# ARTIFICIAL BLADDER AND MANUFACTURING PROCESS

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# Invention

The bladder is an elastic tissue that collects urinary fluids, which reach the bladder from the kidneys, through the ureters. Following tumors or traumas, a surgical removal of the whole bladder is sometimes needed (radical cystectomy). At present, artificial bladders able to reproduce the performance of the natural organ, do not exist. This is mainly due to the lack of a material featured by both high deformability and high resistance to urine, in the long-term.

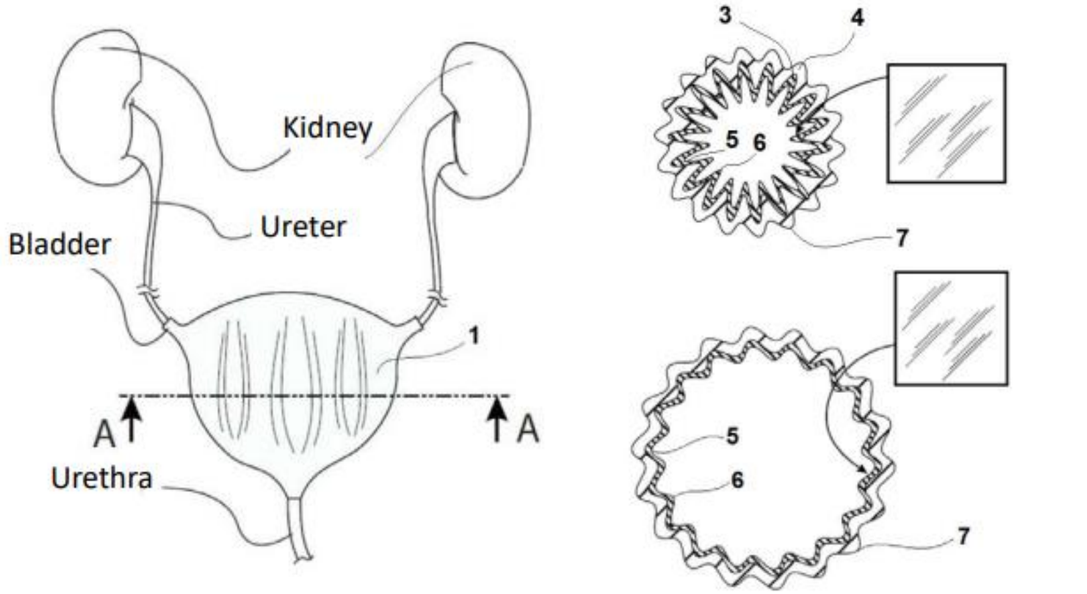
This invention consists of a multilayered device whose conformation allows to have a non-polymeric (thus non-stretchable) internal layer with high resistance to urine, connected in some points to a more external layer (that is also multilayered) guiding its unfolding/folding in recesses and crests, during the filling/voiding phases of the artificial bladder.

The invention presents the following advantages:

• Ability to vary its internal volume, expanding and contracting similarly to the natural organ, keeping the urineresistant internal layer intact, without stretching it and thus without creating cracks in its structure

• Solution that fully disappears into the body, thus not raising aesthetic issues or limitations in dailylife activities

# Drawings & pictures




1 = artificial bladder; 3 = internal layer (non-polymeric), with high resistance to urine; 4 polymeric layer; 5,6 = foldable recesses and crests, 7 = biocompatible coating

# Industrial Applications

- Replacement of the natural bladder with an artificial device, in those cases in which the bladder must be surgically removed (following tumors or traumas)
- Development of multilayered devices able to guarantee a high chemicophysical resistance in their internal layer, coupled with a high deformability and ability to vary the internal volume of the system.

# Possible developments

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In the advancement phase of the technological solution to reach a prototype stage.

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