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[54] **DEVICE FOR CLOSING A SEPTAL DEFECT**

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[52] U.S. Cl. **606/213; 606/215; 606/153; 606/191; 604/60**

[58] Field of Search **606/213, 215, 606/153, 191; 604/15, 60, 93, 101, 53, 919**

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[57] ABSTRACT

A device for closing off a septal defect including a polymeric self-hardening material in a specific conformation which is delivered by a catheter device to the area of defect either directly on the cardiac tissue or into a balloon which spans both surfaces of the defect, and hardened in-situ by change in pH or ionic concentration, organic solvents, by permeation of a secondary material capable of precipitation, or by exposure to heat, light or laser energy. In blood, the device may be hardened through photopolymerization or a cooperative effect of coagulation, precipitation or ionization. The device can be made of biodegradable material impregnated with growth factors, mitogenic factors or other determinants which can improve tissue growth such that tissue ingrowth can occur over a period of time. The catheter itself may be an ultrasonic imaging catheter.

46 Claims, 8 Drawing Sheets

