By 1872 enough settlers had commenced farming north of Genesee, in an area known as Paradise Valley, that Alonzo Leland of Lewiston began efforts to get a postal route extended there from Lewiston. John Hailey, who had been elected Idaho's delegate to Congress in 1872, responded by filing an application for a post office at Paradise on March 5, 1873, only a day after his congressional term commenced. The office was established on March 19, although the first postmaster, Sarah F. Edwards, did not receive her appointment until August 28, 1874.

Later in 1874, Samuel Miles Neff commenced a small grocery store a mile away from the Paradise post office. Asbury A. Lieuallen, who had come to Paradise Valley in 1871, enlarged it into a general store a few months later. He then acquired Neff's farm, located west of Main Street in the townsite he developed as Moscow, and moved the post office a mile from Paradise to Moscow. Postal authorities in Washington changed the post office name to Moscow on December 26, 1876, and Lieuallen became postmaster for Moscow on November 20, 1877.

S. M. Neff, who previously had lived in Moscow, Pennsylvania, and Moscow, Iowa, took credit for suggesting that Lieuallen's townsite on his farm be named Moscow.