

54

Philo Farnsworth *Top 100 Americans*

Philo Taylor Farnsworth (August 19, 1906 – March 11, 1971) was an American inventor and television pioneer. He made many contributions that were crucial to the early development of all-electronic television. He is perhaps best known for inventing the first fully functional all-electronic image pickup device (video camera tube), the "image dissector", as well as the first fully functional and complete all-electronic television system. He was also the first person to demonstrate such a system to the public. Farnsworth developed a television system complete with receiver and camera, which he produced commercially in the firm of the Farnsworth Television and Radio Corporation, from 1938 to 1951.

In later life, Farnsworth invented a small nuclear fusion device, the Farnsworth–Hirsch fusor, or simply "fusor", employing inertial electrostatic confinement (IEC). Although not a practical device for generating nuclear energy, the fusor serves as a viable source of neutrons. The design of this device has been the acknowledged inspiration for other fusion approaches including the Polywell reactor concept in terms of a general approach to fusion design. Farnsworth held 165 patents, mostly in radio and television.

Electronic television

Farnsworth worked out the principle of the image dissector in the summer of 1921, not long before his fifteenth birthday, and demonstrated the first working version on September 7, 1927, having turned 21 the previous August. A farm boy, his inspiration for scanning an image as series of lines came from the back-and-forth motion used to plow a field. In the course of a patent interference suit brought by RCA in 1934 and decided in February 1935, his high school chemistry teacher, Justin Tolman, produced a sketch he had made of a blackboard drawing Farnsworth had shown him in spring 1922. Farnsworth won the suit; RCA appealed the decision in 1936 and lost. Although Farnsworth was paid royalties by RCA, he never became wealthy. The video camera tube that evolved from the combined work of Farnsworth, Zworykin and many others was used in all television cameras until the late 20th century, when alternate technologies such as charge-coupled devices started to appear.

Farnsworth also developed the "image oscillite", a cathode ray tube that displayed the images captured by the image dissector.

Farnsworth called his device an image dissector because it converted individual elements of the image into electricity one at a time. He replaced the spinning disks with caesium, an element that emits electrons when exposed to light.