Self-healing mechanism and soft robot

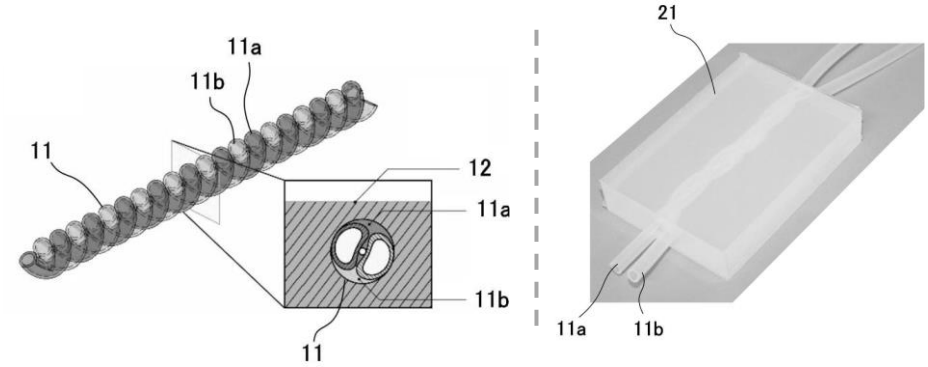
Able to effectively self-repair in any environment, even in the case of major damage, regardless of external factor

Overview

In recent years, soft robot that can flexibly transform according to their environment and adapt to various environments has been developed. However, due to its flexible structure, soft robot can be damaged when they come into contact with sharp object, resulting in the loss of functionality such as mobility and deformability. Material such as polymer has been developed to self-repair damaged part. However, it can not repair itself in case of major damage.

This invention is able to provide a self-healing mechanism and a soft robot that can self-repair in any environment, regardless of external factor, even in case of major damage. This invention has a curing means consisting of 2 tubes containing 2 different liquids that gel or harden when mixed, which are wrapped around each others in spiral. The soft robot of this invention has this hardening means stretched along the deformed and flexible area. When the soft robot is damaged by contact with sharp object, the 2 tubes are also damaged and each liquid gels or hardens, allowing the robot to repair itself.

Figure of self-healing mechanism and prototype model



11.Curing method 11a.1st tube 11b.2nd tube 12.Substrate 21.Base material

Product Application

- ☐ Soft robot
- ☐ Self-healing robot

IP Data

IP No.	:	JP2021-186890
Inventor	:	Kenjiro TADAKUMA, et al.
Admin No.	:	T20-030

Contact

Tohoku Techno Arch Co., Ltd.
Please visit CONTACT here