

# WIRELESS WEEKLY

Registered at the G.P.O., Sydney, for

transmission by post as a newspaper.

VOL. 4. NO. 19.

FRIDAY, AUGUST 22, 1924.



*YOU WOULD NOT ENJOY LISTENING TO TWO PEOPLE  
SINGING SIMULTANEOUSLY THE SAME SONG IN*

**TWO DIFFERENT KEYS**

*WOULD YOU ?*

*WELL THEN, IN ORDER TO ENJOY YOUR BROADCASTING,  
USE*

*New System*

**True Music Telephones**

Both Receivers Reproduce Voice and Music **IN THE ONE KEY**  
**THEY'RE BOTH MATCHED IN TONE**

*OBTAINABLE AT ALL RADIO STORES*

**New System Telephones Pty. Ltd.**

Sole Distributors for Australasia of T.M.C. Products

**SYDNEY, MELBOURNE and ADELAIDE**

**PRICE - 35/-**

MADE IN GREAT BRITAIN

FEATURE

**A REAL  
SUPER  
CRYSTAL  
SET**

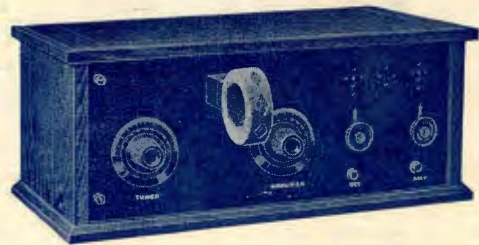
By "Insulator."

VE

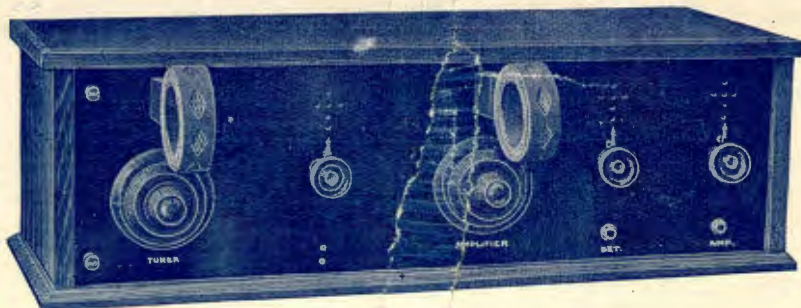
# SIGNAL Home Assembly Sets



Model Phone Valve, £5/10/-



Model Q, 2 Valves, £9/9/-  
Model R three Valves (Audio Freq.), £11/11/-



Model T, 4 Valves (Radio Freq.)  
£11/11/-

Model S, 3 Valves (Radio Freq.)  
£13/13/-

## Make It Yourself

**T**HE SIGNAL HOME ASSEMBLY SETS are designed to meet all demands for complete sets (less Batteries, Valves, Aerial and Headphones) ready to be assembled. Simply constructed, and yet efficient. Each set contains all the parts necessary to construct the set proper. All contained in an attractive oak cabinet, mission finish, with engraved Bakelite panel all bored ready for mounting the parts. INSTRUCTIONS and a clear diagram make it very easy to assemble these sets.

BOYS, YOUNG and OLD, here you can get all the thrill and satisfaction of MAKING YOUR OWN, and SAVE HALF THE COST

ASK YOUR DEALER FOR "SIGNAL"

and if he has not yet stocked it write us  
DEALERS -- WRITE FOR OUR DISCOUNTS

## United Distributors Limited

(WHOLESALE)

2 8 Clarence-st., Sydney

592 Bourke-st., Melbourne

# Wireless For All

## CRYSTAL SETS for the MILLION

**"VOLMAX"**  
**Crystaphone Junior**  
 Vertical type, single slide tuner set, complete with aerial gear, phones, etc., 55/-  
 The set alone . . . . 26/6

**"VOLMAX"**  
**Crystaphone Senior**  
 Horizontal type, double slide tuner set, complete with aerial gear and 4000 ohm phones. 63/-  
 The Set alone . . . . 30/-

**"VOLMAX"**  
**Loose Coupler Set.**  
 Beautifully finished and efficiently designed. Complete with aerial gear and phones, 105/-  
 The Set alone . . . . 65/-

### AT LAST! NO MORE INTERFERENCE ————— !

### The Crystal Set De Luxe

## VOLMAX HOME SET

A Crystal Receiver of Handsome Design fitted with:

SET ALONE  
 £6/10/0

### A WAVE TRAP

SET COMPLETE WITH PHONES  
 AERIAL, ETC. . . . £8/8/0

No need to listen to two concerts at once. Don't let that other station "butt in." Just turn the knob of the "WAVE TRAP" and hear him "fade out."  
 This Set has been specially designed by our Expert, MR. RAY EVANS, who has been engaged on radio problems, both commercially and in the Government service, for many years.  
 "Some Sets are made to catch the People—Ours are Made to Catch the Music."

## WIRELESS SUPPLIES LTD.

21 ROYAL ARCADE & 329A GEORGE STREET, SYDNEY

PHONE M3378

## Special Display and Broadcast Demonstration Callaghan House ——— 391 George St., Sydney

By special arrangements with Messrs. Callaghan and Son, we have secured their wonderful display windows, where an unique show of our

### BURGINPHONE WIRELESS EQUIPMENT

is now on view.. We are also demonstrating our "Burginphone" Receivers between the hours of 12 and 2 p.m. and from 3.30 to 4.30 p.m. every afternoon, and 6.30 to 9 p.m. on Friday nights in the shop of Messrs. Callaghan and Son, 391 George St., Sydney.

### SPECIAL PRICES OF ACCESSORIES

Concession Tickets given in Callaghan's shop.

Large Compo Terminals . . . . .	4/9 doz.	Transformers, Jefferson 41 . . . . .	30/- each
Small Compo Terminals . . . . .	4/- doz.	Cells, Columbia . . . . .	3/- each
English N.P. Terminals . . . . .	5/- doz.	Battery, Columbia, 22½ . . . . .	15/6 each
English Brass Terminals . . . . .	3/9 doz.	Telephones:	
4-pin Valve Insulators . . . . .	1/4 each	Sterling . . . . .	44/- each
Crosley Porcelain Sockets . . . . .	2/3 each	Trimm's Dep. . . . .	32/6 each
English Valve Bases . . . . .	6/- each	S. & C. . . . .	45/- each
Large Connectors . . . . .	7d. each	Dictograph . . . . .	47/6 each
Battery Clips . . . . .	7d. each	W. E. . . . .	44/- each
Battery Clips, N.P. . . . .	7d. each	Variometer Kellogg . . . . .	57/6 each
Insulators, Brown Strain . . . . .	1/- each	Variocoupler . . . . .	63/- each
Dials, 3in. . . . .	2/9 each	Variometer, Chelsea (Ver.) . . . . .	42/6 each
Condensers, variable (Crosley) . . . . .	17/6 each	Variocoupler, Chelsea . . . . .	42/6 each
Condensers, 3 plate "Master," . . . . .	12/- each	De Forest, 3 Coil mt. geared . . . . .	44/- each
Condensers, 5 plate, "Master" . . . . .	13/6 each	De Forest Coils: 25 turns . . . . .	11/3 each
Condensers, 3 plate, "United" . . . . .	12/- each	35 turns . . . . .	11/6 each
Condensers, 5 plate . . . . .	13/6 each	50 turns . . . . .	11/9 each
Condensers, 11 plate . . . . .	16/9 each	75 turns . . . . .	12/- each
Plugs . . . . .	2/6 each	100 turns . . . . .	13/- each
Crystal Detector, dust proof . . . . .	8/6 each	150 turns . . . . .	13/3 each
Sockets, U.V., 199 Bakelite . . . . .	3/- each	200 turns . . . . .	13/9 each
Transformers, Audio "Chelsea" . . . . .	23/6 each	250 turns . . . . .	14/6 each
Switches, S.P.D.T. . . . .	2/6 each	300 turns . . . . .	14/9 each
Sockets, "Bestone" . . . . .	4/3 each	400 turns . . . . .	15/6 each
Transformers, Jefferson Star . . . . .	22/6 each	500 turns . . . . .	16/9 each
Insulator, Shell White . . . . .	10d. each	750 turns . . . . .	20/- each
Valve Sockets, English . . . . .	1/9 each	1250 turns . . . . .	23/9 each

# BURGIN ELECTRIC CO.

WIRELESS ENGINEERS AND SUPPLIERS

Showrooms and Sales Dept.

FIRST FLOOR CALLAGHAN HOUSE, 391 GEORGE STREET, SYDNEY

# Price advises to purchase Parts at Price's Prices—!

*Listen  
in . . .*

Bradleystats . . . . .	12/-
Bradleyometers . . . . .	13/6
.001 Signal Condensers . . . . .	17/6
Magnus Variable Leak, etc. . . . .	9/-
Pico 2200 'Phones . . . . .	25/-
Trimm's Professional Phones . . . . .	43/6
Trimm's Dependable . . . . .	31/6
All American, 3/1 Trans. . . . .	28/-
30 ohm. Rheostats . . . . .	5/-
N.P. Terminals, 3d., 4d., 5d., and . . . . .	6d.
Jacks from . . . . .	2/6
Plugs . . . . .	2/6
Radiotron UV-199 and 201A . . . . .	35/-

This week's special: A 30 ohm. rheostat supplied free with every valve if purchased in conjunction with complete valve outfit.

Price's have secured the services of Mr. Raymond Shaw, a wireless man of high repute, and we are now in a position to manufacture sets of the Shaw standard which are guaranteed 12 months. Send for price list of complete sets.

## PRICE'S RADIO DEN

220 Oxford St., Woollahra ———— Just past Centennial Park ———— Waverley 451.

WE PAY TRAM FARES ———— SO COME EAST.

## TO THE PUBLIC

Kilbourne & Clark Mfg. Co. radio parts are presented you as quality merchandise backed up by this firm with a full guarantee. They are in no way competitive with low priced, inefficient apparatus that is at present glutting the radio market. K & C parts are designed by engineers who have followed the progress and development of radio for many years, even before many companies now manufacturing radio equipment were heard of. From the beginning K & C has given attention to correct design and efficiency of its radio apparatus rather than to quantity manufacture of lower priced and less efficient parts. K. & C equipment is in the main handled and recommended by dealers who are competent radio men, or who have real radio men in their employ. These men know radio and that is why you find K & C parts chosen here. It is this class of trade that the Kilbourne & Clark Mfg. Co. desires, this, and that of the experimenter and radio fan who places positive quality and performance above uncertain performance and indifferent quality. Without correctly designed apparatus with strictest consideration for low capacities, lowest possible losses, proper inductance as well as high class construction, the user finds that he does not obtain all from his circuit that he had anticipated. This is gradually coming to be realised more and more as less efficient equipment is being substituted with K & C.

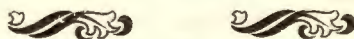
## PACIFIC ELECTRIC CO.

87 CLARENCE STREET, SYDNEY

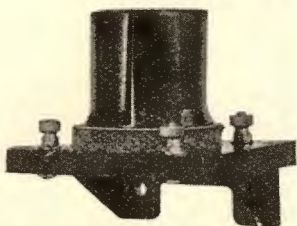
Sole Australian Distributors

# FAMOUS FROST PARTS

## THE MOST COMPLETE LINE RADIO PARTS EVER



ONE PRICE

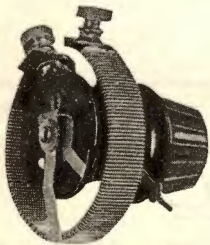


### FROST-RADIO

No. 618. Bakelite Sponge Shock Absorber Socket, Standard base, panel or table mounting . . . . . 6/3

For 199 Tube . . . . . 6/3

For those who wish a compact gang of three Shock-Absorber Sockets. The construction is identical with our separate sockets, except for base. For panel or table mounting.



### FROST-RADIO

No. 600.—Frost-Radio Metal Frame Rheostat or Potentiometer.

Equal in operation to the best molded type, with precision, operation of all moving parts and guaranteed resistance wire. Frame is made of heavy sheet brass, nickel plated and formed so as to give a rigid construction both to the windings and the contact arm. Central mounting thimble with locating tip prevents turning when mounted on panel. Washers provided to fit panels of varying thickness. Fluted molded knob and nickel plated pointer.

No. 600, Metal Frame Rheostat, 6 ohms . . . . . 5/6

No. 602, Metal Frame Rheostat, 35 ohms . . . . . 5/6  
Same with Vernier . . . . . 7/6

No. 603, Metal Frame Potentiometer, 400 ohms . . . . . 5/6

No. 605, Metal Frame Potentiometer, 200 ohms . . . . . 5/6

EACH OF THE ABOVE, WITH  
VERNIER. 7/6.

- ### FROST SOCKETS
- 618 SINGLE SHOCK ABSORBER SOCKET, for Standard Valves . . . . . 6/3
  - 617 SINGLE SHOCK ABSORBER SOCKET, for UV199 and C299 . . . . . 6/3
  - (All above sockets are made of Bakelite and have sponge rubber cushions.)
  - 612 BAKELITE SOCKET, for C299 and UV199 Valves . . . . . 5/-
  - 100 BAKELITE SOCKET, for Standard Valves . . . . . 5/-
  - 619 3 GANG SHOCK ABSORBER SOCKET, for Standard Valves . . . . . 24/6
  - 616 3 GANG SHOCK ABSORBER SOCKET, for UV199 C299 . . . . . 24/6

### FROST RHEOSTATS & POTENTIOMETERS

COMPLETE WITH TAPERED BLACK BAKELITE KNOBS, METAL PARTS HIGHLY NICKELLED, KNURLED TERMINALS, TECHNICALLY PERFECT.

- 650 RHEOSTAT, 6 ohm (Maroon Bakelite) . . . . . 7/3
- 651 RHEOSTAT, 6 ohm Vernier (Maroon Bakelite) . . . . . 9/6
- 652 RHEOSTAT, 35 ohm (Maroon Bakelite) . . . . . 7/3
- 653 RHEOSTAT, 35 ohm Vernier (Maroon Bakelite) . . . . . 9/6
- 600 RHEOSTAT, 6 ohm Metal Frame . . . . . 5/6
- 601 RHEOSTAT, 6 ohm Vernier, Metal Frame . . . . . 7/6
- 602 RHEOSTAT, 35 ohm, Metal Frame . . . . . 5/6
- 604 RHEOSTAT, 35 ohm Vernier, Metal Frame . . . . . 7/6
- 654 POTENTIOMETER, 400 ohm (Maroon Bakelite) . . . . . 9/6
- 605 POTENTIOMETER, 200 ohm, Metal Frame . . . . . 5/6
- 603 POTENTIOMETER, 400 ohm Metal Frame . . . . . 5/6

### FROST MISCELLANEOUS

- 301 EXTENSION CORD, complete with Adaptor and Plug, 20ft. . . . . 32/6
- 400 LOOSE COUPLER or Receiving Transformers . . . . . 75/-
- 410 CRYSTAL TUNING COIL SLIDER (1100 metre range) . . . . . 27/6
- 501 RADIO JACK BOX (for 4 plugs) . . . . . 28/-
- 611 ADAPTER, for C299 or UV199 . . . . . 5/6

“Applause” Cards Furnished Dealers and Clubs Without Charge

## United Distributors Ltd.

(WHOLESALE ONLY)

### MANUFACTURERS OF RADIOVOX SETS

A FEW TERRITORIES OPEN FOR AGENTS

28 Clarence St., Sydney

Hobart

F  
R  
O  
S  
T

# "LIKE POSTAGE STAMPS USED EVERYWHERE"

## OF GUARANTEED QUALITY OFFERED IN AUSTRALIA

ALL DEALERS



### FROST JACKS AND PLUGS

NICKLE PLATED, FORMICA INSULATION, NICKLED SILVER CONTACT SPRINGS, PURE SILVER CONTACT POINTS.

133	OPEN CIRCUIT JACK .....	4/6
131	DOUBLE CIRCUIT JACK .....	5/-
134	CLOSED CIRCUIT JACK .....	5/-
135	FILAMENT SINGLE JACK .....	6/-
136	FILAMENT DOUBLE JACK .....	6/6
126	NEUTRODYNE CIRCUIT JACK .....	6/6
140	PLUG, DOUBLE (2 connections) .....	5/-
139	PLUG, SINGLE .....	4/6

### FROST MISCELLANEOUS

630	RESISTANCE UNIT, 35 ohm (to increase resistance)	3/6
631	INDUCTANCE UNIT (to increase wave length) ..	15/-
620	POTENTIOMETER SWITCH .....	5/-
621	PARALLEL SWITCH .....	5/-
608	PUSH-PULL BATTERY SWITCH .....	4/-

### FROST HEAD FONES

STANDARD THE WORLD OVER

161	FONES (Aluminium Head Pieces), 2000 ohm .....	32/6
171	FONES (Aluminium Head Pieces), 3000 ohm .....	37/6
172	FONES (Maroon Bakelite Head Pieces) 3200 ohm ..	45/-

THE MAGNETS IN FROST FONES ARE TREATED WITH COPPER TO PREVENT CORROSION BY MOISTURE and SALT AIR.

"Applause" Cards Furnished Dealers and Clubs Without Charge

## United Distributors Ltd.

(WHOLESALE ONLY)

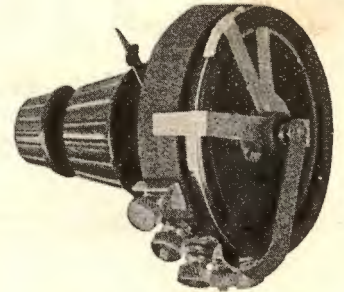
MANUFACTURERS OF HOME ASSEMBLY SETS

Perth

Brisbane

Adelaide

Melbourne



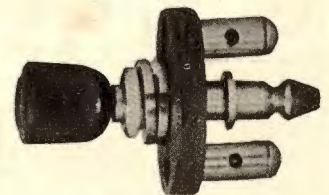
FROST-RADIO

FROST COMBINATION  
POTENTIOMETER-  
RHEOSTAT

COMPLETE WITH KNOBS,  
ALL HAVE KNURLED BIND-  
ING POST CONNECTIONS,  
AND ARE TECHNICALLY  
PERFECT.

610 TUBE CONTROL UNIT, a  
combination of a 35 ohm  
Vernier Rheostat and 400  
ohm Potentiometer .. 17/6

607 TUBE CONTROL UNIT, a  
combination of a 6 ohm  
Vernier Rheostat and 200  
ohm Potentiometer .. 17/6



FROST-RADIO

No. 608, Push-Pull Battery Switch,  
4/-.

*For Satisfaction*

# SMITH'S

Let us help you build your own. It is a simple matter if you have the proper instruction.

Let us advise you :

Base Boards . . . . .	2/6	Valve Sockets, R Type . . . . .	2/6
Loose Coupler Ends, Set of 4 . . . . .	2/6	Valve Sockets, Radiotron Type . . . . .	4/6
Contact Stops, N.P., per doz. . . . .	1/-	Jefferson Transformers, No. 41 . . . . .	30/-
Contact Studs, N.P., per doz. . . . .	1/-	Jefferson Transformers, Star . . . . .	25/-
Runner Rods, nickelled . . . . .	1/2	Murdoch 3000 Head Phones . . . . .	30/-
Sliding Contacts, brass . . . . .	1/6	Winding Wires, all sizes in stock	
Sliding Contacts, N.P. and Rod . . . . .	2/6	Aerial Wire, Copperweld . . . . .	100ft., 4/-
Crystal Detectors, Mounted . . . . .	3/3	43 Variable Condensers . . . . .	18/6
Crystal Detectors, N.P., unassembled . . . . .	2/11	Primary Tubes Wound . . . . .	3/6
Crystal Detectors, glass enclosed, mounted, 5/6		Secondary Tubes, Wound and Tapped . . . . .	6/-
Crystal Detectors, glass enclosed, unmounted, 4/2.			

Write for Catalogue.

Bakelite cut and drilled to order.

*FREE ADVICE ON BUILDING YOUR SET.*

## SMITH'S RADIO STORES

### 3 VICTORIA ARCADE,

OPP. HOTEL AUSTRALIA.



# Special This Week!

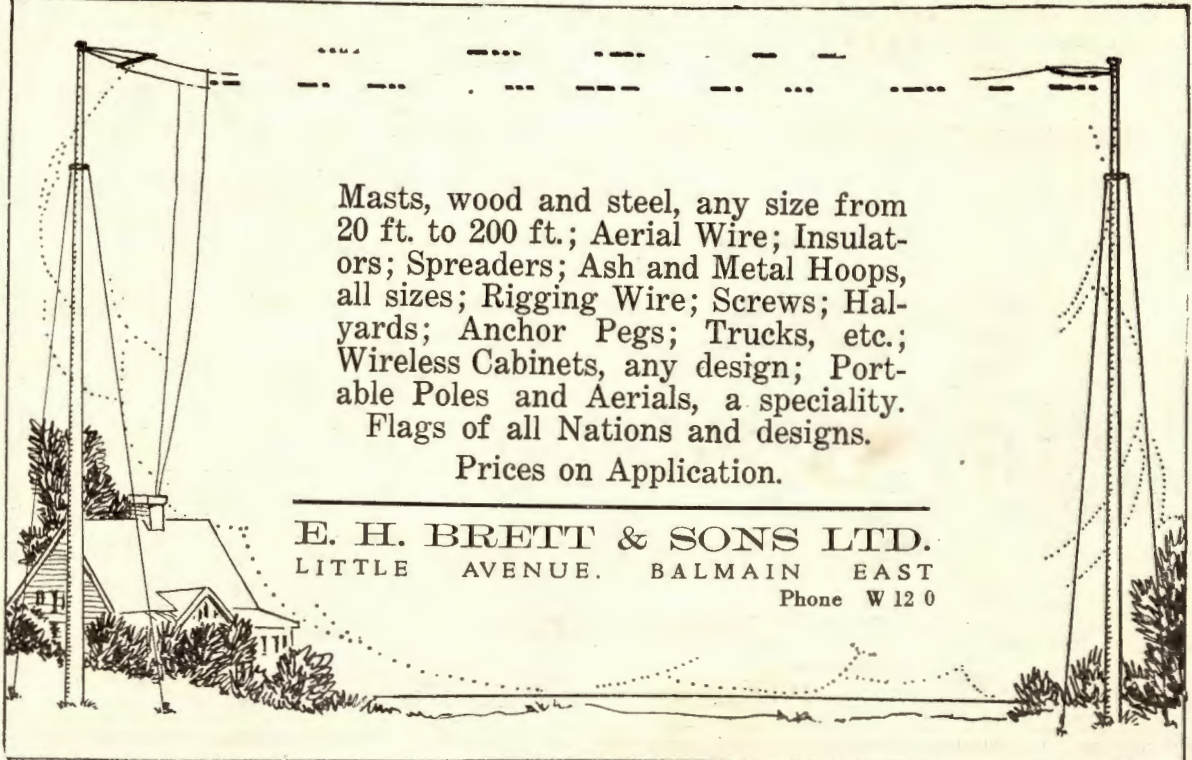
1 Single Slide Crystal Set, complete with 4000 ohm phone, aerial wire, insulators, and best crystal range, up to 30 miles. All parts nickel-plated, polished and mounted on Maple Base.

55/- complete.

## ELECTRICITY HOUSE

387 GEORGE STREET

J. S. MARKS, 2 G R Manager



Masts, wood and steel, any size from 20 ft. to 200 ft.; Aerial Wire; Insulators; Spreaders; Ash and Metal Hoops, all sizes; Rigging Wire; Screws; Hal-yards; Anchor Pegs; Trucks, etc.; Wireless Cabinets, any design; Portable Poles and Aerials, a speciality. Flags of all Nations and designs.

Prices on Application.

**E. H. BRETT & SONS LTD.**  
LITTLE AVENUE. BALMAIN EAST  
Phone W 12 0

# WIRELESS

## RADIO SETS AND REQUISITES

ARE OBTAINABLE AT LOWEST PRICES FROM

# SWAINS' 119a-123 PITT STREET, SYDNEY

A FEW DOORS FROM THE G.P.O.

CRYSTAL OUTFITS.. From 30/- Operative within a radius of 25 miles.  
 ONE VALVE SETS .. From £5/10/- " " " up to 100 miles.  
 TWO to SIX VALVE SETS From £28/0/0 " " " 5000 miles.

IMPROVE YOUR CRYSTAL SET BY ADDING

OUR ONE VALVE AMPLIFIER—COSTING ONLY £7/7/—READY FOR CONNECTING UP—  
 WILL INCREASE THE VOLUME TREMENDOUSLY—AND THE RANGE UP TO 100 MILES.  
 OUR TWO VALVE AMPLIFIER—COSTING ONLY £10/10/- COMPLETE—OPERATES A LOUD  
 SPEAKER.

—WE SELL—

The Famous FROST Parts and Fittings—All Makes of Phones and Loud Speakers—  
 The STERLING Sets—Valves—Loud Speakers—and Phones—All Crystals—Books and Magazines on  
 Wireless.

The United Distributors Co's. Home Assembly Sets—and Spare Parts—

Wireless Concerts and News, daily from 12 till 5.30 p.m.

ILLUSTRATED CATALOGUE AND PRICE LIST FREE—

# RADIO RECEIVING SETS

## HARRINGTON'S LTD. "IMPERIA"

Stands for all that is best in  
 Radio Reception ————— !



One to five Valves, Models "A" to "E" for all wave length and ranges.

Write for full particulars or visit our Demonstration Hall any afternoon, 3.15 to 5, or Friday evening 7.30 to 9.

All approved types of Speakers:  
 Magnavox, M1, M4, R3 from — — — £8 each  
 Sterling Speakers from . . . . . £3/5/-  
 Western Electric Phones . . . . . 44/-  
 Sterling Phones . . . . . 44/-  
 New Systems Phones . . . . . 35/-  
 Imperia Phones . . . . . 35/-

*Harringtons* LTD

386 George Street, Sydney

MELBOURNE: 266 Collins Street.  
 KATOOMBA: Katoomba Street.  
 BRISBANE: 93 Queen Street.  
 ADELAIDE: 10 Rundle Street.  
 WELLINGTON, N.Z.: 42 Willis Street.  
 AUCKLAND, N.Z.: 140 Queen Street.

**Before you  
Expend  
Money on  
Radio  
Equipment  
Consult  
Anthony  
Horderns'  
Wireless  
Experts.**

**Your inspec-  
tion of the  
big display  
of  
everything  
that is new  
in the world  
of Wireless,  
is invited.**

**(Wireless -- Second  
Floor)**

**Anthony Hordern & Sons  
Limited,**

Brickfield Hill, Sydney

Phone City 9440.

Box 2712 G.P.O.



**D**ANCING in your own home to music that comes to you from out the air. Dancing to the latest dance music played by leading musicians. An orchestra in your home, just by the turn of a knob. All this, and much more, will you obtain from Radio in the home if you purchase

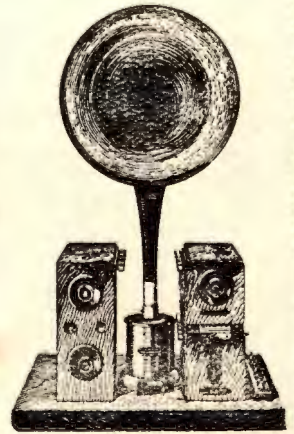
## *Western Electric* RADIOPHONES

Correct in design, constructed by experts, their faithful and clear reproduction is truly marvellous.

For descriptive literature, help and advice on Radio, call, write or 'Phone.

*Western Electric Company*  
(Australia) Ltd.

192-194 Castlereagh Street, Sydney.  
Telephones : City 336 & 356

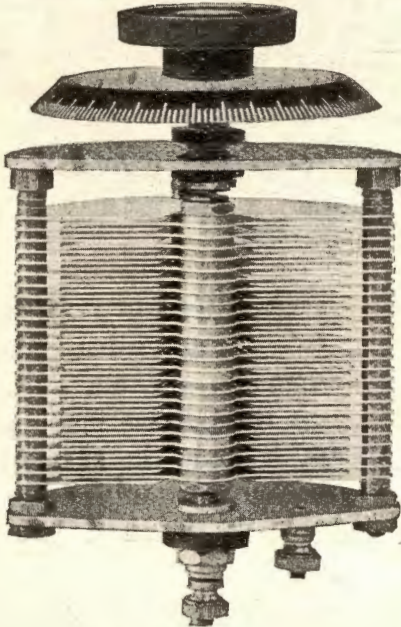


**Have you sent your Subscription  
to Wireless Weekly yet?**

# New and Attractive English Lines

## ORMOND VARIABLE CONDENSERS.

Combining handsome appearance with the utmost efficiency,



### THE ORMOND.

English Make, Standard, Efficient.

- 43 Plate Vernier .001, with Knob and Dial.
- 23 Plate Vernier .0005, with Knob and Dial.
- 15 Plate Vernier .0003, with Knob and Dial.
- 43 Plate, Plain, without Dial, .001.
- 37 Plate, Plain, without Dial, .0075.
- 23 Plate, Plain, without Dial, .0005.
- 15 Plate, Plain, without Dial, .00035.
- 11 Plate, Plain, without Dial, .00025.

DUO ANODE (Balanced adjustment) .0005  
to .00025.



## BRUNET PHONES & SPEAKERS.

The most popular resistance in use today—4000 ohms—ensuring maximum sensitivity. Comfortable on the head; light in weight and beautifully finished. Brunet phones and loud speakers reproduce naturally and perfectly.

Brunet 'Phones, 4000 ohms.

Brunet Loud Speakers.

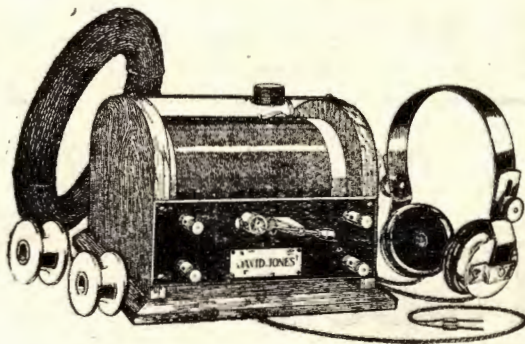
DEALERS WRITE FOR PRICE LIST TO.

**United Distributors Ltd., 28 Clarence Street, Sydney**

WHOLESALE ONLY

or

**Continental Radio Co., Gladstone Chambers, 90 Pitt St. Sydney**



David Jones' announce

## Crystal Receiving Sets

at 63/-

COMPLETE WITH N.S.T. HEAD-PHONES, AERIAL WIRE,  
INSULATORS, AND INSTRUCTIONS FOR CLEAR RECEPTION!

Now everyone can "listen in"! David Jones' have met the public demand by the creation of Broadcast Receiving Sets at the lowest price level ever announced! These Crystal Sets, made to David Jones' own design, embody the latest scientific facts, simplified to such an extent that there is no simpler set obtainable. Their workmanship is of absolute accuracy and high excellence. They have been proven entirely successful, and can be operated for perfectly clear reception within a radius of approximately fifteen miles.

Begin listening-in now! Hear the nightly concert programmes in your own home. Listen in for latest market reports, lectures and daily items of interest! David Jones' offer Crystal Receiving Sets complete at 63/-.



Now  
Everyone  
can  
Listen-in.

DAVID JONES'

RADIO DEPT., 252 YORK ST., SYDNEY

# AMPLION

The  
**World's Standard  
 Loud Speaker**



"Junior"  
 Price: £4

Amplions are produced by the originators of Loud Speakers and the world's largest manufacturers of Loud Speaking Telephones.

In efficiency the Amplion is exceptional, for music as well as speech is brought out in full volume with remarkable clarity and freedom from distortion.

The Amplion Tone is delightfully natural and brings before the listener the very personality of the speaker, singer or instrumentalist.

No other Loud Speaker can compare with the Amplion in quality of reproduction or acoustic amplification.



"Dragon"  
 Price: £8

There is an Amplion model for every purpose, two of the most popular being those illustrated here.

Procurable from all Radio Dealers

**Amalgamated Wireless**  
*(Australasia) Ltd.*

Clarence St.  
 SYDNEY

Collins Street  
 MELBOURNE

Radio Dealers kindly write for Trade Price List



Phones, Redfern 964 and 930.

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**EDITOR:** The Editor will be glad to consider Technical and Topical Articles of interest to Australian Experimenters. All Manuscripts and Illustrations are sent at the Author's risk, and although the greatest care will be taken to return unsuitable matter (if accompanied by stamps), the Editor cannot accept responsibility for its safe return. Contributions should be addressed to the Editor, "Wireless Weekly," 33/37 Regent Street, Sydney, N.S.W.

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# EDITORIAL

## Discord in Queensland

**A**CTING up to the spirit of that old saw about "Unity is Strength," the tendency in most of the States is towards a consolidation of experimental interests, and the results attending the preliminary negotiations between the various branches of the Wireless Institute and the Wireless Societies may be regarded as satisfactory. There is, quite apparently, a general feeling among experimenters that harmonious relations in place of bickering and jealousy will do much in assisting the movement generally and in giving it the gentle push which will prevent it falling into stagnation.

The next goal to which we must strive is a more effective linking up of the representative bodies throughout the whole of Australia. By the look of things in Queensland, some hard spade work will have to be done before the position there can call for any congratulatory messages. There are two conflicting parties in that State, in the shape of the Wireless Institute, and the Radio Society of Queensland. The latter, although a younger body than the Institute, is numerically much stronger, and has affiliated with it the Radio Clubs of the larger towns. It accuses the Wireless Institute, which has had a somewhat chequered career, of being composed of wireless traders whose motives, being mercenary, it regards as not being inimical to the best interests of the experimenters. The Institute, it is stated repudiates this aspersion and the attitude of the members is that the Radio Society is a sort of mushroom organisation which doesn't amount to much anyway.

There is a great deal of jealousy, bad feeling, and a total lack of co-operation between the two. The exhibition at the show by the Wireless Institute was arranged entirely by that body without reference to the Radio Society, the members of which have refused to co-operate in any way with the Institute—although they state they will be pleased to work hand in hand with the Wireless Institutes in other States.

With the bulk of the experimenters working towards greater unity and better feeling, it is indeed unfortunate that this unpleasant friction should spoil the party so far as Queensland is concerned.

In every quarrel there are two sides, and it is invariably the case that each side has to a certain extent been the cause of the trouble.

The experimental movement is rapidly reaching a high place in the public esteem, and it is to be hoped that the two parties at loggerheads in Queensland will make a determined effort to settle their differences and effect a working arrangement whereby a better and greater objective can be achieved than each trying to outdo the other.

### A SUGGESTION FROM MAOIRLAND

Arthur E. Jordan, 4AD, Invercargill, N.Z., has written us offering a few suggestions for the use of Australian transmitters. Many of the Australian amateur transmitters, says Mr. Jordan, desire to work New Zealand stations. The man using 5 watts has every opportunity of doing this if he will only use a wave length of 180 metres or downwards. Most of the cards and letters received by Mr. Jordan indicate that in most cases radio frequency is being used in Australian receivers. This offers much more complicated tuning than the receivers used over there, consequently there is every chance that a reply is missed. Most of the New Zealanders use single control receivers for sweeping a band from 140 to 300 metres, and Mr. Jordan suggests that better work could be done here.

### "R" VALVES

We are informed by Amalgamated Wireless (A/sia) that the price of Marconi "R" Valves has been reduced to 19/-.

The "R" Valve is a general purpose valve suitable for use as Detector or Amplifier, and is specially useful where it is not desired to employ special types for specific purposes.

### D. X.

Geo. Blake, Z3AD, Greymouth, N.Z., sends us the following list of calls heard. The calls emphasised represent those stations actually worked by him. Mr. Blake uses one detector and one step of audio for reception, while the normal power of his transmitter is 5 watts. Anyone hearing his signals is requested to Q.S.L.

**2DS, 2BK, 2ED, 2YI, 2AY, 2IJ, 2GR, 2DK, 2LO, 2ZN, 2ZZ, 2BB, 2CM, 3HL, 3HM, 3BD, 3BM, 4EG, 4CM, 7AB.**



# THE SILENT WORKER

By Alan Burrows

WHAT wireless is at present doing for the world is little in comparison with what it is going to do. No science more than radio has made such progress in the last few years, and none offers so much evidence that the fringe of it has only yet been touched upon. Here, surely, in modern wireless is something which even Jules Verne failed to prophesy. For this French writer, a few years ago, showed himself as the world's greatest prophet. He wrote of airships before others thought of them, while the world was still experimenting with vessels which merely floated, the submarine to him was something real. But at the achievements of radio, its means of swift communication, his imagination halted.

It is difficult sometimes for those who live so close to wireless, who follow its every move, to grasp fully the perspective of its progress. To the amateur or the experimenter, every new and fresh advance is simply a progressive technical step, which, while being greeted by him with interest, seldom, if at all, arouses any wonderment. He understands his subject too well for that. To the outsider, however, a small advance in this way (or, more correctly, the evidence of it) is something at which to marvel; the fact that to him it savours of the unknown increases his wonder; and all the while the experimenter sits back (more or less amusedly) and wonders why such a simple thing was not discovered long ago.

Directional wireless is an instance as topical as any—although with regard to this, experimenters are perhaps more in the dark than usual—but to them the principle and the application of the wireless beam are really little to marvel at. And the principle of the alleged "death-ray" is probably as old as wireless itself; it has merely awaited the coming of an experimenter to develop and exploit it. That radio has been used to measure the depths of the ocean, for the locating of ores and minerals, to some extent, and the statement that very soon wireless will be used as a means of charting the universe—all these, while certainly presenting some problems for the average wireless fan, can scarcely be said to surprise him to any great extent.

## Unknown Inventors.

The controlling of vessels by wireless, such as the example of the American battleship, Iowa, last

year, which was directed every way—manoeuvred, fuelling, the aiming and firing of guns at target practice—from the Shawmut, which stood some miles off, is something the newcomer to radio can understand with comparative ease. Of all these phenomena, of wireless-controlled vehicles and vessels, of aeroplanes controlled from the ground, motors dodging, driverless, about city streets, tanks driven into battle without crews, and wireless direction-finders—not one causes the radio fan anything approaching a thrill. He knows the how and why of it all too well.

And the point of it is this. Wireless has made great strides within the last few years—so great, indeed, that the world has become dulled to the real significance of its progress. Everything now is taken as a matter of course, and this applies to none better than to the experimenters themselves. They have become immune to astonishment, and their own achievements hardly cause the elation they should.

So we have on one hand a world fed daily almost, with some new wonder, marvelling at the miracles of wireless, but marvelling chiefly because it doesn't understand them, and probably without real enthusiasm and appreciation, and on the other hand a body of hard-working, enthusiastic experimenters, to whom every "tremendous advance" is only one more incident in the onward march of the science. And these experimenters, for the greater part, work unknown to the public—to the world of outsiders who don't know an ion from an ampere, and probably don't want to. It is true, of course, that the number of experimenters and those who, while scarcely due to be called by this name, are keenly interested in the game, is daily increasing; but there will always be a section which will remain as aloof as ever.

And who of this more or less disinterested section know of the real workers in the radio community? Of the general public, are there many who have heard of Hertz, Armstrong, De Forest, Franklin, Crookes, Faraday, and dozens of others? From the public's point of view, Marconi is the end and the beginning of everything which is wireless, a popular misconception which is obviously unfair to the others who have done so much for the science.

Continued on page 23 Col. 1.

# A REAL SUPER CRYSTAL SET

By "Insulator"

Here it is. Something we have all been waiting for; a genuine, dyed-in-the-wool Super Crystal Set. Used on Insulator's standard aerial at Marrickville, broadcasting was heard as loudly as on a single valve set. We know, because we heard it.—Editor.

**W**OULD you like to make a crystal set which will beat anything you have ever heard? Do you want a receiver which will give you results equal to the average single valve set? Do you want a set which is simplicity itself in tuning; one which will give better results than the usual single slide coil with its attendant nuisance of a slider?

Of course you do, provided it is easily made and of course, provided it doesn't cost too much. Well, then, here is one which will just fill the bill nicely. Pardon me for praising my own creation, but this set is absolutely wonderful. In all my experience I have never heard one crystal set which will give anything like the volume; which is as simply made; which is as cheaply made, and which is as easy to tune. I know I am writing like a politician would talk; but excuse me people, I am carried away with enthusiasm over this latest creation of mine and so will you when yours is going.

You see I know you will make one just to try it. The complete set of parts may be bought for under 10/-, and you will say that my claims are justified once you spend one hour to build it.

I have long had in my mind to devise some sort of crystal set which will function equally well on the wave lengths of the two N.S.W. broadcasting stations and which can be made cheaply and easily. Many different ideas have I had of late, but one trial of each was sufficient for me to discard most of them. This little fellow has stood the test, so now I have no hesitation in giving you the particulars necessary to make it.

For tuning coils, I employ Grodan Spider Web formers wound with No. 28 guage D.C.C. wire. One former is wound with just sufficient wire to bring in Broadcasters (Sydney) Ltd., and the second former carries the necessary number of turns which, when used in conjunction with the first former acting as a variometer, will give Farmers with surprising strength.

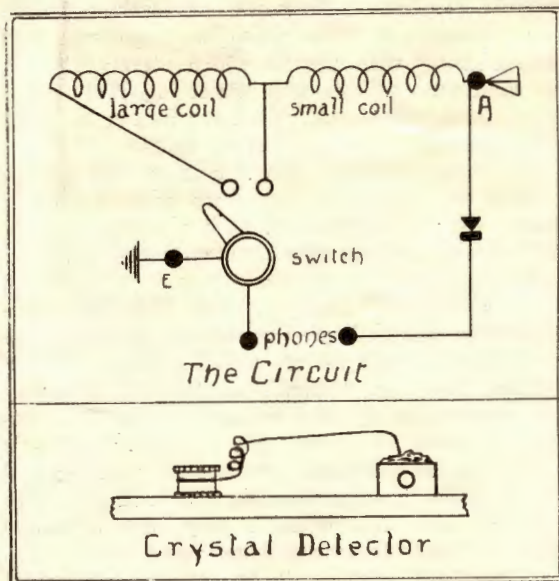
No other wave lengths are provided for, as I realise that most people wish to hear only these two stations. A switch operating on two contact studs will give either of these two stations at will. Better than wandering along a coil with a slider, don't you think so? Sure you do!

Look at the illustrations now. The whole outfit looks very well. You will notice that all the wiring is "above board." This I have done in order that you may follow it out clearly, but in order

that no mistake will be made (I, too, make mistakes) I have drawn the wiring diagram.

The material required are as follows—

- 2 Grodan Spider Web formers.
- 1 Baseboard, 6½ x 5in. (wood).
- 2 Coil Supports, 4in. or 5in. long x ½in. x ½in.
- 1 Vertical board, 5½ x 2in. (wood).
- 4 Terminals (aerial, earth and phones).

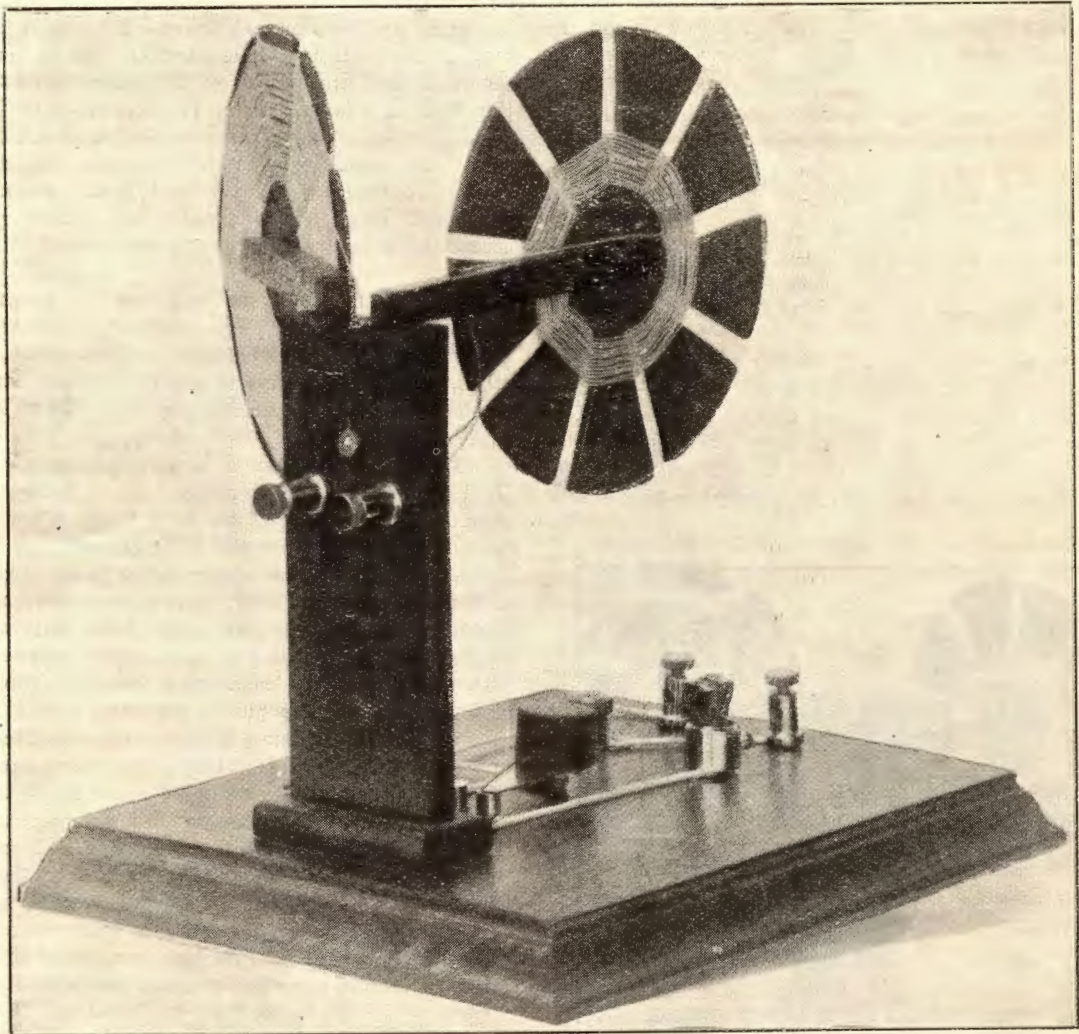


- 1 1½in. Switch.
- 3 Contact studs.
- 4ozs. No. 28 D.C.C. Wire.
- 4 ½in. x 6 Csk. Brass Wood Screws.
- 1 Flat top terminal.
- 1 Crystal Cup.
- 1 Catwhisker.

These last 3 items may be dispensed with, and a crystal detector complete may be purchased. But I have used the terminal cum crystal cup cum catwhisker type of detector, preferring it in fact.

By the time this appears in print the various sizes of boards will be available at most of the advertisers in this issue where also may be obtained the Grodan Spider Webs.

I have always had a hankering after these Spider Webs. Old readers will remember the regrets I expressed about not being able to obtain these form-



ers for the Portable Single Valve Set, which I described some months back. They are particularly useful for many purposes. I'll tell you more about their uses at some later date.

Now I will tell you how to wind these formers. Using the 28 gauge wire, leave about 8 inches for connections and take the wire through a slot and in front of a section, through the next slot behind the next section, through the following slot, in front of the next section, and so on. One turn when completed will have the wire on alternate sides of the sections, and the second turn will show the wire on each side. Quite a simple operation altogether.

On one former (Broadcasters) I have 26 turns of wire, 13 on each side. This just gives me Broadcasters nicely on my aerial. Your aerial may be different so I advise you to wind on 32 turns, and connect the beginning of the coil to your aerial, and the 32 turns to the earth. (Bare the ends of the wire first of course.) Also to your aerial connect one side of the crystal detector, the other side of which goes to one phone terminal. The remaining phone terminal is connected to earth.

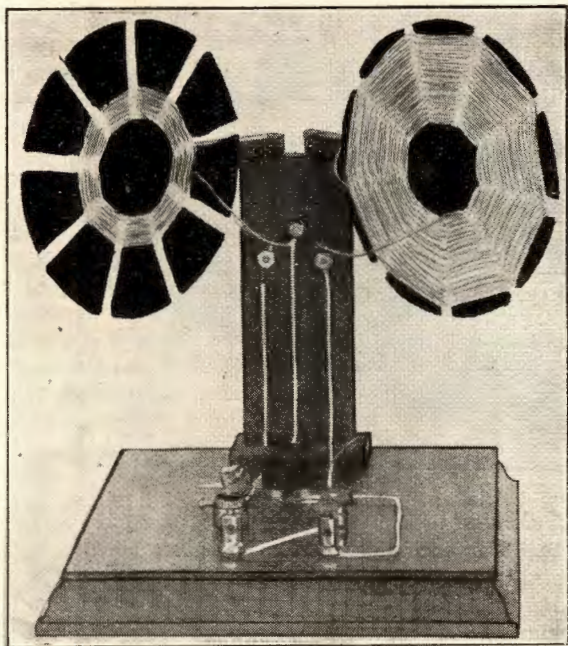
Connect up your phones now. Can you hear Broadcasters? You can! Alright now, still listening in, unwind one turn. Getting louder? Good! Now unwind the next turn. Louder still? Well,

then break off here. Unwind the next turn, note the strength and continue to unwind until you achieve maximum results and leave it at that. To keep the coil secure pierce a hole in the former and lace the end through.

Before going any further I want to tell you this. Don't be scared of this unwinding process; it is really very simple, and even if you do unwind too much wire it will only take you two minutes to re-wind the coil.

However, having found the correct number of turns required for one coil pick up the second former and wind it full with 88 turns (44 on each side) of the 28 DCC wire.

A guide to the correct number of turns required for the second former can be gauged from my own set. I have 26 turns on one col and 86 on the other. This second former is not of such great importance as far as the number of turns is concerned, as the coupling will make up any deficiency in this direction.



Both coils being wound, turn your attention now to the wood-work. Sandpaper well and give, say, a couple of coats of shellac varnish for appearance's sake.

Painting or varnishing holds a peculiar fascination for me, in common with most people. Once I have finished my allotted task with the brush, I look about, like Alexander, of old, for further worlds to conquer. Only the pleadings of Mrs. Insulator stop me from slap dabbing up and down everything

(Continued on page 27, col. 2.)

at hand. Oh, yes, you have finished the shellacing! Pardon me!

Pick up the vertical board (2in. wide) and half way along drill two holes for the aerial and earth terminals and one more for the contact stud to which the join of the two coils is secured. On the top edge, half an inch from each side mark out the spots into which you intend screwing the coil holders. Now screw this vertical board down to the baseboard using brass countersunk screws. These screws of course are screwed up through the baseboard.

Next mark out your baseboard. I won't give you any directions for this as I will leave it to yourself. Study the illustrations. The switch, contact studs, crystal detector and phone terminals are clearly shown. You can accept this as a guide. Assemble these parts now.

The coil supports now require your attention. Drill a hole sufficiently big enough to allow the two remaining wood screws to pass through up to their heads. Countersink with a larger drill or if stuck use a penknife. Using shoemaker's brass spriggs, attach the coils to the other ends of these supports (see illustrations) making sure that both coils are running in the same direction. Screw the supports, now with the coils, on to the vertical board. You remember marking out the places for this.

Next the wiring. This is easy too. The inside of the smaller coil is taken to the aerial terminal from which a lead is taken to one side of the crystal detector. The outside of the smaller coil is joined to the inside of the larger coil and the joined portion is clamped under the contact stud in the vertical board. Be sure you leave sufficient wire to allow the coils to swing right away from each other. From this contact stud a wire is connected to one of the contact studs in the baseboard.

The remaining contact stud in the baseboard has the end of the larger coil connected to it. A connection is now taken from the earth terminal to the switch, and from thence to one of your phone terminals. The remaining phone terminal is connected to the remaining side of the crystal detector. This completes the wiring.

Connect your aerial and earth to their respective terminals and also your phones. Insert a piece of crystal—I always use N.H.M. galena, that's it in the illustration, and say, lend me your ear till I whisper this "It is the best crystal I have ever struck" Listening in are you? Splendid, isn't it? Have you heard anything better in the way of crystal sets? I knew you hadn't! Now switch across to the next contact stud. Gee! doesn't the "Hello man" or "Uncle George" sound close? Notice the difference in Farmers' when

# COMMONSENSE TALKS

By F. Basil Cooke, F.R.A.S., Director of Radio Service, David Jones Ltd.  
THE VALVE.

**L**AST week we set out with the object of explaining the difference between the crystal and valve receiver. Before we could grasp the significance of the facts to be presented it became obvious that we must know just what brings broadcasting to our aerial. We further learnt that if several transmitting stations were sending at the same time but on different wave lengths, then by "tuning" we could select what station was desired to the exclusion of all others. Finally we saw just what was meant by a crystal set and the important part that is played by the crystal.

From the above a certain fact becomes apparent, namely, that of the received energy by the receiving aerial, only a portion of this is useful in the actual signals heard. To start with the crystal in performing its functions as a rectifier deliberately cuts out one half of the energy through this process. If we think a moment we will see how extraordinarily sensitive must be a pair of head telephones when such minute energy can sufficiently energise them to audibly render to the ear that which has been received.

Leaving this for a moment let us watch a rifleman firing a cartridge. We see him exert a pressure with his finger on the trigger, and then the bullet speeds forward to do its duty. Where did the bullet receive its power to send it forth with such velocity? Surely not from the small pressure exerted by the man in pressing the trigger. No! It came from the explosive in the cartridge and the trigger pressure was only used to release this explosive energy.

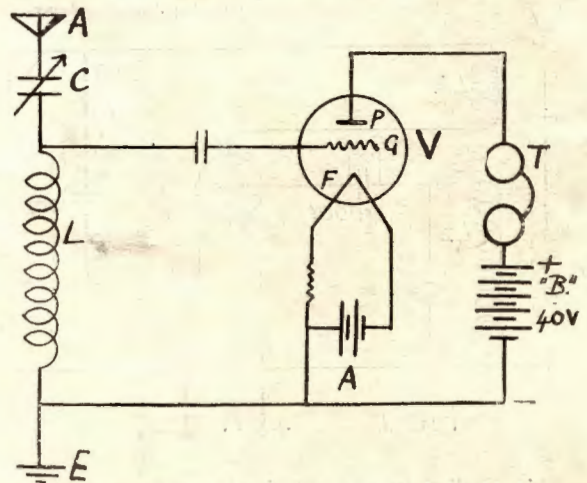
Well now, returning to wireless. We see that at the receiving station we only have a small amount of energy, so if we can use this as a trigger to release stored up energy, we will have a great increase in the strength of the received signals. The three electrode valve (or commonly known simply as "the valve") does precisely this. In other words the valve is an instrument wherein a very small electrical variation can produce or let loose an enormously greater amount of stored power.

In the accompanying diagram we have the simplest form of valve circuit where A is the aerial—L a tuning coil—C tuning condenser—E the

earth—V is the valve wherein we have a filament F, surrounded by a Grid G, which in its turn is surrounded by a plate P, the whole being in a glass container that is a very high vacuum. T represents the telephone receivers, B the high tension battery (or reserve energy), A the filament battery.

Let us now briefly see what happens when a wave strikes our aerial. By means of the coil L and condenser C, the circuit is so tuned, as only to allow the selected wave length to enter. One end of the aerial is connected to the grid of the valve.

When the valve is alight, the incandescent filament is shooting off minute negative particles, which



are attracted to the plate because the plate is charged positively due to battery B, but are prevented from reaching it owing to the grid which is charged negatively from the battery B. (Of course we all remember the golden rule of electricity, "like charges repel and unlike charges attract each other".) The consequence is that in the valve we have a large number of negative particles trying to get across to the plate, but prevented from so doing owing to the Grid.

Let us now consider the incoming signal. This is in the form of a very rapidly alternating cur-

(Continued on page 27.)

# EFFICIENT SHORT WAVE RECEIVERS

By A. W. Stewart

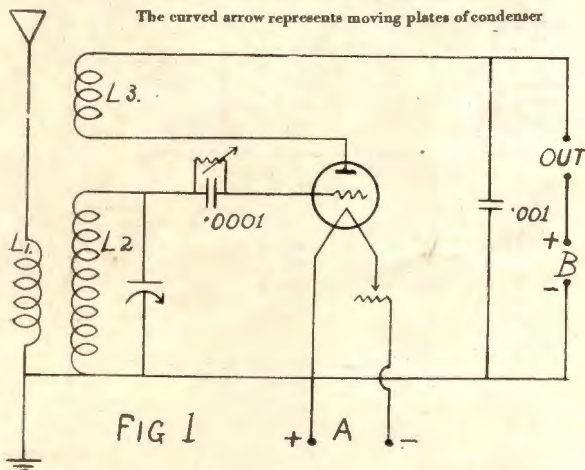
**B**Y this time I suppose you have remodelled your aerial to make it efficient, as I explained in my last article, and are waiting for a receiver to hook on to the aerial.

Crystal sets are out of the question, as they will not receive CW, so they will be dispensed with. We will, therefore, start off with a single valve low-loss receiver.

Here, again, attention to detail is important, and particular care must be taken to avoid the inclusion of unnecessary gear in the circuit.

Before going any further, let me state one important fact—

**A HIGH RESISTANCE CIRCUIT WILL NOT TUNE SHARPLY, AND MUST BE AVOIDED.**



This applies to any set, but is more important on these high frequencies. Instead of trying to overcome resistance by regeneration, try to cut out any unwanted gear from the circuit.

Having got this important fact, let us now try to eliminate resistance from the average receiver.

I have found from experience that it is impossible to receive long and short wave signals on the one set, so that if broadcasting is to be received a separate receiver will have to be built.

A short wave receiver must tune sharply; it must be reliable—i.e., it must always keep the one wavelength for one setting, and, furthermore, it must re-radiate as little as possible.

A direct coupled circuit (P1) radiates too freely to be any good, so I will exclude it from my remarks.

Too much stress cannot be placed on the use of good gear, which, although costing more, is far more efficient.

Before discussing the actual circuit itself, I will say a few words concerning the components themselves.

**VALVES.** A low capacity valve such as the V24, QX, etc., is recommended. Of course, any low capacity valve such as the UV199, UV201A, etc., may be used, but on no account should an adaptor be used, as the losses are enormous. It is far better to remove the base entirely and solder your leads directly on to the valve elements themselves. For this reason one of the old Audiotrons would be very good.

If a socket is required for the valve, a good porcelain or a decent moulded bakelite one should be chosen in preference to some of the "Moulded Mud" variety. If English valves are used, in preference to the usual type of socket, valve socket pins should be obtained and mounted on thin strips of bakelite. This will help to cut down the capacity somewhat.

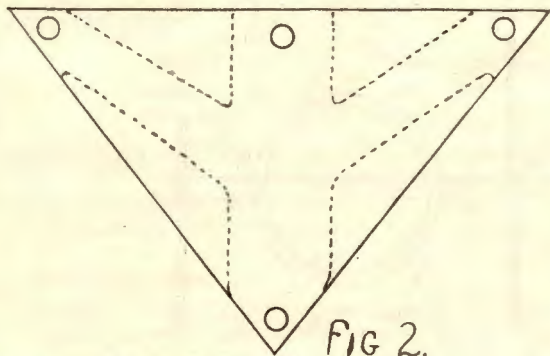
'Phones should not have a very high resistance, two or three thousand ohms being ample. In this connection, a pair of Western Electric Navy type or a pair of type F Baldwin are hard to beat. It is always well to remember that a good pair of 'phones goes a long way towards making a set efficient.

If the inductances are to be wound on tubes, which is undesirable, very thin bakelite should be used. This, however, will be discussed later.

Pyrex glass is very efficient, but, unfortunately, is unobtainable.

Panels should be of bakelite, on account of its sturdiness and high insulating properties.

Condensers, both fixed and variable, should be the best obtainable, and as far as fixed condensers are concerned Dubilier are hard to beat. In connection with the variable condensers, what is known as the "Low Loss" type should be obtained, or an existing condenser modified by removing any surplus insulation from the ends as shown in



Condenser End. Showing how unused portion may be dispensed with.

Fig. 2. The reason for this is that an insulator near a tuning circuit causes losses.

Too much cannot be said on the importance of a good tuning condenser, and only the best should be used.

A good air condenser should be built, so that any leakage will have to go through long paths of thin, narrow, high-insulating material. A good moulded job of bakelite means efficiency, while one of the Cardwell or General Radio special low-loss condensers will give a marked improvement on weak signals. These makes, however, cannot be bought locally—at least, at present.

I think this about covers the gear to be used, and we can now discuss ways and means of building an efficient tuner.

As I have said before, resistance must be kept out of the circuit, and here are a few ways this may be done:

Wind all coils with 12 or 14 SWG DCC wire, using very thin tubes, or, preferably, none at all.

On no account use shellac or other insulating dope on coils. Tie them with string instead.

Litz wire or similar cables should not be used, and soldering pastes or acids should be carefully avoided for soldering. Use resin instead.

Keep all inductances at least three inches from any other part of the set, panels, condensers and rheostats included.

Earth the moving plates of all variable condensers to minimise capacity effects. Where possible, try not to use a tapped inductance and make one coil do the job, as a tapped inductance has dead-end effects, which are highly inefficient.

Keep all leads as short as possible, and run them direct in preference to the busbar idea of bending wires at right angles for neatness.

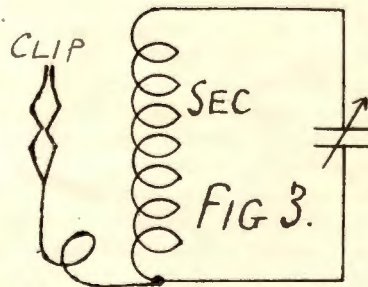
If these suggestions are followed out the receiver will NOT be "A thing of beauty and a joy forever," but it WILL BE EFFICIENT, when compared with the average so-called short wave receiver.

No matter how well an aerial is designed, it is still a high resistance, and to connect it directly to the tuner will spoil all our good work. For this reason it should be coupled as LOOSELY as possible. Usually two or three turns coupling is sufficient for short waves.

Another point to be remembered is that a large piece of metal placed near the inductance will detract from its efficiency, as will a large insulator, so keep the coils removed from the other gear.

We will now say a few words concerning the actual circuit itself. For all-round results the two-circuit tuner with a reaction coil is hard to beat, and the circuit itself is shown in Fig. 1.

A tickler is preferable to a tuned plate, as it provides an easy means of varying the wavelength within limits.



In Fig. 1 the aerial coil L1 is composed of four turns of 14 SWG DCC copper, and is wound on a 3-inch former. The turns are next tied together with dry thread, and then secured with some more thread to a round piece of wood for the purpose of coupling it to the secondary circuit. It will be noticed that the aerial circuit is untuned; therefore, the circuit is no harder to handle than the ordinary P1 circuit, but as far as results are concerned—well, judge for yourself.

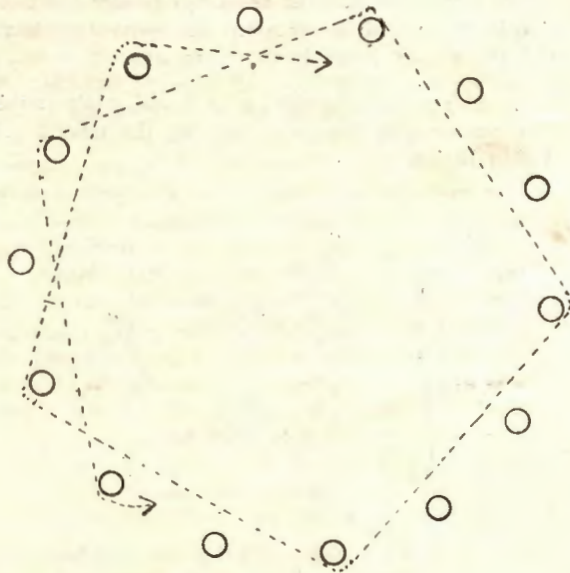
The secondary is wound basket fashion on a circle of pegs set in a 4-inch circle, and after being tied with string is mounted directly on the back of the condenser. This makes it practically self-supporting. The same gauge wire (14 DCC) is used, and twelve turns are sufficient. The method

of winding this and the tickler coil is shown in the diagram on this page. Mark a 4-inch circle on a piece of wood, and then drive in 14 nails or pegs at equal distances (approximately  $\frac{1}{8}$ -inch apart). Take a half-turn of wire round one peg, and then proceed to wind as shown. Miss two pegs, go round the third, miss two more, round the third, and so on until all the turns are on. Tie with string before removing.

The tickler, L3, is composed of twelve turns of 16 DCC wound on the same size former as the aerial circuit and secured in the same manner.

With the windings given the receiver will go down to 100 metres and up to about 260 metres, which is all that is needed.

The tuning condenser (the only control) is of .0005 m.f. capacity, and, as said before, should be

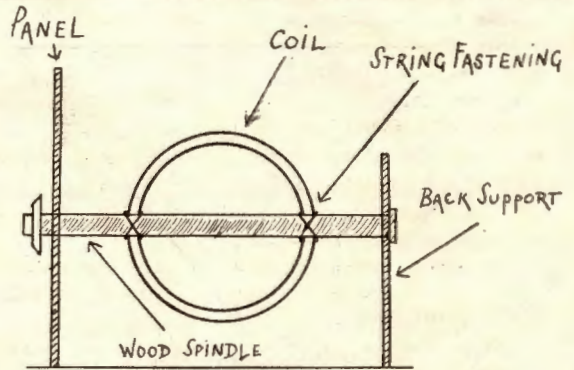


Showing coil winding. 14 2-inch nails are set in 4-inch circle. Nails are approximately  $\frac{1}{8}$ -inch apart.

a good make. A Gilfillan is particularly suitable on account of its good construction and genuine moulded ends of brown bakelite. Of course, any good condenser may be used, and a way to reduce some of the loss is to cut away the ends as shown in Fig. 2.

The grid condenser should be particularly small, a .0001 being ample, and across the 'phones and B battery a good quality .001 will suffice.

Join the negative of the B battery to the positive of the A battery, and earth the junction. This also means earthing one end of the secondary coil, and also the MOVING plates of the tuning con-



SHOWING METHOD OF MOUNTING COILS.

denser. See that you do earth the moving plates, as this helps to minimise capacity effects.

A grid leak should be made by means of pencil lines on a small piece of bakelite, and is attached to the condenser, or a good variable leak can be utilised. This should be mounted on a small panel and placed at the rear of the receiver, thus helping to keep the leads short, which is important if the set is to function properly.

The rods holding the coils should be quite long, so that the hand does not come very near the inductances when tuning.

In mounting the aerial and tickler coils drill a hole for each rod in the panel and place a support at the back of the set. Make this support of bakelite, and on it may be mounted the terminals, rheostat (and variable grid leak, if one is used).

On my own receiver built from these instructions the rheostat is not a bit critical, and, in fact, it could be almost dispensed with.

I have also found that on some valves a grid condenser can be dispensed with.

The set itself is extremely sensitive and very selective; it is not a bit critical to handle. It does not re-radiate to any great extent.

Another effective form of secondary coil can be wound on thin strips of bakelite about one-quarter of an inch wide by one-eighth of an inch in thickness. These are supported on two of the "open" wooden loose coupler ends. The wire (14 DCC) is wound on this framework, and is spaced with string of about the same thickness as the wire itself. This string is removed after the coil has been anchored off. Put on twenty-three turns, and at one end of the coil place a piece of flex with a spring clip attached for the purpose of short-circuiting that portion of the coil not used. This is shown in Fig. 3. The aerial coupling in this case is made up of three turns of lamp flex IN PARALLEL wound directly over the secondary. The same tickler may be used.



This is also tuned with a .0005 condenser.

This type of tuner is very effective, and should give very good results.

In conclusion, I would like to point out that all unwanted capacity should be used; use the best gear you can afford; keep all leads short; keep all coils at **LEAST THREE INCHES** from any other part of the set, and use thick wire for the coils and also for wiring up the set.

Use small tuning condensers and low capacity valves, and, above all things, **DON'T FORGET THESE DON'TS.**

Before concluding, I would like to say that if anyone strikes any trouble I will be pleased to answer any queries within the limit of my knowledge of Efficient Short Wave Receivers.

(Continued from page 15)

### Who is Next?

It seems, then, that from the outside world the successful worker can expect little praise; the results of his research are accepted and probably made use of by the public, but to the man himself come little honor and glory. The work, and the immediate repayment, must be its own reward.

And now that radio, and everything pertaining to it, are so much before that person so often spoken of as "the man in the street," there seems from all appearances to be little change in this outlook. The real workers receive no more kudos than before, and they still have to be content to see their work and inventions used by a public which is almost totally regardless of the brain which made it all possible.

And it is a queer commentary on the experimenters' make-up that the majority are quite content to let things remain as they are; the lime-light—even a modest amount of it—is not wanted by the average experimenter, be he professional or otherwise. He is satisfied with the praise and eulogies of his kind; and the knowledge that his work is received and appreciated by his co-experimenter is apparently sufficient return, if, indeed, the work itself is not entirely its own reward.

So down the pathway of wireless progress there runs this list of silent workers, known only to their own circle of adherents (a wide one, it is true), blazing a track and inscribing with their names a roll of honor which will last as long as wireless itself. And there is one thought and incentive which makes every experimenter keener in his hobby or profession, and which really sums up the desire of every radio fan.

**Who next is going to put his name to that list?**

## The Wireless Institute of Australia

### NEW SOUTH WALES DIVISION.

#### Certificates

There have been many enquiries concerning the Certificates issued by the Wireless Institute, in connection with the recent Exhibition. It is unfortunate that there has been some delay in connection with these, but the various obstacles have now been overcome and the Certificates are now ready. Those who are entitled to these Certificates should make a point of calling at the Institute Headquarters, 82 Pitt Street, Sydney, as soon as possible, where they may be obtained between the hours of 10 to 12 a.m. and 1 to 4 p.m.

#### Radio Relay League.

**Q.S.L. Cards.**—The Radio Relay League, under the auspices of the Wireless Institute have decided upon a form of Q.S.L. card and it has been decided to print a number of these for distribution amongst the members taking part in the Relay League activities. It is expected that these cards will be ready at an early date, and it should be the aim of every member to get as fine a collection of them as possible. It is encouraging to note the interest which is being taken by country members in the League's activities, and we are confidently looking forward to a similar response from Interstate members. Traffic Manager, Mr. Phil. Nolan (2YI) is particularly anxious to get into touch with Victorian amateurs with a view to establishing communication regularly, and those who are in a position to do so are urged to communicate with him immediately. The traffic is worked every Friday night from 10 to 11 p.m., on a wave length of 210 metres and an input of 10 watts.

#### A Matter for Investigation.

A curious phenomenon was noticed on the night of Tuesday, 12th July. Radiation strength for some unaccountable reason seemed to have fallen on sets which had not been adjusted since last they were successfully working, and receiving sets were similarly difficult to handle, and the results were not satisfactory. Observations were made in different districts in Sydney, and the same phenomenon was in evidence. With a view to solving this problem, if possible, all experimenters who noticed any difference in their sets on this particular night are asked to communicate with the Hon. Secretary, Box 3120, G.P.O., giving particulars of their set, details of the observations they made, and any suggestions as to the likely cause of the phenomena.

Reports are particularly invited from country experimenters, and those in the Eastern and Western Suburbs. A. H. Perrett, Publicity Officer.

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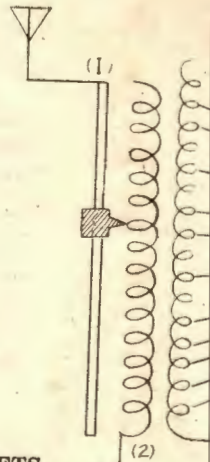
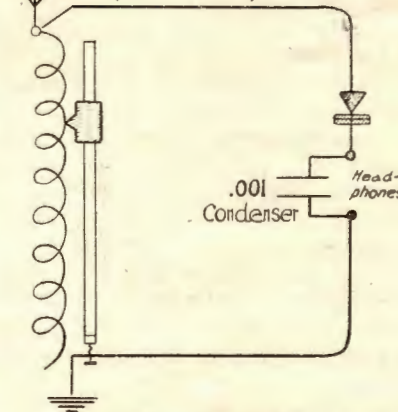
150 to 1200 Meters

1 Impregnated C.B. Tube	0	0	6
2 Maple Ends	0	2	0
4ozs. 24 Enamel Wire	0	1	1
1 N.P. Slider and Bar	0	2	6
2 N.P. Terminals, Aerial and Earth	0	0	8
1 N.P. Detector Unit	0	3	3
1 Guaranteed Crystal	0	1	0
2 Extra Phone Terminals	0	0	8
1 piece Ebonite	0	1	6
1 Phone Condenser	0	1	6
Aerial Equipment	0	7	0
			<b>£1 1 8</b>

**DOUBLE SLIDE CRYSTAL SET**

Similar parts as Single Slide Set	1	2	2
Additional Part: 1 N.P. Slider	0	2	6
			<b>£1 4 8</b>

**Circuit No. 1.**  
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**RADIO HEAD SETS.**

Mel. Single Hand Type	0	18	6
Murdoch's 2000 ohms	1	7	6
Murdoch's 3000 ohms	1	10	0
Picco 4000 ohms	1	5	0
Frost 2000 ohms	1	12	6
Trimm's Dependable	1	12	6
Siemens' 4000 ohms	1	12	6
New System's 4000 ohms	1	15	0
Frost 3000 ohms	1	17	6
Baldwin Single Unit	1	17	6
Radiola 4000 ohms	1	19	6
Brandes' Matched Tone	2	0	0
Dictograph, 3000 ohms	2	2	6
Western Electric 4000 ohm	2	0	0
Sterling 4000 ohms	2	0	0
Trimm's Professional	2	5	0
Western Electric 8000 ohms	2	5	0
Nutmeg 3000 ohms	2	10	0
Baldwin, with Mica Diaphragm	4	0	0
Brown's 4000 ohms	5	5	0
Brown's 8000 ohms, adjustable dia- phragm	5	15	0

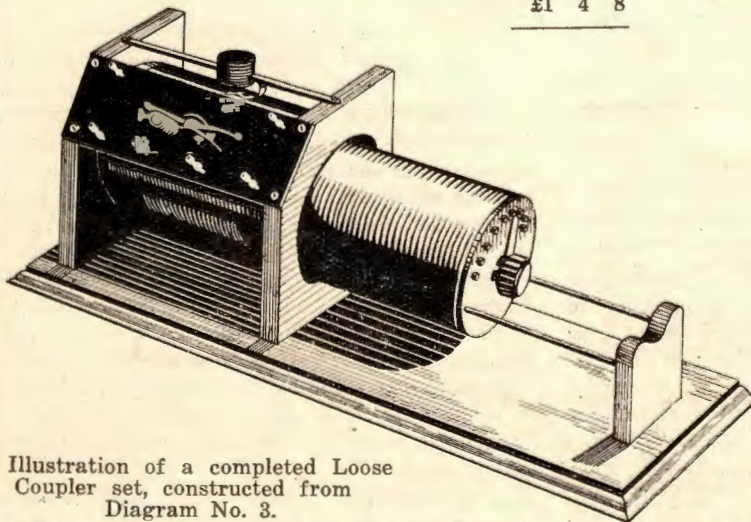


Illustration of a completed Loose Coupler set, constructed from Diagram No. 3.

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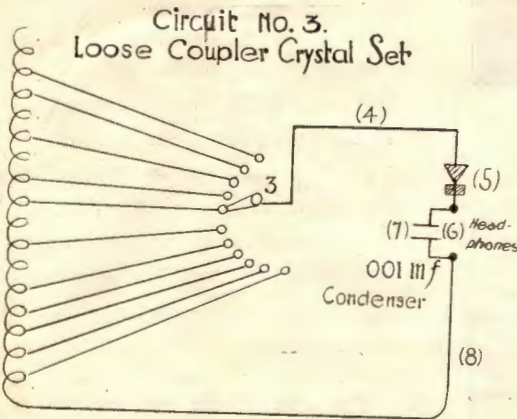
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1 pair Cardboard Tubes . . . . .	0	1	0
1 Set Maple Ends . . . . .	0	2	6
1 Maple Base Board . . . . .	0	3	0
8ozs. 24 Enamel Wire . . . . .	0	2	1
1 N.P. Slider and Bar . . . . .	0	2	6
10 N.P. Contact Studs . . . . .	0	1	1
2 N.P. Switch Stops . . . . .	0	0	4
1 N.P. Inductance Switch . . . . .	0	2	0
1 piece Ebonite . . . . .	0	1	6
1 N.P. Detector Unit . . . . .	0	3	3
1 Guaranteed Crystal . . . . .	0	1	0
1 each Aerial and Earth Terminals..	0	0	8
2 Extra Phone Terminals . . . . .	0	0	8
1 Phone Condenser . . . . .	0	1	6
2 Secondary Rods . . . . .	0	1	6
1 Slider Support . . . . .	0	0	4
1 yard Flexible . . . . .	0	0	3
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## Mosman Radio Research and Experimental Laboratories



Apparatus possessed by the Mosman Radio Research and Experimental Laboratories assembled at headquarters' Laboratory. The group in No. 1 includes three four valve receivers, one two valve receiver, and one single valve receiver, several crystal receivers, loud speakers, two frame aeri-als and numerous accessories.

Members in photo. 2, from left to right are: Messrs. Holmes, Naylor, Nunn, Crouch and Hale. It is anticipated that now such a fine collection of apparatus is ready for use, quite an interesting exper-imental future is before the Laboratories.

The photos' do not include three Marconi Bellini Tosi System Direction Finders now nearing completion.

The Laboratories have al-ready logged KGO on several occasions using only two tubes and in addition a great number of Australian and N. Z. amateurs. Work has now commenced in earnest.

(Continued from page 19)

rent very feeble but very rapid. As the negative part of the wave strikes the grid, it increases its power of preventing the negative particles getting across to the plate, but when the positive component strikes the grid it neutralises some of the negative charge and thus weakens the defence, with the result that the stored up electrons (negative particles) surge across to the plate carrying a current from Battery B, which of course flows through the telephones, and thus we hear the signal.

It must be obvious by now that the valve is a rectifier just as was the crystal; but in addition acts as a relay, and for this reason the valve is often known as a "thermionic Relay."

We now have an instrument in the valve which is able to pass on very weak signals in a very magnified form. It is also a curious fact that although the received signals with a valve are not actually produced by the incoming signal but by a battery, yet the control of the grid by the actual incoming signal is so perfect, that there is absolutely no distortion perceptible to the human ear. This does not apply however to the different pieces of apparatus used, and therefore in selecting a valve great care should be exercised in the choice of the other articles and the manner in which they are connected up.

It should be apparent from the foregoing that just as we can magnify the incoming signal, so we can go on adding more valves, thereby still more greatly magnifying the signal. This process is called amplification and is a subject of such importance as to deserve a special discussion to itself.

Due to having to give a series of lectures next week the writer will not be able to give a chat in the next issue, and would welcome some remarks—criticisms or comments—from the readers of

Wireless Weekly in order that he can form some idea of what is wanted.

(Continued from page 18)

you bring the one coil close to the other. Notice also the difference when one is moved away from the other. Leave it at its loudest spot as far as the coupling is concerned and scratch about the surface of the galena until you find the most sensitive spot.

Splendid little set, isn't it? Very well, I'll leave you with it, as I know that you are proud of it. I know I am because I can see big things in it. And I can see the joy it will bring to "kiddies" of from 3 to 60. That alone repays me for the time spent in perfecting it, and I am sure many will be made at various homes.

In passing, I want to mention that the selling rights of this complete receiver are reserved. Since the photograph of this set was taken I have noticed an improvement by shunting the phone terminals with a Wetless .001 phone condenser. Get one, they're good.

My own complete set can be seen any day up to the 27th inst., in the shop window of Mr. E. R. Cullen, Bathurst St., between Pitt and George Street, Sydney. And please don't break the window!

QUESTIONS AND ANSWERS.

J.R.M. (Sydney): A simple three coil regenerative receiver as described in Wireless Weekly of August 8th will give better all round results. There are several good standard makes of Grid Leak. The life of the cell would depend upon the make. Your aerial could be ten feet higher, but you should get all Sydney and probably Victorian amateurs on the set mentioned above.

THE POSTMAN

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To the Editor, Wireless Weekly,  
33/37 Regent St., Sydney.

Please forward me for..... months "Wireless Weekly for which I enclose ..... plus exchange of country cheque.

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Signed ..... Address .....

Annual Subscription, 13/-, post free.



"Pipitea," Grose St.,  
 Laura, 12/8/'24.

(Editor, Wireless Weekly.)

Dear Sir,—

I have been in receipt of a number of Q.S.L. cards during the last few months, acknowledging reception of my transmissions.

This is quite astonishing, considering the fact that while driving a motor cycle three months ago I happened to bump a motor car. Serious injuries resulted which have placed me on my back some considerable distance from my set so that unless someone else has been working it, I don't know how the sigs. got out. As I have every prospect of remaining in bed for a few more months, I am taking this opportunity of telling any amateur who may hear "2BM" that the signals do not originate from my station, but from some unauthorised station, the owner of which is using my call sign.

I would be grateful to any amateur who would supply me with wave length, etc., of any transmission under the call of 2BM.

Thanking you for your valuable space.

Yours etc., E. T. VEARS.

Sale, Victoria,  
 12th August, 1924.

(Editor, Wireless Weekly.)

Dear Sir,—

I read of Mr. England's crystal record in Wireless Weekly, of June 20th.

It might interest you to know that I am able to receive Farmer's station every night I listen in. My set is a single slide crystal set (home made). The distance between 2FC and my station is just on 500 miles.

If any doubt should arise concerning my reception, I will furnish the names and address of witnesses.

Wishing you every success to your journal.

Yours etc., C. NEWNHAM.

(Editor, Wireless Weekly.)

Dear Sir,—

Here with my D.X. report which may be of interest.

I am only using two dry cell valves, a D.V.3, as detector and UV 199 as audio amplifier.

My station is about 300 miles west of Sydney.

N.S.W.: 2ZE, 2BL, 2RJ, and 2CM can be heard clearly with the phones on the table, under favourable conditions. The rest of these stations come in Q.S.A. with the phones on.

2HM, 2GO, 2UW, 2ZX, 2SO, 2YG, 2ZG, 2RA, 2WV, 2YI, 2CR, 2BM, 2YA, 2ZH, 2DS, 2IJ, 2BK, 2JM, 2BF, 2GR.

Victoria: 3ZL, 3AR, 3BH, 3GI, 3BD, 3BU, 3SM, 3BQ, 3LM, 3JP, 3BK, 3UZ, 3RY, 3FH, 3XN, 3EL, 3XF.

Queensland: 4AC, 4EG, 4AE, 4CM.

South Australia: 5BQ, 5BG, 5BM, 5AI, 5FT, 5BF, 5WJ, 5LO, 5BN, 5BD, 5AD, 5BS.

New Zealand: IYA, 4YA.

America: K.G.O. This station was first heard on 24/7/24, and most of the announcer's speech was copied. The music was also very good. I get this station on my two valve set at fair strength between 6.30 and 7 p.m. every time they are transmitting.

Have also heard the following stations during the daytime on two valves: 2ZE, 2BL, 2WV, 3AR.

With best wishes for the further success of your paper, which I read every week,

Yours etc.,

A. H. CLANCY,  
 Experimental Radio 1165.

"Kaloola," Stoney Point,  
 Leeton, N.S.W.

12/8/'24.

## QUEENSLAND WIRELESS NOTES

(From our Special Correspondent)

In conversation with Brisbane transmitting station, 4CW, the other day we were informed that he shortly intends to go on to higher power. At present he is using somewhere about  $\frac{1}{2}$  watt, and obtains this from dry cells. He is working under considerable disadvantage, and is to be complimented on the quality of his transmission. He is one of our most regular transmitting stations at present, and we feel sure that we shall hear of big things from him in the future.

On Wednesday, the 6th inst., the Brisbane Centenary Celebrations' Committee held its monster procession. Included in the procession was a display by the Queensland Wireless Institute. The lorry was fitted with a 4 wire miniature aerial. Good advertisement was obtained by the aid of a Magnavox loud speaker and a microphone. The voice was heard well above the noise of the crowd.



### THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

The first lecture of the new syllabus was delivered by Mr. R. C. Caldwell, at the 93rd general meeting of members, held at the club-room, 176 Johnston St., Annandale, on Tuesday, August 12th.

Mr. Caldwell's audience was a large one, and his lecture, "Aerial and Earthing Systems" very interesting and instructive. He dealt very thoroughly with his subject, carrying his listeners through the various stages of antennae construction, right from the commencement of radio communication to the present day. The numerous types of aerials were described in detail, and their various uses explained.

At the conclusion of the lecture, Mr. Caldwell was called upon to reply to many questions relative to his subject, after which a vote of thanks was carried by acclamation.

Amongst other business transacted, a number of members were appointed to take part in the debate to be held at the following meeting, when "Dull Emitter Valves v. Other Types" would be thrashed out.

Next Tuesday night the Society will hold its 95th general meeting, when "Tuning Elements" will be lectured upon by Mr. F. Thompson. This will be the second lecture of the new syllabus, and others will follow at regular intervals.

Information regarding the activities of the Society may be obtained on application to the Hon. Secretary, Mr. W. J. Zech, 145 Booth Street, Annandale.

### WOOLOOWIN RADIO CLUB.

A meeting of radio enthusiasts in the Woolloowin district of Brisbane was held on Monday, the 4th inst. There was a fair attendance, and it was decided to form a Radio Club for the advancement of wireless in this district.

The following officers were elected for the year:

Patron, Mr. M. McCallum; President, H. King-ton; Secretary, H. A. Jaier; Treasurer, F. Williams.

The club resolved to meet on the second and fourth Mondays of every month in premises at the corner of Fraser Street and Kedron Park Road, Woolloowin, and will welcome any new members.

The first object of the club is to obtain a transmitting set, and already several schemes are in view.

It is also hoped to give practical demonstrations of wireless reception in different parts of the district.

### CROYDON RADIO CLUB.

The usual weekly meeting of the Croydon Radio Club was held at the club rooms, "Rockleigh," Lang St., Croydon, on Saturday, August 9th at 7.30 p.m., when all business on hand was rapidly transacted.

Having postponed the invitation to a club it was decided to devote the evening to a questions' competition.

Prizes were offered by Messrs. Cutts and Ledger for winner of the competition. The judges appointed were Messrs. Cutts and Ledger. The competition was keen and on the whole proved very instructive and interesting, as every member of the club did his little bit.

Winners of competition were Mr. Lucuck, Mr. Thrum and Mr. Cusiter.

Mr. G. M. Cutts reported on the delegates' meeting.

The meeting closed at 10 p.m.

### WAVERLEY RADIO CLUB.

Mr. M. Perry presided at the meeting of the Waverley Club, held on the 12th August. There was a fair attendance.

The correspondence included a letter from "Wireless Weekly" asking the Secretary to submit a photo. for publication. The Secretary, Mr. R. Howell consented to this after some persuasion. A new member was enrolled after the correspondence had been dealt with.

Mr. G. Thomson then gave an interesting address on transmitting circuits, and the Club's transmitter in particular. The Kolpitz Hartley and other circuits were each dealt with in an interesting and instructive manner.

### STRATHFIELD AND DISTRICT RADIO CLUB.

At the weekly meeting on Thursday last there was the same large attendance, that marks the interest of our members.

Arrangements were practically completed for the club's concert to be held at the Burwood School

(Continued from page 29)

of Arts, Burwood, on the 15th September.

There will be an excellent programme, the first half of which will be given by the Artarmon Glee Men and also a Wireless Demonstration by the New System Telephones Ltd. This will be ably supported by local artists. The tickets are on sale now, so secure your requirements early.

This Club is out to assist everybody, and to arouse interest in wireless in people who up to date have only a passing interest in this most fascinating and instructive hobby and with that view we want 50 new members during the next month. Will you make one? We assist in any way with instruction in wireless matters generally, and advise as to what set, how to make it, etc.

Our supervising committee consists of an ex-military wireless operator and mechanic, also an ex-ship's operator who served in the war zone during the war, and an electrical fitter who is employed in the wireless trade at the present time. These gentlemen are backed up by two other ex-

perimenters who have had some 8 years' active experience in wireless work. You are cordially invited to attend at the club room, at the corner of Albert Rd. and Duke St., Strathfield any Thursday night, when an opportunity will be given of seeing what this most progressive club is doing before joining.

Although only in existence 4 months we have a very large membership, but of course it only follows that the more members in the club the more work can be done. Launch, and bus picnics will be a feature of the social side of the club, through summer, and we can assure everyone a good time.

Buzzer practice on a Tuesday night is progressing slowly but surely, and competition is keen for the club's prize in December.

The Secretary is Mr. M. Wraxall, of "Almor," Long St., South Strathfield, who will be pleased to answer all enquiries from intending members at any time.

## Radiola Crystal Receiver

**T**HE demand for efficient crystal receivers has been met by Amalgamated Wireless (A/sia) Ltd., in the manufacture of large numbers of highly efficient attractive sets which will be shortly on the market at a very reasonable figure.

**Guarantee**—The Radiola Crystal Receiver is of the highest quality workmanship and design, while the trade-mark "A.W.A." in each instrument is a guarantee of performance.

**Simplicity**—Simplicity is its keynote so that it can be operated by anyone, while its low price is within the reach of all.

**Range**—The distance over which this instrument will receive good signals from the average broadcasting station is about 15 miles, when used with a good aerial and in places where local conditions are known to give average reception. Its most popular application will, however, be within the city and suburbs.

**Crystal**—The Crystal and spiral contact wire are enclosed in a glass tube which protects them from dust and dampness, and ensures permanent adjustment. The crystal may be quickly and conveniently changed, and the spring clip crystal holder ensures good electrical contact for any form of crystal.

**Upkeep Costs**—No accumulators or batteries are required, and the expenses of upkeep are absolutely nil.

**Compactness**—The instrument is self-contained and only needs connection to an aerial and earth

system, and the attachment of a pair of telephones to be ready for immediate use.

**Tuning**—The use of variable inductive coupling ensures the greatest selectivity and freedom from atmospheric disturbances. Tuning coils are interchangeable so that by using coils of suitable values any required wave length may be obtained.

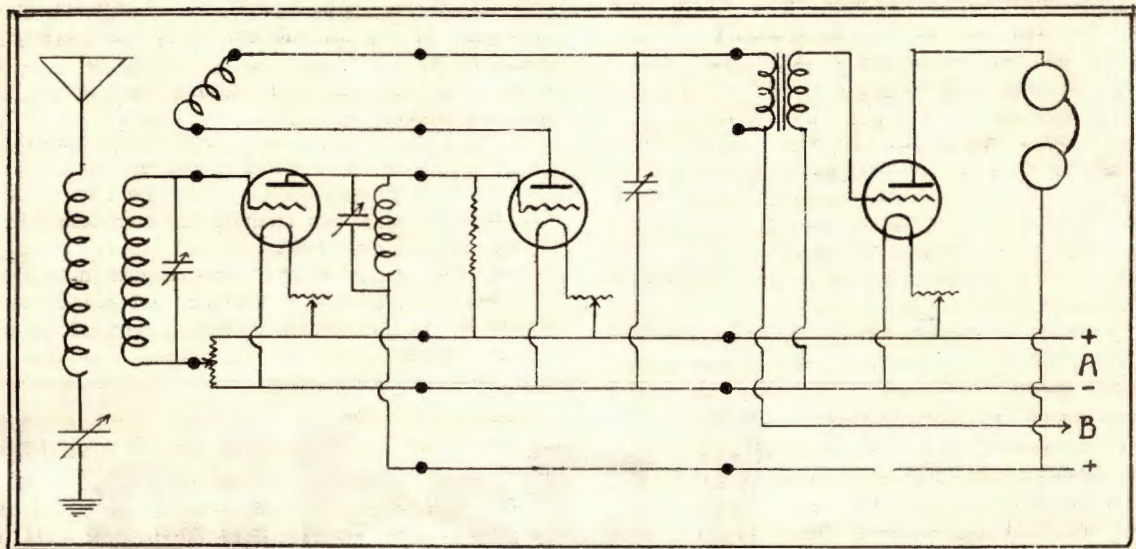
**Specifications**—The instruments are mounted on best quality bakelite ensuring high insulation.



Connections between the various instruments are made at the back of the panel by rigid wire, thereby avoiding the possibility of short circuits, and by keeping the connections as short as possible the overall efficiency of the receiver is increased.

The variable condenser used to tune the aerial circuit is a high-grade commercial instrument and enables finest tuning to be effected.





### PROGRESSIVE UNIT PANEL RECEIVER

Here is the circuit used by Insulator in the popular three valve tuned anode receiver described by him recently in Wireless Weekly. A slight error crept into wiring diagram, Fig. 6, a connection being shown running from one side of the telephone to the filament. This should be eliminated and this filament terminal be connected to the positive of the A Battery.

#### BRINY REMINISCENCES

CONTINUED.

(By Brasso.)

Sleep that night was impossible—no sooner did I doze off into a fitful spasm than a huge sea hit with a crash and the gallant barque shivered and trembled as though she were falling to pieces. Each half hour the deep tone of the bell on the bridge boomed above the howl of the wind and at rare intervals came the faint mournful cry of "All's well" from the look-out in his crow's nest perch high up on the foremast. With one eye open I watched the first gleams of wintry daylight peep in through the port-gingerly out on deck at 7.30 I observed that the scenery was entirely taken up with a mass of angry ocean. To my cheery "what ho!" to the 4th officer on the bridge that worthy grinned sourly and resumed his contemplation of the wonders of nature over the canvas dodger. Breakfast was a mere for-

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**Accessibility.**—The bakelite panel which acts as a lid to the receiver case is opened by simply releasing one nut, when the whole of the wiring is exposed to view and may be readily inspected or altered.

The set is supplied with one set of special coils totally enclosed in neat ebonite covering at £4/5/- or with two sets capable of covering both Sydney broadcast services at £5.

#### Special Features

A.—Can be operated by anyone not possessing technical knowledge.

B.—Glass enclosure protects crystal from dust and dampness.

C.—Spring clip crystal holder allows quick changing of crystal and ensures perfect electrical contact.

D.—Highly selective tuning by reason of coupled circuits.

E.—Fine tuning is obtained in the aerial circuit by means of a variable condenser.

F.—The hinged ebonite panel held in position by one clamping nut enables the complete wiring to be quickly examined.

G.—Additional coils can be carried in box.

H.—Price £4/5/- with one set of special ebonite covered coils or £5 with two sets of ebonite covered coils.

Since no one had laid down any definite hours of watch keeping, I used to more or less please myself, and during the day just blew in whenever I thought necessary. When ever a cruiser hove in sight, I used to dash away from my game of poker in the chief officer's cabin and go up and don the phones. Nothing forthcoming, I put them up on the nail in the wall and went back to resume the game. At night however, I religiously stuck to the operating room chair from 7 till midnight. It must be confessed that I was, at that time, not unduly impressed with the importance of my position—nor for that matter was anybody else. It was not until months later that it was brought home solidly to the whole mercantile marine that whenever a ship got into a tight corner, about the only man on board who amounted to a brass farthing was our young friend, "Sparks." Navigation officers of course will pooh pooh this statement, but the fact remains—'twas even so. He was the only link between salvation and perishing in the open boats on the Atlantic in the depths of winter. Yet it is a fact that he was often hampered and his efforts nullified by all sorts of fool regulations. At one point during the war, because some irresponsible idiot sent out an unauthorised signal, orders were given that on every ship, a control switch was to be placed in the captain's cabin. The idea was to force the operator to approach the Captain before the set could be worked; for, unless the switch was

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in, the main transmitter was entirely out of action. If the Captain were in some other part of the ship, he would have to be located and induced to go to his room to throw in the switch so that the wireless installation could be ready for use. Later on, a control box was installed in the wireless cabin. Through this passed the leads of both the main and the emergency transmitters. The master key was in the possession of the Captain, who, quite frequently, mislaid it.

On one occasion, on a certain ship, we travelled for seven days through the danger zone with the main transmitter out of business, because the captain had put the control switch away so safely he couldn't find it again. Eventually it was located in the engine-room. Deliberately, and in cold blood, I broke the hidebound rules and ran temporary wiring from the accumulators to the emergency apparatus, just in case it should be needed. In the case of many of the old shellback type of skippers who had been accustomed to shooting the noonday sun with a hambone, and who knew as much about wireless as most of us know about astronomy, the importance of seeing that the wireless was always ready at a moment's notice was rarely realised, and when we consider that a large number of torpedoed vessels disappeared within only two or three minutes, it would be interesting to know how many lives were lost because the control key was not forthcoming. Some skippers, however, fully alive to every possible emergency, simply put the key into position and left it there, thereby giving the operator a fair and open go when the time came for stepping lively. There were several other fool regulations millstoned around the necks of wireless operators, and as no means were provided for pointing out their hampering effect, they simply had to be put up with.

However, after three days' banging and crashing from one Atlantic roller to another, we finally rounded Ushant, headed along in calm water for Liverpool, and berthed in docks crowded to overflowing with shipping. Six weeks passed before the "Bakara" commenced discharging her cargo, and it was over two months before we left there, coaled at Cardiff, and departed again for Port Said. And here, Johnny B., still probably nursing a lingering suspicion that I might possibly belong to the genus Hun, pulled off a masterly stroke of diplomacy, which effec-

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tively put the tin hat of any traitorous intentions I might have had towards doing a little signalling to the German submarines. Right in the middle of the danger zone—from Cardiff down to the Bay of Biscay—he kept the aerial lying on the deck. Thus, had the ship been torpedoed, not a soul outside those on board would have been the wiser, and no warning could have been given to any other ship in the vicinity, which may have been running right into the same ambush. However, 'twas gallant deeds such as this that won the war, and since good luck attended us, all was well that ended well. Beyond making a note in the log, having it witnessed, and keeping the page handy to take away with me should anything happen, this piece of criminal stupidity left me quite cold. The captain beyond all doubt meant well, and being endowed with a fair sense of humor I often pulled off a quiet joke on the strength of things.

Calm seas marked our passage right through to Port Said, where we arrived just in time to see the mass of ships being got ready for the onslaught on the Dardanelles. This place I was destined later to see, but from the comparatively safe vantage point of a ship's deck.

A direct run of thirty-three days in perfect weather from Suez brought us to Melbourne, where a strenuous attempt was made to shanghai me to the ex-enemy station Wilhelmshaven, New Guinea. Not being anxious to provide a meal for malarial bugs, however, I sidestepped this, and, in a thoughtless moment, signed the Infamous Document. Transport operators will have a vivid recollection of this scrap of paper. When a man signed it, he virtually gave himself body and soul into the keeping of the Naval Department to do with as they thought fit. He agreed to hold himself in readiness to be attached to the fighting forces, afloat or ashore, in any part of the world—in short, to do any old thing that was required of him. This, however, gave him no claim on the Government for any pension or other compensation, nor did it permit him relinquishing his seagoing task in order to throw in his lot with the A.I.F. or the Pommies, unless he was fortunate enough to have some political pull powerful enough to drag him out of it. Wireless men in those days were scarce, and it will be plain that those that were in the grip of the transport service had, willynilly, to stay there. The signing of the document had a twofold effect. Interpreting the letter of it, a man was actually a naval

rating without being granted the somewhat doubtful privileges attaching to that rank. If any matter cropped up under which the wireless operator might reasonably be expected to benefit by virtue of being in the service of the Australian Navy, then for the purposes of that particular instance he was not attached to the navy, but to the "peaceful" service of the Mercantile Marine. If, on the other hand, some benefit might accrue from the fact that the operator was serving on a merchant vessel, then the shipowner always used the comeback that our operator friend was under the navy, and was, therefore, not a participant along with the other members of the ship's crew. So it is easily seen that

the unfortunate transport operator got it in the neck both ways. All this, of course, was before the days of the Radio Telegraphists' Institute, and it goes without saying that had that organisation under its present highly efficient leadership been active at that time, then the brains which conceived that brilliant document would never have been allowed to put it into effect—nor would boys of 18 and 20 been left to wander about London for weeks eking out a miserable existence on 3/- a day, which, by the way, they received *after* they got back to Australia waiting for a ship back to Australia, tralia.

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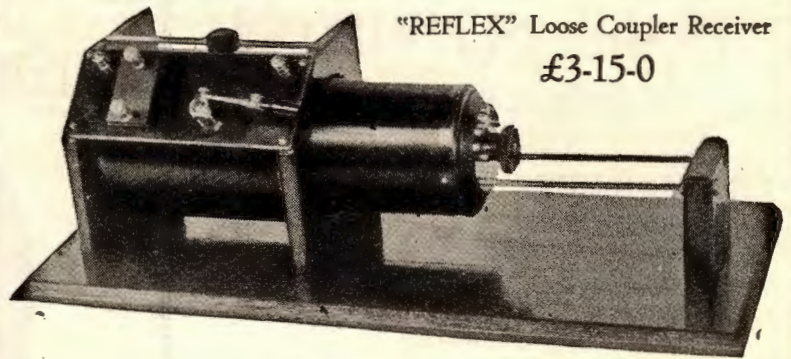
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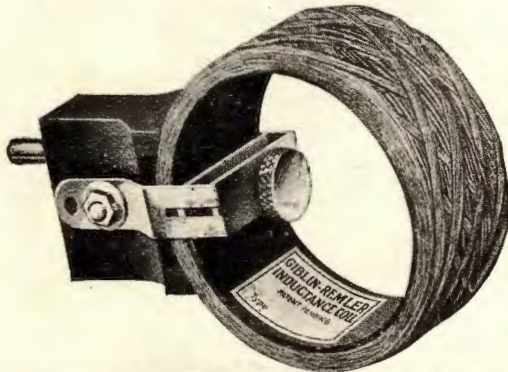
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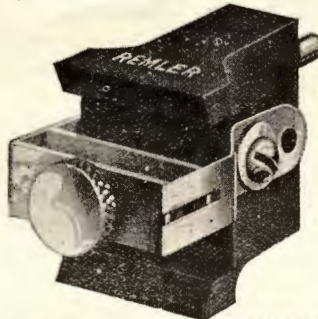


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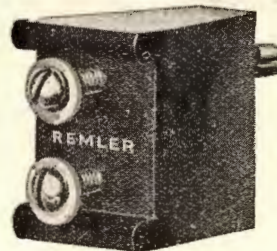


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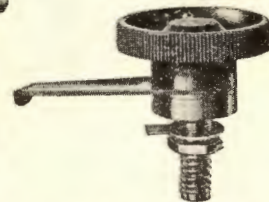
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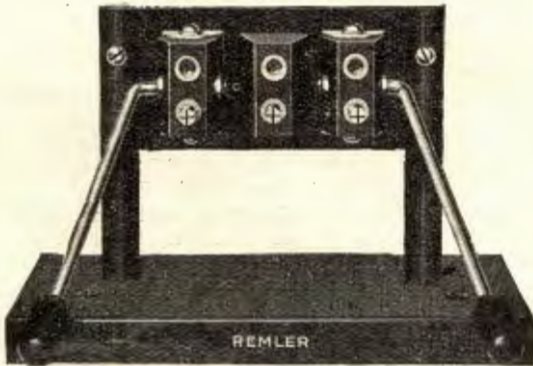
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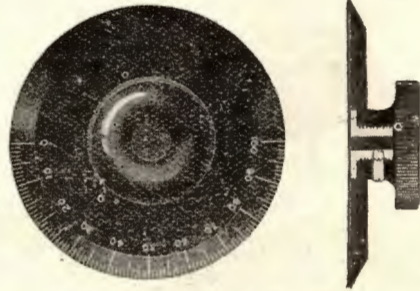
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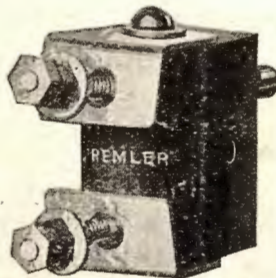
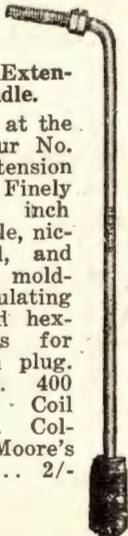


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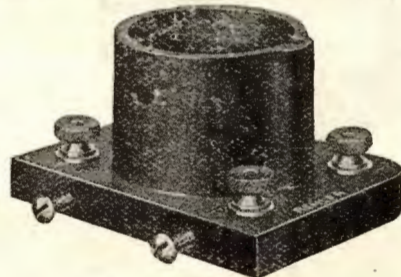
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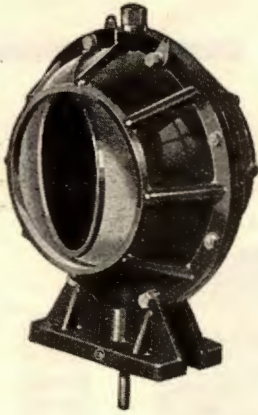
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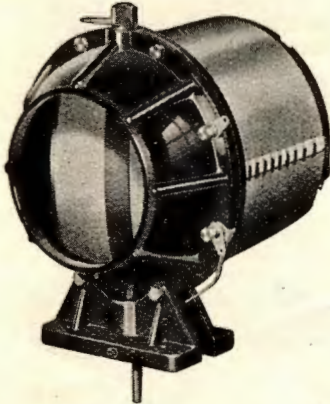
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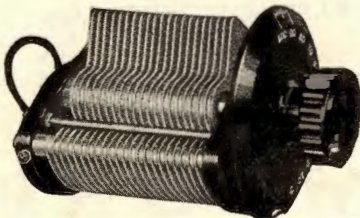
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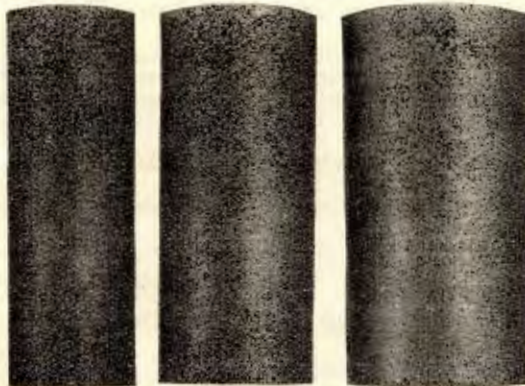


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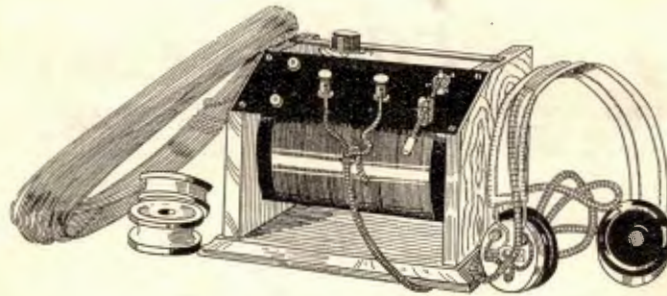
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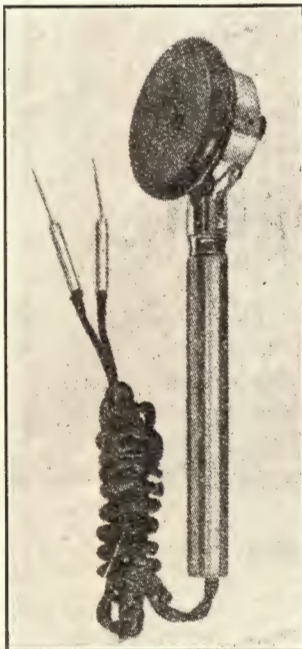
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