P130525WO CLAIMS 13-8-12

CLAIMS

1. A cover for a medical scoping device shaft, the cover comprising an elongate tubular member and being arranged for application over a distal tip of the medical scoping device shaft with the cover extending along at least a part of the length of a distal end of the shaft, the tubular member comprising an inner surface at least a part of which grips the shaft and holds the cover in place and an outer surface comprising a plurality of spaced projecting elements having a tip and a base that are moveable between a first resting position to a second position wherein the tip of the projecting element is substantially parallel to a longitudinal axis of the medical scoping device and to a third position that is at an angle approximately perpendicular to the longitudinal axis of the medical scoping device shaft so that the said projecting elements are fanned out to contact with and provide support for and to dilate a lumen wall of a body passage into which the medical scoping device has been inserted, the projecting elements being moveable beyond the third position to a fourth position wherein they flick over at a critical point so that the tips of the projecting elements point towards the distal end of the scoping medical device so that the medical scoping device can be withdrawn through the orifice into which it was initially inserted.

2. A cover according to claim 1 wherein the projecting elements have features selected from A, B or C:

A. the projecting elements are formed integrally with the outer surface of the elongate tubular member and the projecting elements are attached at their base to circumferentially positioned cross members;

B. the projecting elements are attached or moulded to the outer surface of the elongate tubular member and the bases of the projecting elements are hinged onto the outer surface of the elongate tubular member; or

C. the projecting elements are attached or moulded at their base to circumferentially positioned cross members and the bases of the projecting elements are hinged.

3. A cover of claim 1 or claim 2 wherein the cover is arranged for application over the medical scoping device shaft so as to surround it and to extend along at least a tip region of the shaft.

Duration: 13 08 2012 16:21:54 - 13 08 2012 16:24:25. This page 6 of 1 012 16:22:49
Received at the EPO on Aug 13, 2012 16:24:25. Page 6 of 19

4. A cover according to any preceding claim wherein the projecting elements are in the form of bristles, spikes, spines, fins, wedges, paddles or cones and are arranged to extend outwardly and away from the outer surface of the elongate tubular member.

5. A cover according to any preceding claim wherein the projecting elements are cylindrical, conical or tapered.

6. A cover according to any preceding claim wherein the at least a part the inner surface of the tubular member which grips the shaft and holds the cover in place is either the proximal and distal end regions of the tubular member or the entire inner surface of the tubular member.

7. A cover according to any preceding claims wherein the elongate tubular member is either a contiguous tubular member or alternatively is provided with slits, ridges or gaps running in a longitudinal direction and parallel with the longitudinal axis of the medical scoping device.

8. A cover according to claim 7 wherein the number of slits or gaps is directly proportional to the number of projecting elements and wherein the projecting elements being positioned in the slits or gaps between solid parts of the tubular member.

9. A cover according to any preceding claim wherein the projecting elements are between 2 to 20 mm in length from base to tip.

10. A cover according to claim 9 wherein the projecting elements are between 4 to 14 mm in length from base to tip.

11. A cover according to any preceding claim wherein the length of the projecting elements are marginally shorter at either or both the distal and proximal ends of the cover.

Duration: 13 08 2012 16:21:54 - 13 08 2012 16:24:25 This page 7 of 19 012 16:22:56
Received at the EPO on Aug 13, 2012 16:24:25. Page 7 of 19

~~12. A cover according to any preceding claim wherein the projecting elements that~~ are of a longer length are more flexible and are constructed of a softer material than projecting elements of a shorter length.

13. A cover according to any preceding claim wherein the projecting elements are in the form of hairs or bristles and the diameter of the projecting element is between 0.5 to 3.0 mm.

14. A cover according to any preceding claim wherein the elongate tubular member and/or the projecting elements are constructed of a biocompatible flexible material selected from the group comprising polymers, plastics, elastomers, silicon and silicon elastomeric materials and rubbers.

15. A cover according to any preceding claim wherein the projecting elements in a resting position are acutely angled with respect to the central longitudinal axis of the medical scoping device shaft at an angle of between 35° to 85°.

16. A cover according to claim 14 wherein the angle is about 75°.

17. A cover according to any preceding claim wherein the projecting elements are positioned in rings running circumferentially around the cover and along the length of the cover.

18. A cover according to claim 17 wherein there are between 1 to 20 rings.

19. A cover according to either claim 17 or 18 wherein each ring comprises between 4 to 16 projecting elements.

20. A cover according to any one of claims 17 to 19 wherein the rings of the projecting elements are spaced apart by a distance of between 2.5 cm to 0.5 cm.

Duration: 13.08.2012 16:21:54 - 13.08.2012 16:24:25 This page 8 of 19 012 16:23:03
Received at the EPO on Aug 13, 2012 16:24:25. Page 8 of 19

21. A cover according to any one of claims 17 to 20 wherein a first or distal ring of projecting elements is positioned between 1 mm to 20 mm from the distal end tip of the cover.

22. A cover according to any one of claims 17 to 21 wherein the last or proximal ring of projecting elements is positioned between 1 cm and 5 cm from the proximal end of the cover.

23. A cover according to any preceding claim wherein the projecting elements are all of equal diameter, length, number in ring and evenly spaced apart rows of rings or are a mixture of different sizes and number.

24. A cover according to any preceding claim wherein the projecting elements are either straight or curved.

25. A cover according to any preceding claim further comprising an over cuff.

26. A cover according to claim 25 wherein the over cuff is placed over the cover and is provided with slits or gaps of approximately the same dimensions as that of the cover so that the projecting elements are able to protrude through the aligned slits or gaps.

27. A cover according to either claim 25 or 26 wherein the over cuff is of the same or approximately same length as the cover.

28. A cover according to any one of claims 25 to 27 wherein the over cuff is constructed of a polycarbonate or a plastics material.

29. A cover according to any one of claims 25 to 28 wherein the projecting elements in, on insertion into a body orifice, fall below an outer surface of the over cuff.

~~30. A cover according to any preceding claim wherein the cover is provided with one~~ or more apertures positioned at the proximal end of the cover.

31. A cover according to any preceding claim further comprising a viewing means at the distal end which is optionally in the form of an open ended transparent plastic cap.

32. A cover according to any preceding claim wherein the outer surface of the cover is coated with a lubricating agent selected from the group comprising a hydrogel polymer, poly(2-hydoxyethyl methacrylate) (PHEMA), , silicone, glycerine, olive oil, castor oil, chlorotrifluoroethylene (CTFE oil) and polyphenyl ethers or a mixture thereof, optionally wherein the cover is coated only at its distal most part and on an outer surface of the projecting elements of the distal most part.

33. A cover according to any preceding claim wherein the cover is detachable or removable from the medical scoping device.

34. A cover according to any one of claims 1 to 33 further including a projecting elements closure means which can be drawn from a distal to a proximal end to cover and flatten the projecting elements from a position that is approximately perpendicular to the longitudinal axis of the medical scoping device shaft to a position wherein the projecting elements are approximately parallel to the said axis

35. A medical scoping device comprising the cover according to any one of claims 1 to 34 releasably attached thereto and covering at least a part of its shaft at its distal end.

36. A medical scoping device according to claim 35 wherein the device is an endoscope or an enteroscope.

37. A kit comprising at least one cover according to any one of claims 1 to 34, the kit optionally further comprising a medical scoping device.

Duration: 13 08 2012 16:21:54 - 13 08 2012 16:24:25 This page 10 of
Received at the EPO on Aug 13, 2012 16:24:25. Page 10 of 19

CLAIMS

1. A cover for a medical scoping device shaft, the cover comprising an elongate tubular member and being arranged for application over a distal tip of the medical scoping device shaft with the cover extending along at least a part of the length of a distal end of the shaft, the tubular member comprising an inner surface at least a part of which grips the shaft and holds the cover in place and an outer surface comprising a plurality of spaced projecting elements each having a tip and a base, the projecting elements being moveable about their bases by an angle of between 0° (wherein the tips of the projecting elements point towards a proximal end of the medical scoping device) to an angle of 170-180° (wherein that the tips of the projecting elements point towards the distal end of the scoping medical device).

2. A cover according to claim 1, wherein the projecting elements are moveable between a first resting position to a second position wherein the tip of the projecting element is substantially parallel to a longitudinal axis of the medical scoping device and to a third position that is at an angle approximately perpendicular to the longitudinal axis of the medical scoping device shaft so that the said projecting elements are fanned out to contact with and provide support for and to dilate a lumen wall of a body passage into which the medical scoping device has been inserted, the projecting elements being moveable beyond the third position to a fourth position wherein they flick over at a critical point so that the tips of the projecting elements point towards the distal end of the scoping medical device so that the medical scoping device can be withdrawn through the orifice into which it was initially inserted.

3. A cover according to claim either 1 or 2, wherein the projecting elements are attached or moulded to the outer surface of the elongate tubular member and the bases of the projecting elements are hinged onto the outer surface of the elongate tubular member; or

the projecting elements are attached or moulded at their base to circumferentially positioned cross members and the bases of the projecting elements are hinged.

4. A cover according to any preceding claim, wherein the cover is arranged for application over the medical scoping device shaft so as to surround it and to extend along at least a tip region of the shaft.

5. A cover according to any preceding claim, wherein the projecting elements are in the form of bristles, spikes, spines, fins, wedges, paddles or cones and are arranged to extend outwardly and away from the outer surface of the elongate tubular member.

6. A cover according to any preceding claim, wherein the projecting elements are cylindrical, conical or tapered.

7. A cover according to any preceding claim, wherein the at least a part the inner surface of the tubular member which grips the shaft and holds the cover in place is either the proximal and distal end regions of the tubular member or the entire inner surface of the tubular member.

8. A cover according to any preceding claim, wherein the elongate tubular member is either a contiguous tubular member or alternatively is provided with slits, ridges or gaps running in a longitudinal direction and parallel with the longitudinal axis of the medical scoping device, optionally wherein the number of slits or gaps is directly proportional to the number of projecting elements and wherein the projecting elements being positioned in the slits or gaps between solid parts of the tubular member.

9. A cover according to any preceding claim, wherein the length of the projecting elements are marginally shorter at either or both the distal and proximal ends of the cover.

10. A cover according to any preceding claim, wherein the projecting elements that are of a longer length are more flexible and are constructed of a softer material than projecting elements of a shorter length.

11. A cover according to any preceding claim, wherein the projecting elements in a resting position are acutely angled with respect to the central longitudinal axis of the medical scoping device shaft at an angle of between 35° to 85° and optionally is about 75°.

12. A cover according to any preceding claim, wherein the projecting elements are positioned in rings running circumferentially around the cover and along the length of the cover.

13. A cover according to any preceding claim, further comprising an over cuff.

14. A cover according to claim 13, wherein the over cuff is placed over the cover and is provided with slits or gaps of approximately the same dimensions as that of the cover so that the projecting elements are able to protrude through the aligned slits or gaps.

15. A cover according to either claim 13 or 14, wherein the over cuff is of the same or approximately same length as the cover.

16. A cover according to any one of claims 13 to 15, wherein the over cuff is constructed of a polycarbonate or a plastics material.

17. A cover according to any one of claims 13 to 16, wherein the projecting elements in, on insertion into a body orifice, fall below an outer surface of the over cuff.

18. A cover according to any preceding claim, further comprising a viewing means at the distal end which is optionally in the form of an open ended transparent plastic cap.

19. A medical scoping device comprising the cover according to any one of claims 1 to 18 releasably attached thereto and covering at least a part of its shaft at its distal end.

20. A medical scoping device according to claim 19, wherein the device is an endoscope or an enteroscope.

21. A kit comprising at least one cover according to any one of claims 1 to 18, the kit optionally further comprising a medical scoping device.