

WHAT IS CLAIMED IS:

1. A pump for medical fluid comprising:
a pump housing;
a manifold within the pump housing, and having a manifold chamber therein, an input port and an output port;
a cannula received within the manifold chamber, and having an input hole and an output hole, arranged on opposite sides of the cannula and offset along an axis of the cannula to correspond with positions of the respective input port and output port of the manifold;
a cam assembly received within a cam chamber, wherein the cam assembly is fixed to the cannula, and adapted to cause the cannula to reciprocally translate in the axial direction as the cam is rotated.
2. The pump of claim 1, wherein the cam chamber is formed from a cam chamber housing having a cam surface, and a cam chamber cap having a cam surface.
3. The pump of claim 2, wherein the cam chamber cap comprises an axial opening, and the cam assembly comprises a motor coupling that extends through the cam chamber cap opening.
4. The pump of claim 1, wherein the cam assembly is arranged to cause the cannula input hole to align with the input port as the manifold chamber is increasing in size.
5. The pump of claim 1, wherein the cam assembly is arranged to cause the cannula output hole to align with the output port as the manifold chamber is decreasing in size.
6. The pump of claim 2, wherein the cam chamber housing cam surface comprises a ramp shape.
7. The pump of claim 2, wherein the cam chamber cap cam surface comprises a ramp shape.

8. The pump of claim 3, wherein the motor coupling is slidably received within a motor portion.
9. The pump of claim 1, wherein the cam assembly comprises ramp surfaces that interact to move the cannula axially in a reciprocal manner as the cam rotates.
10. The pump of claim 1, wherein the input port and the output port are on the same side of the manifold chamber.
11. The pump of claim 1, wherein the input hole and the output hole are arranged such that only one of the input hole and output hole can be aligned with either of the input port or the output at a given time.
12. The pump of claim 1, wherein the cannula is formed from a metal tube.
13. The pump of claim 2, wherein the metal tube has a predetermined inner diameter, and the cannula reciprocates axially a predetermined distance to form a discrete pump volume.