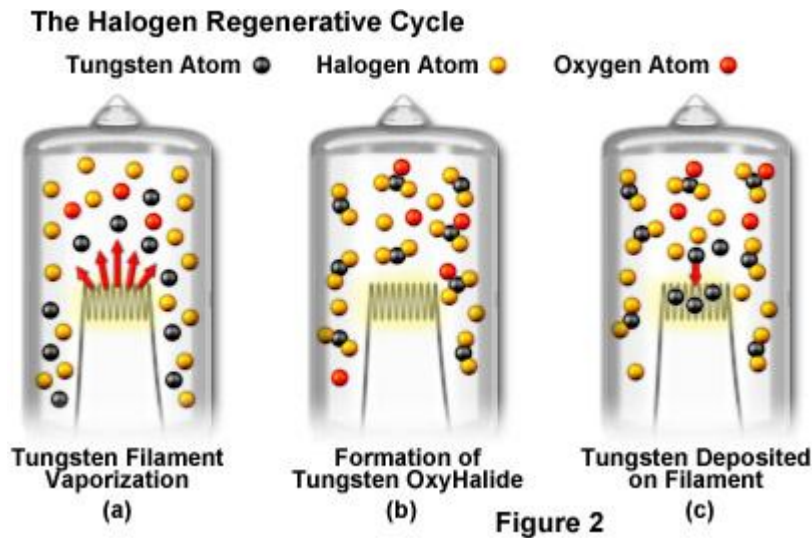


Problem: One of the strongest resolutions of technical contradiction was in history of development of an ordinary electric lamp. To improve quality of radiation (to make light of the lamp similar to the daylight) it is necessary to increase the temperature of an incandescent filament. But the higher the temperature of filament, faster the evaporation of metal and quicker the filament becomes thinner, which leads to its failure. Any attempts to find the "optimal" resolution of this bottleneck moved engineers back.



<http://zeiss-campus.magnet.fsu.edu/articles/lightsources/tungstenhalogen.html>
 (Image courtesy)

Solution: For the organization of a return cycle of carry of atoms tungsten (wolfram) from inner side of bulb to filament, a beautiful chemical solution was inserted: inside the bulb a micro drop of bromine was added.

A return transport reaction is activated: bromine interacts with settled-on bulb tungsten, a substance WBr is formed, which evaporates and directs into zone with high temperature and settles as tungsten exactly from where it was lost (evaporated). Thus filament restores during work, as a lizard restores its tail. This process does not consume energy from the outside; does not require any additional serving systems; all is provided itself.

As appeared other elements also work as "carriers" of tungsten, such as chlorine, iodine, and even water!

It was beginning of Halogen lamps' evolution. PI see one of important patents granted to GE.

<https://patents.google.com/patent/US3431448> Bromine regenerative cycle incandescent lamps

