CLAIMS

1. A **nutrient recycling device** configured to collect digestive contents from a surgically created first gastrointestinal tract opening and pump the digestive contents to a second gastrointestinal tract opening, the device comprising:

    a flexible bag adapted to receive the digestive contents from the first surgically created opening, through a first bag opening,

    a pump located within the flexible bag or having a pump body incorporated with a wall of the flexible bag, the pump adapted to pump the collected digestive contents to the second gastrointestinal tract opening, the pump comprising:

        a pump inlet in fluid communication with an interior of the flexible bag,

        a pump outlet connected to an outlet conduit adapted to provide a flow pathway for the digestive content to flow from the pump to the second gastrointestinal tract opening, and

        a pump actuator separable from the pump and adapted to be operably coupled to the pump.

2. The nutrient recycling device as claimed in claim 1, wherein the first bag opening is configured to be positioned:
    a. over the surgically created first gastrointestinal tract opening,
    b. over the first and second gastrointestinal tract openings,
    c. over the surgically created first gastrointestinal tract opening, and a second bag opening is configured to be positioned over the second gastrointestinal tract opening.

3. The nutrient recycling device as claimed in claim 1 or 2, wherein the flexible bag comprises an attachment portion configured to attach the flexible bag to a patient, and wherein the attachment portion is an adhesive backing.

4. The nutrient recycling device as claimed in any one of the previous claims, wherein the pump is incorporated with the flexible bag by attachment to:

    a. an inside wall of the flexible bag,
    b. an outside wall of the flexible bag, or
    c. form at least part of the wall of the flexible bag.

5. The nutrient recycling device as claimed in any one of the previous claims, wherein the pump is located within the flexible bag.

6. The nutrient recycling device as claimed in claim 5, wherein the pump freely floats within the flexible bag supported by the outlet conduit.

7. The nutrient recycling device as claimed in claim 6, wherein the ~~stoma~~ flexible bag further comprises at least one external conduit opening adapted to allow at least one external conduit to communicate between the inside and outside of the bag.

8. The nutrient recycling device as claimed in any one of claims 1-4, wherein the pump is attached to the bag, and the attachment is by:
   a. clips,
   b. clasps,
   c. buckles,
   d. Velcro,
   e. zip,
   f. slide fastener,
   g. snap fasteners,
   h. magnets, or
   i. the bag having a pouch adapted to locate the pump, and the pouch is incorporated into a side wall of the bag.

9. The nutrient recycling device as claimed in any one of the previous claims, wherein the outlet conduit comprises a first portion and a second portion, wherein

   a first portion of the outlet conduit is located within the bag, and

   a second portion of the outlet conduit is located external to the bag, the second portion of the conduit adapted to be inserted into the gastrointestinal tract through the second opening of the gastrointestinal tract.

10. The nutrient recycling device as claimed in any one of the previous claims, wherein the outlet conduit comprises a one way valve to preclude backflow of digestive content.

11. The nutrient recycling device as claimed in claim 9 or 10, wherein the second portion of the outlet conduit comprises one or more apertures on a

sidewall configured to allow fluid communication of the digestive contents with the gastrointestinal tract.

12. The nutrient recycling device as claimed in any one of the previous claims, wherein a delivery catheter extends from the bag into the second gastrointestinal tract opening.

13. The nutrient recycling device as claimed in claim 12, wherein the outlet conduit is a delivery catheter and includes an output end positioned downstream in the gastrointestinal tract from the first opening and is configured to reintroduce the digestive contents back into a patient.

14. The nutrient recycling device as claimed in claim 9, wherein the outlet conduit includes an output end positioned upstream from the first opening and is configured to reintroduce the digestive contents back into a patient.

15. The nutrient recycling device as claimed in any one of the previous claims, wherein the pump comprises a body and an impeller driven by a pump actuator.

16. The nutrient recycling device as claimed in claim 15, wherein the impeller is driven by a magnetic coupling between said pump actuator and said impeller.

17. The nutrient recycling device as claimed in claim 15, wherein the impeller is driven by a mechanical coupling between said pump actuator and said impeller.

18. The nutrient recycling device as claimed in claim 16 or claim 17, wherein the pump is located inside the bag and the pump actuator is located external to the bag.

~~19. The nutrient recycling device as claimed in claim 15, wherein the pump actuator is integrated with the pump.~~

~~20.~~19. The nutrient recycling device as claimed in any one of claims 1-~~19~~18, wherein the pump comprises a syringe configured to push the digestive contents towards the second opening of the gastrointestinal tract.

~~21.~~20. The nutrient recycling device as claimed in claim ~~20~~19, wherein the syringe comprises a plunger external to the bag.

~~22.~~21. The nutrient recycling device as claimed in any one of the previous claims, wherein the pump comprises one or more one-way valves.

~~23.~~22. The nutrient recycling device as claimed in any one of claims 1-~~19~~18, wherein the pump comprises a controller and:

a. the controller operates to increase or decrease a flow rate of the digestive contents,
b. the controller is adapted to be operated manually by a patient,
c. the controller operates automatically,
d. the controller operates the pump at set intervals,
e. the controller operates the pump approximately every 30 minutes to 6 hours,
f. the controller operates the pump for approximately 30 seconds to 20 minutes at a time,
g. the controller operates when a predetermined fluid level, bag weight, or bacteria level as detected by a sensor is reached,
h. the controller operates the pump in a reverse direction to clear blockages,
i. the controller operates the pump in a reverse direction from time to time to clear blockages,
j. the controller operates the pump in a reverse direction when a sensor detects a predetermined condition to clear blockages, or
k. the controller operates the pump alternately between a forward direction and a reverse direction to clear blockages.

~~24. A **kit of parts** for constructing a nutrient recycling device as claimed in any one of claims 1-23, wherein the kit comprises:~~

~~a flexible bag adapted to receive digestive contents from a surgically created first gastrointestinal tract opening, the flexible bag comprising at least a first bag opening,~~

~~a pump adapted to pump the digestive contents to a second gastrointestinal tract opening,~~

~~an outlet conduit adapted to provide a flow pathway for the digestive content to flow from the pump to the second gastrointestinal tract opening.~~

~~25. The **kit of parts** as claimed in claim 24, wherein the kit further comprises a pump actuator as claimed in any one of claims 15-18.~~