

A Brief History Of Pendulum Clocks

The simple pendulum is said to date back to China, sometime in two hundred A.D. In its most basic form a pendulum is defined as a weight suspended from a fixed point so that it will swing freely back and forth. The motion is created by the force of gravity and the impulse the pendulum receives from its own motion. A simple pendulum may consist of a heavy body, suspended from a fixed point by a string and caused to swing or vibrate without much friction.

The discovery of the pendulum is probably the single most important development in human timekeeping. Dating back to fifteen eighty two, the controversial Italian scientist Galileo Galilei was the first to understand that a swinging pendulum could accurately power a clock movement. As a brilliant physicist, Galileo calculated that a swinging pendulum, used in combination with a traditional mainspring would increase the accuracy of timekeeping. His design was not fully developed until almost seventy years later when a Dutchman fully integrated the pendulum into a working pendulum clock.

Simple clock pendulums are usually nothing more than a hanging circular piece of metal called the bob or disk. The bob is attached to the clock movement by a piece of cable or metal rod. The time of the vibration or cycle for the same pendulum will vary in different locations. For example, the vibration of a pendulum located at the earth's equator will decrease as is it moved towards one of the Earth's poles.

Since the rod in most clock pendulums lengthens in the summer and shortens in the winter, a means of preserving the uniform length of the pendulum is needed. In what had become known as regulator clocks, the pendulum rod consists of a frame of rods made from different metals. The rods are arranged so that some of the rods expand downward and others expand upward, keeping the mean length of the pendulum the same.

Some vintage pendulum clocks utilized what was known as a mercurial pendulum. The mercurial pendulum had a single rod, but the weight at the end contained mercury. As the rod lengthened, the mercury would expand upward. As the rod shortened, the mercury would expand downward thus preserving the length of the pendulum.

In a pendulum and weight clock movement, the basic components have not changed much over the years. The required parts include a weight or spring, which supplies the power for the movement. The escapement acts to connect a balance wheel or pendulum to the movement. Through a train of gears and rods, movement is transmitted to the hands. In a weight system, the weight is attached to a cord or chain that is wound around a drum. As the weight descends, the unwinding of the cord imparts movement to the gears. The motion is regulated by the motion or vibration of the pendulum.

As motion is transmitted to the movement, a pinion gear attached to the escapement connects with cogs called leaves. The leaves are on a larger wheel whose pinion connects with another large wheel and so on until the necessary number of wheels is used to produce a rotation. The rotation, once every twelve hours, is carried to the hour hand. Another wheel attached to the minutes hand, makes a complete rotation every hour. The movement of the wheelworks is controlled by the vibrations or swinging of the pendulum.

The clock can be made to run faster or slower by shortening or lengthening the pendulum. At the bottom of the bob or pendulum is a threaded adjusting rod. The fine threads on the adjusting rod aid in making very precise adjustments to the speed at which the pendulum swings.

About the Author

Michael O'Brien is the staff writer for the quality online store FineWebStores.com. Shop for [Grandfather Clocks](#) at [unique wall clocks](#) for your home or office. Please visit FineWebStores.com today.

Source: www.isnare.com

Source: <http://articles.exospy.com>