



## THE GREAT AMERICAN CLOCK





An Exhibition of American Clocks from c. 1800 to c. 1935

# THE GREAT AMERICAN CLOCK



November 2, 1981 - February 26, 1982

Frank H. McClung Museum  
College of Liberal Arts  
University of Tennessee, Knoxville

For clocks illustrated on the cover see pages 34, 24, 16.

## FOREWARD

You may ask yourself "Why a clock exhibition in Knoxville?" To be sure, there are larger museums with a wider selection of clocks available, but representations of clocks produced in the East Tennessee area are not necessarily to be found in their locale. It is hoped the success of the exhibition has created interest in our local horological history and early clock production.

In 1980 one of our members suggested that the McClung Museum had good facilities for a clock exhibition. Ms. Elaine Altman Evans, Curator of Collections, became interested in planning an exhibition about American clocks and sought assistance from our members and other clock owners in the area. While attempting to locate various clocks produced by American clock manufacturers, some interesting examples were discovered made by local craftsmen in the East Tennessee "frontier." In addition to these few clocks there may be more than we think still to be found.

On behalf of the members of Chapter No. 42, I wish to dedicate this book to Myrtle Ann and Clyde Welch, formerly of Oak Ridge, Tennessee, who played a major role in furthering interest in horology. Among the founders of Chapter No. 42 in 1963, they were an inspiration to all who were involved in learning about clocks. Their dedication extended from the local to the national level.

Myrtle was a Fellow and former Director of the national organization, and held numerous offices in the local chapter, including President. Clyde was a former Fellow and Committee Member of the national organization. They were charter members of our chapter, and were not only dedicated and enthusiastic clock collectors themselves, but advised many clock collector friends across the United States. I am sure they would have been most pleased to have taken part in this exhibition.

Mary Carpenter, President  
Tennessee Valley Chapter No.42  
National Association of Watch  
and Clock Collectors

## ACKNOWLEDGEMENTS

In the preparation of the exhibition, the writer wishes to gratefully acknowledge the unsparing assistance and friendly support given to her by the members of the Tennessee Valley Chapter No. 42 of the National Association of Watch and Clock Collectors, in particular Mrs. Mary Carpenter, President, without whose knowledge and enthusiastic cooperation the exhibition would not have been possible. I would also like to thank Dr. Kermit E. Duckett who gave freely of his time, help and encouragement, Dr. James H. Coulson and Dr. James W. White, both for their invaluable advice and expertise, and to Dr. Harold Diffler who kindly introduced me to members of Chapter No. 42 and sparked the idea of a clock exhibition.

A special expression of gratitude is extended to members of the Museum staff, especially

Dr. Paul W. Parmalee, Director, for reading the text and making valuable suggestions; Mr. Andrew W. Hurst, Exhibits Coordinator, who was responsible for the skillful design and preparation of the exhibition installation; Mrs. Betty Creech, Senior Secretary, for patiently typing the labels; and to Miss Mary Wade, Work Study Student, for typing the catalogue text.

Finally, I wish to express my appreciation to the Museum of the National Association of Watch and Clock Collectors; American Clock and Watch Museum, Inc.; Mayor Gary Wade, Sevierville; Special Collections, U. T. K.; Law Library, U. T. K.; Armstrong-Lockett House; Smoky Mountain Historical Society, and the Mountain Press for their kind cooperation in providing material that greatly enhanced the exhibition.

Elaine Altman Evans  
Curator of Collections

## INTRODUCTION

The need to divide a day into measurable periods of time was recognized as important in the earliest periods of civilization when simple non-mechanical timekeeping methods were devised. Following the advent in the Old World of the first accurate mechanical clocks in the 13th century, numerous types of improved timepieces were subsequently developed. Progress was gradual and even during the 17th and 18th century only the wealthy could afford to own a clock.

By the early 19th century American clockmakers had begun to contribute ideas for new manufacturing techniques, including innovative mechanical and design techniques. Perhaps the single most important contribution was the introduction of production methods that could meet the demands of a newly industrialized world.

The builders of American clock empires, Thomas, Welch,

Ingrahams, Gilbert, Waterbury and others made important contributions to this growth. Not only were vast numbers of clocks produced but inexpensive timepieces were created that could be afforded by almost everyone. If the basic style of a traditional clock sold well, it was often adopted by a variety of manufacturers. The earlier small factory had now become a large mass production industry.

I have drawn upon many published sources in preparing the catalogue, in particular Chris H. Bailey, Two Hundred Years of American Clocks and Watches, Eric Bruton, The History of Clocks and Watches, Brooks Palmer, The Book of American Clocks, and Roy Ehrhardt, Clock Identification and Price Guide, I-II. A partial list of other works consulted can be found in the bibliography. It is hoped that the catalogue will prove useful, especially to those who gave so generously of their support.

Elaine Altman Evans  
Curator of Collections

PILLAR-AND-SCROLL CLOCK,  
c. 1824

30-Hour Time & Strike  
Weight Driven Wood Movement  
E. Terry & Sons, Plymouth, Conn.



This clock houses an example of a five-wheeled train movement that Terry patented in 1823. The mahogany case has been recently restored and new sections added, but it shows the typical scrolled pediment in the Chippendale style,

bracket feet, curved apron, pillars flanking the case, and painted glass tablet. Terry made many variants, with 30-Hour and 8-Day movements, that were copied by other makers.

Sundial, which was probably a simple astrolabe. Although sundials were known, he gave his Sundial a correction for the varying seasons.

Han Dynasty (202 B.C. -A.D. 220)

In China a jade Sundial was in use that was graduated in accordance with the course of the sun for the longest day of the year. The Arabic world developed excellent sundials as well.

DIVIDING DAY AND NIGHT...

From the early mists of civilization people have needed to separate life into measurable periods. At first time was simply divided by the alternating periods of light, darkness and seasonal changes. The rising and setting of the sun and moon were very important. Then, attempts were made to divide the time from dawn to sunset into equal parts as well as that of night.

Early Methods Were Uncomplicated

After it was observed that the moving shadow of the sun could be used to measure daylight hours, the Shadow Clock emerged as a practical timekeeper. Through the centuries it has been used as an instrument to show the time by the shadow of its Gnomon (pointer).

Anaximander (c. 611-c. 547 B.C.)

The Greek philosopher Anaximander has been credited with the invention of the first "accurate"



Fig. 1. Egyptian obelisks were brought to Italy and used to tell time in Ancient Rome.

to carry about. American silver-smiths or pewterers made them, but examples are a rare find, today.

COLONIAL AMERICAN CANDLE CLOCK  
Reproduction

Candle-light is projected on the opposite face to indicate the night hours. Roman numerals on the face mark the hours and Arabic numbers show the time that has passed as the candle burns.

SAND GLASS  
18th Century

The Sand Glass was a simplification of the Water Clock, and of the same antiquity.

\*Date unknown for small Sand Glass at right.



Right to left: Colonial American Sundial, Colonial American Candle Clock, Sand Glass.

COLONIAL AMERICAN SUNDIAL  
Reproduction

In Colonial North America most early sundials were imported. Pioneers set their clocks according to the sun and small dials were used as 'pocket timepieces'



Sundial mounted on a pedestal, to use in a garden, c. 1900-1940 century.

The inscription around the edge reads: "Then View My Shades and Lines While Phoebus On Me Shines." Phoebus was the Greco-Roman Sun God.

Telling Time in Ancient Egypt

An ancient Egyptian day was divided into 24 hours--12 'hours of the day' and 12 'hours of the night,' calculated from the celestial positions in the night sky. Water clocks, flower-pot shaped vessels, were used to determine the 'hours of the night.'

The Water Clock (clepsydra) may have evolved at the same time as the Sundial.

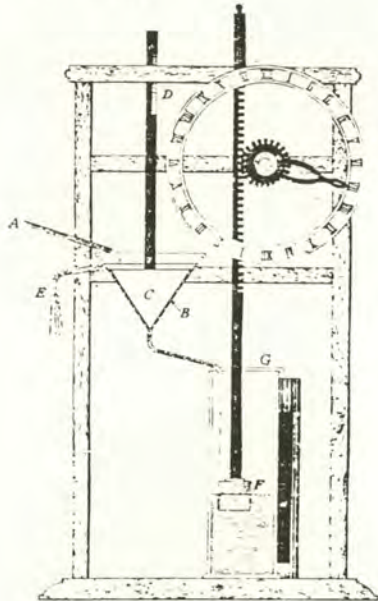


Fig. 2. A water clock developed by Ctesibius of Alexandria, c. 245 B.C. Time is measured by the flow of water from a small opening in a large container. Here water is fed into a funnel (B) and drips into a container (G). As the water rises a float (F) controls a rack which drives the clock.

A Gradual Development

The accurate mechanical measurement of time is based upon some repetitive movement that occurs with complete regularity. Although the genius of the verge escapement is unknown, the invention of the crown-wheel escapement in the late 13th or early 14th century heralded the start of mechanical clockmaking and a great new step in technological progress.

THE MECHANICAL CLOCK:

The mechanical clock did not suddenly emerge. Accurate mechanical clocks probably first appeared in the late 13th century and were driven by falling weights. Spring driven mechanisms were not in use before the 15th century.

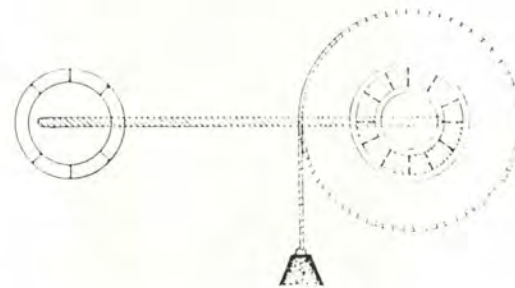
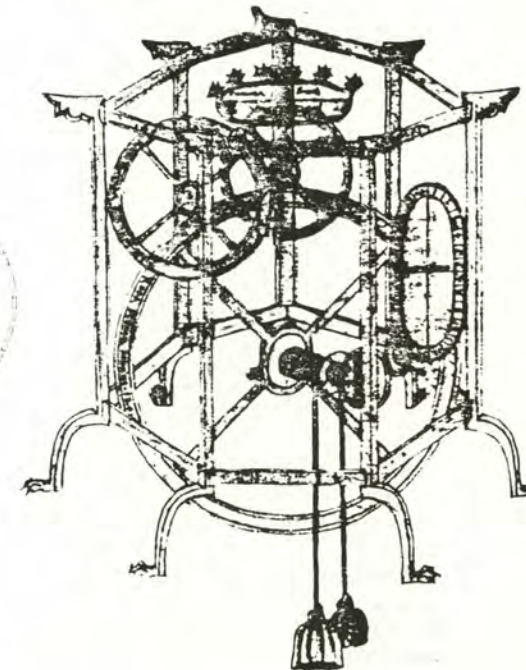


Fig. 3. This illustration of a clock with weights is from a 13th century Spanish manuscript. Mercury in the drum flows from one compartment to the next as the drum rotates. The horizontal bar turns a pinion with six teeth.

Fig. 4. A Drawing of Giovanni Da Dondi's clock mechanism, 14th century.



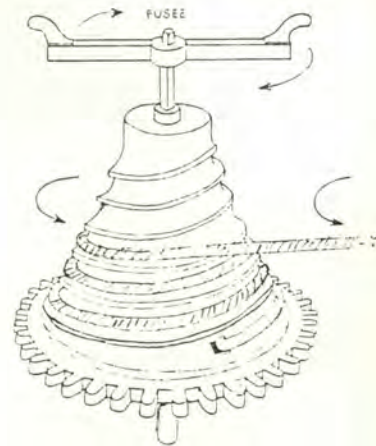


Fig. 5. The principle of the fusee was known as early as the 15th century, and is still in use today.

The earliest known drawing of a clock escapement showing the crown-wheel and the balance was drawn by Dondi, a professor at Padua University in Italy, for his astronomical clock of 1348-1364. The escapement has a crown-wheel that is turned by the weight, and the balance-wheel regulates the clock rate.



COTTAGE-STYLE CLOCK, 1848  
8-Day time & Strike  
Spring Driven with Fusee  
Forestville Manufacturing Co.,  
Bristol, Conn.

The spring driven clock appeared in the mid 15th century providing for more compact clock mechanisms. However a device was needed to compensate for the diminishing force of the spring as it uncoiled, a problem weight driven mechanisms did not have.

The fusee (cord) device provided the equalization of force. It was a conical drum with spiral grooves cut in it. Transmission of the varying torque of the spring to the movement through the fusee provided a constant force to the movement.

each swing of a pendulum was of equal duration that could be counted. Apparently no use was made of this principle for timekeeping until the following century.

### HOW THE PENDULUM WORKS

Kept in motion by impulses from the escapement, the pen-

### THE PENDULUM:

#### An Important Advance

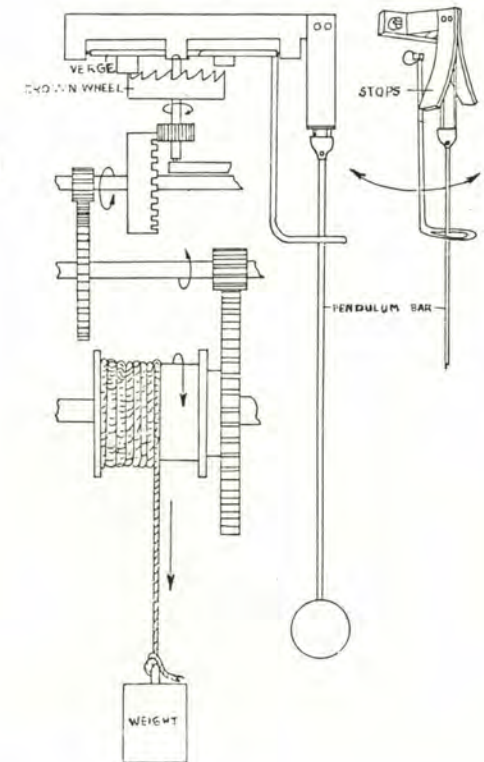
The pendulum, introduced in 17th century Europe, provided the best way of "regulating" clock speed. Accurate measurements of time were now possible.

#### Christian Huygens and The Pendulum

In 1657, apparently unaware of Galileo's work, Christian Huygens, a Dutch astronomer and physicist, developed the principle of the pendulum by determining the relation between the pendulum length and the duration of its swing. Huygens realized the swing time depended on the shaft length, not the angle of swing or weight of the bob. In 1673, Huygens applied pendulum control to clocks. Now the pendulum could control the driving force.

In the 16th century Galileo Galilei, the Italian astronomer and scientist, noted that no matter how widely it swung,

Fig. 6. The first pendulum clock mechanism designed by Christian Huygens.



This marvelous piece of craftsmanship has a brass eight-day movement that tells time in seconds, minutes, and hours, strikes on each quarter hour, indicates the day and date of each month, the phases of the moon, the orbit of the moon around the earth, the orbit of the earth around the sun, the signs of the zodiac, equation of time, and the positions of six planets and their interrelationship. Ten musical tunes can be played by the clock.

dulum controls the rate of the clock movement. The pendulum's swing time depends on the length. Temperature can affect the rate of a simple pendulum. If the temperature is hot the pendulum becomes slightly longer and its rate slower. If it is cold the shaft becomes shorter and the clock runs faster. In order to overcome a variation in time with temperature, elaborate "compensated" pendulums have been developed.

DAVID RITTENHOUSE (1732-1796):

This distinguished astronomer and philosopher was born in the Netherlands, immigrated first to the Rhineland and then to Pennsylvania where he constructed his first clock at the age of seventeen. Rittenhouse eventually became the Treasurer of Pennsylvania, a Professor of Astronomy, and Director of the National Mint. In 1774 he built a masterpiece that is probably America's foremost Tall Clock.



*David Rittenhouse*

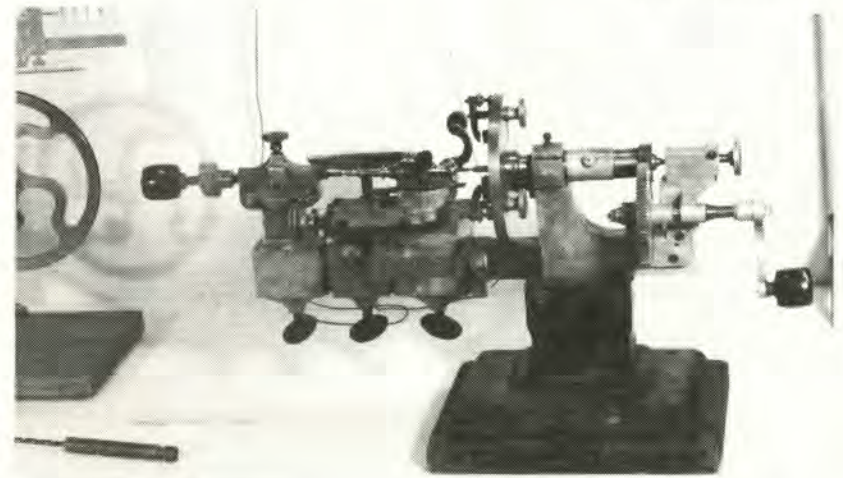
Early clockmakers served apprenticeships to masters in their native countries before emigrating to the colonies. After settling in America they taught colonial craftsmen the art of clockmaking. No doubt other clockmakers were self taught or had been trained in related technical or mechanical arts professions. Early clockmakers worked alone in a shop set up in their home or with a few apprentices.

A Reflection of European Traditions

When the first American clockmaker began his craft is difficult to determine, as little is known of clockmaking during the early colonial period. At first clocks were imported by special order or brought over to the colonies, mainly from Britain, by settlers of the 17th and early 18th century along with household goods.

Some basic movement components and tools were imported, but in times of trade embargoes or war the clockmaker had to

LATHE, c. 1810  
English  
Hand turned





rely almost entirely on his own skills. Since the demand for clocks was still small, the clockmaker found it necessary to be multitalented as a silversmith, goldsmith, and jeweler to supplement his income.

Around 1750, clockmaking became well established in the eastern seaboard areas, including New Haven, Boston, Newport, and Philadelphia. Villages and towns were expanding and many were prosperous enough to support a clockmaker.



Fig. 7. An Old World clockmaker's workshop, 16th century. Stradanus of Antwerp, Flanders, composed this scene to suggest the various clocks and tools to be found in such shops. At the left.

the master examines a wheel he removed from the vice before him on the table. At the right and left are wall clocks similar to the Wag-on-the-Wall Clock.

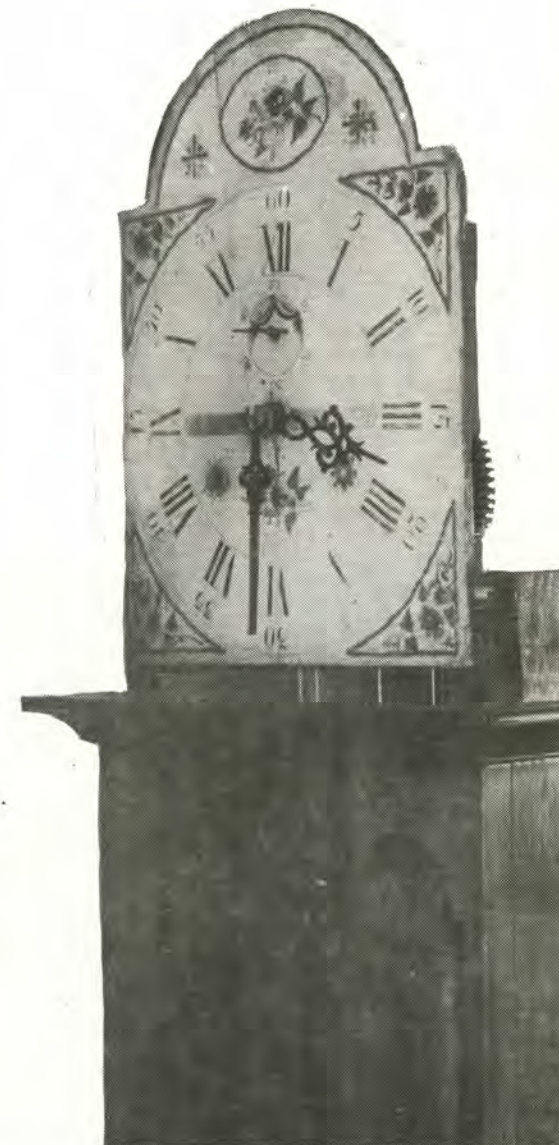
Wood Was Plentiful.....

Many clock movements were made of the readily available wood of the frontier forests, instead of brass; metals were scarce and expensive.

WAG-ON-THE-WALL CLOCK,  
c. 1819-1835  
30-Hour Time & Strike (Bell)  
Weight Driven Wood Movement  
Riley Whiting, Winchester, Conn.

Modestly priced hanging wall clocks like this example were intended for Tall-Clock cases, but used uncased until the clock owner could afford to have one made by a local cabinetmaker.

The weight driven movement is controlled by an oscillating pendulum. The movement's wheels have two functions: Time and Strike.



dized or interchangeable parts and quantities of identical parts for assembly line completion of clocks. Modern factory methods of clock manufacturing had begun.

Between 1807 and 1809 Terry completed an order to make 4000 wood Tall Clock movements. During that time he adapted his mass production business still further. Numerous clocks were produced by water-power driven belts and pulleys to drive the wood-turning devices, drills, saws and other machinery.

### ELI TERRY (1772-1852)

Eli Terry started his own clock-making business in Plymouth, Connecticut about 1793. A man of outstanding mathematical and inventive abilities, Terry produced precision wooden clock movements, using small hand-tools designed and made by him, a foot-treadle lathe for turning, and a hand-cranked clockmaker's engine for cutting wood or brass wheel teeth.

### The Birth of Factory-Made Clocks in America

In 1797 Terry was granted a patent for a mechanism to show Apparent as well as Mean Time. About 1800 Terry was producing 30-Hour movements for wood tall clocks that he sold without cases, which could be later made to order. By 1805 he had set up a small factory on a stream that provided power to quicken the turn of his machines for making wood clock movements. There, methods to reduce hand labor were introduced through standar-



PILLAR AND SCROLL CLOCK, c. 1825  
30-Hour Time & Strike  
Weight Driven Wood Movement  
E. Terry & Sons, Plymouth, Conn.

escapement wheels outside the dial, and an "outside-inside escapement."

His Sons continued in the clock-making business after Terry "retired," producing clocks under their own names.

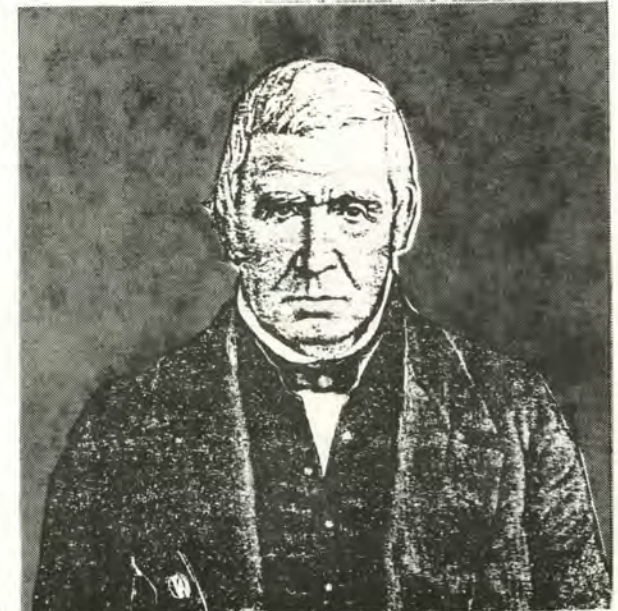
Evidence seem to indicate that Eli Terry originated the Connecticut Pillar and Scroll Clock case, a design probably influenced by the pillar and scrolled tops of many Tall Clock hoods. It was the first successfully mass produced clock in America.

Eli Terry established the firm Eli Terry and Sons in 1823.

Before Terry retired from active management of the firm in 1833, he had made the "outside escapement", wooden clocks with brass

"No year elapsed up to the time of his last sickness without some new design in clockwork...."

Henry Terry, a son of Eli Terry



ELI TERRY (1772-1852)

North Carolina had no bustling social centers to attract clockmakers; in Charleston, South Carolina, an important southern port, clocks were generally imported. There was a limited demand in the mainly farming frontier colonies, including Tennessee.

#### The Growth of Clock Distribution

After 1805, clockmaking began to increase and the northern clockmakers and peddlers made trips on horseback to sell their clocks. The peddlers strapped clocks to their horse's saddles and rode off to sell as many as possible. Money was scarce and clocks were hard to sell, so clocks were frequently traded for farmer's produce, including mules and chickens. Nevertheless, in 1824, some peddlers continued to order clocks on credit from clockmakers, as the profit could be good. In Tennessee the Pillar-And-Scroll Clock sold for \$8.00, with \$3.25 of it paid to the manufacturer! As clock production expanded, clockmakers sold their clocks wholesale to peddlers or middlemen who distributed them through peddlers.

#### An Act to Tax Clock Peddlers, 1830

Due to a resentment toward northern peddlers for taking profits out-of-state, Tennessee passed a law on January 5, 1830 taxing the peddler \$25.75 for a yearly licence to sell.

#### CLOCK PEDDLERS COME TO THE SOUTH

As clock making was not an active craft in the 18th century South, clocks were imported from England to meet the needs of the affluent. In Virginia, Thomas Jefferson commissioned Simon Willard of Boston to construct a clock for the Rotunda of the University of Virginia.



#### The Longest Established American Clockmaking Company

The Seth Thomas Clock Company, Plymouth Hollow, was incorporated in 1853 and overseen by Thomas until his demise in 1859. Six years later the town was renamed "Thomaston" in his honor. Although the company has been through some major changes since the early days, it still survives, but as a division of Talley Industries Incorporated. Seth Thomas movements are now made in West Germany.

#### SETH THOMAS (1785-1859)

In 1808 Eli Terry employed Seth Thomas as a skilled woodworker to make jigs, fixtures and other wooden items for a special order of 4000 clocks to be completed in 1809. Thomas and his partner Silas Hoadley bought Terry's factory in 1810 and three years later Thomas sold Hoadley their business, dissolving the partnership. Branching out on his own, Thomas purchased a factory already outfitted in Plymouth Hollow, Connecticut, where he produced wood tall clocks and 30-Hour wooden wheeled movements.

In 1818 Seth Thomas was granted the rights from Eli Terry to produce Terry's Pillar-and-Scroll shelf clock, with wooden movements, by agreeing to pay a \$.50 royalty on each clock, unlike other clockmakers who were circumventing Terry's patents. But later even Thomas found himself in a court action for apparent patent infringements.



FOUR COLUMN CLOCK. c.1850  
30-Hour Time — Strike  
Weight Driven; Visible Escapement  
Seth Thomas, Plymouth Hollow, Conn.

Variations of the Steeple Clock, such as the Double Steeple, Beehive, and Ripple Front came into use around 1843 when American coiled springs were produced. Other popular clocks came along somewhat later; the calendar about 1860 and the Kitchen in the 1870s.

The so-called Mantel clocks, made of black cast-iron, enameled wood, marble or metal, appeared around 1880 and had great public appeal.

#### BRASS TAKES THE SPOTLIGHT

About 1840, with the introduction of inexpensive brass for manufacturing movements, the use of wood was at an end. Brass was not affected by dampness and lasted longer than wood.

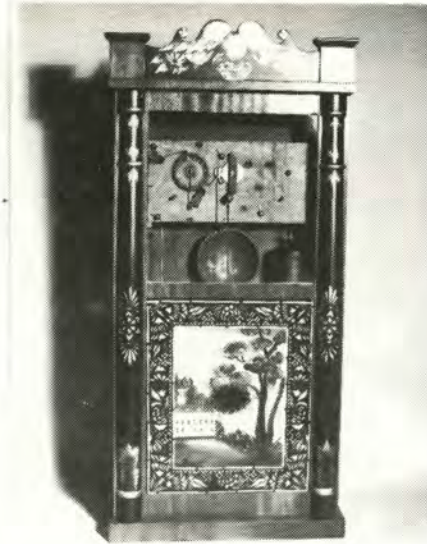
Silas B. Terry, a son of Eli Terry, developed and patented a process for tempering strip spring steel and forming it into clocksprings, thus making possible the manufacture of inexpensive clocksprings. The use of coiled springs to provide a clock with power opened the way for smaller case design as space for the motion of the weights was no longer necessary.

By the mid 1850s brass movement shelf clocks, both weight and spring driven, were produced in large quantities.

The Pillar and Scroll shelf clocks that Eli Terry began to produce around 1820 opened the way for variants of that type and the development of other clock case styles and movements. Terry's model influenced the development of the Transitional and later the Triple Decker clocks.

In the 1850s small clockmaking factories expanded into larger manufacturing firms. Some of these became huge industries that made a tremendous impact on clock manufacturing well into the 20th century.

In spite of strong competition between the clock companies, there remained a striking similarity in the majority of styles and types of clocks produced.



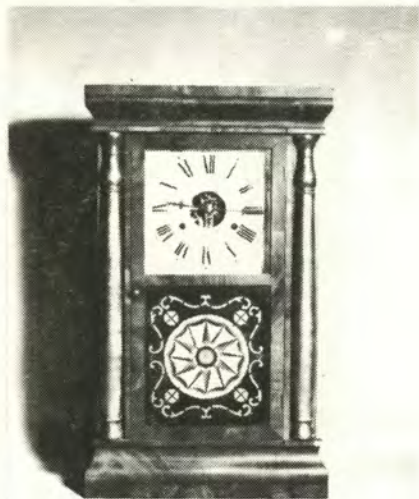
TRANSITION CLOCK, 1828  
30-Hour Time & Strike  
Weight Driven "Torrington"  
Norris North, Torrington, Conn.



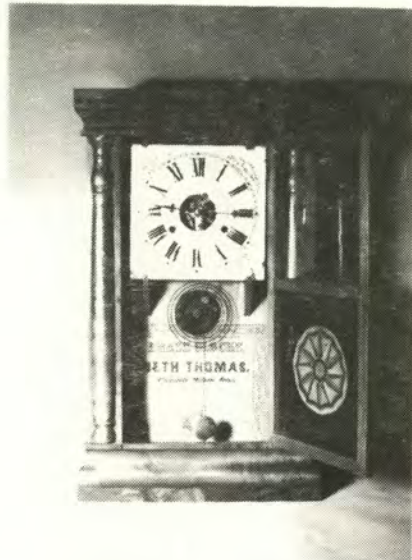
TRIPLE DECKER CLOCK, c. 1830  
8-Day Time & Strike  
Weight Driven Brass Strap Movement  
E. & G.W. Bartholomew, Bristol, Conn.



O.G. CLOCK, c. 1850  
8-Day Time & Strike  
Weight Driven  
E.N. Welch, Forestville, Conn.



COLUMN CLOCK, c. 1865  
30-Hour Time & Strike  
Weight Driven, Visible Escapement  
Seth Thomas, Plymouth Hollow, Conn.

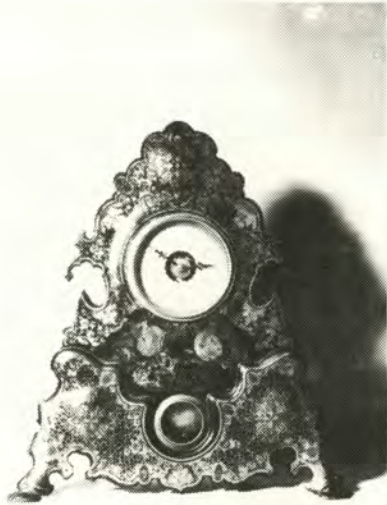


"PARLOR #4" CALENDAR CLOCK, 1876  
8-Day Time & Strike--Perpetual Calendar  
Spring Driven  
Seth Thomas Clock Co., Thomaston, Conn.



"CARY" CLOCK, c. 1884  
8-Day Time & Strike  
Spring Driven  
Welch, Spring & Co., Forestville, Conn.

Shelf And Mantle Clocks



IRON FRONT CLOCK, 1850s  
8-Day Time & Strike-Alarm  
Spring Driven  
Maker Unknown



ROUND GOTHIC CLOCK, c. 1859  
8-Day Time & Strike  
Spring Driven  
Ansonia Brass & Copper Co.,  
Ansonia, Conn. (case)  
Terry & Andrews, Bristol,  
Conn. (movement)



BLACK ENAMEL CLOCK, c. 1900  
8-Day Time & Strike  
Spring Driven; Brocot Escapement  
Wm. L. Gilbert Clock Co., Winsted, Conn.

Shelf And Mantle Clocks



BLACK IRON CLOCK, c. 1889  
8-Day Time & Strike  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



"COMPOSER" FIGURE CLOCK, 1882-1914  
8-Day Time & Strike (1/2 Hour Gong)  
Spring Driven; Visible Escapement  
Ansonia Clock Co., Brooklyn, N. Y.

Shelf And Mantle Clocks



"ADAMANTINE" CLOCK, c. 1900  
8-Day Time & Strike  
Spring Driven  
Seth Thomas Clock Co., Thomaston, Conn.



"ST. LOUIS" CLOCK, c. 1879  
8-Day Time & Strike  
Spring Driven  
Seth Thomas Clock Co., Thomaston, Conn.

Steeple And Cottage Clocks

DOUBLE STEEPLE CLOCK, 1850  
8- Day Time & Strike  
Spring Driven  
Forestville Manufacturing Co., Bristol, Conn.



"COTTAGE NO. 2" CLOCK, c. 1850  
30-Hour Time  
Spring Driven  
Jerome & Co., New Haven, Conn.

Steeple And Cottage Clocks

STEEPLE CLOCK, 1845  
8- Day Time & Strike  
Fusee Movement  
C. Boardman and By J. A. Wells,  
Bristol, Conn.



STEEPLE CLOCK. c. 1920  
8- Day Time & Strike (1/2 Hr. Gong)  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



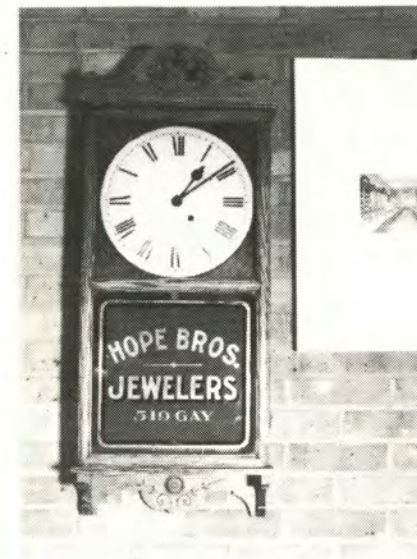
Calendar, Regulator And School Clocks



STANDARD ADMIRAL  
REGULATOR, c. 1903  
8-Day Time — Simple Calendar  
Spring Driven  
Wm. L. Gilbert Clock Co.,  
Winsted, Conn.



SCHOOLHOUSE CALENDAR CLOCK, 1876  
8-Day Time — Simple Calendar  
Spring Driven  
E. N. Welch Manufacturing Co.,  
Forestville, Conn.



"OFFICE NO. 6" CLOCK, c. 1900-1920  
8-Day Time  
Spring Driven  
Seth Thomas Clock Co., Thomaston, Conn.





REGULATOR CLOCK, c. 1925  
8-Day Time  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



IONIC CLOCK, c. 1887  
8-Day Time  
Spring Driven  
E. Ingraham Co., Bristol, Conn.



MARINE-LEVER CLOCK. 1860  
8-Day Time - Simple Calendar  
Spring Driven  
New Haven Clock Co.,  
New Haven, Conn.

"BEDFORD" KITCHEN CLOCK, c. 1874  
30-Hour Time-Strike-Alarm  
Spring Driven  
Waterbury Clock Co., Waterbury, Conn.



"TOPAZ" KITCHEN CLOCK, c. 1880  
8-Day Time-Strike-Alarm  
Spring Driven  
E. Ingraham Co., Bristol, Conn.

"SAMPSON KITCHEN CLOCK, c. 1910  
8-Day Time-Strike-Simple Calendar  
Spring Driven  
New Haven Clock Co., New Haven, Conn.

"Porcelain" And Crystal Regulator Clocks



"LA CLAIRE" ROYAL BONN CLOCK,  
c. 1882  
8-Day Time-Strike (Gong)  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



PORCELAIN CLOCK, c. 1900  
30-Hour Time  
Spring Driven  
Waterbury Clock Co., Waterbury, Conn.



CRYSTAL REGULATOR CLOCK,  
c. 1900-1930  
8-Day Time & Strike  
Spring Driven  
Seth Thomas Clock Co., Thomaston, Conn.

"Porcelain" And Crystal Regulator Clocks



"MORLAIX" CRYSTAL  
REGULATOR CLOCK, 1900  
8-Day Time & Strike  
Spring Driven; Brocot Escapement  
Waterbury Clock Co., Waterbury, Conn.



CRYSTAL REGULATOR CLOCK, 1896  
8-Day Time & Strike  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.

## Banjo Clocks

The Banjos were extremely popular wall clocks, one of the most copied, and pure American in design. The inventor of the original model, Simon Willard (1753-1848), started his clockmaking business in Roybury, Massachusetts in 1778, and patented his design in 1802. Variants of the Banjo were introduced around 1842 by Howard & Davis and many others produced plainer models used in offices, public buildings and railroad stations.



BANJO CLOCK, c. 1858  
8-Day Time  
Weight Driven  
E. Howard & Co., Boston, Mass.

## Banjo Clocks



BANJO CLOCK, 1904  
8-Day Time  
Weight Driven  
Waltham Clock Co., Waltham, Mass.



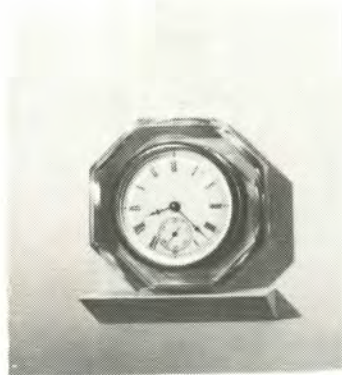
BANJO CLOCK, c. 1930  
8-Day Time & Strike  
Spring Driven  
E. Ingraham Co., Bristol, Conn.



CARRIAGE CLOCK, c. 1914  
30-Hour Time  
Spring Driven  
Ansonia Clock Co.,  
Brooklyn, New York



"EASEL" CLOCK, c. 1930  
12-Day Time  
Spring Driven  
New Haven Clock Co.,  
New Haven, Conn.



BOUDOIR CLOCK, c. 1900  
8-Day Time  
Spring Driven  
E. N. Welch Manufacturing Co.,  
Forestville, Conn.



BOUDOIR CLOCK, 1935  
30-Hour Time  
Spring Driven  
American Chime Clock Co.,  
Philadelphia, Pa.

The alarm mechanism can be set so a bell will ring at a specified time. Various styles of this type of Alarm clock have been made since around 1880, most have 30-Hour movements, and some are "Novelties." Not new, alarms were used in the 14th Century.



ALARM CLOCK, c. 1900  
30-Hour Time & Alarm (20 minute)  
Spring Driven  
Seth Thomas Clock Co.,  
Thomaston, Conn.



ALARM CLOCK, c. 1885  
8-Day Time-Strike -Alarm  
Spring Driven  
Seth Thomas Clock Co.,  
Thomaston, Conn.

ALARM CLOCK, 1890  
30-Hour Time & Alarm (Repeater)  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



ALARM CLOCK, 1890  
30-Hour Time; & Alarm  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.  
For H. B. Schanely Jewelers

"THE NATIONAL CALL" ALARM CLOCK, 1920  
8-Day Time & Alarm (Automatic)  
Spring Driven  
Made in Bristol, Conn.



BIG BEN ALARM CLOCKS, c. 1925  
30-Hour Time & Alarm  
Spring Wound

BABY BEN ALARM CLOCKS, c. 1925  
30-Hour Time & Alarm  
Spring Wound  
Western Clock Co., La Salle, Ill.

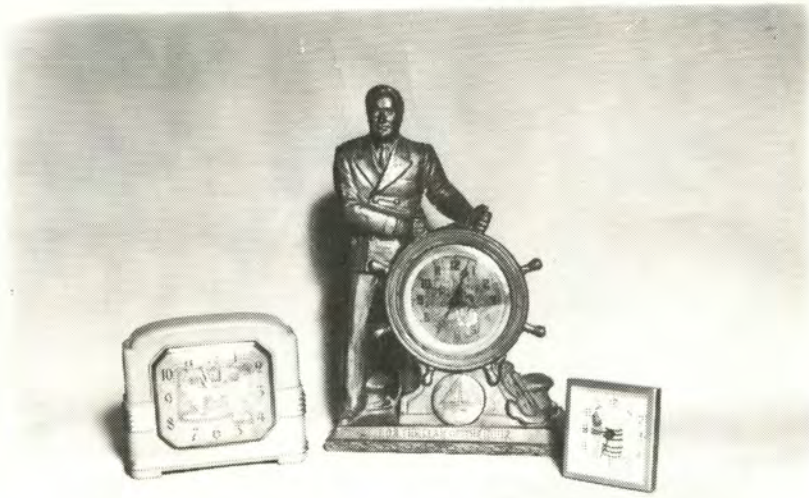


"ROLLING BELL" ALARM CLOCK, c. 1896  
30-Hour Time & Alarm  
Spring Driven  
Wm. L. Gilbert Clock Co., Winsted, Conn.

Novelty Clocks

A "Novelty" clock usually expresses something unusual or innovative. They are generally inexpensive and small.

"HAPPY DAYS" NOVELTY CLOCK,  
c. 1935  
30-Hour Animated Alarm  
Spring Driven  
Lux Clock Manufacturing Co.,  
Waterbury, Conn.



SPINNING WHEEL NOVELTY CLOCK, c.1935  
30-Hour Animated Alarm  
Spring Driven  
Lux Clock Manufacturing Co., Waterbury, Conn.

"ROOSEVELT" NOVELTY CLOCK, c. 1930's  
30-Hour Time  
Spring Driven  
United Clock, Co., Brooklyn, N.Y.

Novelty Clocks

PARROT ART CLOCK, 1930  
30-Hour Time  
Spring Driven  
De Luxe Manufacturing Co.



COTTAGE NOVELTY CLOCK, 1930  
30-Hour Time  
Spring Driven  
Lux Manufacturing Co., Waterbury, Conn.

ELEPHANT NOVELTY CLOCK, c. 1914-1917  
30-Hour Time  
Spring Driven  
The Lux Clock Co., Waterbury, Conn.

"PENDULETTE"  
NOVELTY CLOCK, c. 1930  
30-Hour Time  
Spring Driven  
Lux Clock Manufacturing Co.,  
Waterbury, Conn.



GUITAR NOVELTY CLOCK, 1934  
30-Hour Time  
Spring Driven  
United Clock Corp., Brooklyn, N. Y.

"MOUSE" NOVELTY CLOCK  
8-Day Time  
Spring Driven  
Horolovar Co., Bronxville, N. Y.

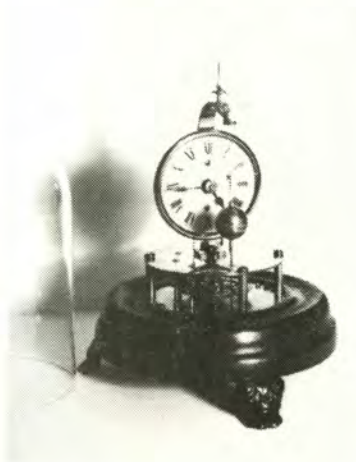
BALL SWINGER CLOCK, c. 1910  
8-Day Time  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.



"PLATO" NOVELTY CLOCK, c. 1905  
30-Hour Time  
Spring Driven  
Ansonia Clock Co., Brooklyn, N. Y.

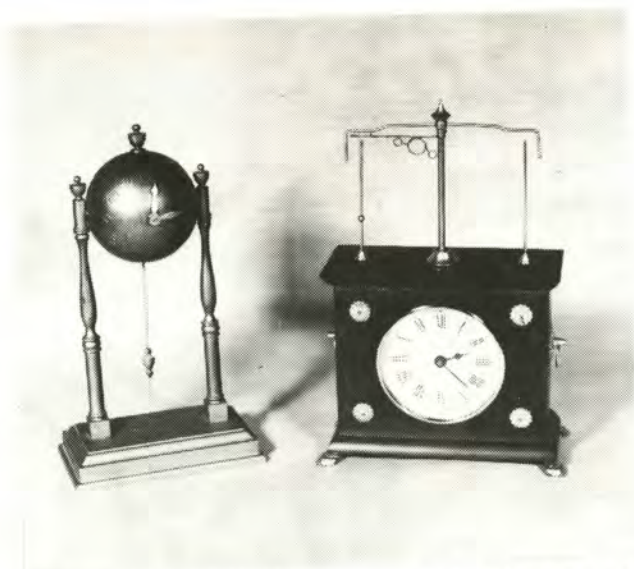


GRAVITY NOVELTY CLOCK, 1926  
30-Hour Time  
Weight Driven  
Ansonia Clock Co., Brooklyn, N. Y.



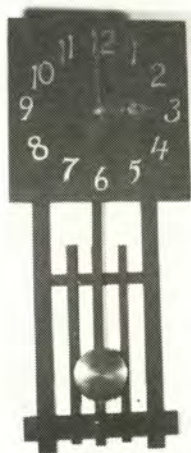
CONICAL PENDULUM CLOCK, c. 1878  
2-Day Time  
Spring Driven  
E. N. Welch Manufacturing Co.,  
Forestville, Conn.

Novelty Clocks



GLOBE NOVELTY CLOCK  
c. 1920-1930  
30-Hour Time  
Spring Wound  
" G. C. C. " impressed on Base

FLYING PENDULUM CLOCK  
1-Day Time  
Spring Driven  
Horolovar Co., Bronxville, N. Y.



MISSION CLOCK, c. 1905-1925  
8-Day Time & Strike  
Spring Driven  
Maker Unknown

The Tall Clocks

The English fully cased Tall Clock was probably the major influence on early American versions of the Long Case or "Grandfather" clocks. The true origin of some of them is difficult to determine, since it is often questionable which parts were American made.

TALL CLOCK, c. 1800  
8-Day Time & Strike  
Weight Driven Brass Movement  
John Jarvis, Whitchurch, England



The main function of the long case was to support the movement, protect the weights and pendulum, and keep out dust. At first most early cases were simple, modified European models made of wood, with flat-topped hoods. Hoods that were bell-shaped, round-topped, broken-arched or scroll-topped with more ornamentation, finials and carving, followed later. From the late 18th to the mid-19th century Chippendale, Adam, Hepplewhite and other styles were represented by American cabinetmakers who were influenced by the taste of their customers and popularity of a case style.

Cheaper Tall clocks were made with a minimum of metal parts as metal was difficult to obtain. Wooden movements such as those used in simple hang-up or Wag-on-the-Wall clocks were also produced for the Tall Clock.

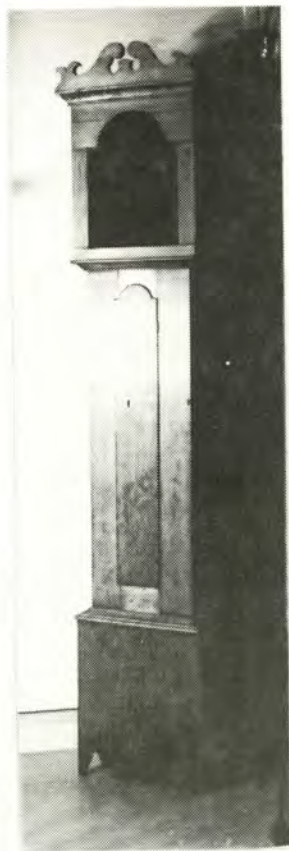
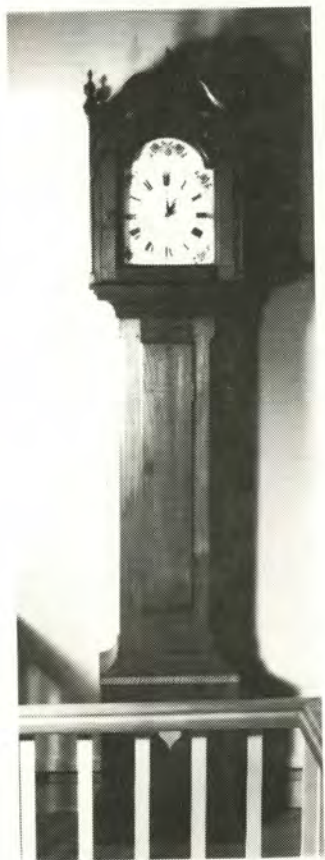
"REGULATOR NO. 67" CLOCK, c. 1918  
8-Day Time  
Weight Driven  
Waterbury Clock Co.,  
Waterbury, Conn.



## The Tall Clocks

Clockmakers lengthened the pendulum and narrowed its swing which led to the Long Case Clock.

TALL CLOCK, c. 1800  
8-Day Time & Strike  
Weight Driven Brass Movement  
Black Forest, Germany (movement)  
Washington County, TN. (case)



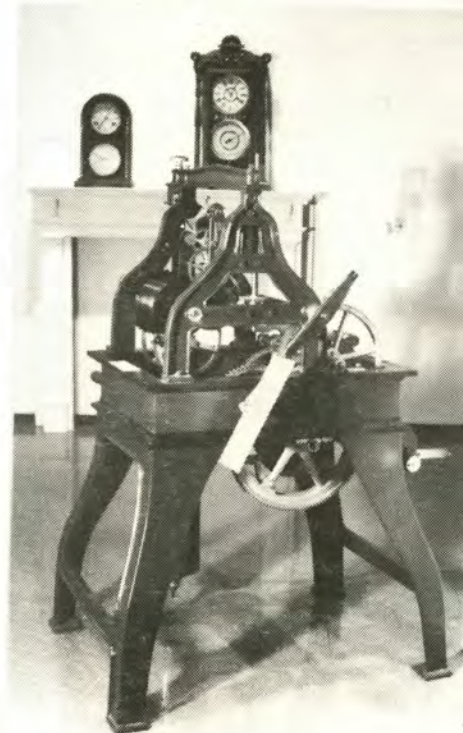
TALL CLOCK, 19th Century  
30-Hour Time & Strike  
Weight Driven Wooden Movement\*  
Greene County, Tennessee (case)

\*The movement has been removed and is illustrated on page 15.

## The Tower Clocks

By the mid-19th century large clock parts could be industrially cast for Tower or Turret clocks such as the example shown here that was originally in the tower of the Sevier County Courthouse, Sevierville, Tennessee. Installed in 1896, the clock was manually wound, struck on the hour and half hour, had four faces and cost \$1,396.00.

TOWER CLOCK MOVEMENT, 1896  
8-Day Time and Strike  
Weight Driven Brass Movement  
Seth Thomas Clock Co.,  
Thomaston, Conn.



The Courthouse, built in 1895-1896 and now on the National Register of Historic Places, was restored and refurbished for the Sevier County American Revolution Bicentennial Celebration in 1976. The clock, removed from tower in 1974 and repainted, was placed on exhibit in the Courthouse.

It May Not Be What You Think It Is....

Through the ages a clock may have been bought and sold several times, movements have been partially repaired, missing pieces replaced, damaged case mouldings and veneers restored or cleverly refinished, fragile glass cracked and new glass added, tablet paintings have flaked or peeled away and have been replaced by new ones, labels falsified or placed with the wrong clock. Others have been outfitted with modern dials, old clockmaker's marks or labels, movements of vague date, and some have plates that have been fraudulently stamped and placed in old patched cases.

Many clocks are partially antique, being a composite of old and new. Clocks cannot be expected to last forever, particularly those parts of the clock subject to constant wear.

Excellent reproductions have been made of earlier clocks and some from the 19th and early 20th century that have developed an antique look since then may deceive the unwary.

APPENDIX

The Main Components

Decorative Parts and Other Necessaries

## The Main Components

### THE BIG THREE

The ANCHOR ESCAPEMENT, invented about 1670, largely eliminates circular error of the verge escapement and makes long pendulums swing more slowly with less cumulative error. Its arrival was a giant step for timekeeping.

The LEVER ESCAPEMENT was first invented around 1758; the mechanism leaves the balance free from interference for part of the pendulum swing. It is detached from the balance wheel during most of a cycle, thus promoting accurate timekeeping. Mostly used in watches, it is found in some good spring clocks.

The repetitive motion of a clock depends on power from a weight or spring that drives a pendulum-swing or the balance wheel oscillation.

The DEADBEAT ESCAPEMENT, an improvement over the Anchor escapement, was invented about 1715 to eliminate the recoil and remain steady at the end of each beat. It is still used in fine clocks, including Tall clocks.

### The Main Components of Weight and Spring Driven Clock Movements

ARBOR:	a shaft for attached wheels and pinions
BEAT:	the "ticktock" sound made by the <u>escapement</u> movement
BOB:	the "pendulum ball" or weight at the bottom of the pendulum shaft
CLICK:	the sound caused by the action of a pawl working against the ratchet wheel of the winding drum when a clock is wound
COUNT WHEEL:	a wheel or plate with notches or holes around the rim to control the number of blows struck on the bell or gong
DRUM:*	the spool on to which the weight cord is attached *only on weight driven clocks
ESCAPEMENT:	the mechanism that allows the power of the clock to escape and be transmitted to the pendulum or balance
ESCAPE WHEEL:	the wheel that gives the impulse to the pendulum or balance

## The Main Components

FAN OR FLY:	a fast turning vane (wheel) of the strike train that regulates the striking rate
GONG:	a coiled steel wire that sounds out the hours when struck by the hammer
HANDS:	the time-pointers on a clock face
MAIN WHEEL:	the largest or great wheel of the train
MOVEMENT:	the "works" or mechanism, mainly brass with iron or steel parts
PALLETS:	the parts of the escapement against which the teeth of the escape wheel push to provide motion to the pendulum or balance
PENDULUM:	a body hung from a fixed point that can swing to and fro from the forces of gravity and momentum
PINIONS:	small gears that are driven by the larger wheels
SUSPENSION:	the support for the pendulum, often a flexible spring
TRAIN:	a series of wheels and pinions to transmit power from the mainspring or weight to the escapement or striking mechanism
WEIGHTS:*	units to generate power, usually made of iron *only on weight driven clocks

### The Lever Driven Movement Has Additional Parts

BALANCE STAFF:	a shaft to carry the balance wheel
BALANCE WHEEL:	a swinging (oscillating) wheel controlled by the balance (hair) spring that adjusts the rate of certain clocks
BANKING PINS:	limit the movement of the level of a lever escapement
HAIRSPRING:	the fine spring to regulate the balance wheel motion

Clocks can be the most delightful and ornamental of mechanical toys as well as instruments of precision.

BEZEL:	the circular frame around the face
BOB:	the weight at the bottom end of the pendulum
CASE:	a clock enclosure made of wood, metal, porcelain or other material
CHAPTER RING:	the area where the dial numerals are placed
COLUMN HOLDER:	the top and bottom section of a column or pilaster
DIAL:	the clock "face" where the hours are marked
FINIAL:	the ornament at the top of a clock case
HAND:	the hour "pointer" on the clock face
HOOD:	a protective top cover for the dial and movement on some tall clocks
KEY:	an instrument for winding or unlocking and locking a clock
LABEL:	a printed piece of paper indicating the manufacturer of the clock placed on the inside or outside of clock case
TABLET:	the painted, printed or decorated glass panel on some clocks

Early dials were square-shaped cast brass, designed and produced in the English style. In the late 18th century white enamelled and painted dials began to be used along with the popular painted wooden dials. A cheaper printed paper dial was also used that could be glued to a sheet of metal or wooden panel. From about 1790 most of these dials were printed by wood block, the corner decorations colored and the dial varnished.

Clock hands reflect tastes in design and stylistic influences on generations of craftsmen.

Early clock tablets were hand-painted from the back of the glass. Later in the 19th century designs were "transferred" to the glass: the scene was first stenciled in gold and a transfer or decal added, leaving areas blank to be filled in by hand. Lithographic transfers were also used as a mass production technique.

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Notes

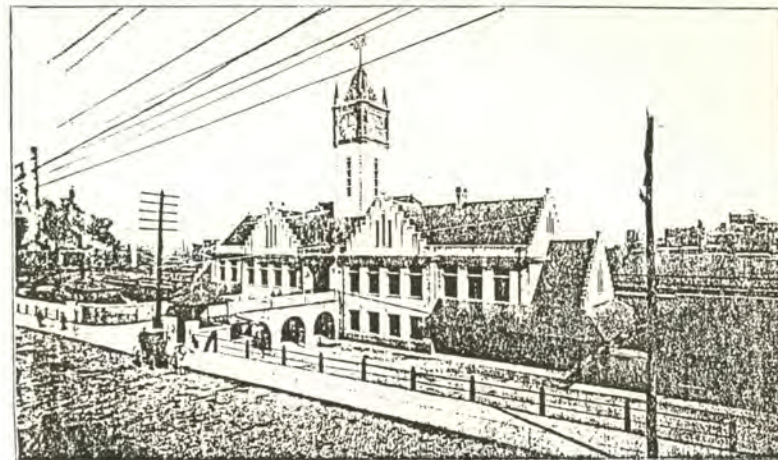
- Page
1. Detail of Eli Terry Clock label from Roberts, Frontispiece.
  5. Mahogany; curved glass; tablet illustrated in Roberts, p. 72; 31" high x 17 1/2" wide.
  6. Illustration from Bruton, History of Clocks, p. 14.
  8. Figure 2. from Britten's, p. 3; cf. also Rees's, plate I, p. 59.
  10. Ripple front; mahogany; restored tablet; 17 3/4" high x 11" wide. Figure 5. from Time by Samuel A. Goudsmit, Robert Claiborne and editors of Life, p. 95 (Time Inc., New York, N. Y., 1966).
  11. Figure 6. from Bruton, Clocks and Watches, p. 106.
  12. Illustration from Nutting, Furniture, No. 3279.
  13. Brass and steel cutting tool for watch and clock part; c. 18" long.
  14. Figure 7. from Bruton, op. cit., p. 62.
  15. Wag-on-the-Wall clock movement brought to Knoxville from near Greeneville, Tennessee by the father of Edward B. Sample of Knoxville; hand decorated wood face; one wooden wheel restored; hands, weights and cords not original; 16 1/2" high.
  16. Eli Terry shelf clock from the household furnishings of a newly wed couple Samuel and Elizabeth Reser Troxell of McVeytown, Pennsylvania, who were married c. 1830; mahogany; finials not original; pediment scrolls missing; 31" high x 17" base x 16" mid-body.
  17. Illustration from Roberts, p. xvi.
  18. Illustration from Harry C. Brearley, Time Telling Through the Ages, plate facing p. 152 (Doubleday, Page & Co., New York, 1919).
  19. Walnut? and mahogany; 26" high x 15 3/4" wide.
  21. Stenciled pillar and splat clock with a five-arbor Torrington movement developed by Norris North; case restored; face removed; gilt decorated mahogany; 29 1/4" high x 14" wide. Three sectioned clock with claw feet and splat in relief; restored tablet; mahogany; 36" high x 17" wide. O. G. clock named for the S-curved molding (ogee) on the door; produced in large numbers from c. 1825-1918; rosewood?; blown glass; painted decal on tablet; 29" high x 16" wide.
  22. Flat top clock with twelve pointed star on tablet; gold painted pilaster columns; partly restored; mahogany; 25 1/4" high x 15" wide; cf. Dreppard, p. 123. Parlor clock with "broken arch" case and separate calendar dial; walnut; 24" high x 15 1/2" wide.
  23. This clock has a double main-spring patented by Benjamin B. Lewis of Connecticut; the movement was designed to produce more accurate time in the short pendulum clock and is sometimes referred to as a "Patti" clock; rosewood; sandwich glass pendulum; 20 1/4" high x 12 1/4" wide at base; 26" long spring.

24. Iron front clocks were made in Connecticut for distribution and sale across the country by a catalogue house, The American Clock Company; painted iron front on wood case; 20" high x 17 1/2" wide. The painted cast-iron case with mother-of-pearl inlay, stenciled gold decoration, and pendulum porthole made this type of shelf clock popular in the 1850s. Manufacturers often combined cases and movements; this clock is an example; 15 3/4" high x 8 3/4" wide.  
A large brass bell signals the half hour; enameled black and green marblized wood; 17 1/2" high x 5 1/2" diameter of face.
25. The cherubs in relief, two grotesques, paw feet and bezel are in white metal; black enameled iron; 11" high x c. 14 3/4" wide. This model, offered from c. 1885 until after 1915 by Ansonia, was sold for about \$36.50 in 1886; antiqued pot metal; beveled glass; 14 1/4" high x 16" wide; cf. Ansonia Clocks Catalogue 1914.
26. Black celluloid covers the wood case to look like enamel and yellow celluloid the columns to resemble onyx; these durable surfaces could be polished when necessary; originally \$30.00; 12" high x 16 1/4" wide. Some models came with an alarm; rosewood; 15 1/2" high x 11 1/4" wide; cf. Seth Thomas Clock Company's Catalogue 1879, p. 24.
27. Mahogany; hand painted face; 11 3/4" high x 7 3/4" wide.  
Rosewood with a ripple finish; 20" high x 12" wide; cf. Palmer, A Treasury, p. 127.
28. Mahogany; two white birds are in the oval on the tablet; 19 5/8" high x 9 3/4" wide.  
"Bradford" clock typifies the style of steeple clocks that continued to be popular into the 20th Century; mahogany; windmill on the tablet; 15" high x 8" wide.
29. Pendulum is visible through the short drop; oak (pressed); 27 3/4" high x 12" diameter of face.  
Companion example has a short drop and octagon-shaped dial face; mahogany; 25" high x 12" diameter of face.  
Wall clock that hung in the Hope Bros. jewelry store on Gay Street, Knoxville, Tennessee; oak; red, gold and black painted tablet signed "Post"; 36 3/4" high x 15 1/4" wide.
30. For over 50 years this clock hung in the "Royal Billiards Parlor" in La Follette, Tennessee. A commercial advertisement may have been painted on the tablet; walnut; case and works restored; 30 1/2" x 14 1/2" wide mid-case.  
"June 1st 1887" stenciled in gold on short drop; rosewood and mahogany; 21 3/4" high x 9" diameter of face.  
Fast-slow lever is at the bottom front and a reset lever for strike at the lower right side; walnut; 12 1/2" high x 12 1/2" wide.
31. Applied and pressed decorations; oak; 22" high x 15" wide; cf. Distin and Bishop, p. 192.  
"Leveler" is in the center of the base; half hour strike; oak; 25" high x 15 1/4" wide.  
Walnut?; restored finial; 18 1/2" high x 11 1/2" wide.

32. "Royal Bonn 1753" marked in red on rear and "La Claire"; hand decorated ceramic in white, green, and gold with floral motif; 13" high x 9 3/4" wide.  
Small clock with a balance wheel escapement; hand decorated ceramic in white and gold; 7" high x 5 1/4" wide.  
Ceramic face with hand painted floral swags around hands; brass; 10 3/4" high x 6" wide.
33. This clock has a mercury-type pendulum; brass; glass on four sides; 9" high x 6" wide.  
"Symbol" model with an elaborate bezel, pendulum adjuster and mercury style pendulum; silver finish metal; 17" high x 8 3/4" wide mid-case.
34. "No. 5" Banjo that originally sold for \$20.00; rosewood; 29" high x 7 1/2" diameter of face.
35. Brass; antiqued mahogany; 42" high x 10" wide x 3 3/4" deep.  
Copied from a Simon Williard Banjo; mahogany; 39" high x 8 1/4" diameter of face.
36. Gilded white metal; beveled glass; 3 3/4" high x 2 1/2" wide.  
Gothic-style face is suspended on pivots; walnut; 7 3/8" high x 7" wide.  
Octagon-shaped clock called "The Jewel"; cut glass; 3 3/4" high x 3 3/4" wide.  
Molded pink glass; 5 1/8" high x 4 1/4" wide.
37. Bronze finish; egg and dart sash; 9" high x 7" wide at base; cf. Palmer, op. cit., p. 301.  
Similar clock sold for \$8.85 in 1885; oak; c. 12" high.
38. Nickel plated brass; 6 1/4" high x 4" wide x 3" deep.  
Nickel plated brass with blue paint; 6 1/4" high x 6" wide.  
Nickel plated brass; 7" high x 4 3/4" wide.
39. Big Ben; nickel plated; black face is radium dial; 6" high x 4 3/4" diameter of face; cf. Palmer, op. cit., p. 306; Baby Ben; nickel plated; black face is radium dial; 3 1/4" high x 2 3/8" diameter of face.
40. Animated spinning wheel on face; painted steel; 6" high x 7 1/4" wide.  
Animated bartender on face; impressed on base "F. D. R. The Man of the Hour"; painted pot metal; 15" high x 10" wide.  
Animated figure at beer keg on face; brass and sheet metal; 4" high x 4" wide.
41. Molded sawdust composition; hand painted; 6" high x 10" wide.  
White soapstone; hand carved; 6 1/2" high x 7 1/4" wide.  
Molded sawdust composition; hand painted; 9 1/4" high x 6 1/2" wide.
42. Thermometer is on the top face and an animated musician on the face below; gilded white metal; 17 3/4" high x 6" wide.  
Copied from "Model No. 4 Mouse Clock," made c. 1910 and manufactured by the New Haven Clock Co.; walnut?; 25" high x 4" wide mid-case; cf. Palmer, op. cit., p. 276.  
Mini cuckoo is on the top front; pressed sawdust composition; 5 1/2" high x 4" wide.

Notes

- Pendulum is inside the top ball; bottom ball acts as a counter balance "swinger"; the entire "swinger" oscillates as it runs; bronzed pot metal; 22 1/2" high x 7" diameter of base; gilded and silvered ball swinger 22" long.
43. Time is indicated by numbered leaves that turn to the viewers left; upper leaves tell the hour. lower leaves tell the minutes. Ansonia produced 40,000 Platons in four basic models from 1904 to 1906; brass; 6" high x 3" wide; cf. Palmer, *op. cit.*, p. 275. Pendulum ball rotates at the end of a cord to allow a fine wire to activate the escapement; this Model 2 rotating pendulum clock was patented by John C. Briggs in 1856; brass, wood base, glass dome; 8" high x 5" diameter of base; cf. Palmer, *Book of American Clocks*, p. 126, No. 278. After the lead weighted clock has been lifted to the top, it keeps time as it descends on double geared vertical supports; brass case, pewter stand; 10" high x 4 1/2" wide.
44. Globe on supports has a pendulum spring wound brass movement; gilded pot metal; 9 1/2" high x 5 1/4" wide. Companion example is copied from a 1883 model called "Ignatz" or "The Craziest Clock in the World," manufactured by the New Haven Clock Co.; cf. Palmer, *op. cit.*, p. 127, No. 284. Wall clock with an askew number eight on the face; oak, brass; 28 3/4" high x 12" square face.
45. Hand painted and decorated calendar above the face; oak, mahogany, holly banding; 88 1/2" high x 16" wide mid-case x 22" wide at base. Mahogany; 50" high x 12" diameter of face.
46. Hand painted and decorated face; cherry?; holly? heart inlaid motif; 93" high x 11 1/2" wide mid-case x 19 1/2" wide at base. Hood may not be original to case; pine, oak, hickory?; 86" high x 17" wide mid-case.
47. Brass, painted iron; 55 1/2" high x 30 1/2" wide x 39 1/2" deep; pendulum 55" long; cf. *Seth Thomas Clock Company's Catalogue 1879*, p. 71. Clocks on mantel; left to right: Italian type case on double dial perpetual calendar clock, 1868-1884; 8-day time & strike; rose-wood, gilded full pillars; refinished and restored case; 19 3/4" high x 12 1/4" wide; Welch Spring and Co., Forestville and Bristol, Connecticut, a partnership between Elisha N. Welch and Solomon C. Spring who produced clocks from 1868-1884 when the company combined with the E. N. Welch Co.; cf. Andrew Hayes Miller and Dalia Maria Miller, *Survey of American Clocks*, p. 66, No. 186 (*Antiquitat Publ.*, Dundee, Ill., 1976). Monarch Clock, c. 1880, with a simple calendar movement; 8-day Time & Strike; assembled by the Monarch Calendar Clock Co., Knoxville Tennessee; top dial replaced; oak; 32" high x 17 1/4" wide.



Southern Railway Station, Knoxville, Tennessee, c. 1900.



Sevier County Court House, Sevierville, Tennessee, 1896.

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