

Medical Philately (Medical Theme on Stamps)



Romania, 1983, 25 years of space exploration, stamp depicting Coanda and Diagram of Jet Engine



Romania, 1986, Birth Anniv. of Henri Coanda

ANAESTHESIA AND CRITICAL CARE

Henri Coanda

Coanda Effect in Mechanical ventilators: Named after Henri Marie Coanda (June 7, 1886 – November 25, 1972) was a Romanian inventor, aerodynamics pioneer and the patent holder of the modern jet aircraft. The secret of the fluidic flip is a phenomenon known as the Coanda effect. This is a relatively new discovery previously applied in the fields of aerodynamics and jet engine design. When a jet of fluid leaves a nozzle at high speed, fluid from the body that it enters is entrained or drawn in, by the momentum of the flow. If there is an obstruction to this action, such as a wall, there is less fluid to be drawn in with a resulting drop in pressure on the side of the jet. This pressure drop causes a deflection in the flow and redirects the jet until it attaches to the wall. The infant flow CPAP generator demonstrates this effect by utilizing the baby's breathing effort to induce the Coanda effect and trigger Fluidic Flip inside the device. Fluid logic volume-cycled ventilators was first introduced in 1964.

The Coanda Effect in Cardiology: Most cardiologists rarely remember that new ideas dedicated to completely different areas, are the technological background of most medical devices. Also, they almost ignore the bright minds beyond these ideas. The coanda effect, vital in the color-Doppler assessment of valvular regurgitation with eccentric jets – bears the name of a Romanian inventor whose life (1886-1972) was mostly dedicated to aeronautics and who is considered the 'father' of jet engine. His fluid dynamics discovery was patented in 1934, but its importance of medical applications was recognized much later.

During real time visualization on color Doppler flow mapping, Coanda effect influences jet size and color encoding, determining (for eccentric jets) smaller color Doppler jet areas, greater variance and reverse velocity encoding. The phenomenon may alter the interpretation of color Doppler images and needs to be taken into account for an appropriate echocardiography assessment of valvular regurgitation and other abnormal flows.

Coanda died in Bucharest on 25 November 1972.

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