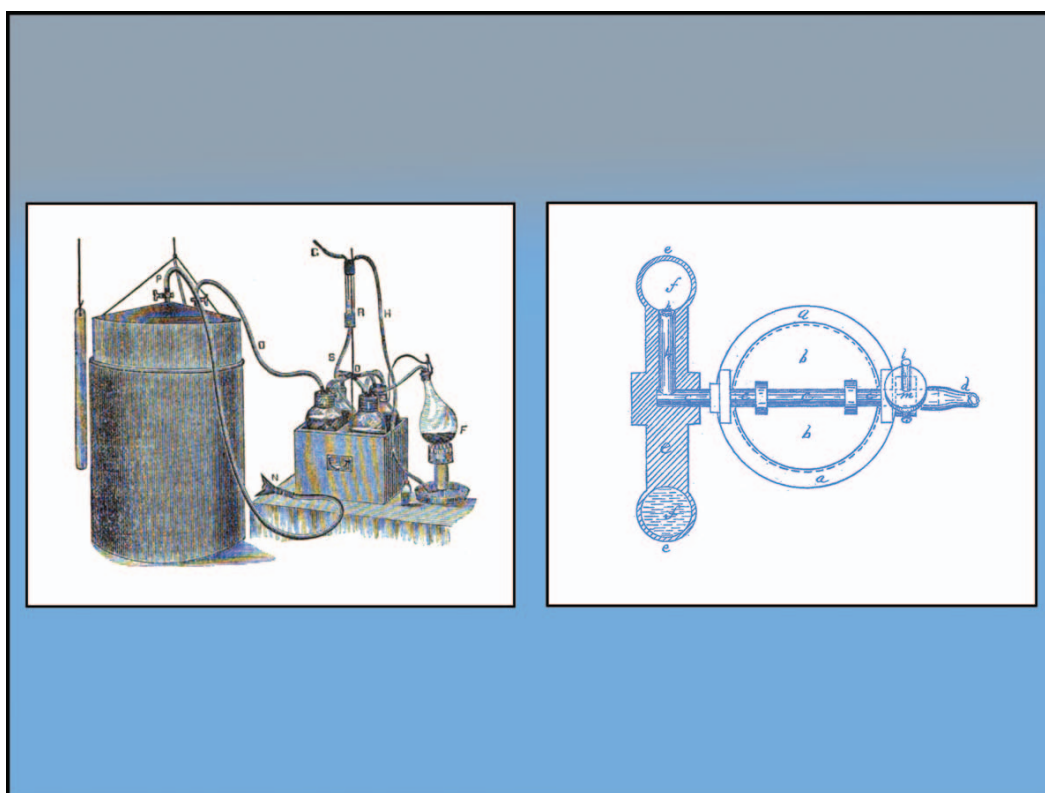


ANESTHESIOLOGY REFLECTIONS FROM THE WOOD LIBRARY-MUSEUM

From Baking Up Nitrous Oxide to Making the Home Thermostat: The Heat Regulators of Alfred W. Sprague



The most popular early method for generating nitrous oxide in the dental or medical office (or for recreational demonstrations) was to bake solid ammonium nitrate. Heated gently past its $\sim 170^{\circ}\text{C}$ melting point but less than 240°C , the ammonium nitrate decomposed into nitrous oxide and water. Heating to higher temperatures could lead to explosive detonation, yielding water and free nitrogen and oxygen gas. In June of 1866, a teacher of natural philosophy, Alfred W. Sprague, was granted a U.S. patent for his "Improved Apparatus for Generating and Washing Gases for Inhalation." His invention (*left*) was designed, first, to regulate "the heat where a given and uniform temperature is required; and, secondly, to produce a means for thoroughly washing and purifying the gas as it passes through the water." In April of 1873, Sprague shared a patent (*right*) for an "Improvement in Automatic Draft-Regulators for Stoves and Furnaces." So the same man who regulated heat for safely producing laughing gas later developed a safe means for burning natural gas. (Copyright © the American Society of Anesthesiologists' Wood Library-Museum of Anesthesiology.)

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