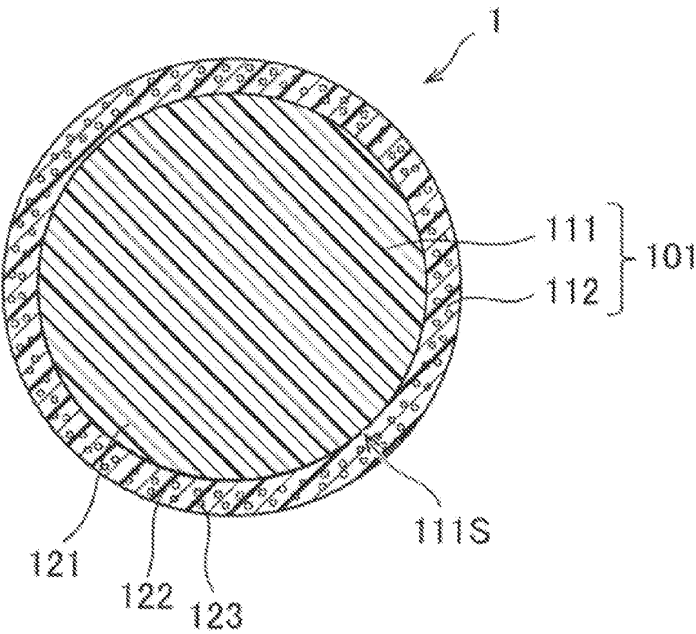
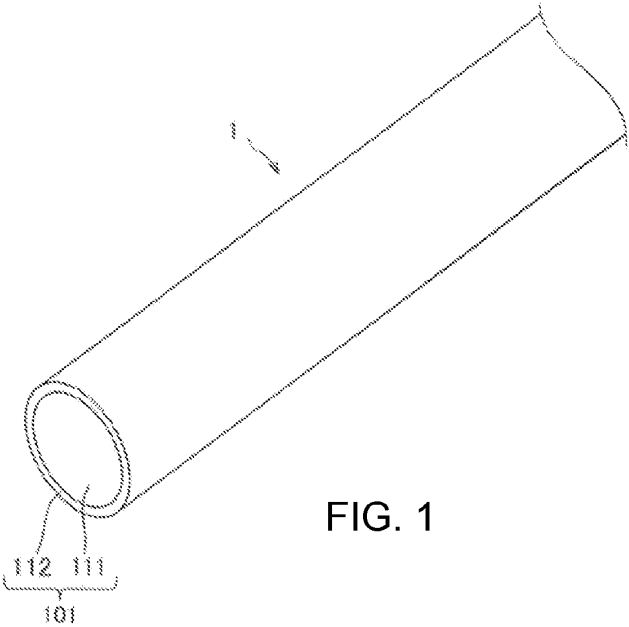




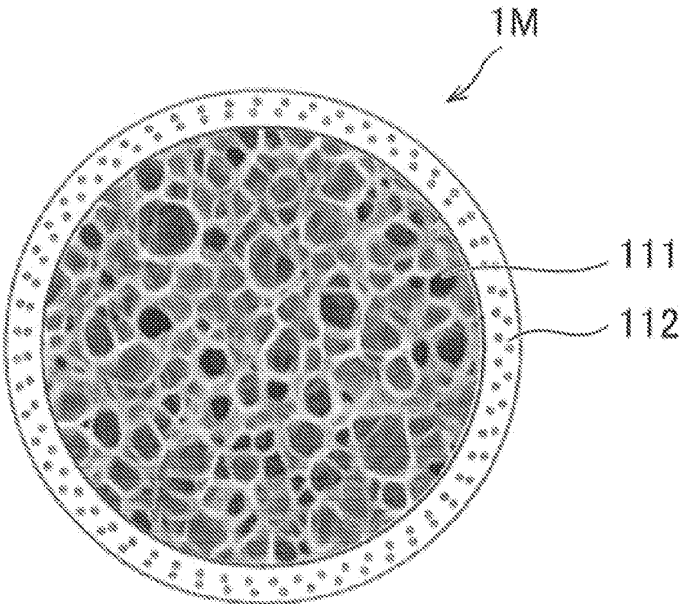
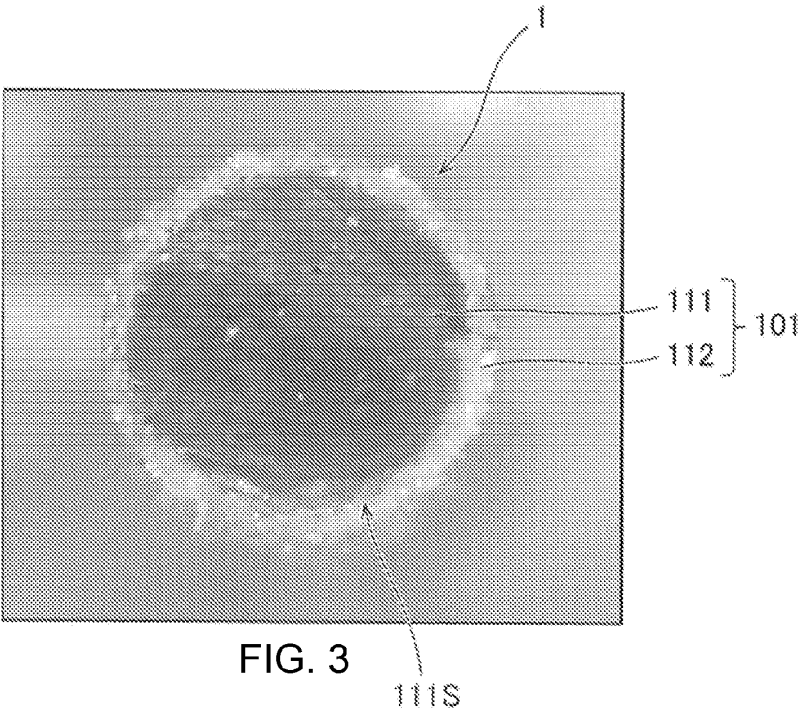


FIG. 4

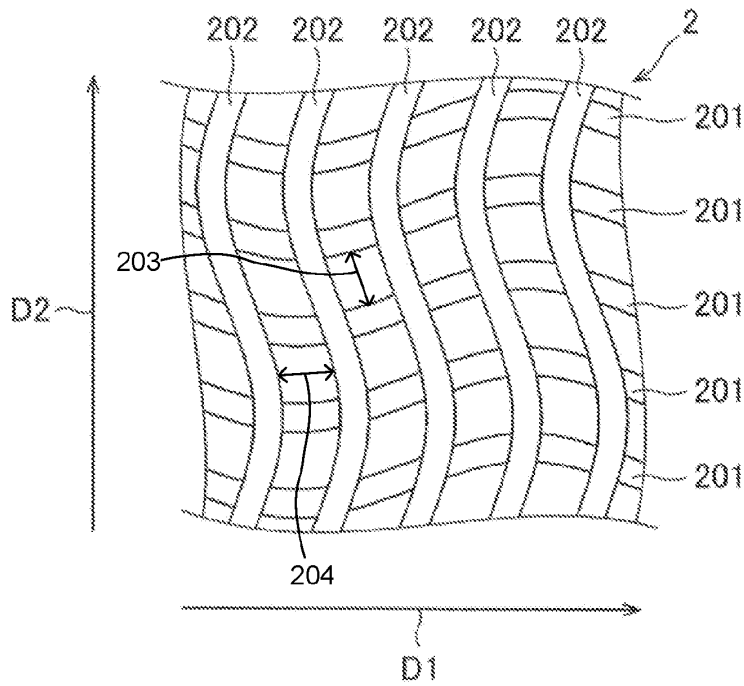


FIG. 5

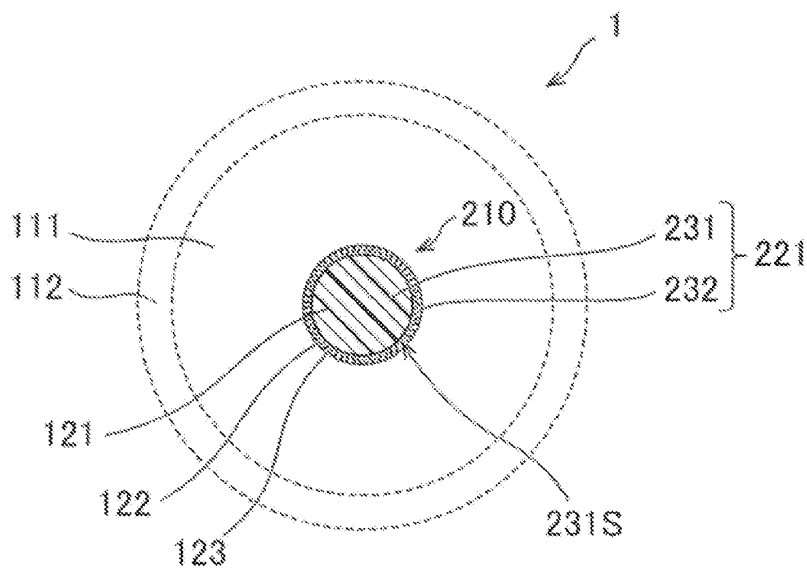


FIG. 6

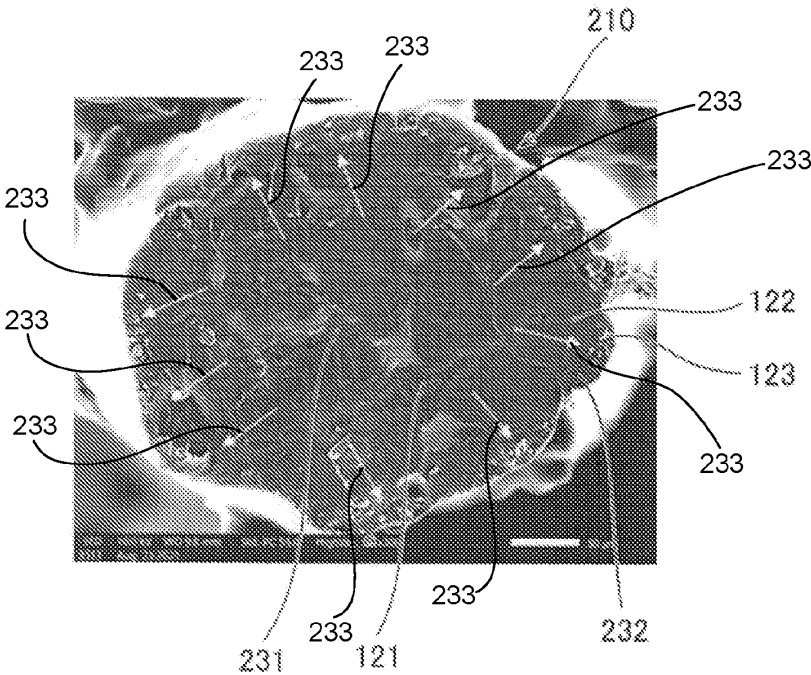


FIG. 7

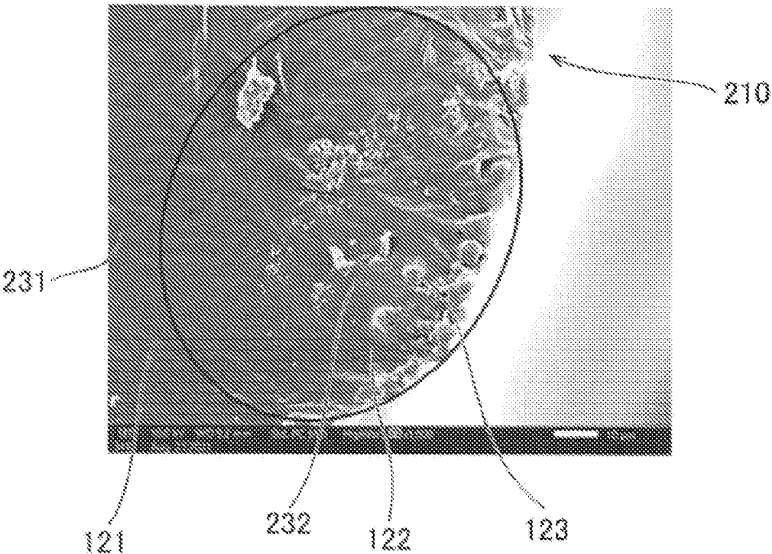


FIG. 8

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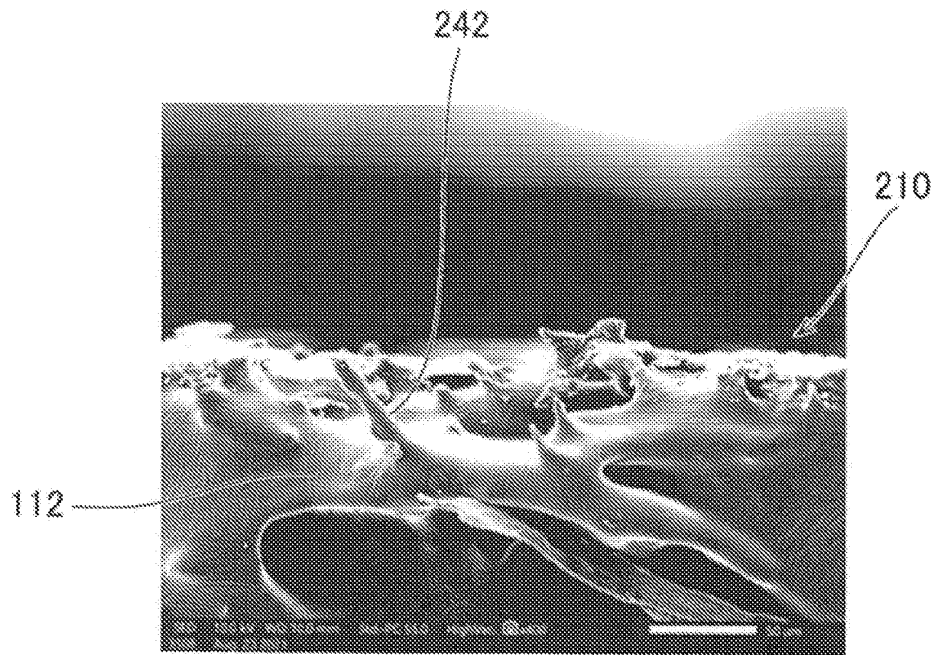


FIG. 11

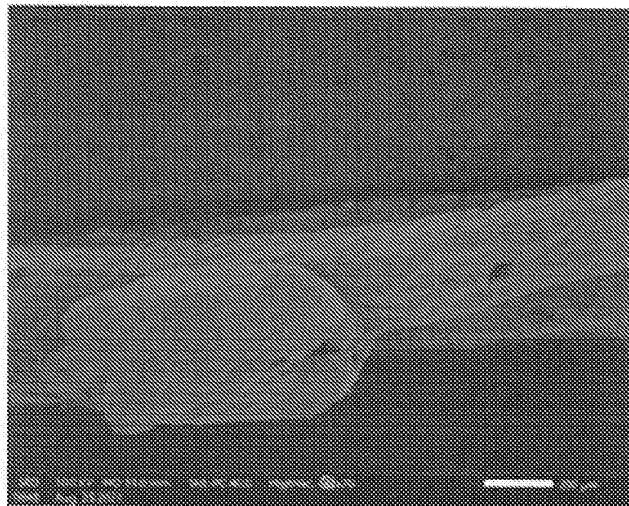


FIG. 12

7 / 32

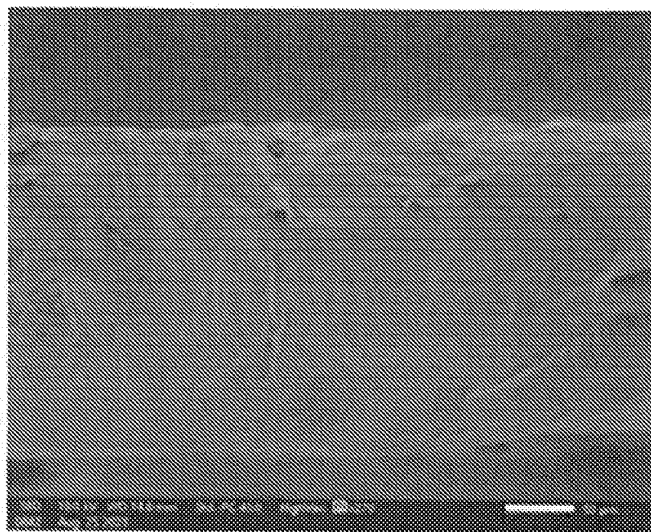


FIG. 13

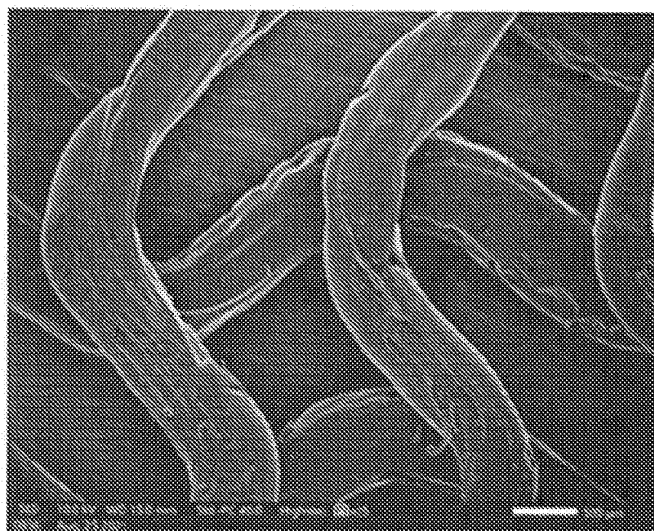


FIG. 14

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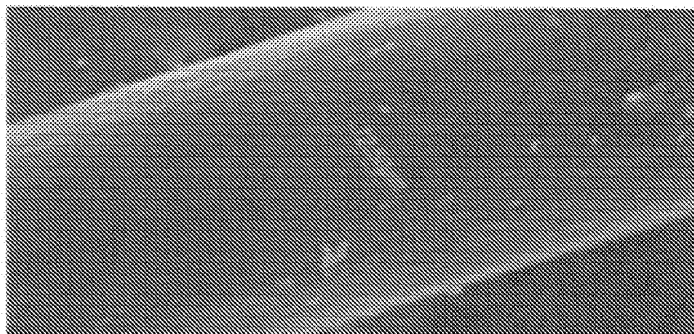


FIG. 17

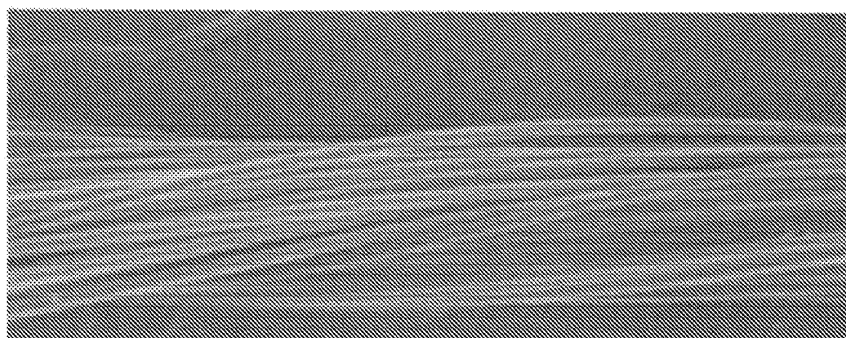


FIG. 18

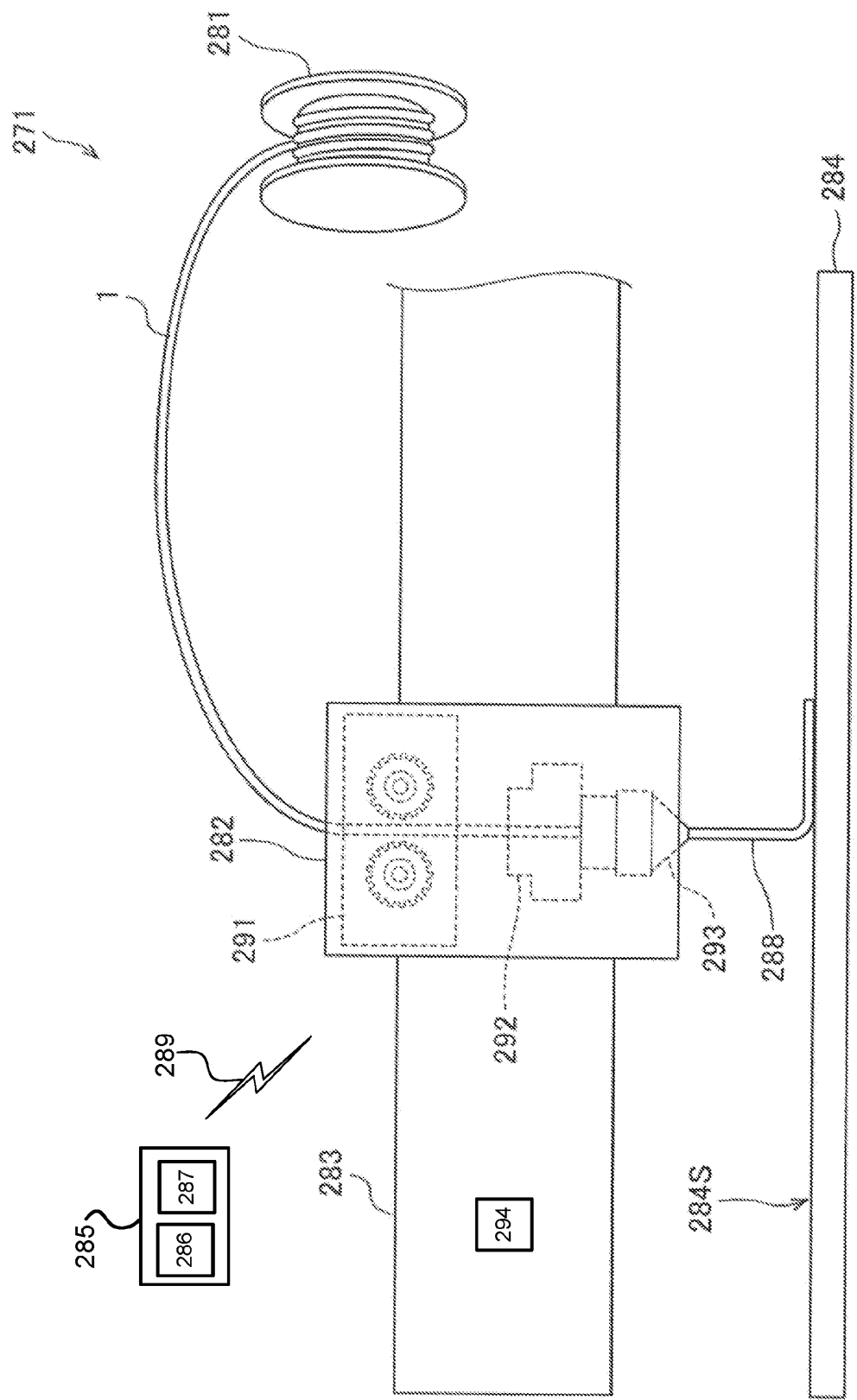


FIG. 19

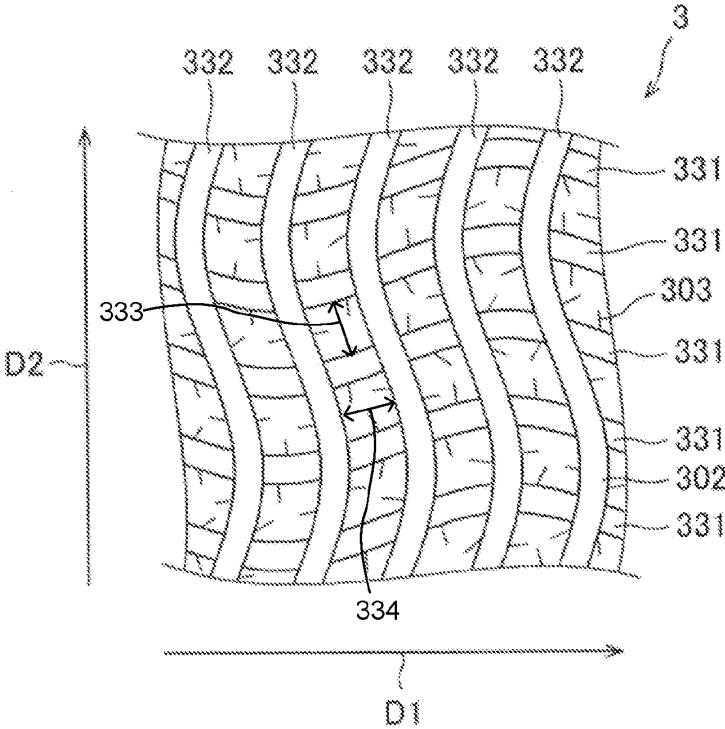


FIG. 20

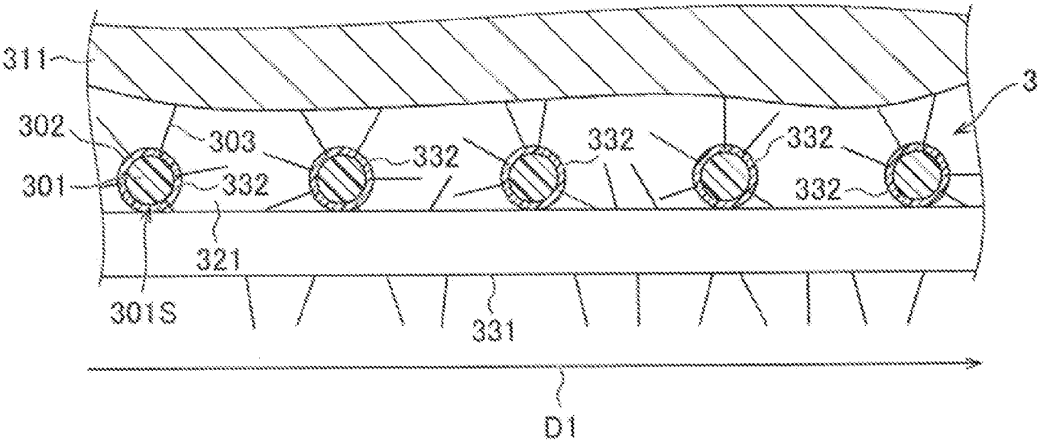


FIG. 21

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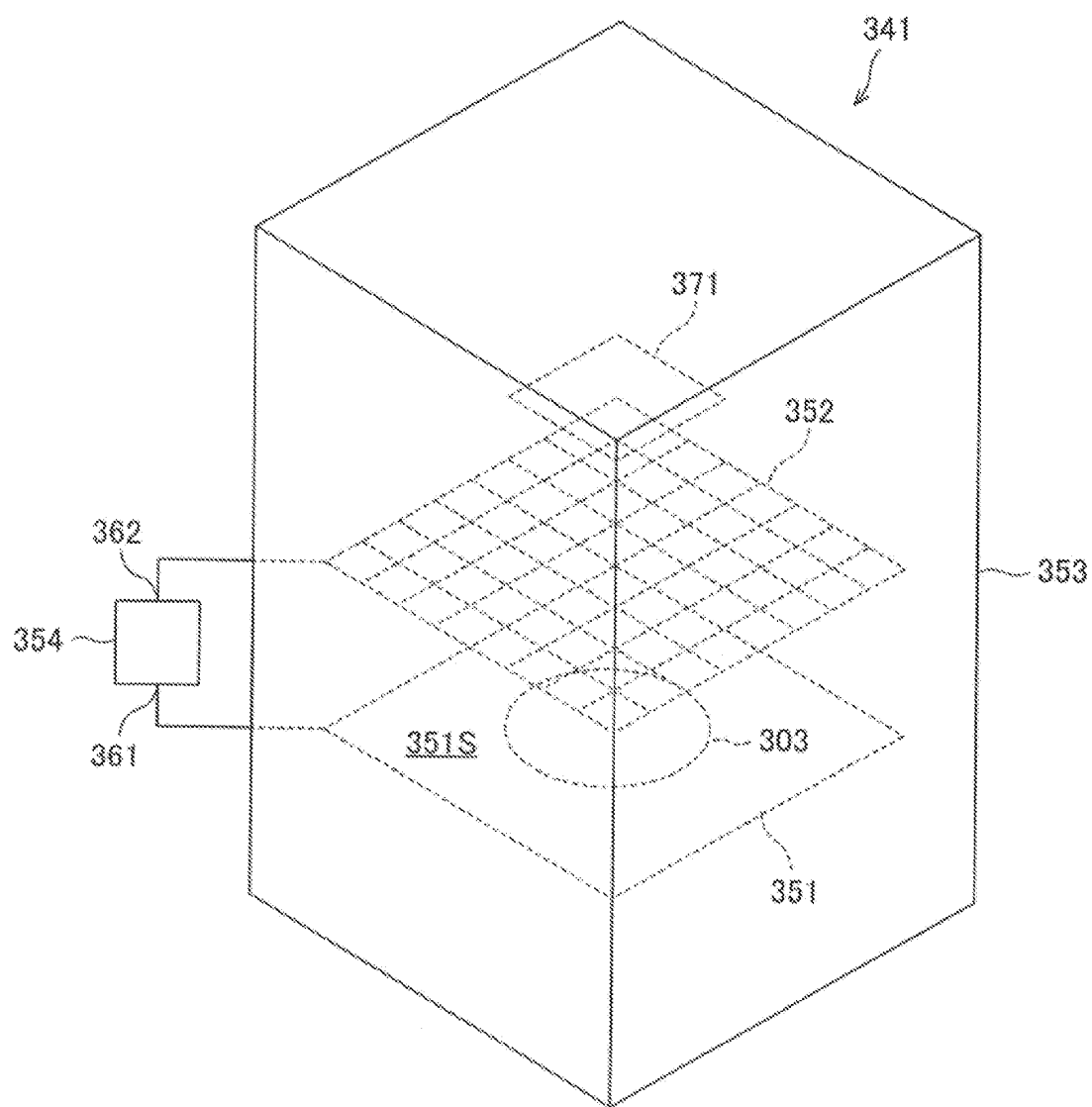


FIG. 22

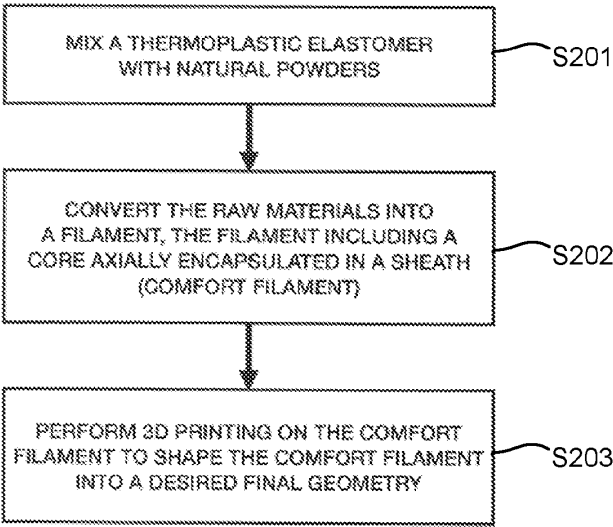


FIG. 28

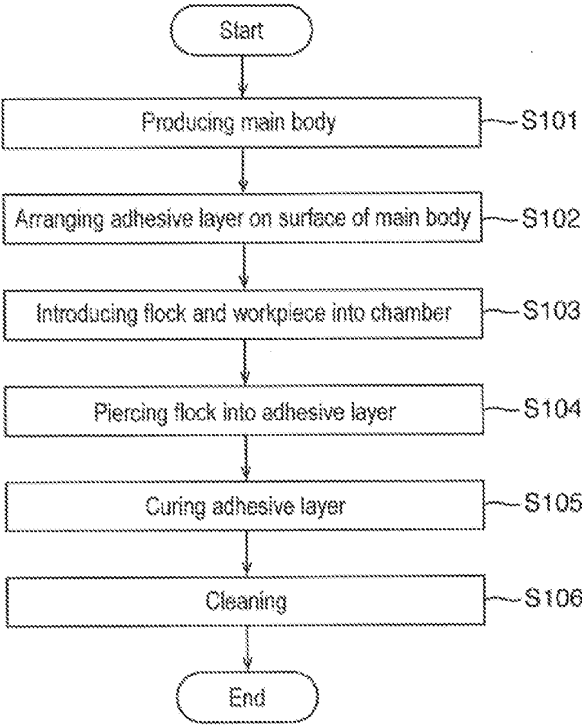


FIG. 23

14 / 32

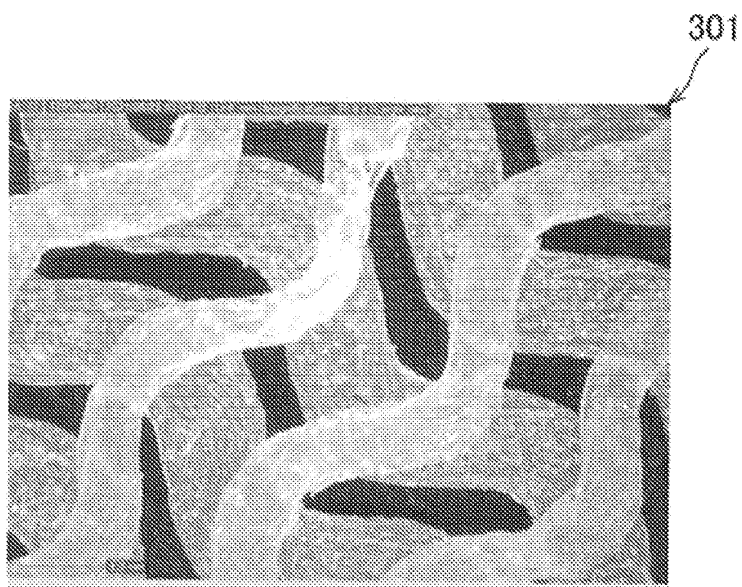


FIG. 24

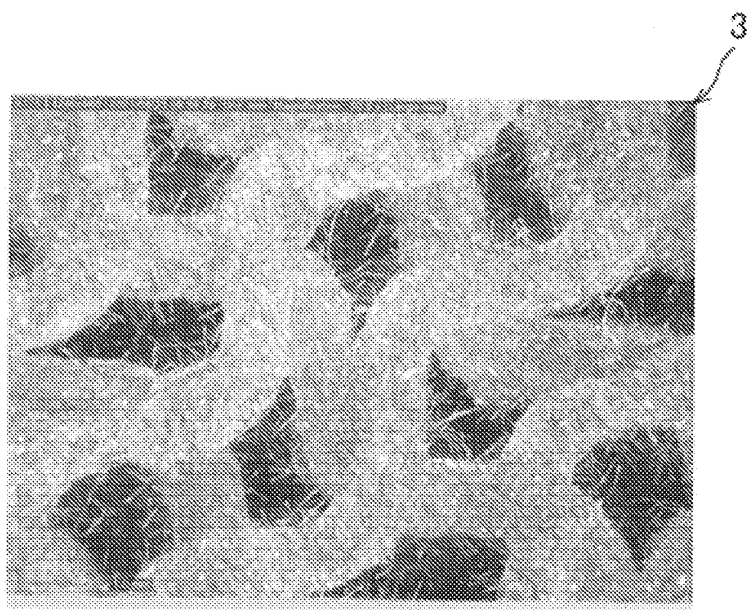


FIG. 25

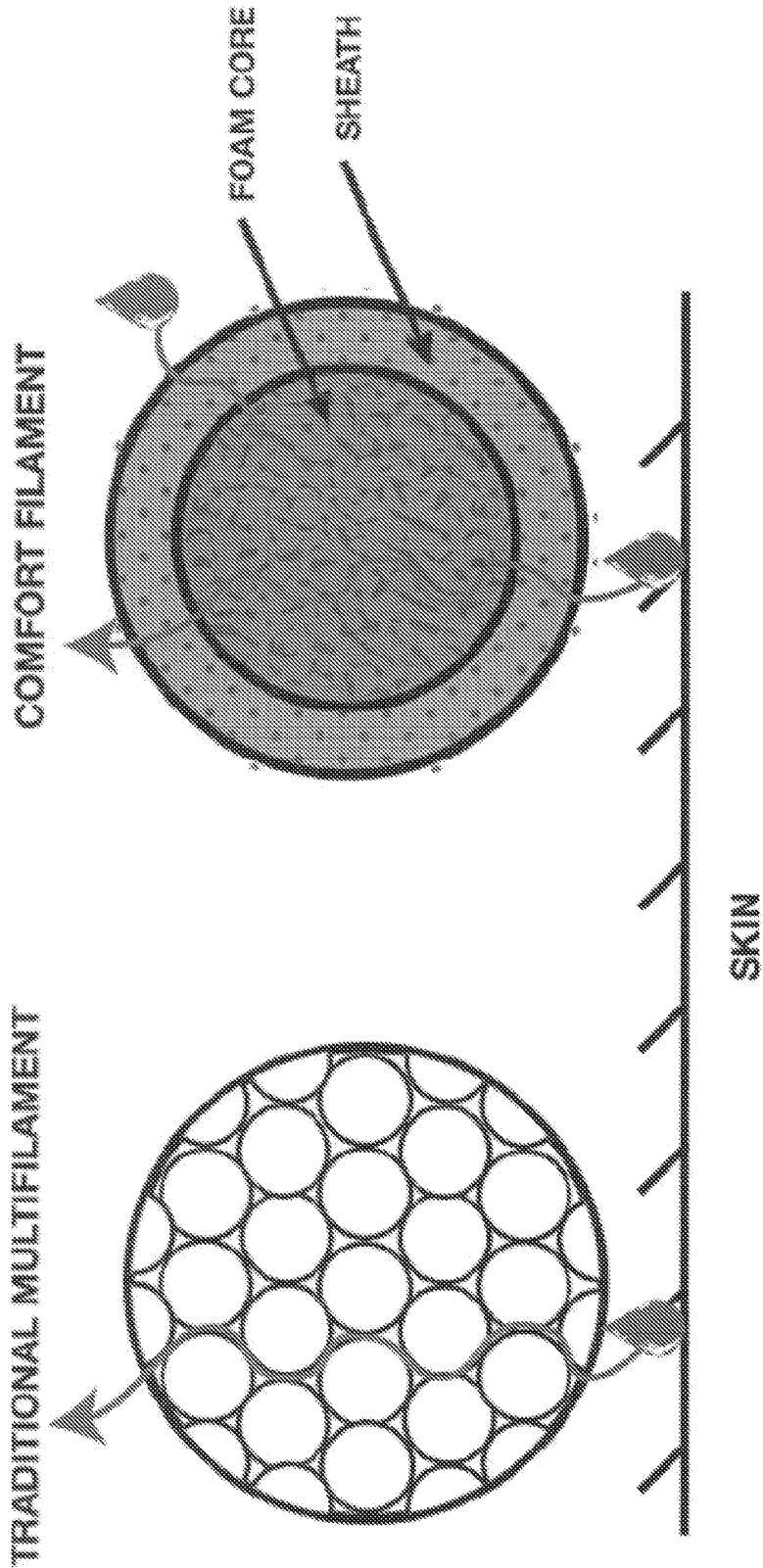
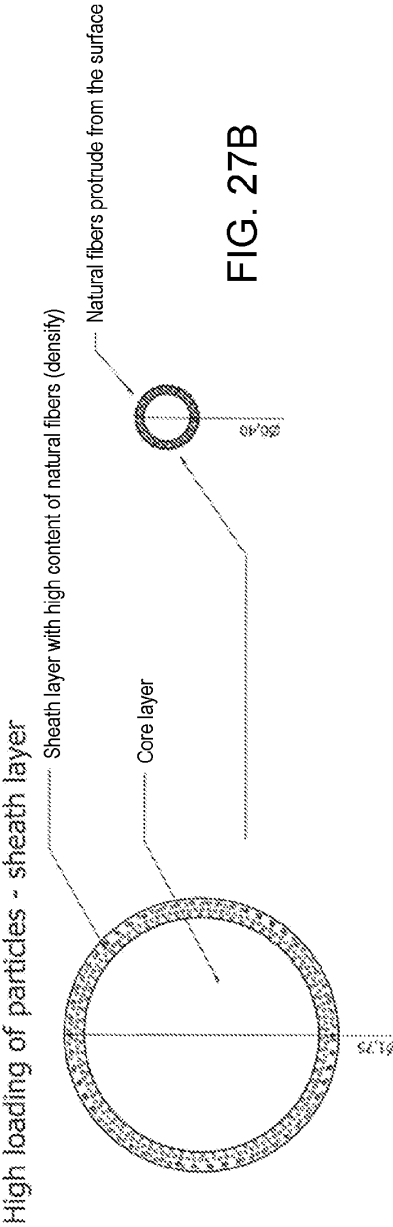
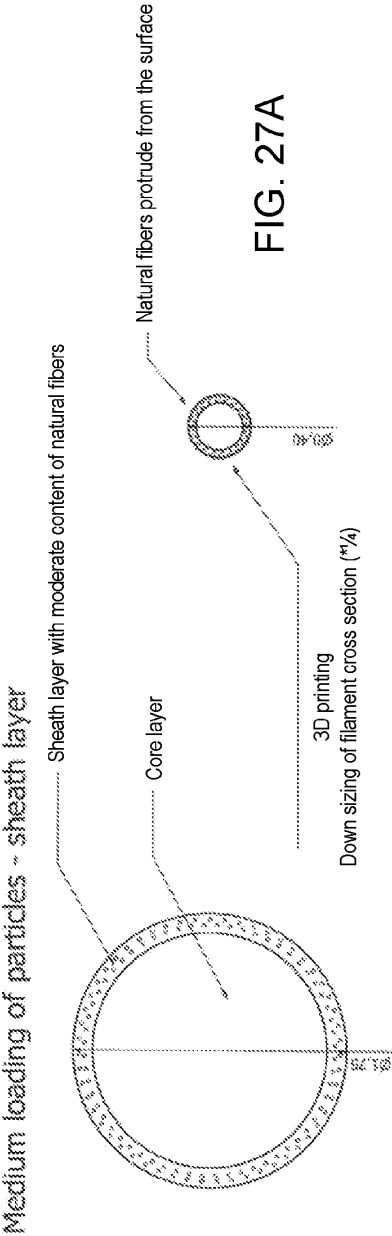
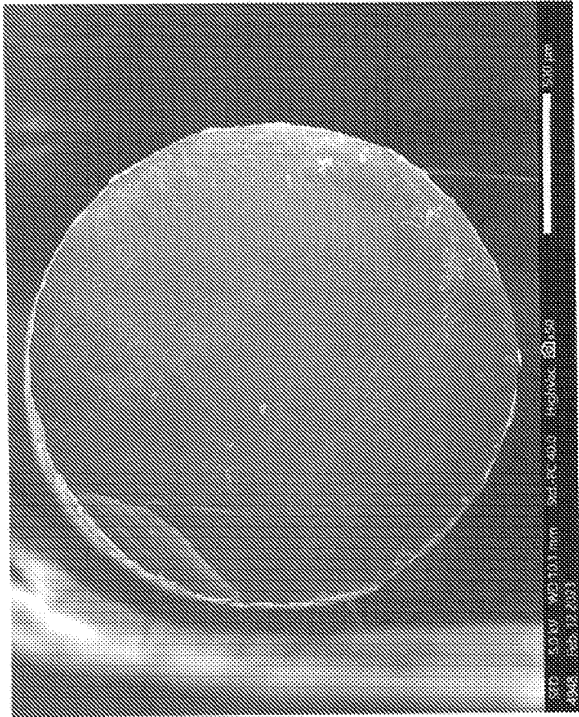


FIG. 26



Mono-filament based on TPU

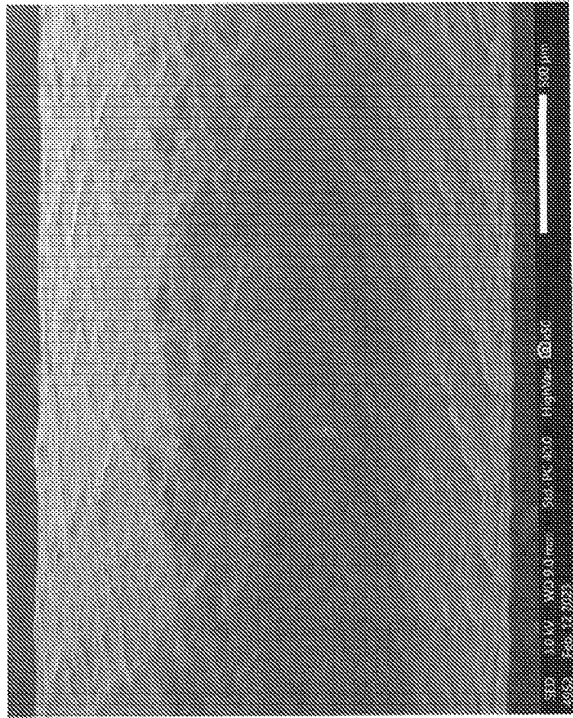
Cross-section view



Cross-section of a mono-filament based on TPU. A clear and homogenous cross-section may be clearly seen.

FIG. 29A

Outer surface view



Magnification of the outer surface that reveals smooth topology, with a minor roughness

FIG. 29B

Core/sheath filament with cotton powder in the sheath layer

Cross-section view

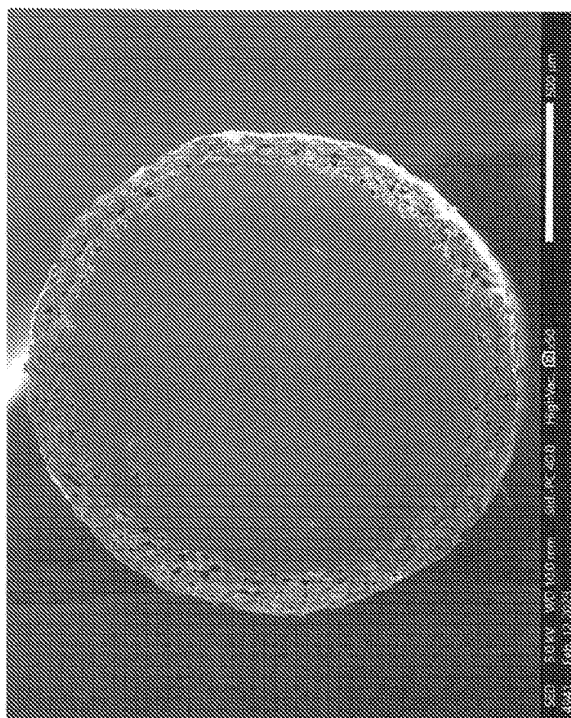


FIG. 30A

Outer surface view

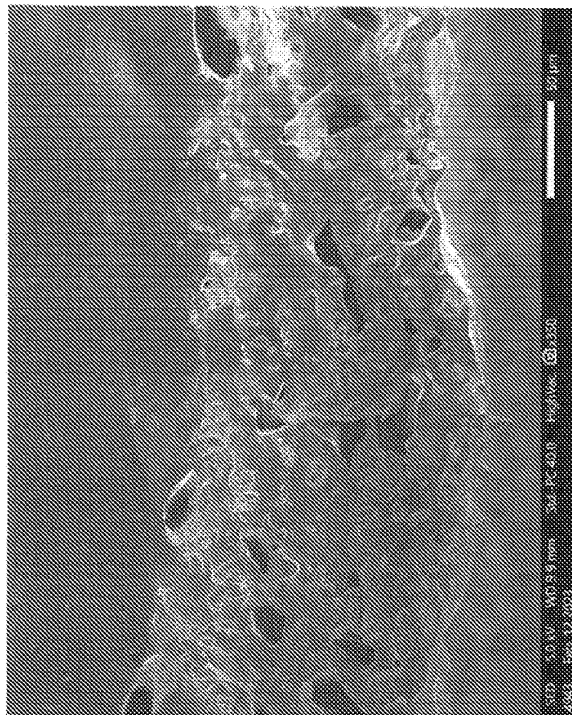
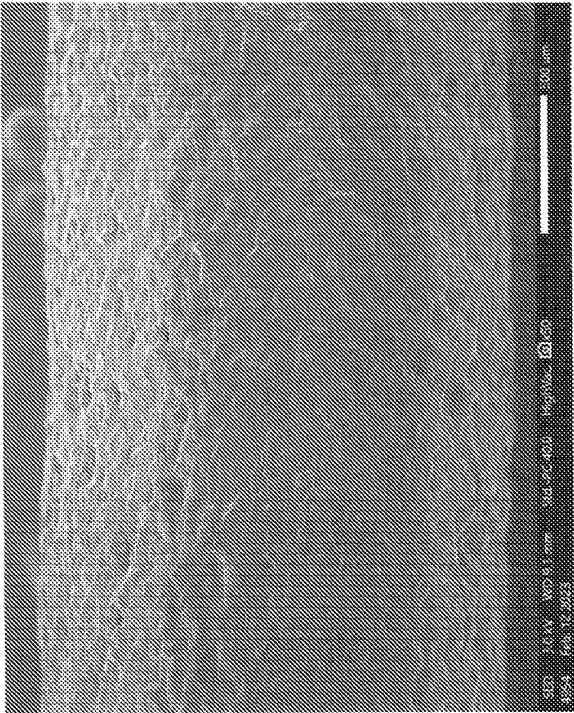


FIG. 30B

Core/sheath filament with cotton powder in the sheath layer

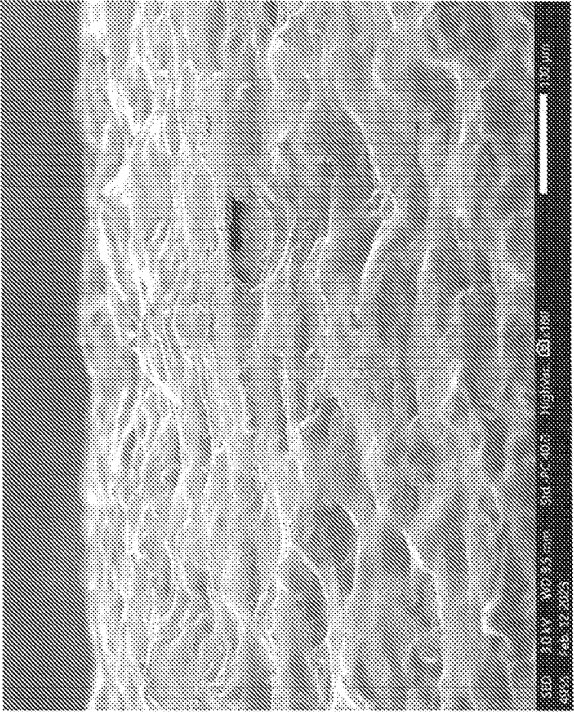
Outer surface view



View of outer surface of the filament, demonstrating the roughness created on the periphery of the sheath layer due to the presence of particles.

FIG. 31A

Magnification of outer surface view

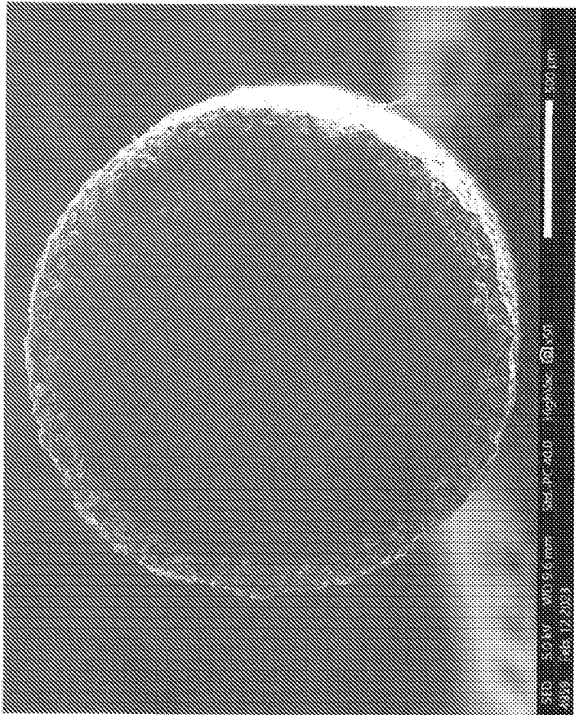


Magnification of the outer surface that reveals roughness topology, which is in the range of micron scale.

FIG. 31B

Core/sheath filament with wool particles in the sheath layer

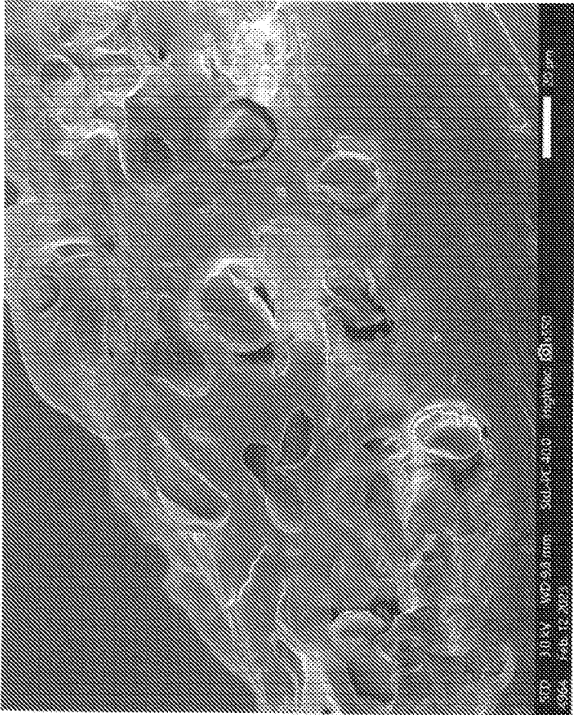
Cross-section view



Cross-section of (1.75mm) filament demonstrating one aspect of the concept of core/sheath. Particles may be clearly seen exclusively in the sheath layer.

FIG. 32A

Outer surface view

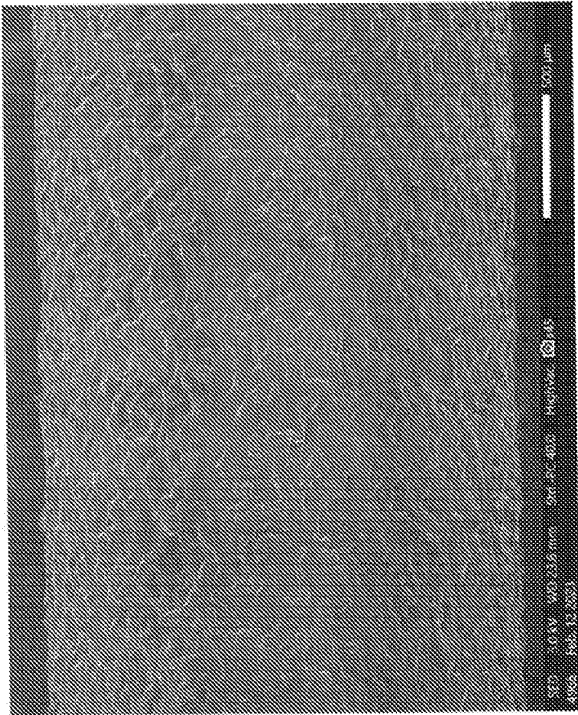


Magnification of the sheath layer. The wool particles may be clearly seen inside the sheath layer.

FIG. 32B

Core/sheath filament with cotton powder in the sheath layer

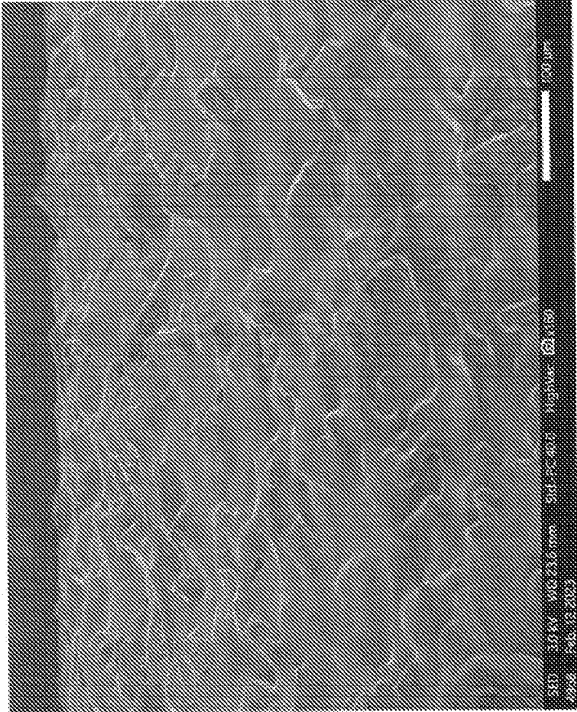
Outer surface view



View of outer surface of the filament, demonstrating the roughness created on the periphery of the sheath layer due to the presence of particles.

FIG. 33A

Magnification of outer surface view

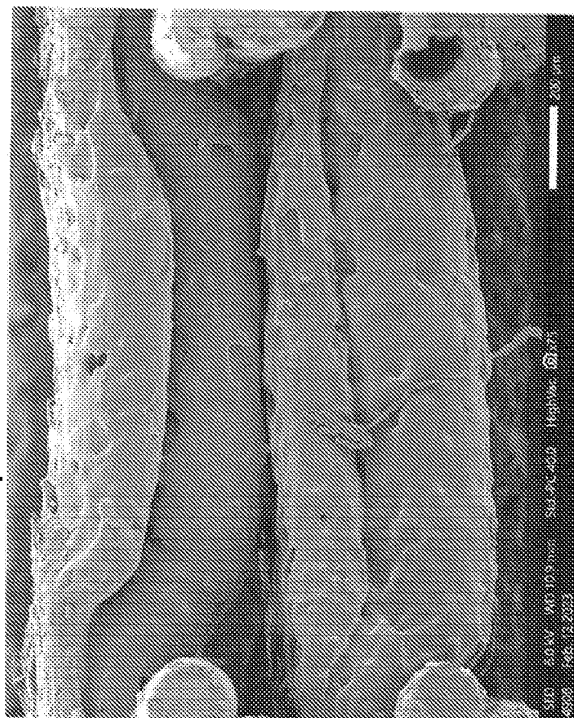


Magnification of the outer surface that reveals roughness topology, which is in the range of micron scale.

FIG. 33B

Printed fabric based on core/sheath filament with cotton particles in the sheath layer

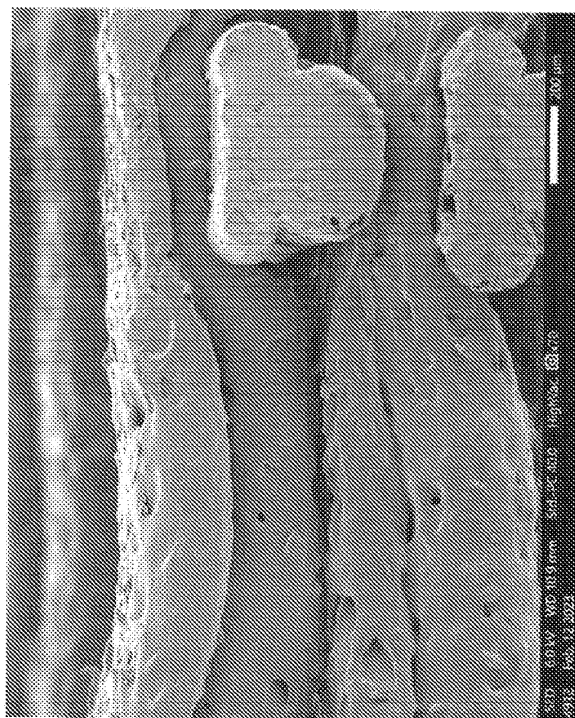
Cross-section view of first portion of fabric



Cross-section of a printed article based on core/sheath filament, with cotton particles in the sheath layer. The roughness created by the particles is clearly seen in the outer surface of the printed layers.

FIG. 34A

Cross-section view of first portion of 'fabric'

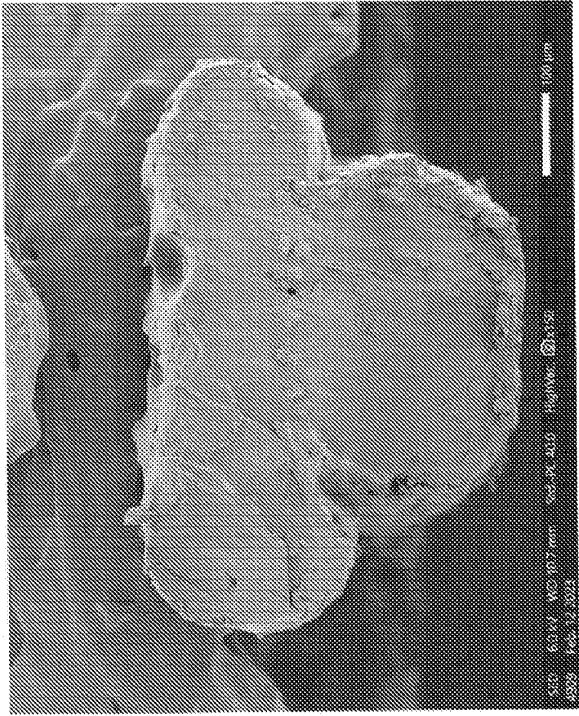


Cross-section of a printed article based on core/sheath filament, with cotton particles in the sheath layer. The roughness created by the particles is clearly seen in the outer surface of the printed layers.

FIG. 34B

Printed fabric based on core/sheath filament
with cotton particles in the sheath layer

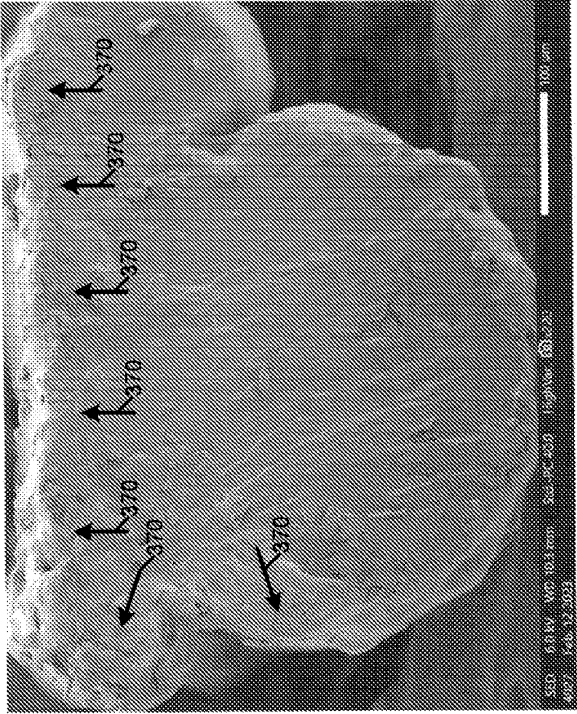
Cross-section view



Cross-section of a printed article based on core/sheath filament, with cotton particles in the sheath layer. Particles may be clearly seen in the periphery.

FIG. 35A

Magnification of cross-section view



Magnification of cross-section of the printed article. The cotton particles (as shown by arrows 370) may be clearly seen in the periphery and the outer surface.

FIG. 35B

Printed fabric based on TPU monofilament

Top view



Top view of printed article based on TPU mono-filament. The smooth surface of the printed layers may be clearly seen.

FIG. 36A

Magnification of top view

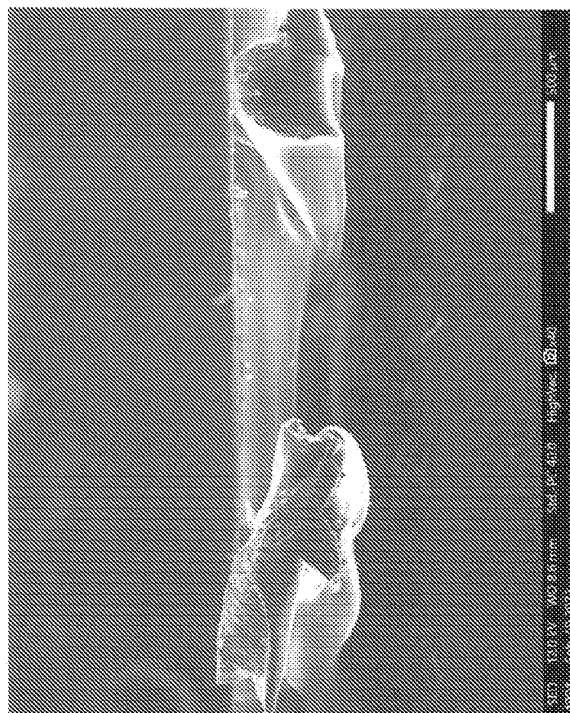


Magnification of the top view, demonstrating the smooth surface of the printed layer.

FIG. 36B

Printed fabric based on TPU monofilament

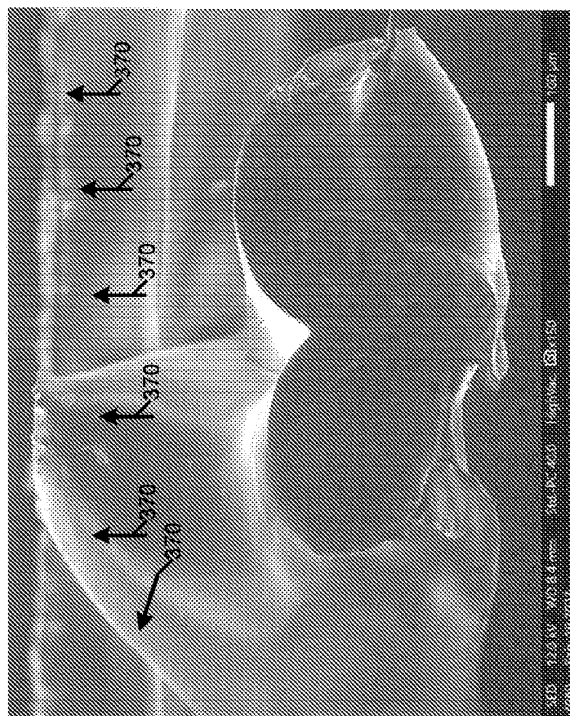
Cross-section view



Cross-section of a printed article based on TPU mono-filament. The outer surface of the filament is smooth, excluding shear bands that appear on the cross-section due to scissoring of the sample during its preparation.

FIG. 37A

Magnification of cross-section view

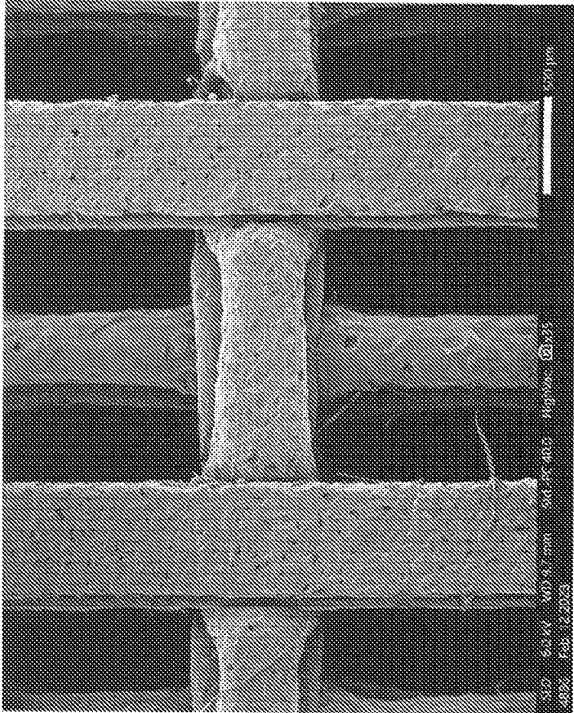


Magnification of cross-section of the printed article based on TPU mono-filament demonstrating that the outer surface of the printed article is smooth, having minimum roughness.

FIG. 37B

Printed fabric based on core/sheath filament
with cotton particles in the sheath layer

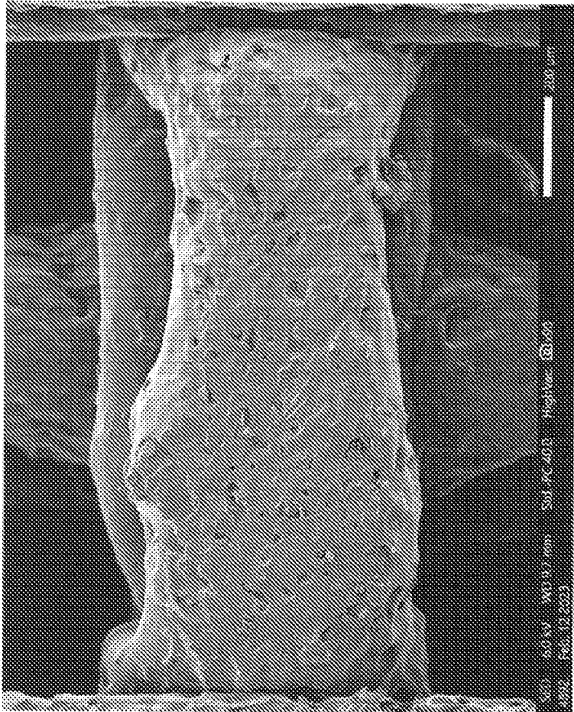
Top view



Top view of printed article based on core/sheath filament, with cotton particles in the sheath layer. The protruded cotton particles and the high porosity (e.g., hails) created on the surface expiates the absorption of moisture and water molecules from the skin (e.g., resulting in wicking-like effect).

FIG. 38A

Magnification of top view



Magnification of the top view, demonstrating the particles protrude from the surface and the pour's structure created on the surface, thereby expediting the absorption of moisture and/or water molecules from the skin (e.g., resulting in wicking-like effect).

FIG. 38B

Filament structure	Modulus [MPa] at (%) elongation		
	100%	200%	300%
TPU monofilament	4.1	5.0	6.5
Core/sheath (wool-based)	4.7	6.0	7.7
Core/sheath (cotton-based)	4.9	6.2	7.8

Table 1: Tensile test results for the different filaments at standard/room conditions (23°C, 50% RH).

FIG. 39

Filament structure	Moisture absorption [%] after	
	2 h	6 h
TPU monofilament	1	1
Core/sheath (wool-based)	1.9	1.8
Core/sheath (cotton-based)	1.1	1.4

Table 3: Moisture level for different comfort filament, at different exposure times.

FIG. 41

Reduction in modulus [%] at different mediums and test conditions (according to test standard)				
Designation	Modulus at 100% elongation			
	Sea water 72h-RT	Chlorinated water 72h-RT (section 6.6)	Chlorinated water 72h-RT (section 6.7)	Chlorinated water 72h-RT (section 6.8)
TPU monofilament	14.8	16.5	10.7	10.2
Core/sheath (wool-based)	4.0	8.4	8.0	4.0
Core/sheath (cotton-based)	6.1			
Modulus at 200% elongation				
TPU monofilament	11.5	20	11.7	12.7
Core/sheath (wool-based)	5.7	8.5	8.2	5.7
Core/sheath (cotton-based)	8.9			
Modulus at 300% elongation				
TPU monofilament	7	24.3	12.8	15.6
Core/sheath (wool-based)	3	11.9	10.7	7.6
Core/sheath (cotton-based)	8.2			
Modulus at 500% elongation				
TPU monofilament	13.3	34.0	18.4	24
Core/sheath (wool-based)	0	10.7	12.6	9.3
Core/sheath (cotton-based)	8.6			

Table 2: Tensile test results for the different filaments at the different mediums (sea-water and chlorinated water), at the different test conditions (according to test standard).

FIG. 40

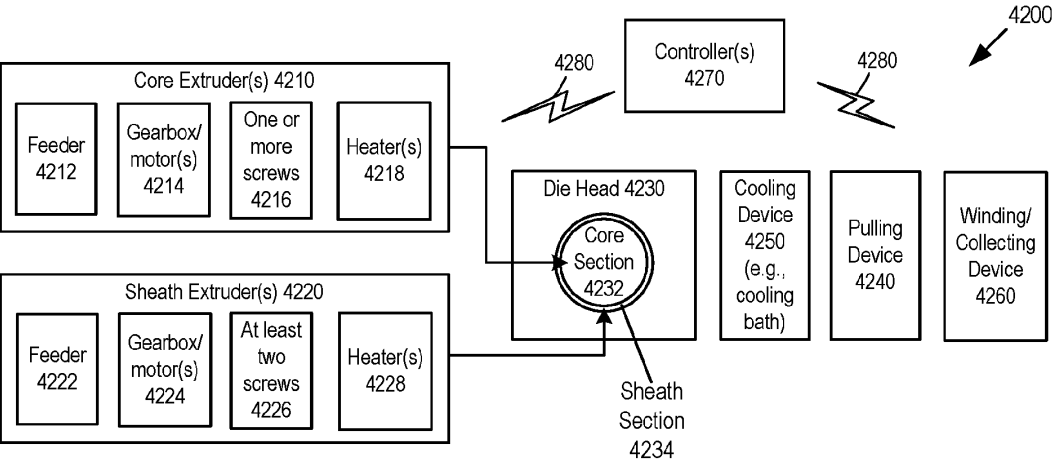


FIG. 42

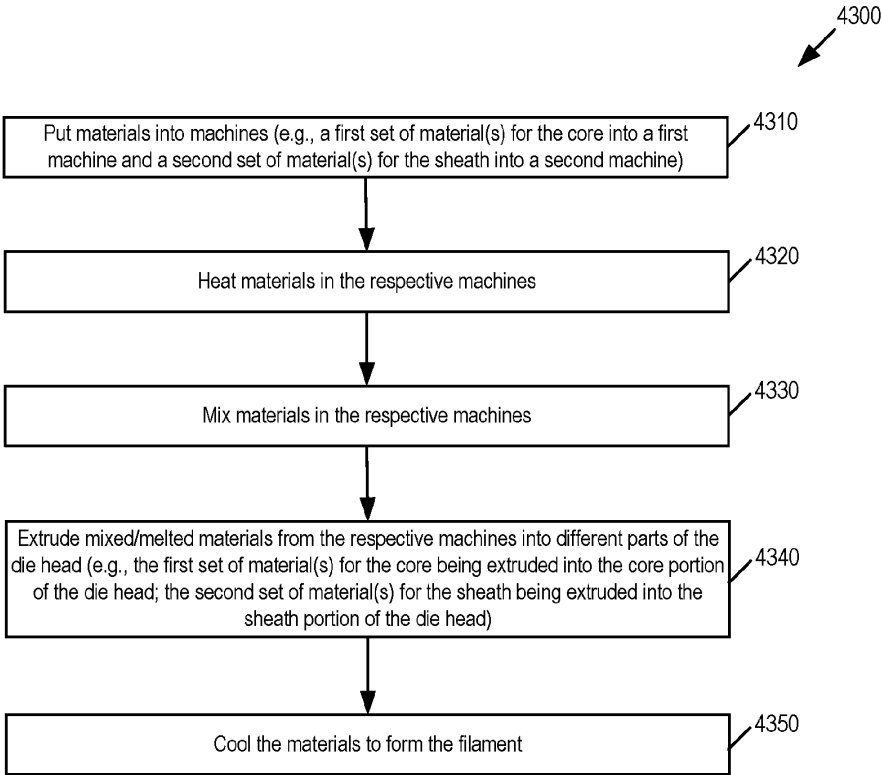


FIG. 43

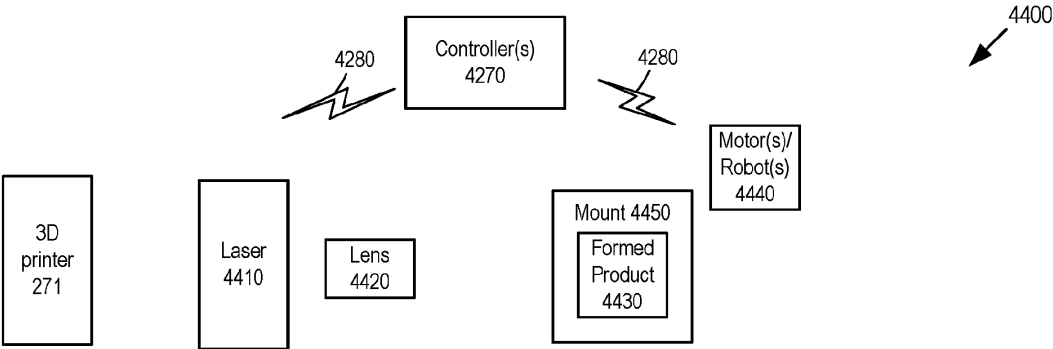


FIG. 44

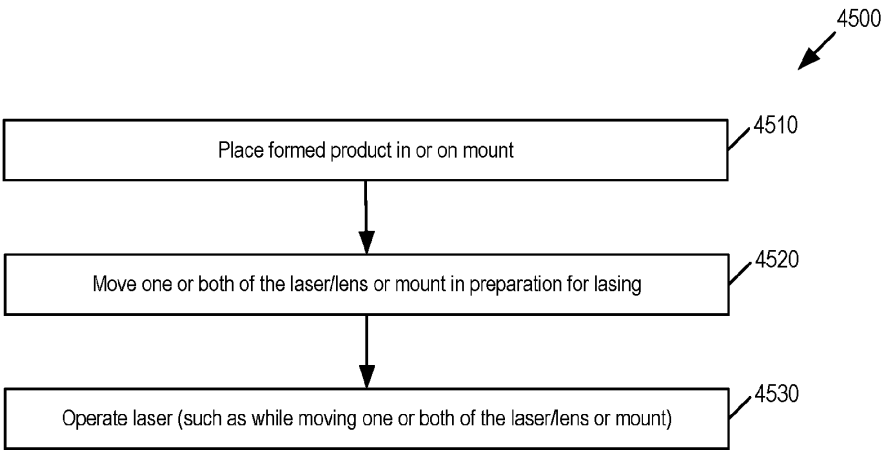


FIG. 45

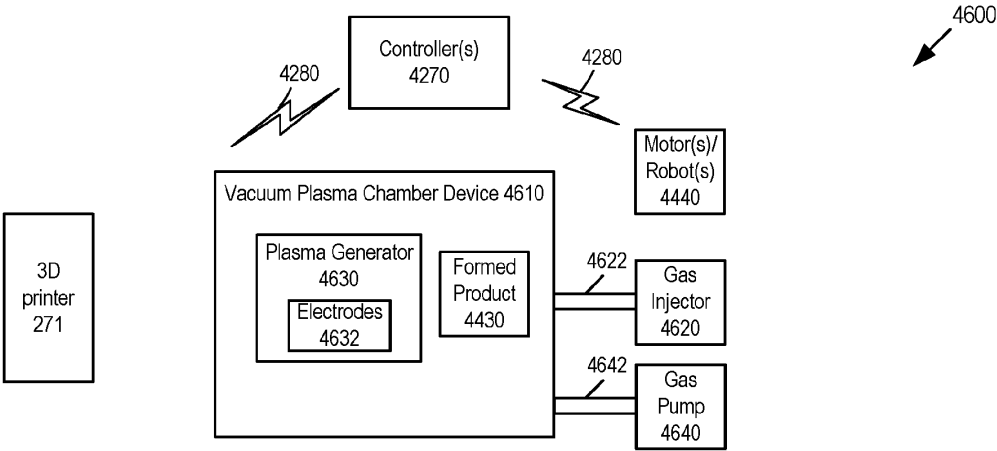


FIG. 46

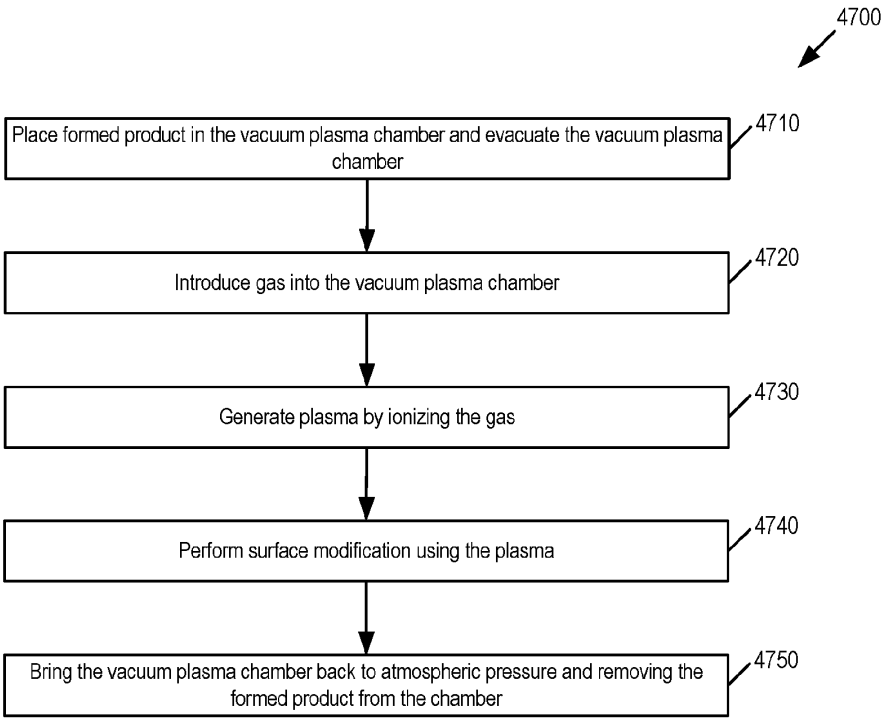


FIG. 47

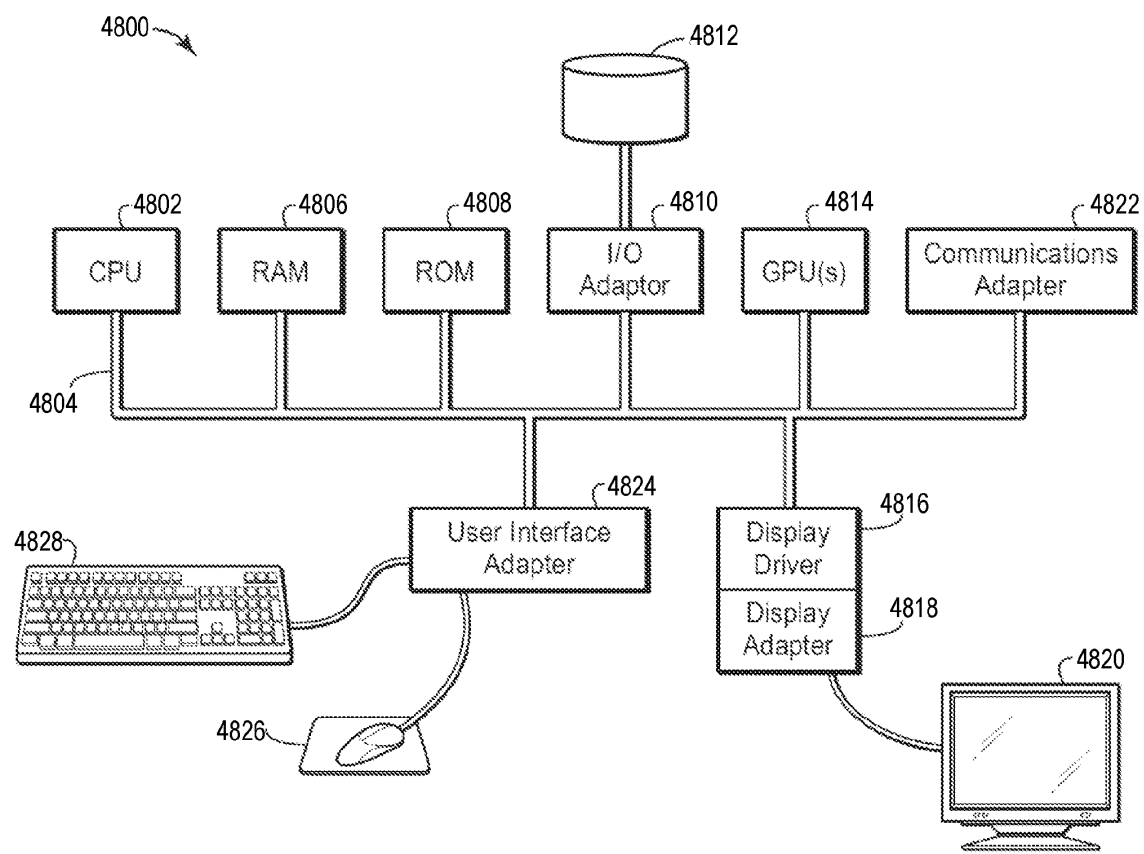


FIG. 48