What is claimed is:

1. A filter device, characterized in that the filter device comprises:

a first component comprising an outer casing, wherein a first side wall and a substrate of the outer casing surround to form a first accommodating cavity;

a second component connected to the first component, wherein the second component comprises a flow channel;

an actuator used to close or open the flow channel, wherein the actuator comprises a head portion and a rod portion which are connected with each other, wherein the head portion of the actuator is rotatably connected to the second component and the rod portion of the actuator is inserted in the flow channel, and wherein the outer surface of the rod portion of the actuator is covered by a seal cover; and

a filter membrane sandwiched between the first component and the second component;

wherein the first component further comprises an inner casing, wherein one end of the inner casing passes through and within the first accommodating cavity, and wherein the other end of the inner casing passes though the substrate of the outer casing and be located outside of the outer casing, and wherein the substrate is hermetically connected to outer surface of a second side wall of the inner casing, and wherein the second side wall and top plate surround to form a second accommodating cavity, and wherein the second side wall of the inner casing which passes through and within the first accommodating cavity is provided with a plurality of gaps, and wherein the plurality of gaps are communicated with the first accommodating cavity and the second accommodating cavity,

wherein the flow path sequentially passes through the flow channel, the filter membrane, the first accommodating cavity, the gap and the second accommodating cavity.

2. The filter device according to claim 1, wherein a central axis of the actuator is perpendicular to a central axis of the flow channel, wherein the actuator motions rotationally around the central axis of the actuator while motions linearly in a direction perpendicular to the central axis of the flow channel.

3. The filter device according to claim 2, wherein the second component further comprises a mount which is provided with an inner cavity, wherein the rod portion of the actuator is inserted in the inner cavity, and a central axis of the inner cavity is perpendicular to the central axis of the flow channel.

4. The filter device according to claim 3, wherein one side of the head portion facing to the

flow channel is provided with a limiting slot, and one end of a side wall of the mount facing to the limiting slot is inserted in the limiting slot, wherein the limiting slot and the side wall of the mount are engaged with each other to limit the movement of the actuator.

5. The filter device according to claim 4, wherein outer surface of the side wall of the mount is provided with a rotating protrusion, and inner surface of the limiting slot is provided with a rotating groove which is corresponding to the rotating protrusion, wherein the rotating protrusion and the rotating groove are engaged with each other to limit the rotating motion trajectory of the actuator.

6. The filter device according to any one of claims 3-5, wherein an inner wall of the inner cavity is provided with a limiting step which extends in a radial direction towards the central axis of the inner cavity, and an outer wall of the rod portion is provided with a limiting protrusion which extends in a radial direction towards the mount, wherein the limiting protrusion abuts against to the limiting step, and wherein the limiting protrusion and the limiting step are engaged with each other to limit the movement of the actuator in the direction away from the mount.

7. The filter device according to claim 1, wherein the first component is integrally molded.

8. The filter device according to claim 1 or 7, wherein the second side wall of the inner casing comprises a first section and a second section which are connected with each other, wherein thickness of the first section is less than that of the second section; wherein the first section is located within the first accommodating cavity and is provided with the plurality of gaps; wherein the second section is located outside of the outer casing, and the substrate of the outer casing is hermetically connected to the outer surface of the second section adjacent to one end of the first section.

9. The filter device according to any one of claims 1, 7 and 8, wherein the filter device further comprises a sealing component, wherein the sealing component is snapped to the other end of the inner casing and is used to seal the second accommodating cavity.

10. The filter device according to any one of claims 1-9, wherein the seal cover is screwed with the rod portion.

11. The filter device according to any one of claims 1-10, wherein material of the seal cover is rubber.

12. The filter device according to any one of claims 1-11, wherein one end of the first section is snapped to the corresponding end of the second section, and the first section and the second section are hermetically connected to each other.

13. A filtering infusion container, characterized in that the filtering infusion container comprises the filter device according to any one claims 1-12, wherein the filtering infusion container further comprises an infusion container connected to the filter device, and wherein one end of the flow path leads to the infusion container, and the other end leads to the filter membrane.