



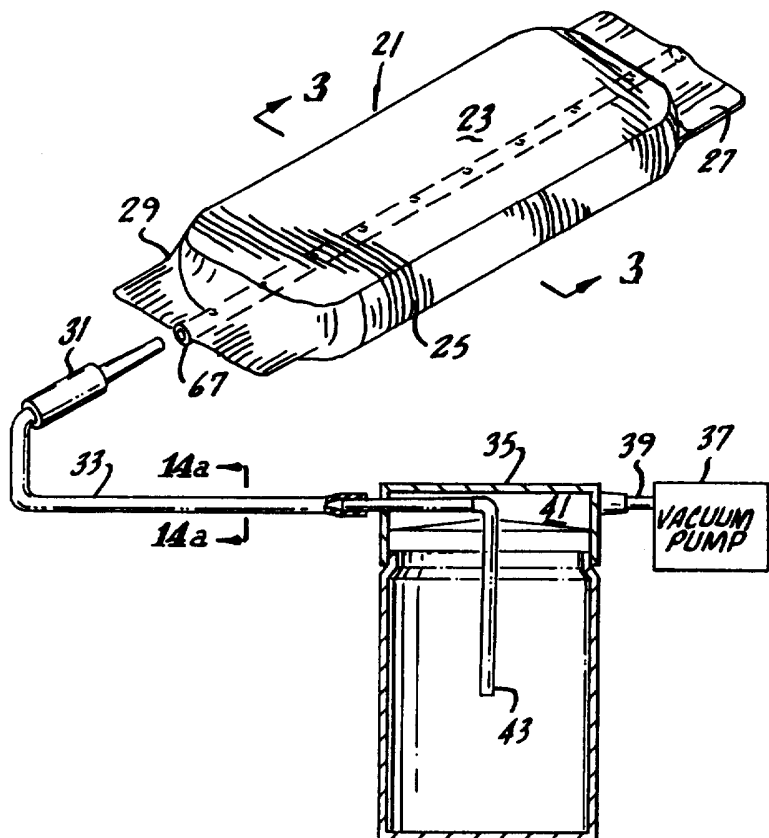
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : A61F 5/44, 5/455</p>	<p>A3</p>	<p>(11) International Publication Number: WO 93/09736 (43) International Publication Date: 27 May 1993 (27.05.93)</p>
<p>(21) International Application Number: PCT/US92/04464 (22) International Filing Date: 27 May 1992 (27.05.92) (30) Priority data: 795,322 20 November 1991 (20.11.91) US (71)(72) Applicants and Inventors: KUNTZ, David, H. [US/US]; 11810 Bel Terrace, Los Angeles, CA 90049 (US). ELSON, Edward, E. [US/US]; 4356 Claytor Circle, Anaheim, CA 92807 (US). (74) Agents: BERMAN, Charles; Sheldon & Mak, 10990 Wilshire Boulevard, Suite 440, Los Angeles, CA 90024 (US) et al.</p>	<p>(81) Designated States: AT, AU, BB, BG, BR, CA, CH, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MW, NL, NO, PL, RO, RU, SD, SE, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>With amended claims and statement.</i></p> <p>(88) Date of publication of the international search report: 24 June 1993 (24.06.93) Date of publication of the amended claims and statement: 22 July 1993 (22.07.93)</p>	

(54) Title: IMPROVED PAD AND PAD TUBE CONNECTOR FOR THE MANAGEMENT OF URINARY INCONTINENCE

(57) Abstract

An improved pad and pad tube connector is utilized with a urine aspiration system having a vacuum pump and collection reservoir. The improved pad utilizes a perforated tube, within its volume, and is surrounded by a wicking structure which wicks liquid away from the volume of the pad and towards the central perforated tube, and frictionally engages the absorptive material in the pad to provide greater pad stability. The improved connector of the present invention engages the centrally located perforated tube within the pad at a point near the end of the pad, as well as the material surrounding the pad, for a more secure attachment.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FR	France	MR	Mauritania
AU	Australia	GA	Gabon	MW	Malawi
BB	Barbados	GB	United Kingdom	NL	Netherlands
BE	Belgium	GN	Guinea	NO	Norway
BF	Burkina Faso	GR	Greece	NZ	New Zealand
BG	Bulgaria	HU	Hungary	PL	Poland
BJ	Benin	IE	Ireland	PT	Portugal
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SK	Slovak Republic
CI	Côte d'Ivoire	LJ	Liechtenstein	SN	Senegal
CM	Cameroon	LK	Sri Lanka	SU	Soviet Union
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	MC	Monaco	TG	Togo
DE	Germany	MG	Madagascar	UA	Ukraine
DK	Denmark	MI	Mali	US	United States of America
ES	Spain	MN	Mongolia	VN	Viet Nam
FI	Finland				

AMENDED CLAIMS

[received by the International Bureau on 3 June 1993 (03.06.93); original claims 1-3,5-8,13 and 17 amended; original claims 4 and 43 cancelled; new claims 42-63 added (10 pages)]

1. An absorptive aspiratable pad comprising:
an elongate fluid impermeable lower liner,
5 defining a planar surface forming the bottom and sides of
said absorptive aspiratable pad;
a volume of absorbent material supported by and
coextensive with said impermeable lower liner;
a first layer of wicking material extending
10 substantially the length of said absorbent material, said
first layer of wicking material in fluid contact with
said volume of absorbent material;
an elongate tube having a multiplicity of
perforations piercing the wall of said tube, said first
15 layer of wicking material attached to said elongate tube;
a second layer of wicking material attached to
said elongate tube and to said first layer of wicking
material, said first and second layers of wicking
material and said tube forming a wicked tube assembly
20 wherein said first and said second layers of wicking
material are directly attached to substantially the
entire perimeter of said tube; and
a layer of essentially non-wetting, permeable
material substantially enveloping said lower liner, said
25 volume of absorbent material, and said wicked tube
assembly.

2. The absorptive pad as recited in Claim 1,
wherein said second layer of wicking is substantially
coextensive with said first layer of wicking material to
30 form an extended planar surface.

3. The absorptive pad as recited in Claim 2,
wherein the extended planar surface of said first and
said second layers of wicking material is substantially
coextensive with the absorbent material.

5 5. The absorptive pad as recited in Claim 2,
wherein the axis of the perforations are transverse to
the axis of the tube, said first layer of wicking lies
substantially in a plane, and said axis of said
multiplicity of perforations of said tube are generally
perpendicular to the plane of said first layer of
wicking.

10 6. The absorptive pad as recited in Claim 2,
wherein the axis of the perforations are transverse to
the axis of the tube, said second layer of wicking lies
substantially in a plane and said axis of multiplicity of
perforations of said tube are generally perpendicular to
the plane of said second layer of wicking.

15 7. The absorptive pad as recited in Claim 1,
wherein the axis of the perforations are transverse to
the axis of the tube, said axis of said multiplicity of
perforations of said tube are generally perpendicular to
said planar surface of said elongate fluid impermeable
lower liner.

20 8. The absorptive pad as recited in Claim 1,
and further comprising an inner layer of highly absorbent
material enclosed by said non-wetting permeable layer of
material and surroundably enclosing said volume of
absorbent material, and said wicked tube assembly.

25 9. The absorptive pad as recited in Claim 1,
wherein the wicked tube assembly lies outside of and
adjacent said volume of absorbent material opposite said
elongate fluid impermeable lower liner.

30 10. The absorptive pad as recited in Claim 1,
wherein the wicked tube assembly lies outside of and
adjacent said volume of absorbent material and adjacent
said elongate fluid impermeable lower liner.

5 11. The absorptive pad as recited in Claim 10 and further comprising an inner layer of highly absorbent material enclosed by said non-wetting, permeable layer of material and surroundably enclosing said volume of absorbent pad.

12. The absorptive pad as recited in Claim 1, wherein the wicked tube assembly lies substantially within said volume of absorbent material.

10 13. The absorptive pad as recited in Claim 1, wherein said layer of essentially non-wetting, permeable material substantially enveloping said lower liner and said volume of absorbent material, sealably surrounds said wicked tube assembly.

15 14. The absorptive pad as recited in Claim 1, wherein said elongate tube is attached near said middle of said first layer of wicking material.

15. A tube connector for an absorptive pad comprising:

20 a flange having a front side and a rear side;
a pair of opposing jaws continuous with said front side of said flange;

a pair of opposing levers continuous with the rear side of said flange;

25 an extended snout continuous with the front side of said flange and extending between said pair of opposing jaws;

30 a circular fitting continuous with the rear side of said flange and extending between said pair of opposing levers.

16. The tube connector of Claim 15 wherein
said elongated snout extends farther away from said
flange than said pair of opposing jaws tube extends away
5 from said flange.

17. The absorptive aspiratable pad as claimed
in Claim 1 and further comprising:

a tube connector for an absorptive pad further
comprising:

10 a flange having a front side and a rear side;
a pair of opposing jaws continuous with said
front side of said flange;

a pair of opposing levers continuous with the
rear side of said flange;

15 an extended hollow snout continuous with the
front side of said flange and extending between said pair
of opposing jaws, and inserted into said elongate tube;

20 a circular fitting continuous with the rear
side of said flange and extending between said pair of
opposing levers.

and wherein said elongated hollow snout extends
sufficiently far into said elongate tube to internally
seal any of said multiplicity of perforations not
surrounded by at least one of said first and said second
25 layers of wicking material.

18. The tube connector of Claim 15 wherein
said pair of opposing levers extends farther away from
said flange than said circular fitting extends away from
said flange.

40. The tube connector of Claim 37 wherein said extended snout is tapered.

5 41. The tube connector of Claim 37 wherein said pair of opposing jaws each further defines a plurality of inwardly directed teeth.

10 42. An absorptive aspiratable pad comprising:
an elongate tube being porous at least a portion of its length, a wicking material covering at least the porous length of the tube, the wicking material comprising a first planar layer of wicking material and a second planar layer of wicking material, the first planar layer of wicking material being substantially coextensive with, being positioned on top of and in intimate contact with a planar surface of the second wicking material, the porous length of the tubing being located between and in intimate contact with a portion of the first planar layer and a portion of the second planar layer of wicking material, the wicking material and tube forming a wicked tube assembly;

15
20 a volume of bulk absorbent material coextensive with and in fluid contact with at least a portion of the wicking material; planar lower surface of said absorptive aspiratable pad, the elongate tube, wicking material and absorbent material being carried by the lower liner; and
25 a layer of essentially non-wetting, permeable material substantially enveloping said lower liner, volume of absorbent material and wicked tube assembly.

30 44. The absorptive pad of claim 42 wherein the first planar layer of wicking material, second planar layer of wicking material and the length of tube are attached together.

45. The absorptive pad of claim 42 wherein the wicking material is attached to substantially the entire perimeter of the tube.

5 46. The absorptive pad of claim 42 wherein the wall of the tube is pierced by a multiplicity of openings capable of transmitting liquid from the wicking material into the center of the tube.

10 47. The absorptive pad of claim 42 further comprising a highly absorbent inner layer enclosed by the non-wetting permeable material, said highly absorbent inner layer enclosing the bulk absorbent material and the wicked tube assembly.

15 48. The absorptive pad of claim 42 wherein a substantial portion of the bulk absorbent material lies between the wicked tube assembly and the elongate fluid impermeable lower liner.

20 49. The absorptive pad of claim 42 wherein the wicked tube assembly is surrounded by the bulk absorbent material.

50. The absorptive pad of claim 42 wherein the wicked assembly is located between the center of the bulk absorbent material and the elongate fluid impermeable lower liner.

25 51. An absorptive aspiratable pad comprising:
a volume of bulk absorbent material supported by and coextensive with a supporting material;
a first layer of absorbent material having wicking properties extending substantially the length of
30 said bulk absorbent material, said first layer of absorbent material having wicking properties being in

fluid contact with said volume of bulk absorbent material;

5 an elongate tube having a multiplicity of perforations piercing the wall of said tube, said first layer of absorbent material having wicking properties being attached to said elongate tube;

10 a second layer of absorbent materials having wicking properties attached to said elongate tube, said first and second layers of absorbent material and said tube forming a wicked tube assembly wherein said first and said second layers of absorbent material having wicking properties are directly attached to substantially the entire perimeter of said tube; and

15 a layer of essentially non-wetting, permeable material covering at least the second layer of absorbent material having wicking properties;

20 the supporting material being an elongate fluid impermeable lower liner, defining a surface supporting the bulk absorbent material, the combination of the layer of essentially non-wetting, permeable material and elongate fluid impermeable lower liner substantially enveloping said volume of absorbent material and said wicked tube assembly.

25 52. The absorptive aspiratable pad of claim 51 wherein the bulk absorbent material substantially covers the length of the wicked tube assembly.

30 53. The absorptive aspiratable pad of claim 52 wherein a greater amount of bulk absorbent material is located between the wicked tube assembly and the non-permeable layer than between the wicked tube assembly and the non-wetting permeable materials.

54. The absorptive aspiratable pad of claim 52 wherein a greater amount of bulk absorbent material is

located between the wicked tube assembly and the non-wetting permeable material than between the wicked tube assembly and the non-permeable layer.

5 55. An absorptive aspiratable pad comprising:
 an elongate tube being porous at least a
 portion of its length, a wicking material covering at
 least the porous length of the tube, the wicking material
 comprising a first layer of absorbent material having
10 wicking properties and a second layer of absorbent
 material having wicking properties, the first layer of
 absorbent material being substantially coextensive with,
 being positioned on top of, and in intimate contact with
 the second absorbent material having wicking properties,
15 the porous length of the elongate tube being located
 between and in intimate contact with a portion of the
 first layer of absorbent material and a portion of the
 second layer of absorbent material, the wicking material
 and the elongate tube forming a wicked tube assembly;
20 a volume of bulk absorbent material
 substantially coextensive with and in fluid contact with
 at least a portion of the wicked tube assembly; the
 wicked tube assembly and bulk absorbent material being
 carried by a lower liner; and
25 a layer of essentially non-wetting, permeable
 material covering at least the first layer of absorbent
 material, the combination of the lower liner and the non-
 wetting permeable material substantially enveloping said
 volume of bulk absorbent material and wicked tube
30 assembly.

56. The absorptive aspiratable pad of claim 55 wherein the bulk absorbent material substantially covers the length of the wicked tube assembly.

57. The absorptive aspiratable pad of claim 56 wherein a greater amount of bulk absorbent material is located between the wicked tube assembly and the non-permeable layer than between the wicked tube assembly and the non-wetting permeable material.

58. The absorptive aspiratable pad of claim 56 wherein a greater amount of bulk absorbent material is located between the wicked tube assembly and the non-wetting permeable material than between the wicked tube assembly and the non-permeable layer.

59. An absorptive aspiratable pad comprising:
an elongate tubular structure being porous at least a portion of its length, the elongate tubular structure being sandwiched between absorptive materials having wicking properties, the absorptive materials being substantially coextensive with and in intimate contact with the elongate tubular structure, the elongate tubular structure and absorptive materials forming a wicked tube assembly; and

the wicked tube assembly coextensive with and in fluid contact with at least a portion of a bulk absorbent material, at least the wicked tube assembly being covered by a non-wetting permeable material and the bulk absorbent material being carried by a non-permeable lower liner, the combination of the non-wetting permeable material and the non-permeable lower liner fully enclosing the wicked tube assembly and the bulk absorbent material.

60. The absorptive aspiratable pad of claim 59 wherein the bulk absorbent material substantially covers the length of the wicked tube assembly.

5 61. The absorptive aspiratable pad of claim 60 wherein a greater amount of bulk absorbent material is located between the wicked tube assembly and the non-permeable layer than between the wicked tube assembly and the non-wetting permeable material.

10 62. The absorptive aspiratable pad of claim 61 wherein a greater amount of absorbent material is located between the wicked tube assembly and the non-wetting permeable material than between the wicked tube assembly and the non-permeable layer.

15 63. An absorptive aspiratable pad comprising:
a wicked tube assembly formed from an elongate porous tubular structure, the elongate porous tubular structure including absorptive materials having wicking properties; and
the wicked tube assembly coextensive with and in fluid contact with at least a portion of a bulk absorbent material, at least the wicked tube assembly being covered by a non-wetting permeable material and the
20 bulk absorbent material being carried by a non-permeable lower liner, the combination of the non-wetting permeable material and the non-permeable lower liner fully enclosing the wicked tube assembly and the bulk absorbent
25 material.

STATEMENT UNDER ARTICLE 19

Applicant has amended claims 1, 5, 6, 7 and 13 to more fully set forth the invention, and to correct some errors related to antecedent basis of certain terms used in the dependent claim.

Also added by this amendment are claims 42-63.

Claim 1 has been amended to include substantially all of claim 4 and claim 4 has been cancelled. Claim 2 has been amended to include the term "extended planar surface," as recited at page 16, lines 2-4 of the specification. "Predominate area" in claim 3 has been replaced by "extended planar surface" and "area of said volume of" has been eliminated.

Claim 8 has been amended to replace "pad" with --material--.

The structural description of the snout has been addressed by inserting --hollow-- before "snout."

Claim 42 has been amended by inserting --bulk-- at line 6 so that "bulk absorbent material" used in claim 47 and 48 has an antecedent basis. Further, claim 42 has been amended to include substantially all of the language of claim 43 and claim 43 has been cancelled.

By this amendment, applicant has also added new independent claims 51, 55, 59 and 63 and dependent claims 52-54, 56-58 and 60-62. The independent claims each include language substantially equivalent to the language of originally filed claim 4 along with additional language identifying features of the invention which result, in combination with language directed to a tubular structure sandwiched between wicking layers, in allowable subject matter. These new claims do not constitute new matter as they are fully encompassed within the originally filed specification and claims.

The newly added claims and the amendment to the claims previously filed do not present new matter. All the changes and additions are supported by various passages in the specification.