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(54) **Title:** METHODS AND MATERIALS FOR AN ARTIFICIAL TRACHEAL PROSTHESIS AND/OR VOICE PROSTHESIS

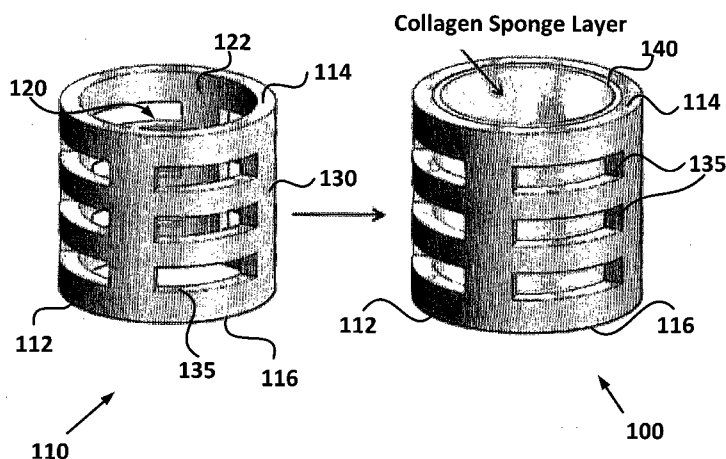


Figure 4B

(57) **Abstract:** A tracheal prosthesis includes a scaffold formed as a material matrix including a biocompatible polymer carrying a nanomaterial; and a collagen matrix layer disposed on at least along portions of an inner lumen of the scaffold. The tracheal prosthesis can be fabricated as a patient specific device in accordance with images of the natural trachea of a target patient for whom the tracheal prosthesis is intended. A voice prosthesis includes a body carrying a passage, and a magnetic passage sealing mechanism having a ball that can selectively seal / block or open the passage. The voice prosthesis can include an outer skin that covers the body. The voice prosthesis can include a polymer carrying a nanomaterial. The voice prosthesis can be fabricated as a patient specific device in accordance with images of a fistula of a target patient for whom the voice prosthesis is intended.



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