CLAIMS

What is claimed is

1. An electrode lead ~~(1)~~ for the coronary sinus, ~~with~~comprising:

a lead body ~~(10)~~ that has a distal section ~~(11)~~ for insertion into the coronary sinus; and

at least one electrode ~~(12)~~ to make contact with body tissue, the at least one electrode ~~(12, 13)~~ being arranged on the distal section ~~(11)~~ of the lead body ~~(10).~~,

~~**characterized in that**~~

wherein the electrode lead ~~(1)~~ has a fixation device ~~(20)~~ that can be extended out of the lead body ~~(10)~~ to fix the electrode lead ~~(1)~~ in a blood vessel~~.~~,

~~2. An electrode lead according to claim 1, **characterized in that**~~wherein the fixation device ~~(20)~~has a linear shape inside of the lead body,

wherein a section of the fixation device extended out of the lead body is designed to be deformed into a defined shape deviating from the linear shape,

wherein the fixation device is movably arranged in a receptacle ~~(14)~~ arranged in the lead body ~~(10),~~, so that the fixation device ~~(20)~~ can be extended out of the lead ~~body (10)~~bod through an opening ~~(15)~~ in the lead body ~~(10),~~, the opening ~~(15)~~ being arranged on a distal end ~~(16)~~ of the lead body ~~(10).~~, and

wherein the lead body has, on the distal end of the lead body, a clamping sleeve to lock the fixation device in place, the clamping sleeve forming the opening through which the fixation device is extended, and the clamping sleeve being designed to clamp around the fixation device, if a mandrel arranged in the lumen is pulled out of the lumen at a proximal end of the lead body.

~~3~~2. The ~~An~~ electrode lead according to claim ~~2, **characterized in that**~~1, wherein the electrode ~~(12)~~ is connected with an electrical conductor ~~(120)~~ that is arranged in an interior ~~(17)~~ of the lead body ~~(10),~~, the electrical conductor ~~(120)~~ extending helically around the said receptacle ~~(14).~~.

~~4~~3. The ~~An~~ electrode lead according to ~~claim 3, characterized in that~~2, wherein the electrode lead ~~(1)~~ comprises at least two electrodes ~~(12, 13)~~ to make contact with body tissue, the at least two electrodes ~~(12, 13)~~ being arranged on the distal section ~~(11)~~ of the lead body ~~(10),~~, the respective electrode ~~(12, 13)~~ being connected with an electrical conductor ~~(120, 130)~~ that is arranged in an interior ~~(17)~~ of the lead body ~~(10),~~, the respective electrical conductor ~~(120, 130)~~ extending helically around the said receptacle ~~(14)~~ and the electrical conductors ~~(120, 130)~~ being arranged coradial to one another.

~~5~~4. The ~~An~~ electrode lead according to ~~claim 3 or 4, characterized in that~~2, wherein the lead body ~~(10)~~ has a ~~proximal end (18), the~~ proximal end ~~(18)~~, the proximal end having a connection device ~~(19)~~ arranged on it to connect the electrode lead ~~(1)~~ to an implantable pulse generator, and the respective electrical conductor ~~(120, 130)~~ being connected with an associated contact ~~(191, 192)~~ of the connection device ~~(19).~~.

~~6 An electrode lead according to any one of the preceding claims, characterized in that a section (21) of the fixation device (20) extended out of the lead body (10) is designed to be deformed into a defined shape.~~

~~7~~5. The ~~An~~ electrode lead according to ~~claim 6, characterized in that~~1, wherein the defined shape corresponds to one of the following shapes: a helix, an S-curve, a meandering structure, or a J-curve.

~~8~~6. The ~~An~~ electrode lead according to ~~claim 6 or 7, characterized in that~~1, wherein the fixation device ~~(20)~~ has a preformed helix ~~(22)~~ to deform the said section ~~(21).~~.

~~9~~7. The ~~An~~ electrode lead according to ~~any one of the preceding claims, characterized in that~~ claim 1, wherein the fixation device ~~(20)~~ has ~~a~~an external thread ~~(40)~~ that engages with an internal thread ~~(41)~~ of the lead body ~~(10),~~, allowing the fixation device ~~(20)~~ to be screwed out of the lead body ~~(10)~~ and thereby extended.

~~10~~8. The ~~An~~ electrode lead according to ~~any one of the preceding claims, **characterized in that**~~ claim 1, wherein the electrode lead ~~(1)~~ has a rotatable plug ~~(19),~~, so that rotating the plug ~~(19)~~ allows the fixation device ~~(20)~~ to be screwed out of the lead body and thereby extended.

~~11~~9. The ~~An~~ electrode lead according to ~~any one of the preceding claims, **characterized in that**~~ claim 1, wherein the fixation device ~~(20)~~ has a lumen ~~(26)~~ for insertion of ~~a~~the mandrel ~~(27)~~ into the fixation device ~~(20),~~, the fixation device ~~(20)~~ being designed to be extended out of the lead body ~~(10)~~ by means of ~~a~~the mandrel ~~(27)~~ inserted into the lumen ~~(26). .~~

~~12~~10. The ~~An~~ electrode lead according to ~~any one of the preceding claims, **characterized in that**~~ claim 1, wherein the fixation device ~~(20)~~ has a sleeve ~~(200)~~ on a distal end ~~(28)~~ of the fixation device ~~(20),~~, that forms a stop ~~34~~ for ~~a~~the mandrel ~~(27).~~.

~~13~~11. The ~~An~~ electrode lead according to ~~any one of the preceding claims, **characterized in that**~~ claim 1, wherein the fixation device ~~(20)~~ is designed to be locked in place with respect to the lead body ~~(10),~~ if ~~a~~the mandrel ~~(27)~~ arranged in the lumen ~~(26)~~ is pulled out of the lumen ~~(26).~~.

~~14~~12. An electrode lead ~~according to claim 2 or one of claims 3 through 13, to the extent that they refer back to claim 2, **characterized in that** the~~ for the coronary sinus, comprising:

a lead body ~~(10)~~that has~~,~~ a distal section for insertion into the coronary sinus; and

at least one electrode to make contact with body tissue, the at least one electrode being arranged on the distal ~~end of the lead body (10), a clamping device (30)~~section of the lead body,

wherein the electrode lead has a fixation device that can be extended out of the lead body to fix the electrode lead in a blood vessel,

wherein the fixation device is movably arranged in a receptacle arranged in the lead body, so that the fixation device can be extended out of the lead body

through an opening in the lead body, the opening being arranged on a distal end of the lead body, and

wherein the lead body has, on the distal end of the lead body, a clamping sleeve to lock the fixation device ~~(20)~~ in place, the clamping ~~device (30)~~sleeve forming the ~~said~~ opening ~~(15),~~through which the fixation device is extended, and the clamping ~~device (30)~~sleeve being designed to clamp around the fixation device ~~(20),~~ if a mandrel ~~(27)~~ arranged in the lumen ~~(26)~~ is pulled out of the lumen at a proximal end of the lead body.

~~15~~13. The ~~An~~ electrode lead according to ~~any one of the preceding claims, characterized in that~~ claim 1, wherein the fixation device ~~(20)~~ has at least one X-ray marker ~~(32)~~ to measure a length of the extended section ~~(21)~~ of the fixation device ~~(20),~~ this X-ray marker being fixed on the fixation device ~~(20),~~ and at least one X-ray marker that is fixed on the lead body ~~(10).~~.

14. The electrode lead according to claim 1, wherein a proximal area of the fixation device is soft annealed, and wherein a distal area of the fixation device is annealed to be less easily deformable than the proximal area of the fixation device.