

Unlocking the Gates

Steven K. Vernon

Many nineteenth-century U.S. inventors and makers of fishing reels served in the military. (We had a Civil War, remember?) Only a couple of them made a career of service. One served on the arguably-unconstitutional commission that tried the conspirators who planned Lincoln's assassination. Another joined the U.S. Navy, but his career was truncated by ill health.

George Shattuck Gates was born on August 9, 1845, in Templeton, Massachusetts. He attended Harvard University's Lawrence Scientific School from 1865 to 1866, studying engineering. On October 10, 1866, Gates enlisted in the United States Navy as a Third Assistant Engineer. He spent the next two years in the 1868 Class in Steam Enginery at the Naval Academy, Annapolis, Maryland. Leonard Atwood, who would become a better-known inventor, had enlisted similarly in 1862 but had left the service in 1864.

Gates was assigned to the U.S.S. *Dacotah*, a gunboat that had participated in the blockade of the Confederacy. The ship joined the Pacific Fleet and returned to California in 1869, where she was inactivated and sold. Gates was promoted to Second Assistant Engineer on June 2, 1869, and would enjoy leave in Athol, Massachusetts, beginning on July 12, 1871. He stayed at the home of James Kelley, his brother-in-law, where his sister, Jennie, and widowed mother also lived. He was assigned to the U.S.S. *Iroquois*, another Civil War "veteran," in February, 1872. The ship joined the Asiatic Fleet soon after.

On June 2, 1873, Gates was admitted to the Naval Hospital in Yokohama, Japan, for treatment of conjunctivitis of his left eye, which he had been suffering for over a month. It appears that he was sent back to the U.S. in August, 1873, although the *Iroquois* would not return to San Francisco and be decommissioned for repairs until July, 1874.

On May 29, 1874, 2nd Asst. Engineer George S. Gates was admitted to the Naval Hospital at Chelsea, Massachusetts, following his display of "religious monomania" at his Boston residence. With friends, he had insisted he had been resurrected as "a Son of God," and he had episodes of violent behavior. Although he could speak coherently on "ordinary topics," his friends took him to a Navy Yard safe house, from

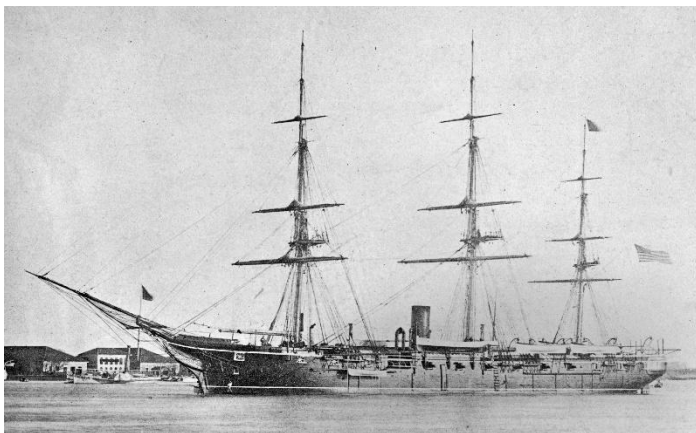
which he was taken to the hospital. Gates was transferred to the Government Hospital for the Insane, Washington, D.C., on June 1, 1874. He was officially on sick leave as of June 4.

Naval physicians released Gates in time for him to be assigned to the U.S.S. *Marion* in October, 1874. He was classified as a Passed Assistant Engineer, qualified for an Assistant Engineer position when one became available. The *Marion* was being rebuilt at the time. Gates also assisted with the computations for a redesign of the U.S. Revenue Cutter *Albert Gallatin*, which was tested at the Boston Navy Yard, starting in December, 1874.



An envelope and letter Gates mailed in 1876 from Portugal to his sister Jennie in Athol. The Phelps to whom Gates refers was Albert M. Phelps, one of four young boarders living in the Kelley residence.

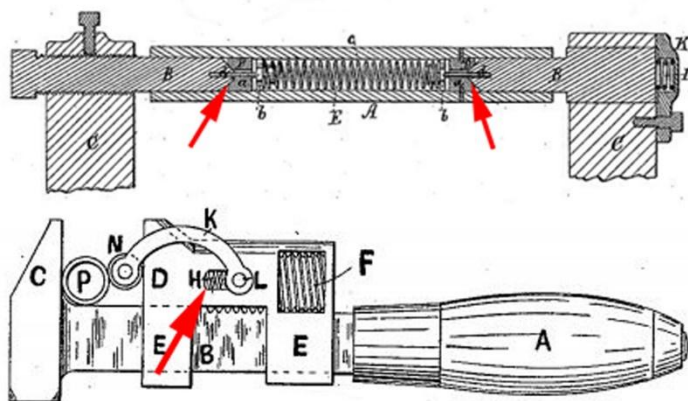
The *Marion* put to sea in January, 1876, with Gates aboard. On July 23, he sent a letter to his older sister, Jennie (a nickname for Jane E. Gates), from Lisbon, Portugal. "We are at last attached to the European Squadron," he wrote. The rest of the letter sounded like a typical letter from a tourist, followed by some questions about home. There was no hint of any medical problems. He would serve on the ship on the European Station until 1879. On January 17, 1880, Gates was admitted to the Naval Hospital in Norfolk, Virginia, for "marked mental disturbance" displaying suicidal and



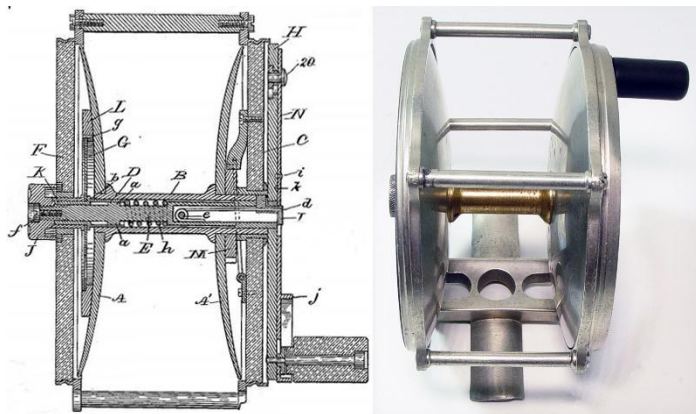
The U.S.S. Richmond, after her 1878 refit. This is the last ship on which Gates served. (Photograph NH44997 from Naval History and Heritage Command)

homicidal tendencies. Again, he was transferred to the Washington hospital.

The physicians in Washington released Gates once more, presumably considering him cured. *The New York Times* reported on June 15, 1880, that Gates was to “appear before the Retiring Board.” He may have been seeking a medical discharge and pension. The 1880 census indicated that he was living, albeit briefly, with his family in Athol. As of October 19, he was assigned to the Experimental Board, New York City. These boards assessed developments in naval engineering. A forgiving organization, the Navy next assigned Gates to the U.S.S. Richmond, flagship of the Asiatic Fleet.



(Top) Drawing of the machine shaft invented by Gates. The arrows indicate the conical bearings that are lubricated when oil from the reservoir (E) is released through valves by the spring. (Bottom) Drawing of the wrench patent partly assigned to Gates by Ratcliff. The pivoting “carrier-arms” (K) hold a roller (N) that can enable the wrench’s use as a pipe wrench. When the arms are swung back, the wrench becomes an ordinary nut wrench. The internal spring (arrow) keeps pressure on the carrier arms when they are swung backwards or forwards.



A drawing of the Gates reel and a four-pillar version of the reel itself. The pressure-controlling spring (h) is shown in the hollow spool arbor. A drag spring (G) squeezes a rubber drag ring (L) against the left spool flange.

On November 10, 1882, Gates was admitted to the Naval Hospital in Yokohama after a relapse of his so-called “mania.” In December, he was transferred to the Naval Hospital at Mare Island, California, after being declared unfit for service. He was then transferred to the nearby Hospital for the Insane in Napa, before being discharged on June 15, 1883. Following treatment at the new Army & Navy Hospital, Hot Springs, Arkansas, Gates retired from the Navy on June 7, 1884.¹

Even before his retirement, George Gates embarked on a new career as an inventor. He applied from Athol for a patent for a harness-trace² on September 5, 1883. Over the next two years, he applied for and was granted patents for a trunk handle, a machine shaft with self-lubricating bearings, a shirt sleeve, and a machine for making a shirt sleeve. He also was assigned one-half of a patent for a sliding-jaw wrench.³



The patent model for the Gates reel, owned by the Smithsonian Institution.



A four-pillared Gates salmon reel.

At last we come to Gates' *tour de force*, the fishing reel he patented in 1888. It was a single-action reel with a spring-loaded shaft in the hollow spool arbor. The shaft controlled the pressure of a friction brake on the spool flange inside the tailplate. This drag enabled the angler to continue holding the crank knob while a fish was drawing out line. I believe that the inspiration for the mechanism may have come from Gates' patented machine shaft, which also was hollow to

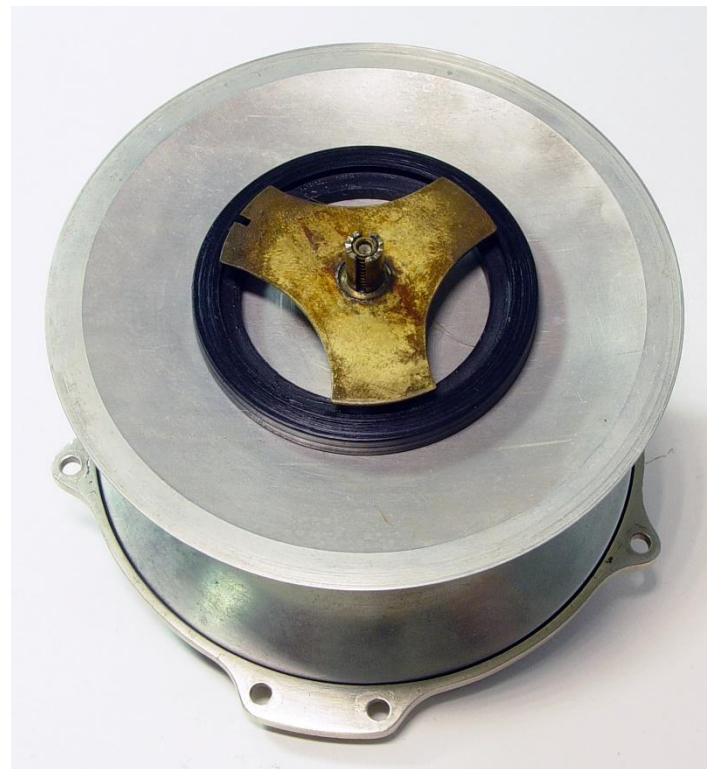


Tailplate of the Gates reel. The knurled nut adjusts the tension on the interior spring and, thereby, on the drag shoe.

accommodate spring-loaded valves at the ends of an oil reservoir.

The model is one of the few reel patent models still owned by the Smithsonian Institution.⁴ The reel must have been marketed, if only briefly, as at least two sizes of the hard rubber/German silver salmon reel reside in collections. They have three pillars, like the patent model, or four pillars, like the example illustrated here.

Who made the Gates reel? The most unusual structural feature of the reel is the cast foot, with its central hole and U-shaped cutouts at the crossbridge ends. A number of collectors pointed out that similar feet have been observed on reels that were made decades later, but none of the experts consulted mentioned any seen on reels made in the early 1890s. Years ago, I saw photographs of a salmon reel that was almost identical to the Gates but lacked the Gates clutch and drag. Neither the owner nor I could identify the maker, who used a similar foot.



The Gates drag, showing the metal drag spring on the rubber drag shoe.

I have a partly developed theory as to the maker. A.H. Dirkes was a leading tackle dealer in New York City, who was advertising his manufacture of reels by 1888, the year of the Gates reel patent. It is well known that Dirkes was an agent for Holzmann reels. Some early Holzmann reels had cast feet with various patterns of holes. Another reel inventor was William

Kramer, a Brooklynite whose places of employment are not known. However, there is reason to believe that he may have worked with Holzmann. One of Kramer's patented reels used a hollow, plastic spool arbor to house a drive shaft with conical bearings that were lubricated by means of spring-loaded ball valves at the ends. The feature could almost be considered a variation on the Gates theme of self-lubricating bearings.⁵ For these reasons, I think it is possible that the Gates reel was manufactured under the auspices of Dirkes, perhaps by Holzmann or Kramer.

Another possibility, rather remote, is that Gates might have consulted with Montague City Rod Company, which was located only sixteen miles from Athol. Although Montague was not yet making reels, they could have suggested that he ask the Chubb company in Vermont to custom-make his reel.

In 1891, Gates patented a hinged lid for a lamp that facilitated refilling it with kerosene. He remained in Athol until relocating to Welaka, Florida, about 1895. Over the next seven years, he was treated for unspecified problems twice at the Army and Navy Hospital in Hot Springs, Arkansas. However, he was living in Washington, D.C., in 1900, and he died there on December 29, 1902, of nephritis. George S. Gates was buried in the Gates family plot in Pine Grove Cemetery, Templeton.

Studying engineering at Harvard and naval engineering at Annapolis, Gates knew what he wanted to do, and a bright future lay before him. It is sad that his adult life was punctuated by devastating episodes of mental disturbances. Based on its willingness to continue employing him and assigning him to critical projects in spite of those episodes, the Navy clearly valued his work. Nevertheless, his illness eventually led him to retire before his thirty-ninth birthday. We should be grateful that his meager legacy at least includes an elegant salmon reel esteemed by collectors.

Notes

1. Gates' retirement entitled Assistant Engineer George W. Snyder to be promoted, but Snyder died before promotion. The position was held for Assistant Engineer W.O. Chrisman, but he became ill before being examined and had to retire. A replacement was not named until June, 1887.
Most of the dates of service history were obtained from the *Register of the Commissioned and Warrant Officers of the Navy of the United States and of the Marine Corps*, published annually by the Government Printing Office, Washington, D.C. The history of Gates in *The Records of Living Officers of the U.S. Navy and Marine Corps*, 5th edition (Lewis Randolph Hamersly, Philadelphia, Pa.: L.R. Hamersly & Co., 1894, pg. 385) contains some incorrect data, which apply to another engineer listed just above Gates in the official Registers.
2. A trace is one of two straps that connect the harness to the singletree, the pivoting crossbar in front of a horse-drawn vehicle. Gates added a twisted-wire loop to strengthen the connecting slot of a leather trace.
3. The patentee/assignor was William H. Ratcliff, Middleborough, Mass., whom I have not been able to identify in the records consulted.
4. Vernon, S.K. The Smithsonian Institution's Fishing Reel Patent Models. *Antique Angler*, Nov./Dec., 1984, pp. 1-4. (see <https://www.antiquefishingreels.info/Articles/Smithsonian.pdf>)
5. Vernon, S.K. *Antique Fishing Reels*, 2nd edition. Havertown, Pa.: Stue Publ. Co., 2018, pp. 165, 249, & 277.

Acknowledgement

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