Title: MULTI-FUNCTIONAL COVERING SLEEVE FOR FINGER OR TOE

Abstract: A covering sleeve to sealingly enclose and protect a discrete zone of a finger or toe, said covering sleeve being moulded in a single layer and in tubular form from a flexible, durable and liquid-impervious polymer material; said covering sleeve comprising a central zone located intermediate to two sealing bands and providing multiple protective, locational and therapeutical functions; said sealing bands being sized to a particular digit and elastically contracting to make a liquid-tight seal with the skin surface of said digit and to locate and retain said central zone in place on said digit.
1. A covering sleeve to sealingly enclose and protect a discrete zone of a finger or toe, said covering sleeve being moulded in a single layer and in tubular form from a flexible, durable and liquid-impervious polymer material; said covering sleeve comprising a central zone located intermediate to two sealing bands and providing multiple protective, locational and therapeutic functions; said sealing bands being sized to a particular digit and elastically contracting to make a liquid-tight seal with the skin surface of said digit and to locate and retain said central zone in place on said digit.

2. The covering sleeve of Claim 1 in which said sealing bands taper outwardly to thin edges, thereby providing better elastic compliance with the skin surface of a digit and making a better liquid-tight seal.

3. The covering sleeve of Claim 1 in which said sealing bands are made with rolled outer edges to facilitate gripping or a band of thicker material of reduced elasticity.

4. The covering sleeve of Claim 1 in which the inner surfaces of said sealing bands are each made with one or more small, raised, circumferential ribbings which act to improve sealing contact between said sealing bands and the skin of a digit.

5. The covering sleeve of Claim 1 in which the inner surfaces of said sealing bands are provided with bands of plush comprising dense arrays of short, thin, stiffly flexible fibres which are inwardly directed and set at a small angle to the longitudinal axis of said covering sleeve, said fibres engaging the skin surface of a digit and, with flexing of said digit, acting to urge said sealing bands outwardly in opposed directions and thereby preventing them from working inwardly.

6. The covering sleeve of Claim 1 in which said central zone is provided with circumferentially arranged folds or corrugations which permit free movement without strain of said covering sleeve over a flexing covered joint of a digit.

7. The covering sleeve of Claim 6 in which said folds or corrugations have wavelengths and amplitudes falling in the range 2.5 to 8 millimetres.

8. The covering sleeve of Claim 7 in which any combination of wavelength and amplitude is employed.

9. The covering sleeve of Claim 1 in which said central zone is made with a deep...
texturing permitting a localised elongation of the material of said covering sleeve of up to 50 per cent without strain of said material.

10. The covering sleeve of Claim 1 in which said central zone is made larger in diameter to accommodate a medical dressing, splint or compact plaster cast.

11. The covering sleeve of Claim 6 in which said central zone is made with said circumferentially arranged folds or corrugations having an amplitude greatest at the centre and decreasing in a linear way to be minimal at the edges of said central zone.

12. The covering sleeve of Claim 6 in which said central zone is made with said circumferentially arranged folds or corrugations having a wavelength greatest at the centre and decreasing in a linear way to be minimal at the edges of said central zone.

13. The covering sleeve of Claim 6 in which said central zone is made with said circumferentially arranged folds or corrugations having wavelength and amplitude greatest at the centre with both decreasing in a linear way to be minimal at the edges of said central zone.

14. The covering sleeve of Claims 6 and 9 in which said central zone is made with said folds or corrugations or said deep texturing provided on only the upper part of said central zone where extension is required and decreasing to minimal at the sides of a digit.

15. The covering sleeve of Claim 1 in which said central zone is made with a medical dressing located within it.

16. The covering sleeve of Claim 15 in which said dressing is impregnated with an emollient compound, analgesic agent, antibiotic agent, fungicidal agent, deodorant agent, anti-inflammatory agent, moisturising agent, corticosteroid, fragrance vehicle or the like.

17. The covering sleeve of Claim 15 in which said medical dressing is adhered to the inner surface of said central zone in one or more spot locations.

18. The covering sleeve of Claim 1 supplied for therapeutic applications and distributed in sterile packaging.

19. The covering sleeve of Claim 1 supplied for utilitarian applications and which is able to be washed or sanitised and re-used.
20. The covering sleeve of Claim 1 in which said central zone is made in the form of a more or less uniform cylinder from a thin, tough, elastic polymer material capable of extension in the range 20 to 60 per cent in any direction.

21. The covering sleeve of Claim 20 in which, where said central zone is stretched by the covering of one or more rings, to prevent puncturing of said central zone as a result of contact of the settings of said rings with a hard surface or object, suitable protective cups are placed over said settings prior to placement of said covering sleeve on a digit.

22. The covering sleeve of Claim 21 in which said protective cups are made from a tough, elastic polymer material and have part-spherical upper closures.

23. The covering sleeve of Claim 1 in which, where said covering sleeve is employed to locate and protect a ring, said central zone is made with a substantially circumferential channel to accommodate the band of said ring and a pocket forming a simple cover to accommodate the setting of said ring, said channel and said pocket being made with suitable dimensions.

24. The covering sleeve of Claim 23 in which said central zone is moulded from a water-clear material and the generality of said pocket is made thicker such that said pocket becomes lensatic in effect and acts to magnify the image of the setting of said ring.

25. The covering sleeve of Claim 23 in which said pocket and said circumferential channel are made from a clear material and other parts of said covering sleeve are made from an opaque and coloured material.

26. The covering sleeve of Claim 23 in which the outer part of said pocket takes the form of a lensatic cap moulded from a suitable rigid, water-clear material and fused or bonded to the lower part of said pocket.

27. The covering sleeve of Claim 23 which is installed on a finger by positioning it on the outer end of said finger with said pocket correctly orientated, lifting and grasping the inner said sealing band, pulling said sealing band to urge said covering sleeve along said finger, further lifting and stretching said sealing band as required to draw said pocket up and over said setting and, where said pocket is sufficiently large, optionally gripping it with the fingers to stretch said central zone and ease said pocket up and over said setting.
28. The covering sleeve of Claim 23 in which, where a simple wedding band-type ring having no protruding setting is worn, said circumferential channel is made to extend fully around said covering sleeve.

29. The covering sleeve of Claim 23 in which said pocket is made transparent, said central zone is made from a strongly hydrophobic material, said material being repellent to dirt and liquids such that it remains clearly transparent for an extended period.

30. The covering sleeve of Claim 23 in which the exterior surface of said central zone in the region of said pocket is treated to render it strongly hydrophobic, said treatment rendering the external surface of said pocket repellent to dirt and liquids such that it remains clearly transparent for an extended period.

31. The covering sleeve of Claim 23 in which said circumferential channel and said pocket are made in a range of axial and circumferential widths to suit different ring settings and, if required, multiple rings.

32. The covering sleeve of Claim 23 in which a purchaser selects the appropriate model by comparing the setting of a ring to be covered with full-scale (actual size) drawings, or by determining the ring size using a conventional ring gauge (where the ring can be removed) or by inserting the finger into suitable gauges.

33. The covering sleeve of Claim 23 which is supplied with said sealing bands rolled inwardly against said channel to produce a compact form, a thin, strong strip of ribbon-like material passing through said covering sleeve being provided to be gripped with the fingers and employed as a means to urge said covering sleeve into place on the finger.

34. The covering sleeve of Claim 33 in which, with said covering sleeve correctly located on the finger, said strip of ribbon-like material is removed by pulling on one end and discarded, said strip of ribbon-like material being lubricated with a suitable dry or oily lubricant to facilitate its release from beneath said covering sleeve, following removal of said strip of ribbon-like material said sealing bands being unrolled into position against the skin of said finger.

35. The covering sleeve of Claim 1 in which said central zone and said sealing bands are moulded in a single piece from a single material which is optionally transparent or opaque and of any suitable colour.
36. The covering sleeve of Claim 1 in which said central zone is moulded from a first material providing, for example, toughness and transparency and said sealing bands are moulded from a second material providing elasticity.

37. The covering sleeve of Claim 1 in which, to minimise conspicuousness, said parts not made transparent are made from an opaque material coloured to match the skin colour of the hand.

38. The covering sleeve of Claim 1 in which said covering sleeve is made in a range of lengths to suit longer or shorter digits, to cover longer of shorter zones and to accommodate larger and smaller rings.

39. The covering sleeve of Claim 1 in which said covering sleeve is made in a range of diameters and lengths to accommodate the provision of multiple protective, locational and therapeutic functions.

40. The covering sleeve of Claim 1 in which said sealing bands are made from a hydrophilic material to render them more compatible with human tissue.

41. The covering sleeve of Claim 1 in which the inner surfaces of said sealing bands are treated to render them hydrophilic to render them more compatible with human tissue.

42. The covering sleeve of Claim 1 in which either or both said central zone and said sealing bands are moulded from a polymer material which is permeable to vapours, rendering a digit more comfortable during wearing of said covering sleeve.

43. The covering sleeve of Claim 42 in which, to prevent the ingress of moisture, said vapour permeable polymer material from which said central zone and said sealing bands are moulded is strongly hydrophobic or the exterior surfaces of said central zone and said sealing bands are treated to render them strongly hydrophobic.

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47. The covering sleeve of Claim 1 made from or any of or any combination of: natural rubber, polybutadiene, polyisoprene, polychloroprene, polyurethane, acrylic polymers or copolymers, silicone elastomers, SBR (styrene-butadiene-
rubber) copolymers, SBS (styrene-butadiene-styrene) copolymers, isobutene-isoprene copolymers such as butyl rubber, NPR (nitrile-butadiene-rubber) copolymers, x-NPR (carboxylated nitrile-butadiene-rubber) copolymers, SIS (styrene-isoprene-styrene) copolymers, SEBS (styrene-ethylene-butylene-styrene) copolymers or similar polymers or copolymers and any blends thereof.

48. The covering sleeve of Claim 1 made wholly or in part from a suitable polymer material which acts as a matrix for one or more active chemical substances blended into said material, said chemical substances optionally taking the form of a liquid, an emulsion, a gel or microspheres and include an emollient compound, analgesic agent, antibiotic agent, fungicidal agent, deodorant agent, anti-inflammatory agent, moisturizing agent, corticosteroid, fragrance vehicle, anti-static compound or the like.

49. The covering sleeve of Claim 48 in which said chemical substances are preferably concentrated at or near the surfaces of said covering sleeve making skin contact.

50. The covering sleeve of Claim 48 in which said active chemical substances are blended into a suitable thin, sheet polymer material which is laminated onto the surfaces of said covering sleeve making skin contact.

51. The covering sleeve of Claim 48 made from material possessing the ability to absorb active chemical compounds.

52. The covering sleeve of Claim 1 made from materials providing ease of moulding.

53. The covering sleeve of Claim 1 made from materials having resistance to chemicals and solvents.

54. The covering sleeve of Claim 1 in which, where parts of said covering sleeve are made from polymer materials having different characteristics, they are joined by superimposed moulding or are made separately and bonded or fused together.

55. The covering sleeve of Claims 1 to 54 in which, except where clearly impractical, any feature is able to be used in combination with any other features.