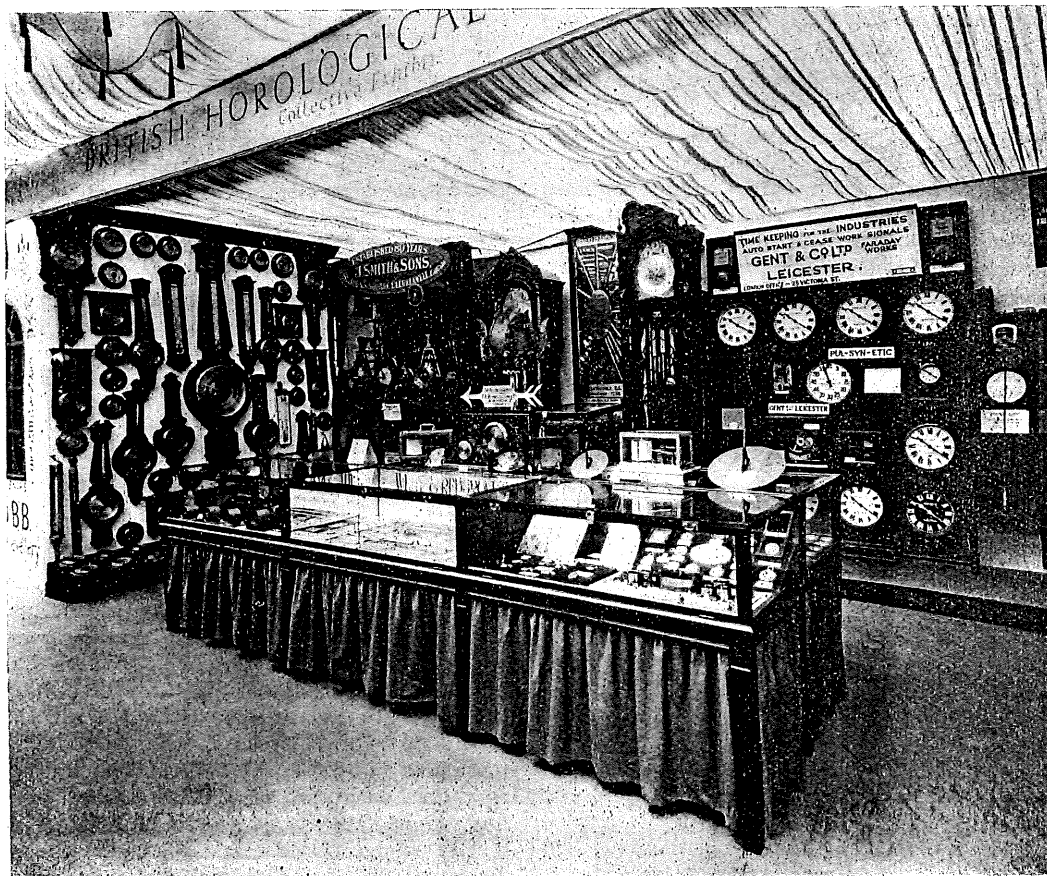


HOROLOGICAL EXHIBITS AT THE BRITISH EMPIRE EXHIBITION.

WATCHES and clocks, excepting tower clocks, are not bulky articles, and the appeal that they make is not to the sense of imposing size and overwhelming power, it is rather to the perception and appreciation of the refinements of delicate construction and the microscopic perfection of detail and finish. That these qualities are successfully applied to a definite purpose—that of the accurate and minute measurement of the passage of time—enhances rather than detracts from the feeling of wonder they inspire in the minds of most people.

The collection of watch and clock exhibits in the Jewellery Section of the British Empire Exhibition, although not large, is fairly comprehensive in scope and may be said to provide a somewhat partial epitome of the development of British horology from the time of its infancy 300 or 400 years ago, when punctuality “the thief of time” did not worry about minutes, up to the present year of grace, when time-keeping is a question of seconds per month and people talk of fifths and tenths of



Collective Exhibit of the British Horological Institute at Wembley—Left-hand inside view.



Collective Exhibit of the British Horological Institute at Wembley—Right-hand inside view.

seconds as glibly and ignorantly as they do of hundreds of millions of pounds! Anyway, a fifth of a second is soon gone, so also is a hundred millions of money!

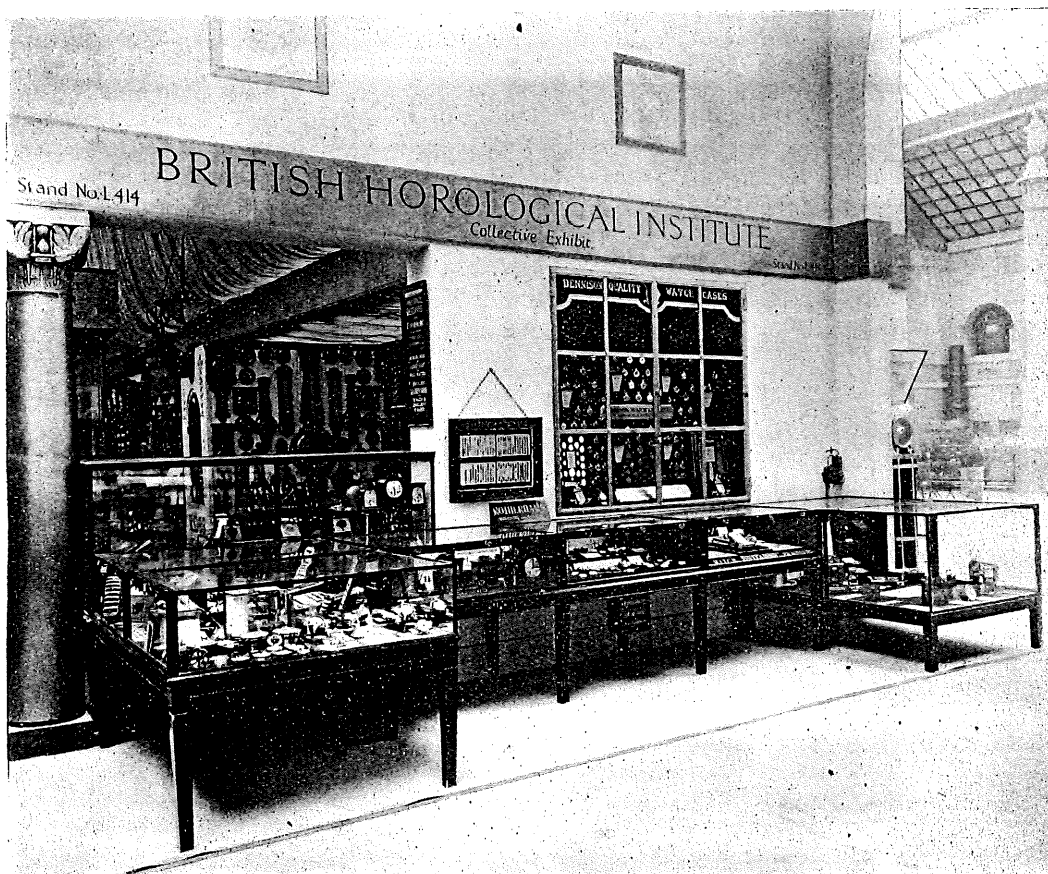
Nowadays to be called a blacksmith is an epithet of scornful reproach to a man who aspires to be thought a watchmaker, but it was not always so, in fact one has only to delve into the past to find that horology is a development of the blacksmith's craft.

In a case full of interesting antiques are two clocks made of forged and wrought iron; these crude specimens surely mark the transition period when the horologist split off from the blacksmith and began to develop a highly specialised art and craft of his own. And what wonderful examples we have of the artistic taste and skilled craftsmanship of these old masters, what triumphs of pure skill of hand, a skill all the more astonishing if we realise how comparatively primitive were the tools at their command.

It is to be observed that these fine old watches and clocks emphasise the artistic and ornamental side of the craft rather than the primary object of recording accurate time. None of them give any hint of the protracted and persistent efforts of the best brains to evolve precision timekeepers, efforts stimulated by the anxious search for means of determining the longitude at sea, so vital a necessity for a maritime nation like ourselves. For that reason the exhibit can be called only partially historic; a truer description of it might be that of a series of contrasts—artistic handicraft versus utilitarian precision, great variety versus mechanical uniformity, and so forth.

The Executive Committee is to be congratulated upon securing so excellent and prominent a position for the collective exhibit of the British Horological Institute, situated as it is close to one of the main arteries in the Palace of Industry—Stand No. L414.

Following is a brief summary of the individual exhibits in alphabetical order:—



Collective Exhibit of British Horological Institute at Wembley—Outside view.

ALEXANDER & SON,

61, Allesley Old Road, Coventry.

This old-established house show a selection ranging from keywind fusee watches of the old type to the modern keyless $\frac{3}{4}$ plate with adjusted balance and including Chronometer Watches for the Royal Navy and a movement with tourbillon escapement.

FRANCIS BARKER & SON, LTD.,

12, Clerkenwell Road, London, E.C.,

Display a varied collection of instruments including sun dials, one of which shows both Summer and ordinary Solar time, simple pocket compasses, liquid prismatic

compasses, gymballed compasses, pocket aneroid barometers and combined pocket compasses and aneroid barometers.

GEO. COTTON & SONS,

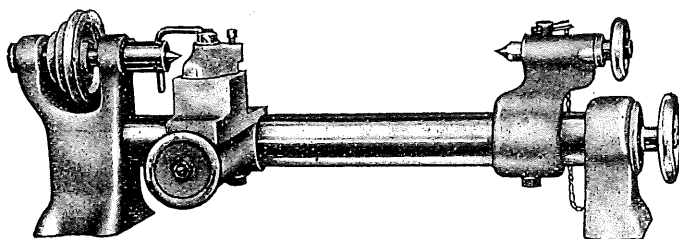
7, Percival Street, London, E.C.1,

Have an assortment of mainsprings of fine quality and ranging in size from those suitable for watches up to others for Marine Chronometers and clocks.

C.A.V. SMALL TOOLS, LTD.,

181, Queen Victoria Street, London, E.C.4,

Show two of their handy "Wade" lathes, very practical tools useful for all



The Wade Lathe by C.A.V. Small Tools, Ltd.

sorts of small turning for clockmakers and for making watch tools. They are capable of turning up to 4 inches diameter and 12 inches in length; the slide rest, which has a cross feed, travels the whole length of the bed. The No. 2 is a back geared screw cutting lathe with 13 change wheels and can cut all threads, right or left hand, from 6 to 60 T.P.I., including metric pitches. Various accessories combine to make it a really serviceable outfit.

DENNISON WATCH CASE CO., LTD.,
Handsworth, Birmingham,

Are represented by a fine show of their well known cases illustrating all their models, together with a selection of their enamel dials. They evidently believe that we shall ultimately revert to gold coinage and are therefore duly prepared to furnish sovereign purses, some examples of which they include. This exhibit is attractively housed in a dummy window which lends itself to a tasteful display of the goods.

ENGLISH CLOCK AND WATCH
MANUFACTURERS, LTD.,
Holyhead Road, Coventry,

Exhibit a full range of their manufactures showing a remarkable variety, which includes the well known Coventry "Astral" Watch in different grades, watches for the blind, hand-made adjusted watches, their new low priced lever timepiece movement, cabin clocks, ditto with centre seconds, bracket striking and chime clocks, either with pendulum or lever escapements, grandfather and grandmother clocks with tubular chimes, motor clocks, etc., etc. They make a special point of the fact that the escapements of their lever clocks are of English make, being produced at their Coventry factory.

F. W. ELLIOTT, LTD.,
105, Hatton Garden, London, E.C.1,

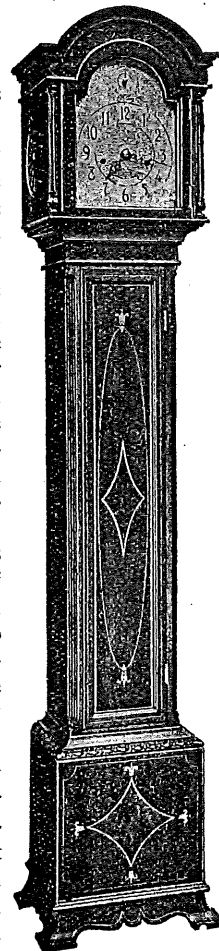
Show a range of the well made, highly finished clock movements for which they are

so justly noted, some for lever escapements, others with pendulum; a fine specimen is the large chime movement. We understand that every single part of the clock, from the mainspring or weight, including the making, engraving, silvering and gilding of the dials, is carried out

at the Croydon Works, and particular attention is given to the making of chime gongs, rods and tubes.

The case making section of the business is in the capable hands of a man who commenced designing and making clock cases twenty years ago, and his experience in the construction of cases for all climates has resulted in all clock cases made by this firm being constructed in a special manner in order to withstand extreme climates. Careful attention is given to the trend of modern furniture, and cases are designed to suit all periods, the reproduction of antique designs being a strong feature.

The firm also supply lacquered cases for Grandfather, Grandmother and Bracket Clocks, as well as in oxydised metal, and cases in all woods and styles.



Inlaid Sheraton Grandmother Clock, by F. W. Elliott, Ltd.

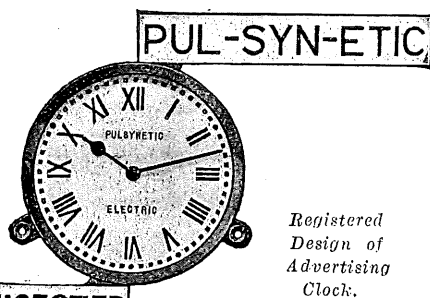
GENT & CO.,
Faraday Works, Leicester,

Have a complete installation of their "Pulsynetic" master and series of synchronised clocks, also a bell ringing contact maker.

As is fitting in the most up-to-date Exhibition that the world has ever seen, the British Empire Exhibition at Wembley is fitted almost entirely with Electric Clocks.

One finds these clocks in most of the Palaces and buildings in prominent positions. One of the firms responsible for this installation is Messrs. Gent and Co. Ltd., of Faraday Works, Leicester, who are manufacturing electrical engineers dealing with all classes of small current apparatus.

Amongst their specialities are Electric



Clocks of all kinds, and, incidentally, they are the Inventors and Proprietors of the "PUL-SYN-ETIC" System of Impulse Clocks, as installed in the British Empire Exhibition.

In the Horological Section, they are showing their system, particularly as applied to the Industries, Clocks for Works, Warehouses and Factories, with Auto "Start and Cease Work" Sound Signals for ringing "on" and "off" the workers.

The Transmitter, or Master Clock, shown is their Standard Pattern—a commercial article with scientific accuracy. The pendulum is guaranteed to keep time within one second per day, but with careful adjustment by any person actually interested in scientific accuracy, a rate with an error under two seconds per week is assured and maintained continuously without further adjustment, as "SINEVAR" Pendulum Rods are used, and these are compensated for temperature.

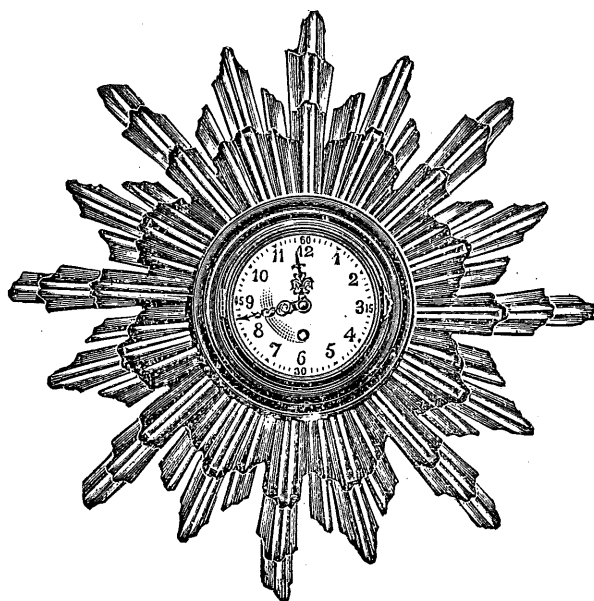
B. T. GREENING, LTD.,

30, Hatton Garden, London, E.C.1,

Exhibit an assortment of lever clocks fitted into cases which are reproductions of styles belonging to various periods and include a French style sun clock.

The "Sunray" Timepiece shown denotes the period of Louis XIV. Carried out in English Gold Leaf work with lever movement, enamel dial and engraved brass hands, giving the whole an ornate appearance which is so necessary to a replica of style of this period.

The Bracket Strike is that of the Queen Anne epoch, the warmth and tone of the carefully chosen Burr Walnut Case will be



The "Sunray" Timepiece—Louis XIV. Period.

appreciated by those whose clients discriminate in these matters. This has a Lever Striking Movement, the brass dial with raised corner mounts being finished in Antique style. Here again one can see the aim has been correctness of detail.

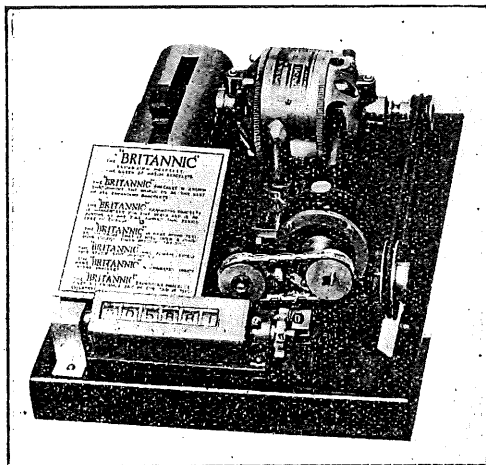
The revival of 17th Century Lacquer Work is also being taken full advantage of, and critics and admirers of this interesting art may here inspect a range of clocks unique in designs and colourings, the latter limited in the above mentioned period can now be had in almost any shade or tint.

E. HARROP,

99 to 119, Rosebery Avenue, London, E.C.1,

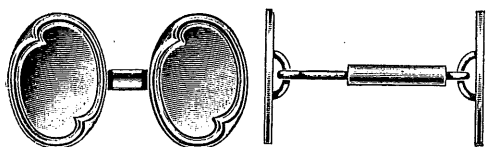
Displays an extensive range of his famous "Britannic" expanding bracelet. The "Britannic" Bracelet has frequently been tested by opening and closing a bracelet by machine 100,000 times. The bracelet and springs have always stood this severe test perfectly. We give an illustration of the machine on which "Britannic" Bracelets are tested. This machine is on view at Wembley. This firm also show an assortment of their gold cases for ladies' bracelet watches in numerous styles and patterns and for gents' pocket watches.

Another of Edwin Harrop's productions is the "Britannic" Patent Cuff Link, whose expanding connection allows the cuff



The Special Machine used for testing "Britannic" Expanding Bracelets.

to be pulled up the arm while washing the hands, etc., without the unpleasant experience of the cuff slipping down the wet wrist. These links need not be undone; the cuff passes over the hand quite freely. The



"Britannic" Cuff Link (extended).

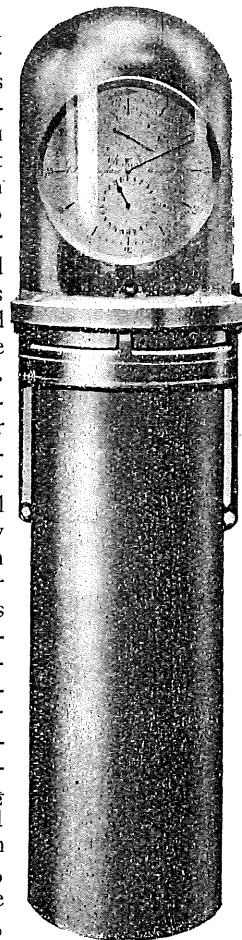
links are made in a variety of good patterns in 9ct. and 18ct. gold, plain or engine turned.

HORSTMANN GEAR CO., LTD., Newbridge Works, Bath,

Show a complete range of their clockwork automatic gas and electric lighting switches, some of which have equating cams to secure that the lighting and extinguishing of public lamps shall follow automatically the varying times of sunset and sunrise throughout the year; they are makers also of the well-known "Newbridge" clocks, both pendulum and lever, and exhibit several models. They are well made clocks of neat and compact design, and owing to the use of modern mass production methods are very reasonable in price.

THOMAS MERCER, Eywood Road, St. Albans,

Has a very interesting exhibit and one which well maintains the high reputation of British workmanship. He shows an astronomical regulator beautifully made; it has Cottingham's patent remontoire being driven by a battery the current from which operates an electro-magnet and so raises a weighted lever which presses on the 3rd wheel and constitutes the impulse; the 3rd wheel itself closes the circuit automatically. The escapement and pendulum are of the Riefler type modified, the pendulum rod is of Invar steel, and barometrical variations are cut out by running the clock in vacuo. The remainder of the exhibit includes marine chronometers, 8-day chronometer precision timepieces, a portable 8-day chronometer for surveyors and a portable chronometer contact clock having $\frac{1}{2}$ second and 5 second contacts, together with various parts—balances, helical palladium balance springs, pinions, hands, etc., all of first class workmanship and made in their own factories.



The Cottingham-Mercer Astronomical Clock.

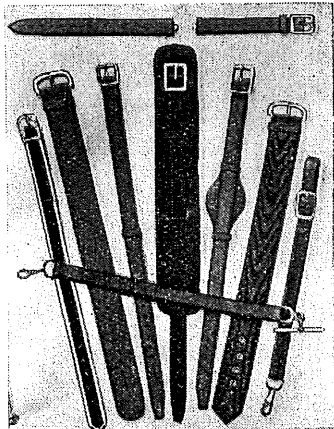
E. J. PEARSON & SON, St. John Street, London, E.C.,

Show a collection of watch wristlet straps including a novel broad one with a narrow gold jointing beading on each edge, also an assortment of travelling watch cases in various leathers, pig skin, crocodile, morocco, lizard skin, etc., all tastefully finished. Messrs. Pearson have lately introduced a distinct novelty in watch wristlets



Octagonal Travelling Watch Case, by E. J. Pearson & Sons, Ltd.

made up of gold and silver braid ribbons. These wristlets are shown at Wembley for the first time and look very neat and rich fitted with the "Lion" or "A" Clips.



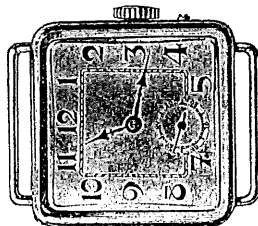
Examples of Watch Straps, by E. J. Pearson and Sons, Ltd.

Another novelty is the "Clip-On," and other "pairs of leather straps," with richly tooled designs each side in gold and silver, and the range of art colours in the crushed calf is very complete.

T. A. REYNOLDS, SON & CO.,
40, Percival Street, E.C.1,

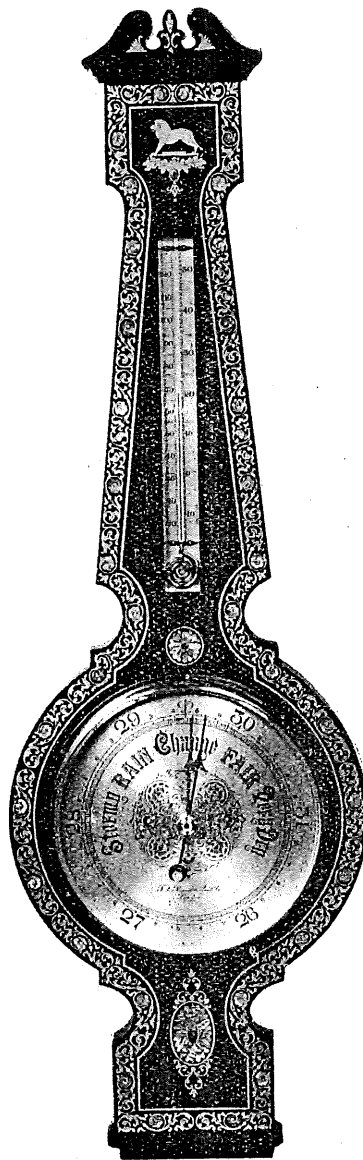
Display a large collection of aneroid barometers in a great variety of shapes and styles, also barographs, sun dials, pocket aneroids, thermometers and barometers in combination. Their chef-d'oeuvre is a double aneroid barometer which they claim to be at once the largest and the smallest in the world (Americans please note!); it stands 9 ft. high, the case is inlaid with mother-of-pearl, and the boss of the hand embodies the midget aneroid and is about the size of a threepenny bit.

ROTHERHAM & SONS,
Coventry.



A new design of Gent's Wristlet Watch by Rotherham's.

Here we have an exhibit which can be said to be truly representative of English machine watch manufacture at its best. Examples of all their various models are shown from the keywind capped full plate to their latest production, the 11in. ladies'

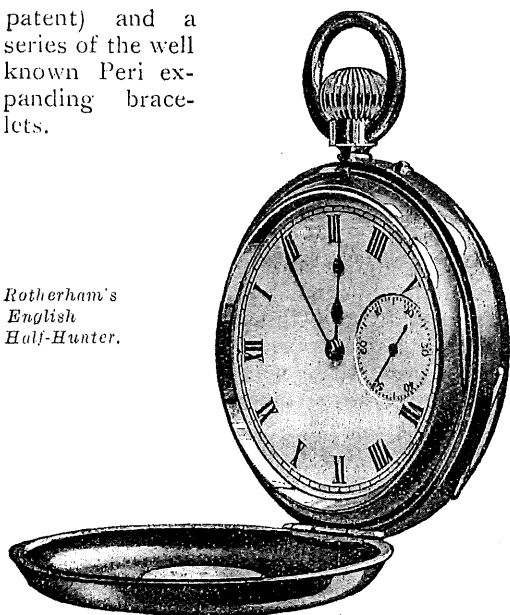


The "British Empire" Barometer, by T. A. Reynolds, Son & Co. Height 9ft.

bracelet head; all alike bear the characteristic individuality which distinguishes the goods made by this old-established firm: accuracy of construction, fine quality of finish, neatness and simplicity of appearance. Among their novelties is shown the new "golden slipper" case, a neat device which combines strength and lightness very successfully and is moreover smart in appearance and gives easy access to the movement. Other productions shown are the Karrusel movements (Bonnicksen's

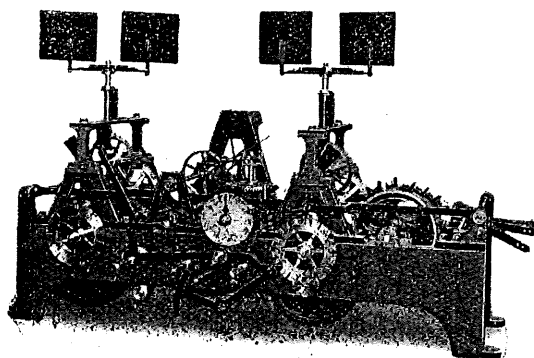
patent) and a series of the well known Peri expanding brace-lets.

*Rotherham's
English
Half-Hunter.*



JOHN SMITH & SONS,
42, St. John's Square, London, E.C.1.

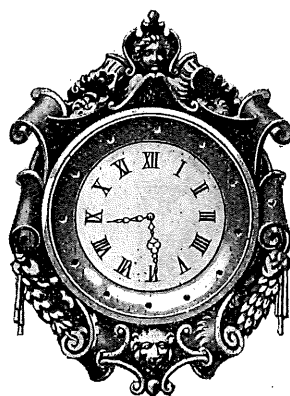
One's attention is immediately held by the fine large tower clock movement set up and going; it is a quarter chime, the hour striking on a bell of 10 cwt., it is designed to



*Westminster Quarter Chime Turret Clock Movement,
by John Smith and Sons.*

show the time on 4 dials of 6 ft. diameter; the escapement is the usual double 3-legged gravity, and the pendulum, which has an invar rod, beats $1\frac{1}{4}$ seconds; the lifting cams for the chimes are individually bolted to a series of circles, thus their sequence can be altered at will. Close to this large clock is a smaller one (not chime) striking on an 8 cwt. hour bell and intended for dials of 4 to 5 ft. in diameter, also an 8-day timepiece for a small turret. The firm do not confine them-

selves to tower clocks, as is shown by the handsome Spanish mahogany grandfather clock adjacent; it rings the Whittington and Westminster chimes on tubes, the movement



*Carved Wall Clock by John
Smith and Sons.*

is of excellent workmanship, being fitted with a jewelled dead beat escapement. Messrs. Smith and Sons are interested also in all kinds of metals, in evidence of which they exhibit a collection which is unique for its extraordinary variety.

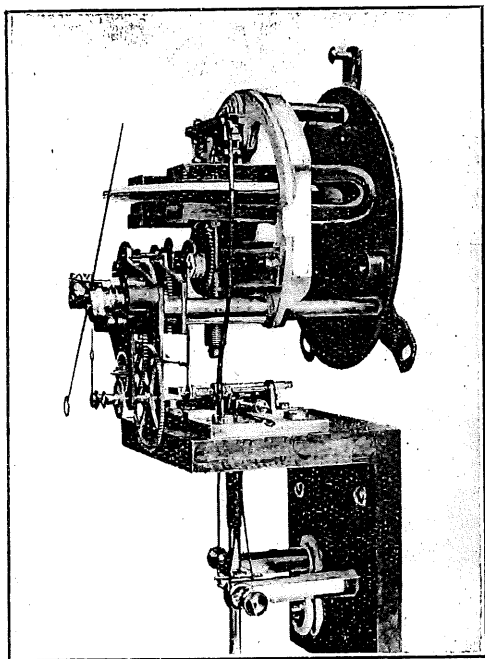
J. CICERI SMITH,
401, High Road, London, W.4.

Has on view a series of micrometer gauges for the use of engineers, watch and clock makers, and makers of small tools and mechanisms. They are handy little instruments, accurately made, and can be read at a glance without calculation.

ALEXR. STEUART,
85, Pitt Street, Edinburgh.

By reason of the real novelty of the principle, the two clocks of this exhibit attract a good deal of attention. As in the Grimthorpe escapement the impulse to the pendulum is given by a gravity arm, yet there is no escapement, there is no actual mechanical, electrical or magnetic connection between the electric motor which provides the power and the pendulum, which is kept in motion by the fall of the gravity arm. This latter is raised by an intermediate lever, which in its turn is lifted by a cam in gear with the motor, the pendulum in its swing makes and breaks no contacts, which is done by the cam, but it controls the time of the contacts during which current passes to the motor, the motor is in gear with the motion train, and if required a seconds wheel also can be interposed, the rotation of the train is continuous, without stops and starts as in

escapement clocks, the motion of the motor is sustained during the short intervals between the contacts by a reduced by-pass current and by kinetic energy. Of the two models shown one is a precision regulator made by J. and D. Meek of Edinburgh; it has an Invar seconds pendulum supported on knife edges and is driven by a dry cell battery through a meter motor; the other is a turret clock movement made by James Ritchie and Son of Edinburgh, and is driven from the public electric supply mains through a $1/25$ H.P. shunt wound motor, the leading off rods are connected by triple worm gear to the train and a torque of 56 lbs. may be applied to and removed from the minute hand without any disturbance of the pendulum.



Movement of Electric Clock by Alexander Stewart.

STYLIC WATCH CASE CO.,

42, Frederick Street, Birmingham,

Have an assortment of Watch Cases in numerous designs, notably a very dainty one of oblong shape.

THE SYNCHRONOME CO., LTD.,

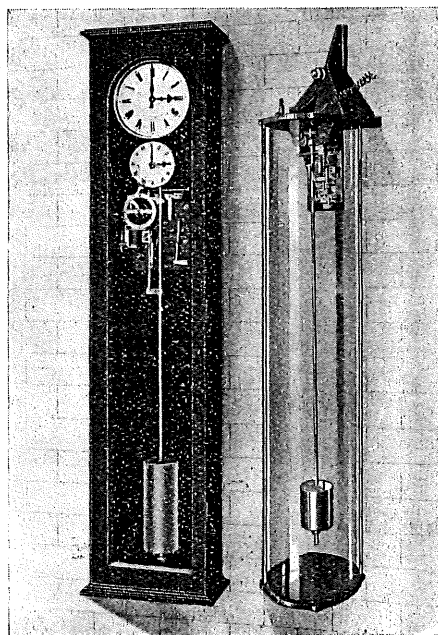
32/34, Clerkenwell Road,

Show an installation of their very successful system of master and controlled clocks and includes a well made example of their precision regulator with free pendulum.

Much has been heard lately in scientific circles of the Free Pendulum, a development of the Synchronome System of Electric Clocks, which has surpassed every known record of accuracy in time measurement.

To those who have any knowledge of clock escapements, the idea of a perfectly free pendulum is fascinating. It would appear to be impossible, on the face of it, to devise a means of giving impulse to a pendulum, which shall not require that pendulum to unlatch or release a small instalment of the reserved store of energy. The very word escapement implies it, yet it is nothing less than this which has been accomplished.

The solution of the problem lies in the use



The Synchronome Transmitting Slave.

The Synchronome Free Pendulum.

of a slave clock to perform this duty for it. It is enabled to do so at precisely the right moment because its pendulum is kept in perfect phase synchronisation with the free pendulum.

Two examples of the Free Pendulum are to be found at Wembley, one in the Royal Society's Exhibit in H.M. Government Building, and the other, which is the subject of our illustration, in the Exhibit of the British Horological Institution in the Palace of Industry. The latter is used as the fundamental timekeeper of the twenty large electric clocks which serve the Palace of

Industry, the Conference Hall and adjacent buildings, in that part of the British Empire Exhibition.

These clocks have been exhaustively tested at the Royal Observatory, Edinburgh, throughout the last two years by means of special apparatus, including a cinematograph which takes cognisance of thousandths of a second. It is only by such means that any error has been discovered and the variations have never exceeded one-hundredth of a second in twenty-four hours.

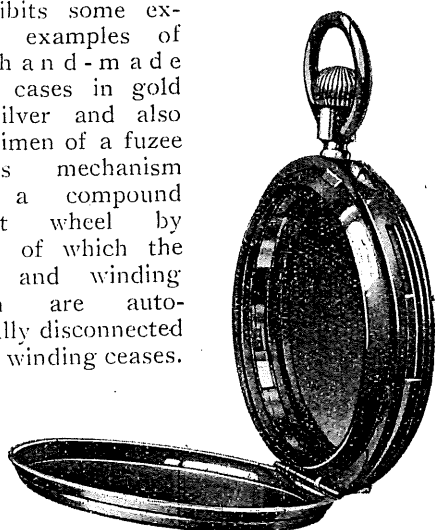
W. TARBOX & CO.

This firm shows an assortment of elegant platinum jewellery consisting of rings, bracelets, pins, pendants, etc., set with diamonds, sapphires, opals, etc. Some gents' signet rings are included in which the stones are polished flush, also there are moire bands with platinum and diamond initials, and some handsome portfolio cases, embodying some new designs carried out in various leathers.

F. THOMS,

25, Spencer Street, London, E.C.1,

Exhibits some excellent examples of fine hand-made watch cases in gold and silver and also a specimen of a fuzee keyless mechanism with a compound ratchet wheel by means of which the fuzee and winding button are automatically disconnected when winding ceases.



Gold Repeater Watch Case, by F. Thoms.

P. P. THORNTON,

Great Haywood, near Stafford,

Has some handsome examples of engraved brass clock dials most ornately decorated, together with a vertical sun dial.

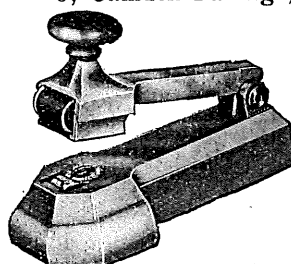
USHER & COLE,

339, St. John Street, London, E.C.1.

This old established Clerkenwell firm displays a collection of their high class London made productions including pocket watches, chronometer watches for the Royal Navy, marine chronometer, 8-day chronometer timepiece, and a particularly fine fuzee keyless gold minute repeater with perpetual calendar and up and down indicator. There is also a specimen of fuzee keyless mechanism with push shut off device.

WARWICK TIME STAMP CO.,

5, Camden Passage, London, N.1,



All-Metal Type Stamp, by the Warwick Time Stamp Co.

Have examples of their date and time stamps whereby the minute, hour, day and month of any occurrence can be automatically recorded.

WHITE & REDGROVE, LTD.,

13, Charterhouse Street, London, E.C.1,

Display a tasteful assortment of English paste and manufactured pearl jewellery.

One or two other exhibits in the Jewellery section not included in the Stand of the British Horological Institute are of interest to Horologists. On the modern side we have the *Princeps* electric clock, and on the antique the fine collection of Mr. Percy Webster.

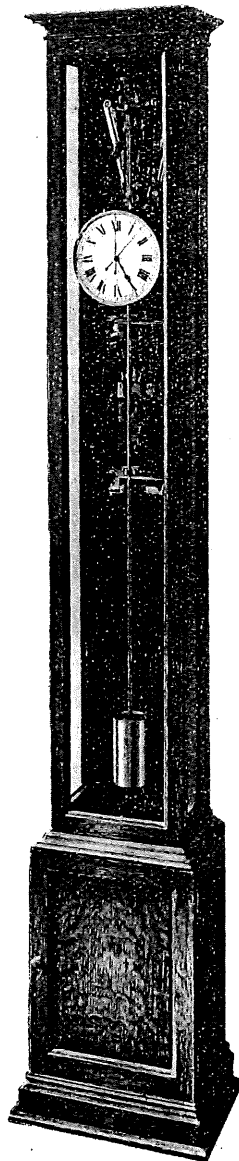
PRINCE'S ELECTRICAL CLOCKS, LTD.,

173, New Bond Street, London, W.1.

This firm are showing their "*Princeps*" Electric Clock which has recently appeared on the market, and is the invention of Major C. E. Prince, O.B.E., M.I.E.E., one of the Marconi Company's inventors. It embodies features which differ materially from other electrical clocks.

In the *Princeps* Electrical Clock the pendulum is as free as is humanly possible. Except for touching two very light contact spring wires, it does no other work. The actual work of breaking contacts is done by

a separate "polarised reverser." This reverser is also made to sustain the pendulum by slightly depressing one of the aforementioned light contact wires. This wire, which in its normal position is nearly at the



"Princeps" Master Clock.

dead or vertical position of the pendulum, remains in contact with a platinum wire on the pendulum, is carried out with the pendulum, and travels with it on its return journey. In the meantime, the sustaining tail attached to the reverser armature has moved away thus allowing the light contact spring to give slightly more energy to the pendulum and keep it swinging.

The actual gain of energy represents about one millimetre travel of the spring. The impulse, therefore, is minute and is applied every second. The train of the clock proper is actuated by a current from the main circuit passing through the reverser.

The clock movement itself is exceedingly original in design. The impulse arrangement consists of two wheels, one of which is a sixty-tooth wheel, upon whose staff is mounted the seconds hand. The other wheel meshes with this and is an idler-wheel. The pallet is mounted on the armature of an electro-magnet and

with each electric impulse from the reverser the pallet engages with a tooth on the seconds wheel and on the minute wheel, thus propelling the former one tooth.

The Master Clock will operate any number of subsidiary dials, and for this purpose

a special relay attachment is used; the relays having substantial contacts will enable the passage of heavy currents without danger. The system works on dry cells, and as some guide to the consumption, we are informed that three Siemens "P" type cells will run the Master Clock for at least a year. The number of such cells required for a system would be one per Slave Clock.

This clock is well worth the further investigation of our readers.

PERCY WEBSTER,

37, Great Portland Street, London, W.1.

Here is a collection of antique clocks and watches of considerable interest and value. It is representative of most of the great masters of the 17th and 18th centuries. A careful examination of these triumphs of ingenuity and exquisite workmanship is likely to make the most virtuous person commit the sin of covetousness.

We regret our space is too limited to give a full list of all the interesting pieces shown by Mr. Webster, and the following must suffice to give some idea of their variety.

Clocks.

1. Wrought iron clock Henry VIII period, verge with balance wheel, one hand, probably by Cratzer.
2. Table clock by Christian de Welke about 1600, metal gilt, striking on the dome, one hand.
3. Brass lantern clock by Bowyer, about 1626, verge with balance, one hand.
4. Kingswood timepiece by J. Austen, Shoreditch, Charles II period, Quarter repeater.
5. Ebony bracket clock, brass mounted, by Tompion, 1638 to 1713. Verge escapement; repeater.
6. Ebony and gilt bracket clock, double casket, William III period.
7. Very fine large walnut bracket clock by George Graham, about 1720, anchor escapement.
8. Fine bracket organ clock by Markwick Markham, 1720 to 1740, plays Turkish airs, made for the Bey of Tunis.

Watches.

9. Oval metal gilt watch by F. Nawe, runs 12 hours, single hand, catgut on fuzee, no balance spring, about 1600.
10. Watch in rock crystal case, by Robert Grinken, about 1620, single hand, catgut on fuzee.

11. Silver pair-cased verge watch by Edward East, watchmaker to Charles I, one of his late productions.
12. Tortoise shell, pair-cased watch by Daniel Quare, minute hand, revolving disc for hours.
13. Clock watch, by Henricus Mott (Charles II), single hand, catgut on fuzee, strikes the hours.
14. Silver pair-cased watch by Joseph Antram, with enamelled figures, including one of the Old Pretender.
15. Superb astronomical watch, by John Elliott, early 18th century, dial enamelled on gold showing mean and solar time, signs of the Zodiac, also a calendar.
16. Gold pair-cased watch by John Barton, 1771, elaborately chased scroll work; has an enamelled miniature of John Harrison.
17. Very large pair-cased watch (6 to 7 inches diam.) finely engraved and pierced, set in Battersea enamel, plays a tune every hour and figures pass over a bridge crossing a waterfall, made by William Hughes in second half of 18th century. Looted from the Summer Palace of Peking.

**GILLETT & JOHNSTON,
Croydon,**

Have a very interesting and spectacular display situated in the Palace of Engineering. The main feature is a large tower clock ringing the Westminster chimes and striking the hour on a 15 cwt. bell. The train controls a carillon of 23 bells automatically operated by an electric motor through perforated sheets after the manner of a pianola; if desired it can also be played by hand on a keyboard. The bells are singularly sweet and true in tone, having been tuned on the Simpson's 5-toned system. The escapement is the usual double 3-legged gravity and maintains a $1\frac{1}{2}$ seconds pendulum of 110 lbs., the rod being of Invar steel. This clock is destined for Canada, being the War Memorial of Simcox, Norfolk County, Ontario. Messrs. Gillett and Johnston have in hand the largest carillon peal in the world for the Rockefeller Park Avenue Church, New York; it will consist of 53 bells, the tenor bell weighing 9 tons.

The outside dials of the tower of this exhibit are electrically synchronised by a master clock, of which the distinguishing feature is a swinging armature in place of the usual hit and miss device.

Wembley Handbook.

BY permission of the Executive Committee of the B.H.I. Collective Exhibit at the British Empire Exhibition, we had the privilege of preparing a booklet dealing exclusively with this Exhibit. The book is entitled "English Clocks and Watches and their Makers" and forms an admirable means of comparing the works of the old masters with those of the present generation. The first portion of the book consists of a brief history of British horological achievement and is profusely illustrated with pictures of famous old clocks and watches, whilst the second portion is devoted to illustrated technical descriptions of the various exhibits at Wembley. The book is a handsome production, and is being sold on the B.H.I. Collective Exhibit at 6d. a copy. Copies can also be obtained from the HOROLOGICAL JOURNAL, Fulwood House, High Holborn, London, W.C.1, or the British Horological Institute, 35, Northampton Square, London, E.C.1, at 8d. post free.

**Royal Observatory,
Greenwich.**

ABSTRACT from the Astronomer-Royal's Report to the Board of Visitors read at the Annual Visitation of the Royal Observatory, June 2nd, 1923. The Report refers to the year from May 11th, 1923, to May 10th, 1924.

In the Report it was mentioned that:—

The external painting of the dome of the Thompson Equatorial was completed on May 23.

The Record room was cleaned and re-decorated in the autumn.

Considerable repairs have been carried out on the roof of the Octagon room. A new floor has been provided for the wooden house of the Robinson Anemometer. The balustrade round the roof has been thoroughly overhauled and repaired. This work, which involved some structural alteration, is now completed.

Reference has been made in previous reports to the generosity of Lieut.-Com-