

We Claim:

1. A collector for fecal discharge comprising:

a self-expanding resilient collection component having an open proximal end, an open distal end and a lumen along the longitudinal axis of said component, said collection component lumen providing a passage connecting said open proximal and distal ends, the collection component comprising a plurality of resilient arms interconnected to define interspaces therebetween and circumscribing the contour of the collection component, adjacent arms of said component resiliently biased away from each other for exerting outwardly directed radial pressure for expanding and anchoring said component to rectal walls upon deployment within the rectum, said radial pressure being less than the pressure exerted by adjacent rectal walls during peristaltic contractions;

a housing sheath comprising a flexible and resilient material overlaying at least one of the inner or outer contour of said collection component while maintaining the open proximal and distal ends of said component and maintaining patency of the lumen connecting said open ends; and

a transit component providing a conduit for fecal discharge to migrate from the collection component to a receptacle therefor, said transit component comprising a flexible substantially tubular sheath having a first open end, a second end, and a lumen, said transit component lumen connecting the first open end and the second end, wherein the first open end of the transit component engages with the proximal end of the collection component.

2. The collector for fecal discharge as claimed in claim 1, wherein arms of the collection component are pliant along the x, y and z axes.
3. The collector for fecal discharge as claimed in claim 1, wherein arms of the collection component have shape memory.
4. The collector for fecal discharge as claimed in claim 1, wherein arms of the collection component circumscribe any one of a circular, substantially circular, cylindrical, substantially cylindrical, hemi-spherical, conical, frusto-conical, cup-shaped or funnel-shaped contour.
5. The collector for fecal discharge as claimed in claim 1, wherein the arms circumscribing the contour of the collection component are interconnected to form an undulating series of paired arms, each pair of arms coupled to the two laterally adjacent pairs thereto, and the first and last paired sets of arms are coupled to complete said contour.

6. The collector for fecal discharge as claimed in claim 1, wherein the interconnected arms comprise a single continuous strand of resilient wire material arranged to circumscribe the contour of the collection component in an undulating configuration, and the free ends of said wire material are joined to complete said contour.
7. The collector for fecal discharge as claimed in claim 6, wherein said continuous strand of resilient wire material is arranged in at least one torsion loop on at least one of the vertices formed by the peaks and troughs of the undulating wire material.
8. The collector for fecal discharge as claimed in claim 1, wherein the interconnected arms of the collection component are discrete and adjacent arms are coupled by connectors.
9. The collector for fecal discharge as claimed in claim 1, wherein adjacent arms of the collection component are coupled with resilient connectors for biasing said adjacent arms away from each other.
10. The collector for fecal discharge as claimed in claim 9, wherein arms of the collection component are arranged in a series of crossed arm pairs arranged to circumscribe the contour of said collection component, the crossed arms within each pair coupled at their respective longitudinal midpoints by a pivot pin, the free top and bottom ends of each crossed arm pair coupled respectively to the adjacent free top and bottom ends of the laterally adjacent crossed arm pairs by pivot pins, and the free top and bottom ends of the first crossed arm pair and free top and bottom end of the last crossed arm pair are coupled to complete said contour.
11. The collector for fecal discharge as claimed in claim 1, wherein the arrangement of arms circumscribing the contour of the collection component comprises a plurality of annular elements, the annular elements having substantially identical contours and being coaxially aligned along the longitudinal axis of the collection component, each said annular element coupled to at least one adjacent annular element to achieve the contour of the collection component.
12. The collector for fecal discharge as claimed in claim 1, wherein the arrangement of arms circumscribing the contour of the collection component comprises a plurality of annular elements, the annular elements having substantially identical contours and being coaxially aligned along the longitudinal axis of the collection component, wherein the annular elements are retained in longitudinal alignment relative each other, by the housing sheath.
13. The collector for fecal discharge as claimed in claim 4, wherein the contour of the collection component is frusto-conical, and the outer sidewall connecting the proximal

end and distal end of said collection component is at an outwardly directed angle of between 10° and 30° from the normal.

14. The collector for fecal discharge as claimed in claim 1, wherein the collection component has fasteners to adhere to the rectal walls.

15. The collector for fecal discharge as claimed in claim 1, wherein at its widest point, the expanded collection component has an external diameter of between 20 mm and 60 mm.

16. The collector for fecal discharge as claimed in claim 1, wherein in its collapsed state, the collection component has an external diameter of between 6 mm and 21 mm.

17. The collector for fecal discharge as claimed in claim 1, wherein the expanded collection component has an internal diameter of between 20 mm and 40 mm at the open proximal end, and an internal diameter of between 20 mm and 60 mm at the open distal end.

18. The collector for fecal discharge as claimed in claim 1, wherein length of the collection component is between 10 mm and 50 mm.

19. The collector for fecal discharge as claimed in claim 1, wherein the outwardly directed radial pressure exerted by the collection component is between 1 to 106 cm of H_2O .

20. The collector for fecal discharge as claimed in claim 1, wherein the outwardly directed radial pressure exerted by the collection component is between 1 to 48 cm of H_2O .

21. The collector for fecal discharge as claimed in claim 1, wherein the outwardly directed radial pressure exerted by the collection component is between 10 to 30 cm of H_2O .

22. The collector for fecal discharge as claimed in claim 1, wherein the collection component has at least one filament attached thereto, the free ends of said at least one filament trailing the proximal end of said collection component.

23. The collector for fecal discharge as claimed in claim 22, wherein the free ends of said at least one filament have differing slack.

24. The collector for fecal discharge as claimed in claim 22, wherein the at least one filament is woven through the collection component in a drawstring arrangement.

25. The collector for fecal discharge as claimed in claim 24, wherein the at least one filament is woven through vertices of the interconnected arms, said vertices situated on one or both of the proximal end and distal end of the collection component.
26. The collector for fecal discharge as claimed in claim 22, wherein each trailing end of said at least one filament is housed within a corresponding rigid or semi-rigid longitudinal conduit and thereafter connected to a handle, wherein each conduit permits free movement of the filament residing therein along the direction of its longitudinal axis, and one end of each conduit is located adjacent the proximal end of said collection component.
27. The collector for fecal discharge as claimed in claims 5 or 10, wherein the profile of the housing sheath corresponds with the profile of the collection component.
28. The collector for fecal discharge as claimed in claim 1, wherein the material for the housing sheath is a polymeric material.
29. The collector for fecal discharge as claimed in claim 1, wherein the second end of the transit component is an open end having a connector provided thereon for engaging with the receptacle for fecal discharge.
30. The collector for fecal discharge as claimed in claim 1, wherein the second end of the transit component is a closed end, said closed end providing the receptacle for fecal discharge.
31. The collector for fecal discharge as claimed in claim 1, wherein the material for the flexible and resilient tubular sheath of the transit component is a polymeric material.

Claims

1. A collector for fecal discharge comprising:

a self-expanding resilient collection component having an open proximal end, an open distal end and a lumen along the longitudinal axis of said component, said collection component lumen providing a passage connecting said open proximal and distal ends, said collection component being expandable from a compressed configuration to an expanded configuration, the collection component formed by a plurality of resilient arms interconnected to define interspaces therebetween and to define the contour of the collection component, wherein adjacent arms of said component are resiliently biased away from each other and are arranged such that said resilient arms exert outwardly directed radial pressure upon a subject's rectal walls upon deployment within the subject's rectum,

wherein the resilient arms impel the collection component from the compressed configuration towards the expanded configuration, and

wherein said radial pressure generated by the resilient arms is less than the pressure exerted by adjacent rectal walls during peristaltic contractions;

a housing sheath comprising a flexible and resilient material overlaying at least one of the inner or outer contour of said collection component while maintaining the open proximal and distal ends of said component and maintaining patency of the lumen connecting said open ends; and

a transit component providing a conduit for fecal discharge to migrate from the collection component to a receptacle therefor, said transit component comprising a flexible substantially tubular sheath having a first open end, a second end, and a lumen, said transit component lumen connecting the first open end and the second end, wherein the first open end of the transit component engages with the proximal end of the collection component.

2. The collector for fecal discharge according to claim 1, wherein arms of the collection component are pliant along the x, y, and z axes.

3. The collector for fecal discharge according to claim 1, wherein arms of the collection component define any one of a conical, frusto-conical or funnel-shaped contour, and a portion connecting the proximal end and distal end of said collection component is at an outwardly directed angle of between 10° and 30° from the normal.
4. The collector for fecal discharge according to claim 1, wherein the interconnected arms comprise a single continuous strand of resilient wire material arranged to define the contour of the collection component in an undulating configuration, and the free ends of said wire material are joined to complete said contour.
5. The collector for fecal discharge according to claim 4, wherein said continuous strand of resilient wire material is arranged in at least one torsion loop on at least one of the vertices formed by the peaks and troughs of the undulating wire material.
6. The collector for fecal discharge according to claim 1, wherein adjacent arms of the collection component are coupled with resilient connectors for biasing said adjacent arms away from each other.
7. The collector for fecal discharge according to claim 6, wherein arms of the collection component are arranged in a series of crossed arm pairs arranged to define the contour of said collection component, the crossed arms within each pair coupled at their respective longitudinal midpoints by a pivot pin, the free top and bottom ends of each crossed arm pair coupled respectively to the adjacent free top and bottom ends of the laterally adjacent crossed arm pairs by pivot pins, and the free top and bottom ends of the first crossed arm pair and free top and bottom end of the last crossed arm pair are coupled to complete said contour.
8. The collector for fecal discharge according to claim 1, wherein the arrangement of arms defining the contour of the collection component comprises a plurality of annular elements, the annular elements having substantially identical contours and being coaxially aligned along the

longitudinal axis of the collection component, each said annular element coupled to at least one adjacent annular element to achieve the contour of the collection component.

9. The collector for fecal discharge according to claim 1, wherein the arrangement of arms defining the contour of the collection component comprises a plurality of annular elements, the annular elements having substantially identical contours being coaxially aligned along the longitudinal axis of the collection component, wherein the annular elements are retained in longitudinal alignment relative each other, by the housing sheath.

10. The collector for fecal discharge according to claim 1, wherein at its widest point in an expanded state, the collection component has an external diameter of between 20 mm and 60 mm.

11. The collector for fecal discharge according to claim 1, wherein in its collapsed state, the collection component has an external diameter of between 6 mm and 21 mm.

12. The collector for fecal discharge according to claim 1, wherein in an expanded state, the collection component has an internal diameter of between 20 mm and 40 mm at the open proximal end, and an internal diameter of between 20 mm and 60 mm at the open distal end.

13. The collector for fecal discharge according to claim 1, wherein length of the collection component is between 10 mm and 50 mm.

14. The collector for fecal discharge according to claim 1, wherein the outwardly directed radial pressure generated by the collection component is between 1 to 106 cm of water.

15. The collector for fecal discharge according to claim 1, wherein the outwardly directed radial pressure generated by the collection component is between 10 to 30 cm of water.

16. The collector for fecal discharge according to claim 1, wherein the collection component has at least one filament attached thereto, the free ends of said at least one filament trailing the proximal end of said collection component.

17. The collector for fecal discharge according to claim 16, wherein the free ends of said at least one filament have differing slack.

18. The collector for fecal discharge according to claim 16, wherein the at least one filament is woven through the collection component in a drawstring arrangement.

19. The collector for fecal discharge according to claim 16, wherein each trailing end of said at least one filament is housed within a corresponding rigid or semi-rigid longitudinal conduit and thereafter connected to a handle, wherein each conduit permits free movement of the filament residing therein along the direction of its longitudinal axis, and one of each conduit is located adjacent the proximal end of said collection component.

20. The collector for fecal discharge according to claim 1, wherein the second end of the transit component is any one of an open end having a connector provided thereon for engaging with the receptacle for fecal discharge, or a closed end, said closed end providing the receptacle for fecal discharge.