CLAIMS

1. A liquid material discharge device comprising:

a discharge member made of a rod-shaped body;

a liquid chamber which is wider than the discharge member and in which a tip portion of the discharge member is disposed;

a discharge port in communication with the liquid chamber;

a liquid feed path establishing communication between the liquid chamber and a liquid material storage container; and

a drive device driving the discharge member,

wherein the liquid material discharge device further comprises an elongate insert member that is removably inserted into the liquid feed path without cutting the communication between the liquid chamber and the liquid material storage container, and

wherein the insert member is fixed and does not rotate in the liquid feed path during discharging of liquid material.

2. The liquid material discharge device according to claim 1, wherein the liquid feed path is constituted by a linear flow path having an opening at an end, and

the insert member includes an insert portion inserted into the liquid feed path, and a plugging portion that plugs the opening at the end.

3. The liquid material discharge device according to claim 1 or 2, wherein a length of the insert member is 1/2 to 1 time a length L of the liquid feed path.

4. The liquid material discharge device according to any one of claims 1 to 3, further comprising a main body incorporating at least part of the drive device, and having a through-hole through which the discharge member is inserted, and

a liquid feed member removably coupled to the main body and including an extension portion in which the liquid feed path is formed.

5. The liquid material discharge device according to claim 4, wherein the liquid feed member includes a space constituting part of the liquid chamber, and a sealing member through which the discharge member penetrates.

6. The liquid material discharge device according to claim 4 or 5, wherein the liquid feed member has an upper opening in communication with the storage container.

7. The liquid material discharge device according to claim 4, 5 or 6, wherein the liquid feed member includes a container coupler for positioning and coupling of the storage container.

8. The liquid material discharge device according to claim 4, 5, 6 or 7, wherein the extension portion of the liquid feed member is separable.

9. The liquid material discharge device according to any one of claims 1 to 8, wherein the insert member includes projections and recesses formed on and in a surface thereof extending in a lengthwise direction.

10. The liquid material discharge device according to claim 9, wherein the projections and the recesses are formed by a plurality of projected portions in contact with an inner peripheral surface of the liquid feed path and grooves positioned between the projected portions.

11. The liquid material discharge device according to claim 10, wherein the grooves positioned between the projected portions are formed by a spiral groove.

12. The liquid material discharge device according to any one of claims 1 to 11, wherein the insert member includes a plurality of stirring blades arranged side by side in a lengthwise direction.

13. The liquid material discharge device according to any one of claims 1 to 12, wherein at least a surface of the insert member is made of a material softer than an inner peripheral surface of the liquid feed path.

14. The liquid material discharge device according to claim 13, wherein at least the surface of the insert member is made of rubber or resin.

15. The liquid material discharge device according to any one of claims 1 to 14, wherein the insert member is prepared as a plurality of insert members having different cross-sectional areas, and

selected one of the insert members can be removably inserted

into the liquid feed path.

16. The liquid material discharge device according to any one of claims 1 to 15, wherein the discharge member is constituted by a plunger including a tip portion that is moved forward and backward in the liquid chamber, or by a screw including a tip portion that is rotated in the liquid chamber.

17. The liquid material discharge device according to any one of claims 1 to 15, wherein the discharge member is a plunger extending vertically,

the drive device is a drive device moving the discharge member forward and backward, and

the liquid material discharge device is of jet type in which a liquid material is discharged in form of a flying droplet from the discharge port by colliding the forward-moving plunger against a valve seat that is formed in an inner bottom surface of the liquid chamber, or by stopping the forward-moving plunger just before the plunger is collided against the valve seat.

18. A liquid material discharge method using the liquid material discharge device according to any one of claims 1 to 17.

19. A liquid material discharge method of discharging a liquid material containing filler by using the liquid material discharge device according to claim 12.