

EARTH DRIVEN CLOCK

The Earth Driven Clock Co
ROWTON BUILDINGS
BOWLING GREEN ST., LEICESTER

WORKS, FOREST GATE, CLARENDON PARK ROAD, LEICESTER.

The Earth Driven Electric Clock

THIS clock unlike an ordinary time-piece is not actuated by either weights or springs.

The motive force is a current of electricity obtained from a pair of plates buried in the earth, and which are connected with the clock by wires.

This current is applied by means of an electro magnet direct to the pendulum, so that the pendulum drives the clock, instead of the clock driving the pendulum, as is the case where weights or springs are used.

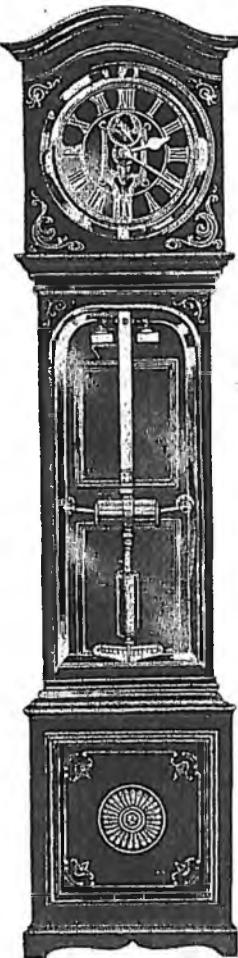
The current is reversed at each swing of the pendulum by an automatic switch, and this switch is so adjusted as to prevent the pendulum being moved in either direction beyond a given point. It is the application of this principle which secures correct time and overcomes any slight variation in the strength of current, and it is this which makes the Earth Driven Clock

This Clock is well adapted as master controlling clock to most of the well-known synchronizing systems.

Grandfather Clock

Sheraton design.
Inlaid Mahogany.
Height 7 ft.

£40 - 0 - 0



Grandfather Clocks
from £30 to £100.
According to case
desired.

a distinct advantage upon electric clocks as previously made.

The regulation of this clock is effected in the usual way by lengthening or shortening the pendulum. When once properly regulated, correct time may be depended upon for years.

The working of Earth Driven Clocks so far justifies the expectation that they will require no attention for probably fifty years.

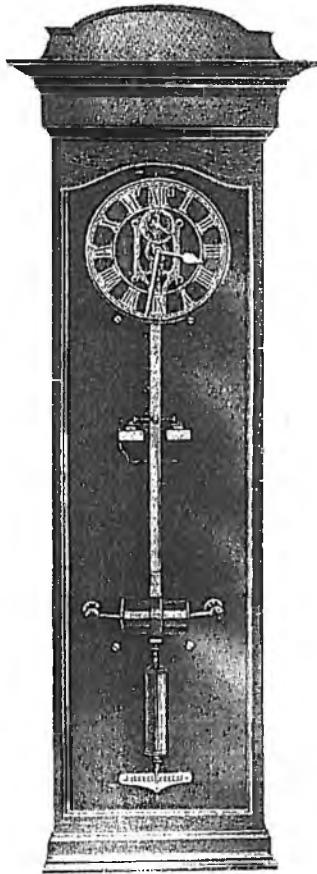
The absence of any strong acting force such as that of weights or springs reduces friction to a minimum, and the cases being dust-proof the need for cleaning should very rarely arise.

The Earth Driven Clock as at present made is usually fitted into a case about 5 feet 4 inches high, and these cases are supplied in a variety of designs and may be of Oak, Walnut, Mahogany or other hard woods as desired.

Existing clock cases of suitable size can be fitted with Earth Driven Clock movements.

The principle of the Earth Driven Clock can be applied to clocks for all purposes without limit as to size.

This clock is well adapted as master controlling clock to most of the well-known synchronizing systems.



In Oak,
Mahogany or
Walnut Case.
Height 5 ft. 4 in.
£25 - 0 - 0

Bentley's Electric Clock

Professor SILVANUS P. THOMPSON, F.R.S., London, the world-renowned electrical expert, has minutely examined the clock, and we have received from him an exhaustive report in regard to its construction, the principle of the power utilized in working it; its advantages over clocks of a somewhat similar character; its excellent construction, etc.

The following are extracts from the report

"LONDON.
"February 7th, 1911

"P. A. Bentley, Esq.
Dear Sir,

"Having had the opportunity both to see your clock at work, and to examine the Specifications of Patent which you have taken out to cover your invention, I beg to report to you as follows:

"The pendulum is both the governing part and the driving part of the clock. I made various simple tests on the clock with a milli-ampere meter attached to the circuit. If I purposely gave the pendulum, by hand, a large impulse so that it swung too far, at once the automatic action of the contact device became evident, and after a few swings the current returned to its normal value, and the pendulum to its normal swing.

Report of
Professor
Silvanus P.
Thompson,
F. R. S.

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Professor
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Thompson,
F. R. S.

"The clock is very beautifully made; the contact devices are of the finest workmanship; and every care has been taken effectually to exclude dust from interfering with the perfection of the electric contact.

"It is, as will appear from the above description, entirely automatic and self-contained.

"I see no reason to doubt that with an earth battery properly laid, it will continue to go for years without stopping.

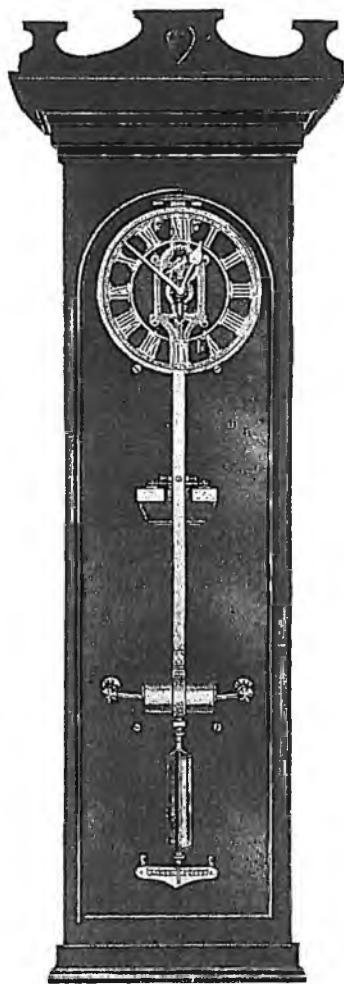
"This species of clock is of the isolated kind which needs no winding and is its own time-keeper when the pendulum is in proper adjustment.

"Of self-contained electric clocks the 'Bentley' clock is a most satisfactory type.

"I have used earth batteries many years ago, and know them to be extremely constant if they are properly laid down in the earth once for all.

"(Signed)

"SILVANUS P. THOMPSON."



This clock is well adapted as master controlling clock to most of the well-known synchronizing systems.

In Oak,
Mahogany or
Walnut.

£25 - 0 - 0

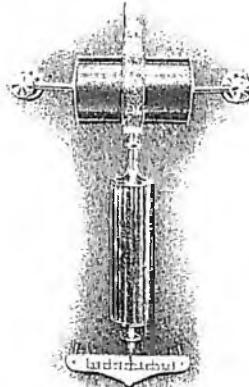
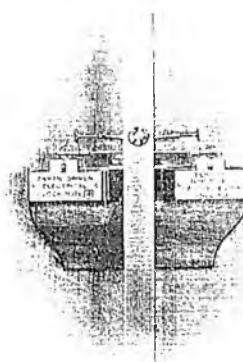
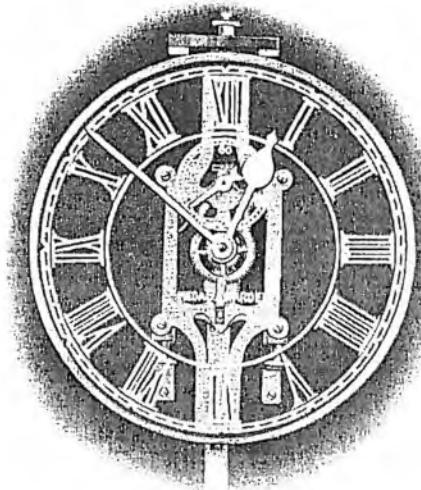
*The following are extracts from
Scientific and other Newspapers
both at home and abroad.*

"Horological Journal,"

"August, 1910

"The secret of perpetual motion has, it is claimed, been solved so far as stationary clocks are concerned. Mr. P. A. Bentley (the Inventor) has for some years been engaged in perfecting a timepiece which should go for an unlimited period without attention or expenditure beyond the initial outlay, and it will be remembered that ten years ago he invented an electric clock, which will go for eighteen months with one charge, costing fourpence, and which winds itself every hour.

"But remarkable as this achievement was, it is quite eclipsed by Mr. Bentley's latest invention, which can only be adequately described a marvel of scientific clock construction. The instrument, which has been wholly made by the inventor, is actuated by electricity derived direct from the earth—a totally new principle, and a distinct advance on battery power—and, theoretically, should go for ever; as long as the two Poles remain. Further, the fact of the supply of motive power remaining constant and unchangeable should ensure absolutely correct time, and the construction is such as to almost reduce friction to nil. Making every allowance, it is claimed that the clock will last for fifty years."



“ ‘Electrical Review,’
October 13th, 1911.

“ The energy driving the electric clock exhibited by this firm is derived from a zinc-carbon couple buried 3 or 4 feet deep and about one foot apart in moist soil: in the Exhibition installation the earth plates are ninety yards from the clock itself. The primary battery thus arranged provides about one volt p.d. at the clock terminals and sets up a very small current through a many-turn winding on the ‘bob’ of the pendulum. The motion of the latter reverses the direction of current flow at the end of each swing and thus enables the maintenance of its oscillations. The clock employed is of very simple and robust construction, and usually keeps correct time to within one minute in twelve months. It is not dear in initial cost, as compared with other high-class timepieces, and there is no reason why the clock should not run for years without attention providing the gears and contacts do not wear down.”

“ ‘Electrical Engineering,’
October 12th, 1911.

“ This clock which has been patented by Mr. Bentley, is causing great interest on the gallery at the Electrical Exhibition at ‘Olympia,’ London, as it is understood that it will work without attention until it is worn out. It is supplied with energy from an earth battery consisting of two plates placed three feet below the ground. At the centre of the clock are two sets of three contact strips, the outer ones of which are permanently connected together. The battery is connected between the centre contact on one side and the short circuited strips on the other. A coil is provided in a cylinder on the pendulum, which slides to and fro on two magnets with north poles placed end to end. It is actuated by gold rollers moving on platinum plates, which send a current through the coil alternately in opposite directions, according to which of the contact strips they are on.”

“‘London Standard’

July 1dth, 1910

“‘A Triumph of Clock Making.

“Mr. P. Bentley claims virtually to have solved the problem of perpetual motion for stationary clocks. He was awarded a Gold Medal at the Liverpool Exhibition, 1902, for a clock which has never been wound up for ten years, and is still going. His latest invention eclipses that, for his new clock is actuated by electricity derived direct from the earth, without a battery; and its life depends on the almost frictionless working of the parts, which are estimated to last seventy years.”

“‘Daily Despatch,’

August 25th, 1910.

“A ‘perpetual motion’ clock, driven by electrical power obtained from the earth, was on view at a Burton-on-Trent Show yesterday, and was the centre of great attraction in its handsome rectangular case, fit for a mansion.”

“‘The London Daily Express,’

September 26th, 1911

“Clock that needs no Winding.

“Ten Years without Losing a Minute.

“Electric Wonders at Electrical Exhibition at Olympia.

“The nearest approach to perpetual motion yet discovered is shown on one stand. It is the ‘Earth Driven Electric Clock’ the invention of Mr. P. A. Bentley.

“This electric clock is driven by a power drawn direct from the earth, and once it is fixed it keeps going until its works wear out. It never requires winding, and it gathers its own electrical energy without the use of the usual electric battery, which would require periodical renewal.

“Already one has run for ten years without being wound or losing a minute, and is guaranteed to go on until the cogs wear smooth.”

''' Chicago Record-Herald,'

July, 1910.

"P. A. Bentley, of Burton-on-Trent, makes the astonishing claim that he has solved the problem of perpetual motion for stationary clocks. He was awarded a Gold Medal at Liverpool, in 1902, for a clock which has not been wound in ten years, and is still going. The latest invention, which eclipses that clock, is actuated by electricity secured directly from the earth without battery, and its life depends on the almost frictionless working parts.

"The clock, which started several months ago, has never stopped once, and is a marvel for all who see it, for without the usual working parts of a spring timepiece, the pendulum swings without apparent cause, being driven from side to side through electrical agency, the wires going direct into the earth.

"If any attempt is made to stop it, instantly the pressure is released, the ticking goes on as before. Mr. Bentley asserts that the fact of the motive power remaining constant and unchanged should ensure absolutely correct time. Making every allowance for wear and tear, the inventor is convinced that the clock will run for sixty years with ease, provided that the few wheels within it do not wear down."

''' Canadian Evening Telegram,'

August, 1910

"The clock is undoubtedly a marvel of ingenuity, and the inventor, who has spent much time in considering methods of applying negative and positive currents is an electrician of note. The clock, which, started many months ago, has never stopped once, and it is the marvel of all who see it, for without the usual working parts of a spring timepiece, the pendulum swings merrily on, without apparent cause, being driven back from side to side through electrical agency, the wires going direct into the earth.

"Mr. Bentley will not at the moment disclose how he achieves the singular result, and is awaiting full patent recognition. But, there the clock is, and if any attempt is made to stop it, instantly the pressure is released the ticking goes on as before."



This Clock has been awarded the only Medal and Diploma for Earth Driven Electric Clocks at the Festival of Empire, Imperial Exhibition and Pageant of London, Coronation Year, 1911.



*Gold Medal awarded
Liverpool, 1902*