein

the reaction reagent for biochemical analysis contains a pH indicator.

11. The membrane vesicle recovery device according to any one of Claims 1 to 10, wherein

the filler is a gel or sol.

12. The membrane vesicle recovery device according to Claim 1, wherein

each of the holding sections is a hydrophilic section,

the surface is a hydrophobic section surrounding the hydrophilic section,

the filler is provided in the hydrophilic section, and

the fused membrane is coupled to the hydrophobic section in a boundary between the hydrophilic section and the hydrophobic section and wraps the liquid filler.

13. A membrane vesicle recovery method for recovering a membrane vesicle which is derived from a living body or an artificial vesicle and which is covered by a lipid bilayer membrane in the membrane vesicle recovery device according to any one of Claims 1 to 12, the method comprising:

subjecting the fused membrane and the membrane vesicle to membrane fusion by bringing a sample containing the membrane vesicle into contact with the fusion membrane.

14. The membrane vesicle recovery method according to Claim 13, comprising:

adding a pH regulator which makes the sample acidic to the sample, and then, bringing the acidic sample into contact with the fused membrane.

15. A membrane vesicle analysis method for analyzing the content, membrane protein, or a membrane lipid of a membrane vesicle which is derived from a living body or an artificial vesicle and which is covered by a lipid bilayer membrane, the method comprising:

fusing the membrane vesicle into the fused membrane of the membrane vesicle recovery device according to any one of Claims 1 to 12; and

holding the membrane protein or the membrane lipid on the membrane vesicle at the fused membrane.

16. A membrane vesicle analysis method for analyzing the content, membrane protein, or a membrane lipid of a membrane vesicle which is derived from a living body or an artificial vesicle and which is covered by a lipid bilayer membrane, the method comprising:

fusing the membrane vesicle into the fused membrane of the membrane vesicle recovery device according to Claim 9 or 10; and

reacting the reaction reagent for biochemical analysis with the content, membrane protein, or a membrane lipid of the membrane vesicle within the filler.

17. The membrane vesicle analysis method using the membrane vesicle recovery device according to Claim 9 or 10 or the membrane vesicle analysis method according to Claim 16, wherein

the reaction reagent for biochemical analysis contains at least one of a nucleic acid analysis reagent, an invader reaction reagent, a protein analysis reagent, a lipid analysis reagent, an immunoassay reagent, and a homogeneous antigen-antibody reaction reagent.