

# T. & R. BULLETIN

PUBLISHED BY

THE TRANSMITTER AND RELAY SECTION

of  
THE RADIO SOCIETY OF GREAT BRITAIN.

53, Victoria Street, S.W.1

For "T. & R." Members Only. No. 2—Aug., 1925.

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*See our Special Article on page 4*

**== REMOTE CONTROL ==**

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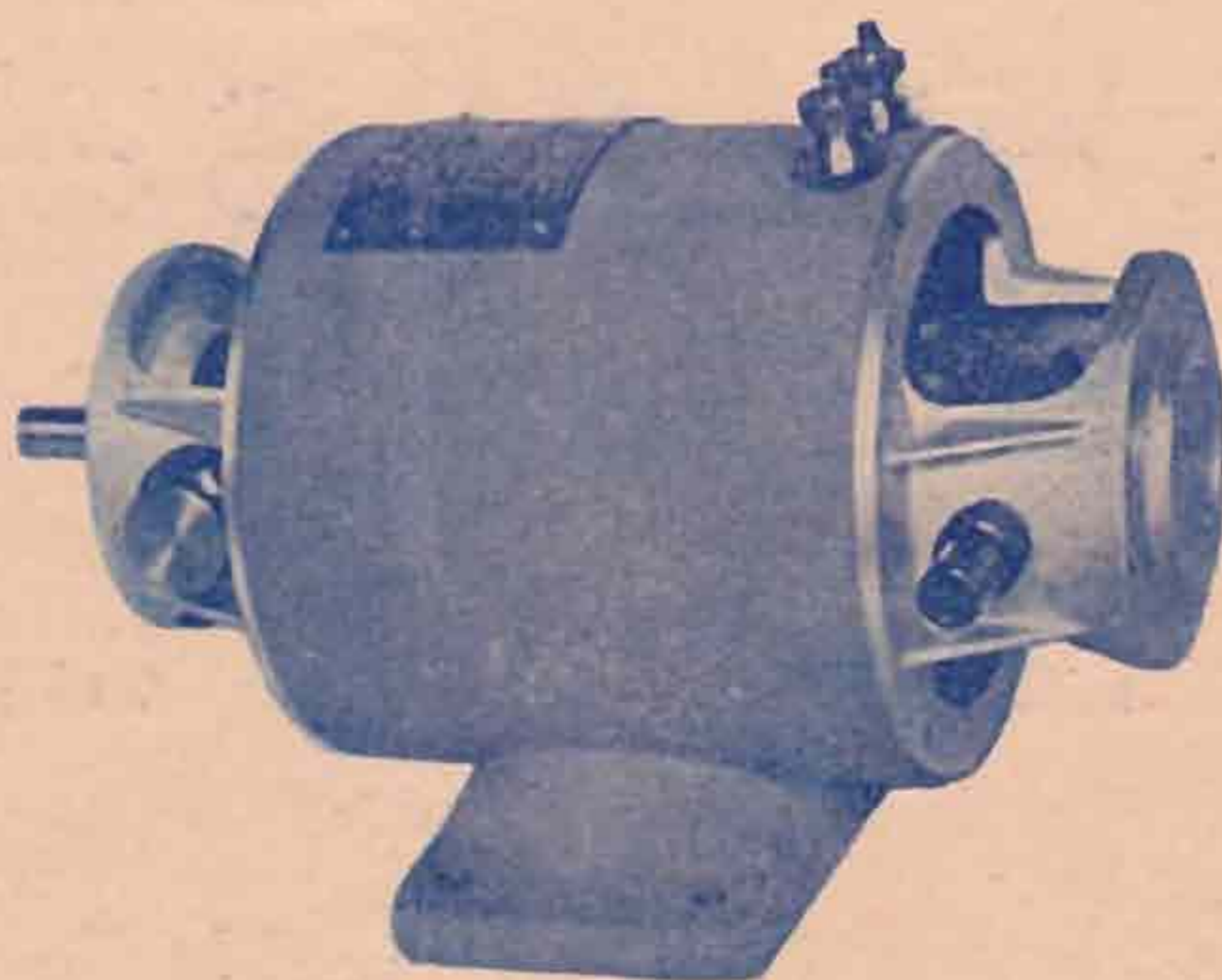
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# T. & R. BULLETIN

*Devoted to the Interests of the Transmitting Amateur*

AUGUST, 1925.

No. 2.

## A Success!

WE have been inundated with a shower of correspondence since we appeared, and a few of the congratulatory letters and extracts from them are reproduced below. We much regret that it has not been possible to reply to all our well-wishers, but our correspondents can rest assured that their letters have been carefully read, and where suggestions have been made these have been filed away for future reference. It is not, of course, possible to put all the suggestions into execution, but wherever it is possible this will be done.

2OD—A splendid effort and should do much to consolidate the Section.

2TO—It's very good for a start . . . don't limit its circulation . . . a good cartoon on the front page, better than an advert. *I look forward to a weekly Bulletin.* So do we.—(Ed.).

5AI—Have read the BULLETIN and think it very good indeed.

6JV—Heartiest congrats o.m. on the BULLETIN. Much better than I had expected. . . . Now it must be improved. . . . Must start a Q.R.A. Section.

5YM—First of all my most sincere congratulations. . . . Good luck to you.

5SZ—It is just what we have been wanting. Wishing you every success.

6YR—The BULLETIN is the very thing that we in the North have been waiting for.

5RZ—My hearty congratulations and thanks for the first copy of the BULLETIN.

S. K. LEWER.—I have seen the first number of the BULLETIN, and congratulate you on it. You have given us the exact style we want.

6OH—I think it is a great start in the right direction.

6BQ—Would like to send my congrats on the little edition for July duly received. . . . The article from G2WJ is the kind of stuff that is wanted, also from 2OD and C.W.L.

6MX—Hearty congratulations on your first issue. . . . Wishing you every success.

The above are only a few of the nice things that have been said to us, and, in addition to these, kindly Press notices have appeared in the "Wireless World," "Amateur Wireless," and the "Newcastle Evening Chronicle." We thank them all for their kind wishes, and hope that the time is not far distant when the BULLETIN will be as important in size and as eagerly looked forward to as our grown-up contemporaries. Thank you.

## T. & R. NOTICES.

THE opening meeting of the Society will take place on the 11th September, when a paper on "Alternating Current" will be read by the Chairman.

\* \* \*

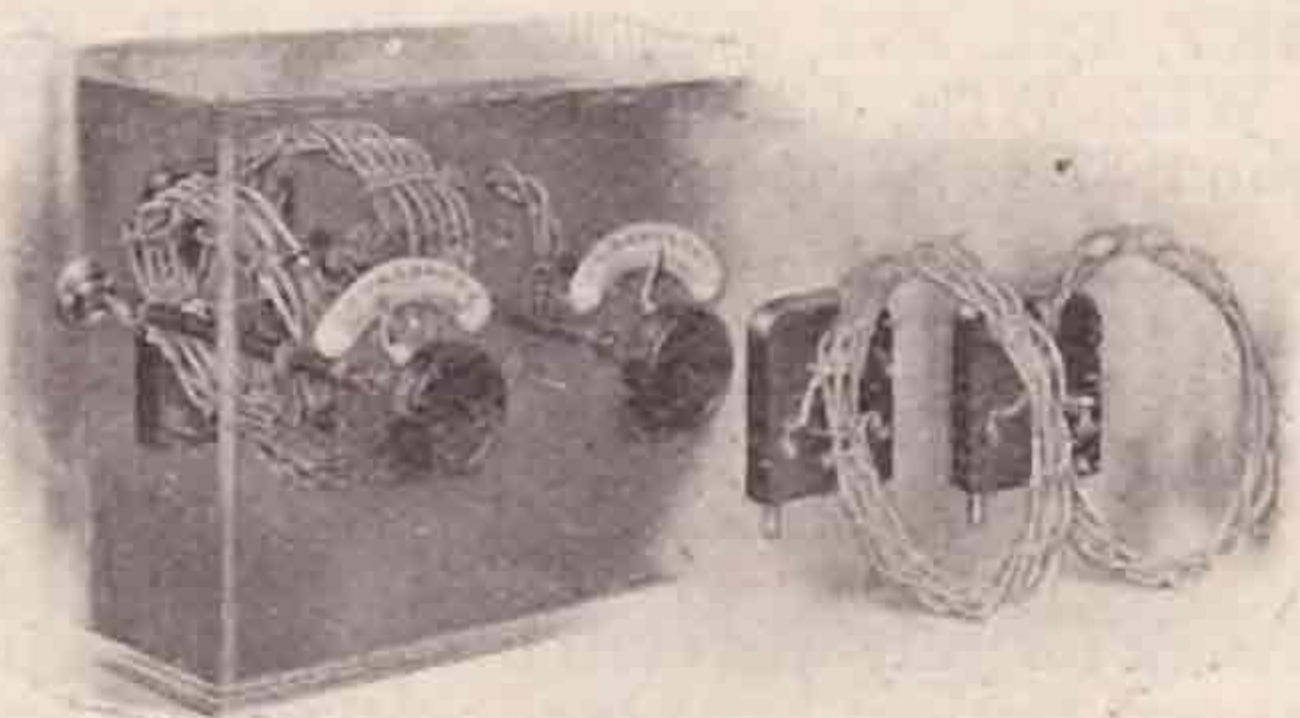
Members willing to lecture to the T. & R. Section are asked to come forward at the informal meetings. The lecture need not be formal, but may take the form of a series of interesting remarks.

\* \* \*

All subscriptions become due in October, and as a portion of these is for the upkeep of the BULLETIN please start to save up immediately.

Owing to pressure on our space we regret that a number of articles are unavoidably held over.

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## Interesting DX Work.

By G2LZ.

JUDGING by the number of British stations who have been on the air on the short waves lately, I should think that they imagine that DX work in the summer is dead. I can well assure them that this is not the case, and that DX work at this time of the year is quite as good as in the winter. I have done quite a considerable amount during June, and every day the signals are getting stronger, and the period of communication gets longer.

The wave for this time of the year is undoubtedly around the 40-metre band, and I have no doubt that this band will be the most popular one next winter. I have no doubt that most of the hams will say that they cannot find the time to get on the air in the summer as there are so many other attractions. The best time just now is between 0600 and 0800 B.S.T., and I am sure that there are no other attractions at this time of the day. It is only a question of getting up a bit earlier in the mornings, and this is much easier accomplished in the summer than in the winter. The only other British stations I have heard working DX are 20D and 2NM. It is up to all the British hams to keep the ball rolling, and we want them all on the air. It is quite pathetic sometimes to give a test call and to hear about a dozen or more stations all over the world trying to get into communication at once.

The A's and Z's have been coming through well. I have worked A2YI and A3BQ, also Z2AC, Z2AE and Z2XA. In other parts of the world have worked Us, IYB, 2QH, 2BEE, 2AFN, Cs, IAM, IAR, BZIAB, RCB8.

The following stations have been logged: US, 1XU, 1WL, 1ALL, 1ZA, 1OAS, 1CKP, 1BOQ, 1OW, 1BZP, 1XZ, 1BES, 1ARE, 2LU, 2BW, 2AF, 2AGQ, 2CTH, 2BRB, 2KT, 3BCT, 3BYA, 3HG, 4CU, 4KT, 5NI, 8ST, 8SF, 8ZG, 8R, 8EB, 8CYI, NKF, WIZ, WIR, C2CO, Z4AK, A3BD, BZ2SP, all around 37 to 42 metres.

I have not listened in much on the 20-metre band. The only station I have logged on 20 metres is RCB8. I am still carrying on the good work with Mosul daily.

DX work for July was even better than for June. Several new stations have been worked and heard. The A's and Z's and South Americans are coming through better than ever on the 40-metre band between the hours of 0500 and 0700 G.M.T. Towards the end of the month there was a marked falling off in the strength and number of U's and C's. This was probably due to bad QRN conditions at their end. The Z's and A's are much stronger, and the period of communication is now much longer. The Z's fade out first about 0630 and the A's can be worked until after 0700 G.M.T. Communication is very steady and reliable every morning. There is no QSS. Much unnecessary QRM is caused by European stations operating within the band of waves allotted to the A's and Z's. French stations using raw A.C. are the worst offenders. Although some have been asked to shift their wave, they still persist in QRM.

As a remedy of this trouble, I suggest that station calls heard outside the allotted IARU wave band should not be answered. QSO has been established with NRRL. The best DX QSO was with Z3AL, on the morning of July 22. Low-power tests were made, and I received 3AL quite readable when he was using an input of two and one-half watts only. My lowest power was 30 watts, and we should have not doubt got much lower, but for the fact that signals faded out before we had time. Have been in QSO with Mosul daily.

Stations worked: A2YI, 2CM, 3BD, 3BQ, Z2AC, 2AE, 2XA, 3AL, 4AG, Bz1AB, 2SP, RCB8, BA1, Y7XX, CsOXI, IIARE, 2CTH, 2BUI, 3BVA, 8CCQ, 8APW, 8SF, 8TX, NRRL.

Communication with A and Z daily.

## Trans-Oceanic Tests 1925.

WITH the use of the 45 and 23 metre wave lengths now authorised by the P.M.G., long distance communication is possible throughout the year, whereas last year, when working on 90 metres, communication even with U.S.A. and Canadian amateurs ceased in the month of June.

Our members have been in touch with Australia, New Zealand, Brazil, Argentine, etc., in the early mornings regularly, whereas on 90 metres it was not possible to work Australia and New Zealand at the same time, i.e., Australia evenings here and New Zealand mornings.

One thing is very noticeable on the shorter band of wave lengths, and that is the great keenness of Continental amateurs, whom one seldom heard in the early mornings on 90/100 meters.

It will be very interesting to note how the 45 and 23 metre waves compare with 90 metres during the winter, and there is any amount of serious experimental work to be done in this direction.

The various countries interested in long distance work have all been notified that we are transmitting on 45 and 23 metres as well as 90/100, and all members who hold licences for these waves are specially requested to keep rigidly to the terms of their licences, especially with regard to wave lengths.

The T. & R. Section will be glad at all times to assist members with calibrated signals, on the shorter waves.

## "Greater Broadcasting Interests."

The above is a quotation from an official Post Office letter sent to an amateur who it was alleged interfered with his immediate neighbours when transmitting on 150 metres.

There are over 2,000 transmitting amateurs in Great Britain, and their interests are at least as important as those of the broadcast listener. The whole of these 2,000 transmitters should be T. & R. members if their interests are to be properly recognised. The Broadcast Listener's "Wireless League" will look after its members—we will look after you. Get us new members and help yourself

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## Remote Control.

By H. BEVAN SWIFT, A.M.I.E.E., G2T1.

THE radio experimenter often has occasion to seek methods of controlling his apparatus from some distant spot. Particularly is this the case with transmitters, many of whom operate their stations from a bedroom during the "wee sma' hours" by mechanism much of which is often of an ingenious character. Again, motor generators and other noisy apparatus have to be banished to remote regions of the house where their insidious performance shall not disturb the other members of the household. It is in such cases where the methods herein described may be of service.

Remote control in connection with the starting and stopping of electric motors has long been an established feat and perhaps the best-known application is in the well-known push-button control of lifts. In such cases, a simple relay is used, the push being in the coil circuit operating a resistance which moves over the contacts gradually bringing the motor up to speed. For stopping purposes, a second push is pressed which simply short circuits the "no-volt" hold on coil of the starter and allows the resistance arm to drop to the zero position.

The principle of a mechanism embodying this method of operation is shown on Fig. 1. A is the motor armature and B its shunt field. C is the coil of the remote control starter having a core C1 attached by a link to a radial arm C2. D is a dash pot to maintain slow starting and regulated by an adjustable relief or leak valve. EE are the starting contacts with resistance between them. F is the "no-volt" release magnet. This is in series with the motor shunt field and holds the radial arm over in the running position when the current in coil C ceases. G is the starting push in the circuit of coil C. When this is pressed the radial arm is drawn up, starting the motor until it is held by the no-volt coil. Push H is the stopping push which, on being pressed, simply short circuits no-volt coil F, allowing its magnetism to die away and releases its hold on the radial arm. Consequently the latter drops and the motor stops. The no-volt coil F also acts in its ordinary function of letting the radial arm return to the zero position should the supply fail.

The above method varies slightly in various systems, but that shown is a very suitable one to use in the case of a D.C. motor generator for converting the low voltage supply current to a high pressure for anode supply.

It would obviously do just to erect an ordinary starting switch in the operation room, fixing the motor generator in the cellar or basement. This, however, would entail the running of two large cables sufficient to carry all the motor supply current, and also one smaller wire for the field current, all the way up the house, while the usual starter is a heavy and awkward device on the operating table. The push-button control only requires three small wires, and the two small pushes may be mounted together in a block of very small and neat dimensions.

For the remote control of small single-phase A.C. motors the device shown in Fig. 2 can be used. These motors usually have two stator windings, viz., a "running" and a "starting" winding. The latter is only used at the start, while the motor

gets up speed, and is then cut out. A is the main coil which is connected to push B with battery D of a few cells or an accumulator. A1 is the core with a bridging piece. E1 is the common contact connected to one pole of the supply mains. E2 is the other main contact connected to one end of the running coil. F is the short contact for the "starting" winding. When push B is pressed, the core is drawn up and the bridge spans all three contacts. The motor then starts and runs up to speed when push B is released. The core then falls so that the bridge leaves the short contact F opening the starting circuit but is caught by latch G before the two contacts E1 and E2 are left. The motor then continues to run. C is another push in the circuit of coil H and also excited by battery D.

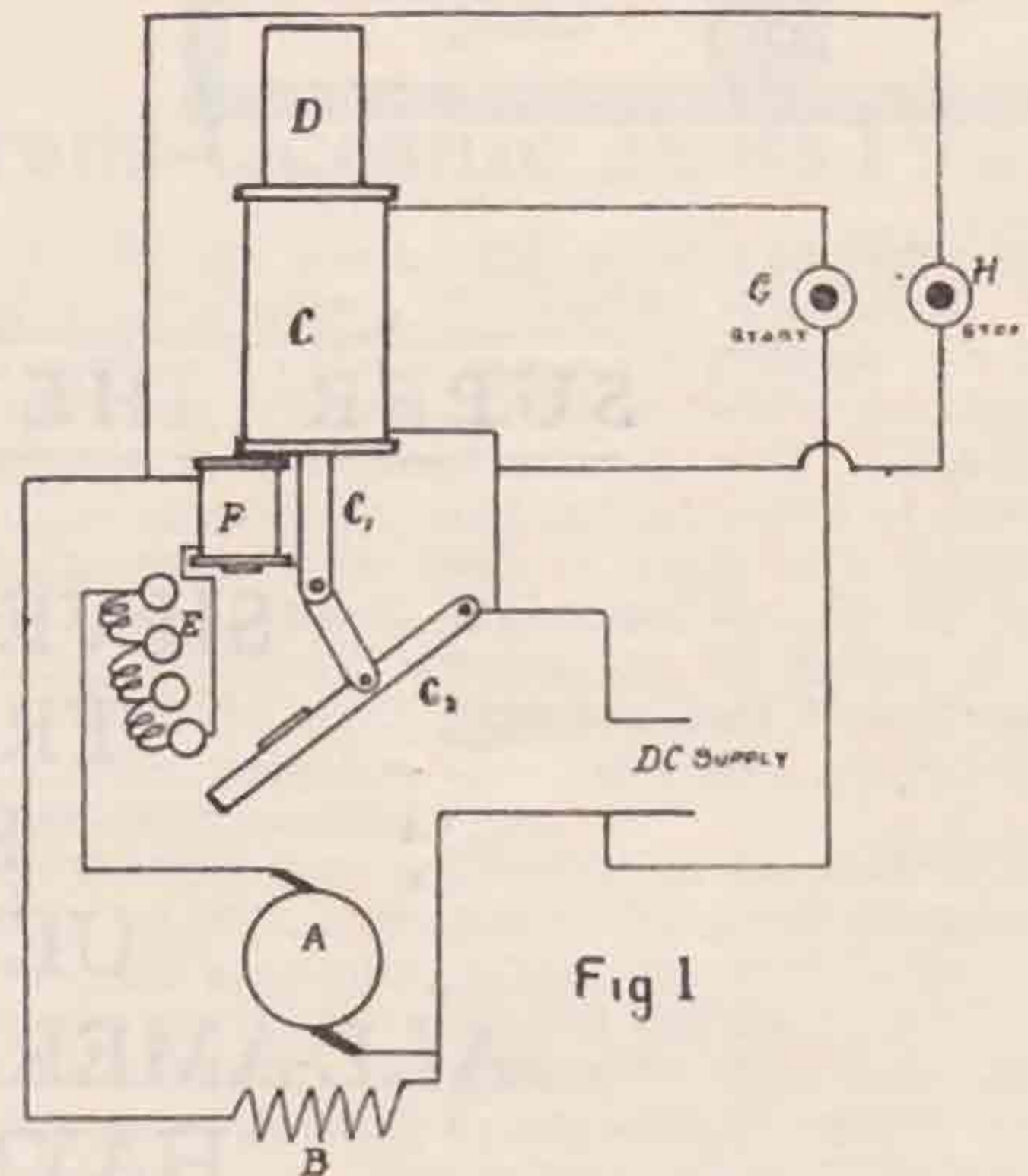


Fig 1

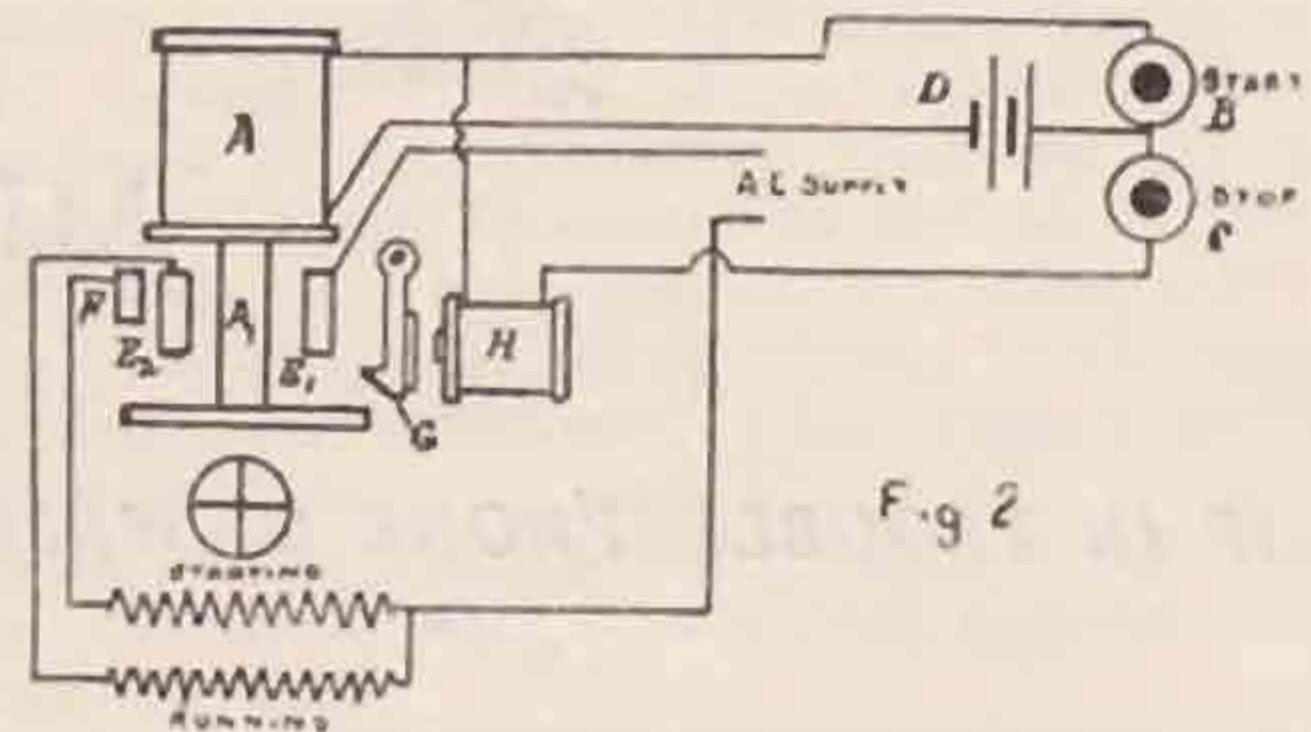


Fig 2

When push C is pressed the latch G is drawn back and the core drops right down. It will be understood that the drawing is only diagrammatic and the practical design would have to be rearranged.

For larger motors more complicated gears are in service. For instance, for three-phase motors with short circuited rotors there is a remote starter on the Star Delta principle. This obviously involves the use of a large number of contacts, and as it would only be employed for motors of 5 H.P. and upwards, it would perhaps be outside the average amateur's range. Large remote motor starters are also sometimes operated by a small electric motor which gradually turns a drum, closing contacts in correct sequence, and automatically stops directly the requisite duty is performed. They also may have automatic sub-control, preventing the sequence

proceeding should the motor fail to start or other event happen.

The simple operation of a change-over switch such as that used by a transmitter for changing from "send" to "receive," involving the transfer of the aerial, together with the switching on or off of the valve filaments and other features, can be

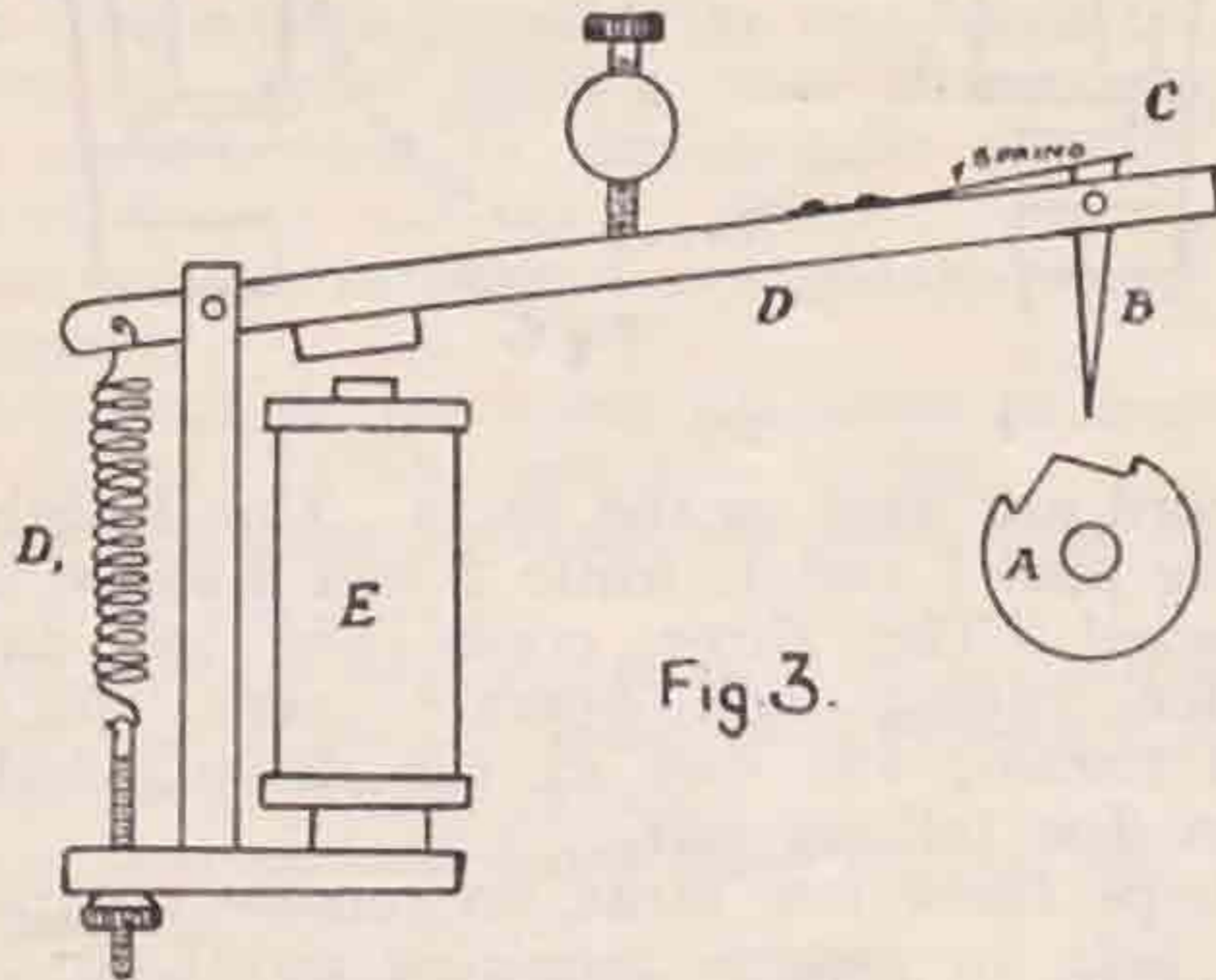


Fig. 3.

effected by several devices. One used by the writer, which has been very effective, is shown in Fig. 3.

The idea was originally taken from a toy electric locomotive which used the method to reverse its direction upon reaching the end of its journey. It will be seen that there is a simple shaped disc or cam A with a pivoted driving tongue B above it. This latter is maintained in a true vertical plane by the spring C bearing upon its squared upper end. The tongue is pivoted to an arm D held upwards against a stop by a spring D1. The magnet E

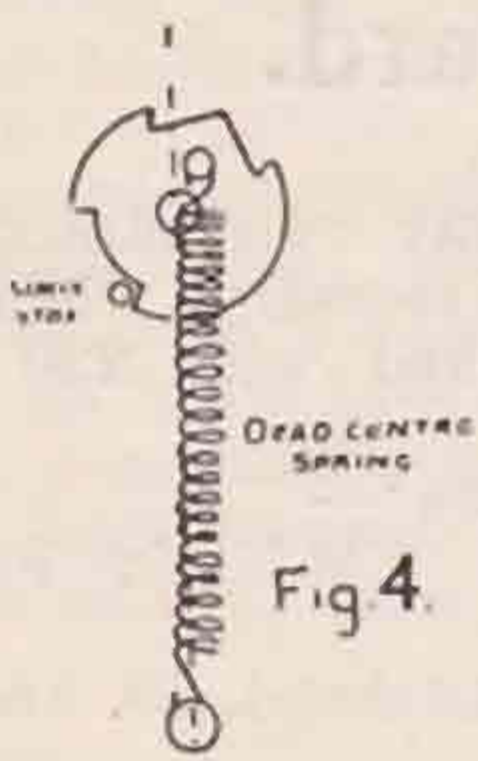


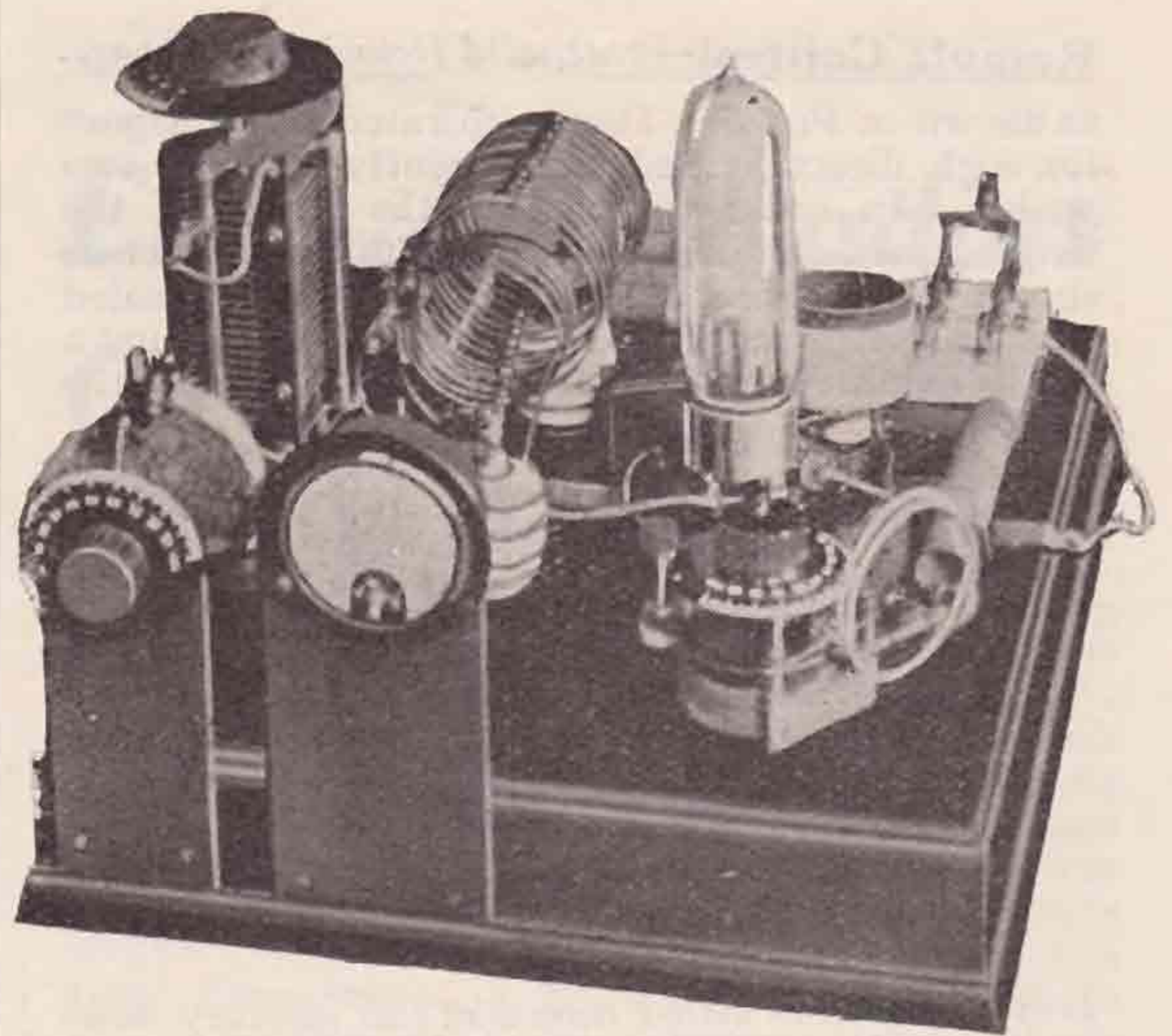
Fig. 4.

acting upon this arm pulls it down against the spring causing the point of the tongue to engage the notch under it and drive the disc in one direction. Upon the arm D rising, the disc remains as left by the point of the tongue. Consequently the point of the latter will hang over the other notch and drive the disc in the reverse sense upon the next depression of the arm.

The disc may be mounted upon the axis of a drum of ebonite carrying a number of surface plates for bridging finger contacts in either of the two directions and thus effecting the required connections. The magnet must be a fairly powerful one to act with certainty. As, however, it is only on for a second or so, it can be wound with a fairly heavy wire to take a large current from an accumulator. It can also be suitably wound to operate from any D.C. supply. If any tendency is found for the drum to draw back upon the rising of the tongue, this can be obviated by a light "dead centre" spring operating as shown at Fig. 4. This holds the disc and the drum definitely over in the respective direction.

The advantage of this mechanism is that it only requires one push to operate it; simply making one press for each operation.

An alternative device consists of a rocking arm  
*Concluded on page 6.*



## Australian 2CM.

This photograph shows the short-wave transmitter used by Mr. C. D. Maclurcan in his historical Trans-Oceanic tests, when he successfully worked 20,000 miles.

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**Remote Control**—concluded from previous page.

as shown in Fig. 5. This is operated by a magnet for each direction and consequently requires two pushes. In order to increase the range of the magnet pull, the pole pieces have tapered horns as shown. To prevent rebound of the rocker, a sealed glass tube A is fixed to the upper surface, having a small quantity of mercury in same. When the

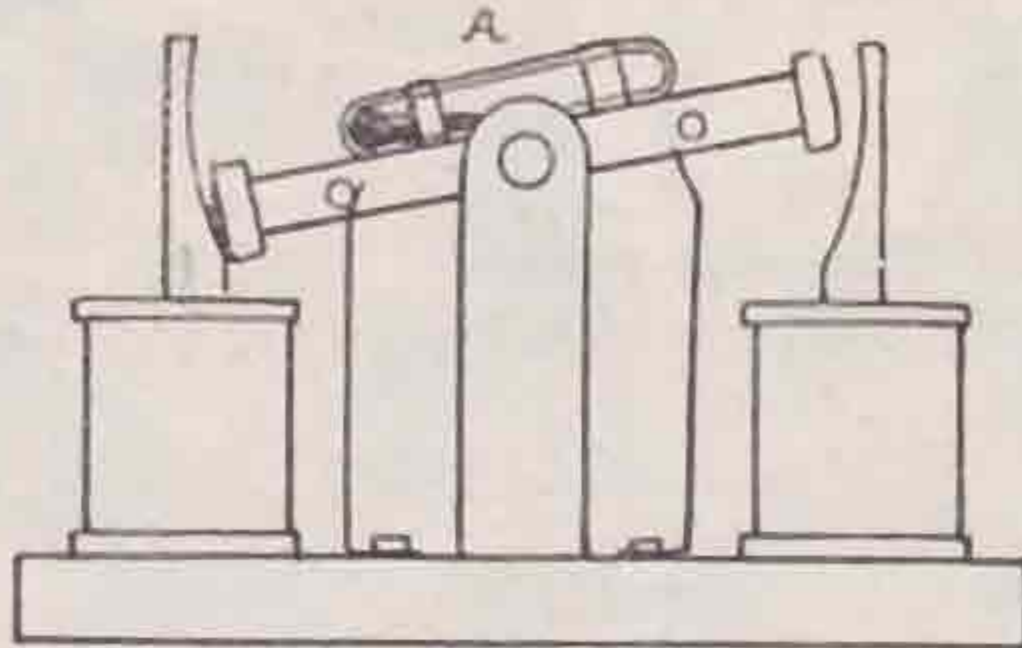


Fig. 5

arm is rocked in either direction the mercury flows to that end of the tube and holds the rocker down by its weight. The contacts are easily provided by fixed light flexible springs operating in conjunction with pins fixed to the rocker arm.

The writer has also arranged for the tuning of a variable condenser by remote control. That used being shown in Fig. 6. The condenser spindle was specially lengthened and geared to another spindle carrying a large brass wheel A having a number of fine cut teeth. B and C are two devices similar to the action of an ordinary electric bell with contact breakers complete. The action of this device will be easily understood. Upon pressing one push the wheel is driven in one direction and in the reverse when the other is pushed. It was found necessary not only to shunt the driving coils with non-inductive resistances and bridge the contact breakers with small condensers, but also to enclose the whole mechanism in an iron box. Otherwise the contacts emitted radiation which effected the receiving circuit. The disadvantage with this device was that the contact breaker required a lot of adjustment. This could no doubt be overcome

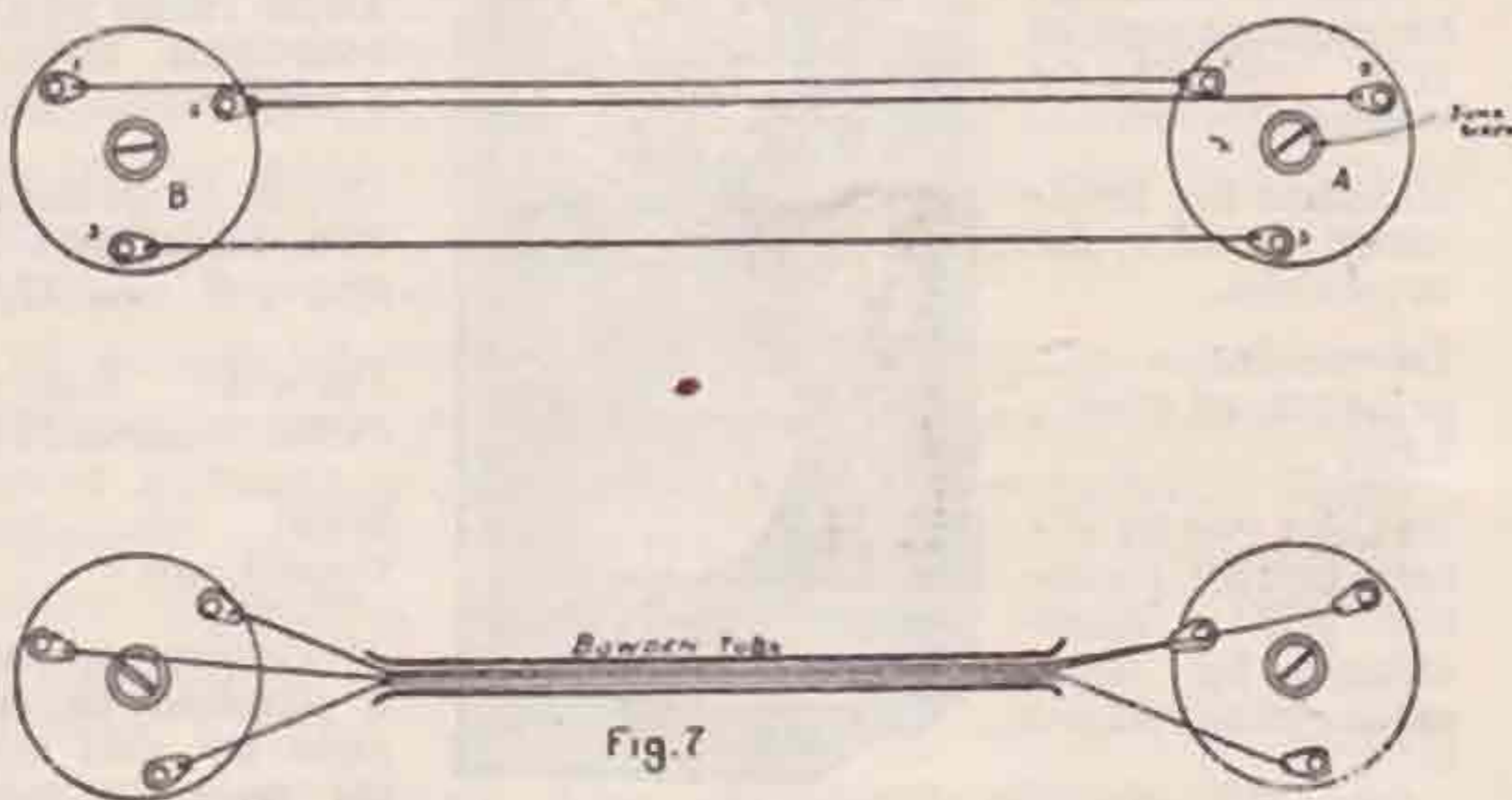


Fig. 7

by better workmanship than the writer put into his.

The writer, however, discarded the electrical control just described for a mechanical control consisting of what might be termed a three-phase drive. This is shown on Fig. 7. A is the driver disc and B the driven disc upon the geared condenser spindle. Each has three pins in it set 120 degrees apart and each fitted with a sort of "big end" swinging on the pin. Three lengths of strong

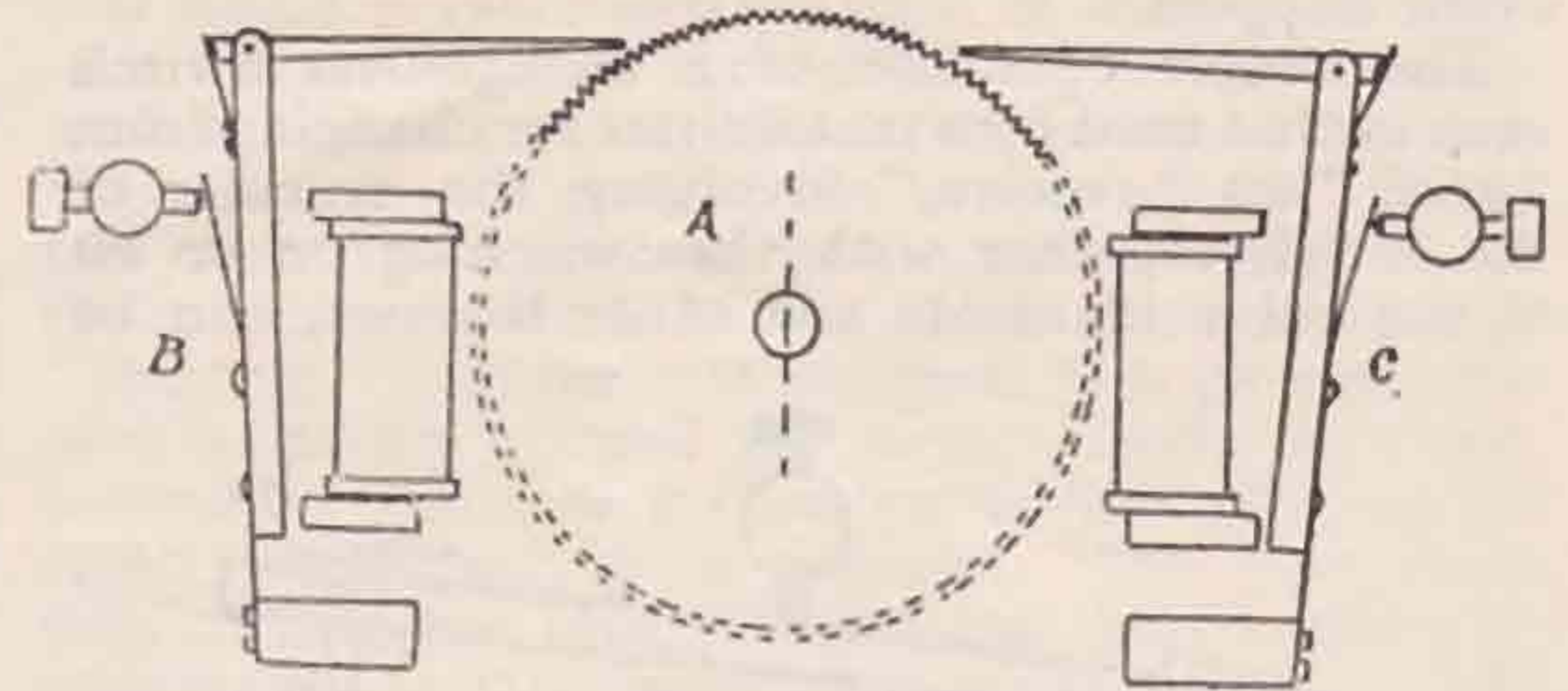


Fig 6

silk cord are used as the drive. One length connecting pins 1 and 1, while 2 and 3 are similarly connected. The three cords are led through Bowden tubing and operate very effectively. Upon turning the disc at the driving end, the driven disc follows suit.

I hope these few ideas on remote control will be a help to anyone requiring anything of this nature; at all events, they may give hints to the design of other apparatus for a similar purpose

## Calls Heard.

5 N.J.—Belfast.

The first amateur two-way communications took place from this station recently, when the following stations were worked with 230 volt dry batteries.

Stations worked as follows:—

Danish 7 E.C., Swedish S.M.X.V., French 8 C.Z. and 8 H.V.

Q.R.A. "Chesterfield," Whitehead, Co. Antrim, Ireland.

2XV reports:—

British: 2QX, 2VP, 2NB, 2MK, 2GQ, 2HY, 2VR, 2II, 2WJ, 2XY, 2ZG, 2OY, 5RF, 5VL, 5NT, 5DH, 5DN, 5XY, 5UW, 5YK, 5LC, 5MS, 5KX, 5XO, 5SU, 5FS, 5MA, 5SZ, 6BD, 6RM, 6LB, 6OH, 6JK, 6LU, 6BD, 6BT, 6FQ, 6US, 6LF, 6AL, 6YQ, 6MX, 6YR.

American: IUW, IQM, IAAO, 2BUR, 2SZ, 2XAF, 2BGI, 2XAT, 7AR?, WIZ.

Canadian: IAR, IBA.

French: 8HAB, 4SR, 8CAX, 8FW, 8QQ, 8GJ, 8ZIV, 8RX, 8HU, 8MAQ, 8CB, 8AAA.

Various: K12, SMXS, R22, SMUU, NOKV, 2YT (on 26 metres calling iccm), D2, KXH, B22, NOMS, 6OK.

All Q.S.L.'s answered in detail please Q.R.K. my signals going on 115-120 metres.

Q.R.A., "Chandos" Great Shelford, Cambridgeshire.

## DX Reports.

All those transmitters who are able to furnish "newsy" reports on D.X. work are asked to address these to 2LZ, Stileman's, Wickford, Essex before the 16th of the month. 2LZ has kindly consented to collect these reports and embody them in a regular monthly report for THE BULLETIN.



## Key Crashes.

It is not true that 6BQ is "dead"; in fact he is very much alive at present punching out the stuff mostly on mobile sets using the chassis as a capacity earth with some remarkable results.

He is in love with his fixed station between 3 a.m. and 4.30 a.c., when he can work his confederates in peace (that's one reason why his photo is not seen in the picture papers). He wants to know:—

When we are to have a moderately-priced H.T. accumulator?

When shall we have our filaments lit from the house mains? (Why not now?—Ed.)

When will some transmitters know that spacing means everything?

When will gramophone records be prohibited?

When that R.S.G.B. badge will be seen?

When does 2QM go to bed?

When will certain hams send out on the wave that they are licensed for?

2TI has another grumble. When he started up on 1,000 metres and went down to 440 he found that he could not get back again to 1,000 metres. Presently a tempter came along and beguiled him down to 180 metres. Result: He could not get back again to 440, although the same taps and conditions were tried. Having now gone to 98 metres he finds extreme difficulty in getting up to 180 for telephony. He now proposes to go to 23 metres and wonders whether he will be able to get back to 98! Further, he wants to know if he tries to go to 5 metres he won't overstep the mark land on point five and stick there. Do valves, coils, condensers, and gadgets, once worked at ultra high frequencies, get a sort of "set" and refuse to work slow again? Hi! Help!—EDITOR.

## Correspondence from our Readers.

2XV—"CHANDOS" (Great Shelford, Cambridgeshire, England).—I shall be glad if you would make an announcement in the above journal (which I consider to be a great step forward for the advancement of the interests of British brass pounders), to the effect that I welcome reports on the transmissions from my station which take place on 115-120 metres.

Reports are particularly requested as to the presence of harmonics at a distance, as at three miles other stations report no harmonics whatever.

6OH—I wonder if any readers could tell me the QRA of a station signing LF. —. (LFQE) heard R3 6/8/25 41 metres saying "in poste avion m— —."

Please don't let the T. & R. BULLETIN get too Americanised. The Americans have QST; let us have an English Bull!

(We will keep the "Bull" as English as possible 6OH—Ed.).

5RZ—I should like to get in touch with someone fairly close to me who would be willing and able to give me accurate calibrations from between 30 and 50 metres.

## Electradix Radios

OUR new August Catalogue of Bargains is now ready with 75 pages and 500 illustrations of Famous Apparatus at low prices.

R.A.F. Steel Masts, 5/- per 10ft; Copper Counterpoise Mats, 15/-; Battery Chargers, A.C. to D.C., £4; Bells, 1/6; 2,000 volt Condensers, 4-mfd., £2; 1,000 ohm Chokes, 1/6; Gen. Radio 15/- Variometers at 9/6; Heterodyne Blocks, 4/6; 2½-h.p. Douglas Engines, £12; Portable 2-range E.C. Sub-standard Meters, 45/-; Tinsley Mirror Galvos, £3; Pressure Gauges, 8d.; Angle telescopes, 7/6; 4,000 ohm M.E.L. Headphones, 8/-; Loud Speakers, 14/-; Milliammeters from 15/- to 45/-; Accumulators, 4v. 30amp., C.A.V., 12/6.

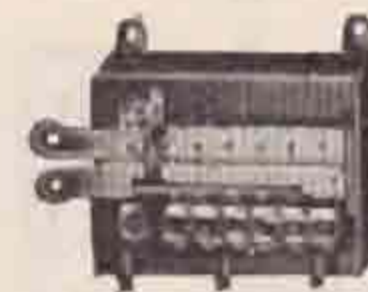


### Valves.

Low Loss "C" Osram for 20 metres, 4/- each.

### Transmitting.

2-valve Sets, £3 10s.; Ebonite mounted Helices, 5/-; 5,000 volt Transformers, 40/-; 10,000 volts, 50/-; Rotary 100 volts D.C. to 10,000 volts A.C. 300 watts, £8 10s.



### Condensers.

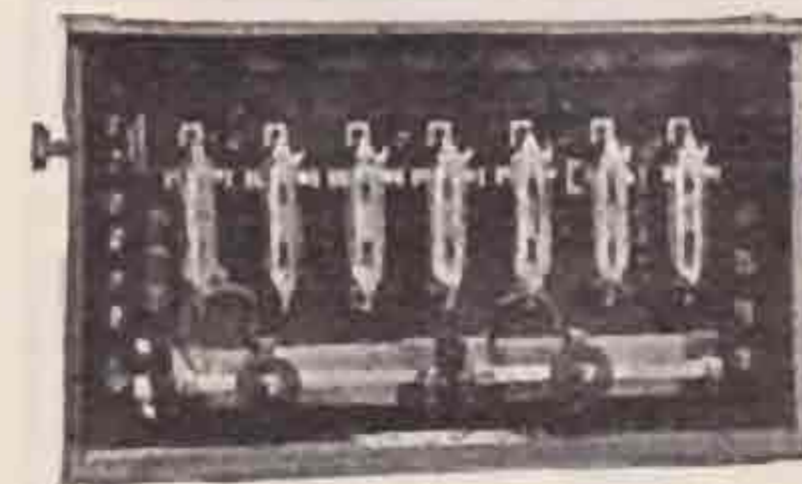
Fixed all sizes under 500 volts up to 65 mfd.

### Wavemeters.

TOWNSEND, HETERODYNE & FORWARD from 50/-.

### Morse Recorders.

Fine Instruments, £7 10s.



### Amplifiers.

7-valve Marconi £8; 7-valve 3,000 metre R.A.F. for Heterodynes, £5 10s.

Call and see our large and interesting stock of Radio Instruments and Apparatus.

**LESLIE DIXON & Co.,**  
9, Colonial Avenue, Minories, E.1.

## Notes from the East.

2LZ (Wickford) holds the laurels for being the most consistent station on the air and has been working the antipodes many mornings each week. He loves the game.

5QY (Clacton) has become resigned to his aerial ammeter jumping about like a piece of sticking plaster on 45 and has working schedules with Calgary, Seattle, U.S.A., and Mesopot.

2TO (Ipswich) is in the throes of erecting a new lattice mast and will be on shortly with  $\frac{1}{2}$ K.W. rectified A.C. "It ain't a gonna blow no more," he says.

6JY (Norwich), a model station of ingenuity and efficiency associated with good DX on low power. One of those well-operated and experimental specialising stations (qualities so seldom seen in conjunction), practically everything made on the spot. A heart's delight to any amateur radio man, and worthy of special mention.

2MA (Lowestoft), after a lengthy absence, has recently returned to the key, and is working overseas on low power.

Many phone stations are operating at weekends, including 2SY, 5DY, 5FT, and 5ZW.

In the south-east, 2IF (Canterbury) is fitting out a studio. His musical transmissions of the past are something to remember, with modulation second to none in quality. They were truly excellent, and it will be a great pleasure to hear more.

2QN (Margate), veteran pioneer of the old spark days, has formed quite an attachment for the microphone, and with 2MI (Margate) and 5ZR (Broadstairs) may often be heard testing with 5QV across the estuary.\*

2VD, near Canterbury, and 2QC with his portable set are received QSA in Essex at times.

We are a pretty home crowd in the East; good feeling prevails all round. Reciprocity is our watchword, and we are all out to help each other, and, incidentally, the T. & R. BULLETIN.

\* 2QN, using 1-6th of a watt input, recently carried out a test with me. His speech was followed here, in Clacton, for half an hour, being distinctly audible, using Reenartz 1D. ILF for reception. Distance over 30 miles.

5QV.

## SMALL ADVERTISEMENTS.

**F**OR SALE.—Combined Motor Generator made by E.C.C. Primary 12 volts, secondary 600 volts, 50 M.A.—Write Box 95, T. & R. BULLETIN.

**F**OR SALE.—Reasonable offer accepted—electrolytic rectifier.—H.T. 80  $\frac{1}{2}$ -pint cells.—2 BZ, 23, Ferncroft Avenue, N.W.3.

## D.X.

Please QSL 5 TR 5 metres after 9.30 p.m.

## Our Cover.

We thank our many contributors for the interesting designs submitted but concerning which we have not yet reached a decision.

## EDDYSTATICS.

I would remind our contributors that we are still in need of articles and humorous cartoons. Also we are somewhat hard pressed as regards staff and require a good advertising manager, one with some sort of connection with manufacturers if possible, but failing that anyone in the London area who is willing to work. He must be prepared to collect the advertisements and also the copy and canvass prospective advertisers by post. Any offers?

We apologise to those authors whose articles, etc., do not appear in this number.

## A Postcard for Delivery.

We have in our possession a postcard from American 2DD, awaiting delivery to 2BAO.

Will 2BAO send us his address, please, so that we might deliver it to him?

## R.O.T.A.B.

At the conclusion of the dinner given by the Radio Society of Great Britain in London to the U.S.A., Canada, and Newfoundland delegates to I.A.R.U., a number of the English hams made inquiries about the Royal Order of Trans-Atlantic Brass Pounders. Major Wm. C. Borrett, of Canadian 1DD, the originator of this order, addressed the members interested, and promised to send over the initiation programme to Mr. Marcuse, so that those desirous of belonging to this order could be put through. Mr. Marcuse now has the initiation programme, and all interested are asked to get in touch with him in order that a meeting can be held and the candidates put through. Major Borrett suggests that 2OD, 2NM, 2KF, 2SZ be a committee to take the matter up of carrying the initiation through. If any other amateurs worked across the pond previous to the above, or at same time, he also should be added to the committee.

## Pass it on.

If you know a transmitter who is not a T. & R. member pass on your copy of THE BULLETIN, and we will send you another to replace it.

## Announcements.

*Inquiries for advertising space are very welcome; our charges are low because our work is voluntary.*

*We are in need of short articles of from 500 to 1,000 words.*

*Please send these along in time for our next number.*

*We go to press about the middle of the month until further notice, so that all material for the coming issue should be in by that date.*

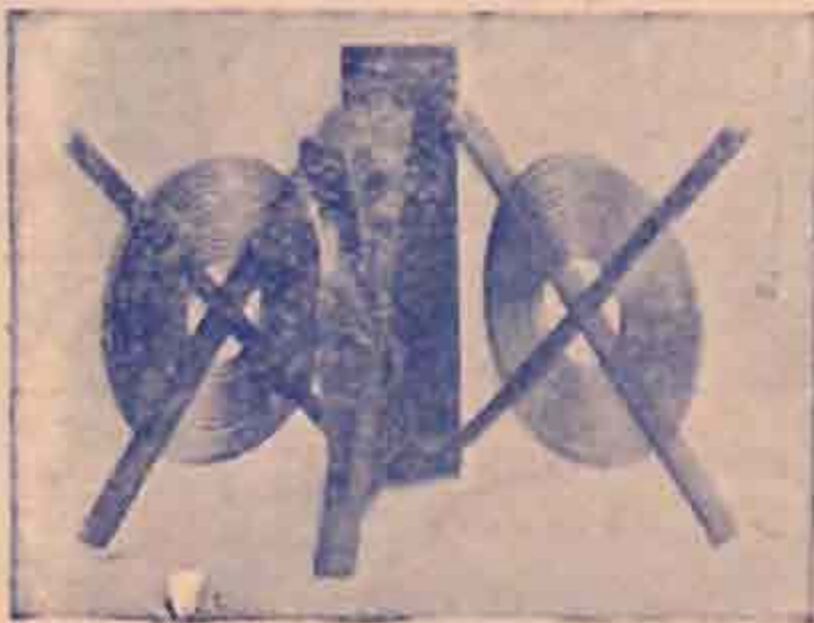
*Do not be disappointed if your article is not in this number—it is being kept for a future occasion. Our publishing date is the 24th of the month and if you do not receive your copy let us know.*

*All articles and correspondence concerning the "Bulletin" should be addressed to The Editor, T. & R. BULLETIN, 53, Victoria Street, S.W.1, and marked according to the nature of the contents: Advertisements, Editorial or Art Department.*

# TRANSMITTING & RECEIVING

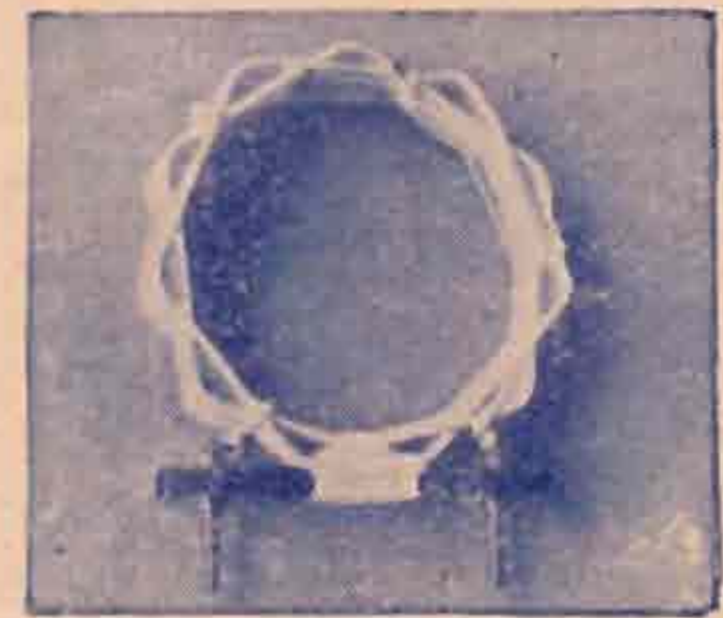
SPECIALISTS IN EXPERIMENTAL WORK

Heterodyne Absorption and Transmitting Wave Meters. Filters, Condensers of all kinds. Frame Aerials, etc.



**Pancake Inductances.**

ANY KIND OF APPARATUS MADE UP TO CLIENTS' INDIVIDUAL REQUIREMENTS.



**12/6 per set of 7 coils unmounted.**



**Heterodyne Wave Meter.**  
20 metres upward.  
£9 : 9 : 0.



**Transmitting Wave Meter.**  
50-150 metres.  
£10 : 18 : 6.

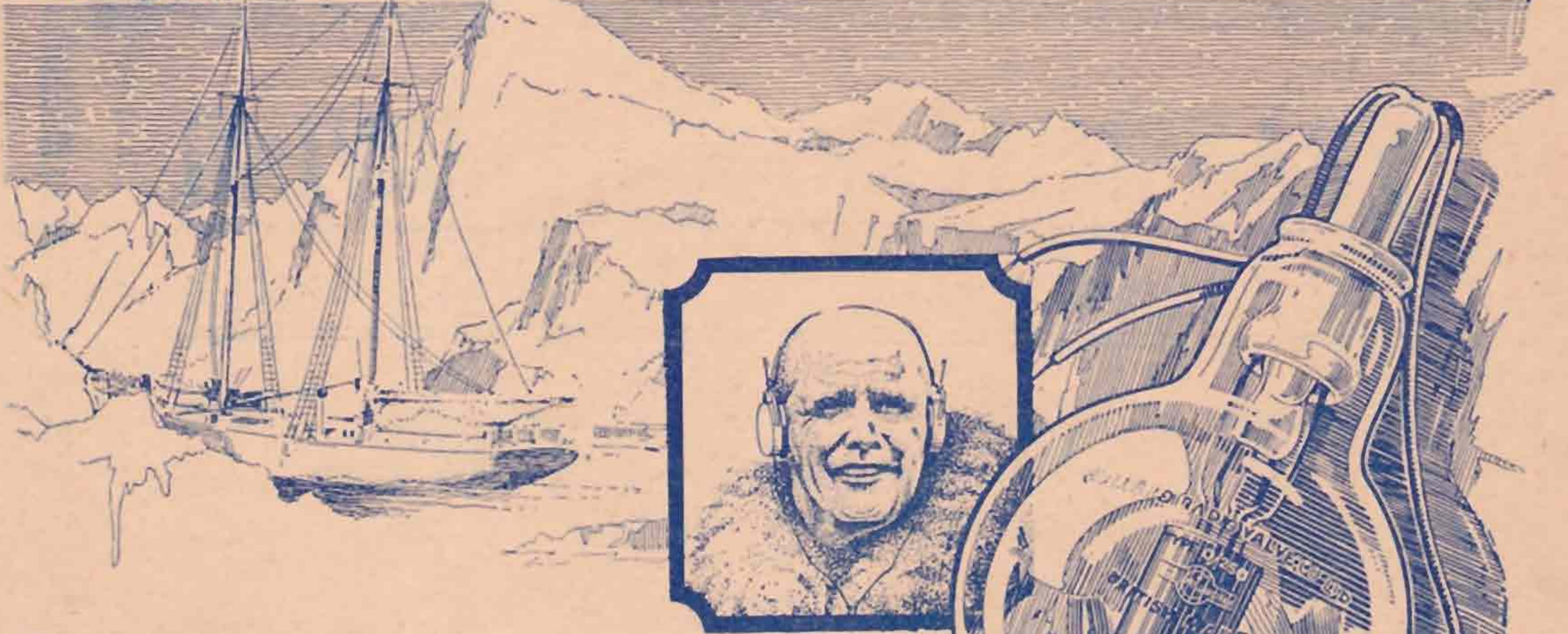
If you want new fields to conquer, try our 2-valve short wave set 10—200 metres - - **£13 13s. 0d.**

The whole set is designed with a view to reducing the capacity to a minimum.

**N. V. WEBBER,**  
**& CO., LTD.,**  
Oatlands Park,  
WEYBRIDGE.

Tel. : Weybridge 831 Call Signs : 2DQ, 2MX.

The "MAC-MILLAN" · NORTH · POLE · EXPEDITION ·



## Keeping in touch

**O**N the 18th July, 1925, a British Amateur established the first two-way connection with the Macmillan Polar Expedition *and communicated messages* to America for the explorers through Mullard Valves.

This marks another of the many long-distance records achieved with Mullard Valves.

The first two-way communication by wireless between this country and New Zealand was established by the same experimenter working with an 0/250 Mullard Transmitting valve on a wave length of 40 metres and employing a single wire Hertz aerial; receiving on a Reinartz circuit.

Do not miss the enjoyment of real long distance communication by using inferior valves.

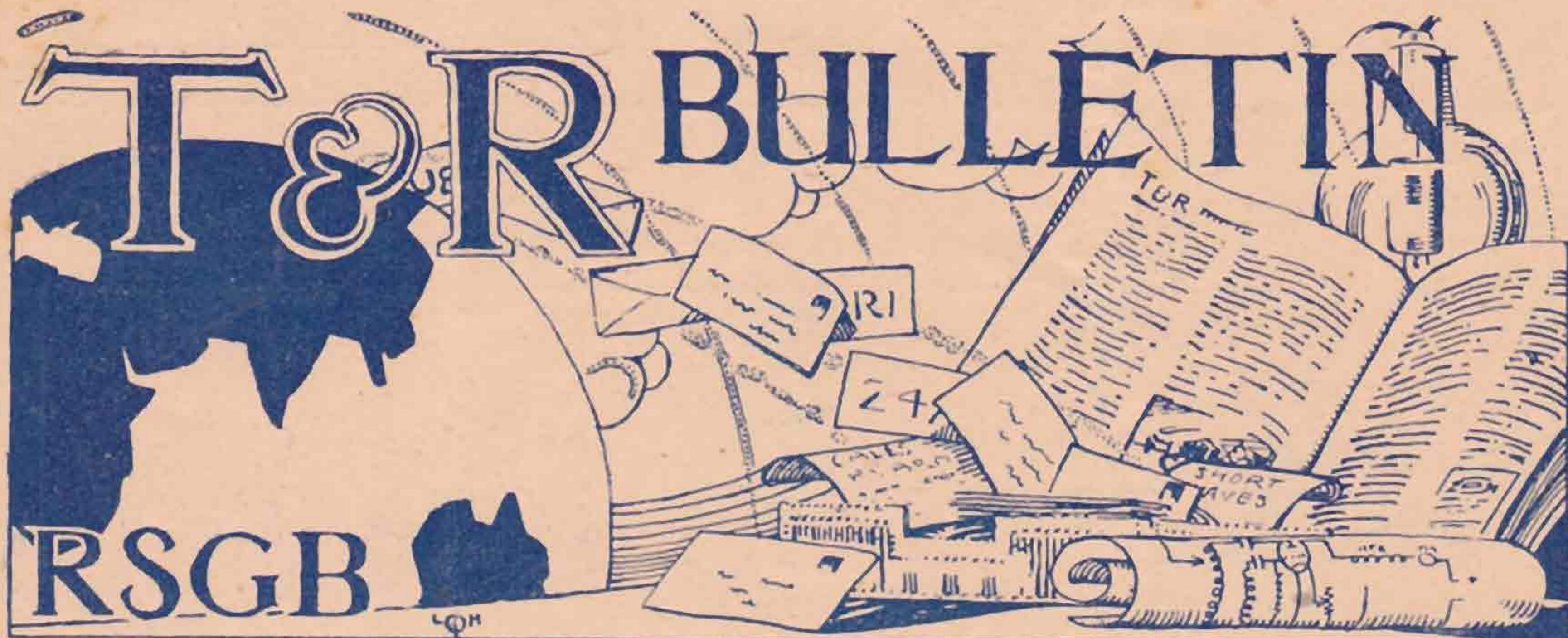
There are **SPECIAL MULLARD VALVES** for **SHORT WAVE TRANSMISSION** and **RECEPTION**.

Your enquiries will ensure complete technical information. No other manufacturer in the world has given amateurs such full and comprehensive information. Experimenters who require special wireless valves should write giving details of their requirements.

# Mullard

## THE · MASTER · VALVE

Advert. of THE MULLARD RADIO VALVE CO., LTD. (T. & R.), Nightingale Works, Balham, S.W.12



For T. & R. Members Only.

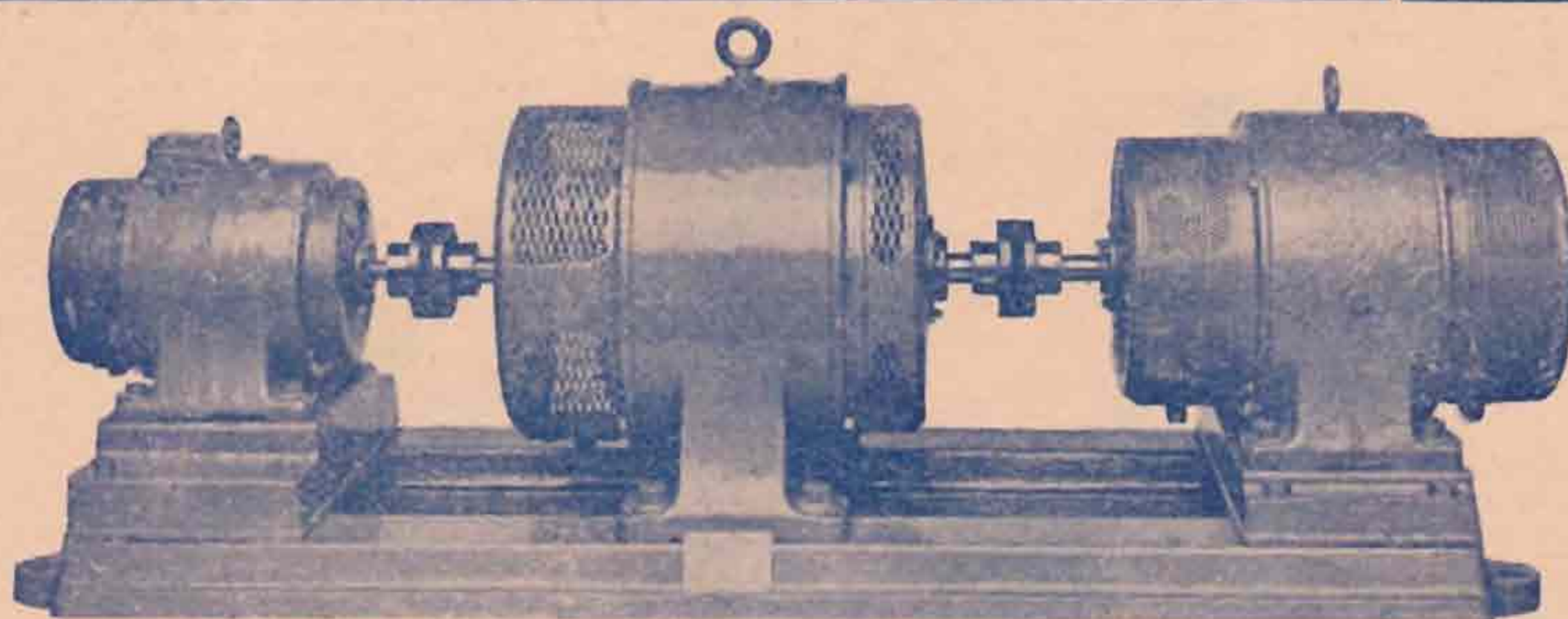
No. 3. SEPT.—OCT., 1925.

Price 1/-

## SPECIAL TRANS-OCEANIC NUMBER

*See our article by Maurice Child on page 6*

### TRANSMITTING POWER PLANT



The above Plant consists of a 9 h.p. Slip-ring Motor running at 1420 r.p.m., coupled on one side to a 4,500v., 4 kw. Double-Commutator, H.T. Generator, and on the other side to an exciter capable of supplying an additional current of 30a. at 33v. for filament heating. We manufacture many other types and sizes down to 500v., 25 watt. machines.

LET US KNOW YOUR EXACT REQUIREMENTS.

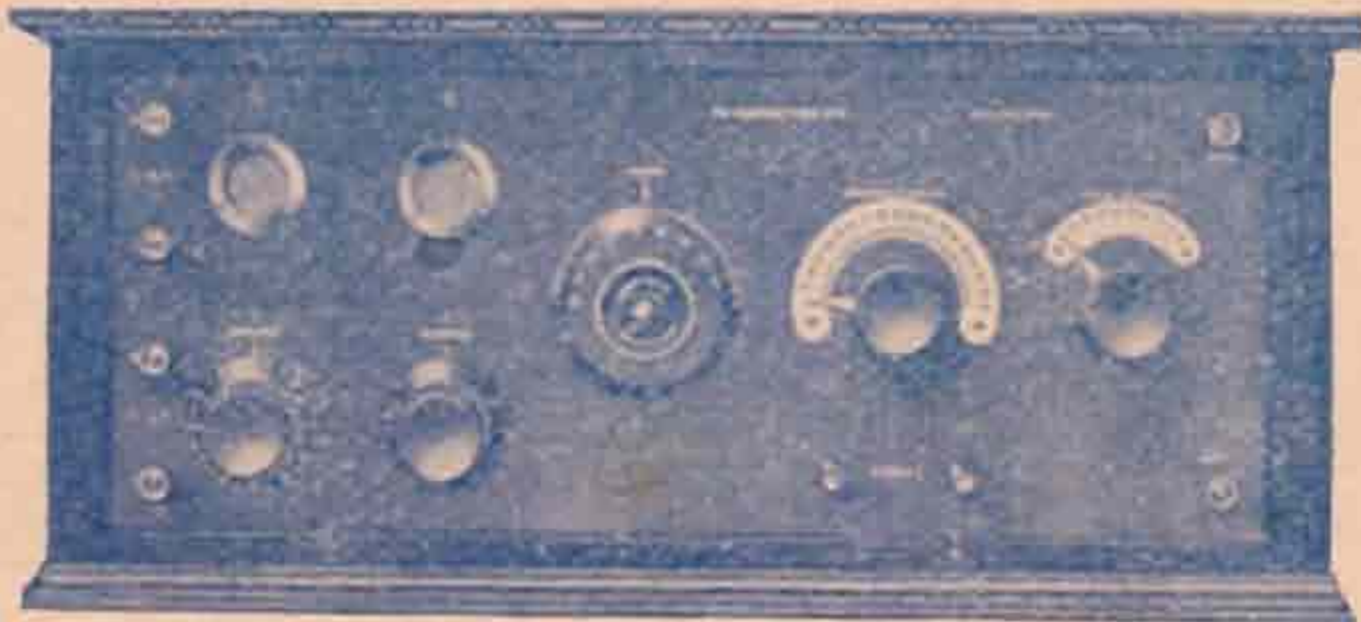
**G. E. MORTLEY, SPRAGUE & CO., LIMITED**

(Contractors to Admiralty, War Office, Air Ministry, Marconi's W/T Co., etc.),

**Nelson Road, Tunbridge Wells, England.**

# Experimental Apparatus

The DX Season has now commenced and we are ready to supply all types of gear for rebuilding transmitters and receivers for working on the short wave-lengths.



**NEW LIST**  
Now Ready  
**FREE**  
and Post Free.  
Send for Copy.

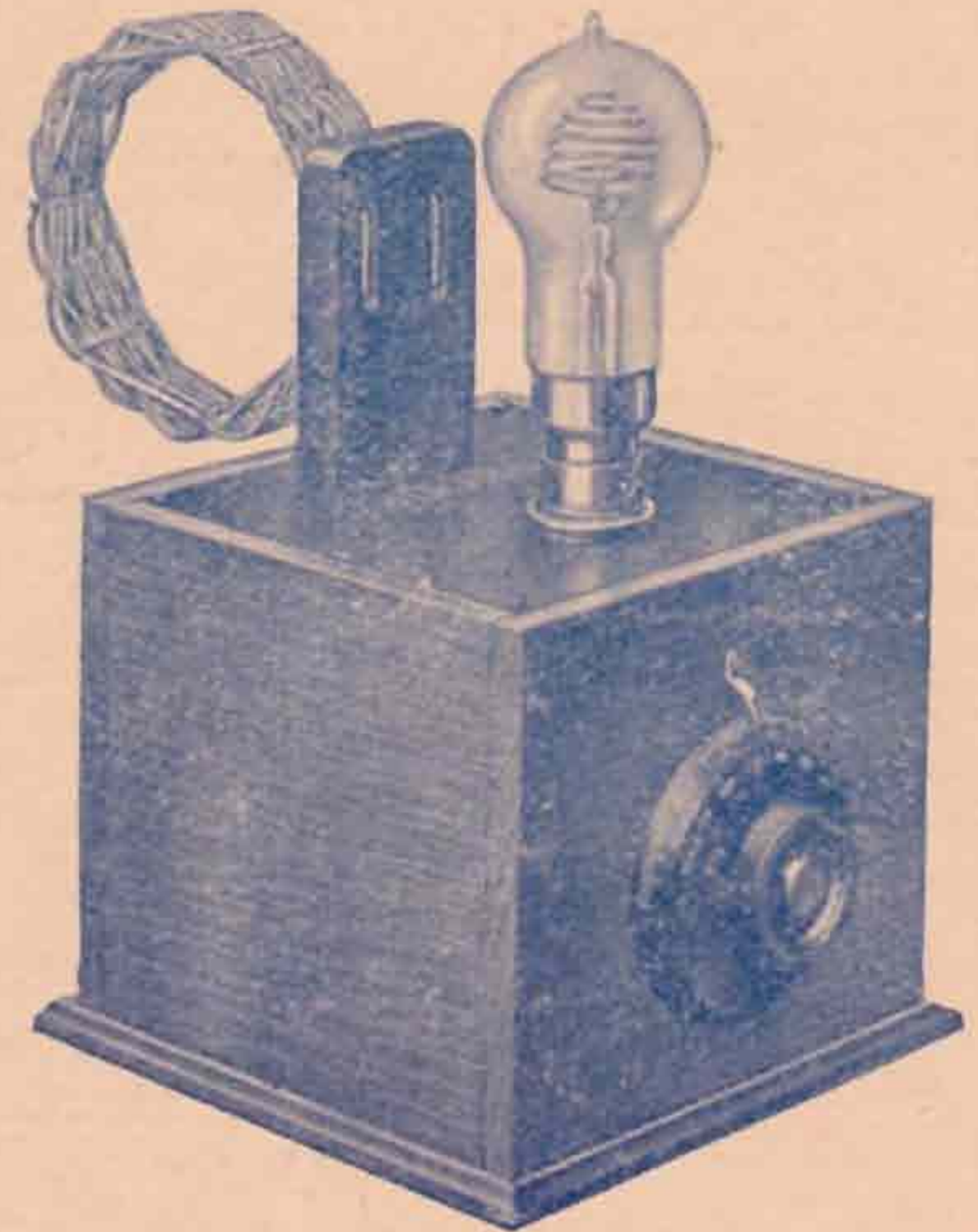
## TWO-VALVE, SHORT WAVE, LONG RANGE RECEIVER

Wavelength range 15 to 200 metres. Closed circuit tuning with vernier control. Three interchangeable coils to cover all short waves; no dead-end losses. Designed with a view to reducing the capacities to a minimum.

All wiring done with bare tinned copper wire. Jacobean oak cases.

Can be supplied for using the V24 type or pin type valves. **Price £9 10 0**

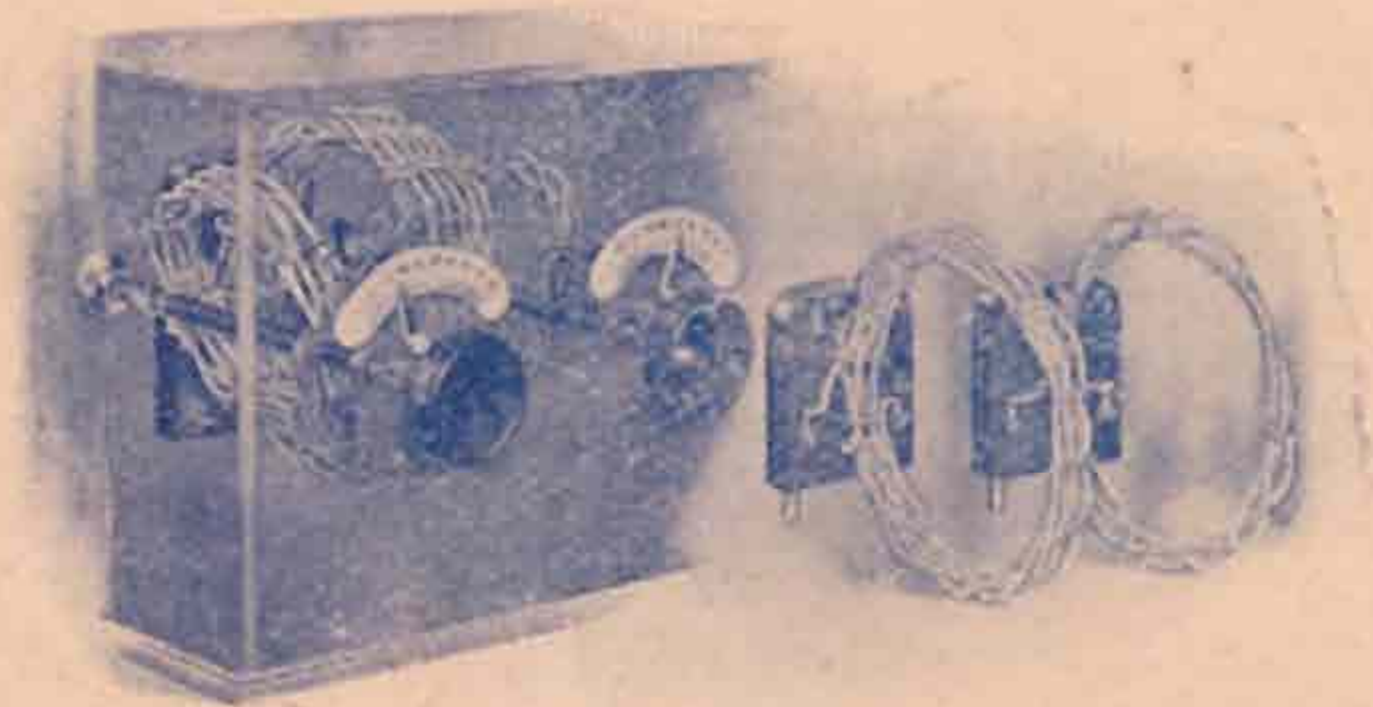
Manufactured under Marconi licence.



## NEON TUBE WAVEMETER

Absolutely essential to all short wave experimenters. Range 15 to 200 metres. Three coils supplied with calibrated curve for each coil. Can be used for both receiver and transmitter. No batteries required to operate it. Accuracy within one per cent.

**Price complete, £2 10.**



## TUNING UNIT FOR SHORT WAVES

This unit is similar to that used in our short wave receivers. It is supplied complete, mounted up on baseboard all ready to fit behind panel. Variable reaction and aerial coupling. Price complete as illustrated for 15 to 200 metres range,

**Price £1.**

## VARIABLE CONDENSERS

We have a special range of low loss square law type condensers for use in short wave receivers. All are fitted with positive flexible contacts to the moving plates. Prices:—

| Cap.   | Plain.      | With vernier. |
|--------|-------------|---------------|
| .001   | <b>11 6</b> | <b>15/-</b>   |
| .0005  | <b>10 6</b> | <b>14/-</b>   |
| .0003  | <b>10/-</b> | <b>13/-</b>   |
| .00025 | <b>9 6</b>  | <b>12 6</b>   |
| .0002  | <b>9/-</b>  | <b>12/-</b>   |

**SPECIAL TYPES OF APPARATUS MADE UP TO ORDER.**

*We are specialists in experimental work and can save you pounds and hours of wasted time.*

**CONSULT US. ADVICE FREE.**

# The SOUTHEND RADIO CO., Ltd.

**WICKFORD, ESSEX.** 'Phone 5.

And at 5, Central Arcade, Southend-on-Sea. (F. A. MAYER, Manager, 2LZ.)

# T. & R. Bulletin

*Devoted to the Interests of the Transmitting Amateur*

— The Official Organ of —  
THE TRANSMITTER AND RELAY SECTION

of

THE RADIO SOCIETY OF GREAT BRITAIN,  
53, Victoria Street, S.W.1



HON. EDITOR:

J. A. J. Cooper, F.R.S.A., &c. (5TR)

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*The EDITOR will be glad to receive articles and illustrations within the scope of the BULLETIN. The illustrations should preferably be double size and should be original. Contributions should be addressed to 53, Victoria Street, S.W.1., and marked EDITORIAL, ADVERTISEMENTS, Etc.*



## SUBSCRIPTION RATES

*The T. & R. BULLETIN IS SENT POST FREE TO ALL T. & R. MEMBERS.*

*The price to non-members is 1/1 post free per single copy. Non-members may obtain the Bulletin by ordering each copy singly in advance. The Editorial Committee reserves the right to refuse copies to non-members if so disposed.*

## ADVERTISEMENT RATES

*Rates for display advertisements will be sent post free on application. Small advertisements are charged for at the rate of 1d. per word or a minimum charge of 2/6.*

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to every  
**WIRELESS  
USER**

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Dear Sir or Madam,

The determination to supply wireless users with valves combining the utmost efficiency and reliability with the lowest possible running costs has resulted after the most painstaking research in the production of a complete range of wireless valves embodying the very latest improvements.

These valves, which are marketed by The General Electric Co. Ltd., will in future be sold under the name **OSRAM**—a name known to everyone in connection with electric lighting and one which has always been associated with sterling quality.

You may, therefore, have the assurance in purchasing an **OSRAM VALVE** that you will obtain the same high degree of satisfaction unfailingly given by **OSRAM Lamps**.

What the **OSRAM Lamp** is to light, the **OSRAM VALVE** is to wireless. It is the proved and universally trusted wireless valve

Yours faithfully,

THE GENERAL ELECTRIC  
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An extremely useful and novel indicator card showing at a glance the right type of valve for any working condition will be sent post free on application to Publicity Dept., The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C. 2.

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