

W. Wooden Plinth.

P. Brass Base.

T. Terminals.

B. Bearing and Pivot.

A. Arm.

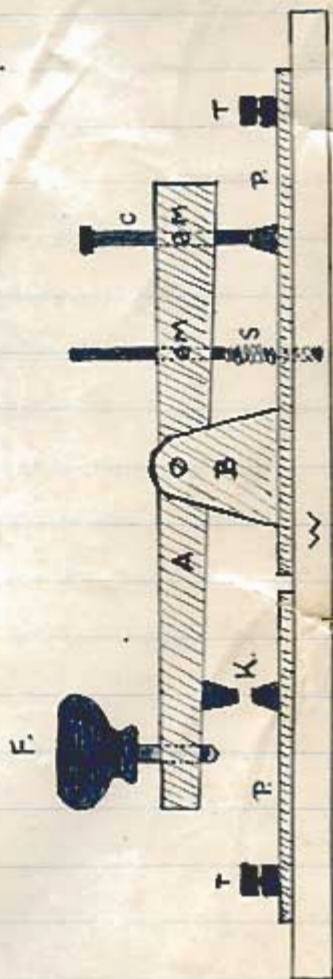
C. Beat Regulator.

S. Tension Spring.

K. Contact Studs.

F. Finger Piece.

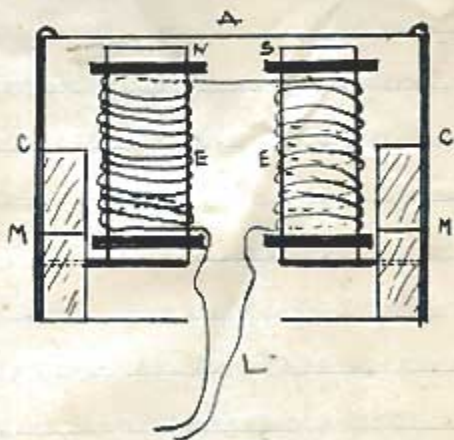
M. Clamping Screws



Tapping Key.

A VARIATED current passes through the ElectroMagnets or induction coils on the RECEIVER causing the tin diaphragm to vibrate according to the variation in the current, and at the same time, causing the tin diaphragm in the receiver, to vibrate the same as the diaphragm in the Transmitter. The distance between the tin diaphragm and the poles of the coils is about $\frac{1}{10}$ of an inch. The diaphragm must be kept perfectly flat, and the ear cap must be screwed on level and clamped down tightly.

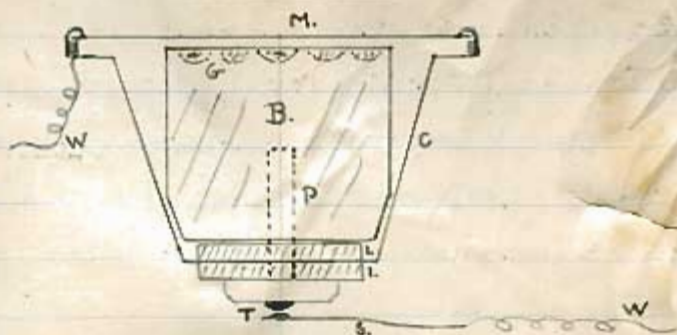
SECTION OF RECEIVER.



- A. Iron (tinned) Diaphragm. (or Ferrotype)
- C. Metal Case.
- M. Permanent Magnets (Rings)
- E. Electro Magnets.
- L. Leads (Wiring) to electromagnets from transmitter.

THE speech causes the Carbon Diaphragm in the Transmitter to vibrate according to the different sounds in the speech, this causes a crushing of the carbon granules, which are behind the diaphragm, and at the same time, causing the granules to make better contact therefore making a variation in the current of electricity flowing. The carbon diaphragm must not be cracked. It must also be kept quite dry or the granules will become clogged and so cause poor contact the result being a sluggish speech as heard in the receiver.

SECTION OF TRANSMITTER.



M. Mica diaphragm.

W. Positive and Negative wiring.

B. Carbon Block.

P. Screw pin.

S. Contact spring.

T. Platinum tips.

C. Case

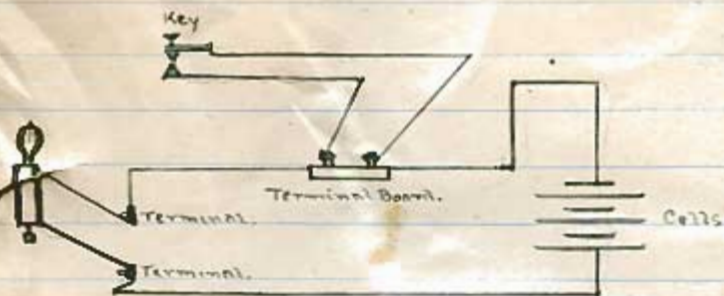
G. Cups containing carbon granules. (13)

I. Insulating blocks.

The carbon granules, or shot, are hollow.

In some transmitters a grain of carbon takes the place of shot.

ELECTRIC LAMP.



Front Compartment contains 3 'S' type cells in separate compartments with a drop door and catch. The optical arrangement which contains a 2½ inch Parabolic glass reflector fitted in an aluminium tube. The bulb is held in a carrier which is capable of movement for focussing.

Ebonite terminal board and a brass tube containing 3 spare bulbs.

Centre Compartment 3 Inert 'S' type cells

Rear Compartment contains small oil lamp and an oil tin. Key is enclosed in water-tight case on top of lamp with 8ft of flexible lead.

Electric Lamp Contd.

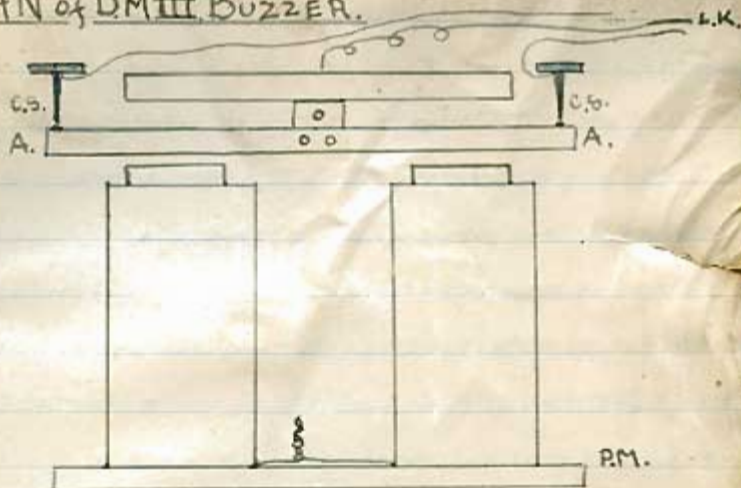
Sighting Tube is fitted on underside of Lamp
for aligning purposes.

Weight of Lamp 12 lbs 3 ozs. Weight of
Case 3 lbs 7 ozs.

WIRING OF D.M.III BUZZER.

D.M.III Buzzer has 3 windings. Two primary and one secondary. The two primary windings operate the Buzzer the current is then induced into the secondary winding. The microphone can be placed into No. 2. Primary winding by means of the Pressel switch which does not operate the Buzzer the circuit being induced into the secondary winding which leads out to Line and earth.

PLAN of D.M.III BUZZER.



L.K. Line to Armature from Tapping Key
and cells.

P.M. Permenant Magnet.

C.S. Contact screws No.1. and No.2.

A. Seesaw armature

A CONDENSER consists of two strips of tinfoil and two sheets of wax paper in alternate sheets. These are folded bellows fashion so that space may be reduced to a minimum and still have a large face area. ONE strip of tinfoil becomes positive and the other negative. A condenser will allow an alternating current to pass through but not a continuous one. The condenser is used for two purposes, i.e. Tapping in and increasing strength of Buzzer. A telegraph line can be used for tapping in as the current is a continuous one and as the condenser will not allow this current to pass through, telephone messages will not interfere with line. To detect Telegraph line apply tongue to wire when it should have salty taste. Telegraph lines usually run in pairs.

AN INDUCTION COIL consists of a wooden bobbin with a core of strips of iron wire. Two windings of insulated wire are wound around the bobbin. This is sometimes called a transformer. The first winding of wire is short and thick. The second winding being long and thin.

Simple Telephone System.

There are only 3 Circuits in a Telephone.

No I. A Signalling or Warning Circuit

No II A Speaking Circuit

No III A Receiving Circuit

K... Tapping Key to Buzzer

T... Transmitter

P... Primary Wiring

S... Secondary Wiring

C... Condenser

CL... Condenser Line Terminals

R... Receiver

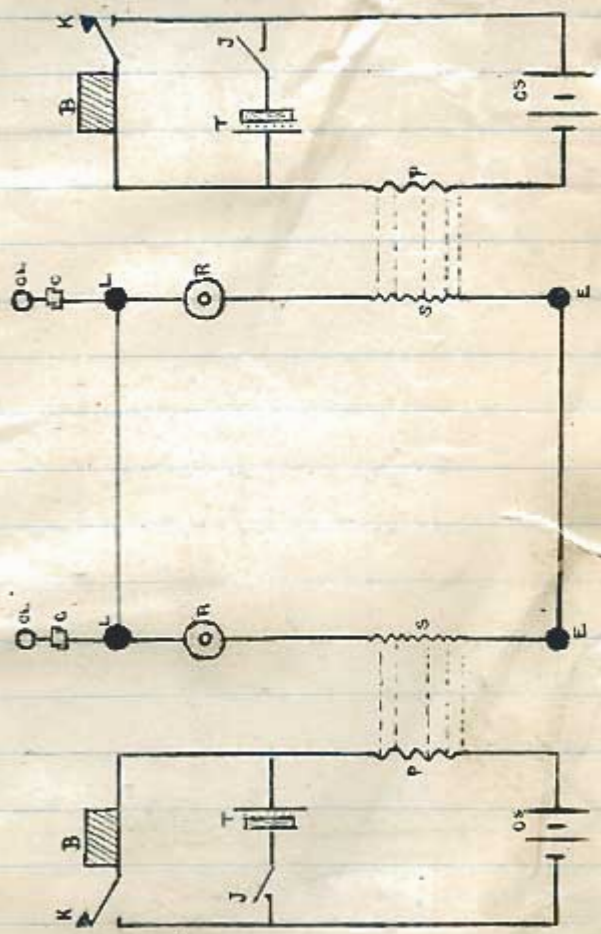
B... Buzzer

J... Key (Press & Switch)

E... Earth Terminals

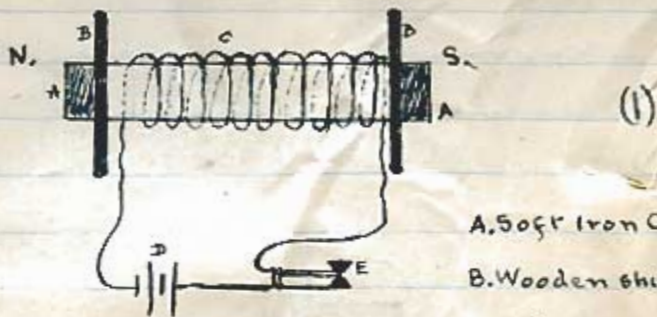
CS... Cells

L... Line Terminals

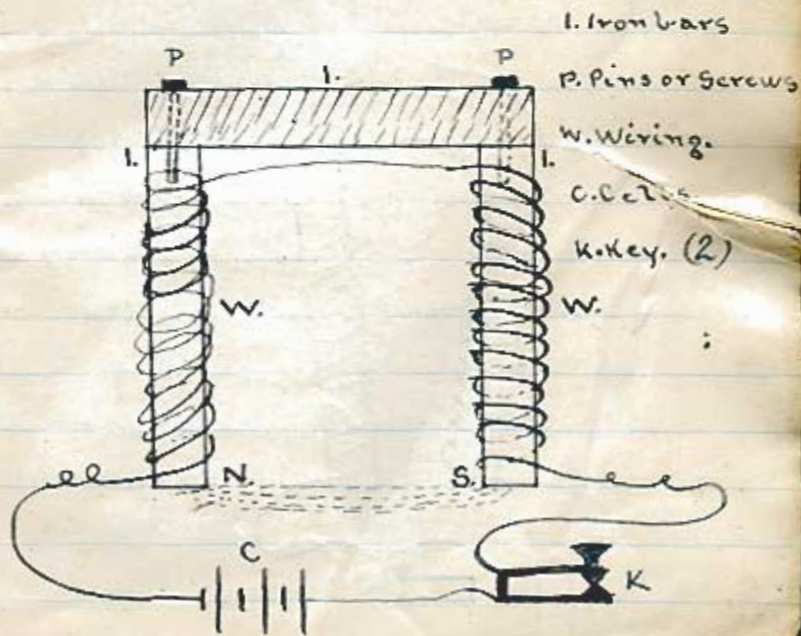


An Electro Magnet.

(Various kinds)



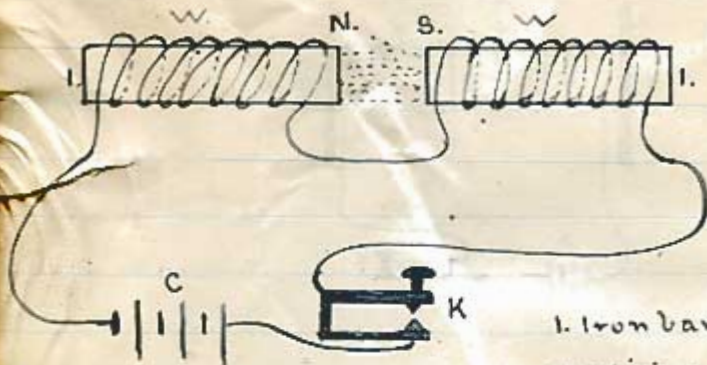
- A. Soft Iron Core
- B. Wooden shields
- C. Wiring
- D. Cells.
- E. Key.



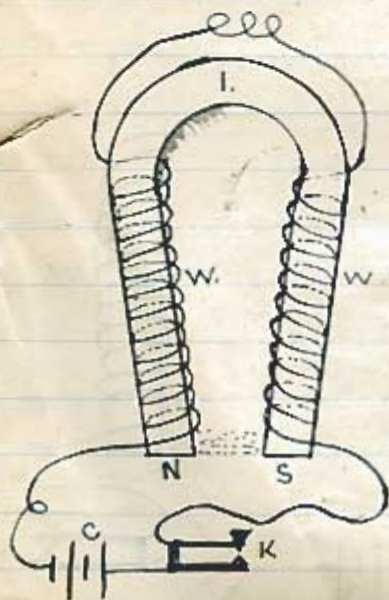
- I. Iron bars
- P. Pins or screws
- W. Wiring.
- C. Cells.
- K. Key. (2)

ELECTRO MAGNETS.

(3)



I. Iron bars
W. Wiring
C. Cells.



(4)

I. Iron bar.
W. Wiring,
C. Cells.
K. Key.
N. North Pole
S. South Pole

What is Magnetism?

Particles or Molecules in Iron or Steel which are affected by an Electric Current.

The origin of Magnetism is the Lode Stone.

A Magnet can only be made from Good Steel or Soft Iron.

An ElectroMagnet consists of an iron core, wound with a number of layers of insulated Copper wire. The more layers of wire the greater the Lifting Power.

Magnetic Attraction is caused by different molecules in the iron core being drawn in the same direction in which the current is flowing, at the same time, other molecules are being sent in the opposite direction, therefore, making those which are being sent in the same direction as the flow of current, form a South Pole, and those which are sent in the opposite direction form a North Pole. The molecules only remain at the ends of the iron core, whilst the current is flowing.

L. Line Terminals

C. Central Terminals to Central Telephone

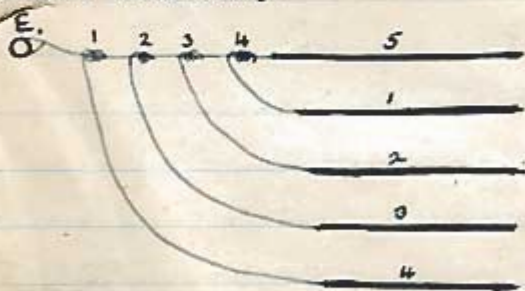
C. 1. 2. 3. 4. Central Plug Holes

E. Earth Pin or Metallic return Terminal.

R. Receiver.

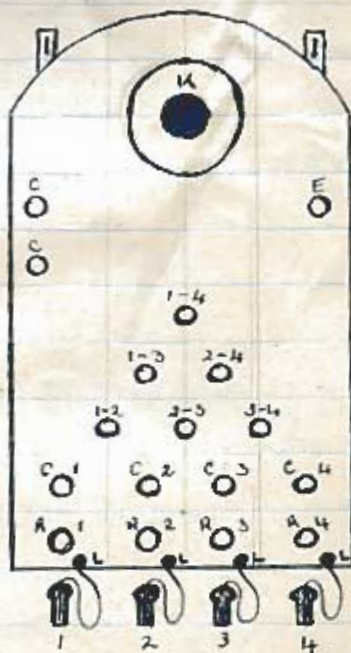
R. 1. 2. 3. 4. Plug Holes

To Attach Metallic Returns to "E" Terminal
From Distant Stations.



To Keep Exchange Board free from wet,
Dip in oil or grease.

FIELD EXCHANGE BOARD.



METALLIC RETURN SWITCH BOARD.

A. Call Rack.

B. Through Rack.

C. Operators Rack.

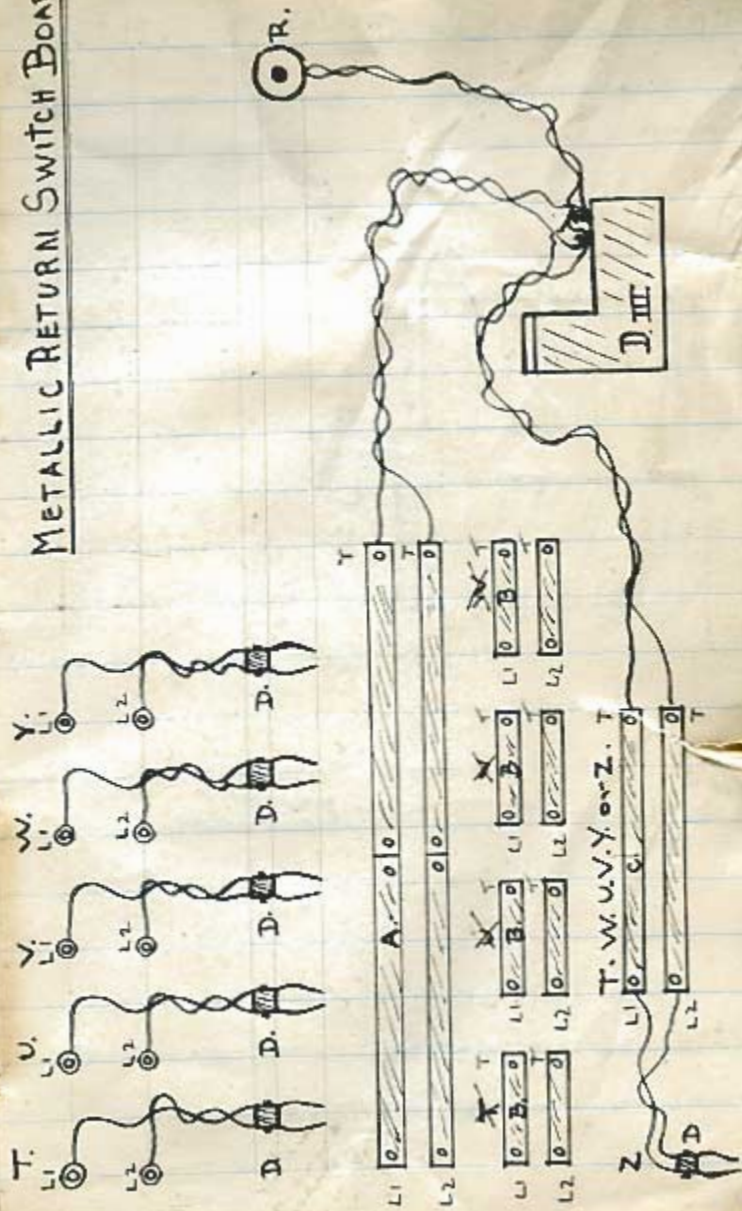
D. Plugs (Metal Springs Wood insulating block)

R. Receiver.

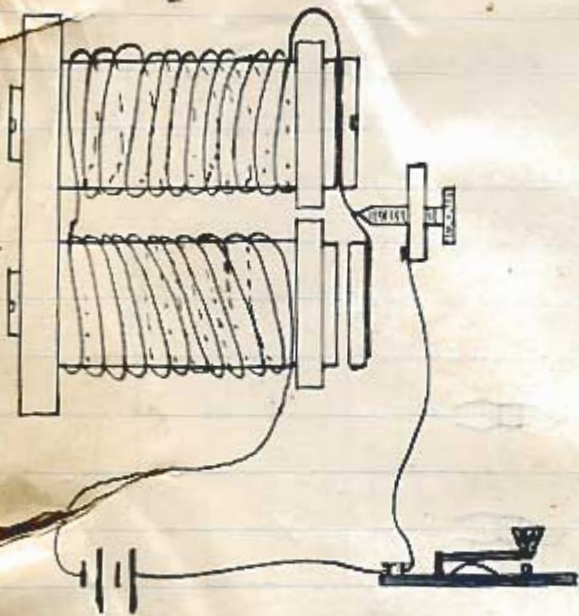
T Screw Terminals

Racks are brass strips screwed to wooden base.

METALLIC RETURN SWITCH BOARD.

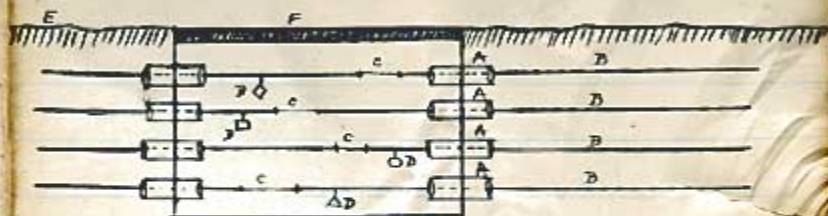


Telephone Buzzer D.M. II.



The contact screw point, and a point of contact on Armature, are tipped with Platinum.

FIELD TEST BOX or Tap in Box.



E. Ground Line or Level

F. Lid of box (hinged)

A. Rubber tubes for insulation and protection.

B. Lines

C. Barbed wires

D. Identification labels or discs

Bottom of Box to be removed so that water may drain away.

The best cables for Telephony by buried wires are DM III, DM V or armoured cable.