

# Frederic Ives: Lifelong Inventor

**F**rederic Eugene Ives, namesake of Optica’s highest award, is best known for the Ives halftone process, which became the longtime standard for printed illustrations. However, he was also a pioneer in color photography, produced 3D motion pictures and patented at least 70 inventions. Here we look at a few of his more notable innovations. (For more on color photography, see p. 36. And for a look at Optica’s 2022 award recipients, see p. 44.)



Ives inserting a Kromogram into a Kromoskop.

*International Clinics, Vol. II, Tenth Series (1900) / Wikimedia Commons*



## COLOR PHOTOGRAPHY

*In 1892, Ives patented the Kromoskop camera (or photochromoscope)—the first commercial application of a three-color printing process.*

**THE PROCESS:** Three separate black-and-white photos were taken through red, green and blue filters and then bound together into a single slide, known as a Kromogram.

**IMAGE:** An Ives Kromogram issued in 1897. Museums Victoria / Wikimedia Commons

*Kromograms taken by Ives on extensive travels throughout the US and Europe provide some of the only existing color photographs from the early 1900s.*



Kromograms of San Francisco, CA, USA, taken by Ives in 1906 and archived in a collection at the Smithsonian Institution, are believed to be the only existing color images showing the aftermath of the 1906 earthquake. National Museum of American History

“The typical amateur inventor will pursue his course through any amount of poverty and hardship and indifference, thinking much more about his work than about any material reward which it might bring.” —Frederic E. Ives

## IMPROVING MICROSCOPY

*In 1902, Ives patented a mechanism for attaching cameras to microscopes, allowing what we know today as photomicrography. In 1903, he patented the short-tube, single-objective binocular microscope.*

**IMAGE:** Photomicrograph of an insect, F.E. Ives, 1920. Courtesy of the George Eastman Museum



## STEREOSCOPIC PHOTOGRAPHY

*In 1903, Ives patented the parallax stereogram—the first “no glasses” auto-stereoscopic 3D display technology. In 1922, together with fellow inventor Jacob Leventhal, Ives began creating 3D films using the stereoscopic process.*

**THE PROCESS:** A compound image consisting of fine interlaced vertical slivers of a stereoscopic pair of images was seen in 3D when viewed through a slightly separated fine grid of alternating opaque and transparent vertical lines—now known as a parallax barrier.

**IMAGES:** Left: Lenticular screen image of a smiling woman in a large hat, F.E. Ives, ca. 1903. Right: An advertisement for Ives’ 3D film *Plastigrams*. Left: Courtesy of the George Eastman Museum / Right: *Film Daily*, 15 March 1925 / Wikimedia Commons

