

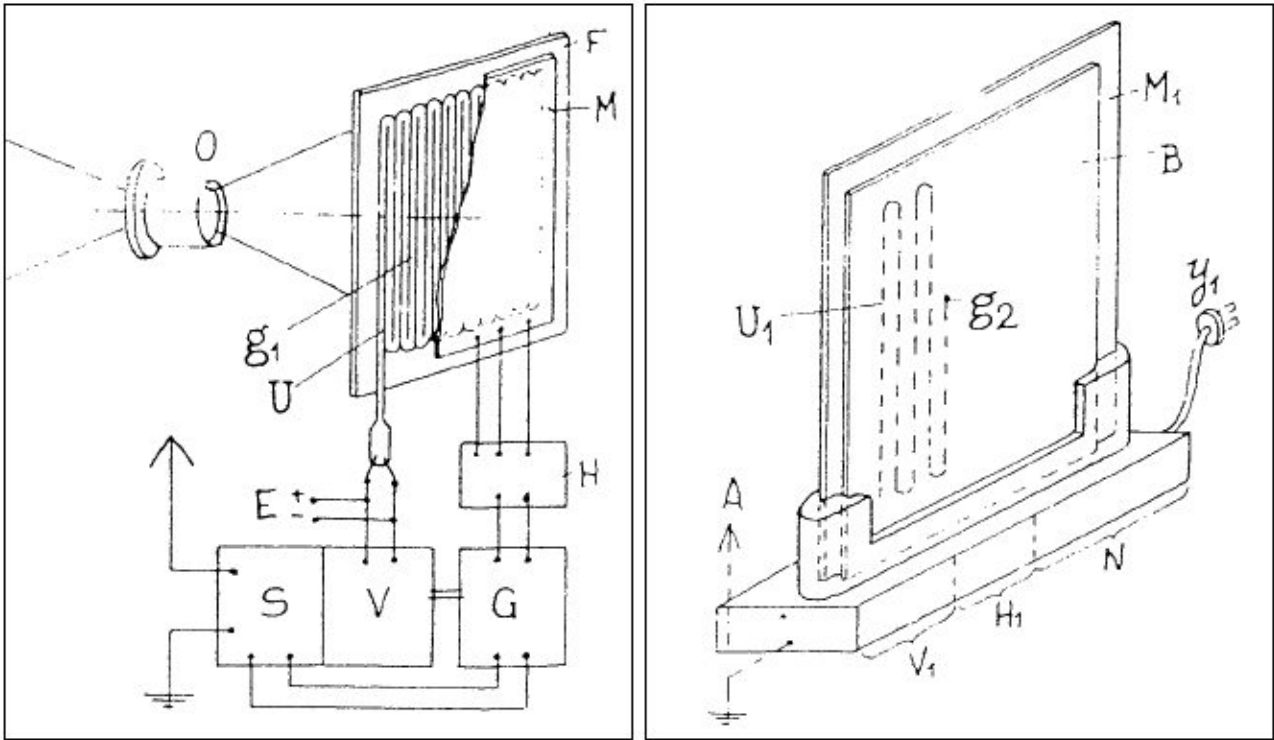
Kalman Tihanyi's plasma television, invented in the 1930s.
Introduction to the article written by Julius Horvath, by Katalin Tihanyi.

The flat-panel television system Julius Horvath, an electrical engineer, describes in a paper first published in *Hiradástechnika*, 2004/1, was apparently patented in England in 1939. The earliest known outline of this clearly prescient idea is from about 1933. The 1936 manuscript, the basis of Mr. Horvath's article, was discovered among the Tihanyi-papers deposited at the Hungarian Academy of Sciences Manuscript Library. Though probably further improved upon until the actual filing of the patent application, it already includes a complete patent specification, patent claims and over fifty diagrams as well as the patent descriptions in German and English. The title: "Television apparatus with running discharge light spot," hints at the essence of the invention.

Figure 1. and 2. of the original patent drawings represent the transmitter (1) and the framed flat-panel receiving set (2) standing or -- as suggested by the inventor -- hung on a wall, just like the sets we have recently began seeing in the stores! The solution, which, though it features charge-storage and line by line scanning as did Tihanyi's 1926 and 1928 systems, introduces an entirely new concept for the scanning operation, eliminating the need for the bulky casing of CRTs required by the scanning cathode-ray beam.

Tihanyi suggests different solutions for the construction of the transmitter, all of which produce a fast-moving electric field, the discharge spot, which sweeps along the lines of miniature electrodes applied through photochemical process to a special glass sheet. The discharge spot, a spark, as it were, is not larger than the intended size of the image points (pixels). It is propelled with great speed along the scanning lines of the transmitter, discharging (addressing) the pixels. In one of the solutions the electric and/or magnetic field is used to control its pixel-to-pixel forward rush. Other type of transmitting devices can be employed with the flat panel receiver in which the intensity of the scanning spot is modulated by the impulses received from the transmitter. The variety of light intensities in the receiver are produced either by the scanning light spot itself or on a phosphorescent screen in high-pressure gas-filling.

As described by the inventor, light intensities of a very high order, up to 2000 Lux for television cinemas, as well as higher definition are the advantages of the invention. In fact, as Tihanyi writes, in this system "the increase of the number of scanning lines will result in more advantageous operational conditions." Notes and correspondence indicate that it was this system and this type of receivers Tihanyi planned to develop for series production, once World War II came to an end.



Drawings for the patent application