LIGHTHOUSE-RELATED PATENT MODELS

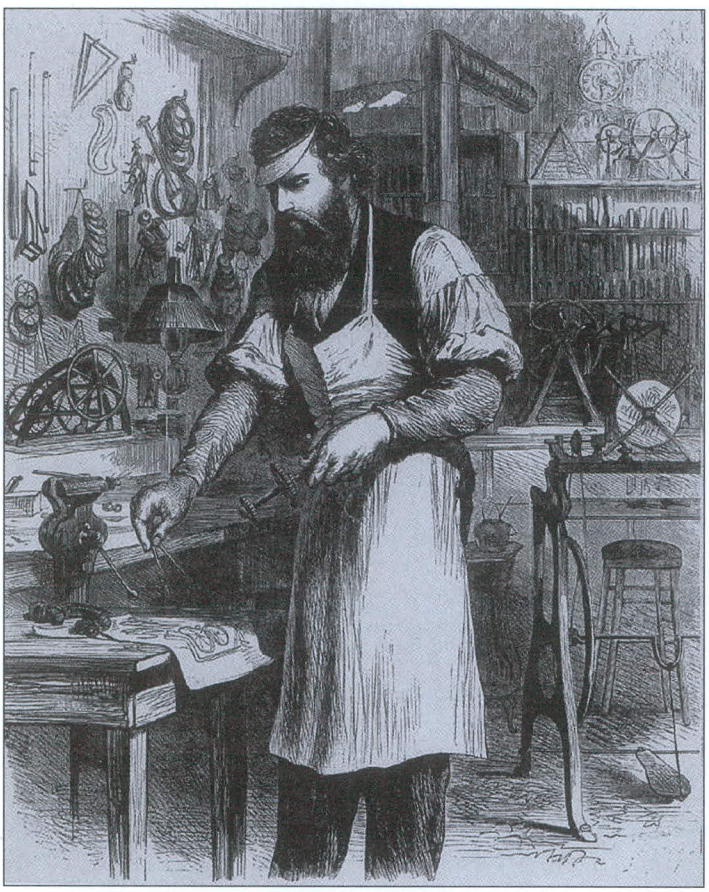
By Thomas A. Tag

Introduction

The United States Lighthouse Society became aware in early 2011 that some lighthouse-related patent models existed within the Smithsonian National Museum of American History (NMAH). We decided to produce a document identifying and defining these models and set plans in motion for the project in early 2012. This document is the result of that effort. It was produced with the help of a number of curators working at the NMAH. Involved were Fath Davis Ruffins, Barbara Janssen, Bill Yeingst, and Jennifer Strobel. We wish to thank them for their assistance in obtaining photographs of the various patent models. Chad Kaiser was also involved in the project and supplied the photograph of Wigham's Gas Burner, which is in a private collection.

What are Patent Models?

A patent model is a prototype of the invention, which law once required an inventor to submit to the U.S. Patent Office in Washington, D.C., when seeking a patent. According to the Patent Act of July 4, 1836: "The model, not more than 12 inches square, should be neatly made, and the name of the inventor should be printed or engraved upon, or affixed to it, in a durable manner." Patent models were all miniature devices, which greatly added to their appeal. Patent models were sent to the U.S. Patent Office with the patent drawings and specifications, which outlined the inventor's claims as to why his idea was new. The Patent Office examiners then used the models, along with the drawings and claims, to help them to understand the invention and how it worked. The inventor would often hire a professional model maker to turn his two-dimensional drawings into a three-dimensional miniature of his invention. Some inventors constructed their own models, but most used outside craftsman. The inventor had a choice of modeling the complete invention or only the patented element. Most inventors took great care to ensure their models were neither too small to be seen on the cabinet shelves in the Patent Office Model Museum nor too large to fit there.



A typical model maker in his workroom. Etching from *Harper's Magazine* 1868.

When a model arrived at the Patent Office, a receiving tag was made and attached to the model. Many of those tags survived and remain with the models today. After the review process was completed and if a patent was to be issued, a formal patent tag was created. It displayed the patent number, reissues of the patent (if any), patent date, inventor's name, and the name of the invention. This official patent tag was affixed to the model with a piece of thin, red tape, which government offices used in those days to bundle papers and the like. This red tape gave rise to the expression "government red tape." Patent models were used to highlight the invention in a visual manner, and their display at the Patent Office showed the evolution of technology during these early years.

The U.S. Patent Office Model Museum

The models were proudly displayed in the Patent Office Model Museum, located on F Street in Washington, D.C. There, in its four architectural wings, these beautiful examples of American progress were exhibited in rows of glass cabinets. People throughout the world came to view these miniature examples of patented inventions. To the inventor, the idea of potential investors or manufacturers studying his or her patent model offered a great incentive to craft a highly detailed model that would stand out on the crowded model museum shelves. Today, this still beautiful building houses the Smithsonian Institution's American Portrait Gallery.

In 1880 the Patent Office dropped the requirement for submitting models. From that time forward, the Patent Office relied only upon the inventor's submitted drawings and specifications in granting patents. This action was taken primarily because the Patent Office had simply run out of space in which to display the mass of models. Inventions were also becoming more complex and less amenable to be represented by models. Once the requirement for submission of a model was rescinded, a decline was immediately seen in the number of professional model makers working in Washington, D.C. After 1893 public interest in the model museum declined as other museums became popular.

Before the Smithsonian Institution acquired portions of the model collection from the Patent Office, the models had suffered through two major fires at the Patent Office. The first, in 1836, destroyed all the models that had been submitted up to that date (approximately 7,000). Not only were all the models lost, but all of the 9,000 patent drawings and records of patent applications and grants were also destroyed. These records were critically important, and the U.S. Congress appropriated $100,000 to restore the drawings and the most important models. During the restoration process the Patent Office met with the original inventors when possible to ensure an accurate reproduction was made of each invention. This restoration program continued until 1849, by which time several thousand drawings and models had been recreated. Prior to the 1836 Patent Office fire, patents had not been numbered. After the 1836 fire, patent models began to be numbered consecutively. Restored patents were given a series of new numbers called the "X-series." A second fire in 1877 destroyed about 75,000 models out of a collection, by that time, of more than 200,000.

In 1908 the Smithsonian's patent model collection was started with the acquisition of 284 models from the Patent Office. In 1912 Congress attempted to sell what was left of the patent model collection but had no bidders. The Patent Office models were hastily packed into more than 3,000 large, wooden storage crates and stored in buildings throughout the nation's capital.

In 1926 Congress decided to eliminate the storage expenses for the models and to sell them to the highest bidder. Before the auction took place, the Smithsonian Institution was given an opportunity to salvage some of the most significant models, and it also assisted in returning some of the models to the inventors' families or to the companies the models had helped to launch. Unfortunately, the models had not been organized or inventoried when packed, and the task of finding the critical models proved difficult, causing many important models to be left behind. The Secretary of the Smithsonian, Charles Doolittle Walcott, appointed two curators, Frederick Lewton and Carl Mitman, to select the historically important models. Mitman chose models specifically for the mechanical engineering collection, while Lewton selected a broader range of models. The collected models were then assigned to various divisions within the Smithsonian Institution. Over the years some of the patent models were shown either permanently or within specific short-term displays. However, most of the patent models remained in storage within the various Smithsonian museums and divisions and are seldom, if ever, seen by the public.

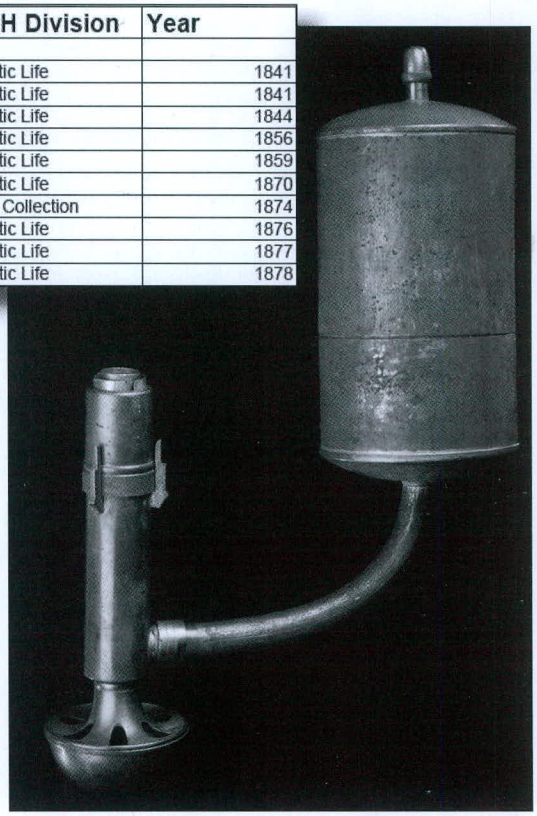
At the auction the majority of the models were disposed of as one lot to high bidder, Sir Henry Wellcome, founder of the famous pharmaceutical company Burroughs Wellcome. He hoped to establish a museum for the models but died before that could be accomplished, and the executors of his estate sold his entire collection to the general public.

Analysis of the Lighthouse-Related Patent Models

In 2010 the NMAH produced a study of the patent models within its collections and released a Patent Model Index. The U.S. Lighthouse Society reviewed the Patent Model Index and all patent models associated with lighthouses were identified. In addition, we located one patent model in a private collection that is lighthouse related. The actual patents were then downloaded from Google Patents and a listing was compiled.

The Society then contacted the museum curatorial staff and obtained photographs of each of the models in the collection associated with the lighthouse patents.

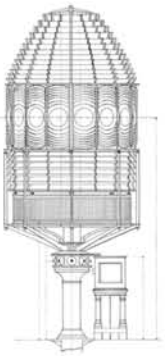
Patent Number	Invention Name	Inventor	NMAH Division	Year
1934	Lamp, Argand	Hemmenway	Domestic Life	1841
2039	Lamp, Argand	Greenough	Domestic Life	1841
3692	Lamp, Lighthouse	Lewis, Sr.	Domestic Life	1844
14492	Lamp, Oil Regulator	Coates	Domestic Life	1856
25611	Burner, Incandescent Gas	Smith	Domestic Life	1859
109303	Burner, Paraffine	Doty	Domestic Life	1870
148909	Burner, Gas	Wigham	Private Collection	1874
177825	Lamp Burner, Lighthouse	Funck	Domestic Life	1876
190979	Light, Floating Signal	Pintsch	Domestic Life	1877
204806	Lamp Self Lighting, Lighthouse	Forrest	Domestic Life	1878



Above: Sample of the lighthouse-related patent listing. Right: Photo of the lighthouse lamp, patent number 3692. Photo from author's collection.

The data collected are very large and the photographs are in high resolution. Therefore, we have created a PDF file that includes each patent description with its associated patent drawings and the photograph of its patent model. We have also included a short description of how the particular patent was used (or not used) as an element of lighthouse technology and, in some cases where further information can be found, about its use. You can access this PDF file by getting on the U.S. Lighthouse Society web site at http://www.uslhs.org/about.php and clicking "Resources." Then click "Lighthouse Related Patent Models" and the PDF file will download to your personal computer.

Join the U.S. Lighthouse Society Today or Give the Gift of Membership!



Restoration & Preservation

Thomas Point Shoal Lighthouse, MD

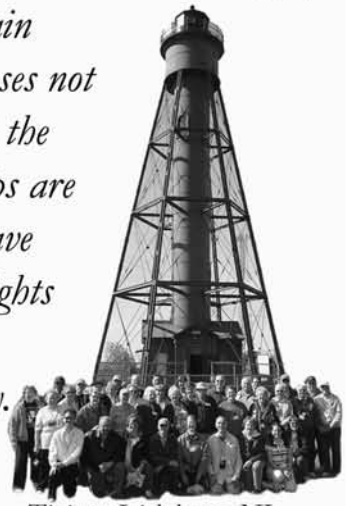
The U.S. Lighthouse Society has donated to many lighthouse preservation projects throughout the U.S. Most recently we were honored by being presented with the Preserve America Stewardship Award from The White House for our restoration work at Thomas Point Shoal Lighthouse.

Help Support Our Important Mission!

Education

The Keeper's Log *magazine is the only one of it's kind and has been published quarterly since 1984. Receive this award-winning publication as a benefit of membership.*

The Society organizes domestic and international lighthouse tours. Many of our excursions gain access to lighthouses not normally open to the public. These trips are a great way to have fun, see lots of lights and learn about lighthouse history.



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