

# ELECTRIC CLOCKS

Uniform Electric Time Service and What It Means



The Observatory, Sydney, N.S.W.—During the last ten years we have made and supplied to the Government Astronomer various special electrical time indicating apparatus, including electrical pendulums for experimental wireless time signalling, etc.

**PROUDS LIMITED**

*MANUFACTURERS OF ELECTRIC CLOCK SYSTEMS*  
LAWSON HOUSE, 49 CLARENCE STREET, SYDNEY

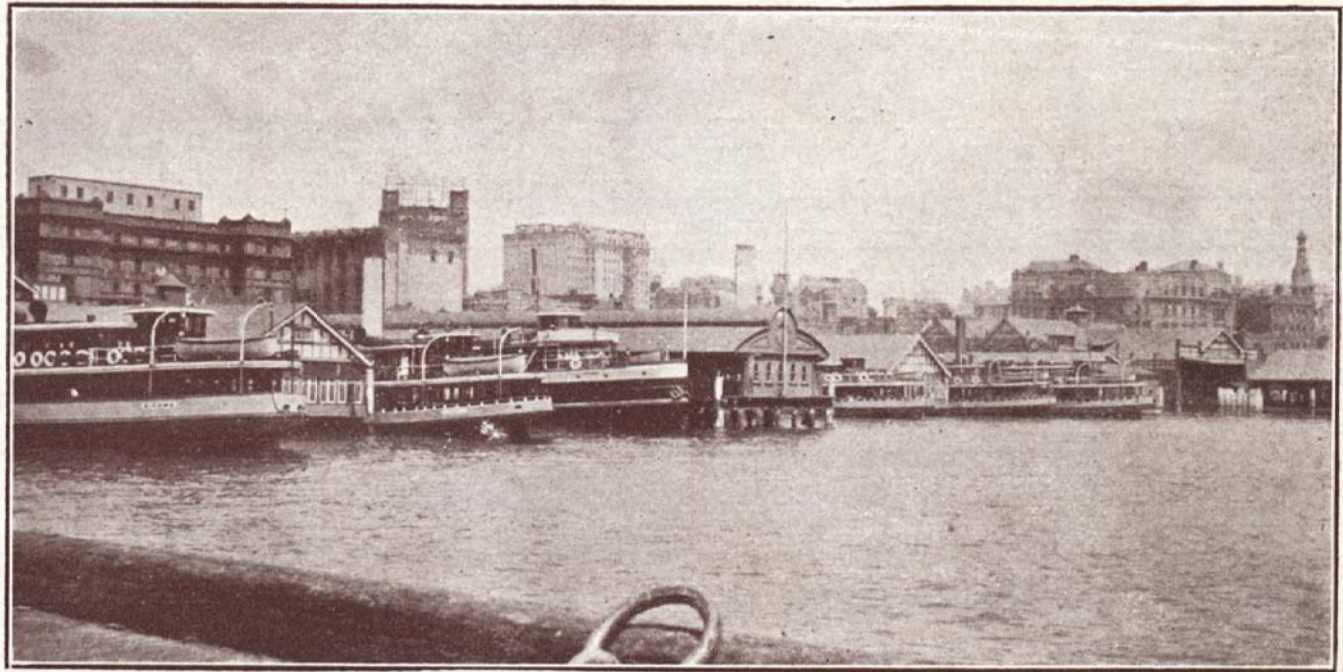
*"I Wisdom dwell with Prudence  
and find out knowledge of witty inventions."*

THUS sang King Solomon centuries ago in his Eastern Palace, and the Business Man of to-day must still acclaim the ancient Sage.

The subject of this little brochure will interest the progressive business man, because it offers a good business idea, brings to his knowledge a "witty invention," the importance and value of which have been tested, proved and certified to already by many business firms of Sydney.

Writing about the additional installation on the Milson's Point Wharf, the Sydney Ferries Ltd. said:—

"With reference to the Electric Time Service installed by your Company on the Milson's Point Wharf, I have pleasure in informing you that it is entirely satisfactory. In our opinion the Electric System of Timekeeping is a very great improvement on the weight driven and key-wound clocks."



*THE FERRY WHARVES, CIRCULAR QUAY.*

The Sydney Harbour Trust Installation, manufactured and installed by us in 1913, consists of a Master Clock placed in vestibule of the Harbour Trust Office, two Turret Clocks, three dials each, over the Lane Cove and Manly Jetties, a single four feet electrically operated dial on No. 4 Jetty, eight two feet drum Clocks, one on each Jetty, and three 12-inch Clocks. All Clocks are self-driven with the hands moving continuously; the Master Clock sends a signal throughout the whole circuit once every half-hour automatically correcting any Clock that may be in error and thus ensuring uniform and standard time.

## Prouds Electric Time Service

**A**N Electric Clock System consists essentially of (1) a Master Clock, (2) a number (as many as required) of Sympathetic or Step Dials (the Commonwealth Bank circuit comprises 65 secondary dials), (3) a Battery of wet or dry cells or accumulators, and (4) a wire circuit connecting the Master Clock, Dials and Battery.

The Master or Controlling Clock, a high precision centre seconds Regulator, consists essentially of an electrically operated pendulum, automatically controlling its supply of energy, and in its swing maintaining a constant arc independent of the variation in the strength of the driving battery. This constancy of arc, coupled with accurate compensation for temperature, produces a timekeeper of the highest degree of excellence and reliability. This Pendulum in the "Murday" Controller drives mechanically a simple train of wheels forming a centre seconds movement, and indicating time second by second on a twelve inch diameter dial. Electric Contacts are fitted to operate the circuit of secondary dials and may be arranged to give impulses or signals every second or at any period required. The Pendulum Bob is brass cased and weighs twenty-five pounds, the rod is of "Invar" steel. The mechanism of this Clock can be mounted in any design of case, Grandfather or otherwise, to meet personal requirements or to harmonise with existing fittings.

**THE BATTERY.**—The electrical energy necessary to operate the Pendulum is surprisingly little, it is obtained from any form of wet or dry cell, or accumulators; as an example, an Installation of say twenty-five dials would only require two dozen dry or wet cells (allowing something to overcome line resistance) or eighteen 2 volt accumulators, and, according to the quality of the cells, might be expected to function satisfactorily for twelve to eighteen months.

This briefly explains the application of electrical methods to timekeeping, resulting in the modern Electric Time Service, at once dependable, accurate, and in comparison with the old key-wound clocks with their intricate mechanism to be kept in repair—economical.

What would such a service mean to you? The right time, uniform time on every floor in every department of your business! Why, to possess a timekeeper capable of keeping approximately correct time is a luxury, but to have every clock in your Establishment or Institution indicating Standard Time is an Asset, the value of which can scarcely be overestimated—even were it no more than its continual lesson in exactitude.



*THE RANDWICK RACECOURSE.*

The Randwick Racecourse Installation consists of a high precision electrical regulator or Master Clock controlling 23 Dials, varying in size from 12 inch up to 48 inch in diameter, situated in the various Totalisator and other buildings. Included in the same circuit is the Turret Clock with three 4-ft. Dials shown in the illustration.

The Secretary of the Australian Jockey Club writes :—

" I have pleasure in stating that the Electric Time Service installed by you some time ago in connection with the Totalisators at Randwick has given complete satisfaction. If it were not for this good service it would be difficult indeed to run the Totalisators at the Randwick Racecourse, for the reason that the Clocks in the several buildings which are used in connection with the machines must be exact and uniform in time, otherwise serious confusion would arise.

The service has proved so effective that I propose to recommend the Committee to install a similar service in all the Refreshment Rooms at the Racecourse."

*The Sun* Newspaper wrote saying :—

" In a newspaper office it is imperative that an accurate standard of time should be maintained in each of the several departments throughout the establishment.

Your Electric Time Service was installed some seven years ago and has proved entirely satisfactory. We have found it has many advantages over the old system of key-wound clocks."

*The Daily Telegraph* Newspaper says:—

" The Electric Time Service installed by your Firm in this building has now been in operation for four years, and I have pleasure in advising you that we find it a great improvement on the old system of key-wound clocks. All the Clocks in the building under the Electric System necessarily synchronise, and therefore the time-sheets in the different departments always agree."



THE DAILY TELEGRAPH.  
The Daily Telegraph Installation, one Master  
Clock controlling 21 secondary dials.

The British Australian Tobacco Coy. Pty. Ltd. says :—

“ With regard to the Electric Clock System and Bell Controller installed by your Company some six years ago, we wish to state that it has given very satisfactory service.

We consider the Electric Time Service distinctly an improvement on the old idea of timekeeping.”

Messrs. Sweet Bros., Newtown, say :—

“ It gives us very much pleasure to tell you that the Electric Time Service which you installed some time ago at our premises has proved itself far more satisfactory than we anticipated. The correct and uniform time throughout all our Departments has made a vast improvement in the going and coming of our assistants, and although there is a Public Clock on the tower of the Post Office here, we find the public setting their timepieces from the Clock in front of our windows.

The cost of installation as against the convenience and benefits we have derived has repaid us many times over, and we want to compliment you on the pleasing fact that the Electric Clocks were made in Australia.”

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*Complete details and estimates furnished on application—*  
CITY 6993.



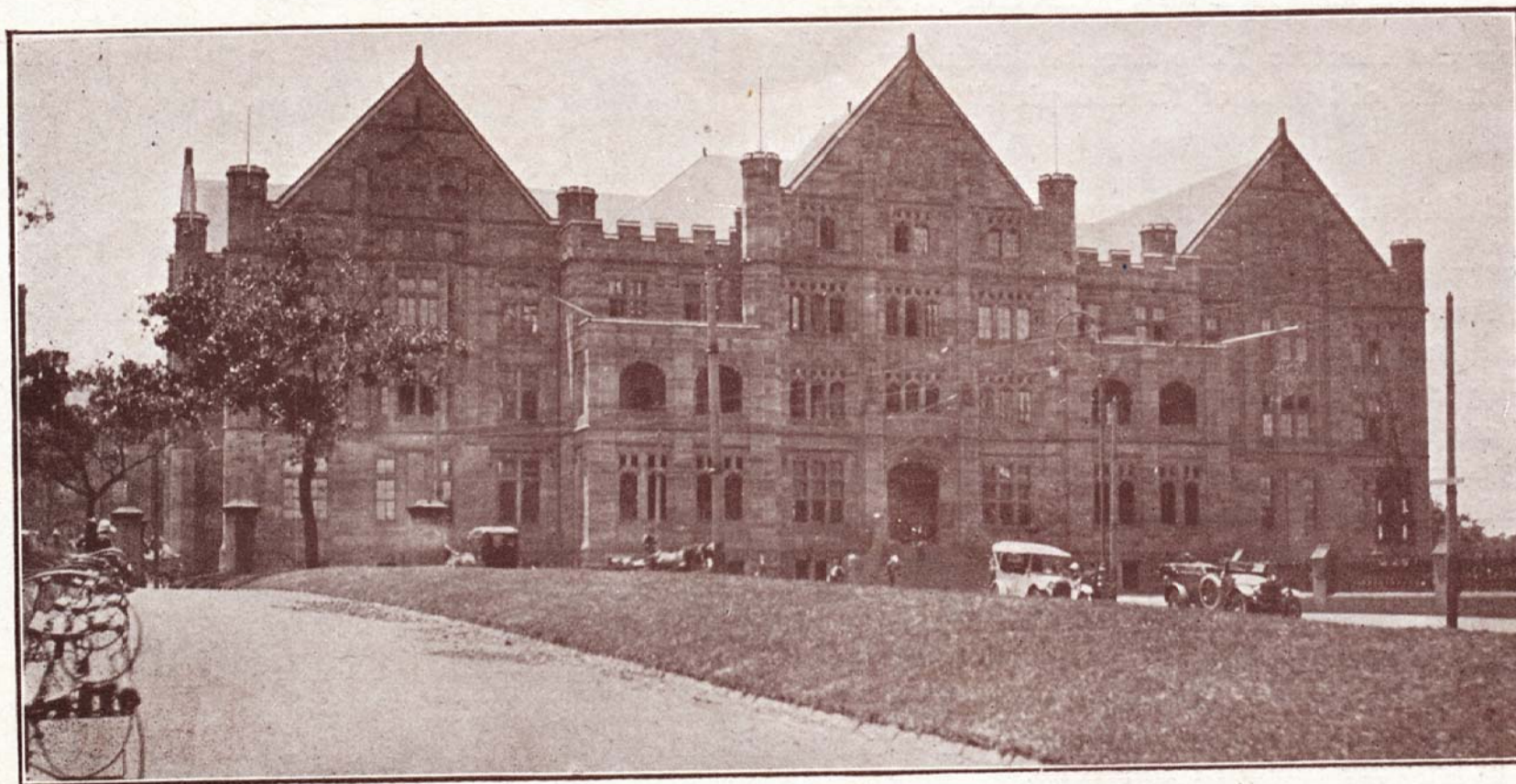
*THE T. & G. BUILDING.*

One Master Clock situated in the vestibule and eight Secondary Dials in various parts of the building.

Nestle and Anglo-Swiss Condensed Milk Co. says :—

“ We have pleasure in stating that the Electric Time Service throughout these premises has now been installed for over five years, and during that time there has been no hitch whatever, and the Clocks have given entire satisfaction.

We find it a great boon to have exactly the same time in each Department instead of having independent clocks with varying times, as used to be the case when we had the old key-wound clocks.”

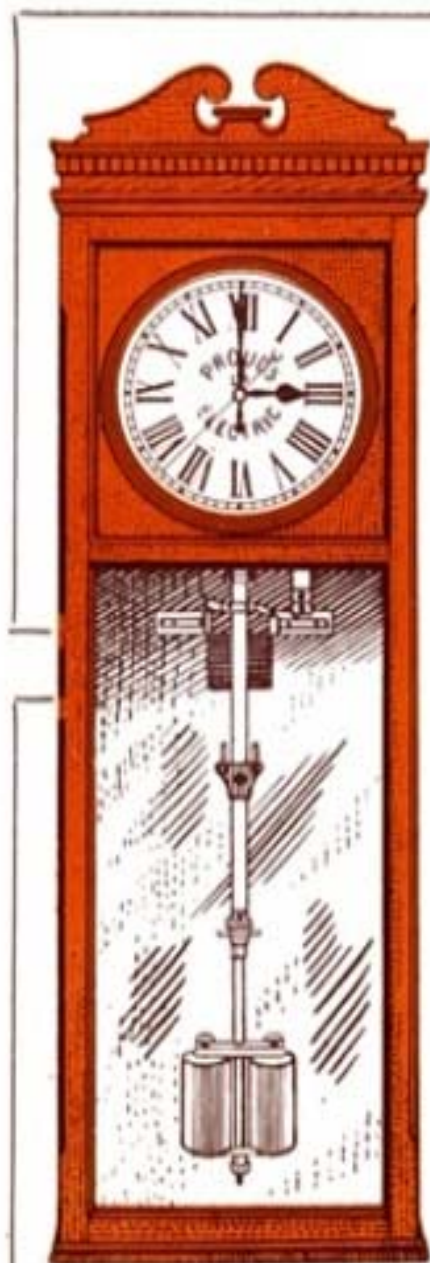


*THE REGISTRAR-GENERAL'S DEPARTMENT.*

This Time Service, installed in 1913, consists of one Master Clock or Controller and 21 Secondary Dials.

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*Electric Time Services, Telltale Clocks and Bell Controllers, 49 Clarence Street, Sydney*



## A Standard Master Clock and Dials

THE Controlling Clock and dials illustrated here are manufactured in our workshops, 49 Clarence Street, Sydney, and are absolutely the last word in simplicity of construction combined with certainty of action. The pendulum is seconds length and fitted with the latest methods of compensation.

The movement of the Master Clock is fitted in a polished oak case approximately five feet high, fifteen inches wide and seven inches deep with glass panelled dust-proof door. Time is indicated on an eight or twelve inch diameter enamelled or silvered dial synchronous with the other dials included in the circuit. These secondary dials may be had in sizes ranging from four inches to four feet mounted in wood or metal casings or to match special fittings as required.





## Some Electric Time Systems

Manufactured and Installed by PROUDS Ltd.

ELECTRIC TIME SERVICE, CIRCULAR QUAY (SYDNEY HARBOUR TRUST) .. .. .	3 Turret Clocks, 8 Drum Clocks, 3 Dials and Controller, and 1 Turret Clock at Manly.
THE COMMONWEALTH BANK, MOORE STREET .. .. .	65 Dials, Controller and Watchman's Telltale Clock.
BIRT & CO., 4 BRIDGE STREET .. .. .	31 Dials and Controller.
REGISTRAR-GENERAL'S DEPARTMENT .. .. .	21 Dials and Controller.
PUBLIC WORKS DEPARTMENT .. .. .	6 Dials and Controller, and Bell Signal System.
A.M.P. SOCIETY .. .. .	16 Dials and Controller.
DAILY TELEGRAPH NEWSPAPER CO. .. .. .	21 Dials and Controller.
BRITISH-AUSTRALIAN TOBACCO CO. .. .. .	25 Dials and Controller, 20 Station Watchman's Telltale Clock and Bell Signal System.
RANDWICK RACECOURSE (A.J.C.) .. .. .	20 Dials, Controller and Turret Clock, with three 4ft. Dials.
USHER'S METROPOLITAN HOTEL .. .. .	15 Dials and Controller.
HOTEL SYDNEY .. .. .	11 Dials and Controller.
SUN NEWSPAPER OFFICE .. .. .	6 Dials and Controller.
WORKER NEWSPAPER OFFICE .. .. .	5 Dials and Controller.
NESTLE'S ANGLO-SWISS MILK CO. LTD. .. .. .	8 Dials and Controller.
SYDNEY SNOW LTD. .. .. .	6 Dials and Controller.
SWEET BROS., NEWTOWN .. .. .	1 Double-Dial Clock, 5 Dials, Controller, and Bell Signal System.
CUSTOMS HOUSE, CIRCULAR QUAY .. .. .	1 large Dial and Controller.
EDWARD FAY LTD., PITT STREET .. .. .	2 Dials and Controller.
TOOTH'S BREWERY .. .. .	6 Dials and Controller.
THOMAS A. EDISON LTD. .. .. .	2 Dials and Controller.
T. & G. MUTUAL INSURANCE CO. .. .. .	8 Dials and Controller.
SYDNEY FERRIES LTD., MILSON'S POINT .. .. .	1 Dial, Controller and Synchronising Mechanism to Turret Clock.
SYDNEY FERRIES LTD., FERRY BOAT KAI-KAI .. .. .	4 Dials and Marine Controller.
JOHN VICARS & CO. LTD., MARRICKVILLE .. .. .	24 Dials and Controller.
G.P.O., MELBOURNE .. .. .	25 Dials and Controller.
ROYAL NAVAL COLLEGE, JERVIS BAY .. .. .	6 Dials, 1 Turret Clock, Striking Ship's Bells, Telltale Clock and Controller.
SCHOOL OF ARTS, KINGAROY, QUEENSLAND .. .. .	1 Turret Clock with three 4ft. Diameter Dials.
MESSRS. CHRISTENSEN & CO., BRISBANE .. .. .	1 large Dial and Controller.
COUNCIL CHAMBERS, ROCKLEY, N.S.W. .. .. .	1 large Dial and Controller.

*Would not ACCURACY and ABSOLUTE UNIFORMITY throughout your business premises*

## SOME ELECTRIC TIME SYSTEMS—Continued

ELECTROLYTIC REFINING CO. .. .. .	2 Dials and Controller.
WHITE HORSE HOTEL, PARRAMATTA .. .. .	1 large Dial and Controller.
SCOTTS LTD., NEWCASTLE .. .. .	1 7ft. Dial and Controller, eight 12inch Dials
WINNS LTD., NEWCASTLE .. .. .	9 Dials and Controller.
HANSEN, WATCHMAKER, ORANGE .. .. .	9 Dials, Controller and Bell Signal System.
DOUBLE BAY LAWN TENNIS CLUB .. .. .	1 large Dial and Controller.
MANLY SURF CLUB .. .. .	3 large Dials and Controller.
PATTINSON & CO. .. .. .	Independent Clock.
CRECY HOTEL, OXFORD STREET .. .. .	Independent Clock.
WILLIAM ARNOTT LTD., HOMEBUSH .. .. .	Watchman's Telltale Clock.
COLONIAL SUGAR REFINING CO. .. .. .	Watchman's Telltale Clock.
SYDNEY OBSERVATORY .. .. .	Special Clock Mechanisms.
GENERAL POST OFFICE .. .. .	1 Synchronised Balance Wheel Clock.
A. E. PALMER, MOSMAN .. .. .	Master and 4 8-inch Dials.
RESCH'S LTD., WAVERLEY BREWERY .. .. .	Master and 1 8-inch Dial and 2 12-inch Dials.
BONDI HOTEL, RESCH'S .. .. .	Master and 7 8-inch Dials and 4 12-inch Dials.
W. D. & H. O. WILLS .. .. .	Four 5-ft. Dial Turret Clock.
LYSAGHT BROS. LTD. .. .. .	Master, 10 12-inch Dials and 1 18-inch Dial.
UNION S.S. CO. .. .. .	Master and 12 12-inch Dials.
PROUDS LTD. .. .. .	Master and 1 18-inch Dial and 3 12-inch Dials.
A. MARX, KATOOMBA .. .. .	Master and 7 12-inch Dials and 1 10-inch Dial.
MESSRS. CROWLE LTD. .. .. .	Master and Cast-Iron Exterior Dial.
MESSRS. AMOR LTD. .. .. .	Master and 3-ft. Double Dial.
MESSRS. ANTHONY HORDERNS .. .. .	Master, Bell Controller and 3 6-inch Bells.
MEMORIAL CLOCK, MITTAGONG .. .. .	Master, 5 relays, 4 large Dials. Now 46 Dials.
MARCUS CLARK & CO., WOLLONGONG .. .. .	Turret Clock with 4 33-inch Dials.
DIOCESAN BUILDING, NEWCASTLE .. .. .	Turret Clock with 4 4-ft. 2-inch Dials and Secondary Movement driving 2 12-inch Dials.
BROKEN HILL, PTY. LTD., NEWCASTLE .. .. .	4-ft. Dial Turret Clock and Secondary Movement.
AUSTRALIAN BOOT FACTORY .. .. .	Master, 9 12-inch Dials and 4 Dial Turret Clock with 4-ft. Dials.
CROWN STREET WOMEN'S HOSPITAL .. .. .	Master, and 10 Station Watchman's Telltale.
METROPOLITAN INSURANCE CO. .. .. .	Master and 10 12-inch Dials.
CLYDE ENGINEERING WORKS .. .. .	Master, 12 8-inch Dials and 3-ft. Cast-Iron Dial.
JAMES THOM, TEMORA .. .. .	Synchronising Existing Turret Clock.
BOGAN GATE MEMORIAL CLOCK .. .. .	4-ft. Dial Turret Clock.
QUEENSLAND NATIONAL BANK .. .. .	Master and 4 2-ft. Dials.
MEMORIAL CLOCK, PERTH .. .. .	Special Self-contained $\frac{3}{4}$ Pendulum Clock.
	4 8-ft. Dial Turret Clock.

## Another Witty Invention

### The Electric Clock that Watches the Watchman

THE Prudent Business Man of to-day sets a Watchman to guard his property and goods during the night, and through the long hours this Watchman goes his rounds to see that all is well. The Prudent Business Man being also the Wise One knows the frailty of human nature. A Watchman may forget to visit an important spot—he may wish to sleep. Who can watch the Watchman? The Wise Business Man seeks some effective way of doing this, and finds it in our witty invention, “The Electric Clock that watches the Watchman.”

It consists of an electrically operated Pendulum driving a Clock movement (similar in action to our Electric Controlling Regulators) and also rotating a brass drum, this drum is divided into twenty-four hours and inscribed with the number of stations.

An electro-magnet for each station marks, by depressing an endless inked thread, the time on the diagram at which the Watchman puts his key in the key switch. The inked thread requires attention only once in two or three months.

The Clock is an accurate timekeeper and its energy is obtained from two dry cells.

The Pendulum rod is Invar steel, thus ensuring freedom from errors due to change in temperature.

The case is polished oak with glass panel door, the finish and workmanship throughout being of the highest order.

Key contact boxes are made in wood, and may be stained to match existing fittings, the brass facings are numbered from 1 upwards to agree with number of stations.

## The Secondary Electric Telltale Clock

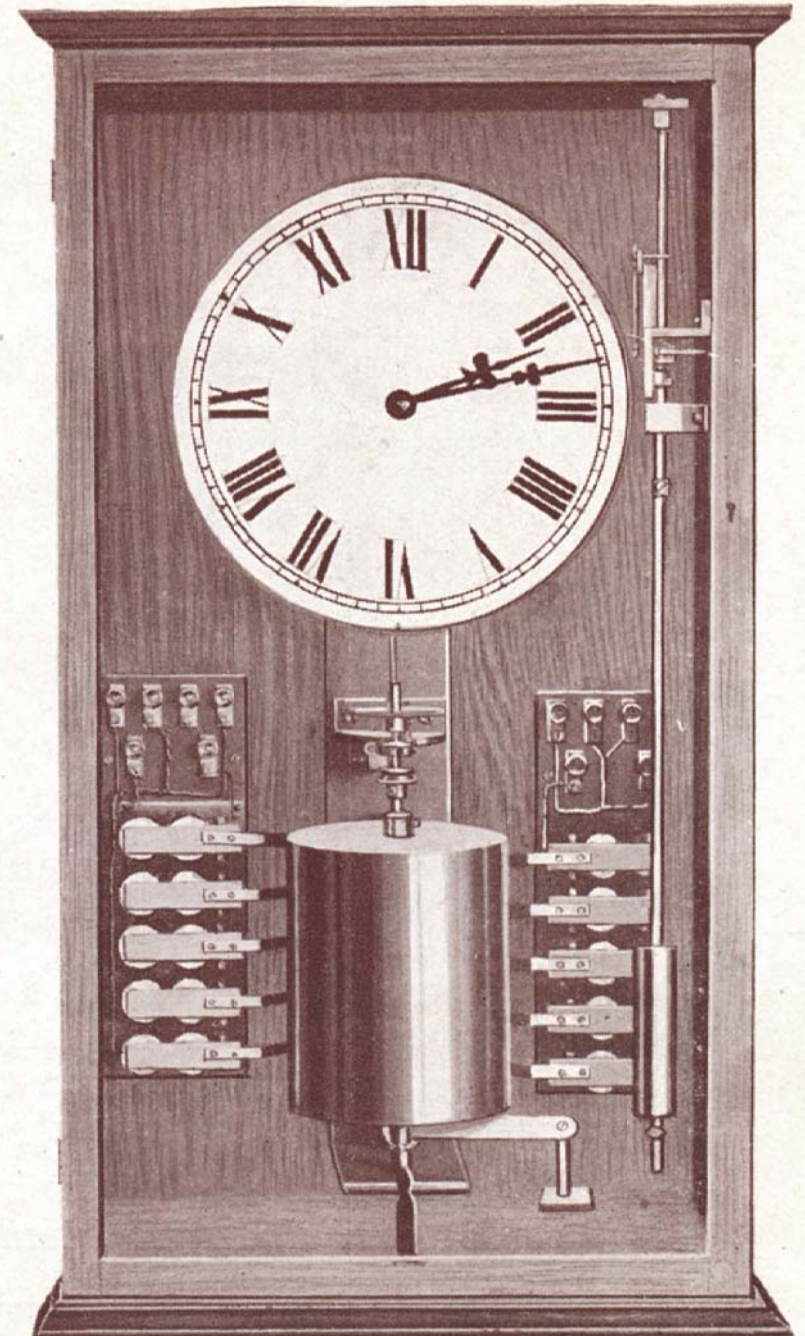
THIS instrument is intended to work in, and be controlled from, the Master Clock of an Electrical Clock System. It has a step movement, instead of a pendulum, to rotate the Brass Drum which carries the chart. This movement is operated every half minute by current from the Master Clock controlling the Time Circuit. The record is made in a similar manner to that already referred to in the description of the Self-Contained Telltale.

The Key Switches are fixed at the points where it is decided that the Watchman shall visit on his rounds. They are usually placed so that the Watchman is required, in order to reach them, to pass through the most important sections of the building. The daily record shows exactly how he has performed his duties—whether stations have been missed or his patrolling irregular. The Watchman knowing the record is against him, will naturally do his best to avoid irregularities.

This Telltale Clock can be supplied either with or without a dial.

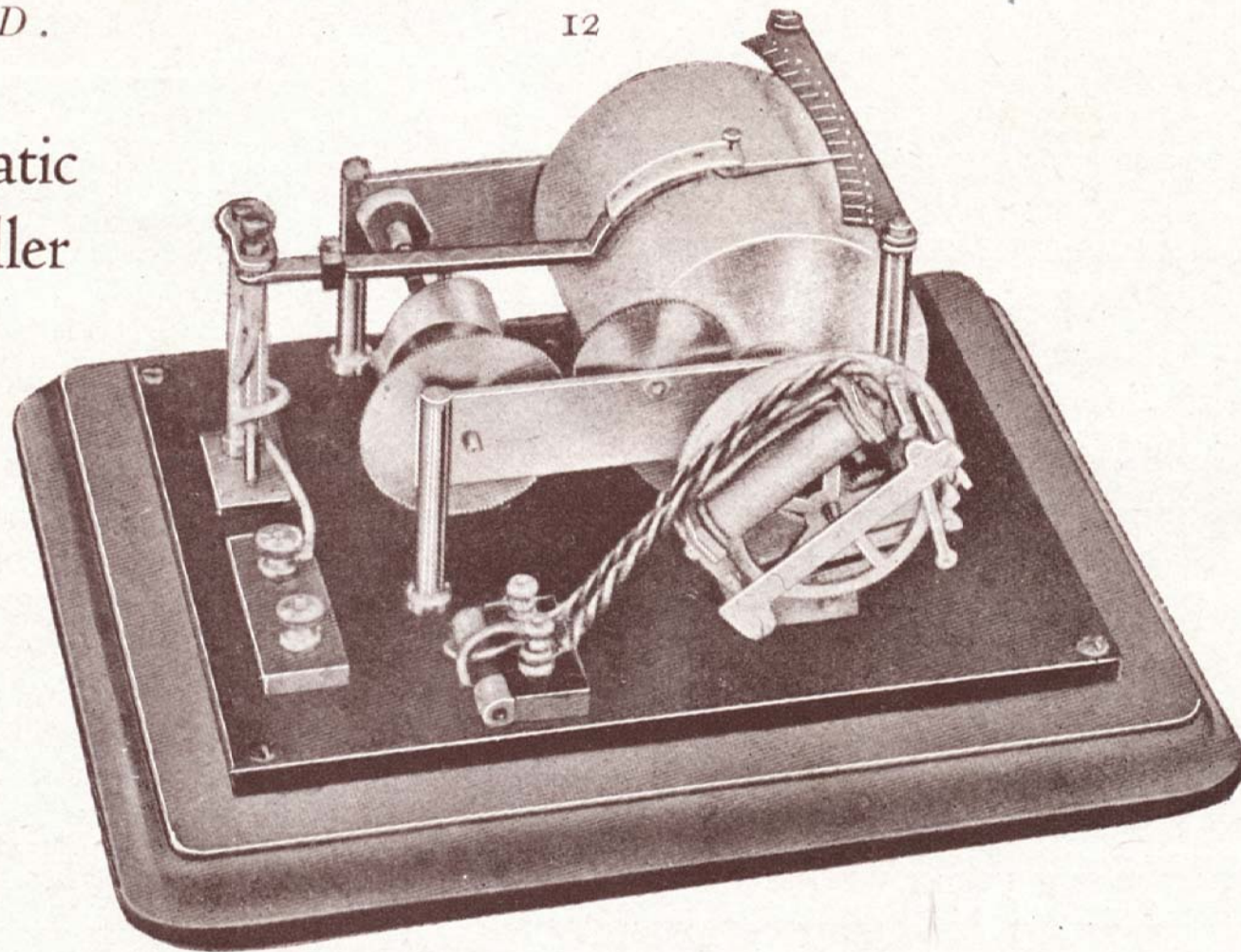
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*Prices on application—Lawson House, 49 Clarence St., Sydney*



*The Self-contained Watchman's Telltale, for 10 stations*

## The Automatic Bell Controller



THESE instruments are used for ringing Electric Bells according to a pre-arranged programme, and form a valuable addition to one of our Electric Clock Systems in Schools, Factories, large Business Establishments, etc., where punctuality is so necessary, and is secured by the bells being rung at any desired time in exact synchronism with all the clocks on the premises.

One of these instruments can be included anywhere in a circuit of Electric Clocks to control an independent circuit comprising any number of Electric Bells.

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*Call and see the Electric Systems in process of manufacture and operating*

Any variety of programme can be performed according to the type of instrument selected, from the simplest, which will give rings at any desired half-hour, to the most elaborate, which will allow any minute to be selected. It will change the programme on Saturday, and silence it on Sunday, and will also operate two distinct circuits of Electric Bells with a different programme on each.

Amor Ltd. says :—

“ We are pleased to inform you that the Electric Clock and Bell Controlling System installed by you in our Factory some three years ago has given entire satisfaction and materially contributed to the success of our business.”

William Arnott Ltd., Biscuit Manufacturers, Homebush, says :—

“ We wish to state that the Watchman's Electric Telltale Clock in use in our works has been most satisfactory, and has been of great benefit in our works system in regulating the hours and rounds of our Watchmen, and we can recommend this Clock to any firm as an excellent check system.”

The Australian Boot Factory Ltd. say :—

“ 7/3/23. Replying to your letter of the 28th ult., we are very pleased indeed with our Electric Watchman's Telltale System. It has not given us any trouble whatever since it was installed six months ago.”



*PUBLIC WORKS DEPARTMENT.*

In 1913 our Electric Clock installation, consisting of Master Clock and six Secondary Dials, also an Automatic Bell Signal System, was fitted throughout the building.

## The Modern Turret Clock

THE recent application of electricity to large Clocks has quite revolutionised their construction. In place of the ponderous weights, wire ropes and pulleys of the old style, we have now a simple electrically-driven pendulum operating a wheel train of extreme simplicity and lightness. This results in less wear and tear of working parts, much less expense in upkeep, little or no attention for months at a time, and a greater accuracy and steadiness in timekeeping.

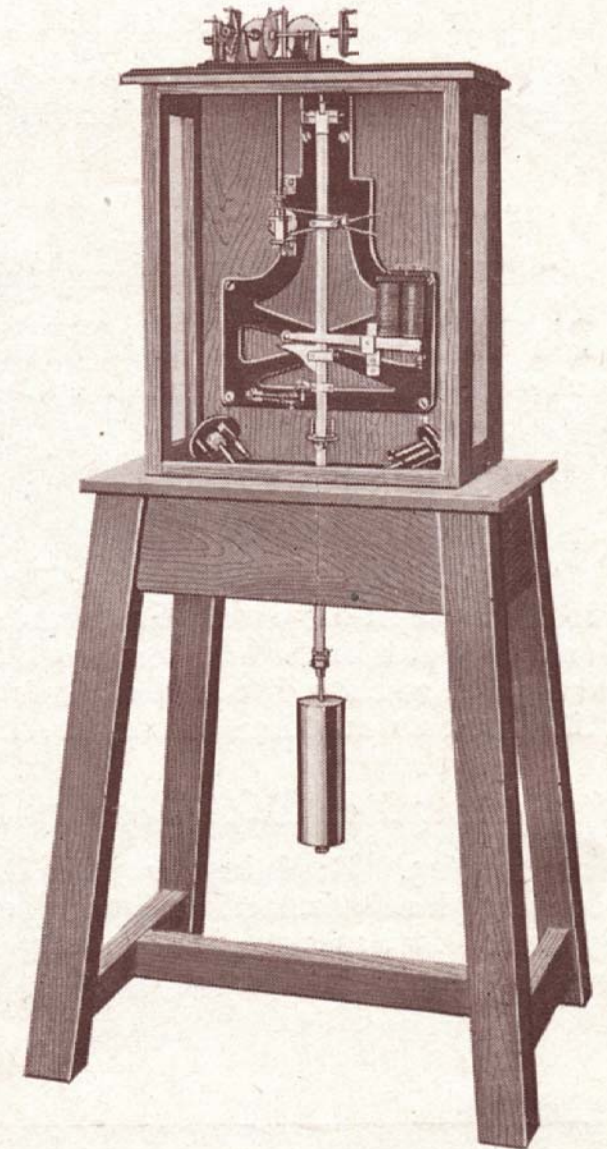
Clocks of this improved type can be easily installed—there being no necessity to provide heavy beams, floors, or room for fall of weights. The approximate dimensions of the mechanism and its stand are five feet high, by two feet six, by two feet, base.

These Clocks are supplied with the necessary electrical energy from a battery of either dry or wet cells, or accumulators. The very small amount of current used may be judged from the fact that a movement, driving the hands of three five-foot diameter dials, will run for upwards of a year on six ordinary dry cells.

It may be worth noting that the hands of this type of Clock move forward steadily, second by second—and not in half-minute periods, as is the case with other makes of Electric Clocks.

The movement, herewith illustrated, is intended for dials from three to seven feet in diameter, and is fitted to drive either one, two, three or four dials of these respective diameters. For dials of eight feet diameter and upwards, a similar but larger and more strongly built mechanism is supplied.

Suitable cast-iron skeleton dials, for opal glazing, of three, four, five and six feet diameter are kept in stock.



*A reliable Clock creates Goodwill for the business. Inspect the Electric System*

ELECTRIC TURRET MOVEMENT



*MANLY WHARF, MANLY.*

This Electric Turret Clock, erected in 1916, has three 5-ft. dials. It is also used as a Master Clock controlling two dials situated at the other end of the Wharf.



*LANE COVE TURRET CLOCK.*

An Electrical Self-driven Movement with three 4-ft. dials, and receiving once every half-hour an automatic correcting impulse from the Master Clock situated in the Harbour Trust vestibule.



## Electric Time Systems for the Home

EMINENTLY practical is the installation of Electric Time Service in the Home. There are no clocks to wind every week—or forget to wind—no periodical repairs and cleaning bills, as is the case with key-wound clocks, and no excursions from all parts of the house to consult the one clock with the reputation for reliability—on the contrary, the electric system ensures accurate and uniform time throughout the house.

The Master Clock may be cased suitably for the Entrance Hall, *e.g.*, in a handsome Grandfather Clock Case, while the various bedrooms, dining-room, drawing-room, smoking and billiard rooms, kitchen and garage may have appropriate dials as regards sizes and cases.

We have installed many systems in private homes with the utmost satisfaction to their proprietors.

Mr. D. Macintyre, Chatswood, says :—

“ Some ten years ago you installed a system of Electric Clocks in my private residence, Mowbray Road, Chatswood, and I have much pleasure in telling you that during all this time the timekeeping has been exceptionally satisfactory. In my opinion there is no comparison between the timekeeping of the Electric Clock System and the old fashioned key-wound clocks ; the former ensures uniform and correct time throughout the household, which in my experience is an impossibility in the house where key-wound clocks are used. I compliment you on your Australian made Electric Clock Systems.

PROUDS LTD.

Horological Experts, Clock Manufacturers,

LAWSON HOUSE, 49 CLARENCE STREET, SYDNEY



*THE COMMONWEALTH BANK, SYDNEY.*

The Installation consists of 65 Dials and Controller and Watchman's Telltale Clock. The movement of the Master Clock is fixed in a special case and let into the wall, the plate-glass front being flush with the surface.