

# EARTH DRIVEN CLOCK

GLEVANT & BOTSFORD  
124, ST. ANNS STREET  
and 3, POLICE STREET  
MANCHESTER

THE  
EARTH  
DRIVEN  
CLOCK



## THE EARTH DRIVEN CLOCK

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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.

The 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 a distinct advance upon electric clocks as previously made.

## THE EARTH DRIVEN CLOCK

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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.

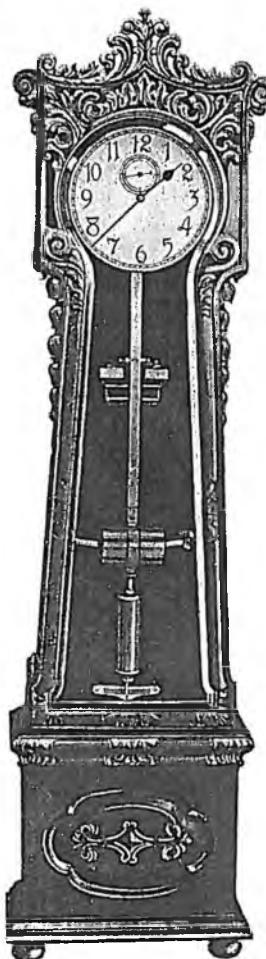
The working of Earth Driven Clocks so far justifies the expectation that they will require no attention for probably fifty years.

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.

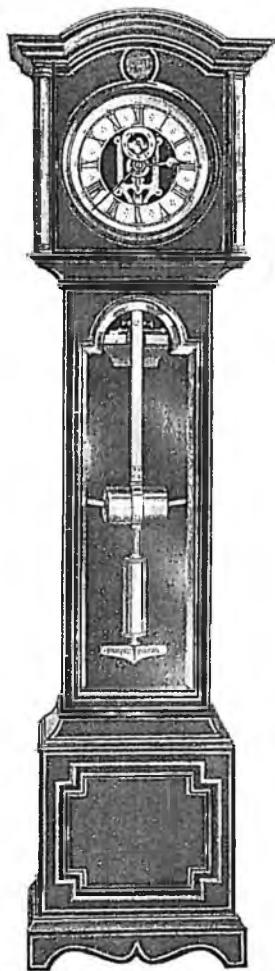
The Earth Driven Clock as at present made is usually fitted into a case about 5 feet 4 inches high, and these cases are supplied in a variety of designs, and may be had of Oak, Walnut, Mahogany or other hard woods as desired.

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.



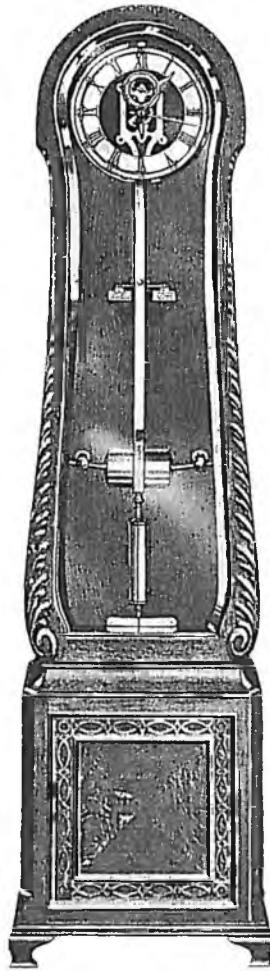
MODEL I. £55 0 0  
As supplied to the Royal Automobile Club.



MODEL II.

£50 0 0

Inlaid Mahogany. Height 6-ft. 6-in.

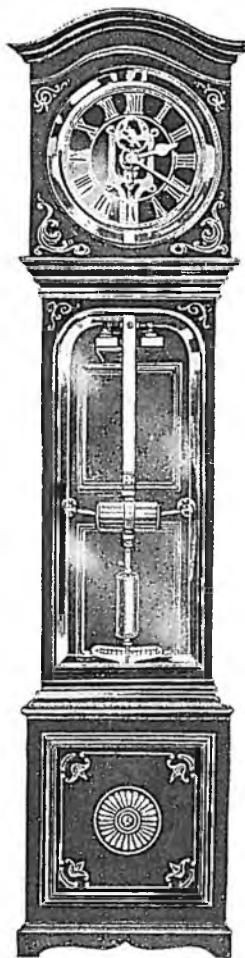


Reg. No. 598200

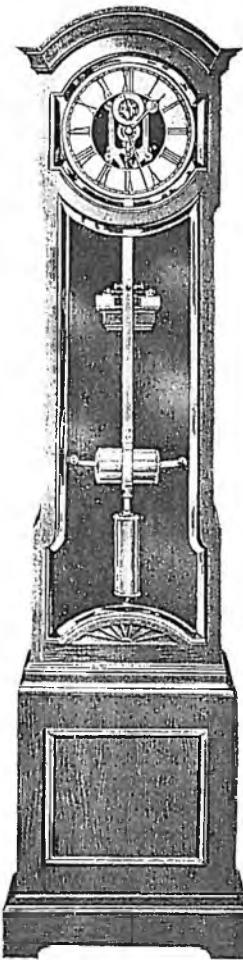
MODEL III.

£45 0 0

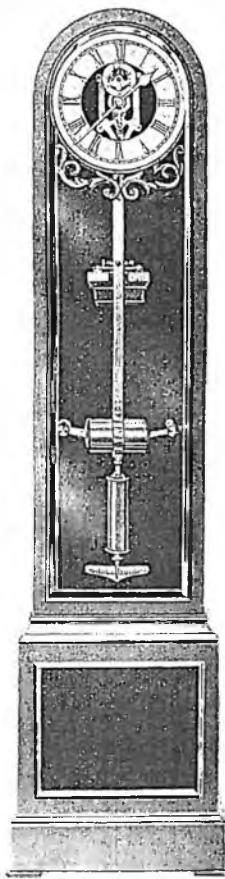
Solid Oak Case, oxidized silver dial, bevel glass in door, dead beat escapement; attachment to control any number of dials. Also to be had in Mahogany.



MODEL IV. From £40 to £100  
Inlaid Mahogany Height, 6-ft. 6-in.



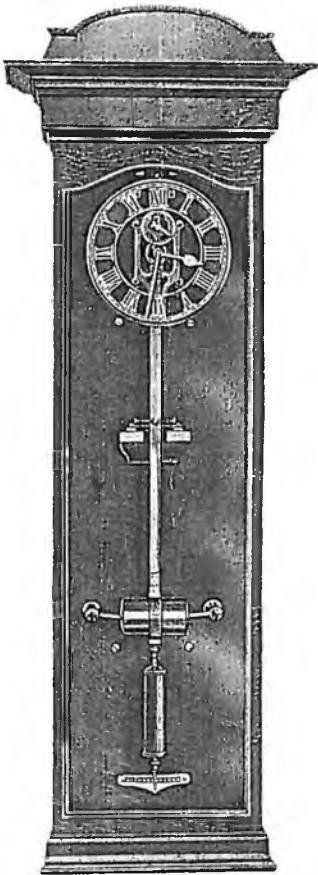
MODEL V. £36 10 0  
Solid Oak or Mahogany case, oxidized  
silver dial, bevel glass in door, with dead  
beat escapement which can be used for  
controlling any number of sub-dials.



MODEL VI.

£35 0 0

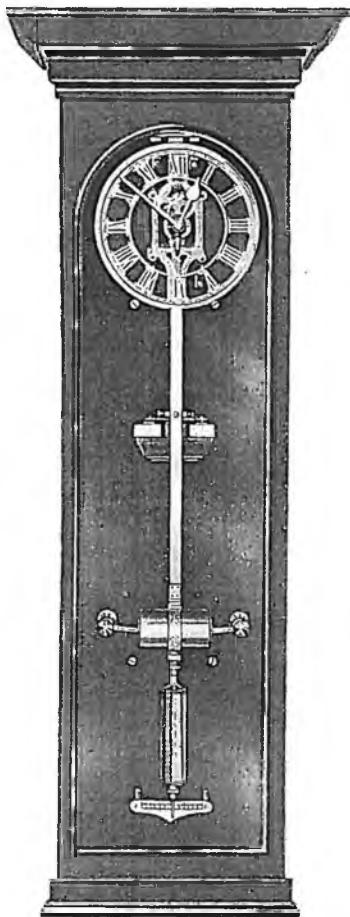
Solid Oak or Mahogany Case, oxidized silver dial, bevel glass in door. With dead beat escapement which can be used for controlling any number of sub-dials.



MODEL VII.

£25 0 0

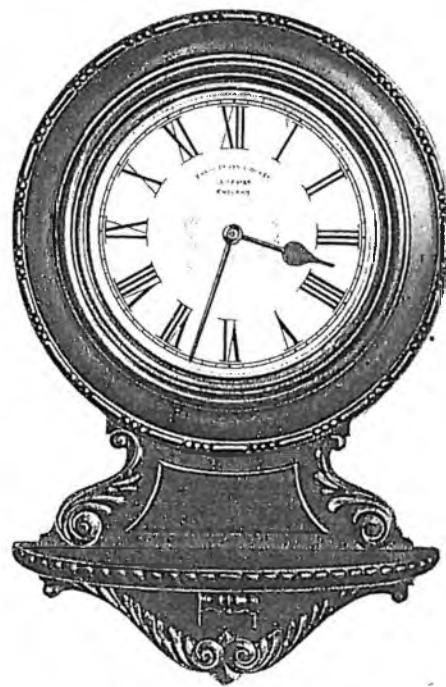
Wall pattern, without base. In Oak, Mahogany and Walnut.



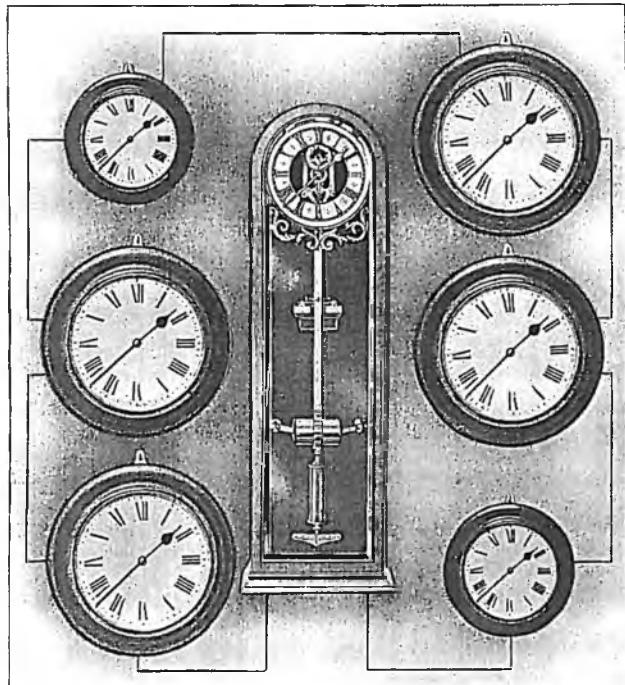
MODEL VIII.

£25 0 0

Wall pattern, without base. In Oak,  
Mahogany and Walnut.



Special Design Sub-Dial



AS MASTER CLOCK  
ACTUATING SUB-DIALS

The Sub-dials may be of any size or design, as required. Outside Turret Clocks can also be operated in the same manner.

REPORT OF PROFESSOR  
SILVANUS P. THOMPSON, F.R.S.

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.

*Continued on next page*

REPORT OF PROFESSOR  
SILVANUS P. THOMPSON, F.R.S.  
*Continued*

"The Clock is very beautifully made; the contact devices are of the finest workmanship: and every care has been 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"

*Letter from Professor J. H. GURNEY*

"REPTON,

"July 8th, 1912

"Dear Sir,

"I have great pleasure of speaking of my experience of your Earth Driven Clock.

"The point in which no other electric clock on the market can compete with it is in accuracy of time-keeping.

"This depends in the first place on the constancy of current from a properly laid Earth Battery. (No ordinary battery, even if its temperature could be maintained constant, can give so constant an E.M.F. without constant attention) and secondly on the excellence of workmanship in every detail.

"It is a luxury to have a clock which requires no attention whatever, and may be depended upon never to fail, and which, when once regulated, will not have a rate variation from day to day of more than a fraction of a second.

"Yours faithfully,

"J. H. GURNEY

"Late Science Master, Repton School"

*Letter from*

*Prof. F. BRUNSKILL, B.A., B.Sc.  
Chief Science Master,  
Repton School.*

"THE SCIENCE BLOCK,  
"REPTON SCHOOL,  
"Nov. 13th, 1912

"Dear Sir,

"I have much pleasure in informing you that the Electric Clock you fitted up in the Physical Laboratory is quite a success.

"In addition to keeping excellent time, it is a source of great interest to our pupils, and shows how a small constant E.M.F. can be utilized.

"Yours faithfully,  
"F. BRUNSKILL, B.A., B.Sc.  
*Chief Science Master*

P. A. Bentley, Esq.  
Earth Driven Clock Co., Leicester

#### *PRESS NOTICE*

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 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."



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.*