CLAIMS

1. A device for treating the vaginal canal or other natural or surgically obtained orifices by means of a laser beam, the device comprising a retractor for the wall of said canal or orifice associated with a laser beam scanning system; wherein: said retractor has a substantially cylindrical hollow body, at a distal end whereof a pyramidal or truncated pyramidal laser beam reflection mirror is fixed; wherein said laser beam reflection mirror is provided with a plurality of planar reflecting surfaces arranged around the retractor axis and inclined with respect thereto; the laser beam scanning system is configured and controlled to direct the laser beam sequentially towards each planar reflecting surface of the laser beam reflection mirror, a series of laser spots according to an irradiation treatment pattern being generated on each reflecting surface and being reflected thereby outside the retractor; and wherein an aperture is defined in said retractor, between the distal end thereof and the laser beam reflection mirror, and through said aperture a free path extends for the laser beam reflected by the laser beam reflection mirror towards the wall of the canal or orifice in which the device is inserted.

2. The device according to claim 1, wherein said laser beam reflection mirror is connected to said substantially cylindrical hollow body of the retractor by means of at least one spacer leaving a free space between the laser beam reflection mirror and the substantially cylindrical body of the retractor, said at least one spacer being arranged at a corner of the laser beam reflection mirror.

3. The device according to claim 1 or 2, wherein said retractor comprises an image acquisition system for acquiring images of the walls of the vaginal canal or other orifices, associated with said retractor.

4. The device according to claim 3, wherein an image acquisition mirror is associated with said laser beam reflection mirror.

5. The device according to claim 4, wherein said image acquisition mirror has a conical or truncated-conical reflecting surface.

6. The device according to claim 4 or 5, wherein the laser beam reflection mirror and the image acquisition mirror are substantially coaxial.

7. The device according to claim 6, wherein said laser beam reflection mirror and said image acquisition mirror are directed with respect to each other so that a lighting beam reflected by the laser beam reflection mirror illuminates a portion of the canal or orifice of which the image acquisition mirror reflects the image towards an image acquisition lens.

8. The device according to any one of the preceding claims, wherein said laser beam reflection mirror has quadrangular and preferably square base.

9. The device according to claim 5, wherein the image acquisition mirror and the laser beam reflection mirror are substantially coaxial, with vertexes or smaller bases facing each other.

10. The device according to one or more of claims 3 to 9, wherein said image acquisition

system comprises a camera housed in the laser beam reflection mirror.

11. The device according to any one of the preceding claims, wherein at a proximal end of the substantially cylindrical hollow body an element is provided for coupling the retractor to a support containing the laser scanning system.

12. The device according to any one of the preceding claims, wherein said laser beam reflection mirror is connected to a substantially cylindrical body of the retractor by means of one or more spacers leaving a free space between the laser beam reflection mirror and the substantially cylindrical body of the retractor.

13. The device according to claim 12, wherein said spacers are arranged at corners of the laser beam reflection mirror.

14. The device according to one or more of the previous claim, comprising a reference stop slidingly mounted on the outside of the cylindrical body of the retractor to control the depth to which the retractor is inserted into the canal or orifice, wherein said reference stop and said retractor are movable with respect to each other along the axial extension of the retractor.

15. The device according to claim 14, wherein said retractor has indicia for positioning the reference stop.

16. The device according to one or more of the preceding claims, wherein at least one electrode and preferably two electrodes are arranged along the retractor, which can be associated with a radio-frequency current source.

17. The device according to any one of the preceding claims, wherein said electrode or electrodes extend along the substantially cylindrical hollow body of the retractor and emerge on its outer surface.

18. The device according to claim 16 or 17, comprising two parallel electrodes.

19. The device according to one or more of the preceding claims, comprising a wireless system for transmitting images from the device to an image processing apparatus.

20. A laser apparatus comprising a laser source, a waveguide and a device according to one or more of the preceding claims connected with said laser source through said waveguide.

21. The laser apparatus according to claim 20, wherein said laser source is a pulsed laser source.

22. The laser apparatus according to claim 20, wherein said laser source is a continuous laser source.

23. The laser apparatus according to claim 21, wherein the pulses have a duration between about 0.1 and about 10 ms and preferably between about 0.2 and about 2 ms.

24. The laser apparatus according to one or more of claims 20 to 25, wherein the wavelength of said laser source is between about 1000 nm and about 12,000 nm and preferably equal to 10,600 nm.

25. The laser apparatus according to claim 24, wherein said laser source is a CO_2 laser source.

26. The laser apparatus according to one or more of claims 20 to 25, wherein said laser source has a power between about 2 and about 100 W, preferably between about 10 and about 50 W and even more preferably between about 30 and about 50 W.

27. The laser apparatus according to one or more of claims 20 to 26, wherein said source and said device are controlled so as to generate a pulsed treatment pattern wherein the space between subsequent scanning points is between 0 and about 5,000 micrometers, preferably between about 50 and about 5,000 micrometers and more preferably between about 200 and about 2,000 micrometers.

28. The laser apparatus according to one or more of claims 20 to 27, wherein the pulsed or continuous laser beam is controlled to remain on the same points repeating the emission duration up to 5 times the duration of the single emission.

29. The laser apparatus according to one or more claims 20 to 28, comprising an image receiving system for receiving images from said device.

30. The laser apparatus according to claim 29, wherein said image receiving system is a wireless system.

31. Apparatus according to one or more of claims 20 to 30, comprising an image processing system to reduce or eliminate the distortion of images collected by means of a curve mirror, in particular a conical or truncated conical mirror.