

Western Union Museum

The Western Union Museum had its beginning at 195 Broadway in 1912 and is now located on the mezzanine at Western Union headquarters. Mr. H. W. Drake, Equipment Engineer, at the time, had planned to set aside old telegraph equipment for reference purposes. Having acquired a small collection of such antiquated equipment, he exhibited his first modest

collection in December 1915, in a cabinet that had previously housed exhibits at the Columbian Exposition in 1892. Today, the Western Union Museum covers approximately 7000 square feet of space and is considered one of the most complete collections of telegraphic history in the U.S. There are over two thousand items in the collection.



"73" in the above picture hanging on the wall of the Museum, symbolizes "Best Regards" of a group of telegraphers in the Cleveland, Ohio Office of Western Union in 1889. It is the telegraphers and the engineers who have donated much of the equipment now on exhibit in the Museum at Western Union Headquarters.

Morse "Picture Frame" Instrument

While returning from Europe aboard the packet ship "Sully," late in 1832, Samuel F. B. Morse, a noted painter joined in some lively discussions about electricity and magnetism with fellow passengers. Morse had been interested in this subject and had attended lectures at Columbia College. As a result of these discussions Morse conceived the idea of an electric telegraph. He made sketches of his first instrument and devised a code of dots and dashes for transmitting intelligence before the ship reached New York.

A replica of this device, shown in Figure 1, is in our Museum, the original was donated to the Smithsonian Institution in Washington, D.C., in 1900.

This device is called the Morse "picture frame" instrument. A frame from one of his canvasses was erected on the edge of a table. An electromagnet was attached at the bottom of the frame; suspended from the upper part of the frame was a triangular device for holding a pencil and an armature. A paper strip was arranged to move over a roller and under the pencil at a uniform rate by a clock mechanism. A small weight attached to the pencil holder enabled the armature to move away from the magnet when the electrical circuit was opened and to move back to the magnet when the circuit was closed. Short or long marks were recorded on the paper tape in response to the remote signalling. Transmission was accomplished semi-automatically by use of the device shown in Figure 1. Letters of the Morse code were cut out and set in the form of type in a holding device. This set type was driven by a hand cranked belt, under a lever which responded to the coded letters. At the other end of the lever contacts opened and closed in response to its movement. This device was not demonstrated publicly until 1837. Although it received the endorsement of the Franklin Institute in Philadelphia, adverse newspaper publicity had caused public rejection.

It was at this time that Alfred Vail made a chance visit to Professor Morse and succeeded in securing some financial aid for their further development.

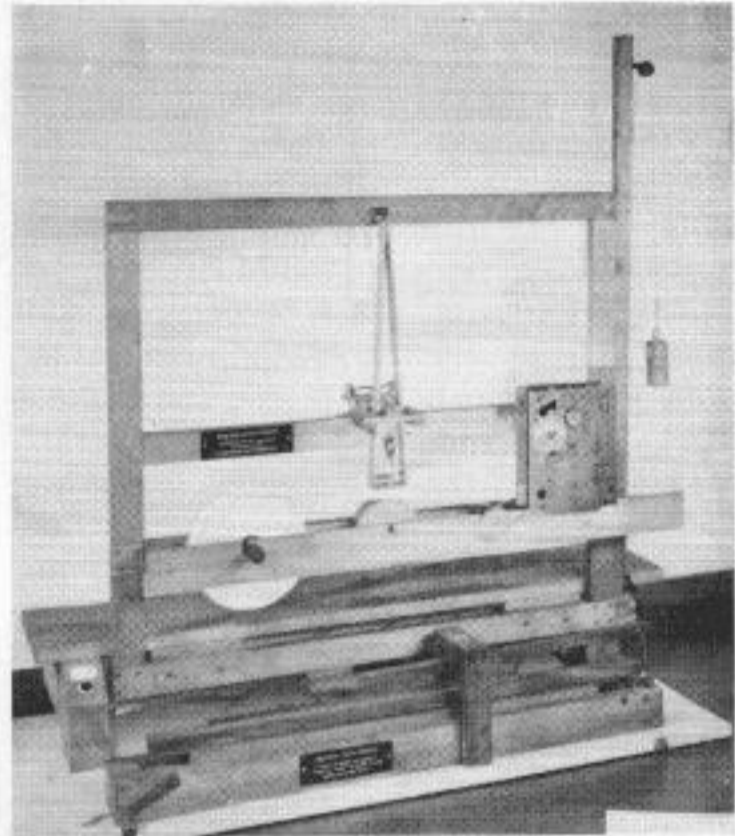


Figure 1. Morse Picture Frame Instrument

Register

With this financial aid and the mechanical skills of Mr. Vail, another device called the Register was constructed and tested. The "Register" was used successfully on May 24, 1844 to send the famous "What hath God wrought" message from the Supreme Court chambers, then in the Capital Building at Washington, D.C., to the Baltimore & Ohio railroad station in Baltimore.

The Western Union Museum has built two replicas of the "Register," one of which is on display in our Museum and shown in Figure 2. The other has been loaned to

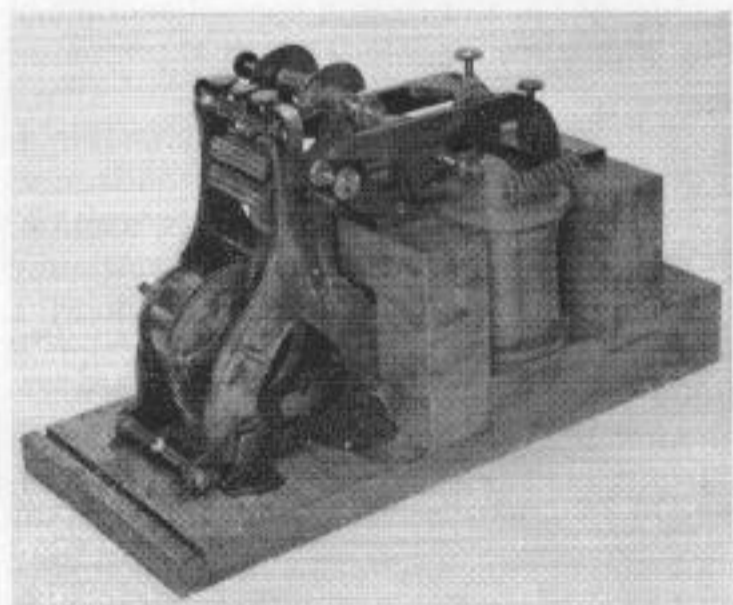


Figure 2. Register

various organizations for displays and exhibits all over the world. Prior to the construction of these two replicas, J. Schmid, the former curator, created a model of the original register from the patent drawings of Mr. Morse. This very interesting model has a place of honor in the Museum.

These early devices recorded on paper tape, marks which corresponded to the dots and dashes of the Morse code. These marks were transcribed into the telegraph message from the paper tape. It was not until 1856 that the telegraph operators were discovered transcribing the messages from the sound of the armature of the register striking its stops. Thus the sounder was born.

A few of these early sounders are now exhibited in our collection. Remarkably little change has taken place in this device from those early days to the present time.

Telegraph Keys

Morse gave up the idea of "automatic transmission" of messages when he designed the Register. A telegraph key was substituted. A large collection of over 100 keys, covering the period from the early days of telegraphy to the present time, are now on display. Among these are a silver key used by President Grant and a Japanese key from the Nagasaki R.R. station recovered after the Atomic explosion in 1945 and many more.

Cables

A large display of underseas cable equipment is shown in a special section of the Museum, devoted to this phase of telegraphy.

Dining Room furniture of Cyrus Field, a donation of William Judson, grandson of Cyrus Field, is exhibited in this section. The discussions and plans of the Atlantic cable were made around this table and the contract for laying the cable was signed thereon.

After the first Atlantic cable was laid, the surplus was bought by Tiffany and Company of New York. This was cut into four inch pieces which were bound at each end, and sold to dealers and interested parties for \$25 per 100 pieces. They were retailed

for fifty cents each, "so that everyone could participate in this great venture." Twenty miles of this surplus cable was submerged to the bottom of the Atlantic Ocean to make it authentic for souvenir sales. A facsimile of a statement by Cyrus Field, stating that the cable was authentic was furnished with each piece. A number of these pieces are on display.

Equipment used in the operation of the early cable such as mirror galvanometers, the oil lamps and scales used in conjunction with them and other associated devices are also displayed here.

Many other pieces of cable history from the first cable to the first underseas cable repeater which span the years of total cable operation, are exhibited in the Museum.

Thompson Siphon Recorder

A Thompson Siphon Recorder has been refurbished and put in working condition for the Museum. It is currently on loan to the Ford Motor Company. We believe this to be the only one of its kind still in existence in the world. This device, shown in Figure 3, was used to record the transatlantic cable messages in dot-and-dash form, on a paper tape.

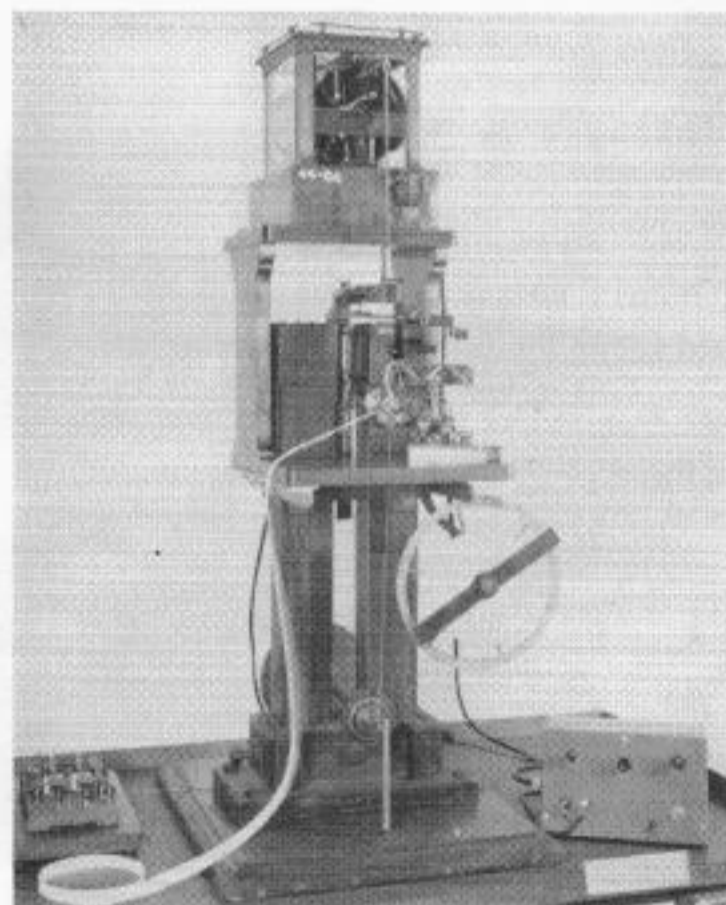


Figure 3. Thompson Siphon Recorder

Russian-American Telegraph

The failure of the first Atlantic cable caused doubts as to whether a cable spanning the ocean was practical. With the successful completion of the transcontinental line the concept of communication with Europe via Alaska and Siberia using a short cable across the Bering Sea was considered. Agreements with the Russian Government to construct part of the Siberian section and with the American company to construct the North American and some of the Asian portions of the line were made. Work was well under way, when in 1866 Cyrus Field laid his third and successful cable. Although this Russian-American telegraph line was partially completed it was abandoned as an intercontinental system.

A piece of the line from this historic venture that was enveloped by the growth of a sapling into a tree is on exhibit. It was recovered in British Columbia. In retrospect this historic venture could not be called a failure. It was through the conferences, in connection with building the line, and the information gained about Alaska during its construction, that Hiram Sibley, President of Western Union, recommended that the territory be purchased by the United States.

In reference to the transcontinental line mentioned above, a few insulators recovered from it are also displayed. Numerous items of this early period of the development of the telegraph are on exhibit.

Printing Telegraph

Morse's first and second telegraph devices were of the recording type, recording dots-and-dashes on paper type. In the year 1846, two years after Morse's successful demonstration and the year in which the telegraph was extended as far as New York, Royal E. House patented a printing telegraph system which could send and receive fifty words a minute in Roman letters instead of dots-and-dashes. A model of House's invention is the earliest of our exhibits of printing telegraph equipment. In the 1930's Western Union developed its own line of printers and printer-perforators.

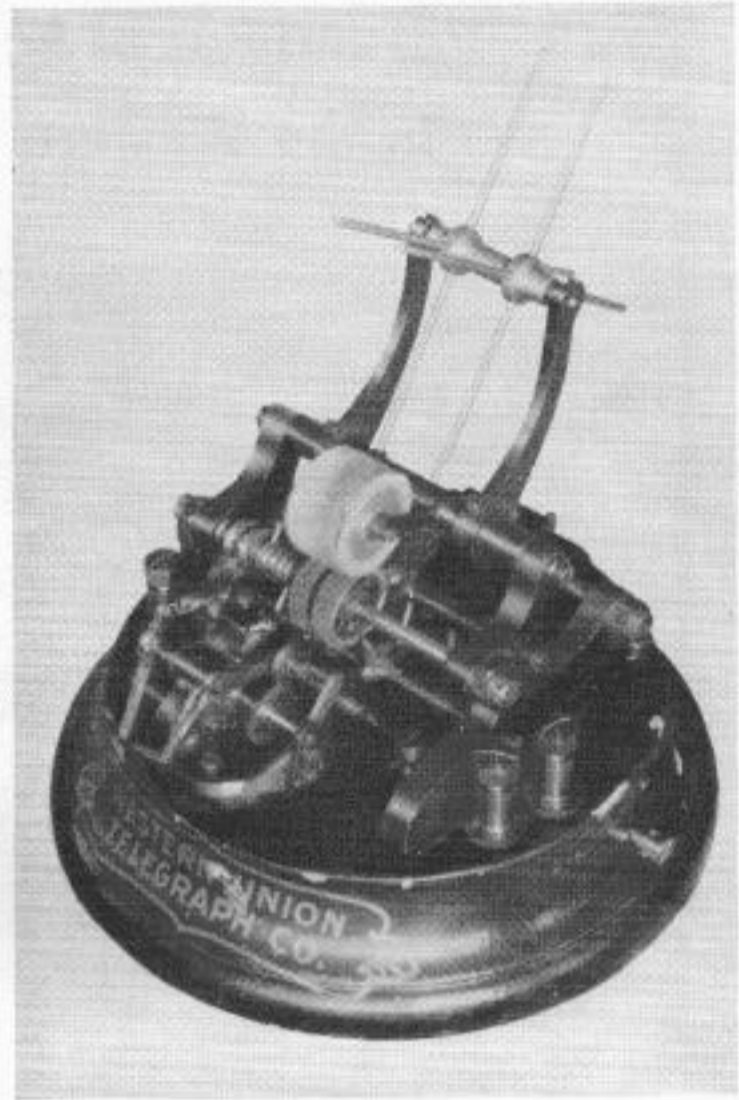


Figure 4. Stock Ticker

Stock Tickers

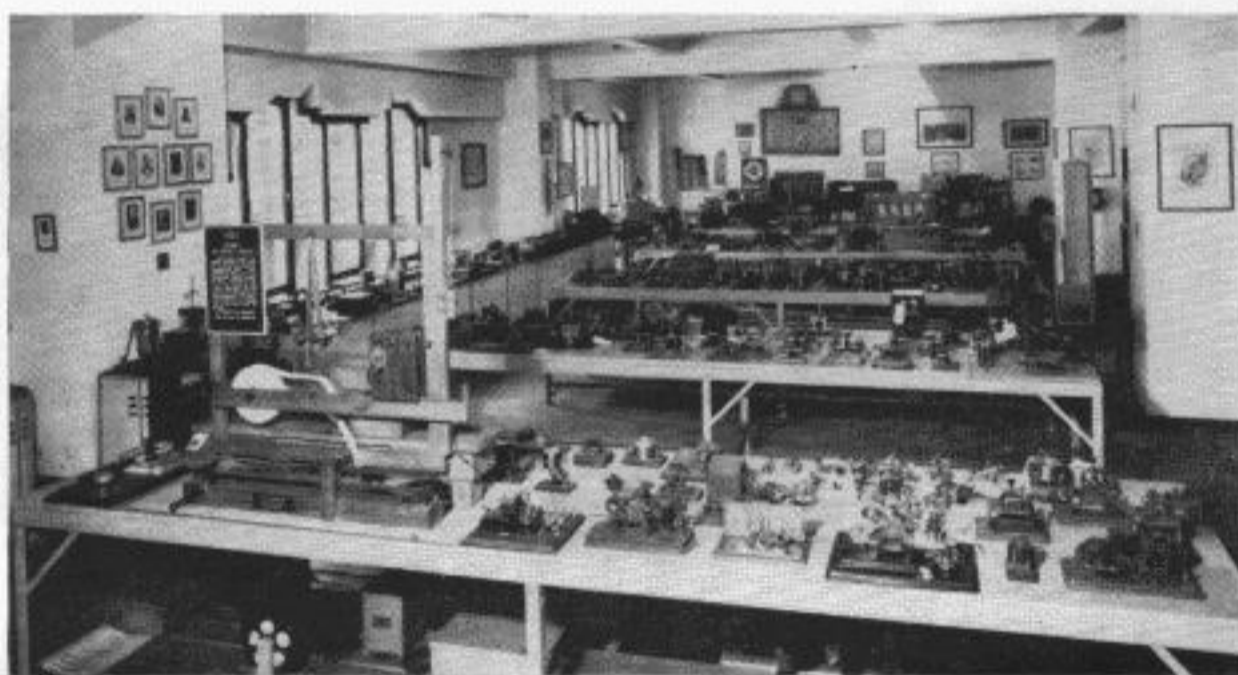
Stock market quotation telegraph equipment, some of which were developed by Thomas A. Edison, are displayed in a section of the Museum devoted to ticker development. A Universal Ticker is shown in Figure 4.

Vacuum Tubes

Early in the development of the vacuum tube, Western Union engineers visualized the possibilities of this electronic device. A number of DeForest tubes are among our valued treasures. Some of these are of the baseless type. The leads for their connections are extended directly through the glass envelope. Others of these tubes have screw type bases for the filament connections and wire leads for grid and plate connections.

An interesting exhibit of the early days of tube development is the equipment used by Major Armstrong in his invention of the regenerative circuit in 1912. It was donated to our Museum by his estate.

Views of Some Displays In the Western Union Museum



Facsimile

In another section, our Facsimile telegraph history is recorded from the early lathe-bed machines to the present day "Telefax" models. In this exhibit, equipment which was used to transmit photographs from London to New York are shown. A brochure of photographs received on these machines make an interesting addition to the history of that era.

The model of the original "Desk Fax" using a fruit juice can is shown in Figure 5. It was assembled in the basement workshop of its inventor. The complete evolution of the development of the "Desk Fax" is exhibited.

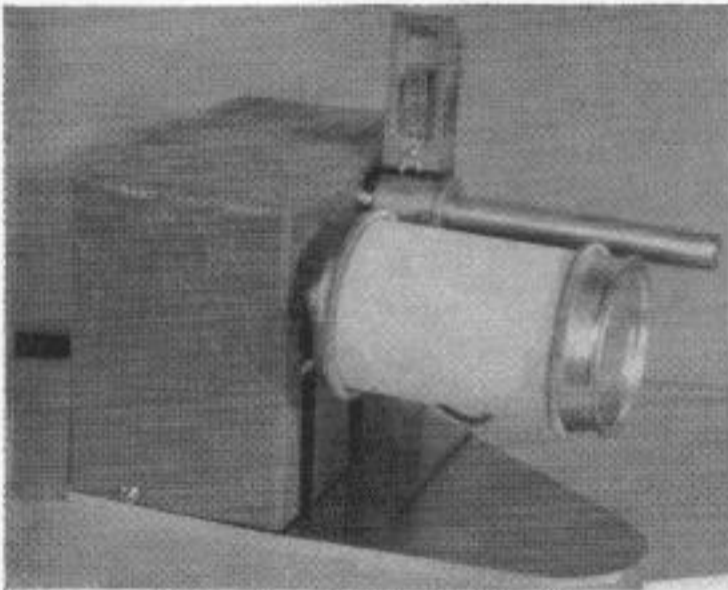


Figure 5. Original Desk Fax

Switchboard

One of the largest single pieces of equipment on exhibit is an 80-spring-jack peg-type switchboard from Pueblo, Colorado circa 1880. This switchboard made of oak, about 8 ft. high and 10 ft. long and about 4 ft. deep, was shipped to us intact. It had to be dismantled to transport it from our re-

ceiving platform to the Museum space and then reassembled for exhibit.

Smaller Exhibits

Two of the smallest items is a "sub-miniature diode" used in present day telegraph circuitry, and an old door knob. This is a very special door knob from a conference room in the Reynolds Arcade Building in Rochester, New York where the Western Union Telegraph Company was founded.

Photographs, documents, books, papers and many other items that make up our vast collection are cataloged. A card file, giving a short history and reference number for each piece, plus the name of the donor as well as other pertinent information is kept by the Curator.

Loans and Tours

While the era of Dot-Dash Telegraphy is now only history, it may be interesting to note that telegraphy opened the door to new paths in the young science of electricity and led to later developments in telephone, radio, television and the whole electronic era of today, including Satellite Communications.

Parts of the collection have been loaned to other museums for special occasions and exhibits. Some pieces have been used in movies and TV shows, as well as for our own reference.

The Curator is available to conduct a tour of interested employees or others through the Museum on appointment. The education of those unfamiliar with the heritage of Western Union and our early developments in the Telegraph art is a basic function of the Western Union Museum.

Mr. J. E. STEBNER, Project Engineer, Data Systems Division, Information Systems & Services Dept. was appointed Curator of the Western Union Museum in 1962. He has been responsible for securing additional exhibits, for loans of equipment to other museums and exhibitions, all necessary cataloging of the exhibits and for conducting tours of the Museum.

He joined Western Union Telegraph Company as an Equipmentman in 1929. Upon graduation from Pratt Institute in 1943 he was transferred to the Engineering Department and was assigned to the Switching Systems Division where he was associated with the development of switching systems for Plan 20 through Plan 301.

