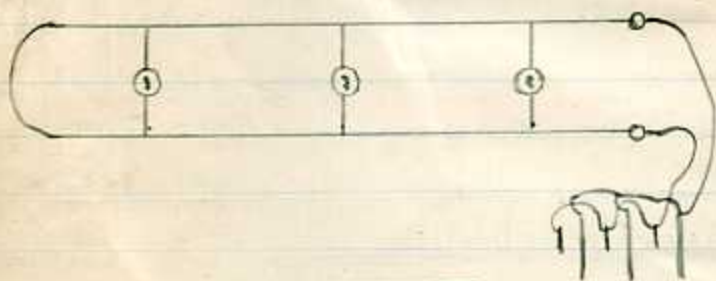


PARREL wiring of cells (see diagram) does not increase Voltage but increases life or duration of cells

LIGHTS are generally wired in "parrel" so that if one lamp bursts the other lights are not affected.



## ELECTRICITY.

1 Volt: is the unit of electric motive force or the pressure of the current flowing.

1 Ampere, is the unit of current strength or the amount of current flowing

1 Ohm: is the unit of resistance

THE RESISTANCE of a conductor depends upon the following:- (a) its diameter (b) its length. (c) its temperature and (d) the material from which it is made.

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A CONDUCTOR is a substance which will convey, or allow, a current of electricity to pass through it.

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A NON-CONDUCTOR is a substance which will not allow under ordinary conditions a current of electricity to pass through it.

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ACIRCUIT is a path which is capable of carrying a current which will finish where it started. A circuit starts from a positive pole and returns to the negative pole.

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ASHORTCIRCUIT is the nearest path from positive to negative.

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There are three varieties of current  
(a) STATIC. (b) ALTERNATING. (c) CONTINUOUS.

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STATIC CURRENT is electricity in its natural form being all voltage and no amperes.

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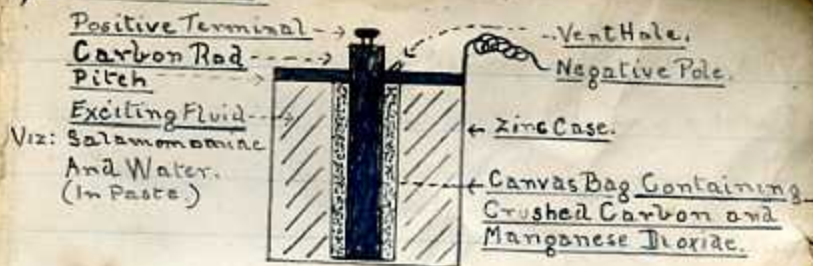
ALTERNATING CURRENT is generated in two ways, i.e. "MAGNETO" or "TRANSFORMER".

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CONTINUOUS CURRENT is generated by a dynamo or chemical action.

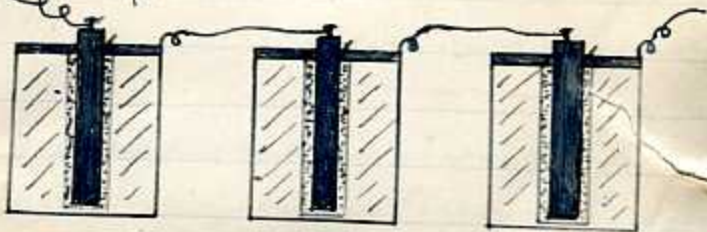
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## A DRY CELL.



The action of a cell, when two conductors each of different material are placed in a chemical solution which is capable of acting on one plate a current is said to be generated

## BATTERY.



To connect up a series of cells to form a BATTERY, connect positive to negative, cell to cell. this method increases the voltage in proportion to number of cells so connected but does not affect the Amperes

The two best irritating or exciting fluids are Bi-cromate of Potash, and Salammoniac Crystals.

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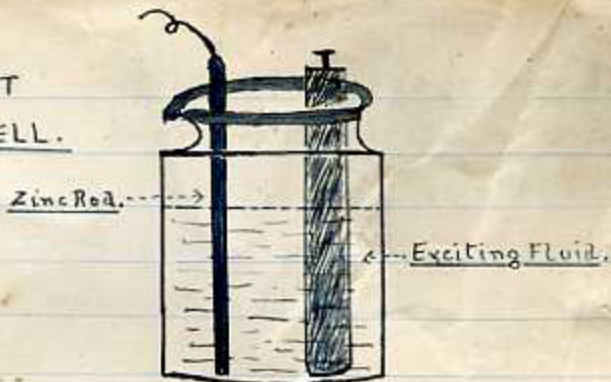
There are two Poles to a cell: The Positive that which is usually made of Carbon and which conducts the current generated to the path chosen. and the Negative which is usually of Zinc (rod, plate or case) and is the material attacked or corroded by the chemical solution (or paste) most.

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An exciting paste is usually composed of Flour, Plaster of Paris, Salammoniac and Glycerine

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WET  
CELL.



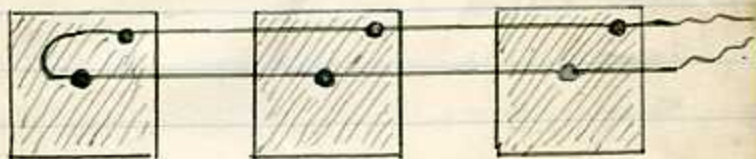
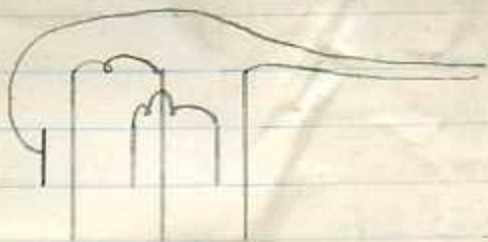
The common wet cell consists of an exciting fluid (Sal ammoniac and Water) into which is introduced a Zinc bar or rod and a Carbon Plate

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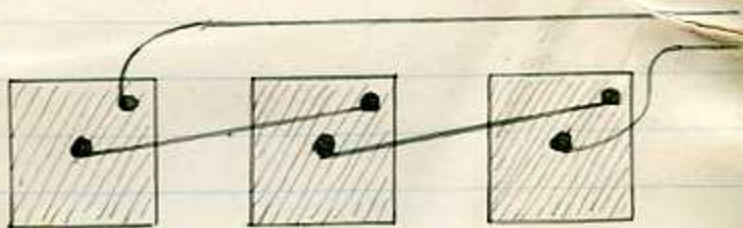
ARMY TYPE OF DRY CELL. "S."



PARREL WIRING of CELLS.

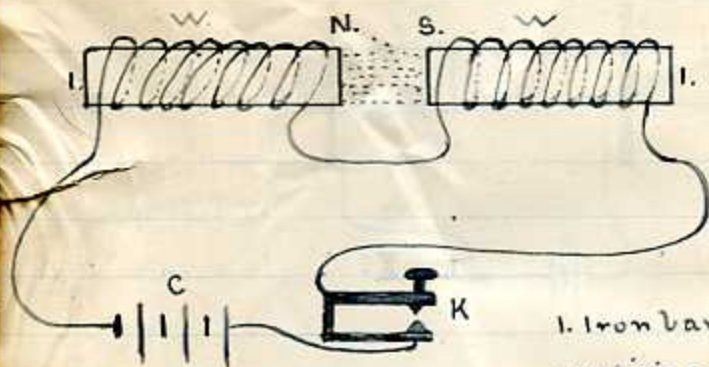


SERIES WIRING of CELLS.

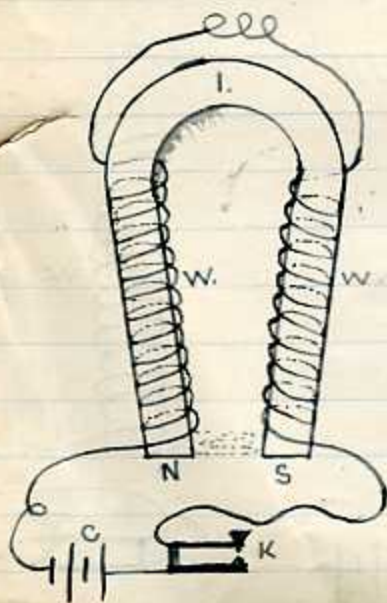


# ELECTRO MAGNETS.

(3)



I. Iron Bars  
 W. Wiring  
 C. Cells.



(4)

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

## 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

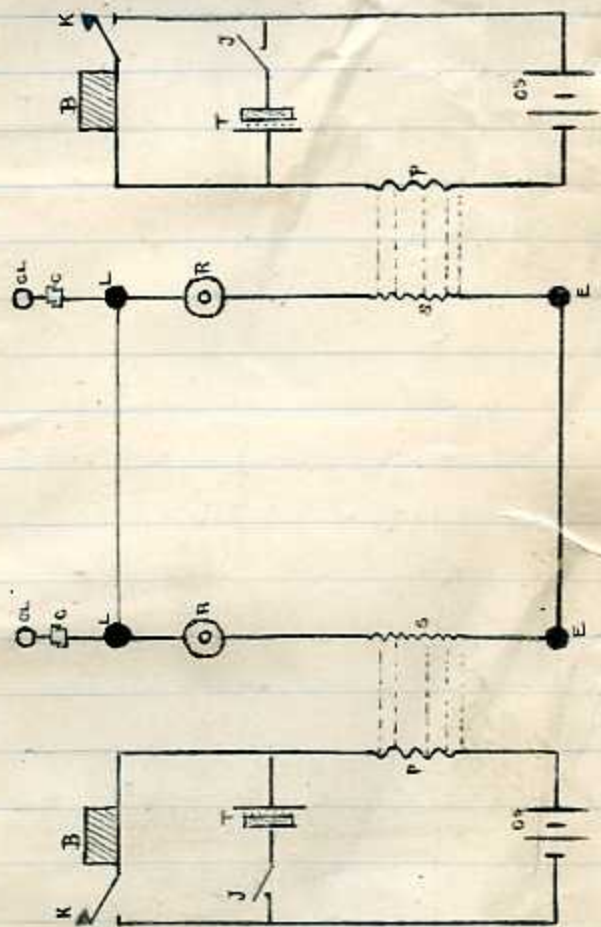
B... Buzzer

J... Key (Pressel Switch)

E... Earth Terminals

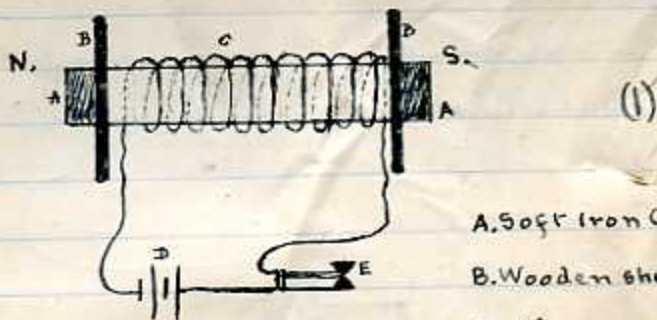
CS... Cells

L... Line Terminals

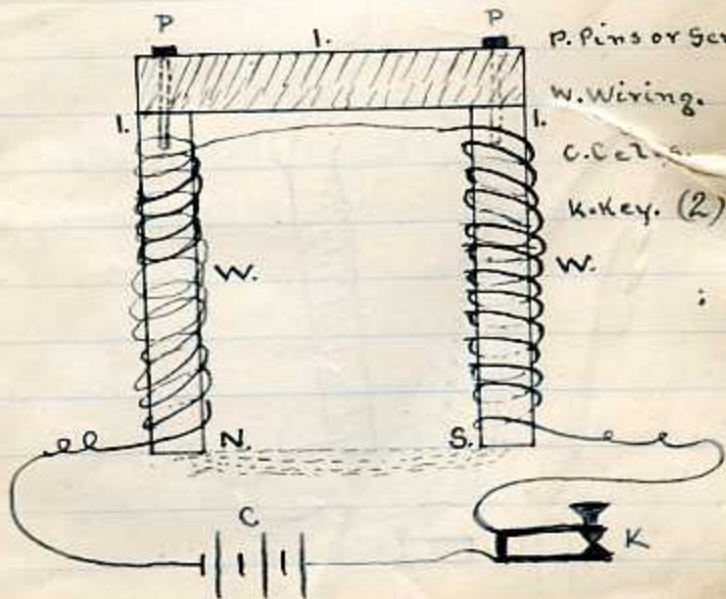


# An Electro Magnet.

(Various kinds)



- (1)
- 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)

## 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 Electro Magnet 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.