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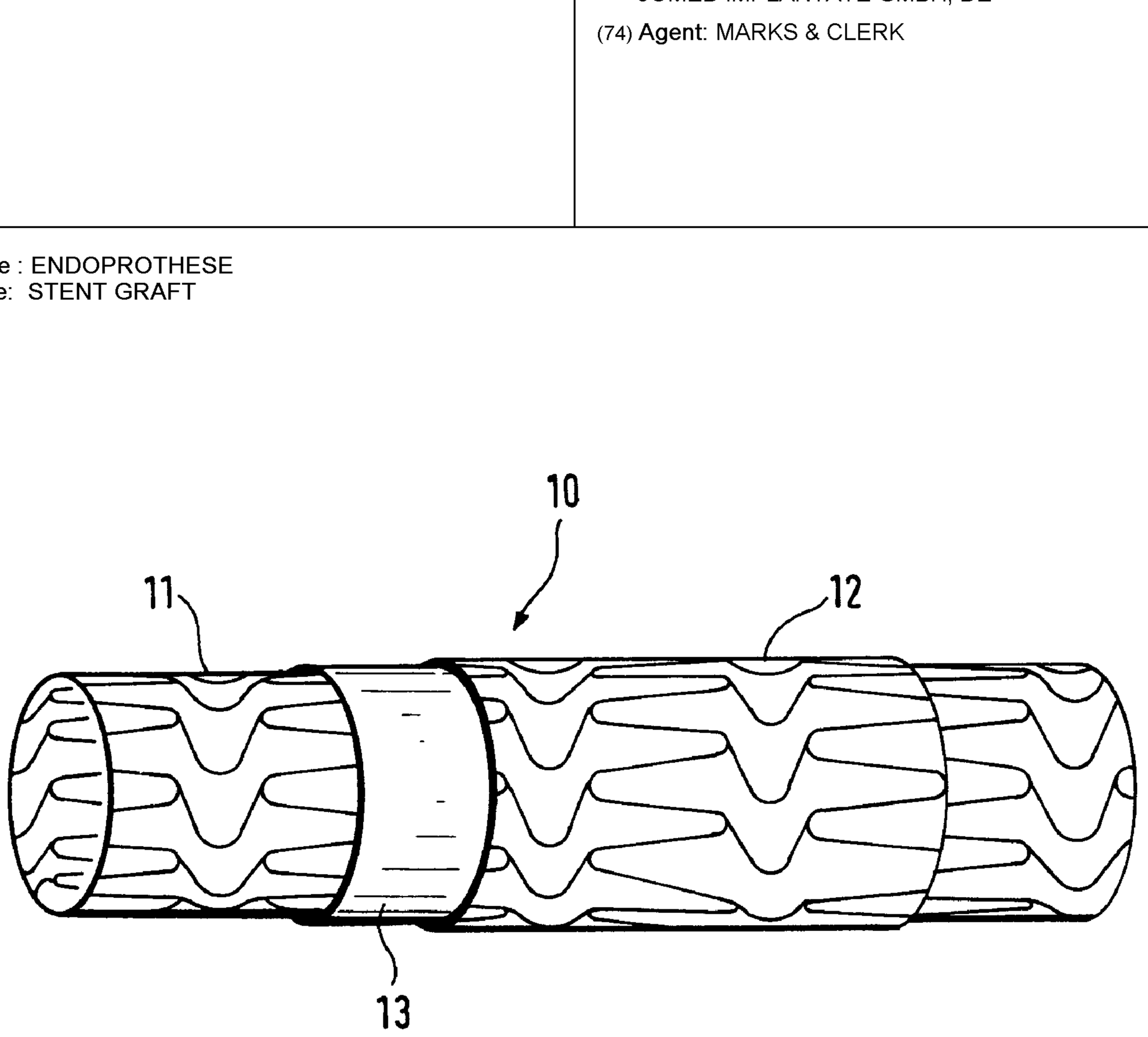

(57) Abrégé/Abstract:
A stent graft (10) having two coaxially arranged, radially expandable stents (11, 12), in which a flexible, stretchable material layer (13) is situated between the two stents (11, 12).

Abstract:

A stent graft (10) having two coaxially arranged, radially expandable stents (11, 12), in which a flexible, stretchable material layer (13) is situated between the two stents (11, 12).

Stent Graft

Description:

The invention concerns a stent graft as used for supporting vessels, in particular during aneurisms but also in labile or brittle or thrombotic vascular walls. Conventional stent grafts usually consist of a radially expandable stent which is, for example, made by laser cutting from a metal tubule, and a cover made of a tissue or foil sewn onto it. The object of the cover is to prevent blood from passing through or to prevent blood constituents or deposits from passing through the wall of the stent graft as well as to prevent tissue from growing through the wall into the interior of the stent graft. Among other things, it is ensured that the vascular wall is relieved of the blood pressure and that no embolisms can occur at the implantation point of the stent graft. However, as a result of sewing the cover onto the stent, knots are produced in conventional stents which lead to intertwinings in the open flow-through of the vessel with the danger of a blood clot formation. If the cover consists of a knit or weave, then it must be folded about the stent. A fold-free spreading of the cover during dilatation of the stent is thereby not always guaranteed.

To remedy this problem, the invention proposes a stent graft having two coaxially arranged, radially expandable stents in which a flexible, stretchable material layer, for example, a flexible and stretchable biological tissue, is arranged

between the two stents. In the stent graft of the invention, sewing the material layer onto one of the stents can be omitted since the material layer is clamped in between the two coaxial stents. Moreover, the material layer is protected against damage when the stent is inserted into the vessel. Due to the flexible and stretchable properties of the material layer, it can be radially expanded together with the two stents at the point of implantation. To prevent a reciprocal displacement of the two stents during insertion, the two stents can be joined to one another at certain points in their end regions. Various techniques can be used to accomplish this. Thus, for example, the two stents can be welded, pressed or glued together. The material layer can be formed by a tubular element from a foil or tissue consisting of a body-compatible material or from a biological tissue. However, the material layer can also consist of a foil or tissue strip wound about the inner stent. This enables an especially efficient manufacture of the stent graft. Polytetrafluoroethylene, polyethylene terephthalate or biological materials such as autologous or homologous veins or arteries are, for example, suitable as materials for the intermediate material layer. Prestretched polytetrafluoroethylene has special advantages in this case since this material has a fibrillar structure which promotes the growth of the stent graft into the vascular wall. As a result, a firm connection between the vessel and stent graft is produced over time.

According to one aspect of the present invention, there is provided a stent graft, comprising two coaxially arranged, radially expandable stents, both of the stents being directly connected with one another in their end regions; and a flexible, stretchable material layer arranged between the stents, the material layer being formed as a fabric band which is wound around an inner one of the stents.

A preferred embodiment of a stent graft according to the invention shall be described in greater detail in the following with reference to the drawing.

The only Figure shows a partially cut-open perspective view of a stent graft 10 having two coaxial stents 11 and 12 between which a stretchable material layer 13 is situated. This layer 13 can be made of a body-compatible plastic foil or a synthetic tissue. However, the use of other body-compatible or biological materials is also possible. In the example shown, the material layer 13 extends over only a portion of the length of the stent graft 10.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A stent graft, comprising two coaxially arranged, radially expandable stents, both said stents being directly connected with one another in their end regions; and a flexible, stretchable material layer arranged between said stents, said material layer being formed as a fabric band which is wound around an inner one of said stents.

2. The stent graft as defined in claim 1, wherein said material layer overlaps only a part of said stents.

3. The stent graft as defined in claim 1 or 2, wherein both said stents are punctually connected with one another in their end regions.

4. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is formed as a hose-shaped element composed of a foil.

5. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is formed as a hose-shaped element composed of a fabric.

6. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is formed as a foil band which is wound around an inner one of said stents.

7. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is composed of polythetrafluorethylene.

8. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is formed of polyethylenteraphthalate.

9. The stent graft as defined in any one of claims 1 to 3, wherein said material layer is composed of a biological material.

10. The stent graft as defined in claim 9, wherein said biological material is an autologous material.

11. The stent graft as defined in claim 9, wherein said biological material is a homologous material.

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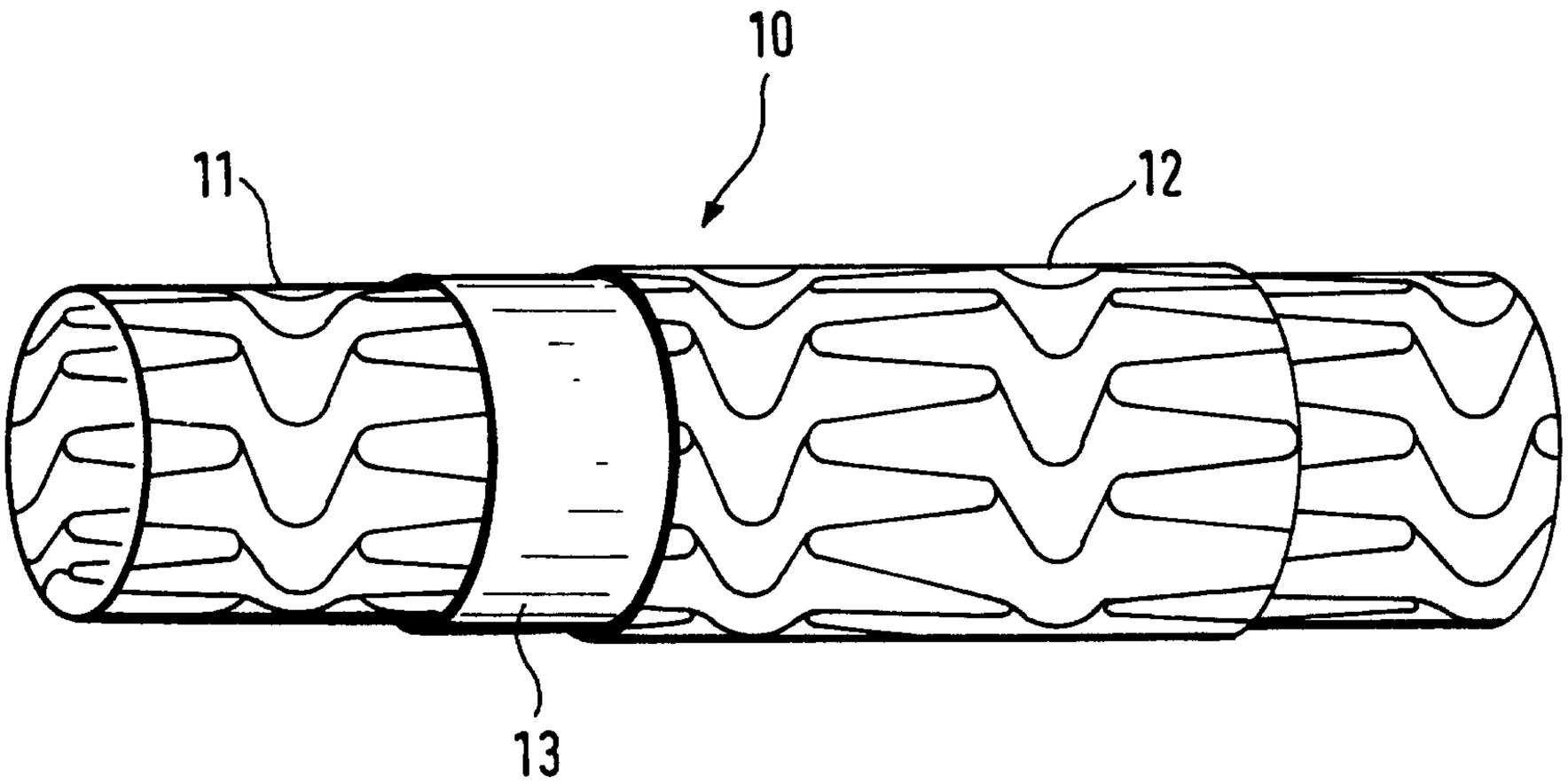

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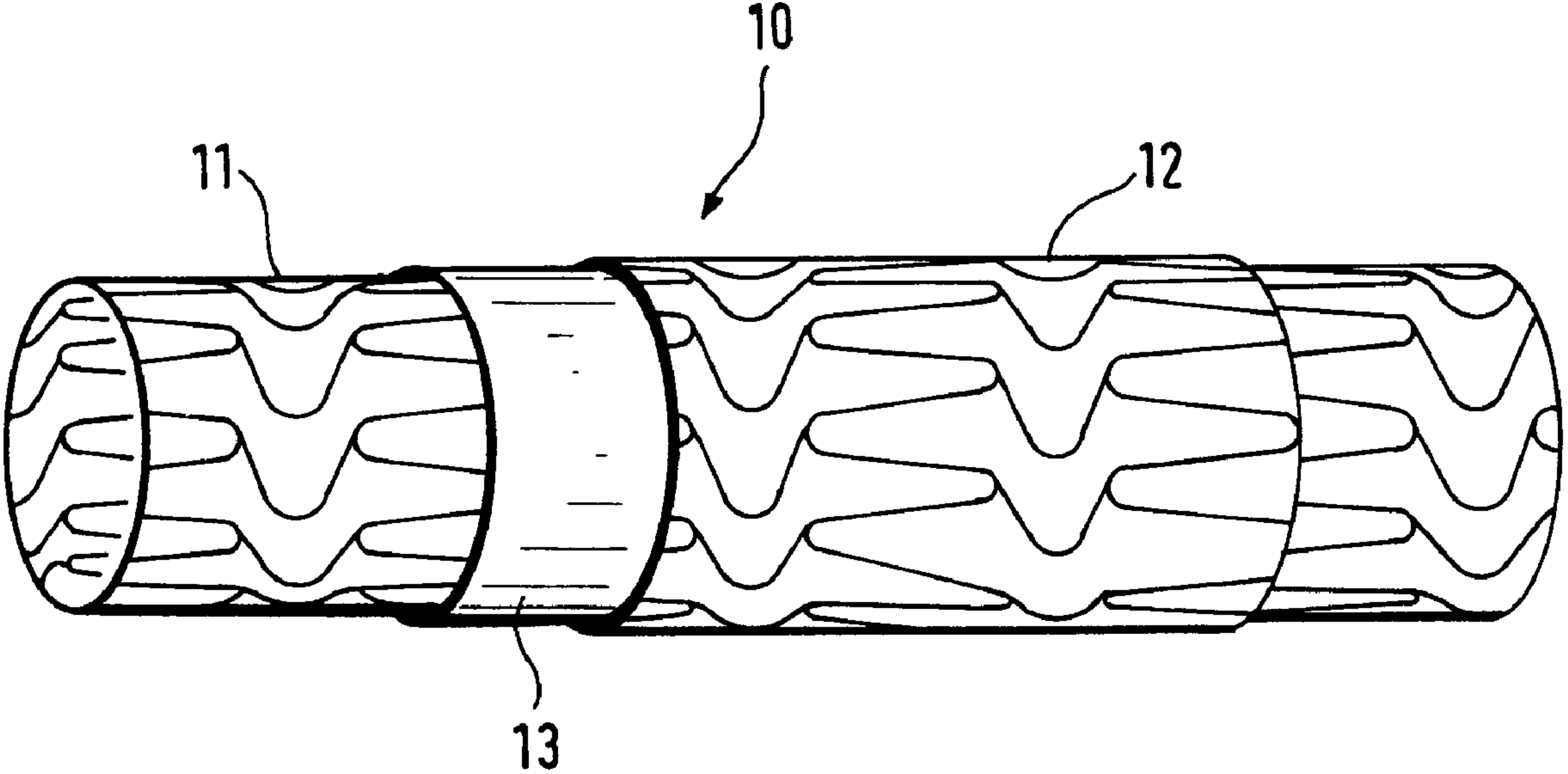
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