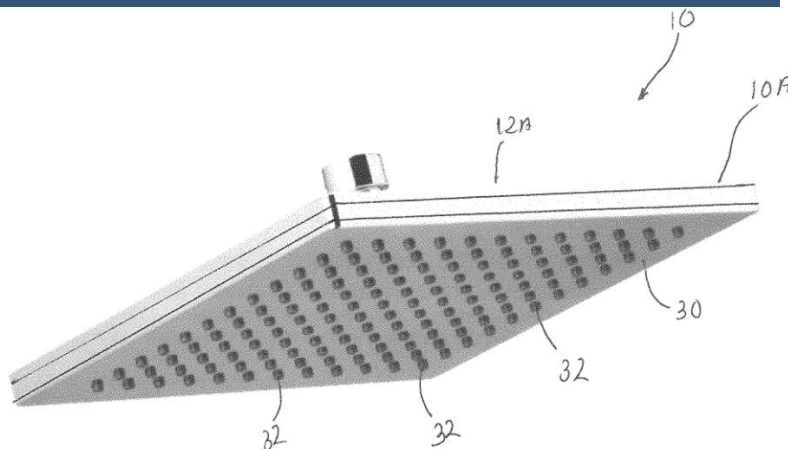


## Point of use filter for disabling *Legionella*

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[US Patent 11,104,591](#)

TRL 3



### Context

The bacterium *Legionella pneumophila* causes Legionnaires' disease and Pontiac fever. Most people become infected when they inhale microscopic water droplets containing *Legionella* bacteria. Incidence of *Legionella* infections has been increasing since 2000 and a recent study estimated that the true number of Legionnaires' disease cases may be 1.8–2.7 times higher than what is reported.<sup>1</sup> With a total estimated direct healthcare cost of \$402M, annually, it is increasingly important that point of use water systems disable *Legionella* bacteria.<sup>2</sup>

### Summary

EPA Researchers Ryu and Woo have invented a point of use filter to disable *Legionella*. Currently optimized for use in showerheads, the filter disables the bacteria with low-power light emitting diodes (LEDs) operating at many wavelengths in many channels and is boosted by a photo reactant metallic layer. Optimized for consumer use, the filter assembly will require less frequent maintenance than barrier-based filtration methods and is compatible with both standard and low flow shower head systems. The filter assembly is species agnostic and may be used to disable opportunistic pathogenic bacteria beyond *Legionella*.

### Potential Applications

- Consumer DIY
- Groundwater Well Systems
- Clean Water Solutions for Developing Countries
- Healthcare Facilities

### Contact

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<sup>1</sup> Collier SA, Deng L, Adam EA, et al. [Estimate of burden and direct healthcare cost of infectious waterborne disease in the United States](#). Emerg Infect Dis. 2021;27(1):140–9.

<sup>2</sup> Ibid.