US005100429A

United States Patent [19]

Sinofsky et al.

[11] Patent Number: 5,100,429

[45] Date of Patent: Mar. 31, 1992

[54] ENDOVASCULAR STENT AND DELIVERY SYSTEM

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[21] Appl. No.: **424,660**

[22] Filed: **Oct. 20, 1989**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 345,110, Apr. 28, 1989, abandoned.

[51] **Int. Cl.**[5] **A61M 29/02**

[52] **U.S. Cl.** **606/195**; 604/96; 128/DIG. 8; 606/7; 623/1

[58] **Field of Search** 604/96, 104; 128/DIG. 8; 606/191, 194, 195, 7, 8, 13–15; 623/1, 12

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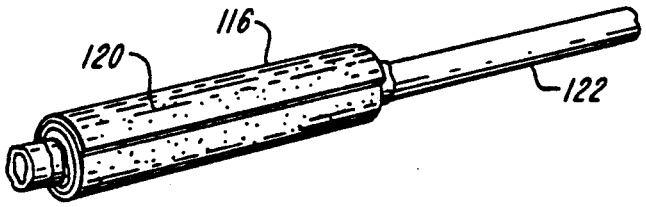
[57] **ABSTRACT**

An uncured or partially cured, collagen-based material is delivered to a selected site in a blood vessel and is crosslinked in the blood vessel by laser energy or other suitable energy to form an endovascular stent. The collagen-based material can be delivered to the blood vessel as a coating on an inflatable balloon mounted on the distal end of a catheter. The collagen-based material can also be delivered to the blood vessel in liquid form and forced through a porous balloon to form a tubular configuration. The collagen-based material is preferably crosslinked by laser radiation carried through an optical fiber to a diffusing tip located within the balloon. In another embodiment, an endovascular stent is formed by rolling a flexible sheet of biologically-compatible material onto an outside surface of an inflatable balloon. A crosslinkable collagen-based adhesive is used to adhere overlapping portions of the sheet together in the blood vessel and can be used to attach the stent to an inside surface of the blood vessel. The collagen-based adhesive is crosslinked in the blood vessel by application of laser energy or other suitable energy. A photodegradable adhesive can be used on an inside surface of the stent to releasably attach the stent to the inflatable balloon.

44 Claims, 5 Drawing Sheets